- **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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- **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
- **Groundwater, where this is environmentally safe.** The Australian government provides a lot of information on the ecological impacts and groundwater usage.[12]

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

References and Notes

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Kind regards, Signatur[redacted] Date: 16/8/20

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: Richard Freeman

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]
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- **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
- **Groundwater, where this is environmentally safe.** The Australian government provides a lot of information on the ecological impacts and groundwater usage.[12]

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Kind regards, Signature: [redacted] Date: 16-8-20

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: MAGNUS DEAN

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]
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- **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]

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- **Contingency planning** would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
- **Groundwater, where this is environmentally safe.** The Australian government provides a lot of information on the ecological impacts and groundwater usage.[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.

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<https://www.environment.go[redacted]ndwater-drawdown>

Kind regards, Signature: [redacted] Date: 16/8/2020

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: Joy WINDAW

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)
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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:

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Kind regards, Signature: [redacted] Date: 16-8-20

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: Kelly Freeman

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.
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Kind regards, Signature: [redacted] Date: 16-8-20

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: Sayen Zahora

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.
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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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- **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.

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Kind regards, Signature: [redacted] Date: 16.8.2020

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: Andrew Jones

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)

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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.

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Kind regards, Signature: [redacted] Date: 16/8/20

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: ANIKO PAAP

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.
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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.

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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.

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Kind regards, Signature: [redacted] Date: 15/8/20

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: Bruce Mog

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]
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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]

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Kind regards, Signature: [redacted] Date: 06/09/20

Received over the counter

8 SEP 2020

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: Therese Hadley

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)
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Kind regards, Signature [redacted] Date: 6-9-20

Received over the counter

8 SEP 2020

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: George Pick

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.
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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.

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Kind regards, Signature: [redacted] Date: 6/9/20

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: PAUL REYNOLDS

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)
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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)

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Kind regards, Signature: [redacted] Date: 6/9/20

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: Malvoena Martyn

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]
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I SUPPORT these alternatives:

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Kind regards, Signature: [redacted] Date: 6/9/20

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: P. Allen

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:

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Kind regards, Signature: [redacted] Date: 6 Sept 2020

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: Bob Harrison

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]
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(12) Department of Agriculture, Wate[redacted]*mpacts of groundwater drawdown? | Department of Agriculture, Wa*[redacted]020, <https://www.environment.gov.[redacted]f-groundwater-drawdown>

Kind regards, Signature: [redacted] Date: 6 Sep 20

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: CASSANDRA RICHARDS

Address: [redacted]

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

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

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

I SUPPORT these alternatives:

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

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

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

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

References and Notes

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Kind regards, Signature: [redacted] Date: 6/09/20

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: Frances Lowe

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)
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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.

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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.

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Kind regards, Signature: [redacted] Date: 6/9/20

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: Rhonda Ellis

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.
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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:

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Kind regards, Signatur[redacted] Date: 6/9/20

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: ALESSANDRO LUZI

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.
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Kind regards, Signature: [redacted] Date: 06/09/20

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: Darcy Marum + Katrina Trum

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]
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(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).

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Kind regards, Signature: [redacted] Date: 06/09/20

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: Romaine Lawley

Address: [redacted]

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

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

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

I SUPPORT these alternatives:

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

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

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

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

References and Notes

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Kind regards, Signature: [redacted] Date: 5/9/20

Received over the counter

8 SEP 2020

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: Christopher John BANFIELD

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]
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- **Higher prices for consumers due to a 4x increase in the cost of water.** Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
- **The small population increase** predicted for the four Rous-supplied councils of 12,720[5] between 2020-2060 **does not justify** such a large and destructive dam. The dam risks 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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- **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.

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Kind regards, Signature: [redacted] Date: 4th Sept 2020

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: Catherine Daley

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.
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I SUPPORT these alternatives:

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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.

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Kind regards, Signature: [redacted] Date: 16/8/2020

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: KIAH OOSTERBEEK

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.
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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:

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Kind regards, Signature: [redacted] Date: 6.9.2020

Received over the counter

8 SEP 2020

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: Georgina R. Ramsay

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)
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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".

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Kind regards, Signature: [redacted] Date: 27.8.2020

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: Ronald Matthews

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.

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Kind regards, Signature: [redacted] Date: 27/8/2020

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: Vincent Malone

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.

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Kind regards, Signature: [redacted] Date: 6/9/20

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: ALISON TREMAIN

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)
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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)

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Kind regards, Signature: [redacted] Date: 6/9/20

From: David Newham
To: Records
Subject: Future water strategy submission
Date: Tuesday, 8 September 2020 2:02:38 PM

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

I submit this request to all members of Ross County Council and hope that you will agree not to build a new dam. I live adjacent to [redacted]. As such, my property lies in a dangerous position should there be a major flood. I have lived on this property (known as [redacted]) for forty years. During this time I have had to cope with numerous floods. I have learned that relying on authorities such as L.C.C. or Rous C.C. is futile. The drains on the road are rarely inspected and cleaned - and I must clean them myself (difficult to do when your nearly 80y.o.). And as for the creek, Rous and Landcare have poisoned the large Camphor trees and left them standing. Now they fall as a result of the floods and bring down large rainforest trees - a current example lies under Simes bridge - approx. 5m long and 2m diameter. This blockage causes the flooding creek to rise - endangering my family and property. I presume that Rous is unaware of this problem - as the tree has been there for over a year and nothing has been done to remove it. Now, imagine this tree gets into the new dam and blocks off the spillway. The water in flood must rise - my property and the lives of my family are seriously endangered.
Please don't build a new dam. I submit this request - and use my personal concerns to support this submission.
I am Mr. David Newham, [redacted]

From: Eden Yeigh
To: Records
Cc: [redacted]
Subject: The Dunoon Dam, Future Water Project 2060 IMPORTANT
Date: Tuesday, 8 September 2020 2:08:12 PM

Eden Yeigh, 19 years old
[redacted]

I absolutely do not support the proposed Channon-Dunoon dam as it is an absolutely awful loss of opportunities for you guys and the community, and I believe the indigenous landmarks and burial sites around that region desperately need to be protected.

I could list a million reasons why this is not a good idea, and i believe you guys know them all, this may be the simplest and cheapest option but it is the laziest, and the least effective or efficient in the long run.

I doubt you guys want this project attached to your career, it's really the wrong thing to do - listen to the community we're here to help, we only want the best for our animals, our land, and our people.

Thank you for the time taken to read this email.

- A concerned young adult

From: David Newham
To: Records
Cc: [redacted]
Subject: Future Water Strategy Submission
Date: Tuesday, 8 September 2020 2:27:40 PM

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

Dear Councillors,

Thank you for extending the submission date for the Future Water Strategy, I would like to vigorously opposed the construction of a new dam.

My husband David and I have lived close to [redacted] for 40 years. I feel very fortunate to have raised our daughters here and they have grown up with a love and appreciation of nature. I feel very concerned and worried about the consideration of a new dam at The Channon/Dunoon area which I am sure will impact on Whian Whian Falls and our precious [redacted] which is close to our dwelling. I have seen the creek change over the years with the 'various floods' and wonder how another dam downstream will affect the ecological system. The amount of money $250,000,000 could be better spent on fixing our current systems using more up to date scientific ideas e.g. fixing leaks and using more household water tanks and educating people to use water more wisely.

Please consider this huge decision with the upmost care.

Kind Regards
Faith Newham
[redacted]

From: christine wynyard
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 2:28:11 PM

Christine Wynyard
[redacted]

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

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

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

I have enjoyed the rainforests, creeks and wildlife in the northern NSW region for over 25 years.
I cannot describe my 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 agree with everything outlined below and:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

I SUPPORT these alternatives:

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

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

● **An investment in system-wide water efficiency and strong demand management.** Analysed, costed and deployed, creating jobs. (We understand Rous has *not* costed this in creating their future water plan) Existing research over the past decade consistently finds that

the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.[7] [8] Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.[9] (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

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

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

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

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

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

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

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

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0 (2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011 (3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011 (4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (5) NSW Department of Planning, Industry and Environment 2019, *'NSW population projections* ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> Scroll down to "Local Government Factsheets". (6) Environmental Flows

Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia. (7) The Rous Regional Water Efficiency Program 1997, *Final report of the Rous Regional Demand Management Strategy : preferred options*, Rous County Council, Lismore. (8) Watson R., Turner A and Fane S 2018, *Water Efficiency and Demand Management Opportunities for Hunter Water*, Institute for Sustainable Futures, Sydney. (9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides) (10)Kahn,Stuart and Branch, Amos 2019, *Potable water reuse: What can Australia learn from global experience?,* Water Research Australia Limited, Adelaide. (11)Windhoek Goreangab Operating Company (Pty) Ltd 2020,*Our history | Wingoc,* Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/> (12)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous). (13)Australian Government Department of Industry 2013, Science, Energy and Resources, *Rainwater | Your home*, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater> (14)Department of Agriculture, Water and the Environment 2018, *What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment,* Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr awdown>

From: Erik nest
To: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 2:30:46 PM

To whom it may concern:

I Sam Nest would like to voice my opposition to the construction of a dam in the Channon/ Dunoon. I appreciate that you are taking initiative to forestall water shortages before they occur, however you are simply employing outdated means.

To start with the construction of a dam is permanent. Once it has gone in you can not in retrospect realise the waste of natural environment and reverse the decision.

An audit on current water usage can tidy our water usage right up. Sydney jumped on board with this endeavour and found it to be the most economical solution for the consumer for the environment.

I grew up in rural Qld and therefore had to rely on rainwater catchment and storage for all household water usage. In so doing I grew up with water management and water economy in mind. To simply have a near infinite supply of water is only going to encourage inefficient use of water by both households and industry.

Rainwater tanks for household and industry will greatly reduce the need for such water reserves. All new construction projects can and should be required to install rainwater tanks to both increase independence and raise awareness to water usage.

Tanks can and should also be fitted to existing building infrastructure where possible as a means to the same end.

Tanks also reduce water runoff. As an individual who's business was submerged under 2500mm of water three years ago I can attest that slowing and pre-emptively catching water runoff simply makes sense.

We as a species need to learn to live within our means and within the means of our environment. Simply put to rob nature to satisfy our growth is completely outdated. There are countless animals who's home is under threat from this construction. We are not the only species with a claim to life and real estate in this world. If the model of chopping up mother nature for our convenience continues uninterrupted where does it end? We need to think outside of the box and we need to start doing so yesterday.

Regards

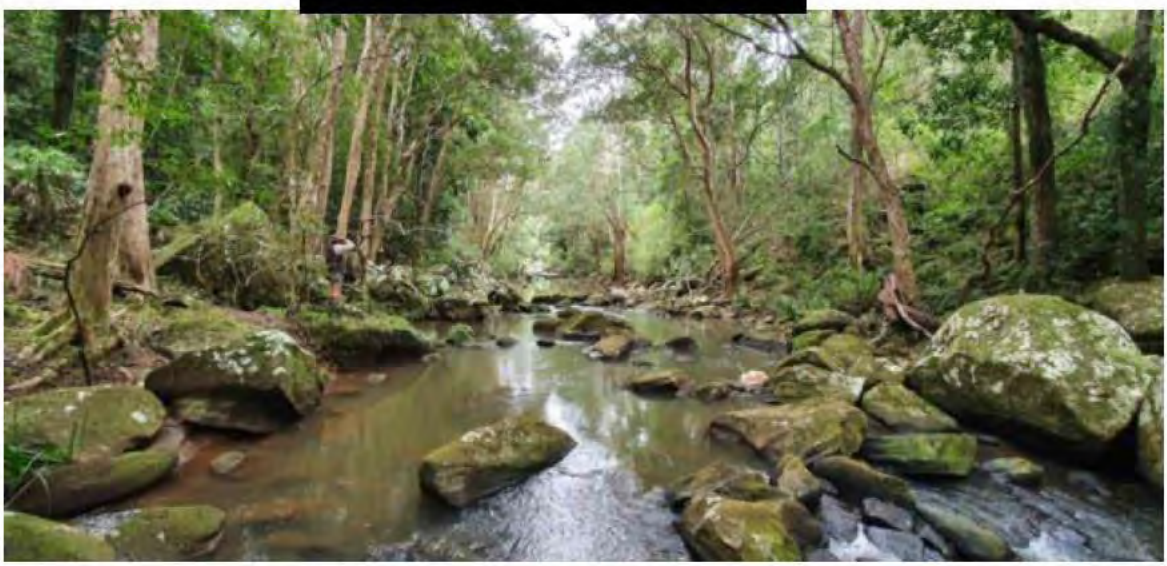
Sam Nest

Sam Nest
[redacted]

From: Jally Hawthorn
To: [redacted]
Subject: Objection to Dunoon/ Channon Dam
Date: Tuesday, 8 September 2020 2:35:00 PM

Submission Against the Proposed Dunoon/Channon Dam

Jill Hawthorn
[redacted]



Firstly I'd like to thank you for the extension of time to submit this feedback, the amount of information I needed to read and understand has been huge. I appreciate the difficulties of Rous County Council structure -being the bulk water supplier and not having control of the entire journey of water from Rocky Creek dam to my tap. I have some sense of the limitations that Rous County Council structure has on your job of providing water to the region.

I only drink few litres of water each day and use a minimum amount for cooking and showering , I'm upset the vast majority of the 160litre of potable water I use each day, could come from another source. A quarter of my water use goes onto my garden, there must be a better alternative than wasting precious drinking water.

Inefficiency of present System- Leaks/Rebates

There is a lot of leakage in our water system , Rous acknowledged this to be 17%. Some council's infrastructure is better the some others and their forecast targets to reduce waste are not included in calculating the need for demand. To put it bluntly "there is something broken when the organisation required to supply our valuable water (Rous C.C.) can't stop it being wasted by reticulation (local) councils."

Encouraging household to have water tanks is one way to improve demand on our water system. Water tanks are described by W.White in 2009 (Decentralised Enviromental Technology Adoption) as "attractive because it offers households access to control over augmented water supply. It also constitutes a form of demand management on mains water

supply and offers beneficial externalities to the environment" I know that there is a rebate system for tanks however I believe the budget $60,000pa and KPI of 65pa is not enough when there has been 139 applications in the last financial year.

Time to invest in a system-wide audit

We are using old technology and small budget when it comes to leakage reduction and pressure management , only $10,000pa in a 50:50 partnership with councils. Our sewage sanitation system -it was in 1851 when George Jennings invented the water closet, thats 169 years ago. Surely we can do better than flushing quality drinking water down the toilet. A large scale water efficiency prog 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 reducing regional energy use, reducing business costs, and creating employment and up-skilling opportunities.

I have other important concerns including destruction of EEC lowland rainforest and farmland and Indigenous cultural heritage, however I will let others detail these areas of concern.

my main references are from Rous website:

Future Water Project 2020
Demand Forecast 2020
and
Rous Water supply augmentation proposal -brief review- S.White
Rous Sustainable Water Program:Towards a secure, reliable and affordable water future -S.White 4/9/20

From: Tarryn Corlet
To: Records
Cc: [redacted]
Subject: Submission: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 2:35:28 PM

Tarryn Corlet
[redacted]

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

Dear Rous Councillors and General Manager,

I am a disability support coordinator, postgraduate student and mother of two living in [redacted] I love the natural environment in the Northern Rivers and would love to preserve it for my children. I believe that, as our elected representatives, your duty is to protect us from environmental destruction.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

I SUPPORT these alternatives:

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

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

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

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

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

References and Notes

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

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

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

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

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

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

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

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

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

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

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

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

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(14) Department of Agriculture, Water and the Environment 2018, *What are the ecological impacts of*

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

Feedback on Rous County Council's Future Water Strategy

Daniel Peterson [redacted]

Note: I DO NOT support Rous's proposed Channon-Dunoon Dam

Executive Summery

In Part 1 I establish that you (Rous) have a greater responsibility to our community than to commercial interests. By consequence you must prioritise the use of your bulk water over the delivery of that water. In Part 2, your contribution to population management is encouraged and other strategies such as a system-wide audit needs to inform your renewed and re-budgeted demand management plan, including scarcity pricing and legislative capacity for mandatory water use limits. Pitched against your culturally, ecologically, and socio-economically 'offensive' proposal to dam the Dunoon gorge, Part 3 will canvas the Byron desalination alternative by responding to common issues raised: brine, costs, filters, and energy use. Finally, in Part 4, I offer a hypothetical scenario of contaminated dam water, to highlight the ultimate vulnerability of your 'Dunoon Dam' idea.

Part 1 of 4

Introduction

Thank you for approving an extension of time for the submission period. I also acknowledge the complexity of what Rous does to provide bulk drinking water throughout our region.

Water security is central to our 21st century. We must get this right, but your proposed Dunoon Dam is not the way to do it. Dams have been very important in the water security of last century. Dams will continue to be one vital and relevant part of future water security. But dams and the thinking behind them, are also deeply subject to a context of continually improving science, technologies, materials, and engineering in the bulk water supply industry; which are delivering a suite of modern systems fit for the 21st century.

Philosophically, you (Rous) must expand your thinking about the many ways in which your reliable bulk water supply relates directly to all aspects of community planning. It is not good enough for you to simply assume your mandate of delivering bulk water, and take this as the limit of your responsibilities. We the community, relate to you as a specialist and professional local Government body, but **you must find a way to relate to us**. Simply fulfilling your legislated input is NOT a form of relationship. Instead, I'm asking you for your professional input into our community's needs – MORE than your legislated responsibility. This is why, your future water strategy must prioritise the use of water, over the delivery of water alone.

You can do better than a cost analysis – you can do a lot better. The reason I say this with such confidence, is because despite us all paying for it, your bulk water is NOT a commercial product! And you are NOT a profit-driven company! And local population projections are NOT your predicted customers! When you present yourself in a commercial profit-driven way, it comes across as very offensive. While the commercial context is great, community is greater.

Your proclamation to 'supply' bulk water is ONE part of your responsibility. As a member of our community and a Government agency you are <u>equally</u> responsible for the 'demand' of that water – the 'service provider' role you refer to in your *Customer Service Charter*. You may at times, find it easier to think of yourself as somehow separate to us, but in fact, you are as much a part of us as anyone in the community. And receiving feedback on your *Future Water Strategy* is an intimate opportunity for you to remember, embrace, and truly empower yourself with the only authentic mandate from the only real community to whom you belong.

In Part 2, I will highlight a few aspects of your current thinking which are of particular concern. Followed by Part 3, which will urge you to reconsider the option of the Byron desalination plant. Part 4 offers a short cautionary hypothetical scenario. I finish with my references.

<u>Part 2 of 4</u>

Population

It's my view that you (Rous) are never going to accurately or professionally address future water security until you can actively join in a "shared responsibility"[i] with us[ii] about what we all want our future human population to actually be – a target. Without an intentional target, we are proceeding into the dark, clutching at straws, believing that a project's financial accountability alone, is good enough: wrong!

If we can responsibly and consciously plan our community's future population target, then we will by definition, be in <u>full control of future water demand</u>. And thus, enjoy full conscious control of future supply needs. As I said above, I do not see your role as being simply responsible for a projected supply/demand scenario, but rather I see you as a leader in the critical decisions that we make as a whole community, and particularly about the sustainable population numbers that we want.

Notwithstanding, you need to be more transparent about your thinking behind suggested projected water demand. It troubles me, that you seem to consistently attribute demand with your bulk water 'connections' yet at the same time, you fail to explicate how exactly you've arrived at your projections. It's not good enough to refer us to our Local Councils and their projections[iii], or assume census based statistical data[iv], and then claim somehow that these projections constitute a prediction. There's a big difference between a projection and a prediction, and I will not allow you to pretend they're the same thing, or try to justify huge 'white-elephant' expenses on an implied projection, inferred as prediction.

You claim you're going to require an additional 5 thousand megalitres of water per year, as at 2060, based on a projected 42% increase in connections over the next 40 years[v]. If we're presupposing a direct correlation between your 'connection' numbers and our 'population' figures, I could refer to the *NSW Department of Planning, Industry and Environment* 2019 figures which actually suggest a population increase of under 12% over the same 40-year period[vi]. A casual reading of this may interpret your projected demand as an error.

As I've said above, without the certainty of an actual *prediction*, we need to put bulk water supply second to the demand for that water first. Sincerely I ask: Is your proposed Dunoon Dam, planning for, or actually generating, future demand?

Demand Management

On the global stage, we as a country exhibit poor efficiency demand management. Although we have 'improved' from being the 2nd highest fresh water consumer per capita in 2014[vii] to being the 6th highest consumer of fresh water per capita in 2017[viii] (a trend corelating with increased water restrictions and decreased water availability for agriculture[ix]) it's not a particularly prominent source of pride for the driest inhabited continent in the world[x].

Domestically, the costs associated with delivering water has not risen out of proportion to population trends[xi]. While the average Northern Rivers resident consume water at 194 litres per person per day[xii], a rate somewhat higher than the average in all South East Queensland (163) and Melbourne (151)[xiii]. A statistical review of water use is a sobering exercise when we consider good human health is sustained by less than 3 litres per day. We can all do better.

You need to reverse your apparent budgetary trend of de-funding[xiv], and drastically increase your resource allocations for your *Regional Demand Management Plan*. In fact, you need to fund a system-wide detailed audit of every individual end-use application for your bulk water. You need to focus specifically on your biggest water users, with particular focus on your agricultural/horticultural connections, as this sector represents, by far, many times greater consumption than other sectors[xv]. Though also including your industrial/manufacturing connections; every educational institution (primary, secondary and tertiary schools); and all hospitals.

Your audit needs to be done with a view and mission of installing any and all changes for reducing levels of your bulk water demand; including making rainwater collection for toilet/laundry/outdoor use compulsory by law. By focusing on your biggest water users, you are also setting examples and precedents for mandatory water saving measures that you need to be implementing for every water user. Despite initial commentary from your Rous Chair discrediting this approach[xvi], the fact remains that experience demonstrates this is the cheapest[xvii] and fastest way to ensure supply-demand balance[xviii]. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption[xix]. With adequate consultation and proper planning, you can do this too.

> [Your prior investment in demand management has been] "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" (S. White 2020)[xx]

Many years of demand management incentives, encouragement, competitions, subsidies and grants have demonstrated loudly and clearly that user responsibility for water use is unfortunately not effective while in the form of a voluntary strategy. Moreover, I firmly agree with R. Swinton (2020) that Councils' "advice to limit [tank] water to secondary use works against acceptance of tank use"[xxi]. In other words, you MUST now consider how you are going to make water use efficiency strategies (such as tanks[xxii]) compulsory in legal terms. Part of your budget needs to investigate to process for legislating compulsory water saving measures. You CAN refuse supply, if a users' demand is not in-line with our community's standards – which are also your standards. Access to drinking water is a human right, but equally, wasting drinking water is a crime.

Pricing

Another demand management tool, is 'scarcity pricing'. Best practice water supply pricing requires utilities to provide strong pricing signals to encourage efficient water use[xxiii]. Other water authorities, with encouragement from regulators[xxiv], have already implemented such pricing schemes[xxv]. And in fact, as you know, two of your four constituent Councils (Richmond & Ballina[xxvi]) can administer at least some form of pricing threshold for water users.

It's really not conceptually difficult, and with adequate resource allocation, I have no doubt, that you can implement and administer an appropriate pricing system fit for contemporary society and the water scarcity issues of 21st century Australia[xxvii]. I agree with the *NSW Independent Pricing and Regulatory Tribunal* when they say they want to send users a "pricing signal on the value of water"[xxviii]. At the moment, the signal that you're sending to your users is that wasting water does not matter. But experience in Australia shows us that scarcity pricing works[xxix]. Again, it's really just about finding the organisational capacity to actually manage demand, rather than simply satisfy demand.

The second part of my feedback has emphasised a system-wide audit in order to achieve your consciences experience of (and actual control of) supply-demand balance. If you cannot, or will not, work with your existing connections to find the necessary water savings, then my feedback sees no other option, than to offer you a referenced alternative bulk source of bulk drinking water.

Part 3 of 4

Context

Apart from your apparent (Rous's) wilful disrespect towards tens of thousands of years of ancient cultural heritage[xxx] and endangered lowland rainforest ecology[xxxi], the most offensive aspect of your Dunoon Dam proposal is your implication that hinterland landscapes, communities, and ecologies can be sacrificed for the benefit of coastal urban development.

This implication is deeply divisive on many levels and comes across as a typical manifestation of a disparity of political power in action. I say this, based on existing socioeconomic disparity among your constituent Council LGAs[xxxii] – that is, the intrenched divergence of a rural working-middle class inland zone (Lismore & Richmond Valley), and an urban middle-upper class coastal strip (Ballina & Byron)[xxxiii]. Indeed, experts in the field such as R. Reddy (2009) warn that water is increasingly becoming a political good rather than an economic or social good[xxxiv]. Please do not allow yourself to become subject to Australia's east-coast political interests, commercial incentives, or developmental pressure coming from the wealthiest of domestic and international cohorts. You are a very valuable part of our local community and we are relying on you to honour your professional place among us, by standing upright for our whole community – especially those who actually live here, as you do.

I also note that 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."[xxxv]

The best way to provide more bulk water for coastal communities is to work with those coastal communities. Fortunately, we live in an age when a suite of options exists for sourcing bulk water from within the community who actually require it, when they require it[xxxvi] for example:

- Water reuse
- Storm water harvesting
- Groundwater when environmentally safe
- Atmospheric water generation

Specifically, it is my view that within the scope of your *Future Water Strategy* 2060 the option of the Byron desalination plant needs to be further investigated by you and taken seriously.

Alternative

Popular media often tries to balance perceptions of pros and cons of desalination[xxxvii], as one would expect with any emerging technology. In my assessment, desalination offers you the most CONTROL over bulk water supply. Indeed, others in Australia are currently using desalination simply to produce food[xxxviii].

As you've already identified[xxxix] the best location of a desalination plant is in the industrial precinct of Byron Bay, alongside the existing sewage treatment plant. Byron Bay was recently subject to water restrictions[xl] and this location has the potential to supply Byron's entire current and projected bulk water needs[xli]. Indeed, desalination technology is proven throughout the world[xlii] as an on-demand solution to ever changing water consumption patterns[xliii].

Brine

Most critics are weary of environmental threats due to the by-product known as 'brine', and rightly so. Brine is a concentration of sea salt, and the chemicals which are used in the desalination process for maintaining internal surfaces and process efficiency. However, this concern is mainly founded on the inherent lack of research which comes with emerging technologies. Indeed, water resource engineer P. Roberts responds by describing the issue of brine as a "red herring"[xliv].

In particular, one of our State's most recent research projects into this issue, actually revealed increased marine life as a result of desalination's brine[xlv]. Dispersal jets referred to as 'duckbill' nozzles can be used to provide adequate dilution[xlvi]. Furthermore, I note your Byron desalination investigation specifically suggests a merger of desalination brine waste with Byron's existing sewage ocean outflow[xlvii].

Costs

Traditional surface-water dams often seem to be the cheapest option for bulk water supply. However, what may appear to be economically convenient is not always the best option. Times change, technologies change, social expectations change, and our cultural values change over time and they always will.

I note your Byron desalination investigation nominates two comparable plants in Australia: **Agnes Waters, QLD**[xlviii] producing 1.5MLD at a cost of some $41m[xlix] ($27.3m/MLD) at 2010 prices and **Belmont, NSW**[l] initially producing 15MLD at an estimated cost of $100m[li] ($6.7m/MLD) at 2019 prices. This trajectory of cost per MLD is generally in agreement with other plants[lii] and your indicative estimation of $55m (5.5m/MLD) for the 10MLD Byron desalination plant at 2020 prices. The cost trajectory suggests a slight downward trend – in tune with improving desalination technologies[liii].

The *Australian Water Association* cites the cost to users as follows: "For large-scale municipal seawater desalination projects in Australian, the approximate range is $1-$4 per kilolitre"[liv]. Your current retail water charge of $2.43 per kilolitre[lv] and your wholesale price to constituent Councils of $1.66 per kilolitre[lvi] paints a picture of existing 'cost of production' being at least on-par with the 'cost of production' for desalinated water. Moreover, your own staff have disclosed that the Dunoon Dam would actually increase the cost of supplying water by as much as "four times"[lvii].

If you're going to maintain an argument describing desalination as being not financially viable or a 'white elephant'[lviii] you will need to articulate that argument much more clearly. Indeed, we all need to see a full comparative 'net present value' analysis, before predicting true comparative desalinations costs. Not looking does not constitute not seeing.

Given an indicative Dunoon Dam cost of over $220M I do not consider desalination as excessively expensive, especially given the security of reliable, quality bulk drinking water. Just as desalinated seawater can be produced at incremental rates in proportion to demand, so to, can the cost of desalination be staggered over a period of projected increased demand. This factor quietly deflates the economic risk of allocating budget for future demand projections which may not actually come to pass.

Some extra money spent now on desalination infrastructure, may well actually save a lot of money over the long term. In any aspect of Governmental procurement: What appears to be the most convenient option is rarely the best possible solution. I believe that in economic value for money terms, you can and should, do better than the Dunoon Dam option.

You might feel concerned by the Byron desalination plant's relative expense, but it's worth the money, for a far superior project outcome, compared to the cheap-and-nasty option represented by out-dated dam technology. In my mind, the cost of desalination is just as manageable as any other municipality scale infrastructure development.

I think your proposed Dunoon Dam option, represents an easiest possible option for you, because it absolves local Councils from their 'user' responsibilities. My feedback is that our community will not settle for what's easiest for you, because we believe there's more important things in life than costs alone.

Filters

Another contentious issue is the perceived waste generated by virtue of the filtering membranes used in standard seawater reverse osmosis desalination plants. Traditionally, these desalination plants have used polypropylene 'blown cartridge' material wound over a rotating spindle[lix]. Indeed, those traditional types of filters have been a pollution issue[lx] alongside concerns of microplastics generally[lxi]. However, the most up-to-date desalination plants are utilising titanium membranes[lxii], 'cross-flow' filters[lxiii], and other advances to achieve advanced 'clean-in-place'[lxiv] methods for vastly increasing the life of reverse osmosis filters[lxv] far beyond your already anticipated 5 yearly replacement cycle[lxvi].

Some Australian water filtration companies have already commercialised these systems[lxvii]. In this sense, modern seawater desalination filters are effectively **reusable**, eliminating previous problems associated with plastic pollution and the perpetually discarded filters which were once a part of the industry's infancy.

Energy

Energy use is also a perceived issue. Traditional water treatment processes (think dam water) uses about 1kWh per cubic meter of drinking water (per Kl), in comparison desalination plants world-wide can have energy consumption at rates of up to 10kWh per Kl of drinking water. However, the most modern examples of desalination are now achieving rates of as little as 2.5kWh per Kl of drinking water[lxviii]. The downward trend should be obvious, and a post-fossil energy future beckons a range of renewable energy sources for desalination[lxix].

Given the limited electricity supply from the Ewingsdale substation[lxx] I am proposing the use of photovoltaic solar electricity as the primary energy source for the Byron desalination plant, in line with common desalination plants throughout the world[lxxi]. Though you may also want to consider other forms of solar powered desalination as well[lxxii].

For the purpose of this feedback I could use an energy consumption rate of 3.6kWh/Kl which is derived from equivalent coastal desalination technology currently in use at South Australia's *Adelaide Desalination Plant*[lxxiii]. However, to be fair, desalination plants are often attributed with energy consumption of between 3.5 and 5kWh/Kl[lxxiv] so with this in mind I will take your own assessment of 4kWh/Kl of required energy[lxxv]. Moreover, your own desalination investigation nominates a 10MLD (Mega-Litres per Day) production quantity which is a fair compromise between current and future (2036) drinking water demand for the population "in the area" of Byron Bay[lxxvi]. Given you're projecting an overall need for an additional 13.7MLD (over current demand of 31MLD)[lxxvii]; I therefore infer that your investigated desalination plant, as it is, would produce 73% of your own *Future Water Strategy's* projected bulk water requirements; on par with your Dunoon Dam proposal. Generic calculations:

- 10,000 X 4 = 40,000kWh/D (14.6gWh per year) of energy required (as above)
- 180W/m² (18% efficiency)[lxxviii] over 4.5kWh/D[lxxix] = 0.81kWh/D/m² solar production
- 40,000 ÷ 0.81 = 49,383m² or approximately 5 hectares of solar 'farm' space required[lxxx]

The above calculation illustrates a simple fact that your required bulk water could be supplied by either the 253 hectare[lxxxi] footprint of your Dunoon Dam, or you could supply the same required bulk water with a 5 hectare footprint of solar panels for your Byron desalination plant. That's equivalent of a desalination footprint under 2% of the Dunoon Dam footprint.

But I can hear you saying it's not that simple: what about solar power's intermittency? In response, I urge you to carefully consider the following scientific report from the Europe Commission last year:

> "… the benefits of energy storage in batteries and/or water reservoirs are usually higher than its costs. This suggests that water management policies could consider desalination more broadly and encourage PV-based RO, as a possible win-win and cost-effective strategy to improve water and energy resources security."[lxxxii]

While research is ongoing[lxxxiii] some desalination plants are currently operating with stored renewable energy[lxxxiv] and there's no reason why you cannot do that here in Byron Bay also.

My vision is that the Byron desalination plant will effectively (not literally) disconnect Byron from the Rous bulk supply network, in effect, freeing up current bulk water sources for the remaining network.

Part 4 of 4

Caution

Here's one example of what could happen:

> Let's say you've built the Dunoon Dam, and it's the year 2040. As predicted, another 20 years of increasing temperatures have also increased the growth of vegetation in the Dunoon Dam catchment, while also the frequency and severity of hot wild-fires. Let's presume the predicted conditions have come to pass, allowing a particularly severe wide-spread hot fire to incinerate the biomass of your Dunoon Dam catchment. The result, is a steady flow of toxic runoff[lxxxv] directly into what you're proposing as our community's primary source of drinking water. The influx of nutrients may cause blue-green algae events and with elevated mercury, iron, and manganese, these serious cyanotoxins significantly slow down the treatment process[lxxxvi]; resulting in unexpected expenses, for delivering what you thought was the most cost-effective solution.

This is just an example, for sure, but my point is that the context within which last century's dams were built, has changed.

Dams are one cheap option, but they no longer offer the control over water quality, that they once did. Environmental, climatic, and social expectations have changed. Furthermore, I have deliberately not mentioned the vulnerability of dams to the threat of terrorist activity[lxxxvii]. Having all your eggs in one basket (or most your water in one dam), might appear affordable, but it's not wise.

Your *Future Water Strategy 2060* needs to provide for your CONTROL over future bulk water supply. Desalination is the premier example of the most reliable, highest quality bulk water supply on-demand. If you cannot achieve supply-demand balance, the best way you can control your future bulk water supply is by taking a known and boundless source (such as sea water) and filtering it (desalination) to the consistent quantity and quality that you require.

Regards,

Daniel Peterson

8 September 2020

References

[i] https://www.pmc.gov.au/sites/default/files/publications/planning-for-australia%27s-future-population.pdf
[ii] Lismore Growth Management Strategy 2015-2035
[iii] https://rous.nsw.gov.au/page.asp?f=RES-AHA-08-73-54
[iv] https://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/3222.0Main%20Features62017%20(base)%20-%202066?opendocument&tabname=Summary&prodno=3222.0&issue=2017%20(base)%20-%202066&num=&view=
[v] This is derived from your "predicted" increase in connections from 46982 to 66922 on page i of your *Demand Forecast* Final Report: https://rous.nsw.gov.au/page.asp?f=RES-AHA-08-73-54
[vi] This projection is derived via Factsheets pertaining to your four constituent LGAs averaged over 20 years, then doubled for equivalency comparison: https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections
[vii] http://www.data360.org/dsg.aspx?Data_Set_Group_Id=757
[viii] https://www.statista.com/statistics/263156/water-consumption-in-selected-countries/
[ix] https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1370.0~2010~Chapter~Water%20consumption%20per%20person%20(6.3.3)
[x] https://www.environment.gov.au/land/rangelands
[xi] https://database.ib-net.org/country_profile?ctry=103&years=2019,2018,2017,2016,2015&type=report&ent=country&mult=true&table=true&chart=false&chartType=column&lang=en&exch=1
[xii] https://rous.nsw.gov.au/cp_themes/default/page.asp?p=DOC-MHV-33-17-88
[xiii] https://abcdiamond.com.au/average-water-use-in-australia/
[xiv] Page I: file:///C:/Users/User/AppData/Local/Temp/Regional_Demand_Management_Plan_2019_2022.pdf
[xv] http://www.fao.org/nr/water/aquastat/data/query/results.html See also: https://www.worldometers.info/water/australia-water/#water-use
[xvi] https://www.echo.net.au/2020/09/rous-county-council-chair-keith-williams-responds-to-annie-kia-and-nan-nicholson/
[xvii] Stuart White 2020: https://www.dropbox.com/s/38zqnfbnwobj6k8/20200904%20Rous%20Water%20RSWP%20v3.pdf?dl=0
[xviii] The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy: preferred options, Rous County Council, Lismore. See also: Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney.
[xix] Metropolitan Water Plan 2006, NSW Government. Exec Summary: https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
[xx] Stuart White, Institute for Sustainable Futures, University of Technology Sydney, 4 Sep 2020 https://www.dropbox.com/s/rak6y23t53kukh6/20200904%20Rous%20Water%20augmentation%20v2.pdf?dl=0
[xxi] Richard Swinton 2020, Clunes, Masters in Ag. & Rural Development: https://www.echo.net.au/2020/07/looking-deeper-into-recycled-water/
[xxii] $220 million dollars - the estimated cost of the Dunoon Dam - could provide more than 73,000 rain water 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).
[xxiii] https://www.industry.nsw.gov.au/water/water-utilities/best-practice-mgmt/pricing
[xxiv] Aither 2017, Urban water pricing reform, Aither Pty Ltd.
[xxv] https://www.smh.com.au/environment/sustainability/sydney-residents-to-pay-less-for-water-until-next-drought-hits-20200615-p552s8.html
[xxvi] Page15: file:///C:/Users/User/AppData/Local/Temp/Rous_County_Council_meeting_agenda_15_April_2020.pdf
[xxvii] https://www.researchgate.net/publication/253778531
[xxviii] https://www.ipart.nsw.gov.au/files/sharedassets/website/trimholdingbay/waternsw_greater_sydney_2015_price_submission_to_ipart_-_frontier_economics_-_scarcity_pricing.pdf

[xxix] https://theconversation.com/why-sydney-residents-use-30-more-water-per-day-than-melburnians-117656
[xxx] https://www.abc.net.au/news/2020-06-19/indigenous-heritage-dam-concerns/12373680 See also: Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
[xxxi] https://www.echo.net.au/2020/07/opponents-of-proposed-dunoon-dam-speak/ See also: SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
[xxxii] Note Page 5: https://www.nsw.gov.au/sites/default/files/2020-05/Northern%20Rivers%20REDS%C2%A0.pdf
[xxxiii] https://www.parliament.nsw.gov.au/researchpapers/Documents/the-richmond-tweed-region-an-economic-profile/E-BriefRichmond-Tweed2.pdf
[xxxiv] Page 26: https://www.researchgate.net/publication/253778531_Water_Pricing_as_a_Demand_Management_Option_Potentials_Problems_and_Prospects
[xxxv] 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
[xxxvi] Consider for example: Kahn, Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide: https://www.waterra.com.au/publications/document-search/?download=1806 See also storm water harvesting: https://www.yourhome.gov.au/water/rainwater and groundwater only where environmentally safe: https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown See also this promising example of AWG: https://www.zeromasswater.com/
[xxxvii] https://greengarageblog.org/12-biggest-pros-and-cons-of-desalination?fbclid=IwAR39bHj9gNJEH6t6iWSg5pyaeK4dI8YOTuIZ9iWcPY79mAPxAZjRFQ_qsFE
[xxxviii] https://reneweconomy.com.au/world-first-solar-tower-powered-tomato-farm-opens-port-augusta-41643/
[xxxix] file:///C:/Users/User/AppData/Local/Temp/Desalination_Investigation-1.pdf
[xl] https://www.miragenews.com/rous-brings-in-level-1-water-restrictions-for-byron-shire-from-7-dec/
[xli] Page 23: file:///C:/Users/User/AppData/Local/Temp/Byron-Shire-Drinking-Water-Quality-Management-System-Rev-3.pdf
[xlii] https://iwa-network.org/desalination-past-present-future/
[xliii] https://www.dni.gov/files/documents/Special%20Report_ICA%20Global%20Water%20Security.pdf
[xliv] https://www.nationalgeographic.com/environment/2019/01/desalination-plants-produce-twice-as-much-waste-brine-as-thought/
[xlv] https://www.smh.com.au/national/desalination-plants-are-a-critical-part-of-our-future-20200128-p53vc3.html
[xlvi] http://watertech.com.au/modelling-brine-dissipation-from-the-proposed-adelaide-desalination-plant/
[xlvii] file:///C:/Users/User/AppData/Local/Temp/Desalination_Investigation-1.pdf
[xlviii] https://www.osmoflo.com/en/markets/water-treatment-for-drinking-water/environment-a-key-priority-at-agnes-water-desalination-plant/
[xlix] https://www.cordellconnect.com.au/public/project/ProjectDetails.aspx?uid=761934 See also: https://www.abc.net.au/news/2013-03-15/council-defends-agnes-water-desal-plant/4575980
[l] https://www.planningportal.nsw.gov.au/major-projects/project/10546 Note as at May 2020 the 'State Significant' Belmont desalination project appears to have made application for a doubling of its capacity: https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=RFI-3467%2120200520T052937.821%20GMT
[li] file:///C:/Users/User/AppData/Local/Temp/Belmont_Drought_Response_Desalination_Brochure_FINAL_WEB_ACCESSIBLE.pdf
[lii] Page 51: file:///C:/Users/User/AppData/Local/Temp/Desalination_Investigation.pdf
[liii] https://wdrc.kaust.edu.sa/Pages/Pub-2020-life-cycle-cost-of-dilution-desalination-in-off-grid-locations.aspx
[liv] http://www.awa.asn.au/AWA_MBRR/Publications/Fact_Sheets/Desalination_Fact_Sheet.aspx
[lv] Table 11: file:///C:/Users/User/AppData/Local/Temp/Rous_County_Council_meeting_agenda_15_April_2020.pdf
[lvi] Page 16 & 92: file:///C:/Users/User/AppData/Local/Temp/Desalination_Investigation.pdf
[lvii] Rous general manager, in response to a question from councillor Ekins.
[lviii] https://www.echo.net.au/2013/06/desal-plants-on-water-agenda/
[lix] https://www.gopani.com/what-is-pp-spun-melt-blown-filter-cartridges/

[lx] Page 187: https://www.planning.vic.gov.au/__data/assets/pdf_file/0026/13499/Desalination_Plant_EES_Inquiry_Report.pdf
[lxi] https://www.intechopen.com/books/plastics-in-the-environment/technological-approaches-for-the-reduction-of-microplastic-pollution-in-seawater-desalination-plants
[lxii] http://theleadsouthaustralia.com.au/industries/manufacturing/filtration-system-launches-titanium-membrane/
[lxiii] https://www.aptaquapure.com.au/new/cross-flow-filters/
[lxiv] https://www.process-worldwide.com/what-is-cleaning-in-place-and-how-does-it-work-a-320588/ See also 9.3.14 Page 90: file:///C:/Users/User/AppData/Local/Temp/Desalination_Investigation-1.pdf
[lxv] https://www.marlo-inc.com/sites/default/files/inline-files/Clean%20In%20Place%20Skid%20Brochure%201-388_0.pdf
[lxvi] Page 92: file:///C:/Users/User/AppData/Local/Temp/Desalination_Investigation-1.pdf
[lxvii] https://athenawater.com.au/reverse-osmosis-cip-cleaning-tasks-and-steps/
[lxviii] https://landartgenerator.org/blagi/archives/5948
[lxix] https://www.nationalgeographic.com/news/energy/2015/02/150202-energy-news-renewable-salt-water-drought/
[lxx] 4.1.2 'Key Issue' on Page 17: file:///C:/Users/User/AppData/Local/Temp/Desalination_Investigation.pdf
[lxxi] https://www.waterworld.com/home/article/14071194/desalination-opportunities-and-challenges
[lxxii] "Solar desalination offers a sustainable solution to growing global water demand due to the geographical coincidence between high solar availability and severe water scarcity": https://wdrc.kaust.edu.sa/Pages/Pub-2020-SSS.aspx
[lxxiii] http://www.awa.asn.au/AWA_MBRR/Publications/Water_e-Journal/SEAWATER_DESALINATION__A_SUSTAINABLE_SOLUTION_TO_WORLD_WATER_SHORTAGE_.aspx
[lxxiv] https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/desalination
[lxxv] https://rous.nsw.gov.au/page.asp?f=RES-BTU-68-43-24
[lxxvi] Page 6: https://rous.nsw.gov.au/page.asp?f=RES-BTU-68-43-24
[lxxvii] Page i: https://rous.nsw.gov.au/page.asp?f=RES-AHA-08-73-54
[lxxviii] 18% panel efficiency & sunlight delivers an "energy content" at 1kw/m2: https://www.rpc.com.au/information/faq/solar-power/pv-modules.html
[lxxix] 4.5 kWh of "solar irradiation per square meter every day, averaged out for the year" delivered by the sun in Byron Bay: https://www.heinzsolar.com.au/the-cost-of-solar-panel-installation-for-a-home-in-byron-bay This has taken into account Byron's 108 clear days/year: https://www.byronbay.com.au/about-byron/climate and Byron's 119 rainy days/year: https://www.experienceoz.com.au/en/weather-and-climate-byron-bay See also: https://www.solarreviews.com/blog/peak-sun-hours-explained And also note 5.3kWh "Average Daily Incident Shortwave Solar Energy": https://weatherspark.com/y/144666/Average-Weather-in-Byron-Bay-Australia-Year-Round#Sections-SolarEnergy
[lxxx] The author acknowledgment is made of some additional space required for panel framework/access and naturally the desalination plant's footprint itself – perhaps an additional ~2 hectares.
[lxxxi] Page i: file:///C:/Users/User/AppData/Local/Temp/Dunoon_Dam_Terrestrial_Ecology_Impact_Assessment.pdf
[lxxxii] Abstract: https://www.nature.com/articles/s41598-019-52582-y
[lxxxiii] https://www.sciencedirect.com/science/article/abs/pii/S0957582017303129
[lxxxiv] https://www.waterworld.com/international/desalination/article/16203428/mft-launches-renewable-desalination-unit-with-battery-storage
[lxxxv] https://e360.yale.edu/features/how-wildfires-are-polluting-rivers-and-threatening-water-supplies
[lxxxvi] https://www.nationalgeographic.com/science/2020/01/australian-fires-threaten-to-pollute-water/
[lxxxvii] Page 5: https://www.waternsw.com.au/__data/assets/pdf_file/0008/68543/REPORT-TO-THE-IPART.pdf See also: https://www.express.co.uk/news/uk/125285/Terror-threat-to-UK-water-supply And also: www.nationalterroralert.com/us-dams-getting-safer-but-still-vulnerable-to-terror-attack/

From:	artbyandrew
To:	Records
Subject:	Objection to Dunoon dam
Date:	Tuesday, 8 September 2020 3:01:41 PM

I am writing as a resident of [redacted], to express my opposition to the proposed construction of a dam in the Dunoon/Channon area. This project will destroy critical habitat for innumerable plant and animal species and significant sites of the Bunjalung people.
I understand the need to plan ahead for population growth into the future but there are better ways to do it.
Thank you for your time.

Andrew McNeill

From: Jerry & Beth
To: Records
Cc: [redacted]
Subject: The Proposed Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 3:03:01 PM

Elizabeth Wallach
[redacted]
Gender: Female

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

To the Rous Councillors and General Manager

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

I would like to acknowledge the extent of work that Rous Council does to ensure sufficient water provisions to our region and I thank you for extending the submission date for this project.

I am a landholder on [redacted] and have lived in this region for over 20 years. Although our property was cleared well before 1970's we still have some pockets of natural rainforests within our boundaries which we have diligently protected and expanded through careful regeneration practices. We maintain good fencing between pasture and water courses including [redacted] and between the regenerating bushland and pasture. My family and I consider ourselves so privileged to be able to watch wild platypus frolic in clear waters at our doorstep. Although I do realise we would not be directly impacted by this particular dam project I am aghast at the prospect of the impact this project would have on one of the few remaining natural pockets, affecting countless endangered species of flora and fauna. To date Australia has a reputation of causing the extinction of so many rare native species already - why must we continue with this strategy. Whilst I can appreciate that with increasing populations, water consumption is increased hence the need to find a solution, it is my opinion that more research must be undertaken before finalising a decision on building the Dunoon dam.

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

- Lost opportunity to invest in system-wide water efficiency - the cheapest and fastest way to ensure supply-demand balance. For example by focussing on system efficiency, Sydney added and additional 950,000 people without rise in consumption. (Metropolitan Water Plan 2006, NSW Government) Wouldn't it be wonderful to be famous for introducing water efficiency in your region instead of being infamous for endangering natural ecological wonders.
- The 21st Century is constantly working towards smarter water options. This dam would be a lost opportunity to introduce new and efficient systems instead of pouring all resources into a hugely expensive one-off project which will probably eventually be superceded.
- This dam would encourage continued inefficient and often wasteful water management by the general population who would have no incentive to operate differently.
- The destruction of The Channon Gorge and its endangered ecological community of lowland rainforest and its threatened flora and fauna species. "Rous is planning to offset the loss of

rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is always problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most." (Nan Nicholson, botanist) Rous is required to avoid this destruction because there should be economically viable and more effective solutions.

- The industrial/construction zone for The Channon/Dunoon community would cause an incredible impact. Noise, machinery, trucks as well as damage to the already substandard roads. The visual and sound impact from the pump house. Surely this would have a detrimental impact on land values as well as "way of life" that we all came here to seek.
- The small population increase predicted for the four Rous-supplied councils does not justify such a large and destructive dam. This dam risks diverting expenditure away from more sustainable, flexible and effective solutions.
- The possibility of catastrophic flooding downstream in worst floods

I SUPPORT these alternatives:-

- An investment in system-wide water efficiency and strong demand management. We are not on town water and manage exceedingly well on rainwater harvested from all buildings on our property with a pump system to header tanks so that even in a power cut we have water available through a gravity fed system
- Water re-use in various ways including Purified Recycled Potable water. I have travelled and lived extensively overseas and managed to survive very well on purified recycled potable water which is so widely used and well managed throughout the world.
- Water harvesting as previously mentioned which helps towards community resilience against bushfire as well as decreasing stormwater runoff thus reducing local flooding and scouring of creeks.

I strongly do believe we need to take action on smarter water options and proven alternatives as well as carrying out further investigation into new initiatives. These options would be far preferable to yet another dam in an endangered and pristine environment.

Thank you for your time and further investigation into this project.

Kind regards
Elizabeth Wallach

From: Kellie Murphy
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 3:10:54 PM

Kellie Murphy
[redacted]

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

Dear Rous Councillors and General Manager,

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

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

I am a teacher in the area and am distressed to hear of this potential decision to dam and potentially destroy what is a unique and beautiful area that is special and sacred to many. I understand the reasoning behind creating dams, however we must be moving towards water efficiency, not creating a type of 'quick fix' with the dam. The people of this region would be more than eager to accommodate different water infrastructure (i.e. not a dam) as they care deeply for the environment.

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

- Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)
- The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
- The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
- Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage.
- Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)(3).
- Rous is planning to offset the loss of rainforest on sandstone with regeneration of

degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)

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

I SUPPORT these alternatives:

- I believe we need to take action on a suite of smart water options and proven alternatives.
- The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.
- An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
- Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.(7) (8)
- Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible.(9) (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
- Water re-use in various ways, including Purified Recycled Potable water. A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/… Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history(10)
- Water harvesting (urban runoff; rain tanks): Water tanks on all new (and existing) developments.(11) This builds community resilience - much needed, as the recent

extreme bushfire season has shown.

- The Australian government advises that: “Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs.”
- Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.
  (12) https://www.yourhome.gov.au/water/rainwater
- Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
- Groundwater, where this is environmentally safe
- The Australian government provides a lot of information on the ecological impacts and groundwater usage.(13) https://www.environment.gov.au/…/what-are-the-ecological-im…
- With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

References and Notes

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

…/what-are-the-ecological-im…>

Please reconsider this decision to build a dam and take into consideration the fact that we must be moving towards a sustainable future particularly with impeccable water management.

Kindest regards,

Kellie Murphy

From: Kerry Kelly
To: Records
Subject: RE;The proposed Dunoon Dam within Future Water Project 2060
Date: Tuesday, 8 September 2020 3:18:34 PM

Kerry Kelly
[redacted]

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

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

I have lived in this area for the past 35 years. I have raised 3 children during that time and hosted many visitors (overseas and Australian). The highlight of all excursions by far was a days spent in the very area you guys plan to put that bloody DAM.

There must be a better way of providing water for the future. We are talking about some pretty spectacular country full of biodiversity and land that is culturally important to Aboriginal People.

Rous Water has brilliant scientists and engineers I am sure. I am also sure these BRILLIANT minds can come up with a better plan than this.

I oppose the Proposed "The Channon-Dunoon Dam".

Kind regards

Kerry Kelly

Ms Ela (Pamela) Foster
[redacted]

Rous County Council

Lismore NSW. 2480

council@rous.nsw.gov.au

8th September, 2020

Dear Rous Councillors and General Manager

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

Thankyou for providing an opportunity to put my concerns to you regarding the proposed Dunoon Dam.

I am a 62 year old woman, proud Mother, Grandmother and sister. My eldest daughter, her partner and their two children live in the same street. I hold a degree in social work and have recently retired from my role as Regional Coordinator for a regional Domestic Violence Service. My career a 30 year career, included working in various areas of social justice, with in advocacy and service provision for women and children who have experienced domestic and family violence. Over my career I have also worked on numerous projects that have involved Aboriginal communities in NSW, NT and Victoria. I have lived in [redacted] village for the past 15 years, choosing this region, and this village for the culture of respect of environment and inclusiveness.

Having lived, worked and/or travelled to all states and territories of this beautiful country, I can honestly say that I believe we are so privileged to live, and be a part of this region. This is reflected by my children, and now my grandchildren who maintain a deep connection to the environment, paddling in the local creeks and exploring magical rainforests. Many children of the village love meandering down to the creek that provides so much fun and relief from the heat on hot summer days. This is not to mention the closeness to wildlife we are honoured to encounter. We are thrilled to come across bandicoots, myriad birdlife, frogs, snakes, lizards, goannas, koalas, varieties of possums and the occasional echidna.

A further strength of this region is the strong Aboriginal presence of the Bundjalung peoples. It is somewhat hypocritical to espouse Aboriginal peoples are the custodians of the land before community meetings but then not respecting their authentic role as custodians in projects such as these.

It is for these reasons that we feel strongly about protecting the environment in which we call home.

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

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

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

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

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

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

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

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

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

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

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

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

Demography/Population-projections/Projecti ons> scroll down to “Local Government Factsheets”.[5]

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

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

I SUPPORT the following alternatives:

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

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

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

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

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

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

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

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

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

- **Groundwater, where this is environmentally safe**

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

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

I again thank you for your consideration of these concerns and recommendations.

Regards

Ela (Pamela) Foster

References and Notes

1. (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. (2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
3. (3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
4. (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. (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. (6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.
7. (7) The Rous Regional Water Efficiency Program 1997, *Final report of the Rous Regional Demand*

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

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

   Hunter Water, Institute for Sustainable Futures, Sydney.

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

(10)Kahn,Stuart and Branch, Amos 2019, *Potable water reuse: What can Australia learn from global*

experience?, Water Research Australia Limited, Adelaide.
(11)WindhoekGoreangabOperatingCompany(Pty)Ltd2020*,Ourhistory*|*Wingoc,*V eoliaEnvironment,

Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>
(12)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater

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

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

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

Luke Gerrish
[redacted]

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

Dear Rous Councillors and General Manager

Re: The Proposed Dunoon Dam as part of the Future Water Project 2060

I appreciate the extension afforded the community to comment regarding the proposed Dunoon Dam, within the Future Water Project 2060. I offer the following concerns for your consideration.

I have lived on the Far North Coast of NSW for over 30 years. I am fortunate to have spent the majority of my life, from childhood, within the Northern Rivers region. I have called [redacted] my home. I have a strong connection with this area, a love and respect for nature and an affiliation with the bush.

I do not support the proposed Dunoon Dam and here are my major concerns:

The destruction of the second largest remnant of the "Big Scrub" subtropical rainforest, and of lowland rainforest including geographically rare, mid-temperate rainforest occurring on sandstone, with only a fraction of the original Big Scrub rainforest remaining, surely these types of endangered ecological communities should be preserved and added to the existing World Heritage listed Big Scrub Reserve.

The area of the gorge, "Ground Zero", where the Sandstone forest meets the creek is breathtakingly beautiful; it is irreplaceable and one of a kind. It is in the nation's, indeed the world's interest for it to remain intact and be protected for generations to come. This can only happen if the construction of the dam does not occur.

On a global level Science is just beginning to develop a deeper understanding of the interconnectedness of ecosystems upon our planet and their interdependence. We are tipping point of irreversibly damaging these fragile links.

It is understood that 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 Dept. of Planning, Industry and Environment, 2019).* This is such an "area ".

So with Australia's horrific track record of species extinction and decline, and many plants and animals currently threatened or endangered, critically close to becoming extinct, it would be far too great a loss to see the destruction and further endangerment of our precious and rare flora and fauna, with 24 threatened animal species and 19 threatened plants as identified in the *Rous Ecological Surveys, 2011* , including animals such as the endangered Fleay's Barred Frog, the threatened Stephen's Banded Snake, the Southern

Angled -headed Dragon which *"are endemic and only occur in these types of forest ecosystems." (Reptiles and Amphibians of Australia. H.G. Cogger).*

Found in Rocky Creek are fish such as the extremely rare and vulnerable East Coast Cod and the Australian Bass. The dam wall will block their migratory movements, affecting their life-cycle and causing genetic islanding *(Rous Ecological Surveys, 2011.)*

Numbers of the Spotted Tailed Quoll are declining and we run the risk of repeating the fate of other types of quolls i.e. the Eastern Quoll, *"rare, possibly extinct on the mainland" (Godsell, J. The Population Ecology of the Eastern Quoll, 1982)* and the Western Quoll, once common throughout Australia, now only found in one isolated corner of W.A.

The Yellow Bellied Glider, whose populations are distribution, although wide, is declining. It *"feeds exclusively upon red mahogany tree sap"* which grow within the designated dam site *(The Australian Museum Complete Australian Mammals, 1983).*

The Richmond River Birdwing Butterfly, a local symbol in conservation efforts, is threatened through land clearing and *"with its increasingly fragmented pockets of habitat, a cause for concern for its long-term survival" (The Butterflies of Australia. Albert Orr and Roger Kitching).*

Birds such as the Australian Bittern "and the now uncommon Red Goshawk would be at further risk should the proposed development take place *(Birds of Australia. G. Pizzey, F.* Knight, rev 2010)

Many other species depend upon these vulnerable types of forest ecosystems for survival and with habitat destruction posing the greatest threat and development being the major contributor. How could a Council, made conscious of this, destroy such an area?

<u>The Desecration of Widjabal Wiyabal culture via the destruction of culturally significant sites</u>

The Rouse Reconciliation Action Plan, 2017 enabled councils to acknowledge that Rous County consisted of land areas that form the identity, through culture, spirituality and connection to country, of the Widjabal Wiyabal indigenous community. This dam would directly undermine this acknowledgement.

The Cultural Heritage Impact Assessment, 2011 clearly underlines that the dam would have considerable impact upon important indigenous archaeological sites, including burial grounds, artefacts, and ceremonial waterholes, sites deemed as *"of historical and cultural significance",* it is the opinion of many that the construction of the dam would show a complete and utter disrespect of any understanding of the Widjabal Wiyabal traditional laws, knowledge, connections, stories, teaching and spirituality.
Construction of this dam would totally belie Council's intention to conduct itself in accordance with its values of integrity, trust, social responsibility and accountability.

I urge you to heed the strong arguments and powerful reasoning of the many people in our community who oppose the construction of the Dunoon dam, including ecologists, conservationists, academics, botanists, farmers, land owners, teachers, and students.

There is a wealth of knowledge at your disposal and well documented science in favour of smarter, economically and environmentally safer, sounder and more sustainable methods and alternatives in water resource management ..... but that's your job.

Yours faithfully

LUKE GERRISH

From: Jarrah
To: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 3:41:17 PM

Dear Rous Councillors and General Manager,

Thank you for the opportunity to make this submission, and for all the complex consultation and good work you do.

I have explored and enjoyed the rainforest creeks in northern NSW for 30 years. In particular, the area of the proposed Channon-Dunoon Dam, which is a unique ecosystem and I hope it can remain untouched.

Although I understand the sentiment behind the proposal, I DO NOT support the proposed Channon-Dunoon Dam and hope a multi-pronged alternative can be a better solution.

Modern alternative solutions are about a suite of smart water options. Investing in system-wide water efficiency 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.

I do not support the proposed dam, because of the destruction of important Indigenous cultural heritage, including burial sites - and the destruction of the Channon Gorge and its endangered ecological community - too precious to loose.

I do not see offsetting as acceptable. 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 is never equivalent. This example is worse than most.

The proposed dam will mean higher prices for consumers due to a 4x increase in the cost of water. A terrible outcome.

The proposed dam will cause horrendous new flooding problems.

A multi-tiered approach to water efficiency, tracking and repairing leakage, and water recycling will create innovative jobs and smart future planning.

Thank you for your consideration,

Jarrah Schmah

[redacted]

[redacted]

From: william fisher
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 3:46:03 PM

William Guy Fisher
[redacted]

8th September 2020
Rouse County Council
Lismore NSW 2480

Dear Rous Councillors and General Manager

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

1. The cost is estimated to be upwards in the $650 million dollar range in today's dollars. The users of the water will have their water rates increase by four hundred percent to pay for the dam. This is way too much money and its not reasonable to ask water users begin paying such a significant increase in rates to pay for a dam that is really not needed for the present or future population.

2. The present Rocky Creek dam has been sufficient for current water use and I believe has never run out. Even in the recent past drought it managed to have enough water to supply the area. It is estimated that the population of the Rous supplied Councils would only increase by 12,720 people from 2020-2060. Surely the proposed dam is way overkill and there will be ways to get the additional water without having to construct this huge dam. Perhaps just enlarging the Rocky Creek Dam would be a far more reasonable and easier solution than building a whole new expensive dam.

3. Even in the future there are alternatives that could be considered that could either limit consumption (i.e. mandated low volume shower controls), provide low cost incentives for people to put in catchment systems even in urban areas, provide government sponsored or new development catchment systems, and perhaps invest in a desalination plant. Even a major effort to educate people how to conserve water would be a real positive benefit to reduce consumption. By focusing on system efficiency Sydney added an additional 950,000 people without a rise in consumption.

4. There would be great destruction of the Channon Gorge and its endangered ecological community to construct the dam. This is an area of high environmental value with threatened flora and fauna species and valuable biodiversity. This would really not be acceptable and ruin a large area of prime environmental importance.

5. There would be the potential to develop ways to re-use water and recycle it back to the

householder or even the wider community.

6. The proposed dam could lead to catastrophic flooding downstream during major flooding events.

7. The industrial noise associated with the major construction of the dam would have a major negative impact to all those in the Channon and Dunoon community for a long period when the dam is being constructed and when its been operated through the pump house. These people have moved to this area to enjoy a rural and peaceful lifestyle that will be ruined if this dam is allowed.

Please don't allow this extremely expensive, unneeded dam to be constructed.

Thank you,

William Guy Fisher

From: Josh Rust
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 4:11:19 PM

Dear Rous Councillors and General Manager

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

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

About me:
My name is Josh Rust
[redacted]

My family and I have enjoyed the rainforests, creeks and wildlife in the northern NSW region for 45 years and have been residents of [redacted] for 25.
Words cannot describe our deep appreciation for this land. In addition to the local community of farmers and local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their outrage and support towards protecting this land we always felt was a unique ecosystem.

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

- Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)
- The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
- The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
- Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011) (2) . Ongoing disregard for First Nations' heritage.
- Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011) (3) .
Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
Council s are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)
Rous is required to avoid this destruction because there are economically viable and more effective solutions.
- Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.

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

I SUPPORT these alternatives:

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

References and Notes

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

From:	Margaret Louise
To:	Records
Subject:	Re: Future Water Project 2060—a submission AGAINST this proposal
Date:	Tuesday, 8 September 2020 4:20:39 PM

September 4, 2020

General Manager
Rous County Council
218-232 Molesworth Street
Lismore NSW 2480

Re: Future Water Project 2060—a submission AGAINST this proposal

Dear Rous County Councillors:

The management committee of Friends of the Koala Inc. would like to go on record voicing our strong objection to the Future Water Project 2060, and in particular its proposed 50 gigalitre Dunoon Dam.

As a non-profit organisation of over 30 years standing, with more than 1000 current members, Friends of the Koala, Inc. has become the lead koala organisation in our region. Our volunteers and sponsors have devoted enormous amounts of time, energy and funding to the preservation and welfare of the threatened koala populations in the Northern Rivers. In addition to providing care to over 5000 rescued koalas, rehabilitating and releasing as many as possible the back into the wild, we also continue to propagate and plant koala food trees. Friends of Koala, Inc. worked extensively with local government to develop and implement *Comprehensive Koala Plans of Management,* to provide advice to landowners on extending koala habitat.

It is therefore extremely disappointing--to say the least!--to realise that Rous Water's installation of the new dam wall and spillway, and the subsequent inundation that this creates, will ***remove*** "important habitat features and local linkages…and impede movement pathways for the threatened Koala"….[1]

That "significant impacts are still likely to occur…"[1], despite whatever mitigation strategies might be put forward, is quite simply not a tolerable outcome.

The koalas in our region are already under great stress from loss of habitat by encroaching suburban development (not to mention increased road traffic, invasive predators, and bushfires). **The proposed Dunoon Dam will only exacerbate the threats to the survival of this iconic species.**

While Rous Water must necessarily address the issue of future water use in our region, there are other 'demand and supply options, available and fully costed' which apparently have not been considered by Rous Water (see references below to the recent work of Stuart White on this issue[2,3]). Certainly every other avenue for enhancing sustainable water use and ongoing water security in our region should be fully explored, and costed against the construction of a new Dunoon dam for comparison and benefits, before embarking on this VERY expensive and environmentally damaging option.

Please reassure Friends of the Koala, Inc., that Rous Water will do nothing that will adversely impact the ongoing health and well-being of the Northern Rivers koala populations.

Sincerely,

Management Committee
Friends of the Koala, Inc.

FOK Inc. Logo

[redacted]

[1](SMEC, *Terrestrial Ecology Impact Assessment*, 2011).

[2] (White, S., *Rous Water Augmentation*, 2020, UTS ISF)

[3] (White, S., The Rous Sustainable Water Program, 2020, UTS ISF)

From:	Raewyn Porter
To:	Records
Subject:	Proposed Dunoon Dam within the Future Water Project 2060
Date:	Tuesday, 8 September 2020 4:20:54 PM

Dear General Manager Rous County Council,

I live in and enjoy the beauty of the Rous County. Over a long period of time Australia has lost so much of its biodiversity, especially around lowland rainforests that are a feature of our County. The fires of 2019-2020 threatened further our unique flora and fauna. It is therefore with some dismay that I learned of the proposed Channon-Dunoon Dam to meet expected future water demands in our region. Surely, it is time to reject this old method of supply and to explore ways, for example, system wide water efficiency, to meet the demands of a relatively small future population increase in the Rous supplied councils.

Now is the time to think smart and propose with a range of modern smart water options the Rous Council can be proud, and to avoid the damage to Indigenous cultural heritage and the Channon Gorge. What a win-win situation for us all that would be. A water system fit for the 21st century.

Kind Regards
Raewyn Porter
[redacted]
Gender: Female

From: Susan Hayllar
To: Records
Subject: Dunoon Dam
Date: Tuesday, 8 September 2020 4:35:39 PM

Dear Councillors,
This dam is ESSENTIAL for future water security. We need more water!
Any of you who have lived through the droughts we have experienced know that!
Water usage in the Rous area is down by more than half on years ago. Continuing to make water more expensive to control demand is unconscionable.
This dam has been on the books for decades. It is sited on degraded farm land. Go out and have a look at it!
I know there has been extensive research into alternatives including groundwater.

[redacted] has extensive recycled water. Not sure about the other Shires? Are they going to pay for their infrastructure? And then importantly recycled water is NOT potable anywhere in NSW so extremely problematic!

Fixing leaking pipes will not deliver what we need. This should be an ongoing effort.

I read today that most submissions are from directly around the dam area, I am wondering if those folk even have town water on? Also what do they use when the water in their tanks is used up?

This matter is extremely important. to much of the Northern Rivers. I believe after diligent and appropriate discussion and compensation with Indigenous folk problems could be overcome. It won't be easy and it won't be fast. But I implore you to start the ball rolling and be strong against the wall of hassle coming your way.
Yours Truly
Susan Hayllar

From: scott sledge
To: Records
Subject: sub re Dunoon Dam
Date: Tuesday, 8 September 2020 4:45:13 PM

Submission re the proposed Channon / Dunoon Dam - September 2020

By Scott Sledge, President, [redacted] Environment Centre
and

President, Northern Rivers Guardians, Inc.

I thank you for the opportunity to raise points of objection to the new dam proposed to be constructed at The Channon Gorge.

NO Social Licence: When residents understand that the proposed dam wall will be less than 800 m from The Channon Oval and would inundate a rare ecological community there will be little chance of a social licence despite the moniker of Dunoon Dam. Perhaps the failure to refer to the Channon location is deliberately deceptive ?

I think that all Rous Councillors will remember the community rejection of Coal Seam Gas less than a decade ago. This is the same community which has struggled for years to get good environmental outcomes. Combine that environmental consciousness with the expense of constructing a new dam and ongoing maintenance costs and I believe the general public will likewise oppose this project.

Less cost: better outcomes: You will have many expert opinions and advice - and I won't burden you by repeating these, but I want to raise some concerns expressed by members of the organisations I represent. The Northern Rivers Guardians -NRG- (which has more than 600 members) has been especially concerned with attempts to dam Byrrill Creek in the Tweed Valley, which has been advocated to service "growth." The community consultative process concluded that demand management was far more attractive than costly dams, and new property developments should provide for the bulk of their own needs by rainwater/ stormwater harvesting. Purified recycle water is also an option. Currently we have concerns that worries about future possible shortages of water will overpower the prudent path of conservation and low-level infrastructure such as mandating water tanks for rainwater collecting.

I believe that acceptance by ratepayers of a substantial increase in their water rates will not come easily. Probably even the high cost of seawater desalination would be preferred provided it is powered by renewable energy eg solar, wind or wave.

Groundwater extraction: NRG and Nimbin Environment Centre { NEC} have been party to consultation with the NSW Chief Scientist's 2019 study into the suitability of aquifers for groundwater extraction. The result has been to steer away from something we know so little about as groundwater connectivity and the uncertainty of recharge via rain with climate change altering the dependability of that resource. Tweed Council successfully applied to State government to have further water mining removed from its LEP. I am told that Rous Water has concluded that more groundwater extraction will be unwise in its catchment as well.

Habitat preservation : I imagine that elected representatives of Northern Rivers

communities would be up to speed on the global danger of continued species extinction due to human activities such as land-clearing. Please remember that we need to protect what remains and not allow our fears about future water shortage to damage the environment for biota which is already threatened. If we learn to be more careful, to use- and to re-use - water wisely humans can co-exist with the rest of nature. Is it really necessary to have so many flush toilets, or to hose down the driveway with tertiary-treated drinking water?

Fix leaky infrastructure: I am told that approximately 15-20% of the existing water supplied by Rous is wasted through leaking pipes. Greater investment to reduce this huge amount of lost water should be a priority.

Prof Stuart White, Institute for Sustainable Futures, University of Technology Sydney, says:

"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."

From: rae fry
To: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 4:46:24 PM

Ani-Rae Fry. [redacted]

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

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

Firstly, thank you for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.
Our family have lived in the Nothern Rivers for over 20 years. We love and appreciate our natural surrounds, and are always grateful for the privilege of being able to grow up and live happily within the [redacted]. Myself and my two siblings grew up playing and learning to swim in the waterholes and creeks that are so close to our home. This has provided our family with a deep appreciation for the land and the water that it carries. 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. Our natural surrounds are our future, and the building of the Dunoon Dam does not have the wellbeing of the land and the importance of its sacred sites in high priority, as they should be.

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

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

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

- **The dam would encourage continued inefficient and often wasteful water**

management by local governments. They would have no incentive to do things differently.

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

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

> Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
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> Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-t he-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. [4]
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> Rous is required to ***avoid*** this destruction because there are economically viable and more effective solutions.

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

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

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

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

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

I SUPPORT these

alternatives:

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

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

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

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

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

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

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

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

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

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

References and Notes

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

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

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Management Strategy : preferred options, Rous County Council, Lismore. (8) Watson R., Turner A and Fane S 2018, *Water Efficiency and Demand Management Opportunities for*

Hunter Water, Institute for Sustainable Futures, Sydney. (9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides) (10)Kahn,Stuart and Branch, Amos 2019, *Potable water reuse: What can Australia learn from global*

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tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous). (13)Australian Government Department of Industry 2013, Science, Energy and Resources, *Rainwater | Your*

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

From: Sara Jewitt
To: Records
Cc: [redacted]
Subject: Proposed Extension to Dunoon Dam
Date: Tuesday, 8 September 2020 4:49:18 PM

Dear Councillors and General Manager,

Re: The Proposed Extension of the Dunoon Dam within the Future Water Project 2060

Having emigrated to Australia in 2003, my family and I settled in the [redacted] five minutes from The Channon and within close proximity to Dunoon. Our area has rare and beautiful, natural areas that need to be protected and cherished. I strongly object to the new Dunoon Dam proposal, fo rthe following reasons;

1) Australias Indigenous people have burial sites that would be lost forever, its time to respect our First Nations Heritage.

2) It would be unacceptable to destroy The Channon Gorge. We need to keep as much natural rainforest as we can moving forward. This is a rare warm temperate rainforest on sandstone and more needs to be done to secure its future.

3) I understand that should the dam extension go ahead, it will lead to an increase of x 4 in the cost of water, as stated by Rous General Manager.

4) Extra traffic will damage already neglected roads in the area and the extra noise for the surrounding residents will be undesirable and could effect their house prices.

5) Potential of flooding damage downstream.

6) The rolled Concrete type dam has failed dramatically in Queensland, why would it work here.

I would support these alternative;

1) Processing Human Waste without utilising water and the massive infrastructure it needs to process under our wasteful flushable toilet would free up an enormous amount of fresh water that is wasted by flushing it away. This has to be the way forward. Think about how many times you alone, flush the loo each day and then times that out to every person, its staggering.
2) Support and encourage each dwelling, each business and each building to collect their water through tanks. Their would not be the need to destroy more natural areas.
3) Many countries, many cities recycle water, London included so why cant that be done instead.

There are many ways to save our water without having to destroy more land in the process, look forward and embrace a different culture, and be proud to look outside the box and show the rest of the Country what can be acheived if the will finds the way.

Thank you,
Sara Jewitt
[redacted]

Objection to proposed Dunoon Dam, 8 September 2020.

I object to the proposed dam on the following grounds:

1 Damage to the environment, especially the Channon Gorge
2 Irreparable damage to Indigenous sites
3 Inadequate costing and analysis of alternatives, in particular installation of 20,000 litre tank capacity on those connections/properties that can readily house tanks.

According to the latest annual report, Rous has 43,000 connections. Given the properties currently serviced by Rous, and the existing and proposed subdivision pattern, over 80 per cent of residential dwellings in the service area could easily accommodate 20,000 litre tank capacity, either in one or two tanks, slimline if need be. With a higher than average rainfall than our capital cities, Rous County Council should show the way in water conservation, not simply mimic the big engineering solutions that have prevailed to date. Schools, industrial estates, sporting clubs, large shopping centres – all of which have enormous roof capacity – should continue to be encouraged to collect and store rainwater, as many do already.

While I am not suggesting that Rous County Council simply provide such tank capacity free of charge, even if it did the cost of providing 20,000 litre tank capacity, at say $3000 including pump, would be approx. 35,000 properties at $3000, ie. $105 million, less than half the cost of the proposed dam. Bulk purchase and only a partial subsidy, with households bearing say one third of the capital cost, would see the cost to Rous Council further reduced.

An ambitious roll out of tanks would make residents much more conscious of how much water they use, as it did during the extreme urban drought in Brisbane, when, with impressive compliance, consumption fell to 112 litres per person per head per day. This achievement is analysed in P.N.Troy ed.,*Troubled Waters: confronting the water crisis in Australia's Cities*, ANU E Press, 2008.

I submit that there should be detailed modelling of a tank roll out alterative in the Rous County Council area, along with further measures aimed at lowering household consumption, before the Dunoon Dam is embraced as the optimum solution. The Northern Rivers prides itself on its environmental achievements. A new dam would sully this reputation.

Emeritus Professor Peter Spearritt, School of History, University of Queensland. Joint Chief Investigator on Water and the Making of Urban Australia, Australian Research Council grant, 2018-2020.

[redacted]

From: Mary O"Brien
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 4:55:47 PM

Mary O'Brien
[redacted]

8 September 2020

Dear Rous Councillors and General Manager

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

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

I moved to this region 7 years ago because of it's natural beauty and old growth rainforest and have enjoyed the rainforests, creeks and wildlife in the northern NSW region during that time as well as taking Aus and overseas visitors to many locations.

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

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

- **Lost opportunity to invest in system-wide water efficiency** - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)
- **The 21st century is about a suite of smart water options**. This

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

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

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

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

- Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
- Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
- The small population increase predicted for the four Rous-supplied councils of 12,720(5) between 2020-2060 does not justify such a

large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projecti ons> scroll down to "Local Government Factsheets".(5)

- Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)
- Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.

I SUPPORT these alternatives:

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

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

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

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

Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history(10)

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

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

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

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

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

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

References and Notes

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

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From: Gaz SC
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 4:56:34 PM

Gary O'Brien
[redacted]

8 September 2020

Dear Rous Councillors and General Manager

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

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

I moved to this region 7 years ago because of it's natural beauty and old growth rainforest and have enjoyed the rainforests, creeks and wildlife in the northern NSW region during that time as well as taking Aus and overseas visitors to many locations.

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

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

- **Lost opportunity to invest in system-wide water efficiency** - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)
- **The 21st century is about a suite of smart water options**. This

dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
- **The dam would encourage continued inefficient and often wasteful water management** by local governments. They would have no incentive to do things differently.
- **Destruction of important Indigenous cultural heritage**, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage.
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Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)

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

- Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
- Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
- The small population increase predicted for the four Rous-supplied councils of 12,720(5) between 2020-2060 does not justify such a

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

I SUPPORT these alternatives:

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

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

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

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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.

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From: Juels Bowes
To: Records
Subject: No dam at Dunoon
Date: Tuesday, 8 September 2020 5:02:40 PM

Dunoon Dam 'Future Water Project 2060'.
to build a 50GL dam at Dunoon.

At the briefing it was revealed that the total cost of the Dunoon Dam over an expected '80-year life span' would be over $650 million in today's dollars. All water users in the region would have to pay for it through increased rates and water usage charges. Rous Water currently supplies water to the local government areas of Ballina, Lismore, Byron and Richmond Valley. If the Dunoon Dam goes ahead, Rous Water estimates that water usage and supply charges will need to increase by 400%.
Is building a new dam the best way forward?

For a start, all major new subdivisions in the Ballina Shire have a recycled water pipe built into the infrastructure for toilets, laundry and garden usage. This greatly reduces the demand for 'new water' to be supplied. Surely programs like this can be extended or retrofitted to areas of high-water usage? If we could get closer to closing the loop then a new water source wouldn't be needed. The concept of building a massive new dam just to flush the water down the toilet and into the creeks, rivers and ultimately the ocean doesn't seem right to me.

It's time we looked at closing the loop with our water rather than just building larger dams or unsustainably tapping into the aquifers for a single use water management strategy. Instead of investing all our resources into the proposed Dunoon dam, a range of alternative strategies need further investigation and investment. A suite of options that encourage greater water usage efficiency and reuse could provide an even more secure long-term water strategy. For example:

Approximately 15-20% of the existing water supplied by Rous is wasted through leaking pipes. Greater investment to reduce this huge amount of lost water should be a priority.

Greater reuse options – expand the 'purple pipe' infrastructure to increase water reusage, particularly for industry, new subdivisions and large water users.

Rainwater tanks – increase the rebates and requirement for rainwater tanks.

The NSW Government is currently undertaking its own review of the future water needs of our region including domestic, agricultural and commercial usage. The Rous Water study only looks at urban water usage and supply. Surely, we need to at least wait to see what the NSW Government's review comes up with before being asked to determine a long-term strategy with massive cost and sustainability implications?

Currently, the public is being asked to choose either Option A or B (the Dunoon Dam or a massive increase in ground water usage). What if there are options C, D or E, or a combination between them that haven't been given proper consideration?
We are fortunate in the Northern Rivers given our high rainfall. How are other areas going to secure their 'long term water needs' when they receive far less rainfall than our region?

In the recent drought, one of the worst on record, our region was the least affected. As outlined above, there are other options available to secure our long-term water needs.

I am a local living in Eureka and will not allow any destruction too our local Channon Gorge and it's endangered ecological community of lowland rainforest!

Expect a fight on this front!

Ms J Bowes
[redacted]

From: rob scottly
To: Records
Subject: Re :proposed Dunoon dam within future waters program 2060
Date: Tuesday, 8 September 2020 5:21:59 PM

Dear Rous councillors and general manager , thank you for extending the submission date , it is very much appreciated . I have spent a lot of time in this area since moving from [redacted] 30 years ago i have enjoyed exploring the beautiful and unique habitat and also worked in this area , it really is the nicest country in Australia .
I do Not Support the proposed Channon / Dunoon Dam. For the following reasons :
Destruction of Channon gorge and the rare lowland temperate rainforest on sandstone , this means also loss of habitat , the proposed offset planting will not compensate for this loss .
: Destruction of signification indigenous sites .
: Water effiency measures like adopted in Sydney would negate any need for an expensive dam .
:Disruptipn to locals during construction and ongoing .
: No need for this water based on future population projections .
:Increased water costs to pay for Dam .
Thank you for reading my submission.
Rob Scott
[redacted]

From: Stu Anderson
To: Records
Cc: [redacted]
Subject: Concern for the proposed dam at Dunoon
Date: Tuesday, 8 September 2020 5:23:44 PM

To the Rous Councillors:

I'd firstly like to say that I really appreciate dams. I enjoy visiting Rocky Creek dam and spent much of my childhood saling every weekend on Lake Burley Griffin - a fairly large dam. I also am aware that a dam creates its own ecology and supports many life-forms. In short, dams and other bodies of water are quite beautiful. I am also aware that your responsibility as a council is to ensure a good-quality water supply for the increasing number of residents and visitors in this area for decades to come.

Having said that, I have reservations about the proposed dam at Dunoon - just a few kilometers from where I live outside The Channon.

I understand that this dam will flood some unique rainforest and some Aboriginal heritage sites. Given this destruction, has the council considered all the alternatives? Is ground water available? Are there other possible sites for dams that do not have precious rainforest, Aboriginal heritage, etc. concerns?

I remember the water-saving efforts of the Rous Council of some fifteen years ago. Is there more that can be done in this area?

Thank you for your hard work, thank you for considering these points and thank you for the effort involved in coming to a decision on a critical issue for the communities of the North Coast of NSW.

Yours Sincerely, Stuart

--
Stuart Anderson
[redacted]

From: Gail
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 5:31:53 PM

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

Dear Rous Councillors and General Manager,

We are writing to you to express our concern about the proposed Dunoon Dam.

We have lived at [redacted] . We have raised our 6 sons here, started a family business and now our grandchildren benefit from living in such an amazing environment. We have taught our sons to respect the environment and live simply and try to make a small impact on the Earth. Our sons have grown up surrounded by a community of farmers and neighbours who care for and appreciate their land. Words cannot describe our deep appreciation for this land and how fortunate we are to be able to live and work 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. There is a valuable resource of all of these people and all that they represent.

Over the years, we have seen many changes to the area. Some of them have been environmentally advantageous and others have had the opposite effect on the local environment. Any destruction to the local environment affects many more people than just the immediate surrounds and sometimes they are irreversible and stunning lands are gone forever.

We appreciate that you have supported the extension of the submission date. We also appreciate and acknowledge the complexity of what Rous does to provide water to our region.

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

Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption.
The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage.
Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)(3).
Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
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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 ',
Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.

We SUPPORT these alternatives:
We believe we need to take action on a suite of smart water options and proven alternatives.
The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.
An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply. Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible 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

Water harvesting (urban runoff; rain tanks):

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

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.

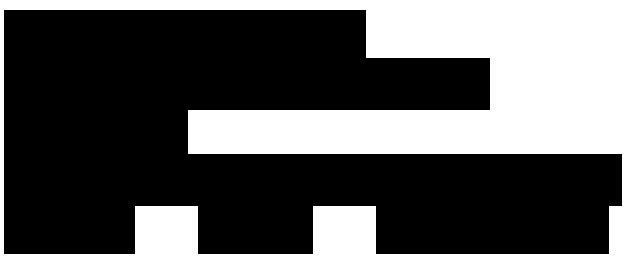
With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

We thank you for your time and hope that you will reconsider the decision to develop this dam.

Yours sincerely

Robert and Gail Hartnett

Robert and Gail Hartnett



[redacted]

From: Emma Harcourt
To: Records
Cc: [redacted]
Subject: Re The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 5:37:26 PM

Emma Harcourt
[redacted]

8th September 2020
Rous County Council,
Lismore NSW 2480

Dear Rous Councillors and General Manager

Re: Proposed Dunoon Dam within the Future Water Project 2060

I am very grateful for the extension of the submission date, thanks to all involved. I also wish to acknowledge the complexity of the task of water management and supply for our communities. I live on [redacted] with my husband and our two teenage boys. We are macadamia farmers and have lived here since 2016. We understand first hand the challenges of water management on our farm, we seem to swing wildly between trying to manage too much water all at once or even worse, not enough. We are committed to farming to the best of our ability - and always open to new methods - whilst maintaining deep reverence and respect for this beautiful land, our changing weather systems and being responsible custodians for future generations.

I am opposed to the proposed Dam at Dunoon. My main concerns regarding the proposed dam are :

Our existing water supply is not being efficiently or sustainably managed .

In addition to macadamia farming, we have an erosion control and revegetation business. Over the last 2.5 years our family business has worked on the Pacific Highway Upgrade from Ballina to Woolgoolga. We do the hydromulching revegetation work. We use onsite water storage ponds to do this work. However, all the concreting work including 150kms of dual lane highway and all the bridges have been constructed with the use of local town water. This project is nearing its completion, so that immense drain on our local water resources is coming to an end.

I propose that all users of town water be held accountable for their water use and that drinking water should not be wasted on large scale civil projects. Across all walks of life water as a resource is not treated with the respect it deserves. On a domestic level we should not flush drinking water down toilets, we should be harvesting rainwater off roofs, recycling and reusing water where appropriate. Auditing and monitoring big and small business use of town water. I am concerned that if we build this new dam, there will be no real incentive to manage what we have mindfully and innovatively. I note that by focusing on water system efficiency, Sydney added an additional 950,000 water users without an increase in water consumption! (Metropolitan Water Plan 2006, NSW Government) (1).

The proposed Dunoon Dam would destroy identified sites of Aboriginal Heritage.

Sacred Indigenous burial sites would be lost if the dam were to be constructed (Cultural Heritage Impact Assessment, 2001) (2). This would show further disrespect and disregard to our Indigenous people, we need to be building respect by acknowledging the past and honouring a better future. I fear this is yet another example of European Australia's insincerity regarding respecting Aboriginal Heritage sites and ultimately reconciliation.

The proposed Dunoon Dam would destroy the Channon Gorge

The Channon Gorge exists in the proposed inundation area. This area of subtropical rainforest growing on sandstone is extremely rare and has never been cleared. It signifies old growth low land rainforest forest and is very unusual.(Terrestrial Ecology Impact Assessment, 2011)(3).

The proposed Dunoon dam would destroy important habitats and wildlife corridors for threatened fauna and flora species.

The proposed dam requires the destruction of 57 ha of significant native rainforest vegetation (Terrestrial Ecology Impact Assessment, 2011)(4). This is a significant remnant of the big scrub - it is our duty to protect it, not flood it!!

I support the following alternatives to the proposed dam;-

- an investment in system-wide water efficiency and strong demand management.
- water re-use, including purified recycled potable water
- water harvesting, urban runoff, water tanks
- contingency planning for times of drought
- use of groundwater where environmentally safe.

Sincerely,

Emma Harcourt

References

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
(2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011
(3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011
(4) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

From: Vicki Ross
To: Records
Cc: [redacted]
Subject: Response to the Dunoon Dam proposal
Date: Tuesday, 8 September 2020 5:38:09 PM

I would like you to consider my concerns about the Dunoon Dam proposal, as follows:

- There are other options, more gentle to the environment and respectful of Australia's water capacity, that should be explored.
- That way, you can avoid problems with destroying Indigenous cultural heritage and the unique natural heritage.
- Supply and demand management MUST be a high priority. **Just as farmers have to watch their usage, ALL Australians must take responsibility for their water usage.**
- Development requirements are not stringent enough in demanding water management infrastructure.
- Only 2% of household water is used for drinking/cooking. The rest is laundry, toilet and shower. Sydney Council managed water usage and it worked without having to build capacity.
- The big users must be assisted to reduce and manage their water usage more carefully.
- Unless RCC receives a grant equivalent to the cost of building a dam - probably escalating costs, despite contingency - the cost of water to users will approximately quadruple.
- Other options will provide long-term jobs, while a dam will only provide jobs for a relatively short term.

Just as we have to change our ways with energy supplies in this climate emergency, we must also change our ways in water management.

Yours sincerely

Vicki Ross
[redacted]

From:	Stephen Soul
To:	Records
Subject:	Submission to Rous Water Dam Review.
Date:	Tuesday, 8 September 2020 5:51:58 PM

Sir,

I wish to put a submission to the Future Water Review. I have been talked into putting a view to the council by the gentlemen at the Sunday Boot market. This is despite the fact that any and all submissions put to the council will be completely ignored by you and by the State Government once a decision is taken at that level. I guess we all know that the only thing the NSW Government is good at is doing whatever it takes to get themselves re-elected, the conduct of systemic corruption and best of all, doing nothing.

In fact, my submission has little or nothing to do with the dam or with water management.

My submission relates to the mere existence of Rous Water as a separate corporate entity.

The Richmond river valley is, like the Clarence river valley and the Mid-Coast Council a discernible regional waterway.

Waterways are demonstrably best administered by a single authority.

All of the five valley councils and Rous Water should be and eventually must be combined into a single waterway council to effectively manage the valley waterway and Ballina, being at the head of the river must necessarily be the site where the headquarters of the local administration is located.

All of the five local Richmond river councils are economically unviable and in a dire financial state. The cost to run a small local council grossly exceeds that which is required to run a larger council. The minimum Council jurisdiction population size in NSW is in the order of 65,000 and scale economies continue to be secured up to 215,000 (Soul PhD 2000).

A further consideration to water security and management is the devastating effect of random flooding in the upper reaches of the Wilson and the only way to manage that impact is across the whole of the valley rather than piece meal across various separate jurisdictions.

The notion of water security and management comes from both supply and demand. The need for a new and larger dam is a secondary consideration. Rous Water must first establish a plan that includes a cross section of alternatives rather than steamroll the sole concept of a mega dam without proposing options to their communities.

The NSW State Government will never make a serious attempt to fundamentally reform local government and local government will always loudly and hysterically resist any attempt to wrest control from a small self-interested gaggle of aldermen irrespective of any benefits, economic or social, that might accrue to their constituencies by seeing, and allowing clearly beneficial reforms to take place. It's all about power. And no human being gives up power quietly.

One single Richmond River council will eventually have to be created when the very last of the dogmatic councillors are dragged into the new century and come to realize that their council is absolutely bankrupt in terms of ideas and money.

So, you go ahead and build your dam. It's only one more nail in your own coffin. Once all of your constituents realize they cannot afford your water and put up with the constant mayoral harassment to have their rates increased, see no or little restraint on expenditure or the market testing/outsourcing of most council services they will demand your scalp, those of their councillors, and most importantly those of the mandarin class pettyflogging CEO's and their many deputies that are consuming most or a disproportionately large part of the councils revenue and forever making steeper and wider hierarchies.

Good luck in your deliberations
Dr Stephen Soul
[redacted]

Soul,. S. C., 2000 The Size and Economic Efficiency of NSW Local Government Jurisdictions SCU

Sent from my iPhone

From: Debbie Guest
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 5:54:03 PM

8th September 2020

Rous County Council

Lismore NSW 2480

Dear Rous Councillors and General Manager

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

The community and I appreciate the extended submission date, thank you.

I would also like to acknowledge that the job of council to provide water among many other necessities is a complex task especially on a tight budget.

Myself and my partner have lived in the Northern Rivers for over twenty years enjoying a cleaner lifestyle with an appreciation of what a big role the rainforests play; not only function but beauty too.

I stand with the local community of farmers and nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, and politicians, who have come forward in their outrage and support towards protecting this land that is a unique ecosystem.

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

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

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

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

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

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

- Rous is planning to offset the loss of rainforest on sandstone with regeneration of

degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist).

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

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

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

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

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

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

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

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

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

I 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.

Therefore, I SUPPORT these 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 (7) (8)

● Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation

of water use is possible and economical. In comparison, the proposed dam is simply financially, environmentally and socially irresponsible (9) (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

● Water re-use in various ways, including Purified Recycled Potable water. A wealth of global research and experience already exists regarding potable reuse of water asset out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/documentsearch/?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 storm water runoff, thereby helping to reduce local flooding and scouring of creeks (12) https://www.yourhome.gov.au/water/rainwater

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

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

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

References and Notes

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

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

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

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

(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020

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

(5) NSW Department of Planning, Industry and Environment 2019, 'NSW population

projections ', Sydney, viewed 03 August 2020, https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections

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

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

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

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

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

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

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

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

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

Regards

Debbie Guest

[redacted]

[redacted]

[redacted]

From: virginia white
To: Records
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 5:54:38 PM

Virginia White
[redacted]
Gender Female

Rous County Council
Lismore NSW 2480

Dear Rous Councillors and General Manager,

I am an ordinary person with a strong interest in the use of precious natural resources in the face of the serious impacts of climate change which are quite clearly already well upon us.

I am 73 and in some ways have old fashioned ideas. I didn't think too much about it when I heard another dam was going to be built.

Then I started to hear from switched on, caring people that to build another dam is not a smart idea. You will have heard from those people, who will have spelt out all the reasons why not to build a dam, and what else could be done instead.

It seems to me the whole thing needs to be looked at more closely by the Council before there is any move to commence building a dam.

I therefore request that the whole issue be opened up to public discussion before any further steps are taken.

Thank you.

Yours sincerely,

Virginia White

From: virginia white
To: Records
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 5:54:38 PM

Virginia White
[redacted]
Gender Female

Rous County Council
Lismore NSW 2480

Dear Rous Councillors and General Manager,

I am an ordinary person with a strong interest in the use of precious natural resources in the face of the serious impacts of climate change which are quite clearly already well upon us.

I am 73 and in some ways have old fashioned ideas. I didn't think too much about it when I heard another dam was going to be built.

Then I started to hear from switched on, caring people that to build another dam is not a smart idea. You will have heard from those people, who will have spelt out all the reasons why not to build a dam, and what else could be done instead.

It seems to me the whole thing needs to be looked at more closely by the Council before there is any move to commence building a dam.

I therefore request that the whole issue be opened up to public discussion before any further steps are taken.

Thank you.

Yours sincerely,

Virginia White

From:	Connor Speechley
To:	Records
Subject:	Dunoon mega dam!
Date:	Tuesday, 8 September 2020 6:08:37 PM

Dear HR manager,

I am strongly opposed to the construction of the Channon/Dunoon Dam. The surrounding rainforest ecosystems would be destroyed and that fact alone is enough to contradict the mission of the rainbow regions main catchment authority and council. Not to mention the potential of enhancing our urban hydrological water catching infrastructure. Spend the money on this rather than the olde timey solution of whacking in another dam at the expense of our environment and cultural landscape. We can meet our growing population demands via more environmentally responsible and forward thinking innovations.

That is all.

Thank you very much for your time.

Connor Speechley

From: Asai?y? Moo.n
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 6:11:26 PM

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

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

Meg Thorpe
[redacted]
Gender: Female

Dear Rous Councillors and General Manager,

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

Firstly, thank you for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region
.
My family & friends have enjoyed the rainforests, creeks and wildlife in the northern NSW region for many years.
Words cannot describe our deep appreciation for this land and the original custodians of it, our aboriginal brothers and sisters.
In addition to the local community of farmers and local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their outrage and support towards protecting this land we always felt was a unique ecosystem.

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

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

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

• The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
• Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)

●Ongoing disregard for First Nations' heritage.

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

●Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist) Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 <https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.

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

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

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

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

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

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

I SUPPORT these alternatives:

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

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

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

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

References and Notes

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

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

From: [redacted]
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within Future Water Project 2060
Date: Tuesday, 8 September 2020 6:23:20 PM

Linda Myerson
[redacted]
Female

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

Dear Rous Councillors and General Manager,

Firstly, thank you for supporting the extension of the submission date. As a resident of [redacted] I appreciate the opportunity to express my opinion.
I also acknowledge the complexity of what Rous does to provide water to our region.
My family came to [redacted] in 1987 and have enjoyed growing up and maturing in this beautiful environment. We walked around Rocky Creek Dam many times, and spent pleasant times picnicking there with our visitors who also adored the area as much as we did. The wildlife, rainforests, and natural beauty of The Channon is beyond words, it really is a region of unapparelled nature, exquisite plants, animals and histories. To read that it is under destruction is a shock and I am compelled to express my objection to The Channon-Dunoon Dam herein.
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 and fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,00 water users 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 mistake in the 21st century. It would exhaust all resources in one large 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]. The recent corporate destruction of the Juukan Gorge in WA by BHP is another example of callous devastation by a company set on a particular course of action regardless of the cultural and social consequences. That disregard for culture has seen resignations, penalties and social backlash.
- 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 extremely problematic because the type of vegetation offered as recompense is never equivalent. (Nan Nicholson, botanist)
  The clause in your document, Future water for our region', that suggests Rous' intention to offset damaging 'impacts to the terrestrial and aquatic ecologies', is a less than satisfactory remark and reflects a disconnected perspective as well as inappropriate compensation.

  Councils are required under State planning regulation to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimize, 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]
- Industrial/construction zone will impact the Dunoon/The Channon communities; noise, dust, machinery, trucks, negative visual impacts. Further road damage extends the massive expenditure for local councils. Ongoing sounds 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 Councilor 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 blunder, diverting money from more sustainable flexible and effective solutions.
- Catastrophic flooding downstream in major floods, particularly for the first 3 kilometres below, ***which includes my house***. (Environmental Flows Assessment 2011)[6]

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

solutions.

I SUPPORT these alternatives:

- An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. This option may not have been costed in the creation of the Future Water for our Region document. Existing research over the past decade consistently finds that the best value investment in water supply comes from demand management and identifying savings within the existing supply.[7] [8] Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which show exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is financially, environmentally and socially irresponsible [9] (Sturt White, 2020) www.bit.ly/Prof-Stuart-White-Rous-slides)

- Water re-use in various ways, including Purified Recycled Potable water. A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/?download=1806 [10]

- Water harvesting – urban runoff; rain tanks:
  Water tanks on all new and existing and rooftops.[11]This option for sustainable water supply builds community resilience – much needed, as the recent extreme and catastrophic bushfires 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

  My house is not connected to mains water. I rely on rain water and therefore am NOT in favour of the destruction of my natural neighbourhood for the unnecessary catchment expansion primarily designed for proposed residents of coastal communities.

- Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in time of drought.[13]
- Groundwater, where this is environmentally safe
  The Australian Government provides information on the ecological impacts and groundwater usage. [14]
  https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown

  With scalable supply alternatives in place, the exiting 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 and outsized an unnecessary dam.

  The recent corporate destruction of the Juukan Gorge in WA by BHP is another example of devastation by a company set on a particular course of action regardless of the cultural and social consequences. That disregard for culture has seen resignations, penalties and social backlash.
  Don't let Rous County Council become the next Bad Corporate Citizen.[15]

  My house is not connected to mains water. I rely on rain water and therefore am NOT in favour of the destruction of my natural neighbourhood for the unnecessary and costly catchment expansion to Rocky Creek 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- he-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.

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

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

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

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

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

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

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

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

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

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

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

(15)https://www.abc.net.au/news/2020-06-11/juukan-gorge-aboriginal-heritage-site-just-one-of-many-destroyed/12337562#:~:text=The%20destruction%20of%20two%20Pilbara,on%20mining%20treats%20its%20heritage.

Yours sincerely,
Linda Myerson

Craig Zerk **Consulting Engineer**

Registered Professional Engineer of Queensland

8 September 2020

General Manager
Rous County Council
PO Box 230
Lismore NSW 2480

Dear Sir,

Submission in Respect of *Future Water Project 2060*

Thank you for allowing me the opportunity to make a submission with regard to Rous Water's *Future Water Project 2060.*

I note the following finding of the Rous Water planning document *"Rous Regional Supply: Future Water Project 2060 Integrated Water Cycle Management, Development: Assessment of Augmentation"* (Hydrosphere, 2020):

"*Based on the multi criteria analysis the most favourable scenario is groundwater".*

As an engineer with over 44 year's professional experience (much of it in the fields of water supply, environmental assessment and environmental management) I do not agree with the strategy of putting the above finding to one side in preference for constructing a new dam at Dunoon. Instead I strongly support the groundwater option, whereas I am absolutely opposed to the Dunoon Dam option.

Below I have outlined the main issues/outcomes associated with the dam proposal that in my opinion are unacceptable or not adequately covered in the documentation on exhibition.

1. **Ecological impacts**

As noted in the IWCM report, "*The Dunoon dam would clear a total of 272 ha of vegetation, of which 57 ha is predominantly native (Warm Temperate Rainforest, Subtropical Rainforest with 34 ha of Lowland Rainforest EEC, Tallowwood Open Forest and Flooded Gum-Tallowwood-Brush box Open Forest). The loss of rainforest communities is considered to be particularly significant, given the regional history of clearance for timber and plantations and thus fragmented nature of the remnants of these communities*"; and

"*The dam would remove important habitat features and local linkages for threatened fauna species. In particular, movement pathways for the threatened Koala will be impeded from the installation of the dam wall, spillway and the inundation area. Loss of feeding resources for the listed Grey-headed Flying Fox, Rose-crowned Fruit-dove and White-eared Monarch and nesting resources for migratory birds from the removal of rainforest and Camphor laurel communities is also likely to be significant within the study area. Further, the loss of foraging resources provided within the dry sclerophyll forests, which are rare in the region, will impact on the threatened*

Glossy-black Cockatoo and Scarlet Robin. Loveridges Frog (Philoria loveridgei) was also found just outside the footprint of the proposed dam at a lower elevation and more southerly point than has been previously recorded. Habitat for this species may also be impacted by the proposal";and

"*The works will also remove threatened flora species within the inundation and dam infrastructure areas and their habitat. There is also the potential for indirect impacts through key threatening processes such as the spread of Lantana camera and dieback caused by the root-rot fungus".*

The report also noted that *"Aquatic macroinvertebrates surveys recorded 5,055 individuals from 73 families and 23 orders. Vertebrate surveys identified 13 fish species, two frog species and 28 bird species, with no rare or threatened species recorded. No introduced fish species were found. Platypus surveys identified individuals at several sites during various surveys and burrow clusters were found at the three sites surveyed"*. The report did not elaborate as to how these various species might be impacted.

The above paints a likely scenario of very significant and unsustainable ecological impacts. By comparison, the groundwater option will have negligible ecological impacts.

The groundwater resources studied to date can also meet the stated 2060 demand for a lesser net present value. But there is no compelling justification offered for preferring the proposed dam - a proposal that will likely result in such a significant adverse impact on these extremely important ecosystems.

2. Climate impacts

The IWCM report does not detail any assessment of carbon emissions. The carbon footprint of the dam option will be much greater than the groundwater option because of both the embodied energy associated with construction of the dam and the typically higher energy usage per kilolitre of water supplied as listed in Table 29 of the report.

3. Social impacts

There is no mention in the report of the adverse social impacts on the people who currently reside within the dam storage area as well as those who value deeply the environment and cultural heritage that would be destroyed as a consequence of the construction of the dam.

From my personal knowledge and understanding of the north coast community, the pursuit of the dam option is highly likely to result in an upwelling of community action that could include protest, legal action and social disruption. This outcome is not dealt with in the assessment and comparison of the various options.

I do note the claim in the IWCM document that "suitable measures can be put in place to obtain planning approval and ensure stakeholder acceptance of the dam scenario". However in my personal opinion, that is a misguided notion.

4. Cultural impacts

The existence of cultural sites with state significance within the dam storage area is enough of itself to warrant rejection of the Dunoon Dam option given that other options offering a lower net present value are available.

5. Risk Management

The IWCM report does not address important overarching risks in any detail - yet this must be a fundamental consideration to the development and management of town water supply systems.

Implementation of the groundwater option will significantly diversify the water resource mix on offer and importantly it will allow the expansion of the system to be undertaken in stages in response to increases in water demand and changes in technology, society and climate. The inclusion of groundwater and perhaps desalination would considerably increase the robustness of the system to withstand a range of risks including those associated with climate change, acts of terror and environmental accidents/catastrophes.

Diversification into groundwater would in particular, address the following climate related risks:

- Rocky Creek Dam, the existing main source, is located in the hinterland and the Dunoon Dam would be located nearby (within 7 kilometres) whereas the groundwater resources are primarily coastal where different rainfall patterns/behaviours prevail
- It is difficult to predict what different effects climate change will have on rainfall patterns on the coast versus the hinterland
- The expected increased rates of evaporation resulting from climate change are less of an issue for groundwater
- Climate change is expected to have very significant, though unpredictable effects on storm intensities. This could mean that the current assumptions used to assess overflow requirements for spillway design could in future become invalid. In this regard the IWCM document makes reference to dam break studies, which confirms that there is a risk of catastrophic dam failure. It is plausible that coincident catastrophic failure of the Dunoon and Rocky Creek dams could occur in one weather event and in such circumstances the area served by Rous Water would undoubtedly fall into a widespread and protracted crisis. Any perceived savings in whole-of-life costs would then become insignificant.

6. Whole-of-life Cost

The use of whole-of-life costs could only have any validity if they included all of the “non-engineering” whole-of-life costs such the following:

- environmental services lost as a consequence of damage/destruction of terrestrial and aquatic ecosystems
- social disruption, division, anxiety and mental health impacts flowing from perceived damage/destruction of terrestrial and aquatic ecosystems
- the financial cost to the community associated with expected legal action, protests and the like
- loss of agricultural production opportunities
- carbon emissions produced and the consequent climatic effects

There is no evidence in the documentation on exhibition or statement in the IWCM report to indicate that the quoted whole-of-life costs do include these significant matters. The basis for pursuing the Dunoon Dam option therefore appears to be flawed.

7. Planning horizon

Another important issue is that the preference for the Dunoon Dam option seems to be attributed to benefits that are predicted to be realised some time beyond the project's 2060 planning horizon. In an age of unprecedented and accelerating technological, sociological and environmental change, this is not wise since ongoing and emerging future unstoppable trends will render current assumptions invalid.

Climate change has the potential to unleash very significant changes not only to the climate and the environment, but also to human societies. The scope of those changes is unknown and unpredictable. Yet yield assessments and spillway design for the dam are based on, and extremely sensitive to, climate assumptions. While attempts have been made to account for potential climate variations, it must be recognised that climate change assumptions are speculative at best – especially when looking beyond a 20 or 30 year timeframe. The decision to bring forward the construction of a dam based on assumed outcomes that may eventuate beyond 2060 is unsound.

Given the multiplicity of uncertainties associated with this project, staged development of a diverse range of water sources along with implementation of demand management strategies is much less risky from a financial investment perspective than embarking on an up-front lump spend in the order of $200 million on a project that further increases our reliance on our current primary water source.

On another matter, the report rules out two options (Toonumbar Dam and Indirect potable reuse) based on present day "roadblocks" that may change well within the 20 year planning horizon.

It is also noted that the report assumes a minor (less than 2%) reduction in water demand as a consequence of leakage detection and control strategies. While leakage and losses represent a very significant proportion of current water demand, technologies in this field are advancing and therefore the 2% reduction in demand can be expected to be redundant within the 2060 planning horizon.

8. Other matters

It is not clear whether the current Dunoon Dam cost estimates account for the loss in agricultural production resulting from landuse sterilisation. There is certainly no mention of this in the IWCM report.

Please also bear in mind that there are other groundwater resources in the region that to date have not been fully evaluated and there is scope to further increase the supply of water from those other groundwater resources.
Technological advances may also render desalination more viable within the 20 year time horizon. This is especially the case if rainfall is severely curtailed with changes in our climate.

For the Woodburn bore system, the report quotes $73,396 NPV/ML secure yield (40 years), which is much higher than quoted for the other four groundwater systems examined. There is no explanation of this disparity provided in the documentation and it is not clear as to why the Woodburn system would be designed for a 5ML/day capacity when its safe yield is only 800ML per annum.

Summary

It is patently clear from all of the information that has been placed on exhibition in relation to this matter that the Dunoon Dam option will have environmental, cultural and social impacts that would be at least an order of magnitude greater than the groundwater option. There are also other concerns relating to economic considerations and risk management that are problematic for the dam proposal. The dam proposal does not offer the lowest net present value for the stated planning horizon and there are other matters that are not properly addressed in the exhibited material. I therefore consider Rous Water's reasons for preferring the dam option are flawed.

For those reasons I am supportive of staged development of the groundwater and I firmly object to the construction of a new dam.

Thank you for considering this submission.

Yours sincerely

Craig Zerk

From: whackybadja
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060 (16yr old)
Date: Tuesday, 8 September 2020 6:50:54 PM

Tahlo Nicholson-Moss

[redacted]

[redacted]

8th September 2020

Rous County Council,

Lismore NSW 2480

<council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager

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

Hi my name is Tahlo, I'm sixteen years old and I live near the proposed dam site.

I DO NOT SUPPORT THE DAM.

I have three grandparents who would be directly impacted by this dam. two of which could be fatal!

They live less than two Km below the dam wall, so in severe floods they could get wiped out! (>_<)

The dam wall would be 350 meters from my other grandparent. My father grew up playing in the gorge that will be destroyed.

From what I understand there are valid alternatives, like system wide water efficiency (S.White 2020) compared to a big phat destructive dam.

Yours truly, Tahlo Nicholson-Moss (AKA the grumpy bed gnome)

Natalie Meyer
[redacted]

To: Rous Water Councillors

Dear Councillors

Re: Future Water Project 2060 – Dunoon Dam proposal

Thank you for the opportunity to comment on the Future Water Project 2060, and in particular for extending the submission closing date.

I have resided in the region for around thirty years. I currently live in [redacted] but I have also lived in [redacted]. I am familiar with the area which will be inundated by the proposed Dunoon Dam and the wildlife that lives there.

I am a wildlife rescuer and carer and I am very concerned about species extinctions and the loss of our precious wildlife which I am experiencing on a first hand basis. The Northern Rivers remains a high biodiversity hot-spot, but this position is increasingly precarious and we must commit to ensuring it remains so or our own wildlife will be lost forever.

As you are aware, the Nimbin community faced increasing water restrictions during the latter half of 2019, culminating in level 4 water restrictions by January 2020. During this period large numbers of residents became dependent upon water carried in from the Rous Water system and the precariousness of our community's water security became evident. Numerous issues became clear such as an over-reliance upon pumping directly from creeks and springs to service domestic needs.

Many residents did not have their homes plumbed into tanks, or indeed any significant storage tanks on site, instead relying on regular pumping to small header tanks from creeks and springs. This made water deliveries impossible for many. Additionally, the nature of many of our local roads meant that access by water trucks was impossible for many residents anyway.

It is clear from this experience that we really had not planned ahead for water shortages and there are many steps that we as a community can take to improve our own water security – and indeed some of these are already underway.

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

1. New dams should be an absolute last resort. The negative impacts on the local environment and residents in the wider catchment area cannot be

justified unless all the 'low-hanging fruit' (and even the medium-hanging fruit) has been picked. It is clear to me that this is not the case.

2. The destruction of important Bundjalung country and cultural heritage, including burial sites will be involved. *(Cultural Heritage Impact Assessment, 2011*). I don't know what to say other than I cannot believe we could even be contemplating doing this in light of the highly publicised RioTinto fiasco (e.g. https://www.sbs.com.au/nitv/nitv-news/article/2020/06/15/rio-tinto-not-sorry-cave-blast-investigation-opens-newly-destroyed-sacred-site, https://www.mining-technology.com/features/anthropologists-rio-tinto-aboriginal-site/) and the rise of the *Black Lives Matter* movement.

3. Investment into the changing of community attitudes to water security in the Northern Rivers is needed. I was born and raised in South Australia where frugality with water was a way of life. As climate change continues to impact our regional water security, so must the mindset of our population alter in order to adapt to the new reality.

4. The priorities must be demand reduction, waste reduction and technology shifts. So much water is wasted. We need to clean up our collective acts before we look to destroy more of our environment and Indigenous peoples' cultural heritage. Water conservation should be incentivised. Simply providing additional water to meet a business as usual approach will not create such incentives. Although the large additional cost upon consumers should the dam proceed would create a level of financial incentive to be frugal, this model would also create access inequities and create hardship for people who are already struggling to make ends meet.

By focussing purely on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Governmenthttps://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0)

5. There are significant opportunities to increase on-site water harvesting and storage. In a similar way as people have increased their capacity to generate electricity via rooftop PV solar arrays, we need to exploit a distributed water model rather than an old-school centralised model. Increased smart water systems e.g. where leaks are more readily detected and individuals can more easily monitor their own water usage.

6. There are also opportunities to invest in water re-use and recycling. Whilst it is clear that attitudes towards potable recycled water require substantial change before there would be widespread acceptance of this, there is scope to use recycled water for a large range of domestic and commercial uses, notwithstanding that people may not be prepared to drink it just yet.

7. The small population increase predicted for the four Rous-supplied councils, of 12,720 between 2020-2060, does not justify such a devastatingly destructive approach to our water security. The corresponding increased water needs can be met by other means, which are also less costly to implement

than the construction of a new dam. (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").

8. Rocky Creek dam has not yet reached its full potential.

Previous assessments of regional water supply availability have failed to consider how the condition of the catchment can affect water yields. If the average rainfall across the 2,800 ha catchment of the Rocky Creek Dam is 2,400 mm then this represents a total water volume of some 67,200 ML per annum. If the guesstimate of Cornish (1997) is correct, with the catchment in its current condition, some 1,100 mm, or 30,800 ML, of the rainfall may currently pass into the dam in an average year. This assumes the combination of evaporation and transpiration by plants currently utilise an average of 36,400 ML per annum.

*Cornish (1997) suggests that for the Rocky Creek Dam catchment the maximum yield decline resultant from the conversion of old growth forest to regrowth is 300 mm or 8,400 ML per annum, though this could be as high as 600 mm (Vertessy 1999) or 16,800 ML per annum. Cornish (1997) suggests the current yield depression due to logging is 200 mm or 5,600 ML per annum. From this it can be assumed that if logging is stopped in the catchment the likely increase in water yields will eventually total somewhere between 5,600 ML and 16,800 ML per annum. (*Pugh, D: *'Rocky Creek Dam Catchment Management - An Issue of Regional, National And International Significance',* March 2000).

Mr Pugh's extensive research into the Rocky Creek Dam indicates that regeneration and rainforest recovery in the entire catchment is the key to the existing dam reaching its maximum yield and that this process has around eighty more years to evolve since the cessation of logging.

9. Overall, our species as a whole needs to find ways to live within our means including within the local environmental capacity. We cannot continue to plan for infinite growth on a finite planet. We cannot continue to try and engineer the planet to meet our short term needs at the cost of biodiversity and the long term survival of all life on earth including ourselves. The Northern Rivers is in a good position to model sustainable forward planning and provide leadership in the water security field, which does not involve the further destruction of our local environment and cultural heritage.

I am aware that the plan is 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 will not be equivalent to the biodiversity that will be lost due to the specialist nature of this rare area of sandstone rainforest.

The Dunnon Dam proposal does not meet Councils' obligations 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*).

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

Yours sincerely

Natalie Meyer

From: [redacted]
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 7:00:34 PM

Linda Myerson
[redacted]
Female

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

Dear Rous Councillors and General Manager,

Firstly, thank you for supporting the extension of the submission date. As a resident of [redacted] appreciate the opportunity to express my opinion.
I also acknowledge the complexity of what Rous does to provide water to our region.
My family came to [redacted] in 1987 and have enjoyed growing up and maturing in this beautiful environment. We walked around Rocky Creek Dam many times, and spent pleasant times picnicking there with our visitors who also adored the area as much as we did. The wildlife, rainforests, and natural beauty of The Channon is beyond words, it really is a region of unapparelled nature, exquisite plants, animals and histories. To read that it is under destruction is a shock and I am compelled to express my objection to The Channon-Dunoon Dam herein.
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 and fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,00 water users 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 mistake in the 21st century. It would exhaust all resources in one large 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.]

- 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 extremely problematic because the type of vegetation offered as recompense is never equivalent. (Nan Nicholson, botanist)
  The clause in your document, Future water for our region', that suggests Rous' intention to offset damaging 'impacts to the terrestrial and aquatic ecologies', is a less than satisfactory remark and reflects a disconnected perspective as well as inappropriate compensation.

  Councils are required under State planning regulation to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimize, 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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  >Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.[4]

- Industrial/construction zone will impact the Dunoon/The Channon communities; noise, dust, machinery, trucks, negative visual impacts. Further road damage extends the massive expenditure for local councils. Ongoing sounds 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 Councilor 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 blunder, diverting money from more sustainable flexible and effective solutions.

- Catastrophic flooding downstream in major floods, particularly for the first 3 kilometres below, ***which***

includes my house. (Environmental Flows Assessment 2011)[6]

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

I SUPPORT these alternatives:

- An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. This option may not have been costed in the creation of the Future Water for our Region document. Existing research over the past decade consistently finds that the best value investment in water supply comes from demand management and identifying savings within the existing supply.[7] [8] Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which show exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is financially, environmentally and socially irresponsible. [9] (Sturt White, 2020) www.bit.ly/Prof-Stuart-White-Rous-slides)

- Water re-use in various ways, including Purified Recycled Potable water. A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/?download=1806 [10]

- Water harvesting – urban runoff; rain tanks:
  Water tanks on all new and existing and rooftops.[11]This option for sustainable water supply builds community resilience – much needed, as the recent extreme and catastrophic bushfires has shown. The Australian Government advises that "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants, protect remaining environmental flows in rivers; reduce infrastructure operating costs".
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  The Australian Government provides information on the ecological impacts and groundwater usage. [14]
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  With scalable supply alternatives in place, the exiting 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 and outsized an unnecessary dam.

  The recent corporate destruction of the Juukan Gorge in WA by BHP is an example of devastation by a company set on a particular course of action regardless of the cultural and social consequences. That disregard for culture has seen resignations, penalties and social backlash.[15]
  Don't let Rous Water become the next Bad Corporate Citizen.

  My house is not connected to mains water. I rely on rain water and therefore am NOT in favour of the destruction of my natural neighbourhood for the unnecessary and costly catchment expansion to Rocky Creek Da

  Yours sincerely,

  Linda Myerson

References and Notes

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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- he-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments.

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

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

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

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

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

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

(10)Kahn,Stuart and Branch, Amos 2019, *Potable water reuse: What can Australia learn from global*

experience?, Water Research Australia Limited, Adelaide.

(11)Windhoek Goreangab Operating Company (Pty) Ltd 2020,*Our history | Wingoc,* Veolia Environment,

Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>

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

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

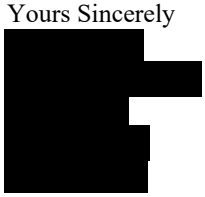
(14)Department of Agriculture, Water and the Environment 2018, *What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment,* Canberra, viewed 6 August 2020, https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr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

(15)https://www.abc.net.au/news/2020-06-11/juukan-gorge-aboriginal-heritage-site-just-one-of-many-destroyed/12337562#:~:text=The%20destruction%20of%20two%20Pilbara,on%20mining%20treats%20its%20heritage.

From:	Helen Martin
To:	Records
Subject:	Proposed dam at Dunoon
Date:	Tuesday, 8 September 2020 7:12:27 PM

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

To whom it may concern,
I strongly object to the dam as it will flood viable land and wipe out more precious rainforest. I believe that the funds available should be spent on fixing and upgrading existing water systems.
I understand that council has been advised in the past against this dam proposal.
Yours Sincerely



Sent from my iPad

From:	Beverley Crossley
To:	Records
Subject:	Dunoon Dam submission B. Crossley
Date:	Tuesday, 8 September 2020 7:20:45 PM
Attachments:	Dunoon Dam Submission - Rous Water. B. Crossley 892020.pages

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

Attn: General Manager

Dear Sir,
Thank you for extending the time for public submissions re the Dunoon Dam Project.

While I recognise that you are concerned for the future water security of our community, I am deeply disturbed by the proposal to build a dam at this time.
It is a rash, knee jerk response to a complex issue and shows a deep lack of concern and respect for community values and financial security, for the spiritual needs of our Aboriginal residents and for rare and endangered flora and fauna.
It also shows a poor understanding of the complex interdependent causal network of water security and of current methods used throughout the world to achieve it through a multi-faceted, whole of community approach.
Details of my strong objection to the dam are presented in the attached file.

Yours Sincerely,
Beverley Crossley
[redacted]

From:	Ruth Nielsen
To:	Records
Subject:	RE: The proposed Dunoon Dam within the Future Water Project 2060
Date:	Tuesday, 8 September 2020 7:26:36 PM

Dear Rous Councillors and General Manager,

This email is to register my sincere objection to the proposed Channon-Dunoon dam. I, Ruth Nielsen of [redacted] have lived here on the far north coast of NSW for the past 49 years and like very many of those others who have chosen to live in this region do so largely because I greatly value its spectacular natural environment.

This proposed dam is unnecessary and a short-sighted solution in numerous ways. The current program of water provision is based on outdated ideas. So much water is wasted and so much is used inefficiently.

The proposed dam would destroy the Channon Gorge and its unique environment. It would also destroy the Indiginous Heritage of the area. Economically it does not make good sense.

In so many ways this proposed dam goes against the well being of those who call this area home and the natural environment in which we live.

Please, please, please follow other pathways regarding water and do not build this unwanted and destructive dam.

Yours sincerely,
Ruth Nielsen

From:	Ruth Nielsen
To:	Records
Subject:	RE: The proposed Dunoon Dam within the Future Water Project 2060
Date:	Tuesday, 8 September 2020 7:26:36 PM

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In so many ways this proposed dam goes against the well being of those who call this area home and the natural environment in which we live.

Please, please, please follow other pathways regarding water and do not build this unwanted and destructive dam.

Yours sincerely,
Ruth Nielsen

From: Clare Ridsdale
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 7:35:37 PM

From: Clare Ridsdale
[redacted]

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

Dear Rous Councillors and General Manager,

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

Firstly, thank you for supporting the extension of the submission date. The community appreciates it.
We also acknowledge the complexity of what Rous does to provide water to our region.
My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for twelve years.
Words cannot describe our deep appreciation for this land. In addition to the First Nations people, the community of farmers and nature enthusiasts, scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their outrage and support towards protecting this land which is a unique ecosystem.
We wonder what the World Heritage Council thinks about the proposed Dam?

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

1. 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.
2. The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
3. Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011) (2)
4. Ongoing disregard for First Nations' heritage.
5. Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its

threatened flora and fauna species. (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.

Other Communities Effects

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

I SUPPORT these alternatives:

I. 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.

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

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

III. 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)

IV. 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

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

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

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

References and Notes

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

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

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

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

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

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

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

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

(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
(10) Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide.
(11) Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>
(12) $220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).
(13) Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>

From: Bronwyn Hannah
To: Records
Subject: RE: The proposed Dunoon Dam
Date: Tuesday, 8 September 2020 7:39:03 PM

Dear Rous councillors and General Manager,

I write regarding the proposed Dunoon Dam. My family and I live [redacted] proposed site and I DO NOT support its construction for the following reasons...

- Lost opportunity to invest in system wide water efficiency

- The dam would encourage continued inefficient and often wasteful water management by local governments

- Destruction of important indigenous cultural heritage

- Destruction of The Channon Gorge and its ecological community of low land rainforest

- The impacts of an industrial / construction zone for our community

- The increased prices for consumers due to a 4x increase in the cost of water

- The small population increase predicted up to 2060 for the region does not justify the construction of such a large dam

- The potential for catastrophic flooding down stream in worst floods

I believe there are viable alternatives that need to be considered and DO NOT support the construction of this dam.

Thank you for considering the options.

Kind Regards,
Bronwyn Hannah

[redacted]

SUBMISSION - DUNOON DAM

MY QUALIFICATIONS AND EXPERIENCE

I have lived my whole life on the driest populated continent on earth. I am dismayed by the modern non sustainable attitude to water. It is clear that water security is a critical issue worldwide, and there is a robust conversation and effective interventions in the area of water management.

I have been a resident of the Northern Rivers region for the past forty plus years, thirty five years of which, I lived on properties without access to town water. I grew up in the Manning District, where I spent my first 16 years on a dairy farm. On our farm we managed our own power, water, waste disposal and transport systems. We learned to balance our resources budget, living closely with and depending on natural systems.

Given my experience, I am well qualified to comment about water management. On moving from a rural property into Lismore, I am appalled by the cavalier attitude to water. I have observed worrying water wastage from leaking reservoirs and mains, within the local area of my daily walks.

Career wise, I am a retired sociologist and mental health professional, which means I have a keen interest in the social and emotional impacts of developments, especially in my region. This includes the Dunoon Dam project, which I DO NOT support.

Herewith are the reasons for my OBJECTION to the proposed dam development.

ENVIRONMENTAL IMPACTS

We are living in a time of transition. We now accept the urgent need to move from squandering our natural resources, to living sustainability and managing the resources we depend upon. We are living climate change. The quick and easy solutions of the past are no longer viable. We are also realising the importance of our connection with nature to our mental, emotional and physical wellbeing.

IMPACT ON RAINFOREST

Overall, rainforest is decreasing in NSW and Australia generally. During the last unprecedented bushfire season rainforests burnt, for the first time. It has been estimated that 5.4 hectares of forest was burned in the catastrophic fires of last fire season, including a third of the state's rainforest. The affected area includes more than 3.5m hectares of the state's best koala habitat. (Guardian Australia, June, 2020). (1)

In addition to catastrophes such as bushfires, much of the clearing of our forests is deliberate. The main causes of total clearance are agriculture and in drier areas, fuelwood collection. The main cause of forest degradation is logging. Mining, industrial development and large dams also have a serious impact.

One strategy commonly applied to "soften the blow" of developments is biological offsetting. It can be argued that the logic underpinning biological offsetting is questionable. If a biological "asset" is rare or threatened enough to require offsetting, it should not be destroyed or damaged in the first place. The idea that a dollar price can be put on unique flora and fauna is a nonsense.

The suggested offset in the case of the Dunoon Dam is particularly ludicrous. To claim that there is any equivalence between rainforest on sandstone and degraded farmland is particularly onerous, they are simply impossible to compare and the latter simply cannot be "developed" so as to make them equivalent to any degree.

The rainforests of north-east NSW have been ravaged by both fire and drought leaving animals packed into the remaining areas. “Across the fire-grounds most leaf litter, logs and under-storey plants were burnt, along with their inhabitants. Many tree bases were damaged,”said Mr Pugh. (Mar 13, 2020). (2)

This means that any remaining rainforest needs protection, especially lowland rainforest growing on sandstone. The only ethical conclusion is that The Channon gorge must be protected, and the dam project abandoned.

IMPACTS ON MAMMALS
Australia is home to several unique and iconic species of animals. Most well known being the koala. Even more fascinating are our two monotremes, or egg laying mammals, the platypus and the echidna. “As one of the world’s most evolutionarily distinct mammals, the platypus has long been regarded to be of exceptional scientific importance as well as a globally unique component of Australia’s biodiversity” (Bino et. al 2019:308). (3)

Australia has an appalling history of extinction of our mammal species. I will address just two; the koala and platypus, populations of which have been severely impacted by the extensive drought and the unprecedented bushfires of the last few years.

Koalas
The unprecedented bushfires of last fire season caused catastrophic losses of our iconic koalas. Their present conservation status is recorded as vulnerable, though some would say they are functionally extinct.

“Koalas are considered vulnerable to extinction—just a step above endangered—and reports indicate that between 350 and a thousand koalas have been found dead so far in fire-devastated zones of northern New South Wales” (Daly, 2019) (4). The dam would not only wipe out essential prime koala habitat, but create a barrier to movement between populations, increasing the risk of functional extinction.

Platypus
Platypus habitat has become critical due to the severe loss of animals during the recent severe drought. Other factors involved in their decline are land clearing, predation and dams.

One of the factors used in marketing the Dunoon Dam is recreational fishing, which is considered a hazard for platypus, which can become tangled in lines and punctured by hooks (2010). (5). The presence of recreating humans leads to an increase in inappropriate rubbish disposal, and platypus have been shown to become entangled in all manner of detritus.

Dr Gilad Bino, an internationally-respected platypus researcher at the UNSW Centre for Ecosystem Science, said “Action must be taken now to prevent the platypus from disappearing from our waterways.” (2020) (6)

Researchers say platypus numbers may have halved or more since Europeans arrived in Australia, predicting local extinctions may have occurred across 40% of the species ’range due to dam building, land clearing and other disruptions, according to a study published in the scientific journal Biological
Conservation. (Sirrat, June, 2020). (7)

Despite platypuses becoming far less common, their decline has barely registered with governments. That’s despite the International Union for Conservation of Nature (IUCN) recently downgrading the conservation status of the nocturnal animal to “near threatened”. (Sirrat, June, 2020) (8). This warning needs to alert all levels of government.

The studies upon which these comments are based were carried out prior to the unprecedented bushfires, which will also have had a detrimental effect on platypus habitat. With the continuing

effects of climate change, conditions can only get worse for platypus. Therefore, it is essential that prime habitat, such as the water systems feeding the proposed Dunoon Dam, be protected.

The problems that dams create for platypuses include creating a barrier to the free movement, dispersal of juveniles and mixing of platypus populations. Animals are forced to the edges of the dam, due to optimal water depth requirements. The location of the edges will change many times as the dam fills, and are likely to be deficient in suitable banks for burrow construction, snags, food, and overhanging trees (Serena and Williams, 2010) (9). The long term build up of silt creates a surface unsuitable to the bottom dwelling insects upon which platypus feed.

Dams also have a negative effect on the areas below the weir in relation to platypus populations. These creeks can have reduced flow, even dry up, and at the other end of the cycle, experience sudden, strong flooding. In the case of large floods, the impact will be catastrophic, as banks are eroded, burrows are inundated for extended periods of time, animals are washed downstream, or drowned, with juveniles being most severely impacted. They can also contract pneumonia or lose vital food sources as invertebrates are washed away (Serena and Williams, 2010) (10).

IMPACTS ON HUMANS

Dams are marketed as being beneficial. However, there are multiple negative effects on the human population. Those who live nearby will lose prime agricultural land and features of the landscape they love. There will be the noise of the construction itself and continuing increased traffic. For those who live further afield there will be the loss of beauty spots, while all will pay the higher price for water.

STRUCTURAL OR INSTITUTIONAL RACISM

Racism has a negative effect on the mental health of Indigenous Australians. One, largely unrecognised form, is structural or institutional racism. Certain practices are so imbedded and normalised in non-Indigenous society as to not be recognised as racism. Structural racism has been a prominent feature of Australian society since colonial times, when it served the ideology of terra nullius, which theory held sway until the Mabo Decision of 1992.

A prime, and sadly very common example of structural racism, is the destruction of sites of cultural, emotional and spiritual significance, to Indigenous populations, during “developmental” projects. Such destruction can be deliberate (Pascoe, 2014) (11) or viewed as mere “collateral damage”, as in the present project. Regardless of the intention, the negative impact on Indigenous citizens is huge.

Quinn (2020:1) (12) describes institutional racism as follows: “Indigenous Australians continue to live with the legacy of centuries of racism that has produced gross inequalities in health and education, the disproportionate number of young First Nations peoples incarcerated, the unethical destruction of significant sites and cultural practices.”

Mickey Ryan, from the Bundjalung Elders Council, recently said the thought of the area being inundated [by the Dunoon Dam] was sickening.
"To see things like that happening, destruction of of sites, it makes me sick," he said. (ABC, 2020). (13)

It is reasonable to suggest that structural racism is actually making Indigenous Australians sick, physically, emotionally and spiritually. Markwick et al (2019:1), (14) say, “Racism is a key determinant of the health of Indigenous Australians that may explain the unremitting gap in health and socioeconomic outcomes between Indigenous and non-Indigenous Australians.”

The destruction of sacred and culturally significant sites by the Dunoon Dam is an example of institutional racism. The destruction of sacred and culturally significant sites is so common in our society that it is rarely called out as the racism it truly is. As a consequence, the huge cumulative

effect on Indigenous health and wellbeing is not taken into account in developments such as the proposed Dunoon Dam.

THE AMENITY OF PEACE AND TRANQUILITY
As a person who grew up on an isolated farm, I favour quiet, uncrowded surroundings, preferably with lots of green. I am sure that the people of The Channon value their quiet, village ambiance. Not only will the dam construction shatter that, but it will be gone for ever due to the loss of amenity of peace and tranquility (Thorne & Shepherd, 2013) (15) occasioned by noise from the pump house, added traffic, the sound of motor boats and similar. Such irritants impact on mental, emotional and physical wellbeing.

LOSS OF COMMUNITY HARMONY
Developments which are marketed as being beneficial to the community, and yet have a huge environmental and emotional price tag, are often divisive in otherwise harmonious communities. The Dunoon Dam project is divisive.

THE DISCRIMINATORY NATURE OF WATER PRICE RISES
The proposed dam is so expensive to build that water prices will rise by 400%. As always, price rises impact most severely on the most financially vulnerable citizens. As a general rule, these households are also the most vulnerable emotionally and physically. So, it's a double whammy on those who are most susceptible, therefore discriminatory.

THE SITUATION, PROBLEMS AND PROPOSED SOLUTIONS

The proposed Dunoon Dam is an excessively high price solution to water security. The price tag is not only financial, but also environmental, racial and community divisive.

With all due respect, it's a lazy, unimaginative, dated solution. It lets councils and consumers off the hook of taking responsibility. It's a solution that creates more problems than it solves, therefore, it's no solution at all.

GENERAL PROBLEMS WITH DAMS
Dams inundate large areas, in this case, prime agricultural land and species 'habitat. They change the water flow, sedimentation and chemical composition within the dam, and the streams below. They impact negatively on climate change by increasing greenhouse gas emissions. They have been found to alter the earth's rotation. They are barriers to the free movement of land and terrestrial animal species such as platypus and koalas, reducing gene pools and diversity. They inundate prime koala habitat, altering water flow, the chemical composition and substrate composition making it unsuitable for some marine species and the food on which they depend. Water flow is regulated in accordance with human needs, with little or no consideration given to other species 'requirements. (16) and (17).

Dams worsen the impact of climate change. They release greenhouse gases, destroy carbon sinks in wetlands and oceans, deprive ecosystems of nutrients, destroy habitats, and waste water. (Dec 12, 2017) (16) and (17)

ALTERNATIVE SOLUTIONS - WATER EFFICIENCY
There is a robust dialogue and testing of innovative approaches to water management worldwide. Case studies are easily accessible from Denmark to Italy to Bangladesh and many other locations.

The city of Al Ain in the Emeritus of Abu Dhabi (United Arab Emeritus) managed to reduce its NRW [Non Revenue Water] levels from as high as 45% to 10% within one year for 19 District Metering Areas (DMAs).

This case study illustrates many of the common strategies employed in water management. "The results were achieved through an integrated approach which included implementation of real-time

hydraulic modelling, automated water balance calculations, installation of flow and pressure monitoring instruments as well as deploying noise loggers for automatic leakage detection and the Holistic Management Information System 'HOMIS 'on top. HOMIS integrated all operational data systems such as GIS, SCADA, noise loggers, water quality sampling, customer care, billing and finances. By monitoring and reporting online KPIs, HOMIS helped the managers react and initiate corrective measures when specific KPIs [Key Performance Indicators] were outside the allowed target range. In addition, a dedicated training and educational programme elevated competencies within the utility at both operational and management levels. This has enabled Al Ain in moving towards a 24/7 supply and securing safe and economic operation of the city's drinking water system." (State of Green, 2016). (18)

Other strategies include, Asset Management Systems, Demand driven distribution and accurate metering. The point has been made that buying cheaper components is false economy.

Rous County Council could employ strategies that involve councils and consumers, including industry, more actively in water management and sustainability. For example, charge for water based on reservoir levels, as Sydney does. Make water tanks mandatory. Involve school kids - they've shown they're concerned about their future. Invite them to be part of the solution. As suggested by Daniel Peterson, (2020), (19) employ solar powered water desalination plants could be built in appropriate locations.

Across the board education will be a critical part of many of these solutions. In order to take people with them and enthusiastically participate, Rous County Council will need to be clear and transparent about strategies that require local council and community involvement. Part of this education will be the constant updating of knowledge and skills within Rous County Council itself.

IN SUMMARY

I don't want the cheapest solution. I want the BEST solution. Indeed the best solution is likely to be the cheapest solution, once all the costs are counted. Rous County Council needs to sell a suite of effective, sustainable strategies that way to politicians - adding sustainability to their vocabulary.

The Dunoon Dam has been on the drawing board since 1990. The conservation status of our unique rainforest, platypus and koalas has only become more critical in that time. We have also been living with more severe impacts of global heating due to rising emissions. The structural racism underlying the destruction of Indigenous Australian culture and heritage continues apace, witnessed in the blasting of Juukan Gorge caves.

Given the evidence above, I submit that The Channon Gorge should be permanently protected, not obliterated by the Dunoon Dam. I absolutely OBJECT to this project.

REFERENCES

1
https://www.theguardian.com/australia-news/2020/jun/07/more-than-a-third-of-nsw-rainforests-found-to-have-been-hit-by-australian-bushfires?CMP=Share_iOSApp_Other

2
Call to NSW government to protect our devastated rainforests – Echonetdaily

3
platypus: evolutionary history, biology, and an uncertain future | Journal of Mammalogy | Oxford Academic

4
https://www.nationalgeographic.com/animals/2019/11/koalas-near-extinction-myth-australia-fires/

5
Platypus dies after getting caught in fishing line - ABC News

6
Platypus on brink of extinction -- ScienceDaily

7 and 8
https://www.smh.com.au/environment/conservation/brink-of-extinction-steep-drop-in-platypus-numbers-as-drought-bites-20200116-p53rz8.html

9 and 10
https://www.tweed.nsw.gov.au/Documents/Environment/Waterways/Platypus/TSC04458_Conserving_Platypus_Information_and_Guidelines.pdf

11
Pascoe, B 2014 Dark Emu:Aboriginal Australia and the Birth of Agriculture Magabala Books.

12
What does racism look like in Australia? - The University of Sydney

13
Indigenous heritage sites could be underwater if new dam is built on New South Wales north coast - ABC News

14
Experiences of racism among Aboriginal and Torres Strait Islander adults living in the Australian state of Victoria: a cross-sectional population-based study | BMC Public Health | Full Text

15
Quiet as an Environmental Value: A Contrast between Two Legislative Approaches

16
Environmental Impacts of Dams

17
https://www.earthlawcenter.org/blog-entries/2017/12/dams-climate-change-bad-news

18
https://stateofgreen.com/en/uploads/2016/06/Reducing-Urban-Waterloss.pdf

19
Water and future growth: is a new dam the answer? – Echonetdaily

From: [redacted]
To: Records
Subject: RE: The proposed Dunoon Dame within the Future Water Project 2060
Date: Tuesday, 8 September 2020 8:09:01 PM

Katie Hathaway
[redacted]
Gender: Female

08/09/2020

Rous County Council
Lismore NSW 2480

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

My concerns are around the restrictions that may be imposed on commercial primary producers in the catchment area.
We run a commercial macadamia farm that is our main source of income. We do this in a manner, that is sustainable and giving back to the environment, however we do require the use of ground and foliar fertilizers, including animal manure, and air blast spraying to ensure our farm is viable and it runs at a profit, to provide for our family.

We believe in running our farm to make sure that it is here for generations to come. I understand that the proposed Dunoon Dam is doing the same thing, giving water security for generations to come, but one should not come at the cost of the other.
Our properties gullies and creeks feed directly into Rocky Creek downstream from Rocky Creek dam, but upstream from the proposed Dunoon Dam, and water runoff from our orchard is inevitable.

I would like written confirmation that no restrictions will be imposed on us, or any agriculture in the catchment area now, or in the future.
Without this I cannot support the proposed Dunoon Dam within the Future Water Project 2060

Thank you for taking the time to read my submission and concerns.
Kind regards
Kate Hathaway

From: Dragonfly
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 8:15:01 PM

Patricia M Jacobs
[redacted]

7th September 2020

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

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

I was a rate paying resident of [redacted] for 26 years. I still & always will hold the Rainforest environment deep in my hearst/

My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for 40 years.

Words cannot describe our deep appreciation for this land. In addition to the local community of farmers

and local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, and

politicians, have come forth in their outrage and support towards protecting this land we always felt was a

unique ecosystem.

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

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

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

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

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

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

> Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
>
> Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-t he-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. [4]
>
> Rous is required to ***avoid*** this destruction because there are economically viable and more effective solutions.

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

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

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

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

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

I SUPPORT these alternatives:

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

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

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

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

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

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

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

● **Contingency planning** would enable Rous to be ready to rapidly implement supply

measures if it becomes necessary in times of drought.

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

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

Yours Sincerely Patricia M Jacobs

From: Kate Collins
To: Records
Subject: Dunoon Dam
Date: Tuesday, 8 September 2020 8:17:25 PM

The proposed Dunoon Dam within the Future Water Project 2060

To Whom It May Concern,
My name is Kathleen Lord of [redacted]
I am writing to object the proposal of the Dunoon Dam.
There are so many reasons for objecting to this project, the main being the destruction of such an important environmental area. The dam will destroy an area of such beauty and importance being one of the last vestiges of the Big Scrub. I feel this dam is such a knee jerk reaction to our drought problems with no real deep thought behind it. Such an iconic area to be utterly destroyed when there are so many other, better and more sustainable solutions. For a council that prides itself caring for the environment , please reconsider this deplorable proposal.
Yours Sincerely
Kathleen

From: jeremy stewart
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060: A Dam's convenience vs Rocky's Eden?
Date: Tuesday, 8 September 2020 8:19:08 PM

Suzannah Norman and Jeremy Stewart

[redacted]

[redacted]

8th September 2020

Dear Rous Councillors and General Manager,

We [redacted] of the proposed Dunoon dam. We moved here for its natural beauty particularly its waterways and waterfalls, and the attraction to the potential of living with more respect for nature.

Whian Whian and its environs is a very beautiful place, you could say the miracles of life are humming along in remnants, loving having a place of their ancestors and they can be themselves. It is kept mainly so by being on the periphery of human development and close to undisturbed National Parks. We have also contributed a little through participating in about 15 years of local Landcare riparian regeneration projects.

Since being here, our sense of appreciation for this quality natural environment has significantly grown.

We have been particularly charmed by the watercourse with the name of Rocky Creek. Its gurgling and rushing, its flooding magnificence and low ebb. We have listened to the sublime cacophony of bird and frog sounds that emanate from the creek dawn and dusk. We have been fascinated by the extraordinarily adapted microbats that 'fish' and fly in darkness over the ponds of the creek. We have let platypus be startled on their discovery of their admirers. We have witnessed the thousands of eels on masse unbelievably climbing Whian Whian Falls to populate the landscape above.

Witnessing these things have been some of the most cherished moments of our life. And I think we have only touched the surface of its sublimity.

In our journey living here, we have come to realise there is something altogether sacred about the creek. It is by far the area on our farm with the highest biodiversity values. It is a place of sanctuary and thoughtfulness. It is a place of communion with nature and the past. It is the landscape and sounds of immemorial. It's a place that deserves the utmost care, respect and protection. All of it.

In only about 100m from our boundary, Rocky Creek enters the proposed Dam site.

I have canoed and walked this section of creek on a couple of occasions, and I would agree most of it is in equal if not higher condition to our own section.

It similarly deserves the respect and protection of a sacred area.

We know that you as councillors are the ones in the seats at the moment considering, weighing, what is best for all. We appreciate the brevity of that task and respect its challenges.

We know you have 100's of pages of reports, graphs, forecasts, estimates, that culminate in the bright idea that a 50ML dam on Rocky Creek is the best way of enabling our region to accommodate a significantly increased population at a perceived cheapest price tag.

We know there are plenty of other options out there rather than this one. Lets push ourselves more and nature less.

What will make you more feel alive?… Deciding to respect an ecosystem and leave the water flowing down the creek… or have it piped it to Byron to wash grime from the streets? For example…

We challenge you to feel the spirit of the creek rather than the sweets of development or industry.

Perhaps you will only be able to find your truth by coming and sitting by the creek?

Wow, there goes a platypus!

Its holding a placard... Oppose the Dam!

Jeremy Stewart

Suzannah Norman

Ms Robin Allan (F)
[redacted]

8th September 2020

Rous County Council,
Lismore NSW 2480

Dear Rous Councillors and General Manager

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

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

I have lived and owned property at [redacted] for 45 years. We own 5 beautiful acres with a house built by my husband, John Allan. The house is approximately 600 metres from the proposed dam wall, on our neighbour's land. Our land is largely regenerating forest, mixed wet sclerophyll, lowland rainforest and warm temperate rainforest. Our whole property is situated on a sandstone bed, one of the rare parts of this area that pre-dates the Wollumbin (Mt Warning) volcanic eruptions, around 23 million years ago.

Our own few acres are but a tiny scrap of this unique ecology; consequently our extraordinarily diverse ecology of trees and associated flora, bisected by a tiny trickling creek, is unlikely to remain viable without the protection and support of the forest next door, which will be concreted, flooded and replaced with a different ecology altogether.

One of my favourite forest friends grows only 30 paces from our back door. It is a fragile and rare 'Small Bolwarra' tree, *Eupomatia Bennetti*, a remnant of Gondwanaland forest which has been around for over 50 million years. Each spring I wait eagerly for the one day it flowers, a single waxy creamy flower, pink tinged, growing on the leading growing tip. On the one day it flowers, it is (hopefully) pollinated by a weevil I have never seen – also a Gondwanaland relic. This pairing of rare

and precious tree and weevil are unlikely to survive the drying that will be caused by the clearing you intend to do for the dam.

Our children and two of our grandchildren grew up wandering this forest, our neighbour's forest and the lower reaches of Rocky Creek, above the bridge over The Channon Road. They perfected their swimming in a beautiful platypus-inhabited swimming hole which will, if the dam goes ahead, be part of a concrete spillway. They frequently explored upstream, clambering over the sandstone rocks, paddling and swimming in other pools, discovering caves, glow-worms/fireflies, yabbies and a host of other water creatures, including swimming spiders. What we called 'the second swimming hole' (a prosaic name to describe stunning beauty) will be blasted and concreted over completely, its caves, sandstone lined pools, creatures and flora gone. As you can imagine, this is heart-breaking, and comes just as my third grand-child, my 11- year-old grand-daughter is now living nearby and exploring and delighting in this exquisite wonderland.

The noise pollution during the construction phase of the dam , only 600 metres away from our house, will also be a huge factor – not just for us, but for the local birds, the echidnas – extremely sensitive to the pressure changes in the ground from blasting – and to the wallabies, the koalas and others who share our home with us. I expect these creatures to pretty much disappear during the construction phase. Perhaps we will have to as well.

As you know, the local community of farmers and local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, as well as politicians, have all come forth in their outrage and in support of protecting this land I always knew was a unique ecosystem.

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

● If the Dunoon Dam goes ahead it will be **a lost opportunity to invest in system-wide water efficiency** - which is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney was able to service an additional 950,000 people - without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government)[1]

[1] (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

● **The 21st century should be seen as an opportunity to leave behind costly, inefficient mega-projects like the proposed Dunoon Dam.** If this dam is approved we will have ignored a suite of smart water options which are fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.

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

● Construction of the Dunoon Dam will result in the **loss of important Indigenous cultural heritage**, including burial sites (Cultural Heritage Impact Assessment, 2011)[2], and will be yet another example of white Australia's ongoing disregard for our First Nations' heritage.

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

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Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020. See: https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast See "Delivering the Plan, Direction 2: "Enhance biodiversity coastal and aquatic habitats and water catchments."[4]

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[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

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

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

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

● The **small population increase predicted for the four Rous-supplied councils** of 12,720[5] between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions.

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

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

I SUPPORT these alternatives:

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

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

---

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

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

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

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

● **Water re-use in various ways, including Purified Recycled Potable water**.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? See: https://www.waterra.com.au/publications/document-search/?download=1806 [10]

Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history [11]

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

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

[9] Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides

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

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

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Thank you for your careful and informed attention to this submission,
Yours sincerely, Robin Allan.

---

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

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

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

From: [redacted]
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 8:21:54 PM
Attachments: Dunoon dam submission - Robin Allan.docx

See attached and below my submission in relation to the proposed Dunoon Dam within the Future Water Project. (The footnotes/references have not copied into this email – see the attachment for the full submission. Thank you, Robin Allan.

Ms Robin Allan (F)
[redacted]

8th September 2020

Rous County Council,
Lismore NSW 2480

Dear Rous Councillors and General Manager

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

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● The **small population increase predicted for the four Rous-supplied councils** of 12,720[5] between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions.

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

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

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

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

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

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

● **Water re-use in various ways, including Purified Recycled Potable water**.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? See: https://www.waterra.com.au/publications/document-search/?download=1806 [10]

Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history [11]

● **Water harvesting (urban runoff; rain tanks):** Water tanks on all new (and existing) developments.[12] Water harvesting **builds community 'water awareness' and resilience** - Both much needed, as the recent extreme bushfire season has shown. The Australian government advises that: "Depending on tank size and climate, mains wateruse 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.[13]

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

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

● **Groundwater, where this is environmentally safe** The Australian government provides a lot of information on the ecological impacts and groundwater usage.[14] With scalable supply alternatives in place, the existing supply from Rocky Creek Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

Thank you for your careful and informed attention to this submission,
Yours sincerely, Robin Allan.

Bobbi Allan
[redacted]

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[1] (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

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

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

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

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

[9] Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides

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

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

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

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

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

From: Sarah Odgers
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 8:23:14 PM

Sarah Odgers
[redacted]
Gender: Female

8th September 2020

Rous County Council, Lismore, NSW, 2480

<council@rous.nsw.gov.au>

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

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

I am a keen hiker, explorer and environmental scientist living locally [redacted]. I have a deep connection to the area of the proposed The Channon-Dunnon dam. I also acknowledge the significance of this area to the Widjabul-Wybal peoples and wider Bundjalung peoples. As a community member, scientist and nature-enthusiast, I am deeply concerned by the proposed dam.

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

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

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

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

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

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

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

Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)

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

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

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

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

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