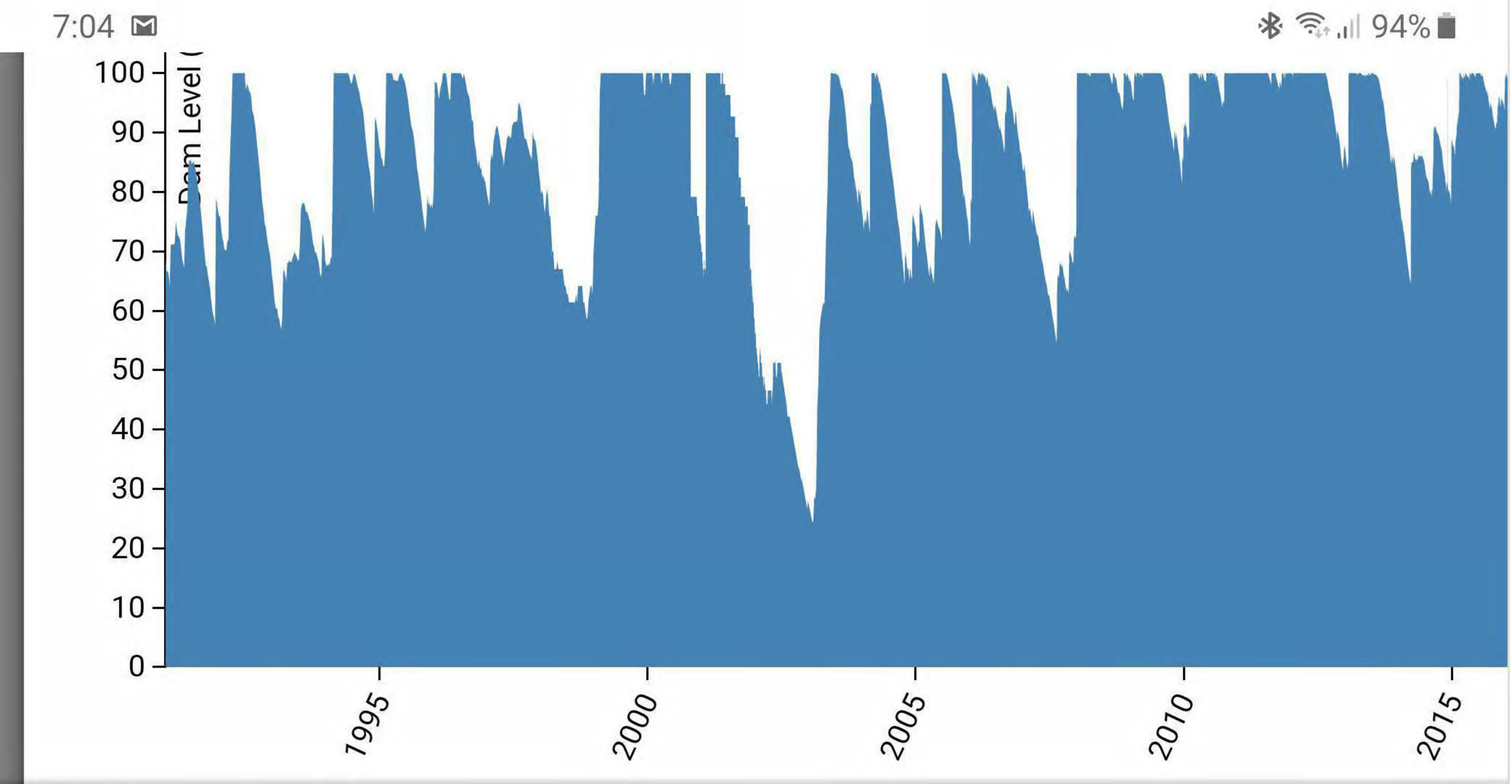
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SUBMISSION RE THE PROPOSED DUNOON DAM WITHIN

THE FUTURE WATER PROJECT 2060.

My name is Philippa Cutter. [redacted]. I wish to submit a comment on the Rous Future Water Project 2060.

I object to the proposal. I do not support the proposed Channon-Dunoon Dam for these reasons:-

The Burragorang Valley was described as a true paradise, ringed by towering cliffs, thick bush, fertile soil and serene waterways. The Warragamba Dam was built in the 1950's to supply extra water to the Sydney population. So the "paradise" was flooded. The social and environmental cost was devastating, particularly for the Gundungurra People who had lived there for 40,000 years and the 170 residents of the area who were forced to relocate.

Is the Channon-Dunoon Dam proposal a repetition with nothing learned from history? It will result in the destruction and disregard of important First Nations indigenous cultural heritage, the rainforest and exceptionally rare sandstone of the Channon Gorge and it's endangered ecological community which includes nine threatened flora species and seventeen species of threatened fauna. You cannot "offset" this sort of damage. Additionally there would be catastrophic flooding from future floods.

I would presume the astronomical cost of building the proposed dam would be passed onto consumers.

I believe there are much smarter ways to provide water to humans such as water reuse, water harvesting helping to reduce flooding, environmental toilets which currently waste an exorbitant amount of water, water tanks for all residences and businesses and system wide water efficiency.

I thought there was no money to spare – why waste money on a dam when there are so many more sensible, efficient ways to conserve water. It seems like 1950's thinking and nothing has changed. How terribly, terribly tragic.

From: Shane Adams
To: Records
Subject: Submission on the future water project 2060 (Shane Adams)
Date: Sunday, 6 September 2020 9:22:16 PM

WITH REGARD TO THE PROPOSED DUNOON DAM:

I support further investigation to determine whether the proposed Dunoon dam is the best way for Rous water to meet community water needs into the future.

Why do we need dams?

Because they store water. And we live on the continent with the most variable rainfall distribution, and the lowest average levels of rainfall of the inhabited continents.

Climate change suggests we need to store more water, for longer, if we are to rely on water storages.

Tanks are not an option as it would cost $5 billion to store 50 gigalitres in poly tanks (2.2 million 22,500 litre tanks @$2300 each). Before considering the CO2 emissions from manufacturing and delivering them, or for the earthworks required to instal them. Plus, who wants twenty-two of these monsters in their backyards, because 100,000 households would need to install 22 each. Where would we grow our vegetables, or put the trampoline...

So, as well as considering the loss of rainforest in the short term, and the economic costs, we need (as part of a global effort) to minimise CO2 emissions by analysing the whole-of-life-cycle CO2 emissions cost of the two options [1. building a dam, and 2. building a desalination plant, plus manufacturing enough solar panels six times over 150 years to desalinate water for our needs plus pump it to storage(s), plus building a pipeline to rocky creek dam] to see which involves the least CO2 emissions. Because CO2 emissions cause the climate change that is cooking us, and are irreversible, where we could plant 250 hectares of rainforest on the alstonville plateau where the greens are happy to have new suburb after new suburb.

I think the lower CO2 emission option is likely to be to build the new dam. I think it is too late to choose the higher CO2 option to save a patch of rainforest - too many people have done too little about climate change for too long to have our cake and eat it, anymore. Especially if the greens are going to continue to support population growth at regional, state, national, if not also global, levels.

But wait, there is more...

Even if the lowest CO2 emissions option, determined by solid maths and science, is to build the dam, climate change could cut rainfall so low that we don't have enough water running out of Nightcap to keep rocky creek dam filling up periodically, and the new dam could be a pointless white elephant in a few (how few?) more years. Meaning the only real option is to do the desalination and pump option.

To complicate this further there really is no "desalination and pumping with renewables" option available to us now - because to instal renewables for this purpose now is to take them away from the incomplete task of installing them to replace coal burning for the electricity we use. We can only genuinely use renewable energy to desalinate and pump after we have installed lots more renewables to power the grid (and probably also set up some pumped hydro to store that renewable energy too) - which is several years away, even longer if we take it away from existing grid energy use to recharge electric vehicles as some people want us to do.

This decision to choose an option that is best for our environment cannot be determined by analysis and calculation only - it must be determined by analysis and calculation AND PROJECTIONS (of hydrological factors in a warming, drying, climate, by professional hydrologists using best available data). Which is much less certain.
The best way to make the best decision on that is to do so as late as possible - which is achieved by:
1. Stopping the increase in demand for water, and reducing it, in the ways others have described, and
2. Stopping the population from growing;
two areas where greens (and Greens) to date have an appalling track record as advocates/lobbyists.

If we fail to do either of these things a new water supply is certainly needed (and it may be anyway) and we face the hobson's choice of flooding a rainforest or making climate change worse to avoid it - without knowing if the (likely) lower CO2 emissions option of a new dam will even fix the problem.

Shane Adams
[redacted]

From: Sheriden Keegan
To: Records
Cc: [redacted]
Subject: Proposed Dunoon dam submission
Date: Sunday, 6 September 2020 10:05:04 PM

[redacted]

Att: Rous Water

To whom it may concern,

I'm writing in regard to the proposed Dunoon Dam within the Water Future Project 2060. As a resident of Whian Whian and researcher in the field of public health, I would like to state that I am whole-heartedly opposed to the development of this dam.

My greatest concern is the threat that the proposed dam poses to the region's biodiversity. With the rate of species' decline due to the impacts of human encroachment and climate change, there has never been a more urgent time to act to preserve the habitat of native flora and fauna. The proposed dam will destroy significant tracts of ecologically important rainforest and is not in keeping with the state's 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." [1] There are far less environmentally destructive alternatives to creating the Dunoon Dam that warrant further consideration, such as water catchment, water treatment/recycling and reducing inefficiency in water consumption. The native rainforests of northern NSW have already taken a blow from the bushfires of 2019/2020 and these forests are predicted to face more frequent threats from extreme weather conditions due to the impacts of climate change. Their preservation and restoration is currently of urgent importance.

In addition to the threat to biodiversity, I am also deeply concerned about the potential destruction to indigenous sites of cultural significance. Indigenous people have faced enough disrespect in this regard and the proposed dam is only perpetuating the history of disrespect to indigenous heritage.

As a resident of Whian Whian, I would also be greatly disadvantaged by the extra traffic and likely damage to roads, and would be greatly disappointed to see the industrialisation of this beautiful landscape.

I have been proud of the many sustainable and progressive actions taken by the

Lismore/Byron shires, however, I feel the proposed dam would be a huge step backwards at a time when environmental protection has never been more critical.

Yours sincerely,

Sheriden Keegan

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[1] NSW Department ofPlanning, 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 >

From:	Ella Risebrow
To:	Records
Subject:	Re: The proposed Dunoon Dam within the Future Water Project 2060. Objections.
Date:	Sunday, 6 September 2020 1:10:04 PM

Thank you for taking the time to read this, I am a home owner in [redacted] and intend to be for a long time. I bought here 17 yrs ago because I love nature and the quiet countryside.
These are my objections to the proposed Channon-Dunoon Dam.
Water efficiency to begin with, there are several more sustainable water uses than building dams, refer to Sydney Metropolitan Water Plan 2006, NSW Government (1)
Giving opportunity to move with the times, setting an example on the world stage with more up to date water management plans for our area would serve our region well.
Also do we want to be responsible for even more destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage?
Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species such as water gums and rare vines.
. (Terrestrial Ecology Impact Assessment, 2011)(3).
I do not support the idea of offsetting in this instance, you cannot redo an ecosystem that has taken 100s of years to develop.
There are thousands of micro organisms and small worlds of teaming life that have a sensitive balance which cannot be replaced.
https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)
Rous is required to avoid this destruction because there are economically viable and more effective solutions.
Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, affect on wildlife, visual impact. Ongoing sound impact from pump house etc.
*A four times higher increase in water bills I am certainly not in favour of.
*There is no justification for such a large dam according to the predicted number of future residents.
https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections
*Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres below. (Environmental Flows Assessment 2011)(6)
I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives.
The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.
An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best investment in water supply comes from demand management and identifying savings within the existing supply.(7) (8)
Water re-use in various ways, including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/?download=1806(9)
Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology. https://www.wingoc.com.na/our-history(10)
Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments.(11) This builds community resilience - much needed, as the recent extreme bushfire season has shown.
The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."
Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.(12) https://www.yourhome.gov.au/water/rainwater

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

References and Notes

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

Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

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

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

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

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

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

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

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

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

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

Please consider these points and clearly put my objections amongst the numbers of NO support for this Dam.

Yours Sincerely

Ella Risebrow.

From: Steve Posselt
To: Records
Cc: [redacted]
Subject: Dunoon Dam Submission
Date: Monday, 7 September 2020 7:08:10 AM
Attachments: Fragile Future.pdf

Dear Rous Chairperson,
I have made a submission some time ago but I recently came across the attached. It was prepared 23 years ago when yet another dam was being proposed on the Mary River to provide water for Brisbane and the Sunshine Coast. I would like to add it for your deliberations.

The paper spells out some facts that it seems many people are not aware of, mainly that "If we are going to modify river flows, through building dams or other means of water diversion, we have to accept that we will have an adverse impact on the aquatic environment. These impacts may be cumulative and take some time to manifest themselves but they come with a considerable economic cost; eventually, inevitably, we will have to pay."

I have yet to see evidence of Rous County Council, or any other affected body, attempting to quantify these costs. I have also not seen any attempt to quantify the costs of community resistance, or the possibility that a proposed dam could meet the same fate as the Traveston Crossing Dam which cost the Queensland Government $2B and destroyed many communities.

Ballina lies at the bottom end of the Richmond River Catchment. It already suffers from a seriously degraded river which, anecdotally, diverts tourists to other areas such as Yamba and the Tweed. The effects on Ballina's tourism and fishing industries must be part of any analysis.

Regards,
Steve Posselt

fragile future

downstream impacts of dams and flow regulation

Dr. Stuart Bunn
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Hydrology is the river's life force

One distinctive feature of streams and rivers is that the water always flows downhill.

Altho ugh this may seem a trivial starting point, it is this unidirectional flow down a river system that has a tremendous influence on the distribution and abundance of aquatic plants and animals, and on ecosystem processes. The pattern of flow - the hydrology - drives the ecology of the river system in just about every way imaginable. The flow determines the range of aqua tic habitats available to plants and animals, from the catchment scale (channel shape and form), to the reach scale (riffles and pools), right down to the micro-scale (e.g. habitat for individual insects). It also plays a major role in shaping the life histories of the plants and animals that live in the stream ecosystem. However, the influence of river flows also extends out of the channel and beyond to floodplain ecosystems, inland lakes and wetlands, and estuaries and coastal systems.

The pattern of flow - the hydrology- drives the ecology of the river system in just about every way imaginable

Flow is not uniform in space

The branching network of a river system can be likened to the branches of a tree. As water moves across the landscape it collects in the smaller tributaries; these coalesce to form larger streams which move through the catchment increasing in size as more and more of the tributaries link together. Ultimately they form the main stem of a large river. The volume of water as it moves down the landscape dictates the channel dimensions and characteristics. There is a considerable difference in fauna as we move from the smaller streams into the larger channels.

The volume of water as it moves down the landscape dictates the channel characteristics

The smallest headwater streams typically have narrow channels with steep gradients and cobble and boulder substrates (stream bed). They are heavily shaded and contain cooler water with lots of oxygen. The animals, mostly insects and crustaceans, we find there are adapted to conditions of high water quality. high oxygen, low temperature. As we move down the channel to where it widens out, the bed material starts to decrease in size from the larger boulders and cobbles down to small cobbles and gravels and sand. There is more sunlight, warmer water and higher algal production. These conditions open up a more diverse range of habitats and different opportunities for stream plants and animals. As we reach the large main channel the river is wider

and flowing more slowly. The river bed is made up of finer sediments and more mobile materials, and the water can be more turbid. The sorts of plants and animals living in finer, more mobile sediments are very different from those we find in other parts of the catchment.

Reach scale effects

Water flowing in a river is not the same as that which is flowing down a concrete trough; it undulates and meanders backwards and forwards as it moves across the landscape. lo doing so it creates pools and scour holes in the river channel and, importantly, riffles - areas which have fast, highly aerated, shallow water. We find quite different plants and animals living in these faster flowing areas of the streams to those we find in the pools. The riffles are generally the most productive parts of the river; they are often described as the 'lungs' of the system and support a high diversity of plants and animals. Pool habitats tend to accumulate deposits of organic material and fine sediment, and are characterised by slower moving, deeper water. These support a different assemblage of biota; it is here that many species of fish hang out waiting for food to drift down from the highly productive riffle areas.

Riffle areas are the 'lungs' of the river system

Micro-scale

On a smaller spatial scale, subtle variations in flow dictate the distribution and abundance of particular species of plants and animals. For example which rocks are home to which animals is determined by patterns of flow. Smaller animals (e.g. insects) select sites which favour feeding (e.g. high production of algae), or for egg-laying or pupation. Many fish have very specific flow and substrate requirements for spawning.

Flow is not uniform in time either

Rivers are not uniform in flow over different time scales. Flow patterns of Australian streams and rivers are far more variable and less predictable than those in most parts of the world, with some of our larger arid-zone rivers at the extreme end of the world range. A distinguishing feature of many river systems in Australia is that they are dry for much of the time.

The flow patterns of Australian rivers are variable and unpredictable

Seasonally intermittent streams

Seasonally intermittent streams have characteristic fauna which are quite different from those of permanent streams. The

inhabitants of temporary streams are not just a sub-set of those which live in permanent streams. They are suites of species which are highly adapted to periods of dry conditions.

Arid regions

Arid regions have 'boom or bust' cycles

In the arid regions, the pattern of flow is even more unpredictable and the streams dry up for long periods. The fauna here is geared up for 'boom or bust' cycles - the occasional delivery of water to the system produces a boom of production. from the algal level up to the aquatic consumers, and in turn to the vast flocks of birds which feed on them. In these systems, the pattern of flooding triggers these periods of 'boom' and prevents populations from going permanently into periods of 'bust'.

Seasonal patterns

Several species of aquatic animals depend on periods of low, stable flows for spawning and recruitment

In other streams where flow regime is more predictable, low flows may be an important period in the life history of many species. In the wet tropics, the dry season is characterised by periods of low, stable flows. Several species of aquatic animals depend on this period of flow stability for their spawning and recruitment. These times are very important for the survival of insects and fish so that their egg development and larval recruitment are completed before the onset of the wet season floods. Some streams, such as some of those in Western Australia, have predictable and highly seasonal flow patterns and the animals living in them have highly seasonal life cycles. Where the flow pattern is not seasonal, for example in Victoria, the animals have more loosely synchronised life cycles.

Short-term spates

Short-term spates maintain and scour the channels and create and sustain aquatic habitats

Short-term spates are also important from an ecological perspective. Not only do they maintain and scour the channel, but they also create and sustain important aquatic habitats. The disturbance of the stream bed is an important 'reset' mechanism for stream communities. Some ecologists believe that the disturbance from high flows is the single most important topic to be studied in streams.

Ecosystem processes

Seasonal or short-term patterns of flow can also influence stream ecosystem processes, such as their productivity. Sandy bed streams, for example, can be very productive in low flow conditions because the fine bed materials can be colonised and

stabilised by algae. A small change in the flow, however, can disturb the stream sediments and turn the system from one which has been highly productive to one which has little production.

Big flood events

Big flood events carry carbon energy and nutrients down from the headwater streams to the lower reaches of rivers and the coastal environment

The movement of water has a major driving influence on the distribution of leaf litter and other organic debris from the forest which are major sources of food for the animals in rivers. The transport and retention of this material in the stream is largely governed by the flow regime. Big flood events have a profound effect on the passage of carbon energy and nutrients down the river channel from the headwater streams to the lower reaches of rivers and the coastal environment. These materials from upland streams can provide an important source of food for downstream ecosystems.

As well as changing the character of the channel and forming new habitats, big floods connect and flush billabongs and stimulate the recruitment of floodplain trees. The entire viability and production of floodplains depends on periodic inundation from large discharge events. The processing of energy and nutrients on floodplains is linked to this periodic flooding. and fish use this energy source to nourish their young.

Impact on the coastal environment

Wet season flows are not 'wasted'

Wet season flows are not ' wasted' as they flow to the sea: riverine discharge and estuarine productivity are strongly Linked. For example, records kept over twentyfive years of banana prawn catches and rainfall runoff in the South East Gulf of Carpentaria show a strong linkage between the runoff of the rivers and the prawn catch. In the Logan River, South East Queensland, records of prawn catches and stream flow show that summer flows significantly affect the prawn catch. However, this pattern is not found with winter flows. Maintaining natural high flows in summer is crucial to stimulate the productivity of estuaries and coastal areas.

Effects of dams and flow regulation

Building impoundments and changing the pattern of flow will always have a tremendous impact on the ecology and health of our rivers and receiving water-bodies such as estuaries or terminal wetlands

Given the fact that hydrology has a profound influence on the ecology of river systems, there is no surprise that the construction of impoundments and flow regulation represent the greatest threats to the health of our rivers (Australian State of the Environment Report 1996). On a global scale the degree of river regulation is enormous. In the eighties and nineties, the global rate of construction of large dams was one per day, and although the trend has slowed down in last five to ten years, there is an increasing tendency towards the construction of larger structures and also to the transfer of water across basins. It is predicted that, at the current rate of development, at least 60% of the world's river flow will be regulated by the year 2000.

In Australia, most of the regulation to date has been in the south-east (there are about 375 major dams in Australia), but there is every indication that we will continue the world trend, especially in Queensland and far north-west Australia.

Many people do not see this as a bad thing; that water going to sea is 'wasted' is a common perception. In this country, where droughts are common, dams are a 'good thing' because they guarantee a supply of water when we need it most. In some cases, dams also prevent flooding and associated destruction of property. However, these advantages come at a cost to the environment and, ultimately, at a cost to the community. Building impoundments and changing the pattern of flow will always have a tremendous impact on the ecology and health of our rivers and receiving water-bodies such as estuaries or terminal wetlands.

Impacts of dams

Dams have a number of negative impacts on the environment:

Barrier effects

It does not have to be a big dam or huge wall to have a barrier effect which impedes the movement of aquatic animals both upstream and downstream

An immediate effect of the dam is the actual barrier construction, which impedes the movement of aquatic animals both upstream and downstream. Importantly, it does not have to be a big dam or huge wall to have this barrier effect; small weirs and culvert crossings also have a considerable effect on the movement of fish and aquatic animals in the river. Some of these barrier effects can be overcome by constructing fish ladders but, so far, few have been designed in Australia which successfully allow the passage of our native fish.

Water released from the bottom of the dam is much colder than the normal river water. Rapid changes in temperature can disrupt fish spawning and kill their eggs

Water temperature

In many cases the operation of dams changes the quality of the water as it is released. If the water is released from the bottom of the dam, it will be much colder than the normal river water. The effects of this colder water are noticeable for many kilometres downstream of the dam. With cold blooded animals such as invertebrates and fish, temperature influences growth (the higher the temperature, the faster the growth) and also timing of reproductive cycles. If the water is too warm, it can lead to premature emergence of adult aquatic insects; if it is too cold, adults may fail to emerge at the right time. Rapid changes in temperature can disrupt fish spawning and kill their eggs.

Multiple off-take towers can prevent these problems by selecting the depth and temperature of the water to be released downstream.

Water quality

Natural lakes and wetlands function in a very different way from river storages

Water from the deep areas of a darn often contains less dissolved oxygen than surface water; it is also likely to contain noxious chemicals such as ammonia or hydrogen sulphide. Another problem associated with flow regulation is the high nutrient levels and accompanying growth of toxic algae. These arise from the agricultural activity promoted by the availability of water and from the accumulation of nutrients in the confined water body.

Regulation often removes or dampens the high flows ('flushing flows") which prevent algal blooms.

Dams are not operated at a constant water level, so the productive littoral areas are rarely sustained

Loss of habitat

River habitat above the impoundment is lost through inundation. It is often argued that this negative effect is balanced by the creation of lake habitat. This is somewhat misleading as natural lakes and wetlands function in a very different way from river storages. In lakes and wetlands, nearly all of the important ecological processes occur in the littoral margins, where we see established zones of emergent and submerged plants. Large impoundments are generally not operated at a constant water level, so the productive littoral areas are rarely sustained.

The cumulative effects of small scale water harvesting are often not sufficiently taken into account

Changes to the magnitude and pattern of flow

By far the greatest and most pervasive impacts occur from changes to the flow regime - not just the amount of water that flows down the river but also, very importantly, the pattern of

flow. It should be remembered that big dams are not the only way of changing flow regimes. Harvesting of floodplain water into ring tanks, pumping ground water out of the system, construction of thousands of small farm dams across the catchment, all impact on flow regimes and their cumulative effects are often not sufficiently taken into account.

Just because our river systems have highly irregular flows and may periodically dry, this does not mean that we can keep them at 'low flow' or ' no-flow' conditions as long as we like without having an impact. The biota can only be expected to cope with the range of dry spells they are naturally adapted to withstand. Even in arid systems such as Cooper Creek, which may be dry for many years, prolonging the period between major flows may send populations into permanent ' bust' .

Probably the most damaging impact of changed flows comes from pulses of cold water released from a dam at times when the stream or river has natural low flows

The shallow, fast flowing part of a stream is its most productive area with high aeration and high production. Keeping systems at low flow so that these areas are unable to function as the ' lungs' of the stream can be devastating.

Life-cycles of animals in the river can be easily disrupted by unnatural patterns of flow in the river. Probably the most damaging impact of changed flows comes from pulses of cold water released from a dam at times when the stream or river has natural low flows. The biggest departures from a natural flow regime are often during the dry season when demand for water is high. Making variable flows more predictable encourages the spread of exotic species (animals and plants) e.g. introduced carp and mosquito fish in the Murray-Darling system, and water hyacinth.

Changing the pattern of flow, particularly increasing the frequency and duration of low flows, compounds just about every potential water quality problem in the catchment

In a regulated system, sections of the river may no longer have enough stream power to maintain their channel dimensions. Aquatic weeds - such as para grass and salvinia - can invade and their prolific growth can choke the channel. Accumulation of these plants can lead to changes in channel morphology, loss of aquatic habitat and major declines in water quality. Fish and invertebrate diversity thendecline.

The relationship between the river and its floodplain is critical to the health of the system

Changing the pattern of flow, particularly increasing the frequency and duration of low flows, compounds just about every potential water quality problem in the river system. The impacts of nutrient enrichment, from uncontrolled stock access or agricultural run-off, are far more apparent at low flows. High loading of nutrients stimulates excessive aquatic weed production

and ultimately leads to low oxygen levels in the river. At times, stream pools become anoxic and fish kills occur.

Eliminating or reducing the frequency of peak flows has a negative effect in big floodplain river systems. The relationship between the river and its floodplain is critical to the health of the system - the flood pulse connects billabongs, triggers the movement of fish and stimulates the recruitment of floodplain trees. It is thought that many of the woes of the Murray-Darling stem from this loss of connection between the river and its floodplain.

Regulation of river flow comes at a cost

If we are going to modify river flows, through building dams or other means of water diversion, we have to accept that we will have an adverse impact on the aquatic environment. These impacts may be cumulative and take some time to manifest themselves but they come with a considerable economic cost; eventually, inevitably, we will have to pay. We are paying a very high cost now for the degraded health of the Murray-Darling system.

What kind of mess are we prepared to leave to the next generation?

We, as the community, must weigh up and make responsible, long-term decisions about how much cost we are prepared to accept in terms of degradation of our environment in order to benefit from short-term gains.

What kind of mess are we prepared to leave to the next generation?

From:	Helen Pearce
To:	Records
Subject:	Dunoon Dam proposal – Submissions close – 9th September
Date:	Monday, 7 September 2020 7:11:16 AM

Please wait until the NSW government research is concluded.

What is options A. We don't know. Surely there are other sustainable options.

As it is the Councils, with their ever increasing costs, are helping to cause retirees into privately owned Retirement villages, which in the end could cost retirees more and makes there future more uncertain. The Councils are already wasting our money by charging us for fluoride which is not a substantiated help for children and useless for retirees, which they have to pay for.

Sent from Mail for Windows 10

From:	philippa Wright
To:	Records
Subject:	Dam or no dam
Date:	Monday, 7 September 2020 8:08:29 AM

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

There should be other options available to the population in the Northern Rivers than just building a new dam.

Why does storm water literally just go down the drain instead of being recycled for watering the garden or for flushing toilets etc?

Also why not provide every household with a water tank, size depending on available space & needs, or at least subsidise them?

There should be other options than building a new da.

Sincerely,
Philippa Wright

[redacted]

Sent from my iPad

From: discflight
To: Records
Cc: [redacted]
Subject: Submission Re: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 8:22:35 AM

Donovan Moss
[redacted]

Submission

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

I OBJECT to the proposed dam's construction in the valley between The Channon and Dunoon villages.

I am a resident of The Channon and grew up playing in the creek and valley that is being proposed to be flooded.

So I clearly object to the proposal as it would destroy a part of the North Coast I believe worth conserving. The threat to terrestrial and aquatic species that is outlined in section 7.4 and 7.6 of the RCC Assessment of Augmentation Scenarios (2020) is probably understated and clearly a detriment to the North Coast as a whole. Councils are required under State planning regulations to avoid this kind of destruction because there are economically viable and
more effective solutions. (1)

It would also place at risk the homes and livelyhoods of both my family and friends downstream of an ultimately fallible dam wall, as is apparent from the plan itself. (2)

Furthermore it seems that there are significantly more logical options in providing the North Coast population with water, both in terms of cost and effectiveness over time. The small population increase predicted for the four Rous-supplied councils of 12,720 (3) between 2020-2060 does not justify such a large, costly and destructive dam. Existing research over the past decade has consistently found that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply. (4) (5). The direct proposals of Professor Stuart White from the Institute for Sustainable Futures (UTS) Sydney give clear and proven direction (6)

I ask you each to bring common sense to this situation. We are a community that is struggling to provide a decent road network for ourselves, or our visitors, to safely travel on. While decent water supply should also be a given, due and proper planning and true cost effective and functionally effective options should be chosen ahead of grand and destructive plans. It may come to pass that dams may be required but from the numbers presented by Rous Water, that time is not in the immediate future.

And lastly, but not least important, the potential destruction of Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011) (7) is far from

acceptable in this time! Ongoing disregard for Indigenous heritage demeans our whole country and culture and respectful action must be a foremost consideration in any healthy future we are creating.

Sincerely, Donovan Moss

(1) 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.
(2) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.
(3) NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney,
viewed 03 August 2020,
<https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections>
Scroll down to "Local Government Factsheets".
(4) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand
Management Strategy : preferred options, Rous County Council, Lismore.
(5) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for
Hunter Water, Institute for Sustainable Futures, Sydney.
(6) Further summary by Prof. White: www.bit.ly/Prof-Stuart-White-Rous-Water-augmentation-proposal
(7) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

To - council@rous.nsw.gov.au
Regarding dams.
September 7, 2020

To understand water does –
is to better understand our world, and what Life is.
Every living thing on Earth, has water in it,
if not, it is not living.

Water is the blood of the earth,
take it away and the streams, creeks and rivers die,
along with everything in them.

- - - - -

Water is part of Earth's Habitat and does not belong to people,
and definitely not to governments or the banks!

- - - - -

Australia's large dams are largely full of private property,
not publicly shared life-giving water.

- - - - -

When the fires subside and our world is filled,
with smouldering embers and things that have died in the flames,
we will realise, it was, and still is,
all about what we do with water.

- - - - -

To have allowed capitalism and the banks to control the hydrodynamics of our Habitat in Australia will likely be recognised as
one of mankind's greatest mistakes ever.

- - - - -

The delicate balance of natural ecosystems must be protected by law,
to preserve THE RIGHTS OF NATURE and biodiversity,
to balance, continue and flourish.

- - - - -

Dams remove water from the ecosystem.
Large dams and pipes are causing a drying out of our world, resulting biodiversity losses and bushfires.

Consider very carefully, the legacy you leave behind for your grandchildren and all the other living creatures of Planet Earth.

Sincerely – Mark Merritt [redacted]

From:	Lindy Stacker
To:	Records
Subject:	Rous water re Dunoon Dam Submission
Date:	Monday, 7 September 2020 8:34:40 AM

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

Dear Sir/ Madam as a local resident I am totally opposed to the 'new' dam proposal called "Dunoon" Dam. This is expected to cost at least $650 million at today's prices, so that cost will blow out. Leaking water pipes account for about 20% of our wasted water which simply goes down the drain. So obviously these pipes need to be fixed. Furthermore, Ballina council has recycled toilet water/laundry and garden usage by using recycled water. This has reduced water usage drastically. We are lucky to have high rainfall (this could change with climate change not being addressed) so currently we have NO excuse to be building dams. Rate payers will up for these outrageous increases & I for one as a pensioner could not afford that ???? MY MAJOR CONCERN THOUGH IS THE IMPACT ON FLORA & FAUNA. Our precious wildlife has suffered immeasurable pain and stress over the past year and a dam is NOT want they need. I have read that platypus/Koalas/echidna etc will be drowned if this goes ahead.THIS IS UNACCEPTABLE TO ME AS WE HAVE ALREADY DESTROYED MUCH OF THEIR HABITAT AND ARROGANTLY KILLED BILLIONS OF WILDLIFE. You nor I can even imagine the loss of some 2 and a half BILLION animals across this nation.This breaks my heart more than I could ever put into words. You can not justify more carnage on our innocent wildlife , who are already struggling to survive in a shrinking habitat. WE HAVE TO LEAVE REMAINING WILD PLACES (LEAST SOME WILD PLACES) FOR THEM. We are not more important than any other species, simply because we have a credit card. Our Council needs to be subsiding water tanks for residents that can't afford this and initiate water re -usage plans as Ballina Council has done. SOME TIME AGO THERE WAS A FIGHT OVER WATER COMPANIES WANTING TO BUY OUR WATER, MOST RESIDENTS OPPOSED THIS MAD COMMERCIAL PROPOSAL. This almost happened, if not for escalating outrage by the local community.Considering this….. all we need to do is conserve our available water & implement progressive recycling programs & re use of those 'purple' pipes. CONSIDER THE LOSS OF WATER JUST FROM GUTTERING THAT IS NOT CONNECTED TO WATER TANKS. These sensible, sustainable methods should be the way of the future. Many rate payers would consider moving out of the Shire if these old ways of thinking are not scrapped.I would be one of those after moving here over recent years because of our progressive "Green" Byron Council. Mind you there is considerable pressure now on Byron Council to live up to these Green Credentials & this pressure will not subside. I again state my total OBJECTION TO BUILDING AN UNNECESSARY DAM, THAT WOULD CREATE MORE SUFFERING & HABITAT DESTRUCTION TO OUR UNDERVALUED BUT VITAL NATIVE SPECIES. We the rate payer will pay an economic price for this BUT OTHER VOICELESS ANIMALS WILL PAY WITH THEIR LIVES. I for one will continue to oppose this insane project, as the opposition from local residents grows. You now need to work out a PLAN C AND D AND POSSIBLY E . I await your response and a complete re thinking which must include environmentalists/ecologists and economic advisers who can propose an alternative strategy. Your decision will determine a re invigorated " NO DAMS CAMPAIGN". Thank you for listening & I must have hope that you will re consider another sustainable long term solution , that is a benign project not impacting on our dwindling wildlife and wild places ???

Yours sincerely

Lindy Stacker & family

From: Jodie Digney
To: Records
Cc: [redacted]
Subject: Concerns about the proposed Dunoon Dam
Date: Monday, 7 September 2020 9:16:06 AM
Attachments: Letter To Council.docx

Good morning all,
Please find attached my letter of concern about the proposed Dunoon Dam.

I appreciate you taking time out of your busy day to consider my view on the matter.

Concerned community member
Jodie Digney

Miss Jodie

[redacted]

5/9/2020

[redacted]

Attention: **Rous County Council,**
Lismore NSW 2480
In reference to: The Proposed Dunoon Dam

To whom it may concern,
I Jodie Digney, a long-time member of the community and [redacted], write to you voicing my concerns over the proposed Dam, for the area of Dunoon and the Channon.

I have no desire to engage in political, scientific or what may be viewed as negative communication with council, but believe my personal concerns or opinions are worth sharing.

For most of my life I have lived in homes for which a water tank has been the only source of water. This has taught me to be a VERY water conscious, conservative, thrifty and resourceful manager of water usage. I have been nick named the 'Water Nazi', within the home and will often find myself educating others in water saving techniques. I am astounded by the lack of care and bad (unsustainable) practices of many people.

We must find ways to assist people to make better choices for water usage, instead of providing more ways to be wasteful and carefree.

I have been privileged to live in one of the best parts of Australia for over 20 years, and have a deep appreciation for, and connection with this land and the native flora and fauna that I co-exist with. On this Munro Rd property alone, I regularly see Koalas, Ring tail possums, Brush tail possums, Echidnas, Wallabies, Platypus and a myriad of birds and snakes. This is just a small pocket of remaining natural environment, which I feel needs to be protected, for the survival of many species of flora and fauna, important to our heritage and our future.

On a more personal level, I am distressed at how the building of this dam will affect the small village of Dunoon, with the heavy and noisy machinery which will have a negative impact on our roads and which will cause disruption, stress and noise pollution, for those of us who have chosen to live this quiet and peaceful lifestyle.

I must also admit that I am highly anxious about my own displacement if the Dam goes ahead, as I rent one of the properties in the zoned area.

Education is all about '21st century learners', sustainability, problem solving, developing smarter systems, and using technology for a better future. As a school teacher, I am in a position to educate students in water saving and conservation skills and practices, waste management, environmental protection and to respect our aboriginal heritage. This education is reinforced through Big Scrub events and supported by Rous water council. And so, I believe council should also 'practice what we preach', by implementing the current science information and technologies available to them.

I appreciate you taking the time to read about my concerns.
Jodie Digney

From: Nadine Smith
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 9:17:32 AM

Nadine Smith 19 Snows
[redacted]
Gender: Female

7th September 2020

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

Dear Rous Councillors and General Manager

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

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

I have grown up enjoying the rainforests, creeks and in the northern NSW region, living here for over 35 years and was involved in much regeneration activities in our local community. I am now raising my children in this special area. Words cannot describe our deep appreciation for this land. In addition to the local community of farmers and local nature enthusiasts; local and national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their outrage and support towards protecting this land we always felt was a unique ecosystem.

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

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

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

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

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

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

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

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

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

[Terrestrial Ecology Impact Assessment, 2011]

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

Councils are required under State planning regulations to:

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

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

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

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

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

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

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

[Interview with Michael Mackenzie, Rous Engineer on 20.08.20]

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

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

● A developers' dam: There is a strong National and NSW State push towards a population

growth via immigration to 400,000 people in this region and beyond 30 million in Australia by 2060. [NSW Future Blueprint 2040] Developers are called on to invest in our "Rous, runs as a Corporate Entity" through the surcharges on developments, with expected returns on investments. Also the rapid expansion of National Water Infrastructure Fund, lines of credit with 5 year interest free loans, merely feeds the financialization of our childrens' future, and leaves them prisoner to the piper's tune. [Debtwatch: Neoliberalism and economic breakdown: By Steve Keen" February 20, 2009.]

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

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

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

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

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

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

I SUPPORT these alternatives:

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

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

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

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

● Water harvesting via urban runoff & rainwater tanks: Water tanks on all new (and existing) developments. Remove the rubbish law that prevents urban use of rainwater in the Ballina Shire. (11) This builds much needed community resilience, as the recent extreme bushfire season has shown. The cost of a 22,000L rainwater tank is a mere $2,500. If this were spread over each new

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

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

● Deep underground water storage with surface runoff integration.

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

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

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

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

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

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

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

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

This is a unique and sensitive environment that deserves better investigation of alternatives before it's devastating destruction through the implementation of this proposed dam. It is essential that the voice of our community is heard as we speak for the trees, the animal and landscape that would be obliterated by this proposal.

Yours faithfully,

Nadine Smith

References and Notes:

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

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

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

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

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

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

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

Research-and-Demography/Population-projections/Projections

Scroll down to "Local Government Factsheets".

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

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

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

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

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

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

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

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

Resources, Rainwater | Your home, Canberra, viewed 3 August 2020,

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

(13)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020,

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

From:	Michael
To:	Records
Subject:	Submission re. Proposed Dunoon Dam
Date:	Monday, 7 September 2020 9:18:51 AM

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

Good morning,
If the proposed new dam were built, and the already high water prices quadrupled, everyone being less than rich would have to dramatically cut down on their use of water, by, for example, using rainwater wherever possible. Water consumption would fall. The dam would be a white elephant memorial for Rous Water.
Why not be smart for a change, think outside the square and encourage lower (dam) water consumption in the first place?
Why not abandon the old, traditional thinking that has landed us in the current crisis and use the gift from nature that separate us from animals in a constructive and innovative way?
The age of building our way out of trouble with ever more concrete is over.

Yours sincerely,

Michael Qualmann
[redacted]

From: Kate de Jude
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 9:26:40 AM

Kate de Jude
[redacted]

Gender: Female

7th September 2020
Rous County Council,
Lismore NSW 2480

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060
Firstly, thank you for supporting the extension of the submission date. The community appreciates it.

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

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

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

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

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

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

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

Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist) Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)

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

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

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

● The small population increase predicted for the four Rous-supplied councils of 12,720 (5) between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020,

<https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> scroll down to "Local Government Factsheets". (5)

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

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

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

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

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

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

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

The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or

desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."

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

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

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

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

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

Kind regards
Kate de Jude

--
I acknowledge and give respect to the Widjabul people of Bundjalung country as the traditional owners of the land on which I have the honour to walk, work, and live.

From: Michael Barclay
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 9:29:33 AM

Michael Barclay
[redacted]

Gender: Male

7th September 2020
Rous County Council,
Lismore NSW 2480

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060
Firstly, thank you for supporting the extension of the submission date. The community appreciates it.

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

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

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

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

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

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

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

Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist) Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < 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
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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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(4) NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03
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(5) NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney,
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(8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for
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(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
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(11)Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment,
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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-drawdown

Kind regards
Michael Barclay

From:	Douglas Tait
To:	Records
Subject:	The proposed Dunoon Dam within the Future Water Project 2060
Date:	Monday, 7 September 2020 9:34:25 AM
Attachments:	image001.png

From
Dr Douglas Tait
Senior Research Scientist
Geoscience
Southern Cross University
[redacted]

To the Rous Council,

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

1. By continuing to focus on a model of water and energy use underpinned by the notion of unlimited supply, we will continue to use our valuable resource inefficiently without regard for the consequences. This is particularly true for communities that do not have to wear the direct consequences of development
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).
3. Lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance.
4. Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)(2). Ongoing disregard for First Nations' heritage.
5. 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)
6. 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)
7. Rous is required to avoid this destruction because there are economically viable and more effective solutions.
8. Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
9. 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.
10. 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)

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

I SUPPORT these alternatives:

1. I believe we need to take action on a suite of smart water options and proven alternatives.
2. 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.
3. 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)
4. 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)
5. Water re-use in various ways, including Purified Recycled Potable water.
6. A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? https://www.waterra.com.au/publications/document-search/?download=1806(9)
7. 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)
8. Water harvesting (urban runoff; rain tanks):
9. Water tanks on all new (and existing) developments.(11) This builds community resilience - much needed, as the recent extreme bushfire season has shown.
10. 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."
11. Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.(12) https://www.yourhome.gov.au/water/rainwater
12. Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
13. Groundwater, where this is environmentally safe

Regards

Dr Douglas Tait

ARC DECRA Fellow
Southern Cross Geoscience
Southern Cross University
[redacted]

[redacted]

[redacted]

Southern Cross University

From: Nina Giblinwright
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 9:38:49 AM

7th 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

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

I DO NOT support the proposed The Channon-Dunoon Dam.
The damage posed to this precious eco-systems and the surrounding communities is not worth the risk.

I support the following initatives:

- 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-ground water-drawdown

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

Kind regards,
Nina Giblinwright

--
I acknowledge the traditional custodians of the land on which I work and live, and recognise their continuing connection to land, water and community. I pay respect to Elders past, present and emerging.

From: [redacted]
To: Records
Cc: [redacted]
Subject: Proposed Channon-Dunoon Dam within future water project 2060
Date: Monday, 7 September 2020 9:45:27 AM

Dear Rous Councillors,

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

1. **The associated destruction and loss that results from a new dam should make this option a last resort,** such as:
    a. The destruction of the Channon Gorge and the ecological impacts on its environment
    b. The destruction of Indigenous cultural heritage including burial sites
2. **System-wide water efficiency:**
    I would like to be confident that all options related to system-wide efficiency have been explored and implemented before deciding to proceed with a new dam.
3. **NSW Government's review** is yet to be published. It seems logical to wait until we know what State intentions are, to determine what synergies will exist.
4. **A 400% increase in water rates to pay for the dam** seem prohibitive for many people. Of course other options are ikely to require an increase in water rates, however perhaps smarter options will be less expensive.

I support exploration of a range of alternative options such as:

1. **Invest in system-wide water efficiency and demand management:**
    I would like to be confident that all options related to system-wide efficiency have been explored and implemented before deciding to proceed with a new dam, such as:
    a. Ensuring all leaking pipes in the system have been repaired
    b. Increase all water re-use options such as expanding the capture and recycling of water across our region
    c. Increase rebates and requirements for rainwater tanks to encourage greater water preservation
    d. Ensuring a range of options are available to ensure supply-demand balance, rather than being dependent upon one large dam
    e. Create incentives for residents and businesses to be water-conscious and efficient, such as rebates for installing water-saving fittings
1. **Invest in advanced technology for water re-usage, learning from global experience**
2. **Legislate for water tanks to be compulsory:**
    a. on all new developments (industrial, residential, business)
    b. encourage retrofitting where possible on existing developments

Thank you for taking my concerns into consideration.

All the best,
EstherButton
[redacted]
[redacted]

From:	Lynne DeWeaver Email
To:	Records
Subject:	Dunoon Dam Submission
Date:	Monday, 7 September 2020 9:46:21 AM

Dear Rous Council

As rate payers in the RCC area, neither my husband nor I, support the proposed extension of the Dunoon Dam because of the damage it would do to the local environment, particularly the ground water and areas around The Channon, nearby rainforests and Aboriginal heritage sites.

Offering customers rebates to install or enlarge water storage tanks on their properties would be a much cost-effective as well as much more environmentally friendly.

Yours truly,

Dr Lynne De Weaver &
Mr. J. F. De Weaver

[redacted]

[redacted]

From: David Morse
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 10:25:15 AM

David Morse
[redacted]
male

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

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

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

My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for the last 2 years 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/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,

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(8) Watson R., Turner A and Fane S 2018, *Water Efficiency and Demand Management Opportunities for Hunter Water*, Institute for Sustainable Futures, Sydney.
(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

(10)Kahn,Stuart and Branch, Amos 2019, *Potable water reuse: What can Australia learn from global experience?,* Water Research Australia Limited, Adelaide.
(11)Windhoek Goreangab Operating Company (Pty) Ltd 2020,*Our history | Wingoc,* Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>
(12)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).
(13)Australian Government Department of Industry 2013, Science, Energy and Resources, *Rainwater | Your home*, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater> (14)Department of Agriculture, Water and the Environment 2018, *What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment,* Canberra, viewed 6 August 2020,

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

groundwater-dr awdown>

Kind regards

David Morse

From: Sina Morse
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 10:27:46 AM

Sina Morse
[redacted]
female

7th September 2020

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

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

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

My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for the last 2 years 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/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)

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Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled water for 30 years using advanced technology.
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● **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]
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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.[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.

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Kind regards
Sina Morse

From: Emma Toner
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 10:53:55 AM

SUBMISSION

FAO Rous Councillors and General Manager

Emma Toner
[redacted]

Dear Rous Councillors and General Manager,

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

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

I moved to this area because of the beautiful environment. Words cannot describe my deep appreciation for this land. This incredibly unique ecosystem needs protecting not destroying.

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

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

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

projections/Projections> scroll down to “Local Government Factsheets”.(5)

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

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

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

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

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

[Terrestrial Ecology Impact Assessment, 2011]

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

Councils are required under State planning regulations to:

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

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

2. Enhance biodiversity coastal and aquatic habitats and water catchments.

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

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

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

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

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

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

[Interview with Michael Mackenzie, Rous Engineer on 20.08.20]

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

The Rous Reconciliation Action Plan (RAP) 2017 is to be commended in their recent efforts:: "Bundjalung people have lived in the region for many thousands of years in a sustainable relationship with the natural environment. The water catchment areas managed by Rous County Council are a part of the natural landscape that forms the identity, culture, spirituality and resource base for the Widjabal/Wiyabal people of the Bundjalung nation. Despite the significant changes of the past 200 years, the Widjabal/Wiyabal people still maintain a responsibility and deep relationship with the land and water. Rous County Council acknowledges this

relationship and deeply values their traditional laws, knowledge and lessons about places and sustainability. Rous County Council conducts all business activities in accordance with its values of Integrity, Commitment, Trust, Social Responsibility, and Accountability."

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

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

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

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

I SUPPORT these alternatives:

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

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

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

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

● **Water harvesting via urban runoff & rainwater tanks**: Water tanks on all new (and existing) developments. Remove the rubbish law that prevents urban use of rainwater in the Ballina Shire. (11) This builds much-needed

community resilience, as the recent extreme bushfire season has shown. The cost of a 22,000L rainwater tank is only $2,500. If this were spread over each new 2 person household (est 13,000 pop by 2060) the cost would be a mere $16 million, and combined with automatic-mains top-up, can provide 100% reduction in mains water use!
The Australian government advises that: “Depending on tank size and climate, mains water use can be reduced by up to 100%. This, in turn, can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs.” Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

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

● **Deep underground water storage with surface runoff integration**.

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

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

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

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

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

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

For a picture journey through part of this incredible landscape please see **David Lowe's amazing photography of the threatened Channon Gorge**:

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

Kind regards,

Emma Toner

References and Notes:

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

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

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

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

Research-and-Demography/Population-projections/Projections

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

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

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

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

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(13)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020,

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

From:	Julian Mateer
To:	Records
Subject:	Dunoon Dam
Date:	Monday, 7 September 2020 10:54:56 AM

I am a local resident who would like to object to the proposal to construct the Dunoon/Channon dam. It will flood a beautiful sandstone gorge with sacred sites, platypus in the creek, rare trees and bird habitat. I realise that this idea is being floated to meet the needs of a large population increase in this area but I think that there must be a better way - are we using our water to the best advantage now? If we put in the dam there is no incentive to improve our practices - we could be saving our rainfall and recycling our grey water much more efficiently. Please do not consider this proposal.
with regards
Julian Mateer

From: Melody Mandeno
To: Records
Subject: Dam
Date: Monday, 7 September 2020 11:09:10 AM

To the Rous water management and planning staff;

Re: The Proposed Dam

I do object to your plan to ruin a very beautiful area that is home to much wildlife.

I do object to the disregard of plowing up ancient Aboriginal burial sites.

I do object to the loss of a community nature spot that contains rainforest and natural sandstone.

Please rather provide us with rain water tanks so we may have flourishing gardens.
People need beauty and the earth needs care so please have a heart.

Regards
M Mandeno

Sent from my iPhone

From:	alexandra mateer
To:	Records
Subject:	Dunoon Dam proposal
Date:	Monday, 7 September 2020 11:15:38 AM

My sons live in the shire and we are in the process of purchasing property. Your sustainability policy is one the many aspects that has attracted us to the area. Please do not accept this proposal- the dam will flood rainforest which has never been cleared and also productive farm land. These are irreplaceable assets in our long term future. There are ways in which we can better use our water so that a dam is not necessary. Let's explore these and enhance the reputation of our Shire!
With thanks
Alex Mateer

Sent from my iPhone

From: Alex Mateer
To: Records
Subject: Dunoon dam -no!
Date: Monday, 7 September 2020 11:27:09 AM

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

Dear Council
I spend a lot of time in this area [redacted] As a wildlife photographer and environmentalist I would like you to reject this proposal as this would destroy pristine subtropical rainforest.
It will also affect native animal habitat not to mention adjacent farm land.
I think looking forward at the proper water management usage is a much more effective strategy with rainwater harvesting and reducing wastage. Thank you
Sincerely
Rick Kilpatrick
[redacted]

Ricksta

From: Janelle Shackel
To: Records
Subject: The proposed Dunoon/Channon dam
Date: Monday, 7 September 2020 11:27:38 AM

To whom ever this my concern. Thankyou firstly for your time.
I am very concerned and i completely OPPOSE the proposed Dunoon/Channon dam for many reasons. I am a nature lover, a bush regenerator, and mother. I understand the need for a water supply but there are other options that dont involve the destruction of the natural environment. The destruction of the Channon gorge will remove large areas of endangered lowland tropical rainforest, areas that have never been logged. Any future plantings that are intended as an offset will never replace the intricate habit and ecosystem that exists now.We have already lost far too much of our forests, weather it has been from the early cedar days, urban development or fires. It is imperative that this fragile habitat be left intact and NOT DAMMED!!
All new developments and even existing houses should be made to install rainwater tanks...big ones to harvest this precious resource, whereby increasing our self reliance, reducing urban runoff to help with localised flooding, and remove any need for a mega dam, a dam which is going to be so expensive and destructive.
I grew up in the country where we relied on tank water for all of our water needs, including drinking, without any ill health effects. People in the country now all rely on rainwater from tanks for all their water needs. If people have health concerns there are many filteration systems that can be put into place to ensure that their drinking water is of the highest quality. Only using tank water to flush a toilet and wash our clothes is wasteful. We can and should be drinking it. We have recently came out of a severe drought for this region, where it was pretty grim there for a while and water restrictions never became that tough and nobody ever ran out. Janelle Shackel, [redacted].

From: Hamish Webster
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 11:28:55 AM

Hamish Webster

[redacted]

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

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

I have lived in the [redacted] for the last 17 years. Over that time I have developed a deep connection to the rainforests, ranges, creeks, water holes and wildlife that also call this place home. When I was in high school I learned of the destruction of the Gondwana 'Big Scrub' rainforest as the colonies spread throughout the land. I learned how little of this crucial ecosystem remains which is critical in stabilising the ground upon which we live in high rainfall events. I cannot express with words alone how much this land means to me and how strongly I feel we need to protect and regenerate it rather than destroy more.

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-groundwater-drawdown

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

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0 (2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011 (3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011 (4) NSW Department of Planning, Industry and Environment 2019, ‘Delivering the plan’, Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water

catchments. (5) NSW Department of Planning, Industry and Environment 2019, *'NSW population projections* ', Sydney,

viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections> Scroll down to "Local Government Factsheets". (6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia. (7) The Rous Regional Water Efficiency Program 1997, *Final report of the Rous Regional Demand*

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

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

experience?, Water Research Australia Limited, Adelaide. (11)Windhoek Goreangab Operating Company (Pty) Ltd 2020*,Our history* | *Wingoc,* Veolia Environment,

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

Thankyou for your attention,

Hamish Webster

From: [redacted]
To: Records
Subject: Dunoon Dam
Date: Monday, 7 September 2020 11:29:34 AM

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

Please don't don't go ahead
Have a heart & use smart thinking
We can find better ways than gouging out more beautiful Mother Earth
Thanking you
Anne Mullin

Sent from my iPhone

From: Jim Griffin
To: Records
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 11:33:38 AM

Jim Griffin
[redacted]
Gender: Male

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

Re: The proposed Dunoon Dam within the Future Water Project 2060
Firstly, thankyou for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

I lived in [redacted] for two years before moving and have been lucky enough to explore the area and its beautiful surroundings. I have enjoyed the rainforests, creeks and wildlife in the northern NSW region for 5 years.
I have a deep appreciation for this land. The local community of farmers, 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)
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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 <

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(4)

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

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● 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.

Thank you for your time

Jim Griffin

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: Rick Banyard
To: Records
Cc: Records
Subject: Dam objection Submission
Date: Monday, 7 September 2020 11:31:45 AM

Dam Objection Submission

I wish to object to the proposal to construct a new dam at Dunoon.

For the supply of urban water dams are old technology and there are far better alternatives.

Dams are extremely expensive to construct, maintain and operate.

The water from dams very rarely meets the Australian Drinking Water Standards without extensive and expensive water treatment.

Dams require major networks to transport the water to the end user. These networks are also expensive to construct, operate and maintain. Network water leakage is also a great a major source of wasting expensive water.

The surface area of dams is a major source of water loss via evaporation.

Dams also occupy land thereby reducing land available for housing, farming and other functions.

Dam sites reduce the area of rateable land thereby adding another cost to Council.

The cheapest and best source of water is to reduce the consumption of potable water by simply eliminating waste. Water consumption could be reduced by 50% with ease. Water pricing based on 100% user pays with no fixed charges is a very effective tool to reduce water waste.

Increasing water reuse, recycling and storm water harvesting are also effective strategies to replace the need for dams.

Please reject the dam construction proposal

Rick Banyard

From: Aimie Gibson
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 12:14:51 PM

Dear Rous Councillors and General Manager

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

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

My family going back generations has lived in the [redacted] and we have always loved this place. I want my children to grow up surrounded by such natural beauty as we have here. If they were old enough to voice their concerns they would. 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)

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

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https://www.waterra.com.au/publications/document-search/?download=1806 (9)
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Water tanks on all new (and existing) developments. (11) This builds community resilience - much needed, as the recent extreme bushfire season has shown.
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● Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
● 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.

--
Aimie Gibson
[redacted]
gender: female
7th September 2020.
on behalf of myself and my children Zeke (11) and Loki (9)

From: Georgina Pollard
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 12:25:07 PM

[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 wish to register my concerns regarding the Future Water 2060 plan. I am concerned to hear via The Nimbin Goodtimes that allegedly there is "no analysis and costing of an investment in system-wide water efficiency". I read, according to Annie Kia that "without this analysis and costing, Rous County Council cannot possibly make a decision that the dam is the 'best option'".

My concern also extends to the price tag attached to the proposals - $240 million which I have no doubt would ultimately be passed on to local residents and ratepayers.

I am also interested to read Annie's comments about this proposal possibly flushing "future innovation down the drain".

Myself, my family and friends have enjoyed the rainforests, creeks and wildlife in the Northern NSW region for the past 100 years. I currently live in my Great Grandfather's house built in 1937 and I feel a very strong connection to this land and region.

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

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

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

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

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

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

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

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

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

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

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

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

● **Higher prices for consumers due to a 4x increase in the cost of water.** Rous

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

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

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

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

I SUPPORT these alternatives:

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

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

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

> environmentally and socially irresponsible.[(9)] (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)

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

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

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

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

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

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

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

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

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>

GEORGINA POLLARD

[redacted]

[redacted]

From: Gwen Trimble
To: Records
Cc: [redacted]
Subject: The proposed Channon/Dunoon Dam in the Future Water Project 2060
Date: Monday, 7 September 2020 12:26:40 PM

I am grateful for the extension of the submission date, which has allowed me time to better inform myself of the implications of this proposed huge infrastructure project. As a consequence, I find I do not support the proposed Channon-Dunoon Dam.

Reasons I do not support the proposed dam:

1/ Adding another dam does nothing to encourage more efficient water consumption, we need to be developing a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would be a hugely expensive, old thinking, "eggs in one basket" project. I believe investment in a system-wide water efficiency scheme would be an economical & fast route to ensure supply-demand balance.

I have read that by focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (Metropolitan Water Plan 2006, NSW Government) (1)

2/ The construction and maintenance costs of this dam, whether the extra water storage is eventually needed or used, would be passed on to consumers. The Rous General Manager recently estimated that would result in a four fold increase in the cost of water.

3/ The construction of a dam in this location would result in loss of valuable endangered ecological resources in the Channon Gorge. I am advised by an accredited botanist that the planned offset of the lost rainforest is not equivalent.

4/ The location has Indigenous sites, including burial sites, which would be destroyed if the dam is constructed.

Whilst I acknowledge the difficult task Rous Council has in planning to ensure water supply in the future, I sincerely ask that modern solutions and alternative approaches are sought to meet this need.

Gwen Trimble
[redacted]

From: John Revington
To: Records
Cc [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 12:34:38 PM
Attachments: John Revington Dunoon Dam submission 7 September 2020.pdf

<<...>>

Dear Rous Councillors and General Manager,

Below is my submission regarding the proposed Dunoon Dam. I have also attached a PDF version of my submission.

I have been a resident of [redacted] for 34 years. I urge you to your plans for the costly, unecessary and destructive Dunoon Dam.

Sincerely,

John Revington

[redacted]

[redacted]

[redacted]

Gender: male

Submission opposing Rous County Council's proposed 50GL Dunoon Dam

This submission deals briefly with ecological and heritage concerns, and then focuses on the issues that Rous County Council (Rous) appears to believe take precedence over all others: water security and economics.

Ecological and heritage concerns: These concerns include the destruction of Aboriginal heritage sites; the destruction of forest, including rare rainforest growing on sandstone; the possible danger during floods to people living in areas below the proposed dam wall site; and the effect the dam would have on platypus, koalas and other native species. Rous acknowledges that its plans for the dam are subject to "significant environmental and social constraints" (Rous, 2020) but fails to discuss these "constraints" in any depth in its planning documents (Rous, 2020; MWH, 2014; Hydrosphere, 2020). In my view any one of these concerns is reason enough not to go ahead with the dam, and Rous's failure to address them in any depth shows a lack of understanding of their importance.

I believe the above issues will be dealt with in many other submissions. In the

rest of my submission I therefore concentrate on water security and the financial aspects of the proposal.

Water efficiency measures: One of the most obvious and fundamental failings of the case Rous attempts to make for the dam relates to water efficiency measures. In 1997 Rous commissioned a report into the region's potential for demand management (White, 1997). The areas covered in White's detailed recommendations included: monitoring; pricing; rebate programs to introduce water-efficient toilets, shower heads, washing machines and dishwashers; leakages; water wise gardening; swimming pools; rainwater tanks; water reuse and education. Most of White's recommendations were ignored or not fully implemented, and current Rous staff may not even aware of the existence of his report.

In the intervening 23 years, there have been some efforts to improve water efficiency (Rous, 2020), but compared to what is possible, these efforts have been tokenistic. Rous's 'Future water strategy coarse screening assessment' (Hydrosphere, 2020) does not include demand management in the list of options it assesses. This is indicative of an outdated fixation on supply options and a lack of appreciation of the efficacy of demand reduction. White (2020, p.2) finds that if Rous increased its expenditure on water efficiency "from ~$500k per annum to an average initial investment in existing housing stock and businesses of ~$5m per annum for 3-5 years, declining to a steady state of ~$2m per annum" it could probably "defer the need for the dam beyond the planning horizon, stimulate the local economy and provide employment, and significantly reduce water and energy bills and greenhouse gas emissions".

Sydney Water has been more receptive than Rous to the use of water efficiency measures, and as a result it was able to supply water to almost one million additional people without needing to increase its supply (NSW Government, 2006). Water utilities in South East Queensland have also achieved significant water savings through water efficiency measures (Liu et al. 2017, pp. 22-29; Turner et al., 2016). Even though the water-saving achievements in these two jurisdictions are impressive, they leave plenty of room for improvement. If Rous were to introduce industry best-practice water efficiency measures, it could become an internationally recognised benchmark in demand management. The cost of even the most ambitious water efficiency measures would be a fraction of the cost of building the Dunoon Dam and its associated infrastructure.

Real options planning: Rous has not applied the principles of real options planning. Also known as contingency planning, real options planning involves having supply or demand measures ready to implement at short notice, should the need arise. A prime example is the NSW Government's 2006 decision to prepare the way for constructing a desalination plant for Sydney at short notice, if the water level in Warragamba Dam were to fall below 30%. Unfortunately, the government later built the desalination plant without waiting for this trigger event. Aside from the initial capital costs this involved, taxpayers now have to pay substantial amounts to maintain a plant that is not needed. The Dunoon Dam also risks becoming a stranded asset.

The supply sources which Rous could consider as contingency options include groundwater, transfers from other supply sources in the region and wastewater recycling. It is likely that current opposition to recycling for

potable uses will diminish, given the widespread and increasing need to find alternative sources of water (Readfearn, 2019)..

Misleading cost calculations: Rous could be accused of indulging in misleading accounting in its costing of supply options. Rous divides the cost of the dam by the total amount of water that would be stored in it, and uses this figure to argue that the water supplied by the dam would be cheaper than water from other new supply options (White, 2020). However, the total amount of water stored is irrelevant to the cost of the water that is actually used. What Rous should have done is to divide the cost of the dam by an estimate of the amount of water used from the dam in a given year. If it had used this approach, Rous would have realised that the cost per litre of water from the dam would be many times greater than its calculations imply. This is a fundamental error, and Rous has left itself open to charges of being incompetent or deliberately misleading.

A failure to recognise the financial risks: The cost of building the dam would inevitably result in an increase in the prices charged to water users by Rous and its constituent councils. This increase in price could significantly reduce demand, and this could leave Rous with a stranded asset (Martin, 2017). Given the dam's projected $200 million cost, this is a significant risk.

Conclusion: If it persists in its plans for the dam, Rous is likely to be the subject of public ridicule. Criticism of Rous would focus on:

✍ its failure to adequately consult its constituents

✍ its failure to adequately consult the local Widjabul Wia-Bal people about whether they approve of the destruction of the heritage sites which would be submerged by the dam

✍ its unnecessary destruction of an endangered ecological community of lowland rainforest and its farcical assumption that this destruction can be "offset" (Rous, 2020)

✍ its unnecessary destruction of critical wildlife corridors for koalas and other species at a time when populations of native species are being decimated as a result of fire damage and habitat loss (Wellauer & Thomas 2020)

✍ its reckless and unnecessary expenditure in a time of financial constraints due to the Covid pandemic

✍ its misleading calculations of the costs of supply options

✍ its failure to adequately consider the safety of residents who live below the site of the proposed dam

✍ its failure to implement major water efficiency programs despite their relatively low cost and their demonstrable success in Sydney and South East Queensland

✍ its fixation on an outdated paradigm which prioritises large, monolithic supply options and ignores the merits of introducing a suite of less destructive and less expensive

supply and demand options.

Given the controversy it risks provoking, Rous would be well advised to abandon the proposed dam, or to delay its decision on the region's water future pending further investigation of the potential for water efficiency measures and alternative supply sources, and consultation with the community using participatory democracy processes.

The response to the planned introduction of CSG mining in 2017 shows that the Northern Rivers community does not take kindly to ill-considered projects on which it has not been adequately consulted.

References:

Hydrosphere Consulting (2020) Rous County Council bulk water supply demand forecast 2020—2060. Final Report

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

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- its reckless and unnecessary expenditure in a time of financial constraints due to the Covid pandemic
- its misleading calculations of the costs of supply options
- its failure to adequately consider the safety of residents who live below the site of the proposed dam
- its failure to implement major water efficiency programs despite their relatively low cost and their demonstrable success in Sydney and South East Queensland
- its fixation on an outdated paradigm which prioritises large, monolithic supply options and ignores the merits of introducing a suite of less destructive and less expensive supply and demand options.

Given the controversy it risks provoking, Rous would be well advised to abandon the proposed dam, or to delay its decision on the region's water future pending further investigation of the potential for water efficiency measures and alternative supply sources, and consultation with the community using participatory democracy processes.

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References:

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NSW Government (2006) Review of the Metropolitan Water Plan

Readfearn, G. (2019) Can recycled water be the 'next frontier' for towns running out of drinking water? *The Guardian*, 6 October 2019. Retrieved from https://www.theguardian.com/environment/2019/oct/06/can-recycled-water-be-the-next-frontier-for-towns-running-out-of-drinking-water

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Wellauer, K. & Thomas, K. (2020) 'WWF report finds 71pc decline in koala numbers across northern NSW bushfire-affected areas', ABC website 6 September 2020, https://www.abc.net.au/news/2020-09-06/wwf-koala-loss-report-finds-71pc-decline-after-fires/12624938

White, S. (1997) The Rous regional water efficiency program. Preferred Options, Lismore NSW.

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

From: Mora Main
To: Records
Subject: Dunoon Dam
Date: Monday, 7 September 2020 12:39:06 PM

TO WHOM IT MAY CONCERN

There are overwhelming environmental problems with dam building, and with groundwater pumping which is just rainwater in the ground. Better alternatives should be explored before any large engineering works are progressed. More sustainable dispersed solutions are preferable.
The following can be investigated:
1. invest in rainwater tanks for all buildings, new and existing, including commercial, industrial and residential. This could be on an individual or collective scale, for use in toilet flushing, garden watering and car washing etc
2. stormwater capture from roof and road run off - design swales and wetlands to accommodate run off and improve infiltration into the ground to improve natural recycling systems for environmental benefit of wetlands, and trees, etc. Adopt WSUD (water savings urban design) principles
3. Council buildings: all to be fitted out with very large water storage tanks, and water carriers set up for all council parks and gardens watering;
4. Population growth: address underlying assumptions about the benefits of growth and unsustainable patterns of settlement. Suburban style of subdivision growth is particularly damaging, and relies on overuse of water (and other resources) as well as land clearing, which can also cause run-off and infiltration problems;
5. Demand: reduce consumption with retrofits of water saving devices and restrictions particularly on industrial and commercial water use.
6. Dams: large and costly water storage dams should be the least desirable option.

Yours faithfully,
Mora Main

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

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

Received over the counter
7 SEP 2020

From: Yvonne HARTMAN

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] – We can use this strategy
- **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] Extremely important
- *** **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.

There are other solutions!

References and Notes

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

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

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

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

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

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

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

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

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

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

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

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

Kind regards, Signature: [redacted] Date: 4/9/20

From:	Ross
To:	Records
Subject:	Dunoon Dam
Date:	Monday, 7 September 2020 12:47:40 PM

Dear Rous,

I have recently become aware of your proposal to build a dam at Dunoon.

It strikes me that this may not be the best way to provide water into the future for this region. We should be looking at ways to use water 'smarter', to reuse more water and make reuse available to users for whom that is not currently an option, to make sure the water we are distributing is all being distributed, i.e make sure the reticulation system is leakproof. It is my understanding that approximately 15-20% of existing water supplied by Rous is lost through leaking pipes. Surely money spent fixing this issue would be better spent and would certainly solve a great deal of any water 'shortage'. For apparently we are not short of water, only short of water at the end of the pipes.

We should not be looking to increase the use of underground water supplies. Too many people see this resource as a never ending quantity. It isn't. It is as finite as any other resource and needs to be conserved for important uses, not flushing the toilet or washing industrial waste away. Also we really do not have a really good understanding of where this underground water comes from, how long it takes to replenish etc. Factor in climate change and its effect on rainfall quantity and pattern, and you have another quantity of uncertainty.

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?

I urgently request that other options be looked at, be discussed and provided as alternatives. There are more options that this binary solution.

regards

Ross Glover

[redacted]

From:	lucille atkins
To:	Records
Subject:	Planned dam
Date:	Monday, 7 September 2020 12:54:57 PM

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

Dear Councillors,
I am totally opposed to the proposed dam in the Dunnon/Channon area in order to supply water to the Northern Rivers. There are other more creative ways to use and recycle this resource. Take up the challenge and be an example to councils all over Australia. We could certainly use a more positive and proactive approach to solving an issue that has plagued Australia for generations and in an area that rarely suffers from lack of rain. We are suffering from a lack of innovation and sustainable technology not water.
Lucille Atkins
[redacted]

Sent from my iPhone

From:	Col Baker
To:	Records
Subject:	FW: New dam
Date:	Monday, 7 September 2020 1:13:13 PM

From: Col Baker [redacted]
Sent: 7 September, 2020 1:10 PM
To: 'council@rous.nsw.gov.au.'
Subject: New dam

Congratulations on an excellent idea which is long overdue.

Detractors talk about recycled water nature is the best recycler we have. You still need to consume water if you are to recycle it. Therefore we need a reliable source. Rocky Creek was built to only service Lismore many years ago when the demand was far less than it is now. Tanks. In the recent drought people with tanks were running out of water constantly, Where did the water come from in the truck that sold them water. The present Rocky Creek Dam.

The impact to the "flooded area " that will be the new dam is insignificant compared to the greater good that a new dam will bring.

If fishing, and recreational use is allowed as is in the proposal it will bring a substantial amount of money into the region for the foreseeable future.

Please do not let the VOCAL MINORITY sway your thinking as the vast majority of the population wants to be able to turn on a tap at any time, drought or not, and get potable water and that means a new dam.
As you can see by my address I live near the proposed dam so I'm not someone from away.

Regards Col

Col Baker and Associates
[redacted]

From:	Sophie de boisseson
Subject:	RE: The proposed Dunoon Dam within the Future Water Project 2060
Date:	Monday, 7 September 2020 1:25:36 PM

Sophie de Boisseson
[redacted]
Female

7th September 2020

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

Dear Rous Councillors and General Manager

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

I appreciate your extension for the submission date.
I understand that Rous management is a complex matter to provide water to our region.

I have been living in the area for 10 years and have always loved the pristine rainforests, singing creeks and what remains of the wildlife in the northern NSW region. I have at heart to keep sharing these with my child as she grows and for the next generation to inherit this sacred Land, as well cared for as possible. This Land, particularly in these tumultuous times, has been my medicine to reset, remember to be humble as a human being and ready myself to come out again into the world. I see my child flourishing amongst trees and every nature's gift spread along her steps .

In addition to the local community of farmersand local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers, and politicians, I come forth in their outrage and support towards protecting this land we always felt was a unique and sacred ecosystem.
I DO NOT support the proposed The Channon-Dunoon Dam.
- the cost of the dam would prevent any update to smart water options.
- I am deeply concerned about the destruction of important Indigenous cultural heritage, including burial sites. After a renewed awareness with the BLM movement, ongoing disregard for First Nations' heritage is the last thing that should be done. It is more than time to finally honour and support First Nation people's wisdom & 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. Rous 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.
- I can easily imagine the impact the construction zone would have for for The Channon/Dunoon community
- Higher prices for consumers
- 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.

However, 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.
- An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this increating their future water plan) Existing research over the past decade consistently finds that the best ‘bang-for-buck ’investment in water supply comes from demand management and identifying savings within the existing supply.
- Water re-use in various ways, including Purified Recycled Potable water.
- Contingency planning to enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
- Groundwater, where this is environmentally safe.

I trust our voices will be heard and appreciate the time dedicated to look into this matter with a different scope.
Regards

Sophie

From: myfanwy stirling
To: Records
Subject: proposed Dunoon dam
Date: Monday, 7 September 2020 1:31:33 PM

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

Hello there,
I am writing you as a member of the northern rivers community. I have been reading and talking to different people about the proposed Dunoon Dam and feel very strongly this is not the way forward. Surely in this day and age we can be more water wise, rather that spending money on a new dam that is going to take away agriculture land as well as wild life habitats, surely the council could better support water conservation with incentives, initiatives and education as a means to work with our community on this issue.
I thank you for your time,
myfanwy stirling
[redacted]

[redacted]

From:	Jacquelyn Johnson
To:	Records
Subject:	Submission to the proposed Future Water Project 2060
Date:	Monday, 7 September 2020 1:49:15 PM
Attachments:	image001.png 200907_SUB_ChannonDam.pdf

Dear Council team,

Please see submission attached, objecting to the proposed Dunoon Dam, part of the Future Water Project.

Regards,

Jacquelyn Johnson
[redacted]

Nature Conservation Council The voice for nature in NSW

Get involved to protect the water we drink, the air we breathe and the places we love.

I acknowledge the Traditional Owners and Custodians of the lands and waters of Australia. I pay my respects to Aboriginal and Torres Strait Islander Elders past and present, and aspire to learn from their traditional knowledge to help nature thrive.

Nature Conservation Council
The voice for nature in NSW

7 September 2020

The General Manager
Rous County Council
Level 4, 218-232 Molesworth Street
Lismore NSW

Submitted via email: council@rous.nsw.gov.au

To the General Manager,

Objection to the proposed Dunoon Dam of the Rous County Council's proposed Future Water Project 2060

The Nature Conservation Council of New South Wales (NCC) is the state's peak environment organisation. We represent over 150 environment groups across NSW. Together we are dedicated to protecting and conserving the wildlife, landscapes and natural resources of NSW.

Thank you for the opportunity to provide feedback on the proposed Dunoon Dam.

Through our network of member groups, NCC is keenly aware of an ongoing and cumulative impact of projects and developments such as the Dunoon Dam and the resulting incremental degradation of our environment and biodiversity. Each loss of rare and loved bushland is significant, and our member groups advocate hard to prevent them. NCC has been alerted by the Lismore Environment Centre and the associated WATER Northern Rivers group about concerns with aspects of the Rous County Council's proposed Future Water Project.

NCC Member Groups are opposed to the proposed Dunoon Dam, and we share their concerns. Secure drinking water is obviously essential. However, the Dunoon Dam proposal represents a missed opportunity to explore water sustainability through system-wide efficiencies and infrastructure improvements, along with community culture and behaviour change.

The Dam will destroy Channon Gorge, resulting in:

- the loss of 34 ha of Lowland Rainforest EEC including seven hectares of rare warm-temperate rainforest on sandstone.

Nature Conservation Council
The voice for nature in NSW

- the loss of nine threatened flora species
- the loss of habitat for 17 species of threatened fauna, including koalas
- the severance of local wildlife corridors[1]
- harm to important Indigenous cultural heritage[2]

The proposed offsets do not equate to the loss of rare lowland rainforest that will result from inundation.

We refer Councillors to the submissions made by local environment groups that have a close knowledge of the local community, and attachment to the areas under threat by the proposal. These submissions propose alternatives to the Dunoon Dam that Rous Council should prioritise over damaging threatened and rare ecological communities. The principle of "avoid, minimise, offset" has not been applied to this aspect of the Rous County Council's proposed Future Water Project, and as such it should not progress as proposed.[3]

Your key contact point for further questions and correspondence is Jacquelyn Johnson, Policy and Outreach Coordinator, available [redacted] We welcome further conversation on this matter.

Yours sincerely,

[redacted]

Chris Gambian
Chief Executive
Nature Conservation Council NSW

[1] SMEC Australia 2011, Terrestrial Ecology Impact Assessment
[2] Ainsworth Heritage 2011, Cultural Heritage Impact Assessment
[3] NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, available: https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan

[redacted]

From: George Newby
To: Records
Subject: Dunoon Dam Submittion
Date: Monday, 7 September 2020 1:50:22 PM
Attachments: 7-9-2020 Dunoon Dam Submission George + Jess NEWBY.pdf

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Submission George and Jessie NEWBY - [redacted] 7 September 2020

Will Rous County Council's plans for $ 245 Million "REAL" Water Solution Plan, DROUGHT PROOF, our region , the DUNOON DAM is the ONLY "REAL" WATER SOLUTION !

Please find attached document with our full submission.

Regards George & Jess Newby

Written on the 7-9-2020

Submission George and Jessie NEWBY - [redacted] 27 August 2020

- your name and address;
- name of the plan or document you are commenting on;
- a statement as to whether you **support** or **object to the proposal**; and
- the reasons as to **why you support** or **object**.

Will Rous County Council's plans for $ 245 Million "REAL" Water Solution Plan, DROUGHT PROOF, our region ? YES, the DUNOON DAM is the ONLY "REAL" WATER SOLUTION !

Chairperson **Keith Williams was 100% correct** when he said, "Given the recent impact of the worst drought conditions in living memory, this once-in-a-generation (Dunoon Dam) proposal could not come at a more critical time, for our region's water resources."

ROUS REPORTS, PRESENT WATER STORAGE : Rocky Creek Dam is approximately **13,500 megalitres at 100% storage capacity**. **This storage is relatively small** when compared to the population that it services. This **is due to the high average rainfall that occurs in our region. However, with the increased demand for water, our existing sources are simply not enough to meet the needs for the future. The Dunoon Dam project has been determined as the preferred long-term water supply option to provide water security to the region. The Dunoon Dam size of 50 Gigalitre, is significantly larger than Rocky Creek Dam, but this is to minimise environmental impacts associated with collecting water from the environment.**

Your website states, "Over the next 50 years, (to 2060), changes to climate and rainfall patterns are expected to reduce the reliability of rainfall for the region. At the same time, water use is forecast to increase as our population grows." Rous is currently developing a delivery program to secure our region's water supply through to 2060. Like many areas in Australia, we are planning and preparing for our long-term Water Security.

*In planning for the future, we need to weigh up **the impacts**, including **environment**, social and economic."* Unfortunately, that sentence, is what has controlled some of the Board member's failed negative WATER thinking and this has destroyed our WATER future, for our local region because the Board has only ever solely considered the "environmental" Politics, not our Water needs ! It is now very important, very necessary, but very urgently **needed,** the **50 Gigalitre Dunoon DAM** ! That negative thinking must cease

and from now, must also consider the detrimental 'Social' and 'Economic" effect of "WATER RESTRICTIONS", caused by insufficient Water supply, 365 days each year, for past 20 years. Plus the affect this has had on the residents, businesses and tourist (No Showers at Beaches) to this Region, plus during numerous devastating Droughts, Fires and now Climate Changes !

WATER USAGE : We dispute your "Water Usage" figures within your Reports because your "**Water Restrictions**" during every Drought, have prevented Rous knowing what were the accurate "Real usage" figures ! Had Rous Board in previous years, opted for intelligent, smart 'forward thinking' planning and built the Dunoon DAM, rather than some Board Members playing both, politics and delaying-tactics plus opting for their expensive and unreliable "Rain Water Tank" solution, that "run-dry in every Drought / Fire, Climate Change season". These Board members, then have had to ALWAYS turn to their only "REAL" WATER Solution, dependable Rocky Creek DAM ! But Rocky Creek DAM no longer meets the regions "REAL" WATER needs and the Board constantly implements and applies up to level 5 Draconian, excessively harsh and severe Water Restrictions on struggling families and businesses, during the past 20 years ! Most of this Board (plus some previous Board members) should hang-your-head-in-SHAME, for being such a FAILED BOARD, with such a dismal record of TOTAL lack of for-sight and lack of honest Community Water needs and Water Management skills !

Rous report : 4. DEMAND FORECAST By 2060, the Rous regional bulk supply is predicted to serve 57,560 connected residential properties (based on estimated lot yields) and 9,360 connected non-residential properties (total 66,920 connections). The Rous regional bulk supply currently produces 11,300 ML/a (five-year average). The predicted average demand per connection has been **estimated** for each connection type in each supply area. Dry year (*Drought*) demand per connection has also been (***Guess-estimated***) estimated based on climate correction (another ***Guess-estimate)*** of the (*True-accurate*) bulk supply demand. *("TRUE" DEMAND figures, have always been heavily under-estimated and are inaccurate, due to the unknown True REAL "Usage" factor, caused by years of excessively harsh and severe use of* ***(up to level 5) WATER RESTRICTIONS*** *during Dry periods !*)

Rain Water Tanks **Rain Water Tanks, have not and will NEVER Drought Proof our region ! In the last 2017 - 2020 Drought and every prior Drought, Rain Water Tanks have been the first to FAIL and "become DRY" ! Then those Tank residents have to rely on the "real" Water source, from Rocky Creek DAM !**

Northern Star 10 November 2019 "Water Carters say .. the wait, for Water to fill empty 'backyard Tanks', could increase from 2 weeks to minimum of 4 weeks, but if you do not book now, some households might not get any water supply, before CHRISTMAS !"

7-8-2020 Lismore's Cr Ekins said she would endorse the motion, but for a different reason. 'This gives our administration an opportunity to compile some information about rainwater tanks that we've been asking for. That's a really important piece of the puzzle,' she said. Cr Keith Williams said he agreed that more information was needed about water tanks. 'That's become much more topical,' he said.

DUNOON DAM is the only "Real" WATER solution, rather than the **COSTLY**, **FAILED**, Rain Water TANKS system - Rain Water TANKS are always the FIRST to 'become empty/dry in every dry period Drought' !!

1. Increased Ground Water use - we **OPPOSE EXPENSIVE, Increasing 'Ground Water** use because in Dry Seasons of Drought the Ground Water is depleted and becomes '**mud**', so it becomes a totally expensive **unreliable** future Water source ! During the Coal Seam Gas debates information was provided and warnings given, about depleting or 'over-use' of Ground Water reserves. So cease these EXPENSIVE 'non-productive' time wasting, MONEY WASTING plus delaying **tactics** and concentrate your negative focus, only on the "REAL WATER SOLUTION", the construction of the 50 Gigalitre Dunoon DAM !

2. WATER RE-USE - We **totally, totally reject** and **TOTALLY OPPOSE EXTREMELY and VERY STRONGLY, ANY USE** of **RE-USE SEWAGE WATER**, as any part of our "Safe" Healthy Drinking Water, or as 'top-up" for the DAMS, on Health Safety Grounds !

Should this unsafe option be promoted by any idiots on the Board, a very explosive community backlash will occur because residents have extremely serious concerns and the community is totally opposed to Sewage Waste or "Treated" Water (becoming "un-treated" Sewage Water when Treatment Plant staffing illnesses problems plus human mistakes, do occur) becoming any part of their "Clean" drinking Water system by accidently releasing Sewage into the "clean" drinking water

system ! We personally totally OPPOSE the use of unsafe RE-USE SEWAGE WATER and will complain to the EPA, if Rous Water puts Plans in place, for use of any unsafe "treated" Sewage Waste Water, to be 'added-to' or pumped from / via any source, directly or indirectly, into Rocky Creek Dam or Dunoon Dam ! We consider Re-Use of "Treated" Sewerage WATER (with numerous 'unknown' Chinese Corona Viruses) is both illegal and unsafe for our Health and Medical security. *"Not a single scheme in NSW has been* ***licensed for recycled water,*** *to go into Drinking Water supply,". "But there is no approved process to* ***apply that (water) to the water supply****, so it's hard for us to say that recycled water's a reliable water source for the future." he said.*

Water Re-Use Proposal Papers state, "It is anticipated that the existing infrastructure would be used to transfer treated effluent from the Wilson River source into Rocky Creek Dam, this may require some modification of the pipeline to avoid direct use of the water from the Wilson River source without required detention." ***DANGEROUS !***

Are any members of the Rous Board completely and totally out of touch with Community expectations regarding providing Clean and Healthy Drinking Water for families ? Do you want our local living and daily health standards to drop to the totally unacceptable levels of the "Chinese Communists Government numerous Corona Viruses and other pathogens to enter our drinking Water system, and affect for our Children ? This "Re-Use" **Water**, is again only another very expensive and very dangerous "bandaid" solution, not a "REAL" HEALTHY CLEAN WATER SOLUTION !

3. DUNOON DAM We totally support and request that Rous Water immediately apply to N S W State Government for permission to proceed with developing, Funding and Construction, of the urgently needed, new 50 Gigalitre "REAL WATER" DAM at Dunoon !

We also recommend that Local Indigenous peoples be provided with Funding from Federal and State Governments sources, so a "Local **Indigenous**

CULTURE and HISTORY Information Centre, can be built at the Dunoon DAM site, that creates numerous Indigenous Constructions and **Culture Centre** Permanent JOBS. The Indigenous Cultural Centre would become a major Far North Coast Cultural and Arts Display Centre for Tourist + Visitors to visit, see and learn about Local Indigenous Peoples and Culture ! This Centre should be jointly managed by Local Indigenous peoples and Rous Water.

Board Members who oppose the 50 Gigalitre Dunoon DAM, should stop your negative thinking and planning and 'always deferring decisions on Construction of this important DAM, to some unrealistic future date'. That short-sighted negative thinking has **FAILED** to supply "REAL" Water requirements without Rous imposing harsh "WATER RESTRICTIONS", in every Drought / Fire season ! This negative thinking has totally FAILED to deliver the "REAL" Water needs of Residents and Businesses with your added burden of WATER RESTRICTIONS, during EVERY DROUGHT, in the last 20 years ! The time has come, for the whole Board to start thinking about both the 'Short-term" future "REAL" **Water needs** (which the Board has FAILED dismally to deliver during the worst Drought during 2017 into early 2020) and "Long-term" future "Real" **Water needs**, to **2060** ! We consider the Board has totally UNDER-ESTIMATED our past and future Water "usage" needs and the 50 Gigalitre Capacity Dunoon DAM is urgently needed and should be commenced IMMEDIATELY to provide **Water Security to 2060**, for the very first time ! **INDIGINOUS HERITAGE SITES** should continue to be investigated carefully,

compassionately and meaningful discussions must continue with Indigenous Elders, Indigenous Community groups and other interested tribal members. We should fully explain to Indigenous people how their possible Burial sites areas, can be photographed, then recorded, explained and displayed within a new major interesting "***Display of their Indigenous Culture, information on Peoples past and present, Art and Craft, and History of Indigenous care for this Land, over many past years***" at their **CULTURAL CENTRE**. This interesting display of their local Indigenous Culture would be within their new **Cultural and History Display Centre** building, café, Tourist and visitors Picnic Grounds and Parking area. Their Cultural Centre should become a future source of Local Indigenous Permanent Employment plus interesting Local Indigenous History and Education. A place of which Local Indigenous Australians, could always be very proud ! This proposal should be discussed in detail, sensitively and respectfully with Indigenous peoples to obtain their broad agreement, so the Plans for the new Dunoon DAM, plus Cultural Centre can proceed forward !

Since 1940, we have lived in the [redacted], so we are "locals" ! We have closely followed Lismore Councillor Habib Habib Water and DAM policies for many years. Habib's ability to look to the future, his excellent foresight of our Water needs and pleas he made to both Lismore City Council and Rous Water to urgently build a Dam, for future Water security, were proven correct !

Water Restrictions are NOT a SOLUTION, they mean you (the Board) have **COMPLETELY FAILED to PROVIDE WATER when needed, to your CUSTOMERS !**

It is reported that both Local Political Federal and State Members of both the Liberal-Nationals and Labor parties politically, fully support Construction of the Dunoon DAM.

Frogs, Koalas and birds are NOT MORE IMPORTANT than Water for humans. We locals, all have to co-exist on this Planet and sometimes 'they' have to be carefully moved or relocated to a nearby suitable environment, or food-trees grown in a new location, so that these local Frogs, Koalas or nesting Birds can continue to survive and live in a new suitable location of trees, ponds, logs and nesting boxes. Plus, so the very necessary and urgently required 50 Gigalitre Dunoon Dam Construction, can promptly proceed ! I rely on environmental experts with fore-sight and professional management skills to provide the appropriate '**Habitat and conservation offsets**' skills listed below, to Professionally manage this Dunoon Dam development and beautiful surrounding environment ! After the Dunoon Dam is finished, some or most Koalas etc, may want to return to their new safe environmentally friendly, Dunoon Dam environment !

******* **Habitat and conservation offsets** are an option to compensate for these significant **impacts to terrestrial biodiversity**, as a result of the proposed dam. The buffer area surrounding the dam could be used as an offset for the dam, however additional areas may also be required to be reserved for conservation, managed and improved as part of an offset package for the dam, should it proceed. An **Offset Strategy** could be **prepared detailing the location of offsets**, ecological restoration requirements, and ongoing management requirements and to investigate opportunities to **improve the habitat linkage** between **Nightcap National Park** (5 km to the north and a listed World Heritage Area) **along Rocky Creek**, to the dam site.

3.1 INDIGENOUS Australians Possible Burial Sites - this matter should be discussed and handled respectfully and compassionately with Indigenous Elders and Widjabul Wybul tribe members, to fully understand Indigenous peoples concerns. We want Local Indigenous peoples to be provided with their own Local Indigenous "CULTURE and HISTORY Information Centre", at the DAM site, would be staffed by Indigenous workers, developed and managed jointly by Local Indigenous peoples and Rous Water. The Dunoon DAM and Cultural Centre would **respect Indigenous** '**peoples past**', buried at or near this Dam Site, by remembering and recording

their interesting existence and history plus create numerous Indigenous Construction and permanent Culture Centre JOBS.

Rous report : "How many jobs will the dam construction generate and will the focus be on local employment ?
It is estimated that approximately ***1,000 jobs*** *will be created during the project's* ***two and half-year construction phase****. In addition, as part of the* ***works to improve the environment surrounding the dam****, it is estimated that* ***6 to 10 jobs*** *will be created for a period of up to* ***9 years****."* We ask, Can the large percentage of these jobs be provided as permanent Indigenous Jobs and Traineeships doing the ***works to improve the environment surrounding the dam***. **Plus** other full-time jobs will be created via working within the **Indigenous Cultural and History Centre,** surrounding Dam, Café, Picnic grounds and parking facilities, plus promoting 'Reconnecting to Country' talks and visit by Schools. Which will improve our awareness of Indigenous Culture, help with the "bridging-the-gap" of non-indigenous with indigenous people and providing Permanent Indigenous Employment ? I would think, all ***past Indigenous peoples*** would be proud to have their existence and history, respectfully recorded for future generations, within their Indigenous Cultural Centre ?

George E NEWBY Jessie M NEWBY

[redacted]

From: Mark Newby
To: Records
Subject: FW: Dunoon Dam Submittion
Date: Monday, 7 September 2020 1:59:35 PM
Attachments: 7-9-2020 Dunoon Dam Submission - Mark NEWBY.pdf

Submission Mark NEWBY - [redacted] 7 September 2020

Will Rous County Council's plans for $ 245 Million "REAL" Water Solution Plan, DROUGHT PROOF, our region , the DUNOON DAM is the ONLY "REAL" WATER SOLUTION !

Please find attached document with my full submission.

Regards Mark Andrew Newby

Written on the 7-9-2020

Mark Andrew NEWBY at [redacted], born 16 September 1973

I support the Rous County Council's plans for $ 245 Million "REAL" Water Solution Plan, DROUGHT PROOF, for our region and building the DUNOON DAM.

1. Increased Ground Water use - I **OPPOSE Ground Water** use because in Dry Seasons of Drought the Ground Water is depleted and becomes '**mud**', so it becomes a totally expensive **unreliable** future Water source !

2. WATER RE-USE - I **totally OPPOSE any use** of **RE-USE SEWAGE WATER**, as any part of our "Safe" Healthy Drinking Water, or as 'top-up" for the DAMS, on Health Safety Grounds !

3. DUNOON DAM We totally support and request that Rous Water immediately apply to N S W State Government for permission to proceed with developing, Funding and Construction, of the urgently needed, new 50 Gigalitre "REAL WATER" DAM at Dunoon !

Glossy-black Cockatoos are my favourite bird and at Goonellabah there is a group of 10 Cockatoos that regularly fly over my home between [redacted]. Rose-crowned Fruit-dove is another favourite bird. During construction of the Dam I hope all precautions will be taken to protect the wildlife especially the above birds.

Mark Andrew NEWBY
[redacted]

From:	Lyndal Green
To:	Records
Cc:	neville Green
Subject:	Objection to proposed Dunoon Dam
Date:	Monday, 7 September 2020 2:00:59 PM

Dear General Manager
Its absolutely ridiculous that I even have to write this email. How can a responsible council even consider a proposal for a Dam at Dunoon.
I strongly object to this . The environmental impact would be devastating . Considering a study has been conducted which highlighted that over 80% of Northern rivers Koalas have been killed by the bushfires this should be evidence alone to not even consider this.
The proposed Dam would see the loss of over 34Ha of lowland Rainforest including 7 Ha of Warm-temperature Rainforest on sandstone. This type of rainforest is extremely rare and should be preserved at all costs for future generations. This proposal would sever local wildlife corridors and with it over 9 species of threatened flora.
In the climate of today a far more progressive option should be explored. As a community we can all do more to conserve this precious resource.
Flooding rainforest and destroying the habitat of many unique species that call that area home is not the answer.
The local community will not allow this to happen.
kind regards.
Lyndal Green

From: trish stuart
To: Records
Cc: [redacted]
Subject: The proposed Dunoon dam within the 2060 water futures plan
Date: Monday, 7 September 2020 2:05:22 PM

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

From Isabel Gillies
[redacted]
Female

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

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

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

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

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

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

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

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

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

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/Research-and-Demography/Population-projections/Projections> scroll down to "Local Government Factsheets".(5)

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

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

I SUPPORT these alternatives:

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

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

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

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

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

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

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

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

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

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

Groundwater, where this is environmentally safe

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

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

References and Notes

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

Sent from my iPhone

From: Janine Robinson
To: Records
Cc: [redacted]
Subject: Dunoon Dam Proposal - Submission of concern
Date: Monday, 7 September 2020 2:13:05 PM

To whom it concerns,

I would like to air my concern over the proposed Channon/Dunoon Dam construction.

The native creek is a rich ecosystem, home to a plethora of diverse animal species including the iconic Platypus which is on the verge of becoming threatened.

Another key element of concerns for me is the destruction of Indigenous cultural heritage sites.

The dam represents old fashioned thinking and fails to investigate intelligent, sustainable options available with or without the exorbitant budget.

Not only does this dam disregard our first nations heritage and destroy endangered ecosystems it will be bad for consumers too, bringing with it higher prices for consumers.

I strongly oppose the development proposal and hope common sense and modern intelligence can find a way to push forward with an alternative that's fit for this millennium and we stop pushing ahead with antiquated concepts.

Kind Regards

Janine Robinson

[redacted]

From:	rob johnston
To:	Records
Subject:	RE: The proposed Dunoon Dam within the Future Water Project 2060
Date:	Monday, 7 September 2020 2:21:46 PM

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

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● 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
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https://www.waterra.com.au/publications/document-search/?download=1806
(9)

Example: The city of Windhoek in Namibia in Southern Africa has been using purified

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

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

(11) This builds community resilience -

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

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

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

From: rob johnston
To: Records
Subject: Re: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 2:28:56 PM

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please consider what 240 million dollars could do for the local community in the form of smart water usage, this proposed Dam is not the solution. we cant solve problems by using the same kind of thinking we used when we created them.
"any intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius - and a lot of courage-to move in the opposite direction" E.F. Schumacher

yours truly Robert johnston
[redacted]

On Mon, Sep 7, 2020 at 2:21 PM rob johnston [redacted] wrote:

> 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)
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> ● The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
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below. (Environmental Flows Assessment 2011)
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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.

From:	Bianca Urbina
To:	Records
Subject:	Submission
Date:	Monday, 7 September 2020 2:43:32 PM
Attachments:	Submission_Urbina.pdf

To the General Manager,
Please find the attached submission regarding the proposed dam.
Please consider the alternatives and in particular system-wide water efficiency management.

Sincerely,
Ms Bianca Urbina

Ms Bianca Urbina
[redacted]

General Manager
Rous County Council
PO Box 230
Lismore NSW 2480

6 Sept, 2020

To Rous County Council,

Re: Future Water Project 2060

I write specifically to object to Key action 2 - augmentation to meet long-term demand needs: new 50 gigalitre (gl) Dunoon dam.

The Future Water Project 2060 brochure states that this option is the lowest cost scenario, however the construction of the damn would obliterate priceless fauna and flora, cultural heritage and landforms that make up a very small percentage of the forest and Aboriginal culture that once flourished a hundred times over in the Northern Rivers of NSW.

I object for the following reasons:

- the destruction of important Widjabul Wia-bal cultural heritage is unthinkable (Cultural Heritage Impact Assessment, 2011). The colonial attitude that dismisses the significance of these sites in the name of progress is an arrogance that is no longer tolerated especially in light of the recent destruction of sacred sites in the Pilbara by the mining company Santos in May, earlier this year
- the destruction of The Channon Gorge, and the endangered ecological community of the lowland forest is unacceptable
- the industrial activity, noise pollution, large trucks and machinery on the roads

Why are we continuing to promote band aid solutions to a problem that continues to worsen the more we look away? The question whether to build a dam or not sits alongside the question of how we live sustainably. How do we manage our reliance on water? It is undoubtedly as important as the air we breathe and yet we pollute it, waste it, degrade and contaminate it with our toxic lifestyles.

I support the following alternatives:

- **system-wide water efficiency** (1), including
    - mandate for every new development to include facilities for rainwater collection
    - build recycled water pipes into the infrastructure for toilets, laundry and garden usage
    - allocate water for households and businesses and charge a premium rate per L once the allocation has been exceeded

- ongoing investigation, planning and implementation of **water reuse strategies**
- changing the way we manage human body waste, as it is no longer acceptable to use potable water for flushing away faeces

- **water catchment management**; regenerate the Richmond River for long term quality drinking water, and continue to work with the Department of Planning and the Office of Water to establish appropriate development controls for existing Rous Water catchment areas, in particular
    - the management of land use, ensuring that activity in farms, towns and industries do not impact negatively on rivers, wetlands and bushland, including
        - land improvements -support for catchment landholders and farmers to manage stock access, increase vegetation and reduce erosion near creeks
        - on-farm training to catchment graziers on using sustainable practices
        - ensure new housing and industry developments have a minimal impact on water quality
        - pest and weed control, including no-spray catchment zones and utilising safe thermal or heat alternatives
        - dairy waste disposal

I acknowledge the work that has been done in planning the Future Water Project 2060 but I do not agree with the 50 gigalitre (gl) Dunoon dam. The flooding of significant Widjabul Wia-bal cultural heritage and the endangered ecological community of the lowland forest.

Further community consultation is required across all three local government areas. A decision like this deserves to have input across the entire region because it is about our reliance on water and how we use it in the 21st century.

Sincerely,

[redacted]

Bianca Urbina

Reference:

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

Future Water Project Feedback

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

7 September, 2020

Dear Sir,

FUTURE WATER PROJECT FEEDBACK SUBMISSION

Name and address: Mr Carl Spence
[redacted]

Name of plan commenting on: Proposed Dunoon Dam

Statement of whether support or object: **Object**

Reasons for objection: 1. Impact upon Aboriginal cultural heritage.

2. Impact upon the flora, fauna and ecology of the area.

Regards,

[redacted]

Carl Spence

From: lina.geoff
To: Records
Cc: [redacted]
Subject: Proposed Channon/Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 3:13:31 PM

Dear Rous councillors and General manager,

I would like to register my opposition to the building of a dam on Rocky Creek at The Channon/Dunoon.

There are many reasons I oppose the dam, most importantly its inundation of rare and endangered ecological communities and sites of cultural significance to traditional owners.

I hope you will represent us honourably and defend basic values over the requirements of development. Future generations will judge harshly decision makers who sell out our environmental and cultural heritage in the name of progress.

Geoff Allan

[redacted]

From: susi cody
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 3:21:29 PM

Dear Rous Councillors and General Manager

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

Thank you for the opportunity to respond to the issue of the proposed Dunoon Dam project.

My extended family have lived on [redacted] for 40+ years. We came for work, but have enjoyed the particular beauty of the area which includes the rainforests, creeks and wildlife. This area sustains us physically , emotionally and spiritually; and through this relationship we have learnt to, and have a strong obligation, to protect these unique ecosystems.

I don't deny others the opportunity to also move to this area and acknowledge that there is expected to be a large increase in population over the next 40+ years.

But we need to think smart and not to presume that we can continue to use our natural resources, and in particular the natural water sources, as we have in the past.

At this point (limited options) I DON'T support the proposed The Channon-Dunoon Dam for these reasons:

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

- **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.

- **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)

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

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

  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. (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

- **Assessment of an alternative site.**
  Eg farm land which has already been cleared.

Respectfully

Susi Cody, family and friends

[redacted]

From: Cloudcatcher Media
To: Records
Subject: Future Water Project 2060 feedback submission attached
Date: Monday, 7 September 2020 3:21:32 PM

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

Dear Rous County Council,

My name is David Lowe. My address is [redacted].

I am writing to object to the Dunoon Dam aspect of the Future Water Project 2060. My reasons follow.

I have walked and photographed the entire length of the Rocky Creek area to be impacted by the proposed dam. Has anyone involved in making this decision done so?

If not, please have a look at these photo galleries:
https://www.flickr.com/photos/davidlowe1970/albums/72157715370452827
https://www.flickr.com/photos/davidlowe1970/albums/72157715418129562
https://www.flickr.com/photos/davidlowe1970/albums/72157715631332422
https://www.flickr.com/photos/davidlowe1970/albums/72157715826679582

If you're short of time, at least look at this highlights gallery:
https://www.flickr.com/photos/davidlowe1970/albums/72157715831462108

and this film:
https://youtu.be/90ptZRFxB4M

To condemn this area to be drowned without even looking at it or walking through it seems to me a highly unethical act. As you can see, it is a beautiful area and a vibrant and unique ecosystem.

The innumerable living things that call this valley home have not and will not be consulted. They don't deserve to die because of human greed and bad management.

I have also spoken to many of the key people from both sides of the debate as part of my work as a journalist, and researched the alternatives.

It's become clear that many of the people who would be most affected by this (including neighbours and Widjabul-Wyabul tradition owners) have not even been consulted, and have heard about this project via the media.

I have written a large number of stories about the Rous Future Water Project (which can be found here: https://www.echo net.au/?s=dunoon+dam) but I think the most important ones are probably these two:

https://www.echo.net.au/2020/08/exploring-a-threatened-valley/
https://www.echo net.au/2020/09/nan-nicholson-and-annie-kia-share-dam-concerns/

Even your own Chair Keith Williams has told me he would prefer not to build a dam if possible:
https://www.echo net.au/2020/07/rous-water-chair-puts-case-for-the-dunoon-dam/

It is clear to me that the dam is not necessary or desirable for the reasons stated in the above two articles, as well as additional factors such as increased flood risk, sedimentation downstream, road risks with extra traffic and the negative carbon effects associated with the construction of the dam and the rotting and destruction of the forest.

My major additional point is that the growth argument underpinning this whole project is profoundly flawed. We are in the midst of a climate crisis and a pandemic, and have just lived through the worst bushfire season in Australia's history. All of these disasters have arisen because humans have not learned the hard lesson that

infinite growth on a finite planet is impossible.

My own opinion is that composting toilets and water tanks should be far more common. The amount of water currently being wasted across these four council areas is staggering.

For details about the nature of this waste, and what can be done about it, please read Professor Stuart White's latest work on the subject, which deals directly with the Rous situation:
https://drive.google.com/file/d/1knun42rhXOPuOgImBz-VTunMQ3l-fiu7/view
https://drive.google.com/file/d/1F9WYqZ4IuyxMIjp9iJIIhl5oAhaUK5OM/view

If you're short of time, Annie Kia has also written about these issues here:
http://anniekia.net/9-we-want-a-water-system-thats-fit-for-the-21st-century/

We all have to learn to respect water more, and use less of it. It's perfectly possible to have a good life using much less than the 160 litres per person discussed by Rous. I know because I've done so for over ten years.

If people refuse to value water properly, it needs to be costed up until they do.

My final point is that Rous's statement that they have considered all the options is not true. There are great examples of other options in the stories above, and here is another one:
https://www.zeromasswater.com/

This technology is being rolled out all over the world, including massive installations behind the Gold Coast soon to be announced. I would strongly advise that you speak to them about how they could be part of the solution here on the Northern Rivers.

While this is not suitable as a replacement for bulk water, the idea of using one source of water for everything has had its day (in fact this way of thinking is an Ancient Roman-era concept). Renewable powered Zero Mass Water solutions can roll out community by community, as needed, to solve drinking water shortage issues, with minimal environmental impact, at a cost which is now competitive with other solutions. I have seen the technology in action at Murrurundi (which ran completely out of water in the las drought) and it works.

Having travelled all over Australia making environmental films with Cloudcatcher Media, I am well aware that this area of NSW, despite its challenges, is one of the wettest and most environmentally advanced areas of Australia. If we can't solve our water problems here without building more giant destructive dams, I really see no hope for the future of this country as the climate emergency worsens.

Let's show that a better way is possible.

Thanks for your consideration,

David Lowe

From: Russell Eldridge
To: Records
Cc: [redacted]
Subject: Dunoon Dam: Future Water Project 2060
Date: Monday, 7 September 2020 3:55:34 PM

September 7, 2020,
Rous County Council,
Lismore
NSW 2480.

Dear Rous County Councillors and the General Manager,

This is a submission against the proposed The Channon-Dunoon Dam.

My name is Russell Eldridge and I have been a resident of the Northern Rivers for 40 years. Much of that time I was a journalist at The Northern Star, including holding the chair of Editor.
I attended many council meetings over the years, including Rous meetings, and I am well aware of the tremendous responsibilities, budget constraints and pressure on councillors and staff to service the needs of a growing community.
But I believe strongly that our present and future circumstances call for creative solutions and genuine leadership.
Over my decades as a Northern Rivers journalist I have had the pleasure of writing about many innovative projects, and in 2020 surely this talented community can come up with something more sustainable and cost-effective than building another dam.
I am well aware that many others have made opposing submissions detailing the problems with building another dam in our sensitive environment. I support those arguments including:

- The need to invest in more efficient water-use systems
- Changing the behaviour of consumers to understand how precious a resource water is
- Concern about the destruction of indigenous heritage
- Damage to unique environmental features, such as irreplaceable Big Scrub remnants
- Public risk from a new dam above populated areas
- Whether a dam is actually needed for projected population growth

Australia has an abundance of expertise in water management systems, and Rous is ideally positioned to call on that expertise.
Over the past half-century or so, the people of the Northern Rivers have time and again demonstrated their commitment to preserving and enhancing the quality of the natural and built environment.
Some of you elected councillors owe your own positions to that commitment. Please do not fail us now.
Thank you for your consideration.
Russell Eldridge

[redacted]

--

Russell Eldridge

[redacted]

From: Marley Berry-Pearce
To: Records
Subject: Opposition to Dam proposal
Date: Monday, 7 September 2020 4:00:40 PM

Dear Councillors,

I am writing to express my immense concern about your plan to flood 34ha of Lowland Rainforest. Such habitat is so precious and should be venerated, not destroyed. There are water use alternatives, like improving efficiency and roof harvesting, that would be cheaper and provide more jobs than building a dam.

I implore you to rule out this option, for the sake of the rainforest which belongs to all of us and is not yours to destroy. Our children will be asking us why we did nothing to prevent such tragedies.

Yours sincerely,
Marley Berry-Pearce
[redacted]

From: Kate Genders
To: Records
Subject: [redacted]
Date: Monday, 7 September 2020 4:16:18 PM

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

Kate Genders

[redacted]

7th September 2020

Rous County Council,

Lismore NSW 2480

<council@rous.nsw.gov.au>

Dear Rous Councillors and General Manager

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

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

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

My family have lived in [redacted] region for 15 years. We love this area and the beautiful areas that surround us. My kids go to [redacted] I am concerned about how the years of noise, heavy traffic, infrastructure development, blasting and disruption the creation of a dam could negatively impact on their quiet enjoyment of their schooling and school setting. It is inevitable that the work required to complete a project of

this size will have a huge impact on communities in the areas surrounding the dam and I believe this will interfere with our children's safe access to their education and schooling.

I also understand that the creation of a dam would represent a lost opportunity to invest in system-wide water efficiency - this is the cheapest & fastest way to ensure supply-demand balance. 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 project. The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.

Additionally, destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011)(2) would be another negative impact from this dam project. In 2020 is more important than ever that we respect our Indigenous people's culture and relationship with the land and sacred spaces. We would also see the destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011)(3).

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

Councils are required under State planning regulations to: “Focus development to areas of least biodiversity sensitivity in the region and implement the ‘avoid, minimise, offset’ hierarchy to biodiversity, including areas of high environmental value.” NSW Department of Planning, Industry and Environment 2019, ‘Delivering the plan’, Sydney, viewed 03 August 2020 (4)

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

There is also grave community concern about the estimated 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. Our community is made up of many people in low-socioeconomic positions and increasing household costs to this extent could be crippling for many households and families.

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.

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).

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)

Contingency planning (for example tanks for all households and collection of rainwater) would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.

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

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

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

Thank you for taking the time to listen to the serious concerns that our community have about this proposed project.

We trust that the decision will look at all the facts and figures and come to the conclusion that the proposed dam project will be a wasteful and destructive exercise when there are many more sustainable options available to us.

Yours sincerely,

Kate Genders

SUBMISSION TO ROUS COUNTY COUNCIL ON THE PROPOSED DUNOON DAM WITHIN THE FUTURE WATER PROJECT 2060

RAYMOND FLANAGAN

[redacted]

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

Dear Rous Councillors and General Manager

I wish to lodge my objection to the proposal to dam Rocky Creek near the village of The Channon.

I object to the proposed dam for the following reasons: -

- the dam would destroy The Channon Gorge and its endangered ecological community of lowland rainforest
- the dam would destroy important indigenous cultural heritage
- the dam would encourage continued inefficient and often wasteful water management by local councils

I believe the construction of a dam would be unnecessary if resources were channelled into a community education program promoting wise water use.

Water reuse should be prioritised such as purifying water to a potable level and using recycled water for toilet flushing.

Other water saving strategies could include, encouraging the use of on-site water tanks and mandating or subsidising the installation of water tanks for new developments and encouraging the installation of waterless toilets in new and existing dwellings.

I note that in Hydrosphere Consulting's report on "Course Screening Assessment of Options", Option 4a (Dunoon Dam) it is stated "Environmental and cultural heritage impacts will need to be assessed and potentially offset." I contend that the loss of sacred indigenous sites and endangered rainforest cannot be compensated by an 'offset'. Little remains of the vast Big Scrub rainforest that existed at the time of white settlement of the Richmond River area and therefore, in my opinion, any remnants should be preserved at all costs.

In conclusion I am in favour of strategies to reduce reticulated water consumption and opposed to the construction of a new dam for the area.

Yours sincerely,
Ray Flanagan

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

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

Received over the counter
7 SEP 2020

From: Yvonne HARTMAN

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] – We can use this strategy
- **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] Extremely important
- *** **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.

There are other solutions!

References and Notes

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

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

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

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

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

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

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

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

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

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

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

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

Kind regards, Signature: [redacted] Date: 4/9/20

From:	Fiona Berry
To:	Records
Subject:	Proposed Dunoon Dam within the Future Water Project 2060
Date:	Monday, 7 September 2020 4:26:47 PM

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

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

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

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

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

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

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

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

Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)

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

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

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

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

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

I SUPPORT these alternatives:

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

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

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

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

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

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

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

Water harvesting (urban runoff; rain tanks):

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

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

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

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

Groundwater, where this is environmentally safe

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

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

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

References and Notes

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

2. Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011

3. SMEC Australia, Terrestrial Ecology Impact Assessment, 2011

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

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

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

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

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

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

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

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

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

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

Thanks

Fiona Berry

From: Deon Demouche
To: Records
Cc: [redacted]
Subject: Submission on Dunnon Dam
Date: Monday, 7 September 2020 4:47:26 PM

Jake Mickan

[redacted]

Gender: Male

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

About me:

My family have enjoyed the rainforests, creeks and in the northern NSW region for 50 years. I completed my university major work on this very [redacted], its plants, biodiversity and ecosystems and wildlife.

It is a very special and fragile ecological community with rare patches of rainforest on sandstone. In addition to the local community of farmers and local nature enthusiasts; local and national scientists, ecologists, hydro & sewage engineers, and politicians, have come forth in their outrage and support towards protecting this land we always felt was a unique ecosystem.

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

● Desecrating Indigenous culture: The Channon/Dunoon has an extensive and rich cultural landscape belonging to the Widjabal-Wiyabal People of the Bundjalung nation. The unique geology of "Basalt Meets Sandstone" at this site lends itself to a meeting place for tool building, rich fertile land and sanctuary. The waterholes, trees and rocks of the Rocky

Creek landscape tell one of an intact and well documented Australian dream-time story in the epic battle of goanna (Ngumarhl) and snake (Ngoonjbear) which formed the Northern Rivers waterways and headlands. Local Preschools and Councilors alike pay their respects to the Bundjalung People and Ancestors' safe custodianship of our lands and waterways over tens-of-thousands of years.

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

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

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

[Terrestrial Ecology Impact Assessment, 2011]

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Councils are required under State planning regulations to:

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

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

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

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

[Interview with Michael Mackenzie, Rous Engineer on 20.08.20]

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

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

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

To have a sustainable future for our Earth or "Planet A" involves understanding that we are immediately facing many "tipping points" or failures in the Earth's ecosystems. When large areas of sensitive habitats are destroyed, extinctions of flora and fauna species accelerate, and along with climate change these ecosystems begin to fail in unexpected

ways, and our planet becomes our own death trap. In order to maintain a diverse, resilient and well-functioning biosphere we need to remove the pressures on our local ecosystems, and not expand the population on the largest desert island in the world. And not build an unnecessary dam for short term profits for a few.

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

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

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

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

I SUPPORT these alternatives:

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

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

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

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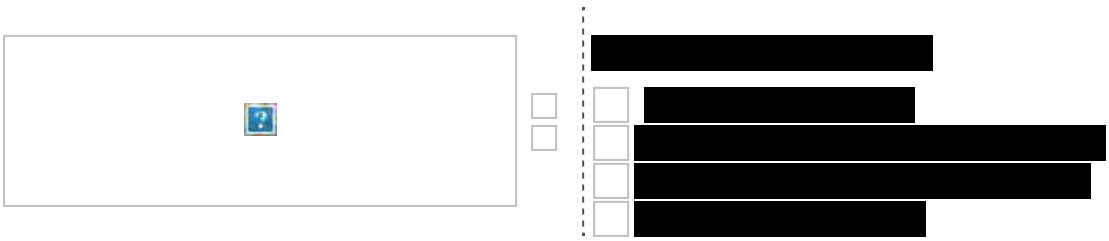
With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

With concern,
Jake Mickan



From:	Deon Demouche
To:	Records
Subject:	Submission Proposed Dunnon Dam
Date:	Monday, 7 September 2020 4:51:07 PM

Blair Mickan

[redacted]

[redacted]

Gender: Male

7th September 2020

Dear Rous Councillors and General Manager,

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

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With concern,
Blair Mickan

Garry Owers BAppSc(Hons)

[redacted]

7th September 2020

Submission – Dunoon Dam proposal

Dear sir or madam.

I am opposed to the proposal to construct a new dam at Dunoon for the following reasons: -

- Loss of native flora and fauna and environmental habitat in the proposed area of the dam through construction and drowning of the valley
- Impeded fish passage by the dam wall
- Changes in flow and temperature of the discharge water
- Interception and redirection of water will result is reduced downstream flow.
- Interception of normal sediment flow which may result in increased downstream erosion.
- Cost of the dam reported as $650 million for an 80-year lifespan.
- Estimated increased water supply charges of 400% passed on to users without an ability to opt out.
- Lack of alternate options proposed.
- Increased development would be required in order to justify and pay for the dam. Increased development will impact of all current residents as well as severe environmental impacts and reduced farm land.

As you would be aware many rural residents provide all their own water from rainfall tanks, farm dams and groundwater. Lack of rainfall and the falling water level in tanks provides feedback as to when water use needs be reduced. While urban users of reticulated water lack this feedback, they are also liable to waste water to a much greater extent than rural residents who supply their own water. Therefore, in order to reduce demand other options should be explored including: -

- Promoting the installations of rainwater tanks that can supply the whole house, not just toilets and washing machines. This will also provide a feedback mechanism.
- Allowing residents to opt out of reticulated water supply and supply their own without being charged a supply charge. This alone will reduce demand.
- Promotion of water efficiency including school's program, promotions and displays. Rous Water used to run these programs which were highly successful, not sure if you still do.

- Only charge customers for the amount of water used rather than a base charge which allows supply of a fixed amount of water. This would encourage water efficiency rather than wastage.
- Supply feedback via apps with rainfall and dam levels to indicate to customers when they should decrease water use and by how much and reward customers that do decrease use with an incentive program.
- Increased reuse of highly treated water for watering gardens, flushing toilets, filling swimming pools, washing clothes and even water for drinking and cooking, basically water supply.

Yours Sincerely

Garry Owers

From: Robyn Chance
To: Records
Cc: [redacted]
Subject: Proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 5:08:15 PM

Mrs Robyn Chance
[redacted]

7th September 2020

Dear Rous Councillors and General Manager

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

Thank you very much for extending the time that submissions can be lodged by our community.
Rous Water plays a very significant role in the complex business of providing good quality water to the Northern Rivers.

My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for over 45 years.
Words cannot describe our deep held appreciation for this land.

In the Northern Rivers and especially the Dunoon and Nimbin areas, exist one of the last parts of a very unique ecosystem known as the Big Scrub. This ancient forested area, a living treasure for millions of years, must be protected from further destruction as there is so little left. It is a precious beauty, which gives life to countless animals, plants, fungi and organisms who live amongst the creeks, trees, rock and farmlands which we all enjoy.

I would like to add my objection to this proposal, in addition to the local community of farmers and local nature enthusiasts, local and national scientists, ecologists, hydro & sewage engineers and politicians, who have come forth in their outrage and support towards protecting this land we know as a very precious 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 our First Nations' heritage. This attitude seems to echo the RioTinto disregard of significant cultural sites which caused them world wide distain and fines.

● 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 **<u>are required</u>** under State planning regulations to: "Focus development to areas of
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to biodiversity, including areas of high environmental value." NSW Department of Planning,
Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 <
https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast
/Delivering-the plan 2: Enhance biodiversity coastal and aquatic habitats and water catchments.(4)
Again, 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 **<u>FourFold</u>** 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
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● 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 smart and intelligent 21st century thinking.

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Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan.)
Existing research over the past decade consistently finds that the best '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)
For 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, ONLY 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 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.

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: Maggie Ritchie
To: Records
Subject: Future water project2060
Date: Monday, 7 September 2020 5:22:22 PM

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

I,Margaret Ritchie,of [redacted]...aged 89 wish to register my objection to the proposed Dunoon dam.
I am unable to see the justification for this expensive structure before all efforts have been taken to eliminate waste and better management policies introduced. Sydney water have done this successfully, why not Rous? And I add to my concern, the destruction of a unique piece of lowland rainforest and its cultural significance. Please halt this plan and consider other smart water options appropriate to now and the future. Maggie Ritchie

From: Naomi Dibble
To: Records
Subject: Submission Dunoon Dam
Date: Monday, 7 September 2020 6:10:09 PM

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060
Firstly, thankyou for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to the community.
My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for over 20 years. I feel massively privileged to call this beautiful land my home.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 (1)
● The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.
● The dam would encourage continued inefficient and often wasteful water management by local governments. They would have no incentive to do things differently.
Government)
● Destruction of important Indigenous cultural heritage, including burial sites (Cultural (2) Heritage Impact Assessment, 2011) . Ongoing disregard for First Nations' heritage.
● Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its (3) threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011) .
Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 <

https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-t he-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water (4) catchments.
Rous is required to avoid this destruction because there are economically viable and more effective solutions.
● Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc.
● Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built.
(5)
● The small population increase predicted for the four Rous-supplied councils of 12,720 between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020, <https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projecti (5) ons> scroll down to "Local Government Factsheets".

● Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres (6) below. (Environmental Flows Assessment 2011)
● Potential for a big dam to drive unneeded population growth, as the government attempts to gain value from an otherwise unnecessary, and stranded, asset.
I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives.
The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.
● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within (7) (8) the existing supply.
Professor Stuart White from UTS has provided a detailed and costed proposal "The Rous Sustainable Water Program" which shows exactly how and why system-wide optimisation of water use is possible and economical. In comparison, the proposed dam is simply financially,

(9) environmentally and socially irresponsible. (Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
● Water re-use in various ways, including Purified Recycled Potable water.
A wealth of global research and experience already exists regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience? (9)
Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled (10)
● Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments. This builds community resilience - much needed, as the recent extreme bushfire season has shown.
The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."
Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local (12) flooding and scouring of creeks. https://www.yourhome.gov.au/water/rainwater
● Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
● Groundwater, where this is environmentally safe
The Australian government provides a lot of information on the ecological impacts and (13)
With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.
https://www.waterra.com.au/publications/document-search/?download=1806
water for 30 years using advanced technology. https://www.wingoc.com na/our-history (11) groundwater usage. https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground water-drawdown

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

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(6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia.
(7) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore.
(8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney.
(9) Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
(10)Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide.
(11)WindhoekGoreangabOperatingCompany(Pty)Ltd2020,Ourhistory|Wingoc,V eoliaEnvironment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>
(12)$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).
(13)Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>
(14)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www.environment

Yours sincerely
Naomi Dibble
[redacted]

From: Kaoru Alfonso
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 6:24:23 PM

Kaoru Alfonso & Pernilla Wendpaap
[redacted]

7 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

Our family has enjoyed the rainforests of the northern NSW region for many years and wish to voice our support for protecting this unique environment.

We do not support the proposed The Channon–Dunoon Dam because of:

- the destruction of important indigenous cultural heritage including burial sites;
- the destruction of The Channon Gorge and its rare temperate rainforest on sandstone; and
- it's potential impact on flooding downstream.

We support these alternatives:

- an investment in system-wide water efficiency;
- water recycling;
- rainwater harvesting; and
- the use of groundwater where environmentally safe.

Thank you for the extension of the submission date, we hope you take our concerns into consideration when making your decision.

Yours Faithfully,

Kaoru Alfonso & Pernilla Wendpaap

From:	susan mcgeever
To:	Records
Subject:	RE: The proposed Dunoon Dam within the Future Water Project 2060
Date:	Monday, 7 September 2020 6:57:38 PM

Susan McGeever
[redacted]
7th 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, 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 have lived in this region for the past 34 years and daily appreciate the natural beauty of the region.

For the following reasons I do not support the proposed The Channon-Dunoon Dam:

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

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

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

- **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]
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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.[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.

Warm Regards,

Susan McGeever

References and Notes

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

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

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

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

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

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

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

From: Peter Griffin
To: Records
Cc: [redacted]
Subject: proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 7:00:03 PM

Dear Rous Councillors and General Manager,

My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for many years. Words cannot describe our deep appreciation for this land. We think it is a unique ecosystem.

We have had greater appreciation for the area since [redacted]

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

- 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 will divert expenditure away from more sustainable, flexible and effective solutions.

- **Lost opportunity to invest in system-wide water efficiency** - this is the **cheapest** & **fastest** way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption for 25 years.

- 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 project.

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

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

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

- **Catastrophic flooding downstream** in worst floods, particularly for the first 3 kilometres below.

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

● **Accelerate extinction of a multitude of vulnerable species**. Extinction level pressures on 3 vulnerable fish species due to destruction of 6kms and genetic islanding of over 18 kms of migratory native fish habitat. Extinction pressure on 19 threatened plant species, and 24 threatened fauna species.

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

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

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

I SUPPORT these alternatives:

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

● An **investment in system-wide water efficiency and strong demand management**. Analysed, costed and deployed, creating jobs.

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

● **Water harvesting via urban runoff & rainwater tanks**: Water tanks on all new (and existing) developments. Remove the rubbish law that prevents urban use of rainwater in the Ballina Shire. (11) This builds much needed community resilience, as the recent extreme bushfire season has shown. The cost of a 22,000L rainwater tank is only $2,500. If this were spread over each new 2 person household (est 13,000 pop by 2060) the cost would be a mere $16 million, and combined with automatic-mains top-up, can provide 100% reduction in mains water use!
The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs." Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

● **Deep underground water storage with surface runoff integration**.

● **Contingency planning** would enable Rous to be ready to rapidly implement supply measures

if it becomes necessary in times of drought. Multiple sources of water rather than putting all our "eggs in one basket" (ie: million$), allows us to route around any points of failure in the water system.

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

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

Kind regards
Peter Griffin
[redacted]

From:	Helene Stevens
To:	Records
Subject:	DAM
Date:	Monday, 7 September 2020 7:01:04 PM

NO to Dunoon Dam
Look at other alternatives
Listen to Jeff Johnson Ballina Council's real people's person.
Regards
Helene Stevens
[redacted]

Annie Kia
[redacted]

Dear Rous Councilors and General Manager,

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

Thank you for the extension of the submission date. I understand that provision of water in the Rous region is complex, and appreciate that Rous Councillors and staff are acting in good faith to meet our water needs. I particularly want to thank councillors for serving the public as this kind of representative role brings with it challenges.

It can be difficult to slow a train once it's moving. Even though Rous County Council has put Future Water 2060 out for public comment, we would all have to agree that the Dunoon Dam proposal is a train in motion, and being promoted by Rous staff and management. It would appear that Rous staff have formed the view that the dam is the best option.

I write to ask you to hit the button in the train marked PAUSE. I ask that you stop the train to properly consider what Professor Stuart White is offering as a different, cheaper way to think about water in our region. Dr White is an expert in water management. He and his team at the Institute of Sustainable Futures (UTS) have worked with Sydney Water; Rous Water; in all mainland Australian states and territories, as well as in California, Brazil, Egypt, The Philippines and Oman.

In particular, I ask that Rous County Council organise for a presentation from Professor White at your September workshop meeting. And that, having engaged with the perspective he offers, that you grasp the opportunity to place our Rous water region at the forefront of sustainable water management, so that we can have a water system to be proud of.

I DO NOT support the proposed dam at The Channon and Dunoon for these reasons:

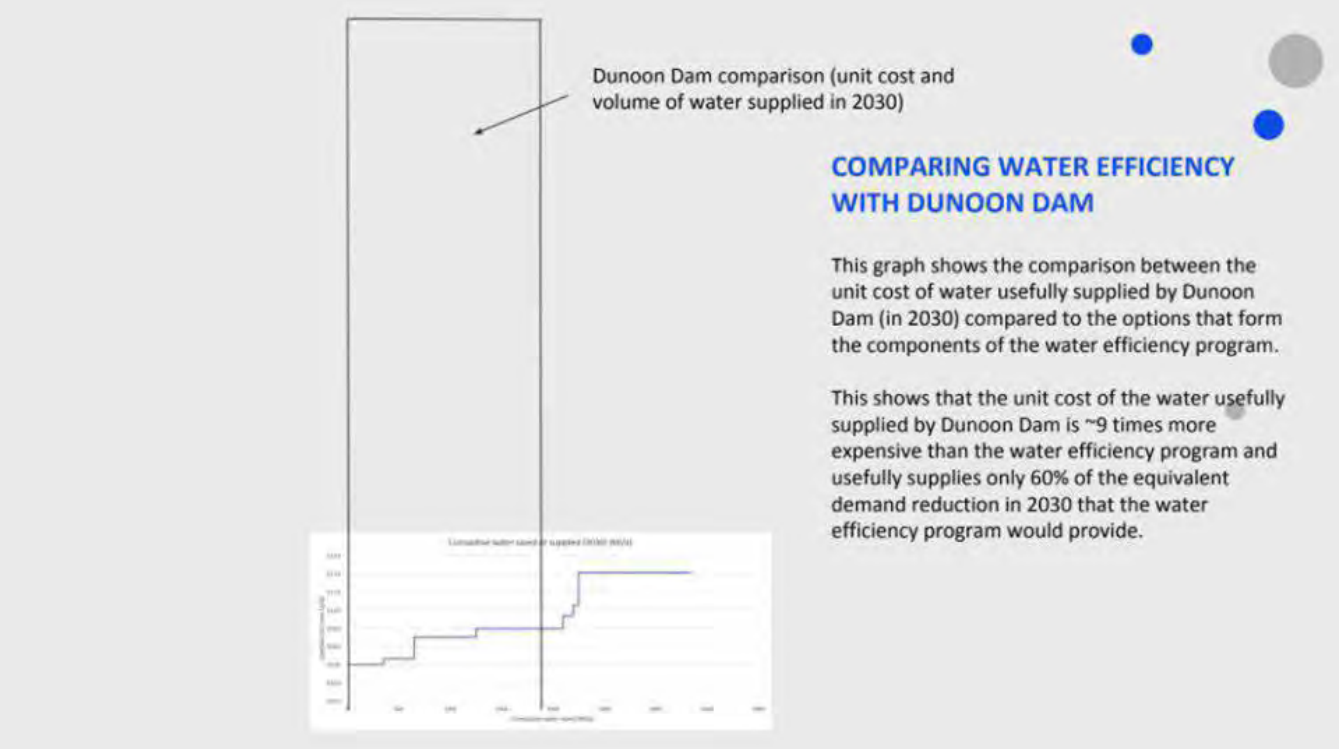
1) The process to arrive at recommendations in Rous Future Water Project 2060 was inadequate:

- It did not assess a diverse portfolio of demand and supply options as outlined by Professor White[1]
- It did not adequately analyse or cost an investment in an intensive water efficiency program. Without this analysis, there is no proper comparison of options[2]

2) The proposed Dunoon dam entails excessive cost and financial risk, compared to an intensive investment in water efficiency.

I have attached a graph from Dr White's slide presentation that shows that the unit cost of water usefully supplied by Dunoon Dam is approximately 9 times more expensive that the water efficiency program he recommends.[3]

[1] Stuart White, *Rous Water supply augmentation proposal - brief review*, August 2020
[2] Stuart White, *The Rous Sustainable Water Program*, Sept 2020
[3] White, *The Rous Sustainable Water Program*, September 2020



3) A large-scale, intensive water efficiency program would create employment and upskilling.
This is especially important with respect to local trades and small and medium enterprises.

4 A large scale, intensive water efficiency program would reduce business costs.
"...including lower water, energy, trade waste and materials input costs for local businesses". Efficiency measures are correlated with improving business outcomes.[4]

I SUPPORT these alternatives. That Rous County Council:

- Engage a consultant with experience in implementing water efficiency programs, of the scale and intensity that Dr White is recommending to conduct a comprehensive audit of the system [5]
- Engage an expert team with a track record of success with achieving supply-demand balance through water efficiency to run such a program
- Continue working with SCU and experts in water re-use to develop Perradenya as a pilot for water re-use. I am assured by Professor Stuart Khan that regulatory impediments to water re-use are likely to dissolve soon, that the NSW Water Minister supports water re-use and sees it as inevitable, and that as long as water obtains to standards, NSW Health will not be an obstacle.[6]
- Develop groundwater, where this is environmentally safe.
- Develop drought contingency planning to enable rapid implementation of new supply measures.
- Develop water harvesting (urban runoff, and a proactive rather than passive program for rain tanks). Rainwater harvesting also decreases stormwater run-off, which in turn reduces local flooding.

[4] White, *Rous Water supply augmentation proposal - brief review*, August 2020
[5] Ibid. p.2
[6] Professor Stuart Khan, Civil and Environmental Engineering UNSW (personal communication 31/8/20)

From: margrette young
To: Records
Cc: [redacted]
Subject: Future Water Project 2060 - Submission
Date: Monday, 7 September 2020 7:26:42 PM
Attachments: Prof Stuart White - Brief Review - Rous Water augmentation 20200904.pdf

dear rous county council and councillors,

as a concerned resident, i appreciate the opportunity to submit my objection, and for the time extension for a submission. Thank you.

i have lived in [redacted] for over 40 years.

I am concerned about the proposed Dunoon dam as per Future Water Project 2060.
I ma not an expert in water management . However, serious issues are raised by an expert in these matters - Professor Stuart White - and I submit the attached document by Professor White as my objection to the proposed dam based on reasons expounded in the attached document.

thank you for your consideration of the relevant and important points contained in the attached document.

yours sincerely
margrette young
[redacted]

Institute for Sustainable Futures

Rous Water supply augmentation proposal - brief review

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

The stated need for the dam is based on a conclusion that the demand for water in the Rous region will exceed the yield of the Rous water supply system by 2024, and that, in the absence of this dam, the gap between supply (secure yield) and demand will reach 6,500 ML/a by 2060, which is roughly 50% of the current supply capacity. The planning documents conclude that there are no viable alternatives to this option.

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

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

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

1. **Water efficiency**

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

In the 1990s, Rous Water and some of its constituent councils pioneered the investigation, and in some cases implementation, of water efficiency programs and pricing reform (White 1997). The local water utilities (LWUs) in the region were some of the first to follow Hunter Water's move to volume-based pricing. Water use per household in the region is not high, in part due to climate, demographics and the impact of these water pricing reforms and efficiency programs. However, the investment in water efficiency over the years, while higher than in some other regional utilities, has been relatively low. This investment is more consistent with a foundational education and communication program rather than a planned and costed investment strategy that recognises that improving the water efficiency of customers and the supply and reticulation system represents the largest, cheapest and quickest way to improve the supply-demand balance that water utilities have at their disposal. In the past, when the marginal cost of water was relatively low, this strategy may have been understandable, however it is not appropriate when faced with the potential for a $200m investment, when the marginal cost of water will significantly increase (Fane and White 2006).

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

There is insufficient analysis presented in the planning documents that quantifies this potential, for example, by asking and answering the following types of questions.

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

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

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

- Reducing regional energy use, through reduced treatment and pumping costs, as well as reduced hot water use, leading to reduced greenhouse gas emissions (see e.g. Turner et al. 2007, p. 61).
- Reducing business costs, including lower water, energy, trade waste and materials input costs for local businesses, through improving water and energy management as a result of audits and investment in water efficiency measures, which are correlated with improved business outcomes.
- Creating employment and upskilling, especially in local trades and small and medium enterprises, through sales and service provision for water efficient equipment and services and engineering, trade and landscaping expertise. The relative employment benefits from investment in improving efficiency and customer-focussed initiatives is well documented in the energy sector (see e.g. Briggs et al. 2020).

In summary, a complete and proper investigation of the potential for water efficiency, and investment in a significant program of improving water efficiency represents a ‘no-regrets’ option for the region. An indicative program has been proposed in a companion paper. Such a path is highly likely to enable significant deferral of the need for the commitment to Dunoon Dam, when combined with a diverse portfolio of demand and supply options, including contingency options.

2. Planning approach

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

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

The principle of real options planning is that you don't need to build some supply options in order to have the benefits of being able to bring them on line in sufficient time to meet external contingencies such as drought. So the option to build an asset represents a contingency option. In fact, the implementation of water restrictions themselves represents a contingency option in the context of drought. Water restrictions have long been used in the water industry and they have strong community acceptance and support, and they are assumed to be part of the secure yield of most water supply systems.

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

Real options planning is not unlike an insurance policy where there is a relatively low premium and a high excess, in which the costs of readiness are low relative to the costs of mobilising quickly in response to a low likelihood outcome. Other examples of readiness strategies have included: (1) rapid mobilisation of groundwater sources, also adopted as part of the Sydney real options strategy, for an additional 15 GL/a; (2) the rapid construction of transfer pipelines (e.g. on the Gold Coast); (3) the rapid development of waste water recycling plant capacity and associated pipelines, with the option for indirect potable reuse application (e.g. the Western Corridor Recycled Water Scheme in South East Queensland). (4) the accelerated "emergency" rollout of water efficiency and leakage reduction measures, as proposed and implemented in Sydney and South East Queensland during the Millennium Drought (Turner et al. 2016).

The long timescales and the uncertainty in the supply-demand balance (MWH 2014) indicate that a more financially prudent approach for the future water strategy would involve the application of real options planning, with a portfolio of options. For example, candidates for real options for supply include groundwater sources, regional transfers and interconnections, and rapid deployment of wastewater recycling (non-potable or indirect potable). Many of these options have been discounted on the grounds that they do not provide a sufficiently large increment of yield, or on marginal cost grounds, but this fails to consider the uncertainty in the supply-demand gap and the long timescales and uses an incorrect approach to calculating marginal cost. This would also ensure consistency with the national urban water planning principles (Australian Government 2019), particularly principles 4 and 5.

3. Yield forecasts

Putting aside the demand forecast, the supply-demand gap that is the basis of the stated need for Dunoon Dam is driven largely by **two factors in the yield estimate**: (1) the reduction in secure yield that results from a change in the level of service, from a 5:10:20 restrictions regime to a 5:10:10 regime (2) the reduction in secure yield based on estimates from climate change modelling, with a reduction in yield of about 30% by 2060.

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

Firstly, the level of service changes reflect guidelines for LWUs from the NSW Government Office of Water, in part in response to demand hardening, or the impact that reductions in outdoor water use have had in reducing the potential for savings during restrictions. Nonetheless, the frequency, duration and depth of restrictions, and indeed the optimisation of them to improve effectiveness while reducing negative impact, have not been sufficiently explored in the Northern Rivers region, or indeed in many other jurisdictions (Chong et al. 2009). In the face of a $200m investment, it would be prudent for a monopoly service provider to assess the community's willingness to pay, and to assess whether water consumers were willing to trade off the change in level of service and the 800 to 1,200 ML/a reduction in yield for the value of deferring such a large investment. Such an exercise would most effectively use best practice techniques of deliberative democracy, for which the Northern Rivers region can boast several previous examples.

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

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

This suggests that a more prudent approach is needed, in which the climate change scenarios are used as scenarios for sensitivity testing rather than locked in as hard line forecasts. Such an approach is consistent with the idea of a portfolio approach, considering all available, and fully-costed demand and supply options, including contingency options, in an adaptive real options approach.

References

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

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White, S. (1997) Rous Regional Water Efficiency Program: Final Report of the Rous Regional Demand Management Strategy, prepared by Preferred Options for Rous County Council.

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

See a selection of the urban water research undertaken by the Institute for Sustainable Futures here.

Stuart White
Institute for Sustainable Futures, University of Technology Sydney

10 August 2020

From: abbey hodson
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 7:35:54 PM

Abbey Hodson
[redacted]
Gender: Female

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

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

My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for 11 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/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

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

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

(6) Environmental Flows Assessment Proposed Dunoon Dam, 30 Aug 2012, Eco Logical Australia. (7) The Rous Regional Water Efficiency Program 1997, *Final report of the Rous Regional Demand Management Strategy : preferred options*, Rous County Council, Lismore.

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

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

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

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

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

(13)Australian Government Department of Industry 2013, Science, Energy and Resources, *Rainwater | Your home*, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater> (14)Department of Agriculture, Water and the Environment 2018, *What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment,* Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr awdown>

Yours Sincerely
Abbey Hodson

From: susan nicholls
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 7:53:07 PM

To the General Manager
Ross County Council
PO Box 230,
Lismore NSW 2480

From Susan Nicholls
[redacted]
Gender: female

In the mid 80s I moved to this region drawn by the beautiful wild areas. A keen bushwalker and mountain biker I have spent much time in exploration of this magnificent region. This is such a unique ecosystem and I am outraged that a plan would be under consideration to destroy this valley before all other options have been considered and actioned first.

I do not support the proposed Dunoon Dam for these reasons:

- the destruction of The Channon Gorge. A significant endangered lowland rainforest with threatened flora and fauna. The valley includes a section significant rare temperate rainforest on sandstone. The loss of this rainforest cannot be offset by regeneration of degraded land in the buffer zone. They are not equivalent! I understand 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.
- I understand that significant amounts of water are currently lost but the exact amounts are unknown. How much do we lose? It seems that building a huge dam will further delay our local governments becoming water wise. Spending all money on the dam with little left for whatever is needed for smart water solutions. It would be a lost opportunity
- Increase on prices for water. This increase has been stated as fourfold by the general manager of Rous County Council. Will people be able to afford this water? Will the price increase drive smart solutions by consumers leaving local governments with a huge leaky system that is unsustainable. I for one would invest in another water tank in preference to paying exorbitant prices for water,
- the destruction of valuable indigenous burial sites. This disregard for first nations heritage is disrespectful and heartbreaking.
- Possibility of catastrophic flooding downstream from the dam during high rainfall events. Ongoing stress for those residents living below the dam wall.
- Increase in noise, heavy machinery in the small communities of Dunoon and The Channon.
- Further loss of Koala habitat/corridors

I am calling for

- A complete water audit of the region covered by Rous County Council so that as a community we can make a educated decision based on the facts. Find out how much water is wasted. Where it is wasted. What we can do about it.
- Investigate reuse of water. There is no need to reinvent the wheel here. These kind of systems are in use in many countries now.
- Other alternative forms water harvesting. Water tanks can significantly reduce consumption of mains water. In my case by 100% most of the year and I only have a small tank. Having a water tank could become normal in the same way that solar on our roof has become more common than not.
- the water supply from Rocky Creek dam to be used more wisely without the need for further environmental destruction so that we can meet the projected population growth.
- Ross County Council to heed the advice of Professor Stuart White from the institute for Sustainable Futures in his document Rous Water augmentation 20200904. I understand that Prof White has been in communication with Rous County Council on this matter.

From: Gus Jung
To: Records
Subject: Mega Dam
Date: Monday, 7 September 2020 8:13:37 PM

Hi my name is Gus, I'm 16 years old and have lived in the [redacted] my whole life. I have grown up fishing, camping, swimming and exploring along rocky creek. I would hate to see the creek that I grew up on destroyed by some mega dam, I have seen first hand the diversity of freshwater life in that creek and the wild life that surrounds it. I believe that the dam will negatively impact not only the ecosystems in the creek and the surrounding areas but also on future generations having the experiences I did.

Gus Jung [redacted]

From:	valerie thompson
To:	Records
Subject:	RE: The proposed Dunoon Dam within the Future Water Project 2060
Date:	Monday, 7 September 2020 8:19:21 PM

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

Re**: Objection to the proposed Dunoon Dam within the Future Water Project 2060**

I am writing to advise that I do **not** support the proposed Channon-Dunoon Dam. While I recognise the complex role that Rous Water has in seeking to supply water whilst not fully in control of all aspects of the demand and supply chain, I do not believe the solutions proposed in the paper provide sufficient consideration of the unique and irreplaceable environment and cultural heritage endangered by this proposal. I have lived in Dorroughby for over twenty years and have strong personal knowledge of this area.

My objections are specifically as outlined below:

1)Destruction of important Indigenous cultural heritage, including burial sites (Cultural Heritage Impact Assessment, 2011) - this is a crime against current and future generations, and the ongoing destruction of these sites needs to halt immediately.

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) The lack of analysis, costing and investigation of system-wide water efficiency options in the discussion paper - this is the cheapest and fastestway 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).

4) The dam would encourage continued inefficient and often wasteful water management by local governments. They - along with consumers - would have no incentive to do things differently - and worse still be locked into archaic ways of water usage.

5) 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.

6) Inherent flaws in the offsetting proposal, particularly lack of commensurate ecological equivalent to the loss of rainforest on sandstone - regeneration of degraded land in the

buffer zone not being any kind of equivalent at all.

7) Your requirement to avoid this destruction because there are economically viable and more effective solutions, according to State Planning regulations whereby you must "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.

8) Higher prices for consumers due to an estimated four-fold increase in the cost of supplying water if the dam is built. That amount of funding could readily pay for alternative innovative solutions that decrease demand whilst increase overall water security.

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

10) 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 alternative of a suite of smart water options and proven alternatives. This includes:

● An investment in system-wide water efficiency and strong demand management - analysed, costed and deployed, creating jobs.
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply;

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

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

● Contingency planning that would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought. This may also include groundwater extraction under strict conditions.

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 may be contacted on [redacted] to further discuss my submission.

Warm regards, Valerie Thompson

[redacted]

From: uri nicholls
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 8:49:16 PM
Attachments: image.png

To the General Manager
Ross County Council
PO Box 230,
Lismore NSW 2480

From Uri Nicholls
[redacted]
Gender: male

I was born in the region, grew up spending a lot of time out at the Channon, cycling and hiking up in the hills. I'd be devastated if the Channon Gorge was flooded and destroyed.

I do not support the proposed Dunoon Dam for these reasons:

- the destruction of The Channon Gorge. A significant endangered lowland rainforest with threatened flora and fauna. The valley includes a section significant rare temperate rainforest on sandstone. The loss of this rainforest cannot be offset by regeneration of degraded land in the buffer zone. They are not equivalent! I understand 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.
- I understand that significant amounts of water are currently lost but the exact amounts are unknown. How much do we lose? It seems that building a huge dam will further delay our local governments becoming water wise. Spending all money on the dam with little left for whatever is needed for smart water solutions. It would be a shame to lose this opportunity
- The general manager of Rous County Council has said that the price of water will go up fourfold when the dam is built. Will people be able to afford this water? Will the price increase drive smart solutions by consumers leaving local governments with a huge leaky system that is unsustainable. I'm glad I already run my place from a water tank.
- The destruction of valuable indigenous burial sites. This disregard for first nations people and their culture is disrespectful.
- Possibility of catastrophic flooding downstream from the dam during high rainfall events. Ongoing stress and decline in property value for those residents living below the dam wall.
- Increase in noise, heavy machinery in the small communities of Dunoon and The Channon.
- Loss of Koala corridors

I am calling for

- A complete water audit of the region covered by Rous County Council so that as a community we can make a educated decision based on the facts. Find out how much water is wasted. Where it is wasted. What we can do about it.
- Investigate reuse of water. These kind of systems are in use in many countries now.
- Other alternative forms water harvesting. Water tanks can significantly reduce consumption of

mains water. Having a water tank could become normal in the same way that solar on our roof has become more common than not. Having a water tank drives water awareness too

- The water supply from Rocky Creek dam to be used more wisely without the need for further environmental destruction so that we can meet the projected population growth.

- Ross County Council to check out the advice of Professor Stuart White from the institute for Sustainable Futures in his document Rous Water augmentation 20200904. I understand that Prof White has been in communication on this matter and considers the dam to be a financially risky project due to the fact that water provided by the dam would be 9 times the unit cost of the water saved by water efficiency progams.

From: Isabel Halse
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 8:51:25 PM

Isabel Halse
[redacted]

Dear Rous Councillors and General Manager

Re: The proposed Dunoon Dam within the Future Water Project 2060
Firstly, thankyou for supporting the extension of the submission date. The community appreciates it. We also acknowledge the complexity of what Rous does to provide water to our region.

My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for 10 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 (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) . Ongoing disregard for First Nations' heritage.
● Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest (including regionally rare warm temperate rainforest on sandstone), and its (3)threatened flora and fauna species. (Terrestrial Ecology Impact Assessment, 2011) .
Rous is planning to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone. Offsetting is problematic because the type of vegetation offered as recompense is never equivalent. This example is worse than most. (Nan Nicholson, botanist)
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/".
● Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres (6) below. (Environmental Flows Assessment 2011)
● Potential for a big dam to drive unneeded population growth, as the government

attempts to gain value from an otherwise unnecessary, and stranded, asset.

I SUPPORT these alternatives:
I believe we need to take action on a suite of smart water options and proven alternatives.
The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. This is 21st century thinking.
● An investment in system-wide water efficiency and strong demand management.
Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan)
Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within 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? (9)
Example: The city of Windhoek in Namibia in Southern Africa has been using purified recycled(10)
● Water harvesting (urban runoff; rain tanks):
Water tanks on all new (and existing) developments. This builds community resilience - much needed, as the recent extreme bushfire season has shown.
The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs." Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks. 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
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)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>

Isabel Halse
[redacted]

I acknowledge that I reside and work on the traditional lands of the bundjalung people, whose custodianship was never ceded. I pay respect to their ancestral linage & elders; past, present & emerging.

From: Greg Bork
To: Records
Subject: Dunoon Dam community submission
Date: Monday, 7 September 2020 8:53:46 PM

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

Mr Gregory Bork
[redacted]

Sept 7, 2020
Rous County Council,
Lismore NSW 2480

Dear Rous Councillors and General Manager,

I am a bush regeneration contractor who looks after this region's heavily degraded ecology, and so I am also a fellow protector of the water held in the land, the flow of life in the landscape.

I DO NOT support the proposed Dunoon dam because:

- The Future Water Project community information document uses biased language that omits vital information essential to providing informed community feedback to the Project.

- The first line of the document describes the supply as "drinking water", which conflates the quality of the water with its use. How and why is this drinking water to be used for non-drinking industrial processes, and for toilet flushing, car washing and garden maintenance etc?

- Will any of the water for drinking be "mined" by companies for commercial profit as part of this scheme?

- The document describes recent drought as justification for building the Dunoon dam without disclosing the performance and capacity of the current dams through the drought.

- The data provided is not sufficient to convince me of the need for such a dam, with insufficient context about population growth estimates, climate change impact on water supply and other key assumptions underpinning arguments for new sources.

- Will you be using any of your own biosecurity responsibilities in weed removal to "offset" the outright destruction of biodiversity and is this a conflict of interests?

- Yet to be assessed cultural heritage and environmental impact are vital to informed community engagement. At least preliminary assessments should come BEFORE, not AFTER community submissions.

- The document provides no clear community engagement strategy beyond the current deadline for feedback submission.

- Data your charts show demand ascending without limit, which is an implausible assumption of endless future growth, development and progress requiring endless security capacity and dams.

- If our growing population level cannot justify and sustain renewing our existing rail infrastructure, it certainly cannot justify and sustain another new dam.

Do the Widjabal People want this dam? What does the community want in this landscape? Who benefits from this dam? What is the carrying capacity of this region for human population? Over 99% of our rainforest in this

area has been destroyed, and now Rous wants to destroy more, including rare and unique areas that cannot ever be “offset”?

You already have two large dams. Please find another way.

From: Tara Melis
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 9:20:47 PM

Tara Melis

[redacted]

Dear Rous Councillors and General Manager,

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

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

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

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

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

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

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

• The **21st century is about a suite of smart water options**. This dam would be a lost

opportunity to make our system fit for the 21st century. It would swallow all resources in one big expensive 'white dinosaur' project.

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

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

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

[Terrestrial Ecology Impact Assessment, 2011]

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

Councils are required under State planning regulations to:

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

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

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

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

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

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

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

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

[Interview with Michael Mackenzie, Rous Engineer on 20.08.20]

● **Desecrating Indigenous culture**: The Channon/Dunoon has an extensive and rich

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

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

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

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

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

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

I SUPPORT these alternatives:

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

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

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

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

● **Water harvesting via urban runoff & rainwater tanks**: Water tanks on all new (and

existing) developments. Remove the rubbish law that prevents urban use of rainwater in the Ballina Shire. (11) This builds much needed community resilience, as the recent extreme bushfire season has shown. The cost of a 22,000L rainwater tank is only $2,500. If this were spread over each new 2 person household (est 13,000 pop by 2060) the cost would be a mere $16 million, and combined with automatic-mains top-up, can provide 100% reduction in mains water use!
The Australian government advises that: “Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs.” Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.

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

● **Deep underground water storage with surface runoff integration**.

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

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

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

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

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

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

For a picture journey through part of this incredible landscape please see **David Lowe’s amazing photography of the threatened Channon Gorge**:

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

Kind regards,

Tara Melis

References and Notes:

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

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

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

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

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

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

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

Research-and-Demography/Population-projections/Projections

Scroll down to "Local Government Factsheets".

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

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

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

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

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

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

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

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

Resources, Rainwater | Your home, Canberra, viewed 3 August 2020,

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

(13)Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020,

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

Rohan Langford

[redacted]

[redacted]

Att: Rous Water

To whom it may concern,

My name is Rohan Langford. I am a resident of [redacted] and I am writing this submission to be considered towards the proposed Dunoon Dam within the Future Water Project 2060.

I appreciate the opportunity to be able to make a submission as part of this difficult and complex process. I can see there is a lot if issues to be considered. I understand the need for greater water security across this country in the future. But personally, **I do not support the proposed The Channon – Dunoon dam** as I believe there are better, more cost effective ways to approach this situation without the need to destroy this area.

I have lived in this area for the past 20 years and in this time I have made the Lismore region my home. One of the main reasons that I have stayed here is the due to the unique rainforests in this region. The area that will be destroyed by this dam as you would know includes rare warm temperate rainforest on sandstone and threatened flora and fauna species. If there was no alternative to this, perhaps I would reluctantly accept the destruction of a place so ecologically important to the surrounding area. But there are many viable alternatives and I strongly believe these must be exhausted before we embark on such a project. Though I sincerely doubt that such a dam would even be necessary let alone economically viable if these alternatives were first put in place.

Having originally moved here from drier parts of the state, I am still surprised at the relatively small amount of residential rainwater tanks in the Lismore LGA. It seems that in this high rainfall region, water is taken for granted by many residents. I think all new houses built in this region should be required to have a tank for rainwater harvesting. When I was living in Lismore, our 10,000 litre tank served to water our gardens all year round and would have significantly reduced our reliance on the town water supply. This is both a fast and cost effective way to reduce our region's reliance on the Rocky Creek dam supply and rainwater tank programs and rebates should certainly be significantly expanded before considering this large dam. Work to reduce leaks and increase efficiency of our current water systems should also be undertaken as a priority. These two measures would, I believe, have an enormous impact on our water usage in this area.

Under NSW Department of Planning, Industry and Environment guidelines, councils are required to avoid using more biodiverse areas if possible and reduce the use of offset measures when biodiverse areas such as The Channon gorge are to be used. But this current plan does not appear to adhere closely to these stipulations. However, as there are other solutions available for water security of the region that are far more cost effective compared to a massive dam such as this, isn't there an obligation to avoid the use of this area?

The cultural heritage of this site also should be enough to cause this project to be reconsidered. In recent years we have seen irreparable damage that is done when development does not properly consider the Aboriginal heritage of a site. Rio Tinto's recent blasting of the Juukan Gorge is an extreme example of what damage can be caused, both to the reconciliation process and

also to the important cultural history of Australia. The burial sites that are located in The Channon gorge should also be considered for the local cultural significance that they have. By building a dam right on top of them Rous are both disrespecting the cultural heritage of this place and making a value judgement that tells the local custodians that Rous believes their heritage is unimportant. This has already been a costly mistake to make for the LCC North Lismore Plateau development which currently sits in limbo. In my opinion we need to respect this heritage by not building a dam on this site.

I think Rous should put a greater focus on local demand management. The high rainfall in this region has made many locals complacent about water efficiency and indeed take our water reserves for granted. I had more than one neighbour in Lismore who would water their lawn from the town drinking water supply daily through a hot, dry summer. This type of wastage may have been acceptable 50 years ago, but with a warming climate and growing population, these practices show that there is still a great need for better education around water efficiency and the reasons for it. Building a big new dam would surely serve to further entrench this wasteful type of behaviour in many local residents as it provides a poor example from Rous by promoting greater consumption over greater efficiency.

This type of focus on demand management has been shown by the the Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, to be one of the most cost effective ways to invest in our future water supply. Demand management programs should certainly be expanded before another large dam is considered.

Given the relatively small population growth predicted in this region from 2020 to 2060 by the NSW Department of Planning, Industry and Environment, it seems hard to imagine that the estimated price tag of this dam project can really be justified as a cost effective solution. This will no doubt result in higher water prices for the consumer to be able to recoup the cost of development. Indeed the four fold increase in the cost of water that has been mentioned by Rous General Manager if the dam is built, shows that this project really does not economically stack up. To me this sort of cost increase cannot be justified to build this dam. Particularly when there are far more cost efficient means that should be used first.

Overall I believe there are too many reasons why this dam project should not proceed. The destruction of rare and precious environmental biodiversity and cultural heritage sites should in themselves be reason to avoid this project. When we also consider the large cost that will be passed down to residents of the region and the fact that there are much better, cheaper, more efficient and far less destructive alternatives, this project should certainly not be the first step in greater water security for this region. Indeed with greater implementation of the range of alternatives, it is likely that this dam may never be necessary. Although I understand the need for greater water security, I do not think the The Channon-Dunoon dam is a smart, efficient and cost effective way to pursue this outcome and I ask that the building of this costly and destructive project not proceed.

Yours sincerely,

Rohan Langford
[redacted]

From: S Britton
To: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 12:07:38 AM
Attachments: SUBMISSION re DUNOON DAM.S Britton.docx

SUBMISSION OPPOSING THE NEW DUNOON DAM

(pdf of this submission attached)

Dear Rous Councillors and General Manager

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

I object in the strongest possible terms to the proposed Dunoon Dam in the Channon rainforest gorge, an area of Indigenous heritage similar in significance to that of the ancient caves in WA destroyed by Rio Tinto.

I came to [redacted] from South Australia with my family in 2014 attracted by the enlightened community attitudes to environmental issues, and preparedness to protect the extraordinary biodiversity of the region. The beauty of the many living waterways and forests remains one of the elements that keeps me here, and finds me helping to prevent loss of this resource.

There are many obvious reasons why this dam is not necessary. It is an out of date solution to the provision of water to this region. These days there are many other smarter ways to ensure a water supply for regional towns, as well as cities across the globe and I and many other concerned members of the community respectfully request that alternative methodologies be employed rather than the blunt weapon which is 'Build a Bigger Dam'.

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

The consequences of this dam to the environment are horrendous. It is almost beyond belief at this point in the battle to avert the effects of climate change, that local authorities would even consider the destruction of the last surviving sizeable pristine lowland rainforest dating back millennia, part of the Big Scrub, and home to many endangered native creatures.

All to enable people and businesses to use water in a reckless and irresponsible way, behaviour which is quite out of line with what we know we should be doing in this climate emergency!

In today's culture of development and oversized dwellings, environmental principles of conservation are no longer observed. And when it comes to considering new dams, most people are unaware that the amount of potable drinking water that is actually used for drinking is miniscule compared with the amount of that same water that goes on the garden, to the dishwasher, to showers and laundry tubs, and in commercial and industrial applications. Only 1.5% (2.4 litres) of the 160 litres that Rous estimates the average citizen needs per day is actually ingested by a human.

We need to bring that message back loud and clear. Just as people have become accustomed to recycling their household waste, we must educate the public to conserve water and to support new environmentally sustainable ways of getting their water supply.

When doing renovations of my house and building a second house for my son and his family, I was impressed with the Basix protocols for new development applications in the Byron Shire and mandatory provision of rainwater tanks with reticulation of this water to toilets and washing machines. This seemed to be good planning and has probably served to educate builders and home owners in preventing expensively treated water going down the toilet. The anomaly in the Basix system is that rainwater has traditionally been regarded in Australia as clean and pure water compared with that from waterways which are easily polluted. The sign builders are required to fix above every rainwater tap 'RAINWATER, DO NOT DRINK' often strikes people as a strange contradiction.

There are many new technologies emerging now that would be able to go a long way to creating Purified Recycled Potable water and these need to be explored.

The proposed cost of the new Dunoon Dam is $220m. These funds could be directed towards a range of measures to conserve water use, and to implement a variety of methods of supplying it, from increased rain harvesting to recycling to education.

• Public education in how to stop wasting water: Many of the older residents in the Shire understand this dating from the conservation movement of the 1970s where people prided themselves on turning off taps, not using sprinklers, paying attention to water-wise landscaping methods, and having shorter showers. Younger generations can also learn these lessons. Price points for economical use of water could be an incentive to be careful.

• a program of roof-harvesting rainwater throughout the shire: this could be funded or subsidised and done on a large scale eg on all public buildings, schools, commercial buildings. New methods for design and construction during this process should be investigated.

• recycling of waste water: this has been implemented very successfully in many cities and there are now various methodologies on offer

The building of a massive concrete structure and drowning a pristine ancient lowland rainforest adjacent to the historic village and market of The Channon, **is simply NOT an option.**

Irreversible damage will be done to a priceless heritage environment, one which is extremely rare in the world. The Indigenous heritage of this area including multiple ancient burial sites is extremely important and cannot be simply disregarded.

I recommend to you the submission by Duncan Dey who has presented a range of bold, far-seeing policies and methods which take into account the effects of drought and climate change on the supply of water, outlining the scenario of large dams becoming stranded assets in 40 years' time, when drought impacts on all regions of Australia.

Now is the time to stop using out-dated and primitive 20th Century systems and learn to embrace contemporary technology and environmental science which will drought-proof the Shire.

There is no point in splurging $220 million on a large concrete dam which will be obsolete in 40 years or less, when the funds could be used on a more resilient solution which uses multiple opportunities to suit the climate, and the coming needs of the Shire.

Yours faithfully

STEPHANIE BRITTON AM

[redacted]

Stephanie Britton

[redacted]

SUBMISSION OPPOSING THE NEW DUNOON DAM

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There is no point in splurging $220 million on a large concrete dam which will be obsolete in 40 years or less, when the funds could be used on a more resilient solution which uses multiple opportunities to suit the climate, and the coming needs of the Shire.

Yours faithfully

STEPHANIE BRITTON AM

[redacted]

From: Teacher Tuva
To: Records
Cc: [redacted]
Subject: No dam at the channon/Dunoon
Date: Tuesday, 8 September 2020 2:49:14 AM

To everyone that this concerns, which is everyone.

I, Tuva Hays of [redacted] (where I have lived for only 4 months) strongly oppose a dam at the channon. I know you are aware of the points to why it is opposed, so I just wanted to express my personal concern with a catchment.

It is mostly for the natures sake. The trees and the wildlife in this area are precious to us and to the future generations. This is sacred land and stopping the water will have negative a impact on nature and Song lines for the whole area.

I made a video once for Rous water informing children of the beauty and functioning of Rous water system, building a new catchment would cause so much distraction and I would make a film to show this part of Rous water too, this would be a heartbreaking horror film.

There are other options and solutions please explore these instead.

Best regards
Tuva Hays

From: Hedy Bryant
To: Records
Subject: Dunoon Dam
Date: Tuesday, 8 September 2020 5:28:25 AM

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

Dear councillors
I understand there are 2 options on the table
A a dam
B groundwater investigation
Given the huge advances in water reuse and harvesting technology plus simple solutions I strongly urge Rous to consider more sustainable options.
If pushed I vote for B.
However let's have more community consultation and more sustainable options considered.
Sincerely Hedy

Dr Hedy Bryant
[redacted]

From:	Diana Jo Faith
To:	Records
Subject:	proposal for Dunoon Dam
Date:	Tuesday, 8 September 2020 5:32:39 AM

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

Dear Sir,

Kindly note this letter is a total rejection of the above proposal.

This damn will directly affect flora and fauna in the region. At a time when Australia has lost billions of species due to Fires. This includes Koalas, Platypus, and Echidas considered on the dangerous list of vulnerable species.

It will no doubt create a greater burden on RATE PAYERS who are struggling with Pandemic, grief and social poverty. It is proposed to build this Dam during a time of Economic Depression not seen since the 1920's!. This issue shows no regard to the Will of the People, which is a feature of our struggling Democratic Society.

Furthermore, Aboriginal Heritage will once again be placed in danger as Grave sites and cultural heritage will be again destroyed. A deep detailed study and consultation with the First Nation peoples does not appear to be outstanding in this proposal. The recent actions of Rio Tinto destroying First Nation Sacred sites instills no confidence in the community that total respect and care will accompany this proposal.

Finally, there is a better way and research into the methods of Water Conservation DO EXIST within the policies and actions of Ballina Council. It is worth studying these for more efficient altneratives.

Our family totally objects to this proposal for all of the above reasons.

Thank you,

Bergan and Faith.

From: Les Montgomery
To: [redacted]
Subject: Objection to Dunoon Dam
Date: Tuesday, 8 September 2020 6:56:11 AM

Dear General Manager and Rous County Councillors

This email is my objection to the proposed Dunoon Dam as outlined in the Future Water Project 2060. I completely appreciate the complexities of determining and planning for a secure water supply for a growing population. However, I don't believe digging a large hole in the ground is the solution where that large hole will result in the destruction of thousands of years of indigenous peoples connection to country along with priceless indigenous cultural heritage items and the loss of ecologically significant Big Scrub remnants, part of which is not found elsewhere.

Recent population projections by the NSW Department of Planning, Industry and Environment are contrary to the figures used to support the argument for a new dam and Council should review these figures and commission its own independent projections before it goes any further down the path of committing to the destruction foreshadowed by the proposed dam.

In summary, my reasons for not supporting the proposed Dunoon Dam are as follows:

- 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). The plan to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone is almost insulting because it is just not possible to compensate for something that is completely unique. **Please don't allow the destruction of rainforest that doesn't occur anywhere else.** Focusing this development in a biologically diverse and sensitive area is contrary to the North Coast Regional Plan and NSW state planning regulations.
- Impact on koalas. The Channon is a known hotspot for koalas, and the terrestrial ecology impact assessment undertaken for this project makes it clear there are existing koala corridors that will be severed by the dam.
- Introduction of an industrial/construction zone for The Channon/Dunoon/Whian Whian communities, including noise impacts from machinery and trucks along with visual impact.
- Higher prices for consumers due to a 4 fold increase in the cost of water as predicted by the General Manager of Rous County Council to a question from Councillor Vanessa Ekins.
- The small population increase predicted for the four Local Government Areas of 12,720(5) between 2020-2060 does not justify such a large and

destructive dam. The dam risks being an expensive white elephant, diverting expenditure away from more sustainable, flexible and effective solutions. (reference NSW Department of Planning, Industry and Environment (DPIE) 2019, *'NSW population projections '* (contained in Fact Sheets on website for DPIE under Research and Demography Population Projections). **At a minimum Rous County Council should review its population projections.**

- Potential for catastrophic flooding downstream in the worst floods, particularly for the first 3 kilometres below the dam. (Environmental Flows Assessment 2011).
- This is a lost opportunity to invest in system-wide water efficiency, which is the cheapest and fastest way to ensure supply-demand balance. Sydney was able to factor in an additional 950,000 people without a rise in consumption by focusing on system efficiency. (Metropolitan Water Plan 2006, NSW Government).
- The dam would swallow all resources in one large expensive project and encourage continued inefficient and often wasteful water management by local governments, which would have no incentive to do things differently.

Instead I support consideration of a suite of measures including:

- An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. It is understood that Rous has *not* costed this in creating the Future Water Project. Further, has any modelling been carried out on the impact on supply if **permanent water restrictions** were implemented?
- Water re-use in various ways, including purified Recycled Potable water. This option seems to be discounted largely on the basis of not being palatable to the consumer. I don't believe this is a sufficient reason in a country like Australia.
- Water harvesting (urban runoff; rain tanks). Water tanks on all new and existing developments also build community resilience and rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks.
- Groundwater, where this is environmentally safe.

Please please take the community's objections seriously and do not rush into a decision that you will regret. We cannot replace the indigenous cultural heritage and the unique and ecologically significant rainforest that will be destroyed by a dam.

Yours faithfully

Les Montgomery
[redacted]

From: nadine dixon
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Monday, 7 September 2020 4:26:43 PM

Nadine Dixon
[redacted]
Gender: Female

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

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

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

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

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

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

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

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

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

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

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

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

Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in

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

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

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

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

I SUPPORT these alternatives:

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

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

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

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

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

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

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

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

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

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

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

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

References and Notes
Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
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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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Stuart White, 2020 www.bit.ly/Prof-Stuart-White-Rous-slides)
Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide.
Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment, Windhoek, viewed 3 August 2020, <https://www.wingoc.com.na/>
$220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous).
Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home, Canberra, viewed 3 August 2020, <https://www.yourhome.gov.au/water/rainwater>
Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020, <https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-drawdown>

From:	Benoit F
To:	Records
Subject:	Dam at the Channon-Dunoon
Date:	Tuesday, 8 September 2020 7:27:45 AM

Dear sirs,

I am writing this email to you being very concerned about the Rous future water plan 2060.

Building a dam that would destroy the Channon gorge is not the answer.
Destruction of ecosystems is not the answer.

Being smart and resourceful in finding new way is the answer, changing the paradigm is the answer. We proved that we could do better.

In this specific case doing better could be for example, optimising the water usage, in every way from the distribution wastage to the individual usage.

It could also be developing natural retention strategies around the existing dams by supporting ecosystems...

And so on

Thanks for your time in reading this email.

Best regards

Benoit Foulon

From: Jan Webster
To: Records
Subject: Dunnoon Dam proposal
Date: Tuesday, 8 September 2020 7:37:31 AM

To whom it may concern

I am astounded that with all the go ahead thinking for development of the coastal strip that no one has come up with any new sustainable ideas for conserving our most important asset, water.
We are very fortunate to enjoy a healthy rainfall area, but I see no need for complacency here. Just because we have an abundance of this sought after resource I see no need to single use. We embark on a new time in environmental history and should actively be setting in place steps for recycling water at the home as well as industry. Real wealth of an area is it's natural resource, water should be respected and not flushed down the toilet at the first opportunity. All leaking pipes should of course be mended and maintained firstly!!
I support Jeff Johnson's view in every way and look forward to more innovation and better management of the proposed millions of ratepayer dollars than a new dam. We should not be wasting anything!
I hope Council will hold special meetings around protection of resources and the environment and stop fast paced development until we have collectively used it all up.
Sincerely Jan Webster
[redacted]

From: [redacted]
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 8:00:40 AM

I have been a rate payer in this shire for over 22 years. I oppose the building of this new dam on the following grounds:

- building a new dam solves nothing in the long run as population grows and the new dam also becomes out grown. There is absolutely no justification to continue with growing the population in this region, or any other region in Australia. It is the definition of unsustainability and renders all other efforts to meet the Paris climate change targets completely pointless. Building this dam will give a fluorescent green light to developers and future councils for continued housing development.
- flooding of indigenous history and sites. This is no longer acceptable in this county
- the effect on the water flows in Rocky Creek and connected ground water. Removing this water from the creek and piping it to other areas in the shire will cause continued drying of the creek and connected area.

This council needs to stop promoting population growth in the region, in NSW, in Australia, and globally. Our focus needs to be reducing our environmental impact, not massively expanding it with a dam.

Perry Cornish
[redacted]

From: Amber Gooley
To: Records
Subject: Channon dam
Date: Tuesday, 8 September 2020 8:05:16 AM

Hello

Regarding the proposed dam at Dunoon, within 'future water project 2060'.

I am Not in Support of this dam, for these reasons :

Dunoon dam will make the worst floods even worse, in the areas immediately downstream, including The Channon.

Dunoon dam will destroy / inundate a Big Scrub remnant, which is rare in that it grows on sandstone. Offering bush regeneration as an offset, new plantings cannot effectively make up for the ruination of a gully that has never been logged.

I Do Support initiatives which make the most of our current water supply:

Increasing the usage of water tanks and other means of harvesting rainwater across the catchment.

Demand - management strategies.

A system wide efficiency audit or similar improvements to our infrastructure, which make better usage of the water and equipment we already have.

Regards
Amber gooley
[redacted]

From: Klaya Sslaya
To: Records
Subject: Dam pressure
Date: Tuesday, 8 September 2020 8:12:13 AM

Dear Council and Community Sevice Officials,

I am a resident of [redacted] I am concerned the proppsal for a dam is a symptomatic approach at bandaiding a problem that Australia has where our givernment is selling off our water and attempting to isolate us further into turmoil, psychalogical drama, self doubt, community upheavel and water boarding our natural streams. Our country is networked by streams and creeks like the wrinkles on our skin guiding our tears these ancient stream lines offer great wisdom we are only, in western comprehension all becoming aware of. I am a community council supporter and have been deeply involved in council movements as i see our councils as being strong representativea of community voices of our most vulnerable that often geta gagged by the midlife agera dominating private school power games infusing our political arena with direct capital and limited syphoned economic gain reducing our wisdom shared between all living cells kept alive by water and the earths natural self watering system. Every industry is effected by water and coca cola is sting holding us hostage by their company greed hoarding our water and natural springs for nothing more than isolated corporate greed. I do not approve this dam and i will rise and engage with you and community to see us have more conversations before approving such a massive proposal. Please allow us all to have a voice as you are our platform to be heard in a growingly gagging world.

For the women and childeren and our sons fathers and grandparents.

Water in natural flow is a grace for us all and i believ whole heartedly we must all do out bot to ease the strong hold some buisnesses have over our human rites to freedom. Why would we want to me more like the fammined afrikas when we can utilise the ice caps to bring water back into our country. We must have more conversation if we are healing and community wellbeing focused. Please hear my sincerity and careful choice of words to be as supportive as we can we must talk together.

Kind and compassionate regards,
Citizen Claire Heather Munro
[redacted]

Thank you councils for being our voice as we grow to flourish.

From: Robyn Francis
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 8:37:50 AM

Robyn Francis
[redacted]

9th September 2020

Rous County Council
Lismore NSW 2480

Attn: Rous Councillors and General Manager

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

I am the proprietor of Djanbung Gardens and principal of Permaculture College Australia and resident of the Northern Rivers for 31 years, teaching and consulting in sustainable design and development locally and internationally. I choose to live in this region because of its natural beauty, it's unique World Heritage listed remnant forests and ecosystems and share this love and appreciation with my students and clients, many of whom come from overseas to experience our natural treasures and visit sustainable projects and agriculture in our region.

Words cannot describe my alarm and distress regarding the proposed The Channon-Dunoon Dam.

I do not support the proposed dam for the following reasons:

• **The destruction of important local indigenous cultural heritage** including burial sites (Cultural Heritage Impact Assessment, 2011)

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

The proposed off-set is no compensation as this unique ancient ecosystem cannot be replicated, once destroyed it will be lost forever.

The proposal contravenes 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.

The proposal needs to be permanently shelved to conserve this unique ecologically sensitive jewel in favour of more effective solutions to ensure regional water security into the future.

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

There are many alternative solutions and smart water options that will be more cost effective, and do not require large dam projects.

Alternative options I support include:

• Investing in system-wide water efficiency and demand management
Please refer to Professor Stuart White's (UTS) 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.
Please refer to the wealth of global research and experience regarding potable reuse of water as set out in Water Research Australia's report, Potable Water Reuse: What can Australia learn from global experience?
https://www.waterra.com.au/publications/document-search/?download=1806

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

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

• Groundwater, where this is environmentally safe The Australian government provides a lot of information on the ecological impacts and groundwater usage. Regional ground water reserves should be kept for local use during periods of drought, together with banning of commercial groundwater extraction by large corporate interests for export.

Thanks you for considering my submission

Robyn Francis

Robyn Francis
Permaculture College Australia Inc
[redacted]
Professional Development and
Community Education in Permaculture.
[redacted]

From:	Cathy Campbell
To:	Records
Subject:	Object to the Dunoon Dam aspect of the Future Water Project 2060
Date:	Tuesday, 8 September 2020 8:51:21 AM

Dear Sir/Madam,

I am writing to object to the Dunoon Dam aspect of the Future Water Project 2060.
I have lived in this area for nearly 20 years. My great grandfather lived here from the 1930's – in [redacted]
It is one of the most pristine places in the world and keeping it as free from logging and damming and other man made structures is of huge value, especially to vulnerable native species.

I believe the proposed dam is not necessary or desirable. There are other alternatives.

Of most concern to me is the damage to a precious eco system.
Especially in a climate of bushfires, floods and droughts.

Please consider the alternate options – and if you haven't, please consult with traditional owners.

I object most strongly to this proposed dam in our precious part of the world.

Yours sincerely,
Cathy Campbell

[redacted]

From: Adrian Bordin
To: Records
Subject: DUNOON DAM PROJECT - LETTER OF SUPPORT
Date: Tuesday, 8 September 2020 9:07:53 AM
Attachments: image002.png

To the General Manager,

I wish to write a letter of support for the proposed Dunoon Dam project.

This project needs to happen. I am a town water customer and reside [redacted] I find some of the arguments against this proposal from the "stop everything at all costs" minority unbelievable – including the truck movements on the road etc, etc. I live on this road – it doesn't worry me in the slightest. Wouldn't it be fantastic to have something positive going on in our community that provides jobs for people, work for local businesses and infrastructure for the future, instead of "feel good" nothings we tend to be dished out week after week up here.

This dam needs to be built to not only secure our regional water supply, but to provide jobs for locals and to encourage people to move to this area. We have just been through one of the worst droughts on record, where water supplies literally dried up, we need a safe, reliable source of water that meets future demands.

We have become a do nothing, go backwards area. Its time this changed. Starting with our water supply. Rocky Creek Dam was built years ago, for years ago's demand.

This dam is much needed for many reasons. I support it 100%.

Thanks
Adrian Bordin
[redacted]

Adrian Bordin
[redacted]

From: Olof Jonnerstig
To: Records
Subject: Dam issue
Date: Tuesday, 8 September 2020 9:32:21 AM

Hello

I'm Olof Jönnerstig
[redacted]

I would like to express my concerns about the dam proposal at the Channon

We need to protect the little pockets of rainforest that we have and expand them
Not destroy them !

We are in a climate and biodiversity crisis are you unaware of this or something? How can you even consider building this dam in 2020?

There are many other options to conserve water, energy, money and nutrients than this mega dam proposal which are less risky and do not destroy precious habitat Once its gone it's gone!

How about reforest the proposed dam site instead and restore and improve the hydrological cycle in the landscape Recharge the aquifers And Ban water mining while you are at it !

Forests are what can mitigate floods and droughts and stabilise our local climate, and make us more resilient If we had more rain forests we would have more rainfall and precipitation evenly distributed thorough the year And The landscape would have the capacity to absorbs the rain in flood events
And we could gather more water in our rain tanks

The dam would create more droughts as it would starve the landscape down stream of water and when the dam is full it would create a huge surface area of 100% runoff in flood events which would exacerbate the flood problems Lismore face, as it is already in a flood probe area

We have destroyed enough now its time to restore nature if we are to continue living on this planet

Here Some suggestions

Promote and subsidise composting toilets
Especially in urban high density situations
To reduce the water consumption

Fix the Leaks in your infrastructure

Pay for online courses for all your council employees to study permaculture, and bio mimicry, sustainable design so that they can broaden their knowledge of smart solutions

Here is some inspirational videos

Hello It's 2020 start thinking like it!
https://www ted com/talks/michael_pawlyn_using_nature_s_genius_in_architecture?utm_campaign=tedspread&utm_medium=referral&utm_source=tedcomshare

How to change local climate

https://www ted com/talks/willie_smits_how_to_restore_a_rainforest?utm_campaign=tedspread&utm_medium=referral&utm_source=tedcomshare

Green gold

https://youtu be/YBLZmwlPa8A

I hope you listen to us!

Kind regards
Olof jönnerstig

Sent from my iPhone

mu MULLUMBIMBY

Landscape—level to gently undulating alluvial plains and terraces of the Brunswick River and its tributaries. Predominantly metamorphic and rhyolitic derived sediments. Extensively cleared closed-forest.

Soils—deep (>300 cm), moderately well-drained brown Structured Alluvial Clays (Uf6, Uf6.31, Uf6.12) on floodplain. Very deep (>500 cm), moderately well-drained bright brown Structured Alluvial Clays (Uf6.31, Uf6.12) on terraces.

Limitations—flood hazard, localised seasonal waterlogging and moderately erodible soil materials with high shrink-swell.

LOCATION

Alluvial plains and terraced land of the Upper Brunswick River, Mullumbimby Creek and the Pocket, being inland extensions of the Tweed-Byron Coast. Type location is traversed by Main Arm Road, between Mullumbimby and Sherrys Bridge (Area reference 5 **45*****E, 68 **43*****N).

LANDSCAPE

Geology

Quaternary sediments: river alluvium, clay, sand and gravel. Sediment sources are varied, but those of the Neranleigh-Fernvale Group and Nimbin Rhyolites dominate. Lismore Basalts also contribute.

Topography

Level to gently undulating floodplains and terraces. Slopes are generally <1%. Relief is <5 m. Elevation is mostly <15 m rising to 30 m in upstream locations. Terraces are broad (300–500 m) and have local relief of 3–5 m. The present floodplain ranges from narrow to broad (<500–1 000 m) in width.

Vegetation

Virtually completely cleared closed-forest (rainforest). Information on riparian vegetation can be found in Raine (in press). Weeping lillypilly (*Waterhousea floribunda*) has been found by Raine to be the dominant species. Other common species include rough-leaved elm (*Aphananthe philippinensis*), pepperberry tree (*Cryptocarya obovata*), white booyong (*Argyrodendron trifoliolatum*), creek sandpaper fig (*Ficus coronata*), cheese tree (*Glochidion ferdinandi*), giant water gum (*Syzygium francisii*), coolamon (*Syzygium moorei*) and red kamala (*Mallotus philippensis*) (Raine in press) Spiny mat-rush (*Lomandra longifolia*) is a common understorey plant.

Present ground cover is a closed sod grassland of improved pasture species such as kikuyu (*Pennisetum clandestinum*) and carpet grass (*Axonopus affinis*). Camphor laurel (*Cinnamomum camphora*) is a common exotic.

Land Use

Generally beef and dairy cattle grazing. Some sugar cane growing and tea-tree plantations.

Existing Land Degradation

There is minor apparent land degradation within this soil landscape, though soil structure decline and induced soil acidity can be present within cultivated land and dairy pastures.

SOILS

Dominant Soil Materials

mu1—Brown clay loam (topsoil—A_{11} horizon)

Colour	brownish grey (5YR 4/1, 7.5YR 4/1), brownish black (10YR 3/1)
Texture	clay loam, occasionally light clay
Structure	moderate to strong, polyhedral, 5–10 mm, parting to 2–5 mm

Fabric	rough-faced, dense, distinct clay coatings common (10–50%)
Exposed condition	self-mulching, moderately weak, crumbly when dry
Permeability	moderate
pH	5.0–5.5
Coarse fragments	none
Roots	1–2 mm, common
Type location	Pocket Road—200 m west of Walkers Lane (must be augered) (Grid Ref. 5 **482****E, 68 **464****N). Soil Data System card 332, 0–35 cm

mu2—Brown structured light clay (topsoil and subsoil—A and B horizons)

Colour	predominantly brown (7.5YR 4/6, 10YR 4/6), also brownish grey (7.5YR 5/1, 10YR 4/1) and dark brown (10YR 3/3), occasionally distinct grey and orange mottles present at depth (2–20%)
Texture	light to medium clay, commonly light or light medium clay
Structure	moderate, occasionally strong, polyhedral, 5–10 mm, parting to 2–5 mm and crumbs <2 mm. A massive appearance when wet
Fabric	smooth-faced polyhedral peds and rough-faced crumbs, dense and tightly packed, porous, distinct to prominent clay coatings common
Exposed condition	self-mulching, weak to moderately weak, crumbly to plastic when dry. Slightly to moderately plastic, moderately to very sticky, often slakes when wet.
Permeability	slow
pH	5.0–6.0
Coarse fragments	common, strongly weathered ironstone and ferromanganese nodules, 2–6 mm, charcoal also occurs
Roots	2–5 mm, few
Type location	cutting between Sherrys Bridge and school (Grid Ref. 5 **45**1**E, 68 **43**5**N). Soil Data System card 328, 20–60 cm

mu3—Bright brown structured light clay (subsoil—B horizon)

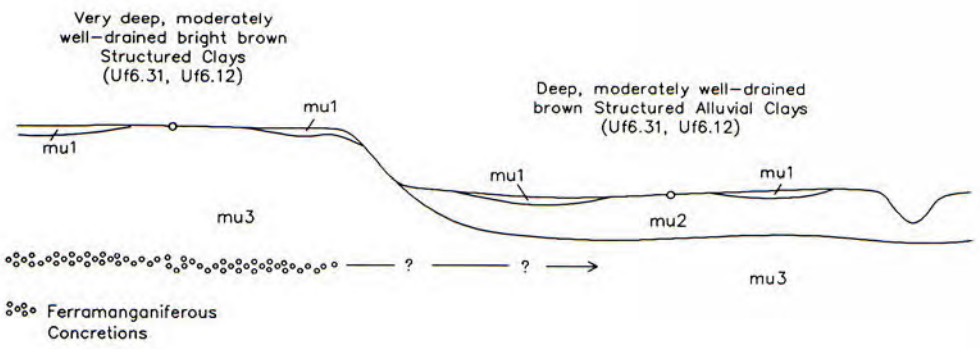
Colour	yellowish brown (10YR 5/6) to bright brown (7.5YR 5/8), brownish grey (7.5YR 6/1) at depth
Texture	light to light medium clay
Structure	weak to strong, polyhedral/sub-angular blocky, 5–10 mm parting to 2–5 mm and crumbs <2 mm
Fabric	smooth-faced polyhedral peds (very shiny at depth), rough-faced crumbs, dense and tightly packed, porous, distinct clay coatings common (>50%)
Exposed Condition	self-mulching, weak to moderately weak, crumbly when dry. Moderately plastic, moderately to very sticky, may slake when wet
Permeability	slow
pH	5.0
Segregations	few to common (2–20%), strongly weathered ironstone, 2–6 mm, becoming more consistent with depth, segregation strength weak
Roots	2–5 mm, common
Type location	batter on southern side of bridge on Coral Ave, Mullumbimby (Grid Ref. 5 **47**3**E, 68 **41**7**N). Soil Data System card 329, >100 cm

Occurrence and Relationships

Soils of the Mullumbimby soil landscape are relatively uniform with little profile differentiation. The main differences are in colour and relate to location on floodplain or terrace.

Floodplain. Up to 20 cm of brown clay loam **(mu1)** occasionally overlies >200 cm of brown structured light clay **(mu2).** Often **mu2** is the only soil material present. Boundaries are non-existent to diffuse [moderately well-drained brown Structured Alluvial Clays (Uf6, Uf6.31, Uf6.12)]. Total soil depth is >300 cm.

Terraces. Up to 20 cm **mu1** may overlie up to 300 cm of bright brown structured light clay **(mu3).** Often **mu3** is the only soil material present. Boundaries are non-existent to diffuse [moderately well-drained bright brown Structured Alluvial Clays (Uf6.31, Uf6.12)]. Total soil depth is >500 cm. The soils of the terraces are generally redder than those of the floodplain.



■ *Schematic cross-section of Mullumbimby soil landscape illustrating the occurrence and relationship of the dominant soil materials.*

LIMITATIONS TO DEVELOPMENT

Soil Limitations

mu1 Strongly acid
High plasticity
High shrink-swell

mu2 Strongly acid
Aluminium toxicity potential
Moderate shrink-swell

mu3 Strongly acid
Moderate erodibility
High plasticity

Fertility

Soil Materials as Growth Media. Moderate suitability **(mu1, mu2, mu3).** All soil materials are well structured, have low to moderate water-holding capabilities, are very strongly acid and have low **(mu1)** to moderate **(mu2**, **mu3)** nutrient storage capacities. Organic matter is very high in topsoil **mu1.** CECs are moderate throughout. **mu1** and **mu2** may be susceptible to aluminium toxicity.

Soil Profile Fertility. Soil profile suitability as a growth medium is high for very deep and deep, moderately well-drained brown Structured Alluvial Clays. Soil volumes available for root penetration are generally high.

Erodibility

	K factor	Non-concentrated flows	Concentrated flows	Wind
mu1	0.000	very low	low	low
mu2	0.020	low-mod	moderate	low
mu3	0.029	moderate	high	low

Erosion Hazard

	Non-concentrated flows	Concentrated flows	Wind
grazing	slight	slight	slight
cultivation	slight	slight	slight
urban	slight	slight	slight

Foundation Hazard

Moderate foundation hazard due to localised flooding and moderate to highly reactive soils. Topsoil depth is 20–30 cm. Total soil depth is >200 cm.

Landscape Limitations

Flooding (localised—on floodplain)
Seasonal waterlogging

Urban Capability

Generally moderate to high limitations for urban development on floodplain where localised flooding hazard is high. Moderate limitations for urban development on terraces.

Rural Capability

Generally low to moderate limitations for cultivation. Generally low limitations for grazing.

From: Janelle Schafer
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 9:48:01 AM
Attachments: 9540mu.pdf

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

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

Dear General Manager and Rous Valley Councillors,

Thank you for extending the date for making a submission. We as a community appreciate this. We also realise the complexity of the issue to supply water to the community.

I have lived at [redacted] and raised three children over the past 30 years. My children have gained great skills and wisdom, growing up in this area of unique biodiversity. One still lives in this valley, working as a local tradesman, while my other two have gone on to take up professions in federal government and law.

I, myself am a botanist with a great appreciation of the unique biodiversity which the Rainforests of the northern rivers, and particularly the Nightcap ranges, have protected since the last ice age, over 15,000 years ago.

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.**

● **Geological issues-** the interface between the Kangaroo Creek Sandstone and Walloon Coal Measure, where they meet in the Channon area, have previously shown the potential for mass movement. (E-spade NSW Department of Planning Industry and the Environment) E-spade 9540cl

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 measuresif 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 >
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(8) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water , Institute for Sustainable Futures, Sydney.
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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) NSW Department of Planning, Industry and Environment 2019, E-spade viewed September 8 2020 <https://www.environment.nsw.gov.au/Salis5app/resources/spade/reports/9540cl.pdf >

Janelle Schafer
BSc (Botany) UNE, MAIH.
Master of Science by Thesis candidate
Southern Cross Plant Science
[redacted]

From: jason williams
To: Records
Cc: [redacted]
Subject: MY CONCERNS ABOUT THE DUNOON DAM - JASON WILLIAMS - [redacted]
Date: Tuesday, 8 September 2020 9:52:21 AM

Dear Councillors

I moved to the beautiful Northern Rivers as it offered rare rainforests and beautiful creeks, and what seemed to be open and nature-minded and people. I believe these attractions to be common reasons for migration to this incredible environment.

We live at [redacted] with frontage to the amazing [redacted]. Similar to parts of [redacted] which are under threat of damming. Out here i see and hear animals i never see outside of rainforested environments. SPECTACULAR.

When I learnt of the **Big Scrub** phenomenon surrounding Mt Warning, I was **VERY SHOCKED** to learn of the destruction our peoples have brought to this once giant jewel of nature.

So my argument against the dam at the Channon Gorge is based on **universal ethics and simple common decency**.

APPROX 6% OF EARTH LAND SURFACE COVERED BY RAINFOREST

MORE THAN HALF OF PLANT SPECIES COME FROM RAINFOREST

HALF OF ANIMAL SPECIES LIVE IN RAINFOREST

CREEKS SUPPORT THESE SPECIES IN RAINFORESTS

LESS THAN 4% (SOME SAY 2%) of Big Scrub is left

IN 1950'S APPROX 16% OF WORLD LAND SURFACE WAS RAINFOREST

Being smart people as you no doubt are, i think i need to say no more. But there is so much more to say, so will add a little more....

This really is about **HUMAN'S vs REST OF WORLD**

Survival of creeks as they are are critical toward regeneration of destroyed rainforest, which is extremely difficult as it is.

As many other local submitters have explained, efficiency and individual water catchment needs to be first target, and if a dam HAS to be installed, then it HAS to be installed without further destruction of rare, beautiful and irreplacable nature corridors, not to mention sacred areas and sites for the original inhabitants.

Whether human needs continue to have priority over (and destruction of) plants and animals, seems to be in your hands.

What do you think about the lowly percentage remaining of the Big Scrub?

Would you honestly rather visit a manmade lake or a pristine mature rainforest creek?

Warm Regards

Jason Williams

[redacted]

[redacted]

8/9/2020
Mrs Elizabeth Davy
[redacted]

Attention: **Rous County Council,**
Lismore NSW 2480
In reference to: The proposed Dunoon Dam

To whom it may concern,

I Elizabeth Davy, a resident of [redacted] and mother of two school age children who love exploring the natural surrounds of the Northern Rivers, write to you voicing my concerns over the proposed Dam, for the area of Dunoon and the Channon.

I do not support the new Dunoon Dam proposal, I believe it is an unsustainable, unnecessary measure that will destroy precious natural habitats and encourage more careless water waste for the future. I am hoping that the reasons behind the need for the new dam are genuine but I am sure there are better ways to source and conserve water for the future. I have used my position as a school teacher in the local area to investigate and enlighten my students to the issues surrounding this new water source. My students and I discovered that a large percentage of the water currently sourced is lost to out-dated water infrastructure and leaks. Surely if these leaks were fixed and other more sustainable options were incorporated there would no need to destroy a large chunk of untouched natural habitat.

We use town water as our water supply but would be very keen to install a tank to supplement our supply to avoid this new mega dam. When we were on water restrictions last summer our family did all we could to conserve water and reuse grey water to look after this precious resource. Surely it is bad practice of Rous Water to flood a beautiful area to create another dam that will only be flushed away, leaked and wasted.

We must find ways to assist people to make better choices for water usage, instead of providing more ways to be wasteful and carefree.

My family and I have been privileged to live in this beautiful part of Australia for over 10 years, and we have a deep appreciation for, and connection with this land and the native flora and fauna that we co-exist with. We regularly see Koalas, Ring tail possums, Brush tail possums, Echidnas, Wallabies, Platypus and a myriad of birds and snakes. This is just a small pocket of remaining natural environment, which we feel needs to be protected, for the survival of many species of flora and fauna, important to our heritage and our future.

As a mother and community member, I am distressed at how the building of this dam will affect the small village of Dunoon, with the heavy and noisy machinery which will have a negative impact on our roads and which will cause disruption, stress and noise pollution, for those of us who have chosen to live this quiet and peaceful lifestyle.

Education is all about '21st century learners', sustainability, problem-solving, developing smarter systems, and using technology for a better future. As a school teacher, I am in a position to educate students in water saving and conservation skills and practices, waste management, environmental protection and to respect our aboriginal heritage. This education is reinforced through Big Scrub events and supported by Rous water council. And so, I believe council should also practice what we preach by implementing the current science information and technologies available to them.

Thank you for taking the time to read my concerns,

Elizabeth Davy

From: dan mcdonnell
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 9:57:05 AM

Dan McDonnell
[redacted]
Gender: Male

7th 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, 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 have enjoyed the rainforests, creeks and wildlife in the northern NSW region for 11 years. Words 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 DO NOT support the proposed The Channon-Dunoon Dam for these reasons:

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

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

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

• Destruction of important Indigenous cultural heritage, including burial sites (Cultural

Heritage Impact Assessment, 2011) (2). Ongoing disregard for First Nations' heritage.

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

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

Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." NSW Department of Planning, Industry and Environment 2019, 'Delivering the plan', Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan >, Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (4)

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

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

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

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

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

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

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

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

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

Prof Stuart White - Rous Water RSWP slides 20200904.pdf

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

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

• Water harvesting (urban runoff; rain tanks):

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

(12) Rainwater | YourHome

Rainwater | YourHome

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

• 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)

Department of Agriculture, Water and the Environment

Department of Agriculture, Water and the Environment

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

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

Kind Regards,

Dan McDonnell

References and Notes

(1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0
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<https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-groundwater-dr
awdown>

From: Phoebe Colbrelli-Cox
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 9:57:24 AM
Attachments: image003.png

Phoebe Colbrelli-Cox

[redacted]
Gender: Female

9th September 2020

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

Dear Rous Councillors and General Manager,

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

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

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

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

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

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

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

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

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the dam is built.

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

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

Phoebe Colbrelli-Cox | Fisheries Officer

[redacted]

Stronger Primary Industries
NSW Department of Primary Industries

Future water project 2060 feedback submission.

Sean Micallef
[redacted]

8th September 2020
Rous city council
Lismore NSW2480
council@rous.nsw.gov.au

To all councillers and general Manager

Please consider my submission in regards to the proposed Dunoon dam.

Firstly, I'd like to say Im not a die-hard greenie nor anti progress. I've worked in big industry in oil refineries as well as fly in fly out employment, construction etc. I'd also like to say that I am pro nature and environment and believe that at this point in our human evolution we need to consider the impacts we are having now and what it looks like in the future.
With this in mind and for a number of other reasons I have concluded that this dam does not represent the northern rivers in any way. It does not represent the progressive thinking, innovative approach or deep concern and love of our natural wealth and therefore I oppose this dam project regardless of the positives that I may gain from living so close to a sizable lake that I would doubtless enjoy pursuing some of my favourite pastimes like sailing and fishing.

Below are listed in point form my reasons for opposing the Dunoon dam.

- Population growth is expediential as will be the needs for water in 2060 and beyond. Rivers and water ways are not limitless and if it is foreseeable that into the future water demands will eventually need to be met by either desal plants or groundwater and household water tanks then why destroy another eco system and remnant rainforest now? Let's be the change in the approach to resolving water requirements. Let's be the leader in water innovation. It doesn't take long to do a little research to see that there are other alternatives to dams. We can be water secure and retain our environmental wealth without further destruction. I'd like to think that future generations not only will be able to enjoy the natural beauty and wildlife or wild spaces of our home lands but will accept and carry the batten of environmental innovation past to them from us as opposed to picking up the pieces of lack of vision and carrying the burden of poor decisions of those that came before them. Another dam is not the way forward. It is representative of doing things the way they always have been done. It does not represent us as a community.

- I refer to the front page of The Nimbin good times and its reference to Sydney waters response to needing more water and its clean up of leaking water pipes and tightening up of inefficiency. *WaterPlan,Water for Life, NSW Gov 2006*

Future water project 2060 feedback submission.

- Im hearing there are significant Aboriginal sites in the proposed submersed terrain. If this is true then I would be very interested to hear your address to the aboriginal community as to how you concluded that this dam is of greater importance than their cultural heritage.

  These are my personal view points and end conclusions after open minded consideration of the dam project.
  I'll admit at first, I thought it wasn't such a bad thing but after some consideration and deeper enquiry I believe this project is a result of lack of zeal for new alternatives to damming water ways and smarter water solutions. Now is the time for future planning. Now is the time to create the world we wish to live in tomorrow. I ask you to take this opportunity to prove your worth as councillors and community leaders and come up with a water strategy that supports all aspects of our enviroment and community needs as well as cultural diversity.

  Below are some links to support my position which is a clear and resounding **NO** to the future water 2060 projects Dunnon Dam.

  Thank you for this opportunity to be involved in this project

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
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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. (10) Kahn, Stuart and Branch, Amos 2019, *Potable water reuse: What can Australia learn from global experience?,* Water Research Australia Limited, Adelaide.
11. (11)WindhoekGoreangabOperatingCompany(Pty)Ltd2020,*Ourhistory|Wingoc,*V eoliaEnvironment, Windhoek, viewed 3 August 2020, https://www.wingoc.com.na/
12. (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. (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. (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: sean micallef
To: Records
Cc: [redacted]
Subject: The Dunoon Dam project proposal. Future Water Project 2060
Date: Tuesday, 8 September 2020 10:09:34 AM
Attachments: Sean Micallef Future water project 2060.pdf

Sean Micallef
[redacted]

8th September 2020
Rous city council
Lismore NSW2480
council@rous.nsw.gov.au

To all councillers and general Manager

Please consider my submission in regards to the proposed Dunoon dam.

Firstly, I'd like to say Im not a die-hard greenie nor anti progress. I've worked in big industry in oil refineries as well as fly in fly out employment, construction etc. I'd also like to say that I am pro nature and environment and believe that at this point in our human evolution we need to consider the impacts we are having now and what it looks like in the future.
With this in mind and for a number of other reasons I have concluded that this dam does not represent the northern rivers in any way. It does not represent the progressive thinking, innovative approach or deep concern and love of our natural wealth and therefore I oppose this dam project regardless of the positives that I may gain from living so close to a sizable lake that I would doubtless enjoy pursuing some of my favourite pastimes like sailing and fishing.

Below are listed in point form my reasons for opposing the Dunoon dam.

- Population growth is expediential as will be the needs for water in 2060 and beyond. Rivers and water ways are not limitless and if it is foreseeable that into the future water demands will eventually need to be met by either desal plants or groundwater and household water tanks then why destroy another eco system and remnant rainforest now? Let's be the change in the approach to resolving water requirements. Let's be the leader in water innovation. It doesn't take long to do a little research to see that there are other alternatives to dams. We can be water secure and retain our environmental wealth without further destruction. I'd like to think that future generations not only will be able to enjoy the natural beauty and wildlife or wild spaces of our home lands but will accept and carry the batten of environmental innovation past to them from us as opposed to picking up the pieces of lack of vision and carrying the burden of poor decisions of those that came before them. Another dam is not the way forward. It is representative of doing things the

way they always have been done. It does not represent us as a community.

- I refer to the front page of The Nimbin good times and its reference to Sydney waters response to needing more water and its clean up of leaking water pipes and tightening up of inefficiency. *WaterPlan,Water for Life, NSW Gov 2006*

- Im hearing there are significant Aboriginal sites in the proposed submersed terrain.

If this is true then I would be very interested to hear your address to the aboriginal community as to how you concluded that this dam is of greater importance than their cultural heritage.

These are my personal view points and end conclusions after open minded consideration of the dam project.
I'll admit at first, I thought it wasn't such a bad thing but after some consideration and deeper enquiry I believe this project is a result of lack of zeal for new alternatives to damming water ways and smarter water solutions. Now is the time for future planning. Now is the time to create the world we wish to live in tomorrow. I ask you to take this opportunity to prove your worth as councillors and community leaders and come up with a water strategy that supports all aspects of our enviroment and community needs as well as cultural diversity.

Below are some links to support my position which is a clear and resounding **NO** to the future water 2060 projects Dunnon Dam.

Thank you for this opportunity to be involved in this project

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

11. (11)WindhoekGoreangabOperatingCompany(Pty)Ltd2020,*Ourhistory|Wingoc,*V eoliaEnvironment, Windhoek, viewed 3 August 2020, https://www.wingoc.com.na/

12. (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. (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. (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: Noah Moon
To: Records; [redacted]
Subject: "Come to the Heart... of Ecological Destruction"
Date: Tuesday, 8 September 2020 10:12:38 AM

I feel a little like the Lorax here, guys.

"I speak for the trees!"

But I do, and I must, because once again for some *mind-boggling reason* the leaders of the area that I grew up in are trying to tear up our precious natural environment. For profit. Or maybe... Just because they want to.

It doesn't look good.

In fact, it actually looks really, **really**, *reeeeeeeaaally* bad.

The ABC just released an article that shows koala populations are down 71% in the Northern Rivers. I guess that'll happen when your whole state is on fire for half the year, eh! And so naturally, the Rous council would like to plop and monstrosity of a worksite down into one of the most ecologically diverse gorges in the area for 10 (*at the minimum*) years to construct a monument to water inefficiency.

Oh yeah, and, uh, there's a thriving population of koala's in that gorge. And also Indigenous heritage sites. And also old dip sites so there's a bunch of fun chemicals in that ground that you can *technically* process out of the water but let's face it – this is the Northern Rivers.

I only got half my vaccinations as a kid because I was convinced they would poison me. Our slogan isn't "The Northern Rivers, we're logical and scientifically educated people that don't operate by mainly emotions or resist anything chemical and unnatural."

I am now a man that believes in science, though. And science points to a future for my generation that is quite unlike anything we've ever seen. Blistering fires, scorching summers, and winters drier than you could imagine. I can see the greenery that lit my childhood memories alight with wonder slowly shriveling and dying right before me. Yes, we will need water. But I doubt in 50 years time, slightly ahead of the 30 estimates of efficiency of this mega-dam, we will get enough rain to collect the runoff water needed to even fill the thing.

And I hope I'm wrong, believe me, but we can't afford to do things based on hope.

Here is what I know:

1. The full facts have not been explored surrounding this dam. Professor Stuart White has created a very enlightening document into how a Water Efficiency System could meet our needs, at practically no extra cost to the councils (when compared to the mammoth money pit of the dam). The water is already there, leaching out of loose pipes and leaky faucets, going right down the drain.

I believe that a Water Efficiency option should be fully investigated before the leaders of this area can make a complete, educated, **no-regrets decision** about building a destructive colossal dam right in my own family's backyard. Quite literally. This dam will be 500 meters as the crow flies from my multi-generational family home in the Channon. How's that for never getting a good night's sleep again?

2. I know the people in my area. I know the passion for which they believe in our land, our rights as citizens to have our say, and in their resistance to trying to 'bigify' the Northern rivers. Everything that is special about our wonderful pocket of the world comes from it being just that – a pocket.

I know that this dam presents opportunities for massive economic growth. And I spit on that. With venom. I am living in a city currently, in fact, I'm trapped in lockdown in Melbourne right now. And do you know what I think of to keep myself together? That gorge.

I spent my childhood walking that gorge with my father. He would tell me stories about how when he was a boy he'd come to the Gorge to pretend he was Steve Irwin. He'd pack sandwiches, a few bottles of water, and fall asleep under the open sky listening to the liar birds whip the sun goodbye.

When I think of that land being flooded, I am underwater.

I drown if it drowns.

You have a great responsibility weighing on your shoulders to make a decision about this. I'm asking you not to make a decision at all.

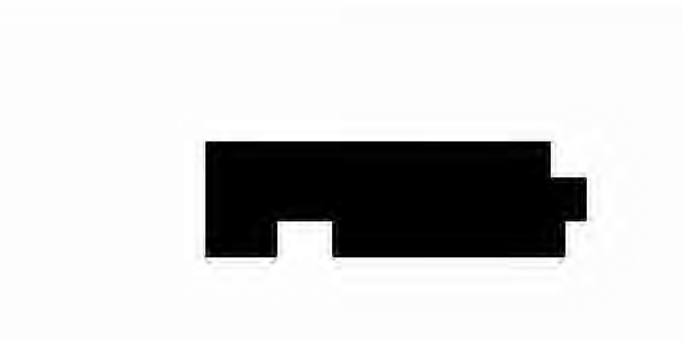
Make a decision to not make decisions today, and wait. Ask for more research to be done on better, more efficient, less destructive ways we can keep the water that we already have circulating longer – extend the blood that already runs in our veins. Don't keep getting transfusions to fix an open wound. It will cost you millions and you won't end up where you want to be.

So yes, I'm a little like the Lorax. I speak for the trees that sheltered me as I grew. I speak for my community, I speak for the child in me and the man I became inside that little strip of nature. And I speak to say if you choose to build this dam you will be on the wrong side of history, and the wrong side of everything that Northern Rivers claims to stand for.

Regards,

Noah Moon

P.S I used my work email for this. I *must* mean business.



BALANCED ADVICE
ABN: 25 709 286 460

Principal: Rob Doolan

[redacted]

8 September 2020

Rous Water
Via email

Future Water Project 2060

Objection

Balanced Advice personnel have been involved in planning within the NSW northern rivers for the past 40 years.

The purpose of this submission is to **object** to the current approach and level of information provided and to the conclusion that a proposed dam is necessarily the answer to future water requirements.

We contend that the manner that this project is being undertaken handicaps effective strategic planning within the Rous jurisdiction. Strategic planning should be an integrated process that addresses all aspects of the natural, social and economic environment of the study area. This project reflects Rous Water approaching this key aspect of regional planning – water cycle sustainability and resilience – within a 'silo'.

Rous Water has failed its own mission statement – 'Partner with our constituent councils to provide quality services that support a sustainable and productive region' – with this project. The process is lacking in terms of a sustainable approach as well as too little partnering with council's and the state government in integrated regional planning. This 'silo' approach to planning by Rous Water – a bulk water provider – has, not surprisingly, resulted in a recommendation to provide more bulk water in the form of a dam.

A more integrated approach to strategic planning within the Rous service area is required that addresses all aspects of planning including local economic development, local employment and resource and infrastructure resilience.

In addition, further investigation is needed in sustainable water management. We concur with the recommendations of Professor S White from University of Technology Sydney (UTS) in his submission to you that there is scope for major improvements in efficiency of water use. The UTS report 'Assessment of Future Water Efficiency Measures' 2017 demonstrates the array of measures to be explored in a meaningful water efficiency approach.

We also concur with Professor White that the Rous planning process has not employed best practice water infrastructure planning. Such an approach would employ real options analysis assessing a diverse portfolio of demand and supply options.

We also draw your attention to the Rous Water Strategy Integrated Water Planning Process 2014 report stating:

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

This leads us to support the conclusion of Professor White suggesting 'a more prudent approach is needed, in which the climate change scenarios are used as scenarios for sensitivity testing rather than locked in as hard line forecasts. Such an approach is consistent with the idea of a portfolio approach, considering all available, and fully-costed demand and supply options, including contingency options, in an adaptive real options approach.

We applaud Rous Water's existing approach to rebates for roof water harvesting water tanks. This proven approach could be significantly expanded across the study area and used within urban areas. Provision of safe potable water by roof water harvesting is now cost effective and safe with affordable advanced filter & UV systems.

The recent drought and bushfire experience has highlighted advantages in this option. Where an unexpected 25mm storm during a drought or bushfire does not meaningfully add to a dam storage, such a storm delivers potentially lifesaving water exactly where it is needed due to the harvesting efficiency of roofs and water tanks. In other words, a single rain event can significantly add to a households immediate water availability. Such an approach has further advantages such as for mitigating stormwater runoff impacts.

This investigation stage of the process requires modelling to be undertaken to assess these options for the provision of water.

We urge Rous Water to pause their current approach and engage with partner Councils to undertake an integrated approach to planning for the local region. We strongly urge Rous Water to adopt the best practice approach outlined by Professor White.

Please do not hesitate to contact us for any further information.

Yours sincerely

[redacted]

Rob Doolan for
Balanced Advice

From: Michelle Chapman
To: Records
Cc: [redacted]
Subject: RE: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 10:49:59 AM

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 all the work from Rous Water and Rous Council for the hard work and stewardship of our water and surrounding flora and fauna over the last few decades. As a new resident to [redacted] and an environmental scientist, it is evident that there is a keen awareness and duty of care for the environmental health of our water, soil and air quality which I'm grateful for.

Therefore I'm so shocked that the Dunoon Dam is being proposed again, after already being shelved by the community and council after being deemed to be too high a cost to the environment.

I do NOT support the dam for the primary reason that the plants and animals that together make up the "Lowland Rainforest of Subtropical Australia", a Critically Endangered Ecological Community (EPBC Act, 1999), will all be systematically drowned and destroyed. Not only is this completely unethical, with no regard for the right to life of other species, it is also incredibly short-sighted, as we will then lose all the ecosystem services that that community now gives us – clean water, good soil, clean air, carbon sequestration and pollinators for our food crops to name just a few – FOREVER.

I assume that you are aware of the devastating destruction of the 'Big Scrub', the heart of this EEC, over the last 200 years. Once an expanse of rainforest spanning 75,000 ha, the Big Scrub is now 1% of its original size, and under further threat of fragmentation (Parkes et al., 2012). Despite its fragile ecological status, the Big Scrub contains 40% of NSW threatened species (DECCW, 2010), is a current link to the World Heritage listed Gondwana Rainforests of Australia (DEWR, 2007), and supports the World Heritage listed Border Ranges National Park, one of Australia's National Biodiversity Hotspots (EPBC Act, 1999).

Even though it may not seem like a large area of forest in the Channon gorge, at this point in our history every remnant counts. Offsetting in this case is a complete illusion. There is no way that planting new trees in degraded farmland will balance the ecological services of a functioning ecosystem established over thousands of years.

Do we really want the death of hundreds of thousands of plants and animals on our conscience?

Just so we can flush clean water down the toilet? This is old school thinking - we can do better!

We need smarter water demand and supply management, and I believe that Rous Council is smart enough to lead the way.

I SUPPORT these alternatives:

- Water re-use in various ways, including Purified Recycled Potable water.
- Water harvesting (urban runoff; rain tanks):
- Contingency planning
- Groundwater, where this is environmentally safe

Thank you for considering my information and opinion. As an environmentalist and a community member, I will do whatever it takes to protect the Channon gorge and its inhabitants. I hope that each of you will too.

Regards,

Michelle Chapman

B. Env. Science; B. Ed.
ACTIVATED
Research - Education - Activation
[redacted]

[redacted]

[redacted]

Gender: Female

REFERENCES

BC Act (2016). *NSW Biodiversity Conservation Act* 2016. Office of Environment and Heritage: NSW

Department of Environment, Climate Change and Water NSW. (2010). *Border Ranges Rainforest Biodiversity Management Plan - NSW & Queensland*. Sydney: DECCW: NSW

Department of Environment, Climate Change and Water NSW. (2010). *Northern Rivers Biodiversity Management Plan, National Recovery Plan for the Northern Rivers Region - NSW & Queensland*. DECCW: NSW

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EPBC Act (1999). *Environment Protection and Biodiversity Conservation Act* 1999. Department of

Environment and Energy: Australia

Hutchins, G. (2012). The Nature of Business: Redesigning for Resilience. Green Books: UK

Parkes, T., Delaney, M., Dunphy, M., Woodford, R., Bower, H., Bower, S., Bailey, D., Joseph, R., Nagle, J., Roberts, T. and Lymburner, S. (2012). Big Scrub: A cleared landscape in transition back to forest? *Ecological Management & Restoration, 13,* (3), pp. 213-223. DOI: 10.1111/emr.12008/

From: Alan Stewart
To: Records
Subject: Future Water Project 2060--Feedback Submission
Date: Tuesday, 8 September 2020 10:50:23 AM

To Rouse Council:

From: Dr Alan Stewart, [redacted]

Proposal: Future Water Project 2060.

I am strongly opposed to the proposed dam at The Channon and Dunoon for the following reasons:

1. Historically, proposals for dams have been shown to be political ploys involving promises to "drought proof" country and mitigate floods. In fact, those dams which have been built in Australia and overseas have had opposite effects by interfering with the water cycle.
2. Climate change will significantly alter the water cycle and require innovative planning and management to conserve the regions natural resources.
3. Management strategies that are already available include: waste water recycling, small scale rain water collection from roof tops, revegetation of catchments to prevent soil erosion and conserve the water table.

Yours sincerely,

Alan Stewart PhD
Environmental consultant and writer, former member of the Legislative Assembly of NSW, former technical and conciliation assessor at the Land and Environment Court of NSW.

Feedback Submission Re: Proposed Dunoon Dam within the Future Water Project 2060 To: General Manager, [redacted]

From: Karen Smith

[redacted]

[redacted]

As a resident of Australia, I wish to put in my expression of the proposed dam in your area. As you are aware the destruction of our native forests, Australia wide, is having a detrimental effect on our wildlife, our tourism and our health. We need to think outside the box of old-world technology of collecting and storing water, to a new sustainable way to harvest and store the water while still keeping the natural environment around us in complete perfect order as they are, left in tacked for future generations and for the health of our bio environment systems. I beg you to please reconsider this old- world plan and to seek advice from specialists in a sustainable field. Thankyou.

Firstly, the community appreciates the submission extension. We also acknowledge the complexity of the work Rous does to provide water for our region. I DO NOT support the proposed The Channon-Dunoon Dam for these reasons: ● Lost opportunity to invest in system-wide water efficiency. This is the cheapest & fastest way to ensure supply-demand balance. By focussing on system efficiency, Sydney added an additional 950,000 people without a rise in consumption. (1) ● The 21st century is about a suite of smart water options. This dam would be a lost opportunity to make our system fit for the 21st century by swallowing all resources in one big expensive 'white dinosaur' project. ● The dam would encourage continued inefficient and wasteful water management by local governments. They would have no incentive to do things differently. ● Destruction of important Indigenous cultural heritage, including burial sites. (2) ● Destruction of The Channon Gorge and its endangered ecological community of lowland rainforest, threatened flora and fauna species. (3) Rous's plan to offset the loss of rainforest on sandstone with regeneration of degraded land in the buffer zone is problematic as the type of vegetation offered as recompense is not equivalent.(Nan Nicholson, botanist) Councils are required under State planning regulations to: "Focus development to areas of least biodiversity sensitivity in the region and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value." (4) Rous is required to avoid this destruction because there are economically viable and more effective solutions. ● Industrial/construction zone for The Channon/Dunoon community; noise, machinery, trucks, visual impact. Ongoing sound impact from pump house etc. ● Higher prices for consumers due to a 4x increase in the cost of water. Rous general manager, in response to a question from councillor Vanessa Ekins, said he expected a fourfold increase in the cost of supplying water if the dam is built. ● The small population increase predicted for the four Rous-supplied councils of 12,720 (5) between 2020-2060 does not justify such a large and destructive dam. The dam risks diverting expenditure away from more sustainable, flexible and effective solutions. (5) I SUPPORT these alternatives: We need a suite of smart water options and proven alternatives, not a huge new dam. The tide is turning on renewable and sustainable power. It is time for the tide to turn on how we meet our water needs too. ● An investment in system-wide water efficiency and strong demand management. Analysed, costed and deployed, creating jobs. (We understand Rous has not costed this in creating their future water plan) Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply. (6) (7) ● Water re-use in various ways, including Purified Recycled Potable water. A wealth of global research and experience exists regarding potable reuse of water. (8) Eg: The city of Windhoek in Namibia has been using purified recycled water for 30

years using advanced technology. (9) ● Water harvesting (urban runoff; rain tanks): Water tanks on all new (and existing) developments.The Australian government advises that: “Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs.” (10) Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks. (11) ● Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought. ● Groundwater, where this is environmentally safe. The Australian government provides a lot of information on the ecological impacts and groundwater usage. (12) With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam. References and Notes (1) Metropolitan Water Plan 2006, NSW Government. Exec Summary section of the doc https://www.dropbox.com/s/pu9898oq6kocrph/NSW%20Govt%202006%20MWP%20summary.pdf?dl=0 (2) Ainsworth Heritage, Cultural Heritage Impact Assessment, 2011 (3) SMEC Australia, Terrestrial Ecology Impact Assessment, 2011 (4) NSW Department of Planning, Industry and Environment 2019, ‘Delivering the plan’, Sydney, viewed 03 August 2020 < https://www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Delivering-the-plan > , Direction 2: Enhance biodiversity coastal and aquatic habitats and water catchments. (5) NSW Department of Planning, Industry and Environment 2019, ‘NSW population projections ’, Sydney, viewed 03 August 2020, Scroll down to “Local Government Factsheets”. (6) The Rous Regional Water Efficiency Program 1997, Final report of the Rous Regional Demand Management Strategy : preferred options, Rous County Council, Lismore. (7) Watson R., Turner A and Fane S 2018, Water Efficiency and Demand Management Opportunities for Hunter Water, Institute for Sustainable Futures, Sydney. (8) Kahn,Stuart and Branch, Amos 2019, Potable water reuse: What can Australia learn from global experience?, Water Research Australia Limited, Adelaide. (9) Windhoek Goreangab Operating Company (Pty) Ltd 2020,Our history | Wingoc, Veolia Environment, Windhoek, viewed 3 August 2020, (10) $220 million dollars - the estimated cost of the new dam - could provide more than 73,000 rainwater tanks (22,700L) at $3,000 each including installation. That is 1.66GL storage with no evaporation and much increased community resilience for future climate risks. This more than covers the 0.9GL extra water needed by the 12,720 new people predicted to come to our area based on 194L/person/day average water use (Rous). (11) Australian Government Department of Industry 2013, Science, Energy and Resources, Rainwater | Your home, Canberra, viewed 3 August 2020, (12) Department of Agriculture, Water and the Environment 2018, What are the ecological impacts of groundwater drawdown? | Department of Agriculture, Water and the Environment, Canberra, viewed 6 August 2020,

Kind Regards,

Karen Smith.

8/09/2020.

From: Wanda De Verelle-Hill
To: Records
Cc: [redacted]
Subject: Submission opposing Rous County Council's proposed 50 GL Dunoon Dam
Date: Tuesday, 8 September 2020 10:55:20 AM

Dear Rous County Council

I would prefer that money for this proposed mega dam was spent improving riparian vegetation and waterway's health within the catchments managed by Rous County Council, so that these rivers and creeks within the Northern Rivers can be potential sources of water if needed. Why not restore the Richmond River to its former glory by reducing erosion, run off and pollution.

The area proposed for the dam contains many ecological and cultural sites of significance that I'm sure are addressed in other people's submissions. I believe Rous County Council should support water provisions strategies that protect the environment and cultural heritage, and encourage people to be more responsible for their own water provision and consumption. Rous County Council has the opportunity and responsibility to ensure that all creatures water needs are considered in any proposal. This dam would see the destruction of crucial habitat for many small invertebrates, frogs and fish that rely on fresh and flowing creeks. The stagnant water of the dam will preference invasive species such as cane toads.

Additionally, It would be devastating to create a situation for the village of The Channon where an unanticipated rain event could cause the overflowing of the dam and subsequent flooding of downstream homes and businesses.

With all the knowledge available to us about the impact of dams on ecological communities and downstream settlements its seems insane to spend money on a dam rather than water tanks, water recycling, water use reduction and improving the Northern Rivers catchments.

Cheers
Wanda De Verelle-Hill

From: Melanie Maher
To: Records
Cc: [redacted]
Subject: The proposed Dunoon Dam within the Future Water Project 2060
Date: Tuesday, 8 September 2020 10:57:21 AM

Melanie Maher
[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 grew up in [redacted], and lived there the majority of my life. I visit the area regularly and consider the land my home. I plan to buy land in the area and see my future as living in the area.

My family have enjoyed the rainforests, creeks and wildlife in the northern NSW region for over 35 years. I've spent birthdays at the swimming holes, celebrated friends weddings in the hills there, and had years of meaningful experiences take place on the land there. To see that so much of the area is proposed to be destroyed by a huge dam is incredibly worrying.

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

- 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 between 2020-2060 does not justify such a large and destructive dam. The dam risks being an expensive white dinosaur, diverting expenditure away from more sustainable, flexible and effective solutions. NSW Department of Planning, Industry and Environment 2019, 'NSW population projections ', Sydney, viewed 03 August 2020,
- Catastrophic flooding downstream in worst floods, particularly for the first 3 kilometres Below. I am deeply concerned about this as the last major flood from the back flow from rocky creek dam destroyed much of our property.
- 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. (I understand Rous has not costed this in creating their future water plan)
- Existing research over the past decade consistently finds that the best 'bang-for-buck' investment in water supply comes from demand management and identifying savings within the existing supply.
- 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. https://www.wingoc.com.na/our-history
- Water harvesting (urban runoff; rain tanks):
- Water tanks on all new (and existing) developments.T his builds community resilience -much needed, as the recent extreme bushfire season has shown.
- The Australian government advises that: "Depending on tank size and climate, mains water use can be reduced by up to 100%. This in turn can help: reduce the need for new dams or desalination plants; protect remaining environmental flows in rivers; reduce infrastructure operating costs."
- Rainwater harvesting also decreases stormwater runoff, thereby helping to reduce local flooding and scouring of creeks. https://www.yourhome.gov.au/water/rainwater
- Contingency planning would enable Rous to be ready to rapidly implement supply measures if it becomes necessary in times of drought.
- Groundwater, where this is environmentally safe
- The Australian government provides a lot of information on the ecological impacts and groundwater usage. https://www.environment.gov.au/water/publications/what-are-the-ecological-impacts-of-ground water-drawdown
- With scalable supply alternatives in place, the existing supply from Rocky Ck Dam will be made resilient to anticipated times of drought and projected population growth, without the environmental destruction, social costs, and the over-capitalisation risk of an outsized and unnecessary dam.

Thank you for your time.

Kind regards,

Melanie Maher