

## **Douglas Shire – Water Security**

06 December 2019

To Douglas Shire Sustainability Group

Dear Laurene,

Thank you for your letter, these are indeed challenging times for everyone with respect to climate change and water security.

Any suggestions relating to ways Council could be improving the situation would be warmly received with the understanding that we are ourselves constrained by numerous factors including limits on water licenses, economics, time lag for major infrastructure projects and community acceptance.

Please find below answers to the questions you have posed.

### **1. If we paid for a new reservoir at Port Douglas why do we have water restrictions?**

The new Port Douglas reservoir at Crees Road that cost \$13.5 million (\$6.745 million Federal Government, \$5 million State Government, \$1.755 million Douglas Shire Council) complements our other ten reservoirs that are integral to the water supply network and is used primarily as a buffer in the supply of potable water if our ability to process raw water is interrupted. This interruption primarily occurs in the wet season after a large rainfall event where the creek water is too turbid (cloudy) for the treatment plant to process and we have to wait until the water clears. At that time, the various reservoirs (which hold treated water) act as a shock absorber and supply water until the treatment plant can operate again. The new Crees Road reservoir has a capacity of 20ML (20 Mega (million) litres), on average Port Douglas consumes 10ML per day. So there is no more than two days of storage in that reservoir based on average consumption trends.

### **2. If our extraction license limits are exceeded, why don't we just pay more money to State Government to use more water?**

The reason we have water restrictions is an attempt to persuade people within Douglas Shire to consume less water due to a diminishing quantity of raw water available at the source. We extract our raw water from Rex Creek within the World Heritage area of the Gorge. The State regulator, DNRME, gives us a licence to do so and sets limits on how much water can be extracted annually, daily and instantaneously. There are various reasons why DNRME sets these limits but the ones that are most important to us at the moment are the daily and instantaneous extractions. The primary reason these are set is to maintain an 'environmental flow' within the creek so the animals within the creek remain alive. Historically the average consumption per person per day within Douglas Shire is between 900 and 1000 l/p/d (litres per person per day). This is very high compared with the rest of the state, in South East Queensland the average consumption in the last week was 217 l/p/d.

<https://www.seqwater.com.au/news/weekly-water-security-and-consumption-update>

The State regulator looks at these numbers and asks us to justify why Douglas Shire should have more water allocated when we are already using more than four times the amount of water as the rest of the state.

The current Level 3 water restrictions combined with the seasonal reduction in tourists to the region has seen the daily water consumption drop by 20%, this is fantastic. We estimate there are on average 8000 people within the Port Douglas area based on inflow rates to our Wastewater treatment plant for the past week and a consumption of 7.2ML. From this, the average use is 900l/p/d, which is still comparatively very high particularly considering the nationwide drought. The figure for Mossman is 857l/p/d, which is also quite high and hasn't changed with the implementation of Level 3 restrictions. Currently more than 2/3 of all water used is outside of the home, this would predominantly be on gardens and pools.

**3. What are we doing about water security in longer term when patterns show a steady increase in Spring temperature and drop in Spring rainfall? Do we have a water security strategy?**

Douglas Shire Council has a number of documents covering water security, drought management and drinking water quality together with reports outlining demand projections and future planning requirements that guide Council in their short, medium and long term planning.

What is the community doing to prepare for this new trend of increased temperatures and decreased rainfall? In the New Year Council will be engaging with the community and businesses in an effort to get the message out to be water wise and assist in developing strategies where everyone can plan and contribute. Council is already engaging at the school level to bring the message of water conservation to school children.

**4. Are we exploring alternate extraction sites e.g. dams?**

Council has been planning for an alternate extraction source for some years. Our engineering consultant is in the final stages of designing a new extraction site in the Mossman River after previously investigating numerous options throughout the Shire including different extraction points and bore fields.

The next phase is to engage with the regulator to obtain a water licence and to obtain the appropriate permits to conduct the works. It is anticipated the alternate intake may be operational in 2022.

**5. People are increasingly sinking 'sand spears' in four mile beach and other Port Douglas sites. I understand that below 6 metres no license or registration is required, and that the State Government regulates bores more than 6 metres deep. What impact does increasing numbers of sand spears have on water table and on the coastal vegetation?**

You are correct; the State Government does manage all bores and water sources. A resident can install a sand spear or have a drilling company install a bore (which is then registered with the State) and use as much water as they want. This obviously could have the impact you have outlined if people use too much or if too many are installed.

<https://www.qld.gov.au/environment/water/groundwater>

This can lead to a tragedy of the commons where individuals act without thought to the impacts to the wider community usually with unpleasant outcomes.

[https://en.wikipedia.org/wiki/Tragedy\\_of\\_the\\_commons](https://en.wikipedia.org/wiki/Tragedy_of_the_commons)

**6. Where is the proposed new intake on the Mossman River?**

Council looked at many different locations for a possible alternative source of raw water including Saltwater Creek, from the Whyanbeel scheme, South Mossman river, Mossman river and ground water bores. An engineering consultant assessed the viability of each and considered reliability of source, new infrastructure required (i.e. proximity to raw water mains or the water treatment plant), available water licenses, etc. A location on the Mossman River near the Council land at Drumsara was chosen as the most viable site.

**7. How much water is expected to be flowing in Rex Creek if it does not rain till, say, the end of January?**

This is very difficult to predict as we have never been in a situation like that before. The origin of water in Rex Creek is complicated, it isn't just run off from each rain shower. It is believed that water that has soaked into the ground and into the various aquifers over the wet season continue to seep into Rex Creek in the dry season. The behaviour of the creek flow this year after such a big wet season has been different to last year which had a lesser wet season. It would be a great project for a PhD student to study over a few years with field work in the hills to understand the groundwater there.

**8. Is there any chance Rex Creek may stop flowing?**

There is always a chance that a creek may stop flowing or a ground water source become depleted.

**9. If Rex Creek is unable to supply a minimal water demand, is there an alternative source?**

Council has contingency plans for a temporary extraction point on the Mossman River (different to the alternate intake site) should the Rex Creek source diminish to a point where DNRME were not happy with us exceeding our extraction limit.

**10 Has any survey / knowledge of the artesian supply been done, possibly to be used in extreme situations and if so where might I find that?**

Council have a number of ground water bores that are used to supply raw water to some of the water schemes within the shire. These are used primarily as a backup source. Private individuals can access these ground water sources and register the bore with the state regulator (the bore drilling company usually manages this) and organisations/companies must apply for a water extraction license from the state regulator DNRME. Council has not performed any investigations into the type, size or reliability of the ground water supply and discussions with the regulator and local universities has found that there is no entity that really understands the ground water in the tropics. To investigate the ground water supply in the Douglas Shire would cost many hundreds of thousands of dollars, numerous bores would have to be drilled at various depths and locations throughout the shire. An extensive number of tests would be conducted on the water to confirm if it is part of the same aquifer and then prolonged extraction tests and water table measurements would be conducted to confirm availability of the water. Ultimately this would be required before spending even larger amounts of money to establish a bore field and lay the pipe network to get the bore water to the treatment plant, obviously we wouldn't want to do that and then have the bore field run dry. Also noting we do not have an artesian water supply here in Douglas only ground water aquifer/s

[https://en.wikipedia.org/wiki/Artesian\\_aquifer](https://en.wikipedia.org/wiki/Artesian_aquifer)

If you require further information, please do not hesitate to contact me at Douglas Shire Council.

Yours faithfully  
Peter Tonkes

**Manager Water & Wastewater**