

Water Storage Options

Meeting: Council Briefing
Date of meeting: 11 November 2020
Reporting officer: Matthew Smith, Manager Infrastructure Planning

Purpose/Ngā whāinga

The purpose of this paper is to seek Council direction in this LTP with regards water security across the District. Specific questions which will be discussed at the briefing are:

- Is there a compelling need for increased water storage?
- Is the benefit District Wide or just in Dargaville/Mangawhai?
- Will Council (subject to community feedback) invest in water security projects in Dargaville and /or Mangawhai?
- How do we expect users to pay for this service?
- Should the cost be allocated to just the targeted area or shared?

Context

Kaipara has limited resilience in its existing Water Supply

The population of Kaipara has been well served by the water sources – rain water, rivers and bores – for many years. Our main centres which are served by a community system are reliant on rivers and streams which, for most parts of the year, are not constrained.

- Dargaville – River/Streams
- Maungaturoto – River and a private dam
- Mangawhai – Majority private tank and a very small council ground water
- Ruawai – Groundwater

A large proportion of District are reliant on water tanks and during drought require tank fillers

The changing environment (meteorological and political) is putting more pressure on our ability to provide water in summer

- The security of water supply for many of our townships is becoming an increasingly serious topic for consideration, NIWA is predicting that the climate in Northland (including Kaipara) is going to get slightly hotter, but with longer dryer periods, interspersed with periods of increasingly significant rainfall.
- In response to the deterioration of our streams and rivers in New Zealand, Central Government has also produced documents like the National Policy Statement(NPS) Fresh Water and the corresponding National Environmental Standards(NES) of the same, Regional council has started to adopt these outcome based guidelines within the regional plan as required by Central Government, the outcome of these combined documents are already making the ability to draw water from streams and rivers in Northland more and more difficult.
- Kaipara District experiences drought conditions on a regular occurrence, which is reinforced through the monitoring of river/ground water levels by the Regional Authority (NRC) as per our consent conditions, KDC typically then restricts the volume of water it can supply to residents who are on water networks and also in rural areas; as water suppliers are unable to access as much water at such times. In the 2019/2020-year water was being delivered from Whangarei and Auckland to our residents on tank supply in certain areas, Dargaville maintained a supply but it was severely limited.

With the above information the following issues are starting to present themselves to KDC:

1. The NPS specifically states that *“First, the health and well-being of water bodies and freshwater ecosystems, Second, the health needs of people (such as drinking water), third, the ability of people and communities to provide for their social, economic and cultural well-being, now and into the future.”* Part 2: Objective and policies, 2.1 Objective This means that our ability to vary the current consents now or to apply for consents with better conditions to supply our communities in the face of drought is secondary to the health of the water body, and we are unable to cite economic hardship or the fact that our businesses or farms can't run as a reason for a consent to be granted,
2. When our streams and rivers are low and we are unable to take raw water from them for treatment, will be at the same stage that water tanks on properties are dry (as per drought conditions 2019/2020), and water tanks on properties are controlled by the building act, which only states that *“an adequate supply”* is catered for, there is no mention of drought or drought security.
3. Unless we have a significant water supply or storage facility, we will be unable to draw water from sources when they are flowing above their mean annual low flow and store it for use during drought conditions.

There are emerging opportunities to increase resilience

The Tai Tokerau Water Storage Trust (TTWST) is constructing a large water reservoir within Kaipara utilising a loan from Central Government. This has created an opportunity for council to secure an alternative source of raw water.

In Mangawhai there are opportunities arising through developments that council would be able to take advantage of to secure a supply of water, the alternative option is through a connection to the Whangarei District Council water scheme if they have water available.

Maungaturoto, currently consumes water from a private dam which it purchases at a metered rate, there is an option to increase the capacity of this dam at councils cost to ensure resilience.

Discussion/Ngā kōrerorero

There is an immediate need to decide if KDC wishes to utilise the water storage from TTWST.

As TTWST are proceeding with the consent for construction of the dam along an advanced timeline, KDC need to decide if we are to enter negotiations for water, the infrastructure to support this will still need to be designed and accurately costed.

The recommended option from officers is that

- Council invests in infrastructure to connect from the dam to the existing reticulation in Dargaville
- Council becomes part of the trust (cost not known at this stage)
- Users will pay for water drawn from the dam (Option 2 – pay as use)

User pay options:

1. Purchase a specific amount of water within the dam for use by KDC in the Dargaville area, this is approximately \$2 million (still to be confirmed) this would currently secure a volume of 300,000 cu.m of water or roughly 3,000 cu.m of water per day for 100 days currently Dargaville under water shortage direction uses just under 3,200cu.m drawn from the Kaihu River at Rotu. KDC would still need to treat the water and supply it to town, this is proposed to be completed at the same time as the infrastructure is laid for the TTWST network as there would be savings on construction by utilising the same contractors digging one trench to contain both pipes. There would still be operational costs on top of this value, maintenance of the network, and infrastructure still owned by TTWST and as with any network the fewer people who are on it the higher the Opex costs, so there is a risk that in the early years the Opex costs will be higher,

2. Do not purchase water volume, but instead purchase water by volume as it is needed, these figure have not yet been delivered to us, but it may be as much as \$1.50/cu.m this will still include the same Opex costs as above, and the corresponding purchase value for that amount of water, but only for the water used. KDC would still need to treat the water and deliver it in the same manner as above.
3. Do not look to involve the council in any of the above options. Whilst the costs would be low KDC does not have any other option of securing water in our area, as drought frequencies increase we will be able to draw less water, and would be in constant conflict with the regional authority (or the new water reform body) to supply water to our townships, whilst our areas may be flooded with water (Kaihu) KDC would be unable to use or store this water for use in dryer conditions and it would all flow out to the Kaipara Harbour unused as it currently does, this raises three immediate options:
 - a. KDC invests in a water storage facility of its own, with no Government Support at the cost of rate payers (or targeted rate schemes), *highly unlikely as the costs would be significant, if council was able to get consent under the new NPS or NES to construct a dam over a stream in the future*
 - b. Force residents to construct extra storage facility on properties with a policy or bylaw, it would need to be significant (4 person household at 280l/p/d would use 1,120 litres of water a day (Mangawhai typically uses about 160l/p/d on average) this would mean that a four person household to cater for a 100 day drought (or whatever Council might dictate) would need to store about 100cu.m of water or 4x 25,000l tanks per property. I would predict that council in a similar manner to existing issues would be forced to step in and facilitate or purchase this storage at that stage. \$15,000 per tank x 4 x 500 households equals \$30,000,000 of investment.
 - c. KDC does nothing and relies on greater support from the new water body or Civil defence in emergency drought situations, alternatively we could look to Central Government for funds to construct water storage for our townships.

Options which could be explored in Mangawhai

We are seeking direction to continue investigating these options as they arise with a view to introducing through development agreements and/or a variation to the 2024 LTP security of water supply for Mangawhai with a view to mitigating future issues.

Options to be explored in Maungaturoto

We are seeking direction to continue discussions with the owners of the Private Dam to fully investigate the possibility and costs of increasing the volume of water to provide more resilience to Maungaturoto.

Next steps/E whaiake nei

1. Council employees will engage with the TTWST to ascertain what the likely costs for the above options would be storage, operational, metered water purchase.
2. A report will be brought to council outlining the above options and the likely costs associated them,
3. The resolution of the above options will be presented in the Long-Term Plan budgets in the appropriate year to be managed by council operatives.