

The discussion and preliminary investigation around the exclusion of tidal intrusion into the Raupo Drainage District via these two canals is not a new concept.

Previous Boards and committees have mulled over this project on numerous occasions in the past, with the project never getting past basic investigations, presumably because the cost/benefit ratio given the knowledge at the time, was insufficient to warrant further pursuit.

In the recent years, with the apparent effect of climate change and consequential rises in sea level, the idea has taken on a new and very real relevance.

The Raupo Drainage District (RDD) covers an area of approximately 8700ha of highly productive fertile land surrounding the small settlements of Naumai, Raupo and Ruawai. It is protected by a network of 70kms of stopbank, 140kms of canals and drains, 52 floodgates and one flood pump.

The maintenance and improvement of this asset base with an approximate value of \$14 million, is overseen by Raupo Drainage Committee and is funded solely by the ratepayers within the RDD by means of an annual targeted rate collected by KDC.

The majority of the 70kms of stopbank comprises the double banks of both G & K canals, an estimated 40 plus kms.

The exclusion of tidal intrusion into these canals significantly reduces the amount of infrastructure at risk from rising sea levels and allows for more strategic investment into the existing front line defensive stop banks adjacent to the Northern Wairoa river and northern shores of the Kaipara Harbour.

The exclusion of salt water from these canals also has the potential to allow for strategic fresh water storage within the existing infrastructure. Although this potential would require significant investigation. But in its simplest form, could be achieved by dual sluice gates coupled with a single floodgate assembly.

It is acknowledged this concept would add to the capital cost of the project, but it also provides significant additional benefit particularly with increased opportunity for land use diversification within the RDD.

Flood mitigation within the G canal catchment can be obtained with the construction of detention/ retention dams in the Access Valley, Greenhill and Whenuanui watersheds and coupled with the existing ponding capability of the Eastern side of G Canal should provide for a manageable inflow into the G canal system.

This flood mitigation proposal can work in unison with any potential water storage operation of the G Canal catchment.

Flood mitigation within the K Canal catchment could work under the same principles but would require investigation. (My personal topographical knowledge of this catchment is limited).

Diminishing efficiencies- The claims about the actual amount of sea level rise are best described as vague. It may be fair to assume regardless of the varying predictions, any rise in sea level (high tide height) would result in a corresponding rise in overall low tide height (metrological and lunar influences excluded).

This increase in low tide height will result in diminishing efficiencies of our gravity based land drainage system. It is not inconceivable that this diminishing efficiency will eventually necessitate the installation of powered pumping systems to compensate for this efficiency loss.

Whilst this is not considered an immediate threat it should be included in any long term planning strategies going forward.

In summary it is my personal belief that the challenges facing the RDD, whilst significant are not insurmountable. This is an intergenerational project both in its nature and purpose, no different to the intergenerational project undertaken by our forebears in the establishment of the RDD we have today.