TOI TE ORA
PUBLIC HEALTH
Bay of Plenty + Lakes Districts

Medical Officer of Health Report
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Water, Water, Everywhere

Water is fundamental to all life. Deprived of access to water, humans will only live for a few days or a week or so depending on the circumstances.

Aside from that basic requirement, drinking quality water is also vital for many of the activities of general living, such as food preparation and cooking, personal washing and hygiene, washing of clothes and bedding.

Water is also central to most of our agricultural and industrial processes. Obvious examples would be food production both plant based and livestock; however production of most of our everyday items like clothing, furniture and transport also require significant volumes of water in their manufacture.

The use of water for recreation is also a significant issue in an island nation with extensive freshwater lakes and rivers and a temperate climate.

Increasing Demand
Demand for access to water has been increasing. Our population is growing and changing, agricultural practices are changing. At the same time concerns for the quality and safety of both recreational and drinking waters have been increasing.

Quality and Safety Concerns
Monitoring of recreational waters show that some areas are not always safe for use due to bacterial contamination, and there have been many areas where algal blooms have led to warnings against recreational use. Whilst the trends in recreational water quality have been subject to some debate, what it is very clear is that concern about this issue has grown.

Worries about access to consistently safe drinking water have also increased recently. Prior to 2007 only *guidelines* on drinking water quality were in place in NZ. Significant changes were made to the Health Act in 2007, introducing water quality standards, and monitoring and reporting requirements, with the intention of improving drinking water quality and the population's access to it. There have undoubtedly been improvements in both quality and access, but not everywhere, and not for everyone.

The vital importance of consistently safe drinking water was brought into sharp focus with the recent waterborne outbreak in Havelock North, where more than 5000 people fell ill with gastroenteritis.

A major inquiry into the causes and management of the outbreak found a number of weaknesses in the water safety system in NZ. Some changes to practice have already been made. The Ministry of Health has set up expert, independent panel and is reviewing current standards and laboratory testing and sampling regime for drinking water. Drinking water assessors and public

health units have been given additional advice and guidance. Drinking water suppliers, including Councils, have been reviewing their quality arrangements. However any substantial changes, for example in the organisation of regulation or in resourcing, await the Government's response to the Inquiry recommendations.

The Water Cycle and Minimising Contamination

Fresh water has a cycle. It evaporates from the seas and oceans, is transported in weather systems, rains on the land and flows into rivers and lakes, or seeps into the land where it can stay for many years deep underground in aquifers. Either quickly, or after many many years, it returns to the seas - and round it goes.

The water we extract and use; we usually contaminate in some way, so how we manage wastewater is also important to this story.

Household and industrial wastewater in larger towns and cities is generally reticulated, i.e. collected in sewers, treated, and returned to land or waterways. For many smaller towns or isolated buildings wastewater is treated and returned to land on site.

In built up areas, rainwater is also directed into a stormwater network to cope with heavy rain. Generally stormwater discharges with little or no treatment into waterways. Where the systems lack capacity or become blocked, there can be flooding during heavy rainfall and storms. Because they collect water from a variety of places and are essentially untreated, there is also risk of contaminating waterways and harbours etc. Activities such as car washing or inappropriate waste disposal can also lead to chemicals entering the system.

Water Infrastructure is Costly

Collectively New Zealand has billions of dollars invested in these three water systems - drinking water, stormwater, and wastewater (or sewerage). It is estimated that all of the current systems would cost $54bn to replace.

What has been happening here?

Locally we have worked with our councils and other bodies over several years across drinking water quality, wastewater management and stormwater provision. There have been some notable improvements.

Drinking water quality in all of our major towns is now consistently good, with only a few issues still being addressed. Forty two small drinking water supplies in our area have been upgraded with financial support from the Ministry of Health. Onsite waste water disposal is more tightly regulated across our area. Several communities have or are about to significantly upgrade their wastewater systems.

However there remains much to do. Not everyone has access to safe, clean drinking water all of the time. Some onsite wastewater disposal, even in sizeable communities is not ideal. However extending access to high quality drinking water to all of our communities, upgrading onsite wastewater disposal and building high quality reticulated systems where appropriate would require considerable financial investment. There are also other competing issues for communities' attention and resource.

What Next?

A major review of the management of the three waters in New Zealand is underway. Decisions and investments will need to consider all three types of water since they are so interrelated.
Regional councils are consulting on how best to manage freshwater resources.
The Government response to the Havelock North Inquiry recommendations is expected this year.

The outcome of these linked deliberations will significantly affect how we manage what is probably our most crucial natural resource into the future.

Links to further reading and information

The Havelock North Waterborne Outbreak

https://www.dia.govt.nz/Government-Inquiry-into-Havelock-North-Drinking-Water

https://www.stuff.co.nz/national/health/99585534/drinking-water-inquiry-heres-what-you-need-to-know

https://www.health.govt.nz/news-media/media-releases/ministry-health-puts-place-measures-improve-drinking-water-quality

The Freshwater Cycle

http://www.mfe.govt.nz/sites/default/files/media/Environmental%20reporting/our-fresh-water-at-a-glance_0.pdf

Trends in water quality in New Zealand

http://archive.stats.govt.nz/browse_for_stats/environment/environmental-reporting-series/environmental-indicators/Home/Fresh%20water.aspx

Managing On Site Wastewater Disposal

https://www.boprc.govt.nz/media/395637/3785-oset-newsletter-v9-web-use-only-.pdf

The Three Waters

https://www.dia.govt.nz/Three-waters-review

https://www.dia.govt.nz/diawebsite.nsf/Files/Three-waters-review-Cabinet-Paper_Redactions-applied/$file/Three-waters-review-Cabinet-Paper_Redactions-applied.pdf

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