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Committee Utility Services
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2003 Drought and Potential Supplementary Water Supply to the Kapiti Coast

1. Purpose

To respond to a resolution of the Council's Environment Committee for a report on water issues and the recent drought.

2. Introduction

The Council's Environment Committee at its June meeting resolved "That an information paper on water supply issues in recent drought period, particularly in supply to additional local authorities will be prepared". At the July meeting of the Environment Committee, it was agreed that this matter should be addressed by the Utility Services Committee.

The only additional local authority that could be easily supplied is the Kapiti Coast District Council (KCDC). At the request of the KCDC, a technical report was prepared in June 2002 indicating how a pipeline from Wellington could provide a supplementary water supply to the Kapiti Coast. One of the additional benefits from a pipeline for supplementary water is the ability to provide a year round supply to Paekakariki.

The technical report included a number of assumptions about demand on the Kapiti Coast and the water available from the Waikanae River.

During the first five months of 2003, it was very dry on the Kapiti Coast so it is possible to compare actual demand with some of the assumptions in the technical report. Hydrologists from the Greater Wellington Regional Council have estimated the return period of the three month average low flow of the Waikanae River as 1 in 20 years.

3. Kapiti Coast Demand January – May 2003

The Kapiti Coast District Council imposed staged water restrictions during 2003 as follows:

- 8 January – sprinkler ban
- 3 February – unattended hose ban
- 13 February – hose ban
- 10 March – for domestic users, household use only.

During the same period, the four metropolitan Wellington cities had their normal hosing restrictions.

The issue is what the demand on the Kapiti Coast would have been if it had been less constrained? One way to consider this is to compare water consumption on a per capita basis between metropolitan Wellington and the Kapiti Coast from 1 January to 3 February 2003. Over these 34 days, the conservation restrictions were similar for Wellington and the Kapiti Coast.

On a per capita basis, the Kapiti Coast consumption was 13 percent higher than in Wellington. Some of this may be accounted for by the holiday maker population on the Kapiti Coast and the reduced commercial and industrial activity in Wellington during the first half of January. The 13 percent factor therefore is probably slightly overstated.

The 13 percent though factor provides a means of calculating potential usage on the Kapiti Coast from 3 February up to 20 May 2003 when the flow in the Waikanae River again enabled the KCDC to abstract sufficient water to meet the community's needs.

4. Providing Kapiti with a Supplementary Water Supply

During the period that the Kapiti Coast could have benefited from a supplementary supply of water, the Hutt and Orongorongo rivers were at low flow levels that represent a 1 in 5 years period and the Wainuiomata River a 1 in 10 year flow.

The estimated quantity of supplementary water required by KCDC is as follows:

- | | |
|--|---------|
| • Quantity during the drought 3 Jan to 20 May 2003 | 1100 ML |
| • Maximum day | 20 ML |
| • Supply days | 74 |
| • Event length, days | 84 |

5. Servicing a Supplementary Supply

Because of the low flows in the Hutt (at Kaitoke), Wainuiomata and Orongorongo rivers and the low aquifer level, a supplementary supply would have been sourced from the Stuart Macaskill Lakes at Te Marua. Attachment 1 shows the actual level of the lakes and the estimated lake level had KCDC been supplied.

While the lowest estimated lake quantity is 730 ML (25% of the maximum), this understates the situation. More water was available for lake filling than was actually taken. This is because of the conservative practise of choosing only the best quality river water. Otherwise it is possible additional chemicals may have been needed for treating inferior water. On a theoretical basis, taking all available water for lake filling would have resulted in the lakes being about 60 percent full on 20 May.

The maximum daily supply from the Te Marua water treatment plant would have been 108 ML on 24 March, 20 ML of this for KCDC and 88 ML for the four city customers.

6. Water Supply in Wellington During the Drought

Water consumption in the four cities was about average for the summer period with the maximum day on 9 February at 208 ML being the only day over 200 ML. Towards the end of February, consumption normally tails off as day light hours reduce. This year though high consumption continued during March due to the dry period. For example, supply on 27 March was 181 ML. More than adequate raw water was available for treating. Hence no consideration was given to imposing any restrictions on our customers. Water volumes supplied in April and May were about normal.

7. Discussion

The June 2002 technical report estimated that the worst situation from the 25 years of Waikanae River data would require a supplementary supply to KCDC of 1100 ML over 57 days with a KCDC population of 42,600 (2031 estimate). The current KCDC population is approximately 34,000.

During the 2003 drought, the supplementary quantity required by KCDC is estimated at 1100 ML over 84 days. This is to meet the supply for an event that has a return period of about every 20 years. There is some overstatement of the quantity for reasons outlined in section 3.

8. Conclusions

The 2002 technical report, measured against the 2003 events, show a close correlation for the maximum supplementary quantity required. However, the supplementary supply event will be longer than the 57 day mentioned in the technical report. This though will not affect the ability of the Wellington system to supply the water.

9. Communication

A brief media release is suggested following the committee meeting.

10. Recommendations

It is recommended that the committee:

- (1) *receive the report*
- (2) *note its contents*

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Attachment 1: Stuart Macaskill Lakes Graph