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Committee Rural Services and Wairarapa
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Flood Event Report - 9 & 10 June 2003

1. Purpose

To inform the Committee of the hydrology of the recent flood.

2. The Event

Meteorology

At midnight on Sunday, 8 June, a very slow moving depression had formed off the west coast of Taranaki. A couple of associated fronts were moving down the east coast of the North Island. By mid-morning on Monday, 9 June, a second low centre had developed off the south-eastern coast, bringing rain to the Wairarapa from a south to south-easterly direction.

Rainfall

The rainfall intensified, peaking in early to mid afternoon in northern Wairarapa, both in the Tararua ranges and Eastern hill country. The rainfall dropped off quite quickly in the north-eastern hill country but continued to a lesser extent in the Tararuas including the lower altitude catchments.

In the late evening and early hours of Tuesday 11 June, a second heavy band of south-easterly rain affected the upper central valley and the Tararuas. There were also heavy falls in south-eastern catchments around the Haurangis.

Maximum rainfall intensities are given in Table 1.

Table 1: Maximum Rainfall Intensities (mm) and Return Periods (years) for 9 & 10 June 2003 Flood

Site	1hr	2 hr	3 hr	6 hr	12hr	1 Day
Angle Knob	16.5	29.5	42	71.5	108	164.5
<i>Return Period</i>	< 2	< 2	< 2	< 2	< 2	< 2
Bull Mound	20	37	50.5	81.5	134	200
<i>Return Period</i>	< 2	< 2	< 2	2	< 2	< 2
Mt Bruce	16.5	24.5	28.5	52	81.5	121
<i>Return Period</i>	< 2	< 2	< 2	2	< 2	< 2
Mangatarere	20	37.5	48.5	69.5	104.5	140.5
Waingawa	27	41	56	79	102	133
<i>Return Period</i>	3	5	8	5	3	3
Masterton Office	31.8	43	47.2	52.8	74.6	106
Wairarapa College	14.2	23.4	27	37.6	57.4	86
Tanawa Hut	23	37	48	61.5	62.5	70
<i>Return Period</i>	3	5	8	5	< 2	< 2
Castlehill	21	35	44.5	56.5	60.5	74
Alloa	9	12.6	15.4	26.4	44.2	52.2

(Return periods are not given where they were less than 2 years, or the record is small.)

Of note are the rainfalls for Tanawa Hut in the eastern hill country and Waingawa at Kaituna. The three hour maximum rainfalls for these sites are estimated to have an eight-year return period.

River Levels

Rivers with their headwaters in the foothills of the Tararuas and those to the south were most affected. In contrast, most of the eastern hill country rivers were not significantly affected.

At the Hautotara site on the Huangarua river, a peak level of just over 4.4m was reached. This was the highest on record going back to the early 80's (May 1981 was around 4.3m). The sharp peak attenuated quickly, preventing flooding of the Ponatahi Road.

The Mangatarere river at the gorge recorded a peak flow of about 84m³/s which is estimated to have been a four year return period flood.

The Tauherenikau River caused some erosion problems but the recorder at the Gorge site only registered a level of just over 2.0m, equating to only 140m³/s, well below a two year flood of 293m³/s. However debris marks left at the site indicate that the level and flow may have been considerably higher. Surveyed debris levels averaged close to 3.5m. This equates to a flow of around 424m³/s, which has a return period of about six years.

In the Lower Valley floodway system Jenkins Dip operated on SH 53. Although floodwaters crossed the Hikinui and Awaroa sills, and Pahautea Road was closed, the Oporua Flood did not operate and flows were contained within the main channel. Lake Onoke was open to the sea throughout the event.

This flood was almost the same size in the Lower Valley as the flood of 18 June 2002.

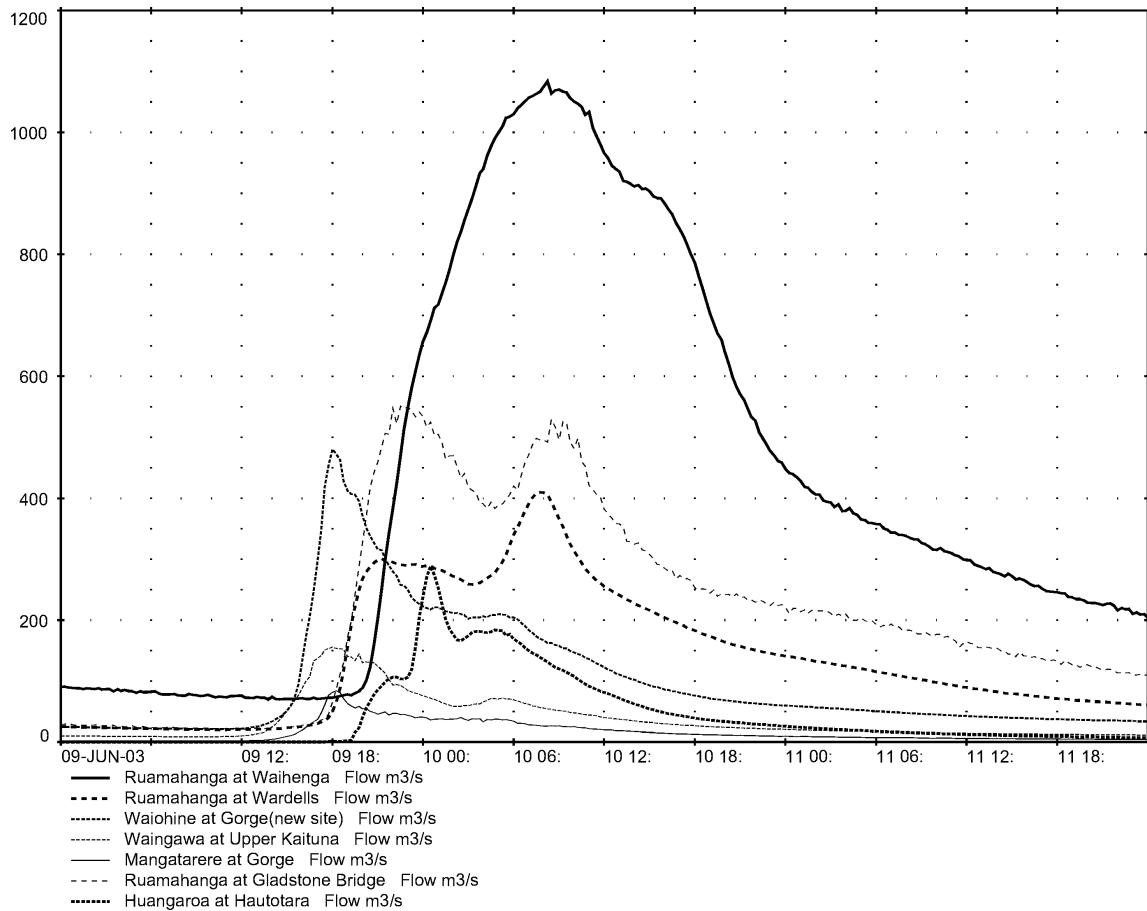
River levels, peak flows and return periods are given in Table 2.

Table 2: River Peaks for 9 & 10 June 2003 Flood

Site	Peak River Level <i>metres</i>	Peak River Flow <i>cumecs</i>	Return Period <i>years</i>	Date	Time
Wardells	3.939	410	<2	10-Jun-2003	07:45
Waihenga	4.766	1084	3	10-Jun-2003	08:15
Gladstone	2.618	551	-	9-Jun-2003	22:30
Huangarua	4.413	291	-	10-Jun-2003	00:30
Kopuaranga	3.941	35	<2	10-Jun-2003	14:30
Mangatarere	2.135	84	4	9-Jun-2003	18:15
Mt Bruce	1.996	109	<2	9-Jun-2003	16:15
Taueru	7.191	76	<2	11-Jun-2003	01:00
Waiohine	3.232	480	<2	9-Jun-2003	18:00
Tauherenikau	3.505	424	6	9-Jun-2003	17:30
Waipoua	2.064	175	7	10-Jun-2003	03:45
Waingawa	2.133	156	<2	9-Jun-2003	18:00

Flow hydrographs for the major rivers are given in Figure 1.

Figure 1: Flood Hydrographs for 9 & 10 June 2003 Flood



3. Summary

Although this flood was not a major event in the lower valley system, it was significant in some of the smaller contributing tributaries. These were the Waipoua, Mangatarere, and Tauherenikau Rivers from the Tararuas and the Huangarua River from the Haurangis.

4. Communication

The flooding, its monitoring and response received good publicity at the time. No additional publicity is proposed.

5. Recommendation

That the Committee receive the report and note its contents.

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