

91243R



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

## Level 2 Geography, 2014

### 91243 Apply geography concepts and skills to demonstrate understanding of a given environment

2.00 pm Monday 10 November 2014  
Credits: Four

#### RESOURCE BOOKLET

Refer to this booklet to answer the questions for Geography 91243.

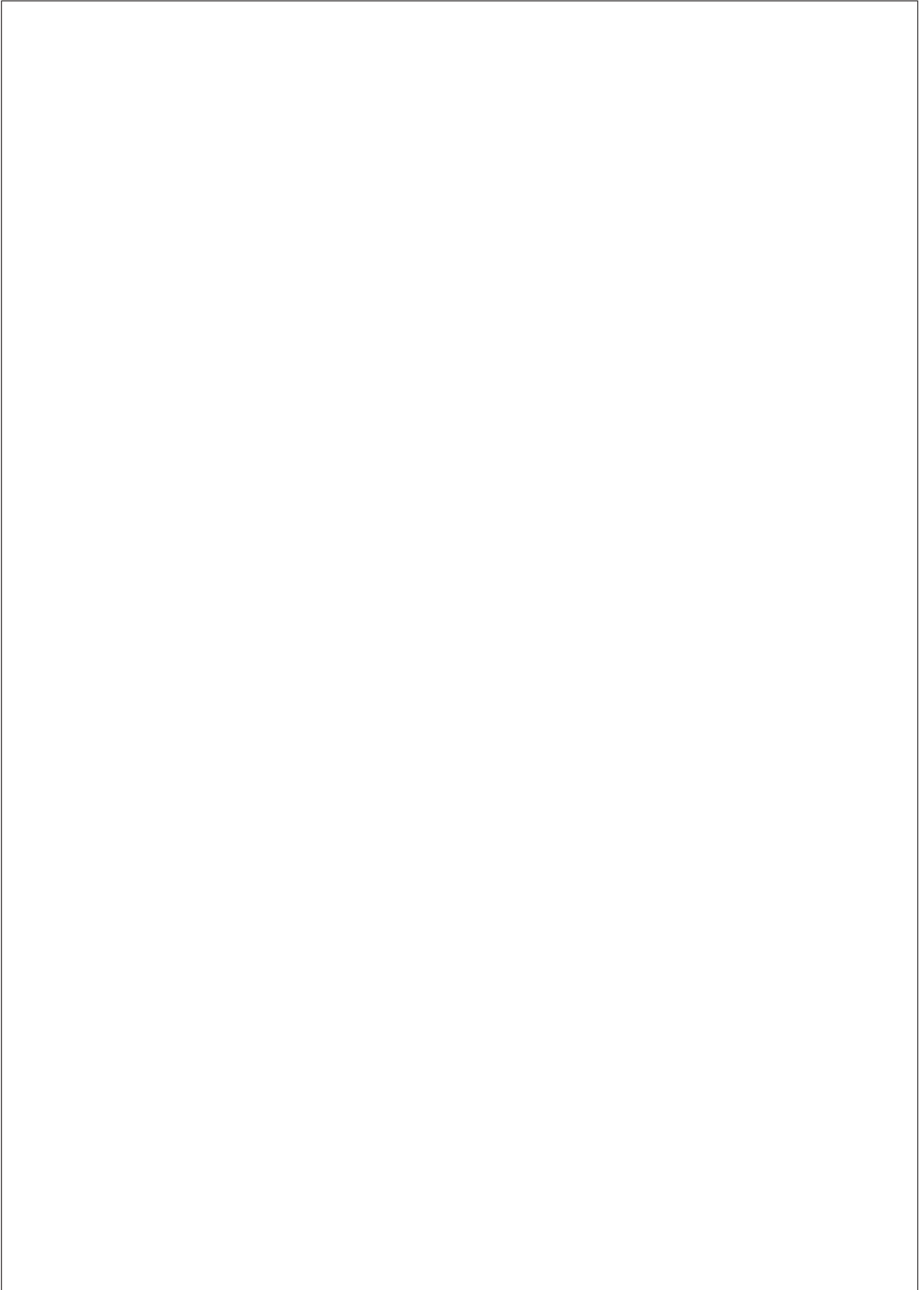
Check that this booklet has pages 2–12 in the correct order and that none of these pages is blank.

**YOU MAY KEEP THIS BOOKLET AT THE END OF THE EXAMINATION.**

*For copyright reasons, the resources in this booklet cannot be reproduced here.*

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The resources continue on the following page.**

**Resource A: Central Hawke's Bay Location Map**

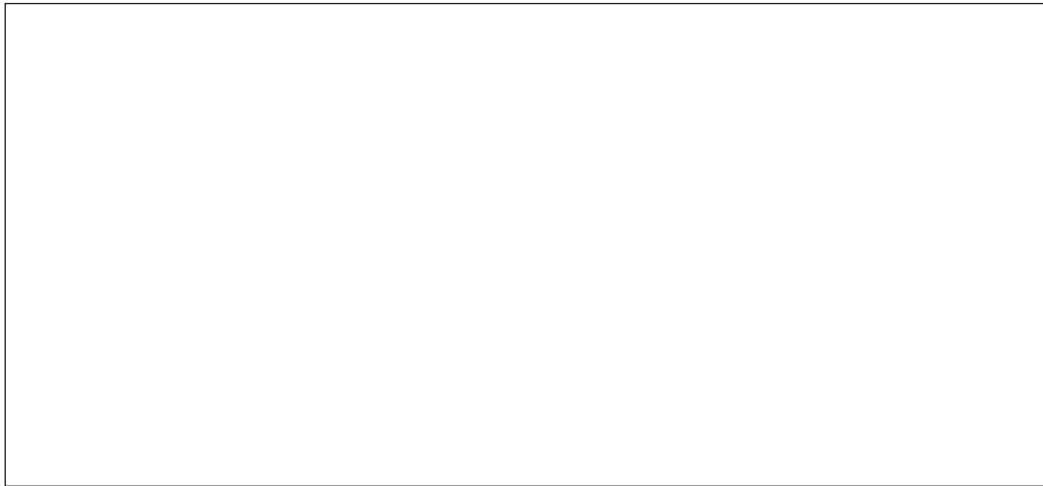


**Resource B: Central Hawke's Bay Economy and Drought**

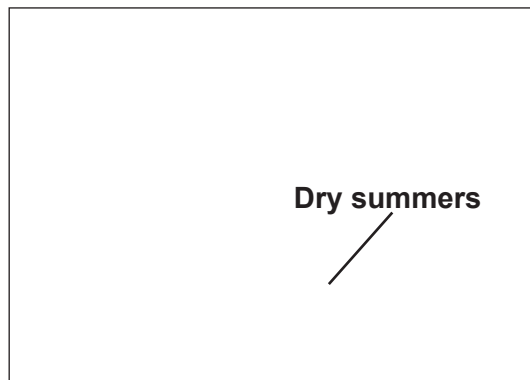
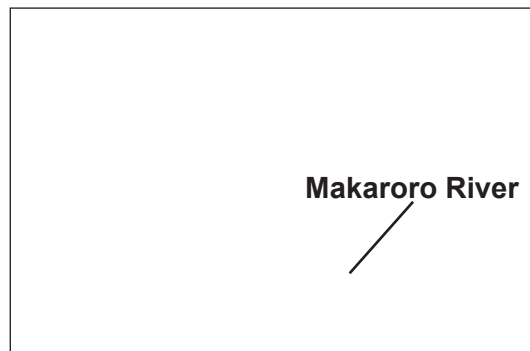
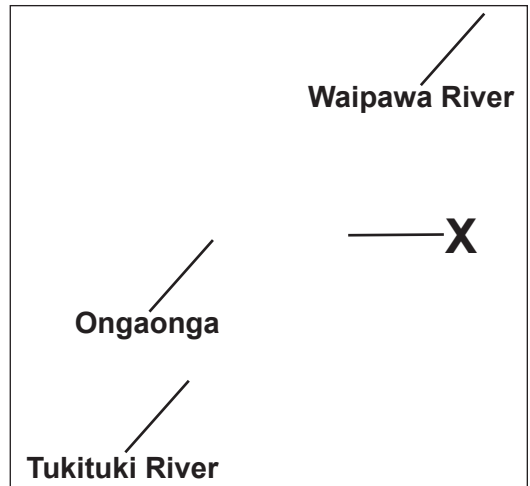
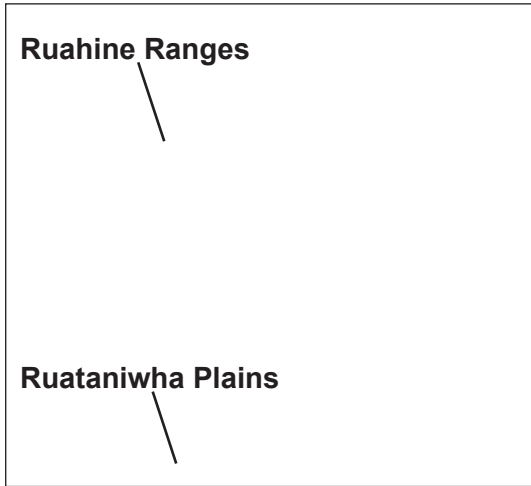
The Central Hawke's Bay region is a diverse environment that has many natural and cultural features.

This water is currently drawn from the Tukituki River and its tributaries, the largest of which is the Waipawa River.

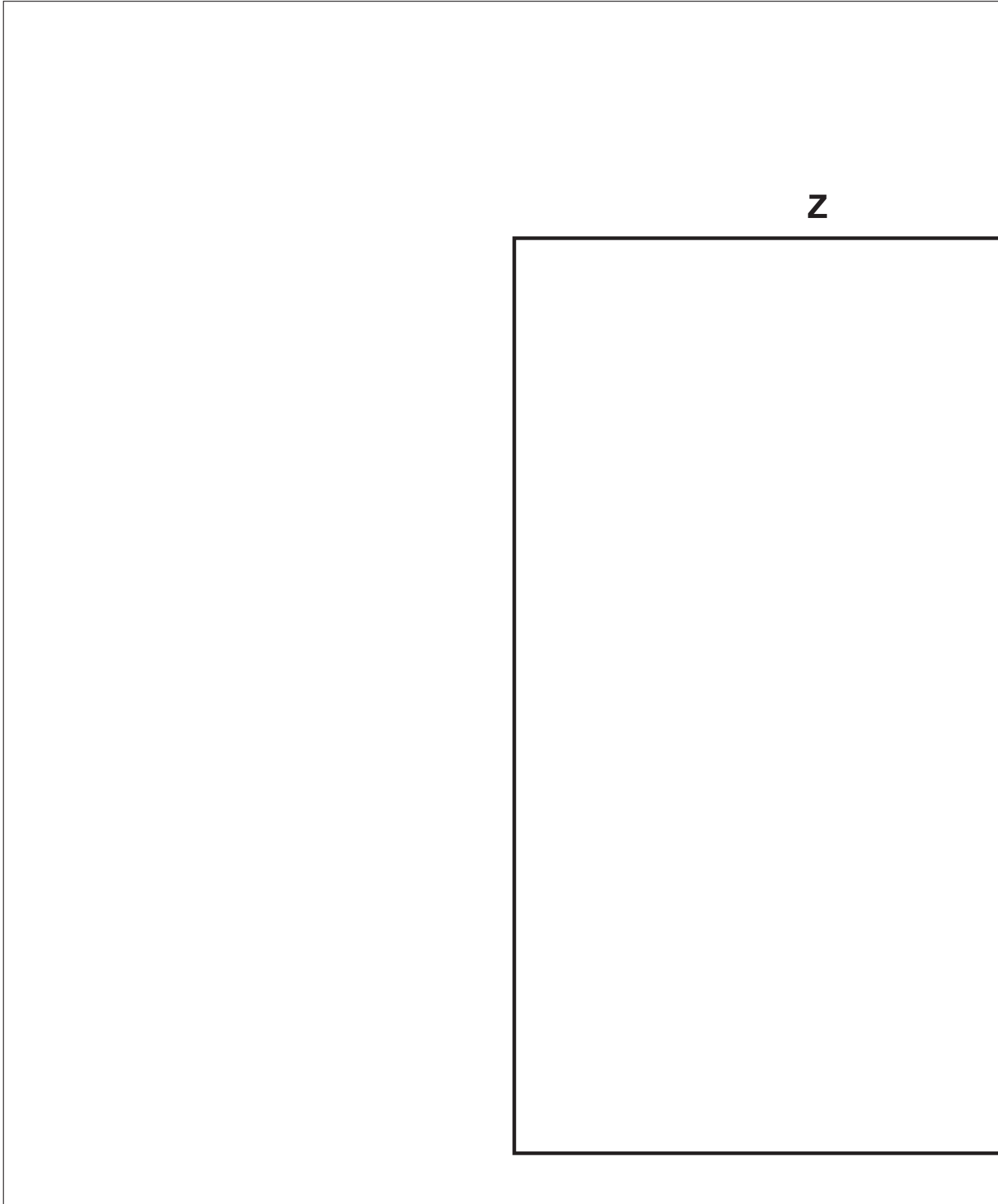
\*Arable refers to growing crops.

**Resource C: Population of Settlements in Central Hawke's Bay 1996–2012****Resource D: Waipukurau Township**

**Resource E: Photographs of the Central Hawke's Bay**



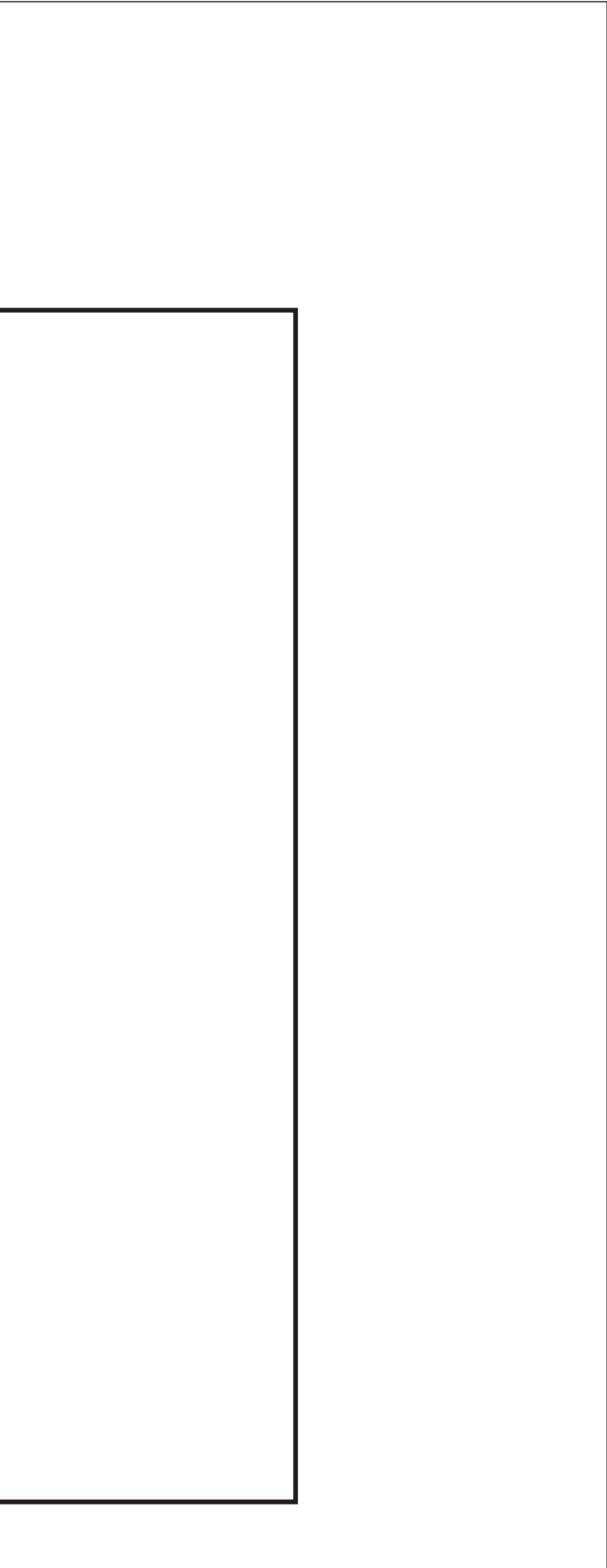
**Resource F: Topographic Map of Ruataniwha Plains and Waipukurau**



**Z**



**Resource F (continued): Topographic Map Key**



**Key**

A large, empty rectangular box with a thin black border, occupying the right half of the page. It is intended for a map key. The word "Key" is printed in bold at the top left corner of this box.

## Resource G: Dust Bowled

On 15 March 2013, New Zealanders went from loving the exceptional summer, to fearing it – the whole of the North Island was officially declared to be in drought.

Water from the scheme can then be released into rivers and irrigation channels to improve river flows in the Tukituki Catchment through summer for aquatic life and other river users, while at the same time providing water for agriculture.

### Facts about the Proposed Ruataniwha Water Storage Scheme

Dam height	
Reservoir lake length	
Land influenced	
Electricity generated	
GDP increase for CHB	
Increase in employment	
Estimated cost	

\*1 megawatt powers about 1000 homes.



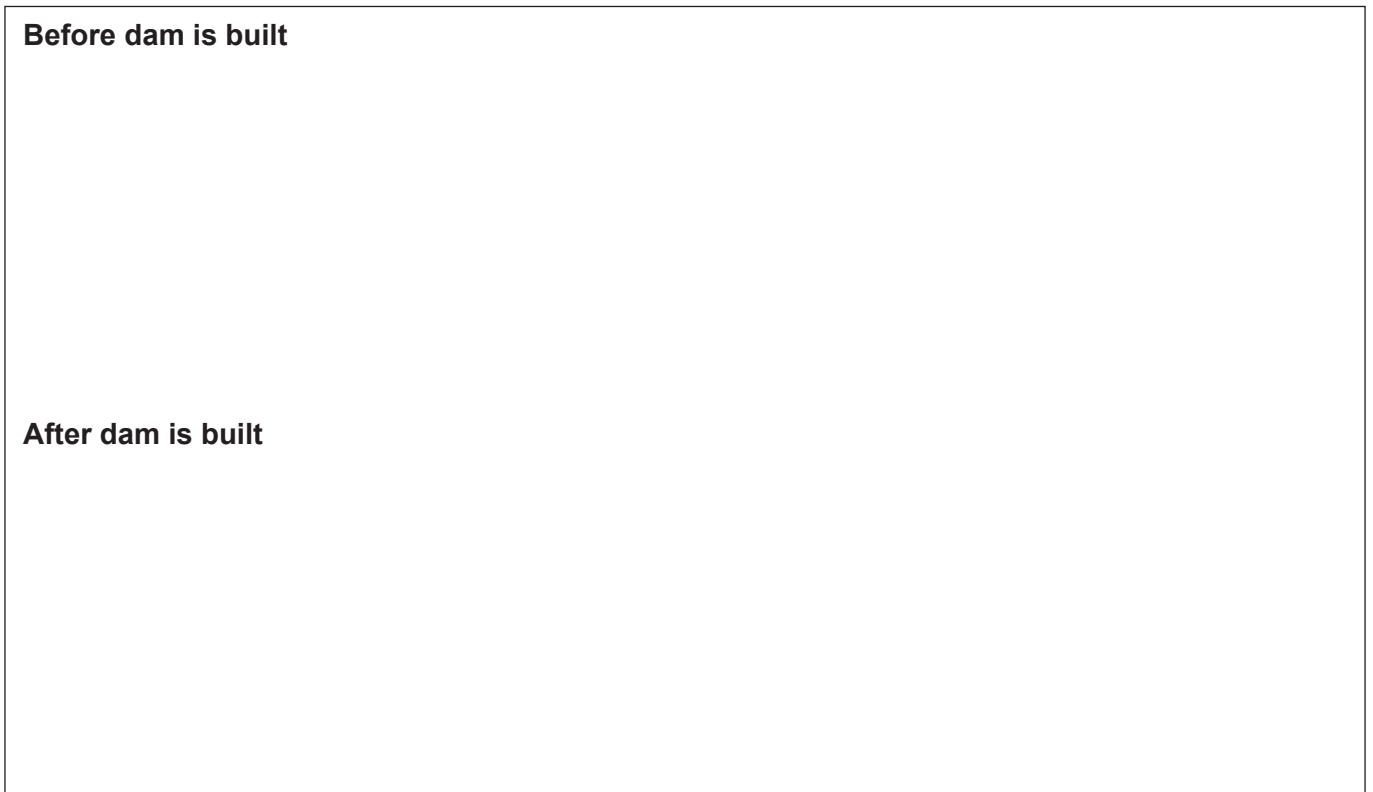
**Resource H: Location of the Proposed Ruataniwha Water Storage Scheme**



**Resource I: Artist's Impression of the Reservoir Lake Created by the Proposed Ruataniwha Water Storage Scheme looking up the Makaroro River**

**Before dam is built**

**After dam is built**



**Resource J: The Nitrogen Cycle****Resource K: Managing Nitrate Levels on Dairy Farms**

It is estimated that as a result of the proposed Ruataniwha Water Storage Scheme, nitrate levels from farm run-off into the Tukituki River would rise by 500%.

Finally, providing bridging points where dairy cows normally cross waterways, will also prevent them polluting the water and pugging the soil.

**Resource L: Extract from ‘Improving the Tukituki’**

The proposed Ruataniwha Water Storage Scheme has the potential to deliver significant environmental, economic, and social benefits for Hawke’s Bay.

Improved roading infrastructure would also be needed to cater for the expected increase in rural productivity, resulting in twenty full-time roading jobs.

**Resource M: Concerns over the Impact of the Proposed Ruataniwha Water Storage Scheme**

Local Labour Party member Stuart Nash has reservations about the long-term viability of the dam, and explained “When spending ratepayers’ and / or taxpayers’ money, there needs to be sufficient buy-in from local farmers to ensure that the scheme is successful.

2. The Tukituki River in particular ending up being closed to the public (as it is now over the summer months) because it is unsafe for swimming and other recreational pursuits, due to the levels of E. coli and phormidium (toxic algae) resulting from the dam.

## ACKNOWLEDGEMENTS

Material from the following sources has been adapted for use in this examination.

Page(s)	Source
3	Resource A map from mappery.com, found on <a href="http://www.mappery.com/North-Island-Map">http://www.mappery.com/North-Island-Map</a> , accessed 2 April 2014.
4	Resource B text from Hawke's Bay Regional Council, found on <a href="http://www.hbrc.govt.nz/Hawkes-Bay/regional_development/hbrc/Pages/rws.aspx">http://www.hbrc.govt.nz/Hawkes-Bay/regional_development/hbrc/Pages/rws.aspx</a> , accessed 12 August 2014.  Resource C graph from Statistics New Zealand, found on <a href="http://www.stats.govt.nz/searchresults.aspx?q=centra%20hawkes%20bay%20population">http://www.stats.govt.nz/searchresults.aspx?q=centra%20hawkes%20bay%20population</a> , accessed 28 January 2014.  Resource D image from Hawke's Bay Microlight Club, found on <a href="http://microlight.org.nz/about/about-hawkes-bay/waipukurau-passionate-about-flying-since-1935/">http://microlight.org.nz/about/about-hawkes-bay/waipukurau-passionate-about-flying-since-1935/</a> , accessed 11 December 2013.
5	Resource E images from: Julian's Blog (top left), found on <a href="http://juliansrockandiceblog.blogspot.co.nz/2011_08_01_archive.html">http://juliansrockandiceblog.blogspot.co.nz/2011_08_01_archive.html</a> , accessed 12 December 2013. Google Earth (top right), accessed 28 January 2014. Sciblogs (centre left), found on <a href="http://sciblogs.co.nz/waiology/2013/08/29/conservation-and-management-of-new-zealand-whitebait-species/">http://sciblogs.co.nz/waiology/2013/08/29/conservation-and-management-of-new-zealand-whitebait-species/</a> , accessed 8 August 2014. Eastern Earth Landscape Architects (centre right), found on <a href="http://e2la.co.nz">http://e2la.co.nz</a> , accessed 17 April 2014. RYOT.org (bottom), found on <a href="http://www.ryot.org/historic-drought-wreaking-havoc-on-new-zealands-economy/101181">http://www.ryot.org/historic-drought-wreaking-havoc-on-new-zealands-economy/101181</a> , accessed 12 March 2014.
6 and 7	Resource F map and key from Land Information New Zealand (LINZ), found on <a href="http://www.linz.govt.nz/topography/topo-maps/map-chooser/napier">http://www.linz.govt.nz/topography/topo-maps/map-chooser/napier</a> and <a href="http://www.linz.govt.nz/topography/topo-maps/map-chooser/dannevirke">http://www.linz.govt.nz/topography/topo-maps/map-chooser/dannevirke</a> , accessed 27 January 2014.
8	Resource G text and table data from The National Institute of Water and Atmospheric research (NIWA), found on <a href="http://www.niwa.co.nz/publications/wa/water-atmosphere-8-september-2013/dust-bowled">http://www.niwa.co.nz/publications/wa/water-atmosphere-8-september-2013/dust-bowled</a> , accessed 12 August 2014.
9	Resource H map from Google Earth, accessed 17 April 2014.  Resource I image from stuff.co.nz, found on <a href="http://www.stuff.co.nz/dominion-post/business/9189077/Investors-consider-Ruataniwha-Dam-project">http://www.stuff.co.nz/dominion-post/business/9189077/Investors-consider-Ruataniwha-Dam-project</a> , accessed 11 December 2013.
10	Resource J image from Discovery Farms Wisconsin, found on <a href="http://fyi.uwex.edu/discoveryfarms/2010/10/fall-can-be-a-good-time-for-nutrient-application-with-awareness-of-conditions/">http://fyi.uwex.edu/discoveryfarms/2010/10/fall-can-be-a-good-time-for-nutrient-application-with-awareness-of-conditions/</a> , accessed 12 August 2014.  Resource K text from S.F. Ledgard, E.R. Thom, P. L. Singleton, B.S. Thorrold, and D.C. Edmeades, 'Environmental Impacts of Dairy Systems', found on <a href="http://www.dairynz.co.nz/file/fileid/27185">http://www.dairynz.co.nz/file/fileid/27185</a> , accessed 2 April 2014.
11	Resource L text from Hawke's Bay Regional Investment Company Ltd, <i>Improving The Tukituki Information Sheet Socio-economic Impact 5.0</i> , found on <a href="http://www.hbrc.govt.nz/HBRC-Documents/HBRC%20Document%20Library/5.0%20socioeconimpact%20FINAL.pdf">http://www.hbrc.govt.nz/HBRC-Documents/HBRC%20Document%20Library/5.0%20socioeconimpact%20FINAL.pdf</a> , accessed 12 August 2014.  Resource M text from The Daily Blog, found on <a href="http://thedailyblog.co.nz/2013/05/30/water-storage/">http://thedailyblog.co.nz/2013/05/30/water-storage/</a> , accessed 12 August 2014 and <a href="http://www.baybuzz.co.nz/issues/ruataniwha-dam/">http://www.baybuzz.co.nz/issues/ruataniwha-dam/</a> , accessed 2 April 2014.