

# The Ruamāhanga modelling project

Developing a knowledge base for sound  
decisions for the future of our catchment





## Community Knowledge

## Mātauranga Māori

## Modelling Projections


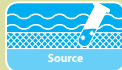








## Technical Knowledge

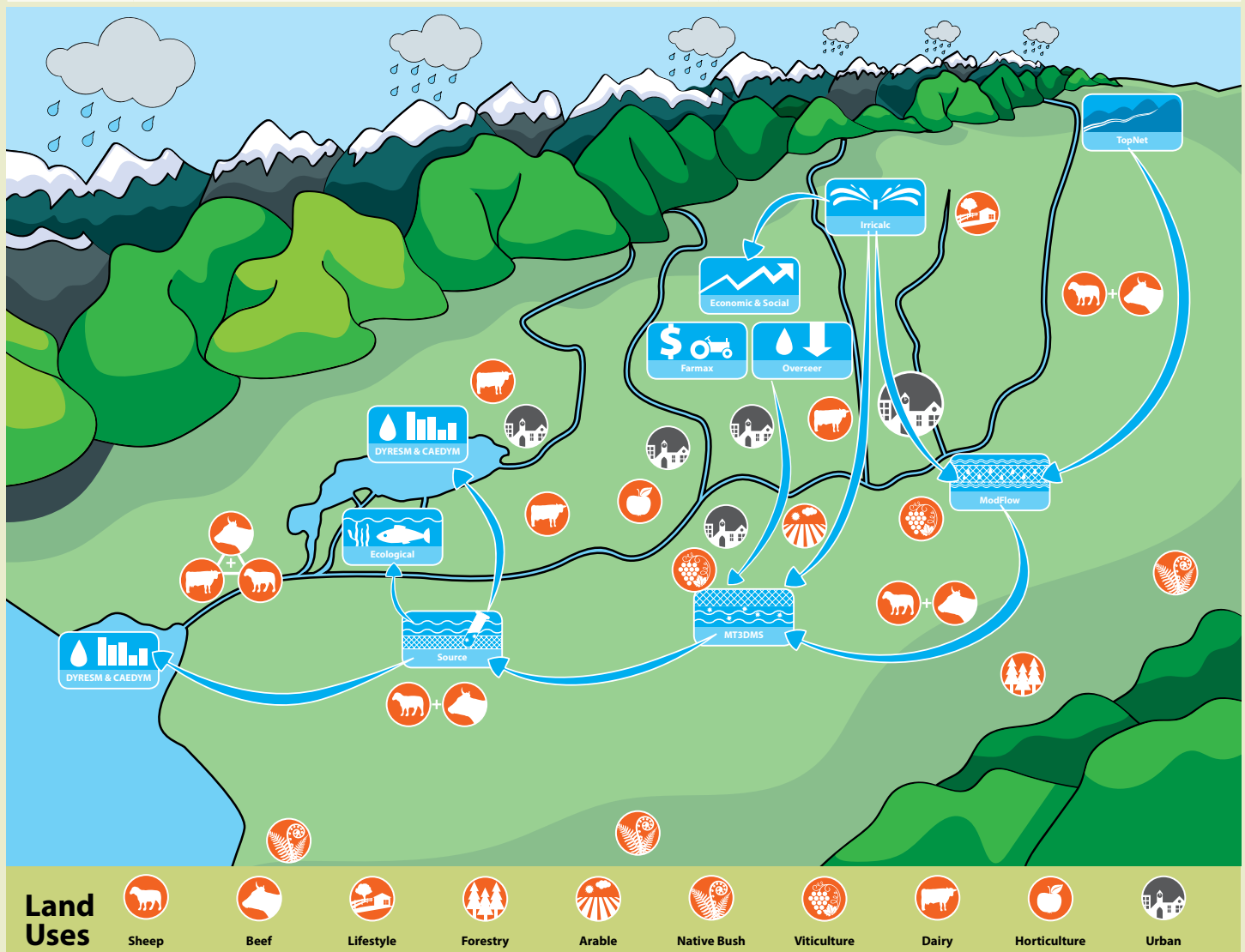
### Overview of the Whaitua Process



## What is modelled in Ruamāhanga Whaitua

Each catchment is different with different rainfall, landscape and land uses. Because each catchment is unique, different computer models are used to provide Whaitua Committees with the knowledge about what happens in the catchments. In the predominantly rural Ruamāhanga, the computer models used to understand the catchment's current state are:

 Hydrology and movement of contaminants (nitrogen, phosphorus, sediment, cyanobacteria etc.) in lakes Wairarapa and Onoke	 Surface water quality and transport of contaminants, including sediment loss
 Ecology – fish habitat, periphyton	 On-farm nutrient (nitrogen, phosphorus, potassium) losses to the environment
 Catchment wide economic impacts	 Groundwater flow under and across plains; surface and groundwater interaction
 On-farm financial returns	 Flow of contaminants in groundwater
 Irrigation demand	 River flows on hill country



This infographic shows the relationship between different components of the modelling process of the current state of the Ruamahanga catchment. Surface and groundwater contaminant flows, irrigation demand, ecology and economic modelling such as farm financial returns are set against the predominant land uses in the Ruamahanga catchment.

The infographic does not include the community values and aspirations identified by the Whaitua Committee. The community values and aspirations will however underpin the next stage of the modelling where the Whaitua Committee will test the ideas about future choices in the catchment.

## The Ruamāhanga modelling project

### Developing a knowledge base for sound decisions

The Wairarapa community, through the Ruamāhanga Whaitua Committee, is creating a vision for freshwater management in the Ruamahanga catchment.

Understanding how catchments work is vital in making well-informed decisions about this vision.

The Ruamāhanga Modelling Project is supporting the Whaitua Committee by using collective scientific, cultural and community knowledge, data and information to show the current state of the catchment and to then test ideas about the impacts of future choices.

The partners working together in the Ruamāhanga Modelling Project include the Whaitua Committee; scientists and other experts; the Ministry for Primary Industries; Greater Wellington Regional Council, and mana whenua.

### Applying collective knowledge to community aspirations for fresh water

The project has brought together more than 20 independent specialists with expertise in hydrology, chemistry, ecology, social science, economics and mātauranga Māori to provide well-reasoned, trusted information and knowledge to the Whaitua Committee.

More than 10 models work together to show how the Ruamahanga catchment fits together and how contaminants, such as sediment, move within it.

The Whaitua Committee will ask questions about what could happen in the future under certain conditions, such as different land management practices, and how the catchment would respond to those. These are called scenarios. The models will be used to forecast the potential environmental, social, recreational, cultural and economic consequences of these scenarios.

The Whaitua Committee considers all the knowledge, model outputs and different perspectives from the community to make recommendations that affect what can be discharged into or taken from waterways, and on other activities for land and water management in the Ruamahanga catchment. This is then put into a Whaitua Implementation Plan.

The Ruamāhanga Modelling Project is coordinated and funded by Greater Wellington Regional Council with funding support from the Ministry for Primary Industries and the Ministry for the Environment.

## Timeframes

### Step 1 mid 2015 to mid 2016

Model the current state of the catchment to create a baseline for the future by understanding the existing state of the catchment - water quality, contaminant load and water flows - and to inform the future scenarios to be tested.

### Step 2 2016 –

Model a range of different scenarios. The Whaitua Committee decides the policy and management scenarios to be modelled so that likely consequences can be predicted.

### Step 3 2017 –

Results from steps 1 and 2 will inform the Whaitua Committee's implementation plan for the management of land and water resources.

*Combining many strands of knowledge leads to better informed community decisions. This is vital because water enables life, nourishes our land, fosters recreation, powers our economy and provides spiritual and cultural sustenance.*



*Nā tō rourou, nā taku rourou, ka ora ai te iwi –  
With your basket and my basket the people will thrive*

### What is a Whaitua?

The Māori word Whaitua means a designated space or catchment.

Greater Wellington Regional Council is working closely with communities to manage land and water through Whaitua Committees.

The Ruamāhanga Whaitua Committee was the first to be established, followed by Te Awarua-o-Porirua. Others to follow will include Eastern Wairarapa, Wellington City and Hutt Valley and Kapiti.



### Our five guiding principles

**Ki uta ki tai**  
connectedness

**Wairua**  
identity

**Kaitiaki**  
guardianship

**Tō mātou whakapono**  
judgement based on knowledge

**Mahitahi**  
partnership

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