

Using Future Insight to Guide Regional Economic and Infrastructural Development

RDC Councillors' Update: Future Drivers of Change Impacting on Rotorua Moving Forward 8 December 2005

Agenda

- 1 Framework for discussion and thinking**
- 2 Major drivers of change to 2025 and beyond: presentation and discussion of opportunities and risks**

Framework for Discussion and Thinking

1. Major drivers of change to 2025 and beyond :

- **Global** (District has no influence)
- **NZ** (District may have some indirect influence)
- **Local** (District may enact, encourage, discourage)

2. Implications of these changes for the District

- opportunities
- threats
- risks

3. Current District endowment of sectors, infrastructure, activities, resources, capabilities, limitations and liabilities

4. Strategic thinking and decisions about RDC roles and actions

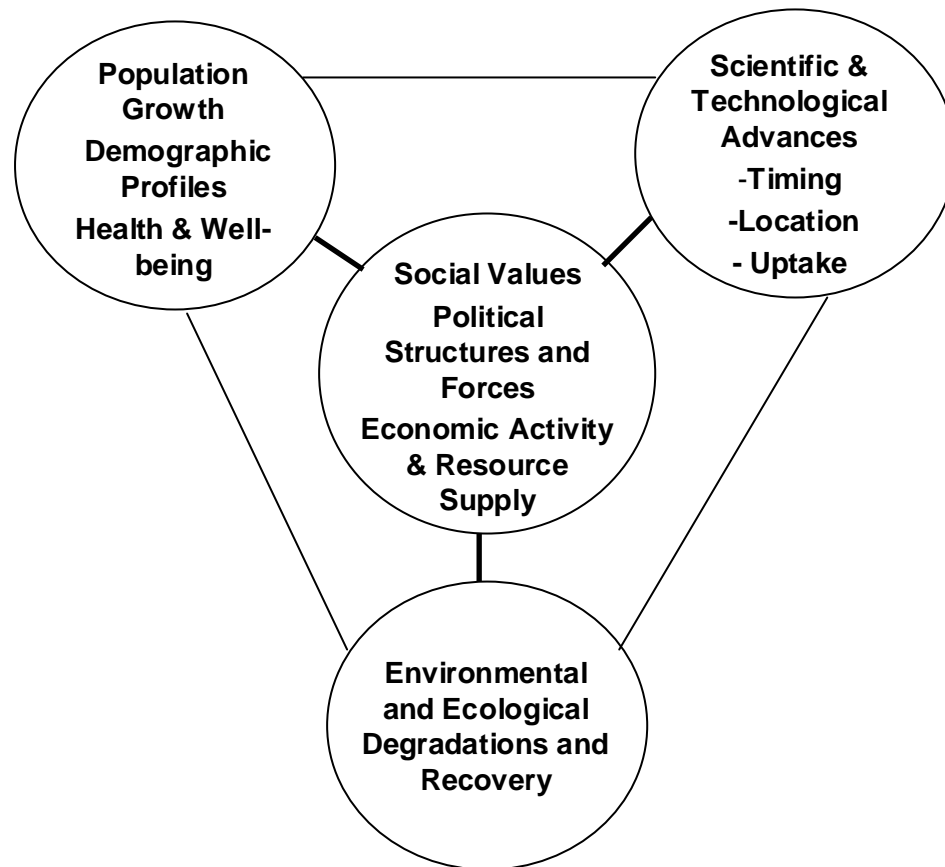
- Vision for Rotorua District
- Strategic objectives for development of Rotorua District (economic/community/social/cultural/environmental)
- Strategic pathway of initiatives for Rotorua District (especially those for which RDC will be accountable)
 - very clear for short/medium term outcomes
 - also clear for actions required now to prepare for long term outcomes
 - for later commencements, retain optionality; the initiatives to be taken will come into focus over time

Major Drivers of Change to 2025: Introduction

- The information in the following presentation resulted from hundreds of hours of work, first within Forest Research, then extend further
- Versions of the work have been used by :
 - Forest Research (Scion)
 - Crop and Food Research
 - Growth and Innovation Advisory Board
 - Ministry of Defence
 - Tertiary Education Commission

Identifying the Major Drivers of Change to 2025: a Three Step Approach

Step 1 : Assessment of drivers of global change, using this model :



Step 2 : Focusing the drivers into global scenarios that span the plausible futures :

- Globalisation and Security
- Conflicted World
- Sustainability Emerges

Step 3 : Taking the key elements of these scenarios and using them to 'drill down' to find the change drivers that are relevant to particular sectors (in this case, two stages: NZ and Rotorua District)

Major Drivers of Change to 2025: Overview

The proposed major drivers of change – globally and in New Zealand:

- Energy prices and supply
- More frequent and severe weather events
- Shifting lifestyles, workstyles, and family structures
- Increasing global disruptions and anxiety
- More difficult global and New Zealand economic conditions
- New Zealand infrastructural investment continues to lag
- Technological change

None of these futures can be thought of as certain. In some cases, several plausible scenarios exist.

We will now look at each of these and add in two others that are specific to Rotorua District

Major Drivers of Change to 2025

Energy Prices and Supply

- The prices of hydrocarbons (derivatives of mineral oil, coal and natural gas) and the costs of using them are set to **trend upwards** substantially into the foreseeable future, but will **vary** a great deal around this trend, due to
 - Costs of extraction increasing at the margin
 - The influence on prices of recognition of the 'peak oil' condition
 - Internalisation of the external costs of releasing greenhouse gases and toxins to the atmosphere and water, via paying for rights and tax policies
 - Increasing compliance costs
 - Supply unreliability due to restrictive ownership of reserves, and global/regional conflicts affecting extraction and shipping

Major Drivers of Change to 2025

Energy Prices and Supply continued

- **Supply of energy from carbohydrate technology (plants and micro-organisms) will expand but will not be available in sufficient volume when needed to substitute for hydrocarbons. This is due to insufficient long-term investment, which will come forth only as prices increase. As energy markets begin serious transition from hydrocarbons to carbohydrates, prices and supply reliability will be highly variable. The crops required for biofuels will compete strongly for use of agricultural land.**
- **All options for growth of electricity generation in NZ have downsides concerning environmental effects, and/or cost levels, and/or ethical and safety concerns. Choices will be difficult and possibly divisive. Prices will increase substantially.**
- **Given the risk of damage to transmission lines due to increasing frequency of severe weather events, the 'main trunk' electricity generation and distribution model will become increasingly unreliable. Local 'distributed generation' may be more attractive, despite higher costs.**

Major Drivers of Change to 2025

More Frequent and Severe Weather Events

Prudent managers of community risk and business risk will soon accept that global warming is happening and that it is no longer sensible to shelter behind the scientific debate, which is effectively over. The main effects of global warming will be more extreme weather. It has probably already begun and occurrence is likely to accelerate noticeably within 10 years and rapidly thereafter. In New Zealand the outlook is for :

- More severe and more frequent wind and rain, sometimes with flooding
- Prolonged droughts
- Generally warmer winters
- More unseasonal frosts and hail
- Variations of these effects across the regions of New Zealand
- Weather events will increasingly be outside the ranges of historical data so that current engineering and safety standards will no longer be sufficient

Weather impacts on New Zealand will incur substantial damage, cost and anxiety but these impacts will be less than in most other countries, especially in the Northern Hemisphere. Thus New Zealand will be seen as a relatively safe haven.

Global warming will have more gradual direct effects on agriculture and forestry.

Major Drivers of Change to 2025

Shifting Lifestyles, Workstyles, and Family Structures

- **Material wealth declines in relative importance to overall well-being as more people embrace the importance of harmonious communities and ecological sustainability**
- **'Baby boomer' demographics increases numbers of 'active elderly' and also results in more extended families living together**
- **Some decline in preferences for metropolitan living due to congestion and pollution, and increasing desirability of regional cities and rural towns**
- **Some groups in the community have strengthening preferences for more dense 'urban village' environments, and 'life stylers' increasingly favour ecologically sustainable land use**
- **New Zealand becomes relatively more desirable – internationally – as a place to visit and live**

Major Drivers of Change to 2025

Global and New Zealand Economic Conditions

- Growth as a dominant objective gives way to stability and security, and New Zealand GDP growth slows
- Management of international trade and business becomes increasingly challenging due to
 - Security-based barriers and higher costs
 - Disruptive conflicts relating to oil, water, and insecurity
 - Reduced reliability of shipping
 - Adverse effects of weather events on offshore market demand and supply capacity and reliability – but there may also be favourable competitive dynamics
- Countries and districts that credibly offer relatively more safety, security and harmony will achieve competitive advantage as ‘safe havens’ for tourism, permanent living, and some categories of investment

Major Drivers of Change to 2025 (9)

Technological Change

- Highly evolved electronic connectivity and 'ubiquitous computing'
- Distributed energy generation
- Energy efficiency systems for transportation, heating, air conditioning and manufacturing
- Sustainable materials and buildings
- Medical science delivers extended life expectancy and 'the active aged' - but there is also more risk of major epidemics

Assessment of Drivers of Change

- Accept / reject / modify each of the suggested drivers?
- Suggested additional drivers of change – perhaps local ?
- What are the major implications for Rotorua District Council?
- Will incremental approaches to change and development meet requirements, or should some step change be expected?