



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



New Zealand Agricultural and
Resource Economics Society (Inc.)

Using "adaptive" approaches in New Zealand

Kevin Guerin

kevin.guerin@treasury.govt.nz

**Paper presented at the 2007 NZARES Workshop, Wellington,
New Zealand. August 23, 2007.**

Copyright by author(s). Readers may make copies of this document for non-commercial purposes only, provided that this copyright notice appears on all such copies.

Using "adaptive" approaches in New Zealand

Kevin Guerin

New Zealand Agricultural and Resource Economics Society

Thursday 23 August 2007

kevin.guerin@treasury.govt.nz

Earlier version of this presentation was given at New
Zealand Association of Economists conference 2007

Draws from Treasury Working Paper 2007/03 "[Adaptive Governance and Evolving Solutions to Natural Resource Conflicts](http://www.treasury.govt.nz/workingpapers/2007/wp07-03.asp)" <http://www.treasury.govt.nz/workingpapers/2007/wp07-03.asp> However, the views, opinions, findings and conclusions or recommendations expressed are strictly those of the author, and do not necessarily represent and should not be reported as those of the New Zealand Treasury. The New Zealand Treasury takes no responsibility for any errors or omissions in, or for the correctness of, the information contained in this paper.

Outline

The story:

- What's the problem?
- So what are adaptive governance and adaptive management and how do they help?
- What is the practical impact and how are adaptive approaches relevant to New Zealand circumstances?

So what's the problem?

- NZ faces a set of “wicked problems” in an uncertain and evolving context, as well as overlapping and shifting goals.
- The problems can be environmental (demand for water as an input or a sink). social or cultural and domestic or international (dirty dairying or food miles); and economic (indirect impacts on other sectors; e.g. tourism)
- The goals include growth and a better, or no worse, environment.

What is adaptive governance?

- Adaptive governance can be described from different viewpoints, all of which are valid. Three prime examples are:
 - development and application of institutional arrangements to support evolution of rules and systems and enable constrained differentiation;
 - the integration of multiple perspectives, sources of knowledge and methods of action, to address a single problem; and
 - strategic vision and processes to support, enable and guide specific management approaches.
- Adaptive governance provides a strategic framework within which management can adapt and responsibilities be allocated, without devolving into unstructured improvisation.

Adaptive governance and devolution

- Adaptive governance assumes application of the principle of subsidiarity:
 - placing the responsibility at as low a level of government as practicable given other factors
- This is because:
 - adjusting regulatory mechanisms becomes more difficult at higher levels of government and imposes higher costs;
 - It allows decisions to be made by those closest to the problem with the best information
 - It allows “nesting” of responses with each level of government undertaking the appropriate functions – framework setting; strategic planning; rule making; application approvals.
- But these advantages come at a cost in initial set-up and ongoing co-ordination.

What is adaptive management?

- Adaptive management logically follows governance:
 - a more practical, short to medium term focus;
 - developing strategies to deliver a vision, and then implementing them;
 - an incremental and experimental focus –balanced against risk and uncertainty, particularly when managing potential threshold effects; and
 - building resilience in policies and outcomes.
- Local delivery and customisation with national support and vision are important aspects – problems and solutions vary but consistency wherever possible reduces administration and compliance costs.
- A wide toolkit is important to the success of an adaptive management approach – excluding options limits the opportunities to learn and succeed.

Adaptive management and the environment

- Difficulties in application of adaptive approaches to environmental policy include social-ecological interactions, variations in spatial and temporal scale of impacts, threshold effects and interdependencies.
- Environmental research roadmap (MoRST June 2007):
 - “in an adaptive management approach, managers and scientists work together iteratively to continuously improve management policies and practices, by learning from the outcomes of operational programmes”;
 - “Improved environmental sensing networks will make adaptive management more feasible than it has been in the past”;
 - “flexibility in institutional design to allow trials and mistakes to occur, inform, and be corrected is limited by the requirements for certainty in policy and resource allocations”;
 - “complex adaptive systems” require integrated science and management approaches.
 - <http://www.morst.govt.nz/Documents/work/roadmaps/Environment-Research-Roadmap.pdf>

Managing in a variable environment

- Governance frameworks for natural resources need to be able to cope with natural variability – and trends:
 - how much is there?
 - how much can we allocate?
- Management of natural resources cannot be separated from social goals:
 - changing aspirations can alter what is permissible, independent of legal rights;
 - unresolved rights will have a price and undermine certainty;
- If rules for handling change are not built into the regime from the beginning, the cost of adjustment may be significant later.

Implementing adaptive approaches – regime evolution

- Building change into policies is not straightforward. We talk about sustainability but tend to take for granted what it is that we are seeking to sustain:
 - there are limits to the ability to protect any specific state, given social and ecological change;
 - states that we see as natural may be human induced.
- There can be a distinction between maintaining the ability of a particular state to resist pressures and enabling that state to evolve in response to pressures.
- Long-run regimes must also allow for both the values held and outcomes sought to change. This can include:
 - learning to live with change and uncertainty;
 - accepting and encouraging diversity of policies, knowledge and outcomes;
 - encouraging self-organisation?

Looking ahead – the coming challenges

- What resources are being effectively managed now? Which are not? Who is responsible for managing them and what is their capability?
- What will be the costs of acting too soon or too late? How does precaution avoid becoming paralysis?
- Where are the next challenges coming from? What changes in society and the environment will we have to allow for?
- Any response to all these challenges must be resilient to economic, social and environmental pressures. That requires a comprehensive approach and broad buy-in.

There are institutional challenges in delivering adaptive approaches

- Adaptive management requires:
 - a strategic approach to planning; and
 - integration of multiple knowledge sources and response options;
- NZ already faces challenges in:
 - dividing responsibility and resourcing between levels of government;
 - identifying “national priorities” and determining how they fit in with local responsibility?
 - managing capability issues without compromising local decisions?
- What are realistic environmental governance and management arrangements for a small, sparsely populated, remote country?

Does New Zealand have the legal framework and institutions to deliver adaptive approaches?

- New Zealand may come closer than other countries to such capability because of the Resource Management Act and Local Government Act frameworks that:
 - align local government and catchment boundaries; and
 - assign RMA and other local government functions to the same entities;
 - recognise in the RMA the need to balance multiple objectives and create formal planning frameworks for decisions.
- Challenges for New Zealand include:
 - engaging all interests while providing fair and efficient processes;
 - balancing certainty and flexibility for regulators and users;
 - building strategic planning into government practice;
 - developing feasible market models for NZ scale; and
 - achieving adequate capability at all levels of government.

Implementation and achieving acceptance

- Key steps in adaptive governance and management include:
 - accepting the result does not have to be perfect – understanding can evolve and the value of any accepted norm can be higher than the benefit from refining it –
 - incorporating science and information into the process is important but their acceptance cannot be taken for granted – it must be developed;
 - identifying consultation versus decision making - guaranteeing the process not the outcome.
- Bottom lines should be kept to a minimum but cannot be avoided – efficiency cannot be sustained as a criteria without safeguards for other objectives.

So, what is the relevance of adaptive frameworks to New Zealand?

- Multiple answers are required for multiple overlapping problems by region, sector and issue.
- The problems are not new, but the adaptive framework helps bring them out and discuss how to manage them. It doesn't require new tools, but more confidence and capability in using what we have.
- Not about finding a solution, but about acknowledging and integrating the issues and interests that must frame any path towards combined goals over time. Solutions will be a mix of central and local, they may be experimental and incremental, they will require patience and trust, and rely on learning and incentives, and building resilience.

Adaptive approaches are about change, tradeoffs and complexity

- Sustainable development requires balancing multiple goals in defining and achieving bottom lines and other outcomes. That balance has to take into account the quality of science and information in the context of multiple interactions, risk and uncertainty, and dynamic effects.
- Delivering SD in practice requires overarching visions, and policy and implementation frameworks, that can cope with both expected and unexpected change in goals, values and circumstances. Adaptive governance and management are at their base about managing these challenges.
- There is no simple answer – these tools are about better framing an inherently complex process the complexity cannot be eliminated.

Background notes – PM's speech

- Sustainability is a term most commonly applied to the need for sound environmental policies. But it is a concept I believe we need to apply across economic, social, and cultural policies too. Those are the four pillars of a sustainable nation.
- I believe the four pillars are mutually reinforcing: we cannot build a strong economy on a society where too many are left to fail and where we plunder the natural environment for short term gain.
- Conversely we cannot build a strong society on an economy which fails to generate the wealth required to fund opportunity and security for our people, protect our environment, and develop our culture.

Protecting Lake Taupo

- Lake Taupo Protection Trust funded by central, regional and local government.
- Waikato Regional Plan: Proposed Variation No.5 has been adopted by Environment Waikato but is under appeal. It includes:
 - proposed rules:
 - limits on the annual average amount of nitrogen leached from rural land use activities and new wastewater discharges (on-site or community systems)– dairy and drystock farming will require resource consents
 - requiring a high standard of nitrogen removal from wastewater systems near to the lakeshore
 - allowing nitrogen trading between properties to provide flexibility for landowners to meet the new rule requirements.
 - proposed policies :
 - promoting community wastewater upgrades
 - working in partnership with Tuwharetoa as kaitiaki of the lake
 - [2020 Taupo-nui-a-Tia](#) action plan to recognise and provide for other environmental, social, cultural and economic values when managing land use change
 - supporting R&D into profitable and viable low nitrogen rural land uses
 - using public funds to reduce manageable nitrogen losses to the lake by 20 per cent.

Saving the Rotorua Lakes

- Environment Bay of Plenty, Rotorua District Council and Te Arawa Maori Trust Board are working jointly on the Rotorua Lakes Protection and Restoration Action Programme. A major focus of the programme is the development of Action Plans for nine lakes: Rotorua, Rotoiti, Okareka, Okaro, Rotoehu, Tarawera, Rotoma, Tikitapu and Okatainato reduce nutrients in the lakes.
- Actions include:
 - Rule 11 in section 9.4 of Environment Bay of Plenty's [Proposed Regional Water and Land Plan](#) caps nitrogen and phosphorous loss from land use although offsets will be allowed;
 - A wall is to be built in Lake Rotoiti to divert water flowing through the channel from Lake Rotorua directly down the Kaituna River; and
 - encouraging and funding riparian planting, education, sewage upgrades, land retirement, and constructing wetlands.

Fiordland Marine Conservation Strategy

- Fiordland Marine Conservation Strategy (the Strategy) was published as a draft in October 2002.
- Fiordland (Te Moana o Atawhenua) Marine Management Act was passed in April 2005 to:
 - create the Fiordland Marine Area;
 - recognise the Fiordland Marine Guardians as an advisory body;
 - Establish marine reserves; and
 - provide for management of 'marine areas of special significance within Fiordland.
- Four Implementation Plans on Biosecurity, Monitoring, Compliance and Communication / Education have been developed by the management agencies (Ministry for the Environment, Department of Conservation, Biosecurity New Zealand, Ministry of Fisheries and Environment Southland) and the Fiordland Marine Guardians.