



**NEW ZEALAND INSTITUTE FOR THE STUDY
OF COMPETITION AND REGULATION INC.**

Struggling Upstream

Efficient Water Allocation on the Waitaki
River and Elsewhere

Kevin Counsell and Lewis Evans

CORPORATE MEMBERS

Contact Energy Ltd

Fonterra Co-operative
Dairy Group Limited

Meridian Energy Ltd

New Zealand Post Ltd

NGC

Powerco

Telecom Corporation
of New Zealand Ltd

Transpower New Zealand Ltd

Vector Ltd

Victoria University of Wellington

Westpac Institutional Bank

Overview

- Competition on the Waitaki and elsewhere
- An efficient water allocation framework
- The Waitaki Bill (RMA Amendment Bill)
- Does the Bill fit an efficient framework?
- In-stream flows and the Whanganui River
- Conclusions



Competing Uses on the Waitaki

- Dominant (non-consumptive) use in upper reaches is hydro-generation
- Irrigation is a major (consumptive) use. Most new applications are for irrigation
- Recreational activities – fishing and jet boating
- Cultural value to local Maori
- Environmental values



Dealing with competing uses

- No regional plan for Waitaki – so no indication of how much water is available or how it should be allocated
- RMA allows for the allocation of water by first-in first-served
- No mechanism for dealing with competing applications for the same water
- Waitaki is but one example of water allocation issues for NZ resulting from increasing demand



An efficient water allocation framework

- Efficiency = allocative efficiency: resources allocated to maximise the total value to society
- Based on economic theory – how to allocate scarce resources to maximise allocative efficiency
- Based on recent experience from other countries
 - Australia, England and Wales, Chile, Mexico, U.S.



An efficient water allocation framework

1. Well-defined property rights

- What are property rights?
- Water rights should clearly specify what may be taken, and be made tradable and independent of use
- Indefinite time-limit to encourage long-term investment
- If rights are to be time-limited, their duration should be significant enough for investment



An efficient water allocation framework

2. Preservation of existing property rights

- Water users make investment decisions based on the security of their rights
- Truncating existing rights (whether explicitly or due to uncertainty) can:
 - reduce the value of investments
 - deter future investment
 - lead to stranded assets
- An efficient framework would provide for the protection of rights already established



An efficient water allocation framework

3. Management of flow variability

- River flow variability can have adverse effects on water users
- Priority system: define rights by volume and allocate rights by priority
- Proportional system: define rights by a share of the resource
- Both systems foster efficiency when rights are fully tradable



An efficient water allocation framework

4. Tradable water rights

- Flexibility - water can be moved to its highest valued use to meet changing societal values
- Efficiency of use – wasting water bears an opportunity cost
- Enables water to be obtained from fully allocated catchments
 - e.g. High Court action pending on whether the upper Waitaki is fully allocated to Meridian and existing users



An efficient water allocation framework

4. Tradable water rights (cont.)

- Water rights in NZ already tradable – yet little trading occurs
Does this suggest a tradable rights framework is unnecessary?
- Markets do not need a lot of transactions to be efficient
- High transaction costs - water rights in NZ defined on use
- Markets do not operate in a vacuum - need appropriate institutional arrangements to enable trade
- Arrangements include:
 - determination of fully allocated resources
 - good information flows
 - public register of water rights
 - monitoring and enforcement of rights



An efficient water allocation framework

5. Regulatory and administrative oversight

- Administrative allocation where there is no scarcity:
First-in first-served is a sensible approach with tradability
- Planning to determine the extent of resource allocation
- Facilitating trading via information exchange, monitoring and enforcement
- Administrative approval of trades to minimise third-party effects



An efficient water allocation framework

6. Building on the existing framework

- RMA and related case law provides a good underlying basis for efficient water allocation – but is in need of some development
- Type of water market exists: wholesale electricity market conveys information on the value of water
- Electricity price provides a lower bound for the value of water on rivers with existing hydro-generation



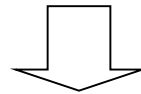
The Waitaki Bill

- Government establishes a Water Allocation Board
- Board prepares framework that becomes a regional plan
- Board's framework determines water available for competing uses
- Environment Canterbury allocates (Waitaki) water rights based on the RMA and the framework – can consider competing uses by cost-benefit analysis

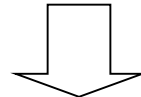


The Waitaki Bill (cont.)

Total water available in Waitaki catchment

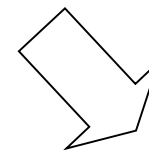
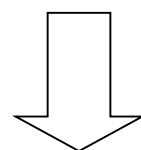
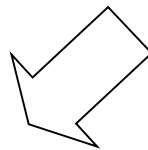


Less: water for in-stream, domestic, stockwater and firefighting uses



Water available for competing uses

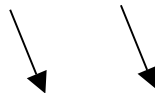
RMA Part II, cost-benefit analysis, existing rights



Hydro-generation

Irrigation

Other



Applications for new water rights



Does the Bill fit an efficient framework?

Positives

- Develops a much-needed catchment plan for the Waitaki
- Amended version (based on Select Committee report) allows for some unspecified sharing amongst users
- Maintains a lot of the existing responsibilities of local government under the RMA



Does the Bill fit an efficient framework?

Negatives

- Limited protection of existing property rights
- Administrative allocation decisions made at a one-off point in time with little flexibility
- Tradability of rights based on existing arrangements in RMA and rights defined on a use basis



In-stream flows and the Whanganui River

- Genesis granted 35 year rights to continue operation of Tongariro Power Development Scheme on Whanganui River
- Local Iwi appealed to the Environment Court on grounds that Whanganui has significant cultural and spiritual value to Maori
- Environment Court limited term on consents to 10 years to balance national interest factors with Maori belief, and provide for a “meeting of the minds”



In-stream flows and the Whanganui River

Questions raised

- Under RMA, Maori would not be reallocated Genesis' water rights
- Maori cultural values would be met by resetting minimum flows
- Raises two important questions:
 - should compensation be paid when minimum flows are reset?
 - could in-stream uses be defined as tradable property rights?



Compensation for in-stream flow adjustments

- Credible compensation preserves investment incentives for water users
- Issues in Australia:
 - water users bear the risk of droughts or climate change
 - governments bear the risk of policy changes and compensate water users for foregone water
 - who bears the risk of new scientific evidence for environmental flows?



Tradable in-stream rights

- In-stream water rights could be bought and sold like consumptive water rights
- Potential for efficiency gains from longer term re-allocation and from temporary trades e.g. purchase of in-stream flows to prevent crop damage during a drought
- But, who does the trading?
 - independent group(s): problems due to public good nature of instream flows
 - local government: accountability issues – whose interests do they serve



Conclusions

- Issues on the Waitaki and Whanganui are an indication of the future of water allocation in NZ
- A tradable water rights framework can more effectively meet the demands of competing users than the current administrative system
- The right institutional setting is important – even in the absence of tradable rights





NEW ZEALAND INSTITUTE FOR THE STUDY OF COMPETITION AND REGULATION INC.

POWERCO

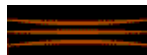
Telecom
NEW ZEALAND

Vector

Westpac
Institutional Bank

Fonterra
Co-operative Group

New Zealand Post



ngc

Meridian Energy
The Power of Nature

Victoria University
of Wellington, New Zealand
Te Whare Wānanga o te
Upoko o te Ika a Māui
Aotearoa

CONTACT

