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Insight

Flowing on from the NPS

The National Policy Statement (NPS) on Freshwater Management is a good first step, but it may leave local authorities in the dark about how to meet its intent. The policy statement sets out the Government's expectations for local authorities to improve the quality and use of freshwater in their regions.

The NPS' main expectations are for local authorities to:

- set freshwater quality and quantity limits for their region
- provide for the efficient allocation of freshwater
- enable a process to facilitate trading of water take permits.

Territorial Authorities (TAs) and Regional Councils (RCs) need to implement a work programme to make sure they comply with the NPS. This *Insight* provides some proactive advice to TAs and RCs on some key steps they could follow to meet the policy objectives of the NPS. It also discusses the role of markets in facilitating water transfers.

The TAs and RCs work programmes need to include the following key steps:

- clearly defining limits for water quality and quantity, including understanding current performance
- ensuring adequate monitoring and enforcement is in place for quantity and quality limits
- developing a plan to bring water (and land) use within the defined limits for quantity and quality
- deciding the best way to facilitate water trading for their region.

Water is naturally difficult to manage

We are not making the most of New Zealand's freshwater, in part because of two of its defining characteristics:

- water availability changes with climatic events such as droughts and floods
- water is part of a complete system and how an upstream activity makes use of it affects how it can be used downstream.[1]

[1] As an example, the Land and Water Forum discusses the impact of dairy run-off on mussel farming and how the situation was improved through better effluent management.

This means that potential users cannot be certain that they will get enough water, or at a high enough quality to meet their needs. This can alter current productivity. But faced with this sort of uncertainty, potential users shy away from investing in new opportunities, which stops us from getting the most out of our water.

National Policy Statement sets a management framework

The NPS sets out the Government's expectations on how New Zealand can improve the management of its freshwater resources. This policy forms part of the Government's response to New Zealand's freshwater challenges as described in the report of the Land and Water Forum[2]. The Forum may have an ongoing role in using the collaborative model to bring together Government, councils and stakeholders to achieve the required outcomes.

The Government requires TAs and RCs to change their regional plans to meet the policy's main expectations. But the NPS does not yet come with any clear guidance for how regional authorities could meet these objectives. The Cabinet papers that accompanied the NPS suggest an on-going work programme to provide guidance on setting limits and mechanisms to allow for efficient water allocation and transfers. But the timelines for this work are unclear: advice on setting limits is expected sometime in 2012 and no date has been provided for the allocation and transfer mechanisms.

Regional authorities need to be proactive in considering what is best for their region, because what would work best locally will depend on the specific characteristics of the local catchments in the region.

Key steps for regional authorities

So what are the key steps for TAs and RCs to follow to ensure that the NPS is appropriately implemented for their regions?

Clearly defined quantity limits and environmental standards will allow communities to consider the best way to use their water. Scientific methods should be used to set these limits to drive better performance from our water resource. But it is important to consider the economic costs of attaining these limits, and to take into account the social and cultural preferences of the wider community. Agreed limits that help balance competing uses and values will increase the buy-in from the community and the likelihood of success in managing to meet these limits.

Setting limits will require an understanding of the trade-offs between different water uses, such as electricity generation, irrigation, recreation and environmental services and amenities. Such an understanding will assist in highlghting opportunities for win-win outcomes. Assessing the relative importance of each use is difficult, especially when measuring commercial, environmental or cultural outcomes. Economics provides a number of approaches to making these assessments. One approach, c*hoice modeling,* surveys people within a region about their preferences for a number of alternative scenarios. The responses can be used to reveal the relative preferences

[2] Report of the Land and Water Forum is available at: http://www.landandwater.org.nz/

within a region for each water use, including those with environmental or cultural outcomes. The insights from this analysis can then be used to inform a region's limit setting process.

An understanding of current performance will show how a region needs to change to meet the agreed limits. Monitoring water quality and volumes will tell whether a region is managing within its agreed limits. If we are not, then it can use the monitoring feedback to adjust the level of allocable water to get the right outcomes. An enforcement function is also crucial. People need to know there are consequences for not meeting limits. Economic analysis can help design rewards or penalties so that users are incentivised to work within the agreed limits.

Understanding what changes need to be made is important in developing a plan for change. Facilitating the transfer of water among users is likely to form a major part of some regions' plans. By facilitating transfers, local authorities will make it easier for communities to make best use of their water with the agreed limits. The NPS notes the importance of transferring water rights among users and highlights the role of regional authorities in facilitating these transfers.

Fresh water management systems are one part of the institutional settings that TAs and RCs set for their regions. Other examples of regional institutional settings could include zoning or transport planning. These settings help shape economic behaviour within a region. Modifying these settings will impact on economic activity within that region. Institutional economics provides frameworks that can assist TAs and RCs in designing appropriate changes to these settings, and understanding the likely impacts on economic activity within regions.

Trading can help water flow to its best use

TAs and RCs need to consider the best way to facilitate trading. Trading occurs in markets, of which there are a number of types. TAs and RCs will want to choose the market that best suits their region. Economic frameworks can be used to consider the characteristics of a region to design the most appropriate market structure.

A better water management system can lead to more productive water use, less waste, and better environmental outcomes. New Zealand is not alone in trying to devise a better system. Organisations like the World Bank and the OECD have active work programmes to advise Governments in this area[3]. These organisations suggest that creating markets for water can drive efficiency and allow water to flow to its most valued use[4].

'Markets' come in many different shapes and sizes

Trading can take a number of forms, ranging from a system of 'Classified-Ads' – such as the Waikato Regional Council's (WRC) nitrogen noticeboard for the Lake Taupo nitrogen trading scheme, to a fully formed exchange market, similar to the sharemarket. The best type of market for a region will have the lowest cost in terms of maintenance and transaction costs. These costs depend on how many people are trading, and how frequently they are trading.

[3] For more information see: http://www.worldbank.org/water, or www.oecd.org/water

[4] The range of uses of water with value is vast and can include farming irrigation, construction, and tourism as well as recreational uses like fishing or kayaking.

If the market for water in a region is thin – a small number of buyers and sellers – then a Classified-Ad system may be best for that region. Classified-Ad systems are cheaper to run, but tend to take longer for buyers and sellers to meet and agree a price. Beyond the WRC's noticeboard, this type of market has also been implemented in other regions including South Australia. New Zealand has a large number of relatively small catchments. These small catchments may be well suited to a Classified-Ad style of market.

If the market for water in a region is thick – there are a lot of buyers and sellers that are frequently trading – then an exchange market may be appropriate. Exchange markets are expensive to maintain, but allow for very fast trading. The high fixed costs of this type of mechanism needs to be sustained through high trading volumes. Exchange markets can be administered by private companies and usually incorporate a publically available registry. Markets like these are used in the Hunter River Salinity Trading Scheme (Australia)[5] and the Pennsylvania Water Quality Trading Programme (US)[6]. Trading within irrigation schemes may present New Zealand with the best opportunity for exchange-type trading.

The water management decisions made by local authorities will determine how our water is used, and will impact on the region's cultural, environmental, and economic outcomes. It is important to get it right. Economic techniques can help local authorities design and implement a water management system that will comply with the NPS.

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[5] http://waterinfo.nsw.gov.au/hunter/trading.shtml

[6] http://pa.nutrientnet.org/