



Using Price Signals to Better Manage Water Use

INTRODUCTION

Over the past year the issue of water pricing has risen to prominence in New Zealand, largely as a result of debate during the 2017 general election campaign. The main issue has been whether price signals, in the form of water charges (often also referred to as taxes or royalties), can help in managing our scarce water resources. In the November 2017 Resource Management Journal, Hannah Marks and Georgina Thomas (“Time for a Charge?”) drew on international experience to helpfully set out some of the challenges that need to be navigated in establishing a water charging regime. They finished with a call to arms (at 5), for the “collective wisdom of the Resource Management Law Association” to be applied to this issue, and provide a thorough analysis of a water charging regime that has, to this point, largely been missing from the debate.

I discuss in this paper one element of this more thorough analysis: the merits of using water charges as a price signal relative to the merits of an alternative economic instrument of water trading. Here I refer to “water charging” as where a government entity or other administrative body charges a price for water that is used by holders of water take/use permits (for example irrigators, industrial water users, and the like). In contrast, “water trading” is where those water users can trade (all or part of) their water permits between one another, with the forces of supply and demand determining the price of a trade.



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In principle, the two regimes are different ways of getting at the same purpose: they both provide a price signal that is faced by water users, which creates incentives for the efficient use and allocation of water among its different uses. However, the two regimes may not necessarily achieve the same outcomes in terms of efficiency. There may also be other objectives that each regime does (or does not) achieve. It is therefore important to define exactly what the objective from a water price signal approach is, before determining the preferred way of achieving that objective. I elaborate on these issues in the remainder of this paper.

EFFICIENT USE AND EFFICIENT ALLOCATION

Economists often evaluate society’s use of scarce resources under an objective of “economic efficiency”. In broad terms, economic efficiency refers to a situation where the net benefits to society are maximised. More specifically, economic efficiency has multiple dimensions, and of relevance to water management are the concepts of

efficient use and efficient allocation. The efficient use of water refers to water being put to productive and valuable use — that is, it is not being wasted in its use. Efficiency in the allocation of water refers to water that is allocated to the highest value uses, so as to generate the greatest benefit to society. Efficiency is captured in ss 7(b) and 32 of the Resource Management Act 1991, and the case law has found it useful to apply the concept of economic efficiency under these provisions (*Federated Farmers of New Zealand (Inc) Mackenzie Branch v Mackenzie District Council* [2017] NZEnvC 53 at [456]).

If society's concern is ensuring that water is used and allocated in the most efficient way possible, then establishing a price signal can go towards achieving this. Consider first, efficiency in water use. Under a water charging regime, water users would face a price for each unit of water used (assuming that the price is set on some sort of volumetric basis — there are other ways in which a price could be set, such as by land area). This can provide the water user with the incentive to ensure each drop of water is used efficiently. After all, it makes no sense to pay for water that is being wasted and not being put to productive use.

However, the strength of this incentive depends on the exact price that is set. If the price is set too low, then the cost that water users bear may not be worth the effort of reducing their unproductive water use. On the other hand, if the price is set too high, then water users may be compelled to cut back on what would have otherwise been an efficient use of water.

Indeed, setting the price at an appropriate level to achieve economic efficiency is one of the biggest challenges with a water charging regime. It is further complicated by the fact that different water resources have different levels of supply (for example, hydrological conditions) and demand, which may warrant different prices being set across the country. Also, supply and demand conditions can change over time, either in the short-term (for example, due to seasonal variation) or in the longer term (for example, due to climate variation), meaning that prices may need to be regularly reset.

In contrast, with a water trading regime, this issue of administratively determining the appropriate water price does not arise. Rather, the price for a tradeable water permit is determined by the interaction of willing buyers and

sellers. That price can vary across different water resources, depending on the level of supply of, and demand for, water permits, and across time, as the balance of supply and demand changes (and is expected to change).

Importantly, a water trading regime can provide incentives for efficient water use, provided it is designed in a way that fosters and encourages trades (for more on the desirable design elements, see Kevin G Counsell and Lewis T Evans "Essays on Water Allocation in New Zealand: The Way Forward" (NZISCR Working Paper, Victoria University of Wellington, 2005)). It does so by establishing an opportunity cost associated with water use. That is, by wasting water or putting it to an unproductive use, a water user foregoes the value that could have otherwise been received by trading the permit (or a portion of the permit) associated with that wasted water. This creates an incentive to ensure that all water is put to efficient use, and to trade any excess.

Regarding the efficient allocation of water, a tradeable water permit regime provides for efficiency in allocation, as it allows water to be traded to higher-value uses. Again, the opportunity cost of water is the relevant concept here. A lower-value water use faces an opportunity cost from continued use of its water, in that it foregoes the returns that could be received by selling that water to a higher-value use. This provides an incentive for such reallocation (from low to high value) to occur over time, thereby leading to a more efficient (higher value) overall allocation of water.

In contrast, under a water charging regime where permits are not tradeable, allocation decisions would be made administratively, presumably by the regional council as is generally the present case. The current allocation approach is first-in first-served, which will not necessarily result in allocation to the highest-value use. Where administrative allocation remains, a water charging regime is unlikely to achieve an efficient allocation of water.

RAISING REVENUE

An objective that is often identified for introducing a water charging regime is to raise revenue for public good purposes. One approach is for the revenue from charges levied on water users to be fed back into the resource, such as by covering the costs of improving water quality. Marks and Thomas point out (November 2017 RMJ at 5) that this approach is often used overseas, and give one example

of France, where revenues raised from water charges are used to cover costs associated with water infrastructure or restoration projects. They also note, however, that one of the challenges with this approach is the issue of whether current and future water users should bear the burden of paying for environmental issues that may have arisen over a long time period. I note also that if the goal is to improve water quality, then it may be that other mechanisms can better achieve that goal, such as water quality standards or nutrient trading schemes.

In any case, a water charging regime does appear, on its face, to have an advantage over a water trading regime in respect of the former's ability to raise (public) revenue. In the latter, the revenue from a water trade accrues to the seller of the water permit, which may not necessarily be a public entity. There are ways in which revenue could be raised in a water trading regime, such as through a charge levied on the profits from a trade, a public entity running an auction for the initial allocation of permits or the sale of expired permits. However, caution should be exercised with such approaches, so as they do not undermine the rights of existing water users and thereby harm incentives to invest in water infrastructure.

OTHER CONSIDERATIONS

The issues discussed to this point suggest that, if the objective is to enhance the efficient use and allocation of water, then a trading regime has advantages over a charging regime; while the reverse is the case if the objective is revenue-raising. However, there are considerations beyond these objectives, particularly those that can influence the perception of the regime and/or its political acceptability to either water users or the population more generally.

One of the key concerns raised with the proposals for water charging put forward during the 2017 election campaign was the level of any water charge and the impact that this could have on water users' financial viability. Similar concerns have been raised with water charging in overseas jurisdictions, and political responses to this often result in the price being set too low to have any material effect on water users' behaviour (Ariel Dinar and R Maria Saleth "Issues in Water Pricing Reforms: From Getting Correct Prices to Setting Appropriate Institutions" in Henk Folmer and Tom Tietenberg (eds) *The International Yearbook of Environmental and Resource Economics 2005/2006*:

A Survey of Current Issues (Edward Elgar, Cheltenham, 2005) 1 at 18.)

With a water trading regime there is often an aversion to water users being able to 'profit' from the use of water. That is, water users who obtained permits at zero (or low) cost under a legacy first-in first-served approach may generate windfall gains from selling those permits under a water trading regime. I note, however, that any such windfall gains are only likely to accrue to the legacy first-in first-served holder of a water permit. As more permits are traded (i.e., as the pool of permits obtained under a legacy first-in first-served approach decreases), then the scope for windfall profits diminishes.

In both cases these concerns, over profiting from water trades and the financial impact of high water charges, do not undermine the efficiency gains that might be achieved from using price signals in water management. Nonetheless, the risk is that they become a key basis upon which the different regimes are tested and this may ultimately weaken the case for implementing any sort of price signal regime.

CONCLUDING THOUGHTS

It seems uncontroversial that there is a strong need to manage our country's scarce water resources wisely. However, if the debate around water charging during the 2017 election campaign is anything to go by, the best approach for doing so is anything but uncontroversial. Despite this, implementing a water-use price signal deserves considerable continued attention as a water management mechanism. Of the possible price signal regimes, both water charging and water trading have merit. Water charges of the sort proposed during the election campaign can raise revenue that could be earmarked for environmental purposes. However, it can be difficult to set these charges at a level that best encourages efficient use and allocation of water. Indeed, economists often consider that a desirable objective is to maximise economic efficiency, and a well-designed water trading regime is better at achieving this than a water charging regime. In this way, a price can be established so as to send a valuable signal to water users as to how much water to use and in which use it should be applied, ultimately contributing to a more beneficial use of what is one of our most important natural resources.



Collaborating with the Environment

INTRODUCTION

During the 1990s, New Zealanders celebrated the innovative Resource Management Act 1991 (RMA) which provided for members of the public to have a significant say in how natural resources were managed in an environmentally sustainable way.

“Collaboration” in many forms remains an important part of the RMA. This article discusses the rationale for using a collaborative approach in resolving environmental issues, looks at how effective public participation is in decision-making and highlights two facilitated processes for increasing collaborative behaviours amongst experts and multiple stakeholders.

RATIONALE FOR COLLABORATIVE PROCESSES

Prior to the commencement of the RMA in 1991, land use planning was more prescriptive than it is now. Decisions were often made based on narrower criterion relating to zones and planning efficiency in the use of space. Planners were presumed to have the education and experience needed to find solutions to land use problems. With more restrictive participatory rights available (mostly to those landowners whose properties were directly affected), disputes were resolved under an advocacy model with contested hearings before local authorities and specialist tribunals.

With the introduction of the RMA, and its mandate for sustainable management of natural and physical resources,

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came wider public participation provisions which enabled broader stakeholder involvement in decision-making from groups such as iwi, public agencies, private developers, issue-oriented advocacy groups and other affected parties.

Confronted by escalating court lists, the newly established Environment Court began a voluntary mediation process whereby, with the help of Environment Commissioners acting as mediators, cases could be resolved in a way that was considered fair by all parties and any agreements reached could be approved by the Court.

Compared to the previous town and country planning regime, environmental and resource management issues under the RMA were not only technically complex, but often included many other competing and complicating aspects relating to cultural values, ecological uncertainty, precautionary approaches, adaptive management, model

forecasting, multi-disciplinary considerations and regional planning. Under the RMA, environmental impacts did not seem to respect district boundaries to the same extent as previously was the case.

The success of the Court's mediation initiative, and the general burgeoning of alternative dispute resolution in the 2000s, paved the way for additional collaborative dispute resolution approaches to emerge in the environmental, and other legal arenas.

COLLABORATIVE APPROACHES

The process of collaboration, although referred to in the RMA, is not defined. At its essence it means people working together in good faith, generally with the help of an independent facilitator or mediator, to address their common concerns and interests, and to achieve resolution by consensus which enables them to plan a way forward. It can involve a wide range of stakeholders participating in an ongoing role in environmental management and governance.

Collaborative processes are distinguished from judicial, arbitral and adjudicative processes where parties rely on an independent decision-maker to determine the issues of common concern.

Collaborative processes that resource management practitioners in New Zealand have become familiar with are:

- Mediation (Environment Court Practice Note 2014, Appendix 2): A voluntary dispute resolution process with the assistance of a court-appointed mediator (Environment Commissioner or another independent person). Mediation is a structured problem-solving process that is used to unravel the complexities inherent in resource management disputes. By collaborating, parties learn about each other's interests, challenge previously accepted assumptions, and develop strategies aimed at maximising mutual gains. The outcome is that agreements reached can be embodied in consent orders of the Court.
- Expert Witness Conferences (Environment Court Practice Note 2014, Appendix 3): A court, or inquiry, directed conferencing process with the assistance of an independent facilitator (Environment Commissioner or another independent person) in which expert witnesses confer and attempt to reach agreement on issues, or

at least clearly identify the issues on which they cannot agree, and the reasons for that disagreement. The outcome is an agreed joint statement of evidence which is available for the decision-maker.

- Conciliation (Environment Court Practice Note 2014, pt 5.1(b)): A voluntary dispute resolution process with the assistance of a suitably qualified independent mediator/conciliator which is similar in most respects to mediation, but where in the absence of agreement, the parties have the option of asking the mediator/conciliator to provide a recommendation for settlement.
- Collaboration: There are various references to collaboration in the RMA, (as amended by the Resource Legislation Amendment Act 2017 (RLAA)). These include s 18A, "Procedural principles", s 58N, "Guiding principles" and s 58R, relating to Mana Whakahono a Rohe. Also, sub-pt 4, "Collaborative planning process", relating to the process a local authority may decide to use to prepare a proposed policy statement or plan in accordance with pt 4 of sch 1 of the RMA. Examples of similar multi-stakeholder collaborative processes being used outside of the RMA include the Land & Water Forum (<www.landandwater.org.nz>) and Sea Change – Tai Timu Tai Pari (<www.seachange.org.nz>).
- Consultation: The process which authorities or parties may use to inform and interact with tangata whenua, the public and other stakeholders about proposals and processes. The purpose of consultation is to improve fairness, transparency, efficiency and effectiveness. It involves actively seeking the opinions of interested and affected groups. It requires parties having an open mind and is a two-way process which may occur at any stage of planning or development (Ministry for the Environment *An Everyday Guide to the RMA, Series 2.2: Consultation for Resource Consent Applicants* (3rd ed, Wellington, March 2015)). An independent facilitator may be used to ensure proper consultation takes place, and to enable meaningful discussions to be held. Agreements need not necessarily be reached as consultation is often an intermediate situation.

EMERGENCE OF COLLABORATIVE GOVERNANCE

From the early first steps of mediation (championed in New Zealand by the Environment Court), environmental dispute resolution morphed into broader and more proactive collaborative processes such as "collaborative

governance”, “collaborative practice”, “participatory governance”, “new environment governance” and “new governance”. This has been described as a “quiet revolution” which is taking place in the ways in which citizens and governments are seeking to engage with complex social and environmental issues (C Holley and N Gunningham *Natural Resources, New Governance and Legal Regulation: When Does Collaboration Work?* (2011) 24 NZULR 309). The basis for the revolution originates from governance, public participation, planning, conflict resolution, resilience and public management (Orly Lobel “The Renew Deal: The Fall of Regulation and the Rise of Governance in Contemporary Legal Thought” (2004) 89 Minn L Rev 262 at 343). Other countries are similarly “experimenting” with collaborative environmental governance.

In the United States, for example, concepts such as integrated environmental management, ecosystem management and watershed management were increasingly applied in practice in the 1980s and 1990s. After several significant legal challenges, collaborative practices were developed for water, natural resources and forestry management, but conflict in these areas remains despite the collaborative effort (Richard D Margerum and Cathy J Robinson (eds) *The Challenges of Collaboration in Environmental Governance: Barriers and Responses* (Edward Elgar, Cheltenham, 2016). *The Guardian* has reported that recent proposals by the Trump administration to cut funding by one third to the Environmental Protection Agency (EPA) would have a severe impact on the EPA’s operations, including its partnership programmes (Oliver Milman “Trump budget would gut EPA programs tackling climate change and pollution” *The Guardian* (online international ed, 16 March 2017).

Across Europe, collaborative governance has been influenced by a range of trends including reductions in the size of government, an increased focus on performance, effectiveness and efficiency, and the increased role in public-private partnerships.

One important influence on environmental governance has been the European Union’s Water Framework Directive (Directive 2000/60/EC on the Water Framework Directive [2000] OJ L 327), which was adopted in 2000 and with a 27-year programme has promoted a river basin approach and a more participatory planning model. This has led to a range of approaches including agency-led river basin

initiatives in England and Wales, agency-led efforts in France and the Netherlands, and a more collaborative structure in Germany.

In the United Kingdom, the increased use of public-private partnerships has spawned a wide range of collaborative efforts across government sectors.

COLLABORATIVE PROCESSES IN PRACTICE — PRE-HEARING MEETINGS

If public participation is to be safeguarded and collaboration fostered, how can environmental debate be structured to expedite processes and improve environmental outcomes?

Under the RMA, pre-hearing meetings provide regular opportunities for parties to practice collaborative behaviour, often away from the gaze of lawyers and the formal process. Over the past year, the specialist conflict management organisation FairWay Resolution Ltd has facilitated several high-profile environmental pre-hearing meetings using collaborative approaches. Two examples are expert conferencing and multi-stakeholder meetings.

Expert Witness Conferencing

Expert conferencing is often an overlooked tool which is available to parties both formally and informally within the RMA process.

A key to arriving at outcomes which achieve a balance of social and economic development, and environmental protection, often lies in agreements being reached by experts both within and between relevant technical disciplines.

How does this work in practice?

First, all experts agree to comply with the Environment Court’s Code of Conduct (Environment Court Practice Note 2014, pt 7) which means they are obliged to provide independent expertise to assist the decision-maker, and not to advocate for a particular party that may be hiring them.

Second, experts agree to behave collaboratively, that is to work together in good faith and confidentially to identify important concerns arising from the application and submissions, and to record their agreement, or disagreement, supported by their reasons.

Independent facilitation provides the opportunity, the process and the trust for constructive conversations to take place. Setting up and facilitating successful expert witness conferencing includes the following important elements:

- Providing excellent logistical support: professional venues, effective technology (including video conferencing) and refreshments.
- The flexibility to fit conferencing within strict time constraints imposed by the decision-making process, and individual participants' requirements.
- Enabling experts to conduct their own facilitated factual inquiry unfettered by the constraints of more formal inquiry processes.
- Managing conversations and facilitating a collaborative approach to solve problems.
- Providing certainty around processes and time constraints.
- Ensuring all viewpoints are heard and validated.
- Inviting participants to understand different cultural influences on each other's viewpoints.
- Helping to keep strong emotions from derailing the group's intended objectives.
- Providing structured opportunities for "break-out" and small group discussion to enable multi-layered resolution to occur simultaneously.
- Providing a "real time" written record that when completed is approved and signed by all participants for submission to decision-makers.
- Enabling early public release of joint statements to ensure transparency and to build ongoing public engagement on the matter.

Multi Stakeholder Meetings

Successful facilitation of "difficult" stakeholder meetings can have the positive effect of reducing costs and delays, and efficiently progressing plans or proposals. This is done using well-structured facilitated meetings (either pre-application, or pre-hearing) involving regulatory authorities or development proponents on the one hand, and multiple stakeholders, including the opposing parties on the other.

This collaborative process gives parties a structured setting to communicate effectively with each other and provides a valuable opportunity for people to understand each other's perspectives, clarify positions, identify interests and needs, and openly discuss concerns. Skilful independent facilitation can encourage opposing parties to quickly move from "them and us" positions to viewing the aspects together through a common lens. Successful resolution can mean applications and submissions are varied or in some situations withdrawn.

CONCLUSION

Each day we hear and experience how environmental and resource use issues are becoming larger and more difficult to resolve in New Zealand. Although public participation in environmental management and governance may have reduced under streamlining provisions enacted in the past decade, there is a new political mood for change in this area. Opportunities do exist in the RMA for parties to practise collaborative behaviours, provided they are prepared to take the step either formally, or informally to do so.

Globally, there is an emerging movement which supports collaborative environmental governance. Perhaps New Zealand resource managers are ready to take the challenge and lead again in this important field.