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Thirsting for change: The use of tradable water rights in New Zealand

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**THIRSTING FOR A CHANGE: THE USE OF
TRADABLE WATER RIGHTS IN NEW ZEALAND**

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ABSTRACT

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Water is arguably the most important resource on the planet. There are many competing demands for use of this resource, including in New Zealand. Water has been allocated to users through an administrative system, an inflexible, unresponsive system which does not encourage efficient use of the resource and cannot respond to variations in water supply and demand. Implementing tradable water rights in New Zealand allows those with the most knowledge of water requirements to be involved with the selling and buying of water rights. Tradable water rights provide an equitable way of increasing efficiency and flexibility in water use, and provide incentives for using water efficiently. They are a sensible option for New Zealand to adopt to deal with water allocation issues.

almost entirely administrative¹ while Chile is one of the closest examples of a pure market-based system for water allocation.²

There has been much criticism of and support with the Government's role in water reform, including the issue of individual water rights, with New

¹ Brian Fisher (2004) *Water Allocation in New Zealand* (2004) 13(2) 2004) *The Economic Review* 1.

² Paul Polak (2004) *Chile's Water Rights: From Market Approach to Restoring Water Rights* (2004) 13(2) 2004) *The Economic Review* 2.

³ Michael and Barbara Ettlie (2004) *Water Allocation in Chile* (2004) 13(2) 2004) *The Economic Review* 3.

⁴ Chile has had the longest history of water allocation by individual water rights, but it has only recently moved towards a more market-based system of allocation.

⁵ Paul Polak (2004) *Chile's Water Rights: From Market Approach to Restoring Water Rights* (2004) 13(2) 2004) *The Economic Review* 2.

"When the well is dry, we know the worth of water."

- Benjamin Franklin

I Introduction

The value and importance of water needs no explanation. Ancient civilisations were founded around water,¹ and it is no less important in modern times, necessary to fulfil indispensable productive, environmental and social objectives. Worldwide water use statistics show that 69 percent of water is used in agriculture, 23 percent in industry and 8 percent for domestic purposes.² The vital nature of water means that often there is significant state intervention in the granting and administration of rights to use it.³ Water is most commonly allocated by one of two methods, administrative allocation or market-based allocation. Most water systems around the world are a hybrid of the two methods although there are countries that veer to the extremes of the allocation spectrum. England, Wales and New Zealand are examples of water allocation systems that are almost entirely administrative⁴ while Chile is one of the closest examples of a pure market-based system for water allocation.⁵

There has been some criticism of, and frustration with, the Government's role in water reform, including the issue of tradable water rights, with New

¹ Brian Easton "Nor any drop to drink" (May 15-21 2004) *The Listener* New Zealand <<http://www.listener.co.nz/printable,1964.sm>> (last accessed 5 July 2005).

² Paul Holden and Mateen Thobani "Tradable Water Rights-A Property Rights Approach to Resolving Water Shortages and Promoting Investment" (1996) World Bank Policy Research Working Paper 1627 1, 2.

³ Holden and Thobani ,above n 2, 1.

⁴ I note however that England is moving to make water transfer more achievable with the passing into legislation of the Water Act 2003. The rules for water trading have been simplified to facilitate more trading and allow a more market-based system to develop.

⁵ Kevin Counsell "Achieving Efficiency in Water Allocation: A Review of Domestic and International Practices" (2003) New Zealand Institute for the Study of Competition and Regulation, 26 <<http://www.iscr.org.nz/index.html>> (last accessed 27 July 2005).

Zealand's record of water reform being described as "abysmal".⁶ The main arguments against water allocation through a centralised administration system is that such a system is inefficient and costly, results in water being used in low value uses rather than high value uses, inhibits competition, encourages wasteful usage practices and discourages conservation and sustainability of the resource.

Water is such a valuable resource that it is critical to use it in the most efficient manner possible, which means looking to ways to encourage this. An administrative system of allocation does not encourage the transfer of water rights between users. Transferable water rights can provide an equitable way of increasing efficiency and flexibility in water use within New Zealand. Trading of water rights between users creates a water market which by finding the value of the water creates greater incentives for defining water rights clearly, improving their measurement and enforcement, and establishing mechanisms to resolve disputes.⁷

While historically, water rights have always transferred with the sale of the land that they are tied to,⁸ this paper concentrates on the transfer of water separately from the land to which it is applied. This paper identifies the crucial requirements for a water market trading in water rights to be effective and successful, considers other countries that have implemented trading in water rights, and concludes that implementing and encouraging the use of tradable water rights in New Zealand is a sensible option to deal with growing demands for water and an increasingly scarce resource.

⁶ Roger Kerr, above n 30, 1.

⁷ Holden and Thobani ,above n 2, 14.

II BACKGROUND

A Water Use in New Zealand

The total amount of precipitation falling annually in New Zealand is estimated as between 300 billion and 600 billion cubic metres, which unsurprisingly is not spread evenly, geographically or chronologically.⁹

While therefore New Zealand has abundant rainfall, the disparities between *where* it falls and *when* it falls causes an issue in terms of certainty. New Zealand's water as a result is a national resource with specific local characteristics. The west is wet and the east is dry.¹⁰ Water is used in New Zealand for a number of competing activities with the primary use being irrigation. The area of irrigated land has approximately doubled every decade since the 1960's and now accounts for nearly 80% of all water allocated in New Zealand.¹¹ Hydro-generation also accounts for a large proportion of water used in New Zealand, although the water used in hydro-generation re-enters the river system downstream. It is also worth noting that, given the rapidly dwindling supply of gas, there is likely to be a further increase in demand placed upon the power supplied by hydro-generation in the future, thus increasing the amount of water used in power generation.

Water is also required for livestock consumption, domestic, industry and commercial consumption, sustenance of flora and fauna, and recreation.¹²

⁸ S Hodgson "Land and Water-the Rights Interface" (2004) FAO Legislative Study, 41.
⁹ Counsell, above n 5, 4.

¹⁰ Colin James "Water, Water everywhere and not a moment to think" (4 May 2005) *The New Zealand Business Herald Column*, Auckland <<http://www.nzherald.co.nz>> (last accessed 3 July 2005).

¹¹ Ministry for the Environment *Freshwater for a Sustainable Future: Issues and Options: A Public Discussion Paper on the Management of New Zealand's freshwater resources* (Wellington 2004).

¹² New Zealand Business Roundtable "Reform of the Water Industry" (August 1995), 4 <<http://www.nzbr.org.nz>> (last accessed 15 August 2005).

Under the riparian rights doctrine, a landowner can receive water on their land in two ways-by rainfall on the land, or by water adjoining the property. The landowner has surface rights (for the rainfall on the land) or riparian rights (for the water adjoining the property) to that water, entitling them to use that water for the needs of their property. The fundamental tenet of riparian water rights is that a riparian owner has “no property in the water of a stream flowing through or past his land but is entitled only to the use of it as it passes along for the enjoyment of his property”.¹³ Therefore under common law, the water could not be owned directly but could be appropriated by the landowner placing it in storage.¹⁴

A distinction has been held between the three ways in which a riparian landowner is able to utilise water from the stream on or bounding his property.¹⁵ A landowner may use the water for his ordinary or primary purpose, such as domestic and cattle uses. There is no limit on how much water may be abstracted for this purpose, in fact a landowner has the right to completely exhaust the water. Secondly, the water may be used for extraordinary or secondary purposes which need to have a nexus with the landowner’s land, provided that certain conditions are complied with. These uses could be irrigation or industrial uses. These conditions are fairly restrictive, requiring that the landowner’s water use be reasonable, the purposes for which the water is taken need to be connected with the tenement, and the landowner is bound to restore the water that he has used “substantially undiminished in volume and unaltered in character”.¹⁶ Williams noted that this is a “crippling requirement” as the use of water for

¹³ *Glenmark Homestead Limited v North Canterbury Catchment Board* [1975] 2 NZLR 71, 81.

¹⁴ Harris Consulting The Agribusiness Group *Property Rights in Water: A Review of Stakeholders’ Understanding and Behaviour* (prepared for the Ministry of Agriculture and Forestry and the Ministry for the Environment, 2003), 7.

¹⁵ DAR Williams *Environmental and Resource Management Law in New Zealand* (2nd ed, Butterworths, Wellington, 1997), 247.

¹⁶ Williams, above n 14, 248.

extraordinary purposes will almost certainly result in the diminishment of the water volume, if not the character.¹⁷ The third way in which a riparian owner can utilise the water on his land is for uses unconnected with his or her tenement. The riparian owner does not have the benefits of any rights in this situation. Both upper and lower riparian owners are subject to constraints. Upper riparian owners are subject to the other upper riparian owners who are entitled to use their water as noted above and are also required to send an unimpeded flow of water to lower riparian owners. Lower riparian owners are subject to the requirements of the upper riparian owners and the other lower riparian owners below them, again having to provide an unimpeded flow of water. A landowner is entitled to have the normal flow of water through his property, which is subject to the exercise of rights by the upper riparian owners and further reasonable use by the. The natural flow of water is defined as being without sensible increase or decrease and without ordinary changes in character or quality.¹⁸

The riparian rights doctrine has generally been used in areas with relatively abundant water supplies and where strict definition of water rights is essential.¹⁹ Without such property rights the issue of the “commons” arises, where the resource is exploited by all in an unsustainable manner, resulting in the degradation and eventual ruin of the resource.

C *Statutory Framework*

The Water and Soil Conservation Act 1967 established a regulatory structure for the administration and conservation of water resources, and declared all natural waters to be vested in the Crown.²⁰ As noted in

¹⁷ Williams, above n 14, 248.

¹⁸ *John Young Co v Bankier Distillery Company* [1893] AC 691, 698 (HC).

¹⁹ Holden and Thobani ,above n 2, 2. See for example France and eastern United States.

²⁰ The Water and Soil Conservation Act 1967. See generally the Long Title to the Act which states: “An Act to promote a national policy in respect of water and to make better provision for the conservation, allocation, use and quality of natural water...and for promoting and controlling multiple uses for natural water and the drainage of land and for ensuring that adequate account is taken of the needs of primary and secondary industry,

Glenmark Homestead Limited v North Canterbury Catchment Board [1975]

2 NZLR 71, the Water and Soil Conservation Act was notable for apparently eliminating all common law rights to water. In *Stanley v South Canterbury Catchment Board* (1971) 4 NZTPA 63, it was noted that the right to take natural water had been vested in the Crown, but that a co-existing statutory right to take water was created in favour of anyone who wanted to and could avail himself of it.²¹ Therefore, although riparian owners had lost their common law right to water, they could take water for domestic or stock purposes under a statutory right. The primary responsibility for the allocation and management of water resources under the Water and Soil Conservation Act 1976 rested with the regional water boards and catchment boards.

1 *Resource Management Act*

Under the Resource Management Act 1991 (“RMA”), the right to use water is still vested in the Crown. The aim of the RMA is to promote “the sustainable management of natural and physical resources”, achieved by prohibiting or restricting activities that are expected to have an adverse effect on the environment. The system of making policy and decisions under the RMA is far more workable than that under the Water and Soil Conservation Act 1967.²² The responsibility for managing the country’s water resources is delegated to the regional councils and therefore decentralised to the extent that decisions are made at the regional and local district council level rather than at the central government level. The jurisdiction of the regional councils includes the enforcement of sections 14 and 15 of the RMA, the granting and administration of water permits and making relevant rules and policies.²³ Sections 14 and 15 of the RMA are the most important provisions for the management and control of water

water supplies of local authorities, fisheries, wildlife habitats, and all recreational users of natural water.”

²¹ Williams, above n 14, 252.

²² Williams, above n 14, 283.

²³ Williams, above n 14, 284.

resources. Section 14 provides, relevant for this report, that no one may take water unless it is specifically allowed by a regional plan or resource consent or specified exceptions, one of which is taking water for domestic needs. Section 15 relates to discharges into water and is not relevant for this paper. The regional councils then make decisions on the allocation and use of the water within that council's regional boundaries, guided by the regional plans and policy statements each council drafts. Because the decision-making is done at the regional and district council level, the decision-makers are able to tailor decisions to the needs and preferences of smaller areas and groups, rather than being required to take national needs into account. However, in criticism of the administrative allocation system, it has been stated that the process of deciding which proposed water uses are or are not appropriate, who may carry them out, and how competing interests may be reconciled or traded off is a political process, based on consultation, consultation and rule-making.²⁴ As such, the process is vulnerable to political interference and pressure from lobbyists.

Anyone wanting to use or take water for any purpose, unless such use is authorised by the regional plan, must apply to the relevant regional council for a resource consent under the RMA. Because the country's natural water resources are vested in the Crown, holding a water permit does not give the holder ownership over the water, nor does it guarantee availability. Section 122 of the RMA explicitly states that resource consents are not real or personal property. Any application is assessed against the relevant regional plans and policy statements. The chief concern when assessing the application is whether the proposed water use/s adversely affects the environment or other water permit holders. The focus therefore has to be on avoiding, remedying, or mitigating the adverse effects of granting the permit and the potential impact on existing permit holders. The regional councils also have to take into consideration the other parameters they are required to work within such as ensuring for example minimum flows, maximum rates

²⁴ New Zealand Business Roundtable, above n 11, 4.

of take and allocatable volumes.²⁵ If a resource consent application is accepted, a water permit is issued which grants the holder the right to take or use, dam or divert, subject to availability, the water specified in the permit. The permits do not run with the land, but are personal to the permit holder. They are able to be acted upon by others with the permit holder's consent unless the conditions of the permit forbid this. The permits can be transferred to a new landowner upon application to the council.

Most councils allocate water on a "first-come, first-served" basis to applicant who can meet the sustainability requirements of the RMA, with no comparative process undertaken by the council to compare competing applications for water permits. A decision as to what volume of water can be taken is made on what the applicant's reasonable need for the water is. Permits are granted for between 1 and 35 years, with no guarantees of renewal although in practice renewal usually occurs. Nearly all permits are subject to review or renewal at five to 15 year intervals,²⁶ with permits able to lapse if they are not used within 5 years of being granted, and able to be cancelled if they are not exercised for a continuous period of 2 or more years.²⁷ The permits apply to the permit holder at the site specified and are able to be transferred to a new land owner or site occupier on application to the council.

Section 136 of the RMA allows permits to take water to be transferred provided that transfers are expressly allowed by a regional plan or upon application to the consent authority. If the relevant regional plan allows for it, water permits can be transferred between different areas in the same catchment. This can also happen where the regional council grants a specific application to transfer, where the application is made by both parties to the proposed transfer, after considering the environmental effects of the transfer

²⁵ Harris Consulting The Agribusiness Group, above n 13, 11.

²⁶ Lincoln Environmental *Information on Water Allocation in New Zealand Report No 4375/1* (Prepared for the Ministry for the Environment, 2000).

²⁷ Ministry for the Environment Technical Working Paper *Water Programme of Action-Water Allocation and Use* (Wellington, 2004)

and other matters set out in section 104 of the RMA. Constraints are imposed to protect third party rights or to control environmental effects.

A provision to allow off-site transfers has not been included in the majority of regional plans to date and where such transfers have occurred they have been limited.²⁸ In practice however, few regional plans allow for the transfer of permits and the areas governed by regional plans that do allow transfers, such transfers rarely occur, other than transfer in conjunction with land (such as through the sale and purchase of irrigated blocks).²⁹

If a particular water body is fully allocated or over-allocated (defined in one survey as relating to a resource where the “existing take is close to the maximum that can be justified under the RMA”, or where an allocation limit has been set and the existing allocation retrospectively found to be above the allocation limit)³⁰, different councils have different methods of dealing with this. Some councils address the issue of over-allocation by adjusting existing permits to better reflect the actual take, adjusting consents at the time of renewal or review and monitoring the take from those resources under pressure more intently.

New applications to take from fully or over-allocated resources are either declined, considered on a discretionary basis, or placed upon informal, unadvertised waiting lists, such as the one operated by the Tasman District Council.³¹

III Current Issue

Water allocation has always generated competition between competing demands from different users, and also with environmental requirements. It has been noted that the contest for water in New Zealand has reached the

²⁸ Ministry for the Environment Technical Working Paper *Water Programme of Action-Water Allocation and Use*, above n 25. See for example on the Ngarurora River in the Hawkes Bay, 15 transfers have happened over the last 8 years.

²⁹ Christina Robb, Matthew Morgan and Simon Harris *Attitudes and Barriers to Water Transfer Report No 4464/1* (prepared for Ministry for the Environment, 2001), 2.

³⁰ Lincoln Environmental, above n 25.

³¹ Lincoln Environmental, above n 25.

point where not only is there the traditional competition between environmental/out of stream uses, but also competition between out-of-stream applications with those fortunate enough to already hold permits reaping the benefits of that permit, despite the value of the use the water is being put to.³² As noted above, rainfall in New Zealand is not distributed evenly, resulting in scarcer water supplies. At the same time, competition between users is intensifying, and the increasing population places additional strain on the country's water resources as shown by Auckland's water shortages in 1994, the Marlborough droughts in 2001 and the recent competition for the water of the Waitaki River.

The question of valuing water has had little attention in New Zealand to date. This is evidenced by the process described above, of allocating water by virtue of "first in, first served". The value of water to applicants is not considered during the application process. Competition for water is exacerbated by an inability to trade water permits. Because of its inexperience with market-based allocation and water trading, New Zealand is in a good position to analyse the water allocation situation. Most of the water bodies are not fully allocated as they are in Australia. Australia failed to monitor the impact of water trade on continuity of water supply, conservation of water stores, and management of environmental concerns.³³ As noted above, there is some over-allocation already however such as the Wai-iti Valley where water resources were most recently shown to be over-allocated by 22% in drought conditions.³⁴ "Red-zones" have been established in Canterbury, where no new water allocation is permitted, irrespective of the potential positive economic spin-offs.³⁵ The amount of water being used, especially by the biggest user, irrigation, gives rise to potential for negative effects on the health of the river systems, as has

³² Basil M H Sharp "Economics of Water Rights in New Zealand: Governance, decision-making and values" (Paper presented to the Royal Society Conference on Water Resource Management, November 2003).

³³ Andrew MacDonald, above n 33.

³⁴ Tasman District Council, Council Projects, <<http://www.tdc.govt.nz/index.php?CouncilProjects>> (last accessed 14 August 2005).

³⁵ Roger Kerr "Reforming Water Allocation and Supply in New Zealand" (Speech to the 2005 New Zealand Environment Summit, 2005).

occurred in the Murray River in Australia.³⁶ The resulting urgent clawbacks of water in Australia are creating uncertainty for investors as no stability of water rights.³⁷ Clawbacks are already provided for in the Tasman District Plan. Growth and intensification have happened very rapidly and the water allocation system has failed to adjust and keep up with this.

Because trading in water rights is uncommon, the result is often that water rights are assigned and used for low-value purposes, at the expense of high-valued purposes. Users are also not encouraged to conserve the resource, culminating in its exploitation and eventual degradation. The issue is whether New Zealand should implement a tradable water rights regime or persevere with the established administrative allocation system.

IV Administrative allocation vs Tradable Water Rights

As noted earlier, most countries use a combination of the two water allocation methods:³⁸

In practice, most countries have some combination of water allocation mechanisms. Each allocation mechanism has advantages and disadvantages. Efficiency is an important goal but the allocation mechanisms that are considered efficient are often hard to implement and require supporting infrastructure and institutions in addition to expensive monitoring and enforcement systems. Therefore, top-level commitment to water allocation that pursues economic efficiency is needed.

³⁶ Andrew MacDonald *Australia's water trouble a warning to big users* (22 September 2004) *The New Zealand Herald*, Auckland. <<http://www.nzherald.co.nz>> (last accessed 3 July 2005). See for example the AUD500 million "Living Murray" project intended to repair environmental damage already done to the Murray River and other linked waterways, and an attempt to prevent further deterioration.

³⁷ Ministry for the Environment Technical Working Paper *Water Programme of Action-Water Allocation and Use*, above n 25.

³⁸ Ministry of Agriculture and Forestry Technical Paper 2001/7 *Economic Efficiency of Water Allocation* (prepared for Ministry of Agriculture and Forestry, Wellington, 2001), 3.

A Administrative water allocation

Administrative water allocation has traditionally been used in many countries because of the unique nature of water. Its physical characteristics, the public's perception of it as a common resource or public good, and the large costs associated with water development have made it difficult for private development and allocation of water resources to occur.³⁹ A major disadvantage of administrative water allocation is the role of the "first in, first served" approach in failing to distinguish between low value uses and high value uses, as well as the lack of incentives created for water users to conserve water.⁴⁰ While coercion is the main incentive to comply with obligations created by the state but given the lack of council enforcement noted by water users, the prospect of sanctions is relatively easy to discount. Administrative allocation can also be subject to political pressures, making the process appear non-transparent with the decision-makers isolated from the relevant information sources needed to make the decisions, and finally, non-accountable. Administrative allocation is too inflexible to respond to day to day changes in water demand and supply, and also inhibits competition and investment.

B Tradable water rights

Tradable water rights allow the price of water to reflect the value of its alternative uses, thereby creating incentives to put the water to its most productive use.⁴¹ Water can be shifted to higher value uses in a cheaper manner than some alternatives, such as building new water transfer infrastructure, or charging for water use. Tradable water rights also encourage water conservation, given that water users have incentives to sell their unused water allocations. Tradable water rights should also regulate

³⁹ Ariel Dinar, Mark W Rosegrant and Ruth Meinzen-Dick, above n 39, 8.

⁴⁰ Mark W Rosegrant and Renato Gazmuri *Reforming Water Allocation Policy through Markets in Tradable Water Rights: Lessons from Chile, Mexico and California* Discussion Paper No 6 (Presented at DSE/IFPRI/ISIS workshop on Agricultural Sustainability, Growth and Poverty Alleviation in East and SouthEast Asia, Kuala Lumpur, 1994).

⁴¹ Holden and Thobani ,above n 2, 11.

the growth of water demand and promote flexibility in water use.⁴² The spectre of political interference is removed from allocation decisions, and investment in water intensive projects is facilitated.⁴³ One of the major disadvantages most often cited against the implementation of markets is the pervasiveness of externalities and the possible effects on third parties. These can be justified from an economically efficient perspective by considering them in the context of the transfers and the costs associated with them. Compensation for third parties should be paid if someone has been harmed.⁴⁴

V Markets

“The objective of creating water markets is to allow a transparent expression of the value of limited water resources, and to enable it to flow to more profitable or higher value use (within physical and environmental constraints). Broader and deeper markets, appropriate pricing and a larger range of instruments will allow for better management of ...risks.”⁴⁵

A market for something will exist if there are people who want to buy the thing and people who want to sell the thing. From an economic perspective, the four following factors are required for a market to operate successfully and competitively.⁴⁶ Firstly, the market should have many sellers and buyers, all equipped with the same information about the market and facing similar conditions, such as similar transaction costs. Secondly, the buyers and sellers need to have decision-making autonomy, with voluntary participation in the exchange and the right to veto any deal.⁴⁷ While each participant should be free to make the decisions that reflect their preference,

⁴² John J. Pigram, Robert J Delforce, Michelle L Coelli, , Vol Norris, George Antony , Raymond L Anderson, Warren F Musgrave *Transferable Water Entitlements in Australia* (Centre for Water Policy Research, Armidale 1992), 8.

⁴³ Counsell, above n 5, 47.

⁴⁴ Ariel Dinar, Mark W Rosegrant and Ruth Meinzen-Dick, above n 39, 15.

⁴⁵ Josh Carmody, Partner Baker & McKenzie “Water Reform in Australia” (Speech to Meridian Energy Seminar, Wellington, 18 August 2005).

⁴⁶ Ariel Dinar, Mark W Rosegrant and Ruth Meinzen-Dick, above n 39, 13.

⁴⁷ John McMillan *Reinventing the Bazaar A Natural History of Markets* (W.W Norton & Company Inc, New York, 2002),

it should also be noted that any decisions made will be necessarily constrained by the amount of water available and the rules of the marketplace. Thirdly, the decisions finally made by each buyer and seller should not impact on the outcome of another individual. Finally, the buyers and sellers should be motivated to maximise the profits received. Given these parameters, the resource being traded should move from lower value uses to higher value uses-making the market economically efficient. Competition, not a defining factor of a market, usually present and adds to autonomy. Curbs any individual participant's power, prevents anyone from having decisive effect on overall outcomes. Competition provides alternatives

The definition of a market transaction can therefore be stated as follows:

"An exchange that is voluntary: each party can veto it, and (subject to the rules of the marketplace) each freely agrees to the terms.⁴⁸

The value of water is what it can produce. Rosegrant and Gazmuri (1994) states that there are three main forces behind the reform of water allocation and the eventual creation and establishment of water markets.⁴⁹ Firstly, there needs to be an increasing economic value of water due to scarcity which is brought about by rapid growth in demand as well as the depletion of new supply sources and competition for water amongst different users. Secondly, there needs to be increased expenditure in maintaining and operating water systems. Thirdly, there needs to be an increase in the economic cost of maintaining inflexible and inefficient water allocation systems which cannot respond quickly to changing incentives and comparative advantages.

⁴⁸ John McMillan, above n 48, 6.

⁴⁹ Mark W Rosegrant and Renato Gazmuri, above n 42. I note that Rosegrant and Gazmuri considered these three main forces in relation to the creation or expansion of water markets in California, Chile and Mexico.

A water market can either be a formal or informal one (often described as a “spot water market”). Formal secure tradable water rights are independent of land and can be traded separately from that land within a legal and institutional framework, making them property rights to water.⁵⁰ Informal water markets arise out of the government’s failure to adequately allocate water and individuals or groups of water rights holders sell the water to other users at negotiated prices.⁵¹ These types of transactions are, by reason of their informality, temporary, can be difficult to enforce, and inhibit investments in activities that require copious amounts of water because of the uncertainty of access.⁵² The four factors required to set up a functioning market were noted above, but given the nature of water, further requirements are usually needed to engender the necessary operating conditions. State intervention is generally required to define the initial allocation of water rights, create the institutional and legal frameworks for trade, and invest in the basic necessary infrastructure needed to allow the water transfers to proceed.⁵³ Markets, including water markets, still require some government intervention in establishing and maintaining an environment in which the market can operate efficiently.⁵⁴ This is relevant to discussion of a potential water market for New Zealand later on in this paper.

Water markets work because the mechanisms allows decisions and use of water tradeoffs to be made at the “coal face”, where information about the use and value of the resource is greatest and can be made by persons who are accountable for those choices. Both the seller and the buyer have the opportunity to maximise the benefits available to them, in that the seller can increase profitability and the buyer has access to increased water availability as a result of the market.⁵⁵ A water market has the ability to impress on

⁵⁰ Holden and Thobani ,above n 2, 6.

⁵¹ Holden and Thobani, above n 2 , 6.

⁵² Holden and Thobani, above n 2, 6.

⁵³ Ariel Dinar, Mark W Rosegrant and Ruth Meinzen-Dick, above n 39, 13.

⁵⁴ John McMillan, above n 48, 11.

⁵⁵ Dinar, Rosegrant, Meinzen-Dick, above n 39, 13.

water users the full opportunity cost of the water, providing incentives to use the water efficiently and to earn additional income by selling unused allocations.⁵⁶ Water users are incentivised to acknowledge the external costs imposed by their use of water, which has the flow-on effect of reducing the pressure to exploit the resource.⁵⁷ One of the major advantages of a water market compared to the centralised system of water allocation is the ability and flexibility to respond quickly to changes in demand, as water values and crop prices vary. Water markets also provide the opportunity for water users to exit the market, and consequently also allow new and expanding users to gain access to the resource.⁵⁸ It has been noted that water markets also provide an opening for governments to acquire licences on the market and either subsequently reallocate them or retire them.⁵⁹ This concept could be extended by water markets fulfilling an important function in terms of meeting environmental obligations by permitting water to be allocated for environmental purposes. In areas where water licences are fully allocated, a water market provides flexibility to transfer water where it is required.

Constraints on water markets can be imposed out of a desire to prevent monopolisation of water licences, perhaps feared from corporate or foreign interests and the potential follow on of adverse environmental and social effects for the relevant communities, the water users themselves, and infrastructure. However, such constraints can prevent water moving to its highest value uses and may compromise efficiency. Therefore, for a water market to be successful and gain maximum economic benefits, unhindered transferability of water rights in a freely operating market is necessary.⁶⁰

A water market therefore appears to have many benefits over the administrative allocation system. Given these apparent benefits, other

⁵⁶ Mark W Rosegrant and Renato Gazmuri, above n 42.

⁵⁷ Dinar, Rosegrant, Meinzen-Dick, above n 39, 14.

⁵⁸ John J Pigram “Tradeable Water Rights: The Australian Experience” (1999) Centre for Water Policy Research, University of New England, Armidale, Australia, 8.

⁵⁹ Pigram, above n 58, 8.

⁶⁰ Pigram, above n 58, 9.

countries that are struggling with the dilemma of a growing amount of competing demands for an increasingly scarce resource, or anticipating doing so, have also considered and implemented tradable water rights. The emerging thinking by countries grappling with how to allocate water in a sustainable manner can be summarised as follows:⁶¹

A key issue to emerge from this overview is that countries have turned their attention from water resource development to water resource allocation and water quality. The notion of supplying water as a community good is being replaced by the concept of water as an economic good and a key factor in achieving economic growth. This change in emphasis is signalled by the evolution of new and innovative institutional arrangements. The old “development model” centred on centralised decision-making and administrative regulation is being replaced by a new model based on decentralised allocation, economic instruments, and stakeholder participation.

The concept of water markets and tradable water rights is not an isolated antipodean idea. It is notable that Spain has used water markets for several centuries.⁶² This section will provide an extremely brief summary of the situation in some of those countries, selected because they are most often cited in the literature as examples of water markets. I note that due to the developing nature of some of the countries, the general context of the issue is dissimilar from New Zealand. However, I consider their experiences can still provide a useful guide when considering New Zealand’s position and the best way for New Zealand to progress on this issue.

⁶¹ Basil M H Sharp, above n 28, 2.

⁶² Richard Reidinger “Observations on Water Markets for Irrigation Systems” (1994) (A paper selected from the World Bank’s Ninth Annual Irrigation and Drainage Seminar, United States of America, 1992), World Bank Technical Paper 249, 55.

Overseas experience

Chile

Chile established tradable water rights in 1981 by the implementation of the Water Code,⁶³ although water markets were operating for a considerable length of time before this formalisation of a water rights market.⁶⁴ Existing water users are granted water rights free of charge, while auctions are used if there are competing demands for the unallocated water rights.⁶⁵ The acquisition of water rights is recorded in a public registry, maintaining security of the rights. The transfers are extremely flexible and can be either temporary or permanent, consumptive or non-consumptive. As noted earlier, there is a very minor role for the government to play in Chile's water allocation. Some authors note that there is mixed opinion as to whether the water market has been successful, with conflict emerging between rights holders as a result of the distinction between consumptive and non-consumptive rights and a loss of efficiency,⁶⁶ while others consider that the market has been a success with flexibility and control over water rights, and voluntary transfers of water to more productive uses.⁶⁷

A key feature of Chile's water allocation system is the existence of water user associations which are owned and operated by members.⁶⁸ These associations are often set up for the benefit of irrigators, although there have been examples of associations that serve all water users for a common water source. The associations manage and maintain infrastructure to deliver the water and are also responsible for recording, managing and enforcing the water rights and transfers.⁶⁹ Rosegrant and Gazmuri⁷⁰ consider that

⁶³ Holden and Thobani ,above n 2, 7.

⁶⁴ Counsell, above n 5, 39.

⁶⁵ Holden and Thobani, above n 2, 7.

⁶⁶ Counsell, above n 5, 40.

⁶⁷ Holden and Thobani, above n 2, 8.

⁶⁸ Counsell, above n 5, 40.

⁶⁹ Counsell, above n 5, 40.

assigning tradable water rights to individuals within water user associations should have the effect of enhancing the control of the group over the water resource. The authors also note that if the water rights are well defined, the association would have an incentive to economise on water uses and the legal standing to negotiate, for example with water delivery agencies, for timely and efficient service.

Mexico

In the early 1990's, Mexico began to shift from a state-centralised and highly regulated system to a more market-oriented one.⁷¹ In 1992, the National Water Law was passed, and subsequent 1994 regulations, which increased security of water rights tenure (called "concessions") and allowed for the temporary or permanent transfers of concessions.⁷² Similar to Chile, informal water trades were occurring prior to the implementation of the legislation, with the same issues arising from these illegal trades. Again mirroring Chile's example, the concessions are recorded in a public registry.

Colorado

Generally, the water allocation system on the western side of the United States has been based on the doctrine of prior appropriation: "first in time, first in right".⁷³ A common feature of the water rights regimes in the different states is that to change the uses to which the water is put requires authorisation from the state water authorities.⁷⁴ An interesting example of less restrictive trading of water rights can be found in Colorado's Big Thompson project. This project is a major water supply scheme in north-east Colorado which supplies water to supplement users' existing supplies

⁷⁰ Mark W Rosegrant and Renato Gazmuri, above n 42.

⁷¹ Mark W Rosegrant and Renato Gazmuri, above n 42.

⁷² Counsell, above n 5, 38.

⁷³ Holden and Thobani, above n 2, 10.

⁷⁴ Holden and Thobani, above n 2, 10.

obtained from other sources.⁷⁵ Initially the scheme was partially paid for by water users in the water district, with the right to use the water when required. As a result of varying water demands, the system was altered to allow the trading of water rights on a permanent basis with the only requirement being that the water is put to a "beneficial use", there are no sales outside the District, and that the rules of the District are obeyed.⁷⁶ As in Chile and Mexico, a central register is kept to record ownership and transfers. Holden and Thobani (1996) cite one of the reasons for the project's success is that water users retain the right to any return flows. Downstream users get the benefit of return flows from the upstream user but do not have any rights to those flows, leaving the upstream user free to trade their rights without being required to compensate the downstream users.

Australia

As the world's driest continent,⁷⁷ the issue of water has always been a critical one for Australia. The lack of future viable water resources, as well as pervasive deficiencies in the use and management of water resources, and the continuing degradation of the resource led to a number of initiatives to promote the sustainable, efficient use of water.⁷⁸ It was considered that the introduction of transferability in Australia reflected a concern for a more economically efficient allocation of the nation's water resources.⁷⁹ The water management agencies in Australia have been interested in the implementation of transferable water rights since the early 1980's, often arising from the implementation of drought relief measures.⁸⁰ In 1983, South Australia was the first state to implement a scheme for the permanent and temporary transfer of water entitlements, followed gradually and in

⁷⁵ Counsell, above n 5, 35.

⁷⁶ Holden and Thobani ,above n 2, 13.

⁷⁷ Pigram, above n 58, 5.

⁷⁸ Pigram, above n 58, 6.

⁷⁹ John J. Pigram, Robert J Delforce, Michelle L Coelli, , Vol Norris, George Antony , Raymond L Anderson, Warren F Musgrave, above n 41, 7.

⁸⁰ Pigram, above n 58, xiv.

varying degrees of formality, by New South Wales, Victoria, Queensland and Western Australia.⁸¹ Australia is now considered to have one of the best examples of a tradable water rights system in the world.

The 1994 Council of Australian Governments' (COAG) water reform framework and subsequent initiatives highlighted the need for Australia's national water resources to be managed in a more efficient and sustainable manner. One of the initiatives was to adopt tradable water rights.⁸² The National Water Initiative was implemented by the Governments of Australia in June 2004. The objectives of the National Water Initiative were to improve water management, increase productivity and efficiency of water uses, arrest the decline in the health of river systems and the improved sustainability of rivers and/or catchments.⁸³

A specific stated objective in the Intergovernmental Agreement on a National Water Initiative⁸⁴ was the progressive removal of barriers to trade in water and meeting other requirements to facilitate the broadening and deepening of the water market, with an open trading market to be in place. Water markets were seen as one method of implementing the changes needed to satisfy these objectives. Before the implementation of tradable water rights, trades were hindered by the complexity of administrative arrangements, outdated market information, and the policies of some of the players in the system, for example, water corporations and other water providers. In order to create a more dynamic water market, with more productive and efficient use of water, the Intergovernmental Agreement has attempted to remove the obstacles that water users previously encountered when attempting to transfer water allocations.

⁸¹ Pigram, above n 58, xv. See New South Wales introduced a trial scheme for temporary transfer of water entitlements in 1983, Victoria introduced transferability in 1987/1988 and legislated for permanent transferability in 1990, a temporary transfer scheme was introduced in Queensland in 1987 and trial schemes were implemented in Western Australia in 1992.

⁸² Pigram, above n 58, 6.

⁸³ Josh Carmody, above, n 46.

⁸⁴ Council of Australian Governments *Intergovernmental Agreement on a National Water Initiative* <<http://www.coag.gov.au/index.htm>> (last accessed 20 August 2005).

The Intergovernmental Agreement on a National Water Initiative requires that each State and Territory agree that their water market and trading arrangements will firstly facilitate the operation of efficient water markets and the opportunities for trading within, and between, States and Territories. For inter-regional trading, it is necessary that the water systems be shared or connected and water supply considerations permit water trading. States and Territories are required to minimise transaction costs on water trades, including through good information flows in the market and compatible entitlement, regulatory and other arrangements across jurisdictions. Thirdly, the States and Territories are to facilitate an appropriate mix of water products to develop based on access entitlements. Access entitlement can be traded either in whole or in part, temporarily or permanently, or through lease arrangements or other trading options that may evolve over time. States and Territories are obliged to recognise and protect the needs of the environment, and also provide appropriate protection of third party interests. Institutional and regulatory arrangements to facilitate intra and interstate trading are to be established by 2007. Temporary trades are to be immediately facilitated and barriers to permanent trade out of irrigation areas is to be progressively phased out by 2014.⁸⁵

Importantly, the Intergovernmental Agreement has established guidelines for maintaining water registries. As noted in the synopses above of the countries with a tradable water rights system implemented, keeping track of water transfers and permit holders is critical to the success of such a system. The Australian guidelines include a requirement for all water access entitlements to be recorded, as well as any trades of those entitlements and their location, that the water registers be of a sufficient standard to achieve the characteristics of secure water access entitlements, and to contain protocols for the protection of third party interests such as requiring third parties to be informed of any proposed dealings in relation to the water

⁸⁵Council of Australian Governments *Intergovernmental Agreement on a National Water Initiative- Attachment A*, above n 84.

entitlement, with consent required from that third party before the transfer can occur. While there is no specific mention of when consent can be withheld contained in the Guidelines, presumably such consent cannot be withheld unreasonably or without good cause.

For Western Australia, Statewide Policy No. 6⁸⁶ sets out the foundation for the implementation of transferable, or tradable water rights under the Rights in Water and Irrigation Act 1914, the principal legislation for managing the State's water resources. The Water and Rivers Commission sets out the benefits of tradable water rights as being the ability for water to migrate to higher economic uses, the introduction of new water users and industries, and the encouragement of more efficient use of water.⁸⁷ Tradable water rights are defined as "the ability of a licence holder to trade all or part of the licensed entitlement, to another water user".⁸⁸ Entitlements to water in Australia have always been tied to a corresponding area of land. Therefore, the only way for water to be transferred was via the sale of that land. The entitlement to water for consumptive use has been unbundled from the land and is described as a perpetual or open-ended share of the consumptive pool of a specified water resource, which is determined by the relevant water plan. The water access entitlements are to specify the essential characteristics of the water product, be exclusive, able to be traded, given, bequeathed or leased, subdivided or amalgamated, mortgagable in the same way that freehold land can be used as collateral when accessing finance, be enforceable and enforced, and be recorded in publicly accessible reliable water registers that foster public confidence and are unambiguous as to who owns the entitlement and whatever encumbrances may be on that entitlement.

⁸⁶ Water and Rivers Commission *Transferable (Tradeable) Water Entitlements for Western Australia* (2001) Statewide Policy No. 6 <<http://www.wrc.wa.gov.au>> (last accessed 12 August 2005).

⁸⁷ Water and Rivers Commission 2001, above n 86, i.

⁸⁸ Water and Rivers Commission 2001, above n 86, 1.

Australia has moved to convert previously ill-conceived and defined allocations into “tradable and bankable assets” through the specification of allocations with “clearly defined volumes and reliability, separation of entitlements from land, and “unbundling” of various components of allocations, such the associated works, and use approvals and delivery capacity”.⁸⁹ Under the Australian system, farmers can buy and sell quantities of water from each other either temporarily, permanently, or in the future at market prices. There is competition between farmers for water with prices ranging from between AUD30 and AUD3000 a megalitre, with the average approximately AUD100 a megalitre.⁹⁰ During summer, approximately \$50 million of water was traded.⁹¹ The system is also considered to be less politicised, with users relying on commercial means rather than political means to resolve scarcity problems,⁹² with a consequence being a reduction in resources devoted to lobbying to influence decisions made under an administrative allocation system.⁹³ The water market is still considered thin in that transactions are nearly entirely contained in the irrigation sector with only irregular and infrequent intersectoral transfers, such as rural to urban use.⁹⁴ It is also notable that urgent clawbacks of water in Australia to attempt to reverse environmental damage caused by aggressive allocation and takes are creating uncertainty for investors as the security of their water rights become unstable.⁹⁵ However, importantly, water markets are now widely accepted as being the most economic, efficient and sustainable means of dealing with the

⁸⁹ Roger Kerr, above n 30, 5.

⁹⁰ Andrew MacDonald, above n 33.

⁹¹ Andrew MacDonald, above n 33.

⁹² *New Zealand Business Roundtable Submission on the Resource Management (Waitaki Catchment) Amendment Bill* (submission made to Ministry for the Environment, 2004), 3.

⁹³ Roger Kerr, above n 30, 4.

⁹⁴ Pigram, above n 58, 8.

⁹⁵ Ministry for the Environment Technical Working Paper *Water Programme of Action-Water Allocation and Use*, above n 25.

resource.⁹⁶ The benefits of water trading in Australia are considered to have outweighed the costs, despite some unavoidable transitional issues.⁹⁷

VI What is needed for Tradable Water Rights to work?

The mere sanctioning of transferable water permits in a regional or district plan will not necessarily result in water users actually transferring their water allocations. The right conditions need to exist to make the transfer of excess water an attractive and sensible option for permit holders. Thus, regional councils have a role to play in promoting the transferability of permits, helping to create a water market.

Transferable water permits can work if demand exceeds supply for the resource and the resource is fully allocated as a result, if there is sufficient knowledge as to the state of the resource, if there is enforceability and monitoring of the permit, if private and community benefits exceed the transaction costs, and the market for transfer of permits is sufficiently flexible to enable transfers to occur.⁹⁸

The necessary preconditions for a water market to exist have been outlined as follows⁹⁹:

- Institutional arrangements that establish water rights that can be isolated from land rights;¹⁰⁰
- the definition of the volumes of water to be traded and the security of supply and tenure under differing levels of resource availability;
- adequate infrastructure to deliver the defined entitlements;

⁹⁶ Roger Kerr, above n 30, 4.

⁹⁷ Roger Kerr, above n 30, 5.

⁹⁸ Mike Kearney and Jim Sinner *Transferable Water Permits: Two Case Studies of the Issues Technical Paper 97/12* (prepared for Ministry of Agriculture and Forestry, 1997), 9.

⁹⁹ Pigram, above n 58, 14-15.

¹⁰⁰ Robert C Johansson “Pricing Irrigation Water: A Literature Survey” (2000) Policy Research Working Paper 2449, World Bank, 9.

- quality assurance of water and delivery arrangements;
- rules to maximise trading options and protect third party and sustainability interests;
- consideration of the impact of trading on water storage and distribution systems;
- appropriate legal support and protection and dispute resolution mechanisms;
- education of water users and the community in the operation of the water market.

A Transferability

As noted above, water rights will transfer as a matter of course with a sale of land when they are included in the agreement for sale and purchase.

However, transfers of water permits by themselves have not occurred in New Zealand to any great extent yet. There is no legal impediment to transferring water consents under the RMA, although it is acknowledged that transfers can be hindered by geographical and infrastructure issues.

As transfers currently require application to the relevant regional council, transaction costs inhibit the process also. Discussion with consent holders in various areas of New Zealand were unaware that their water permits were transferable, showing the need for the council to promote the ability to transfer permits. In the Tasman District however, the transfer of permits is encouraged, yet the permit owners viewed the conditions around the transfer as a hindrance to actually carrying out the process. It is also important that some permit holders feared losing their current consent, or having it altered if they applied to the council as part of the transfer process. Consents can be tied to land uses and specific areas which in some situations unavoidably inhibits transferability. It is relevant to the issue of transferability that council actions such as Tasman District's clawbacks have made many consent owners suspicious of the value of transferable water rights. There is a perception that if the council is approached to approve a transfer, that

excess water the subject of the transfer may be clawed back by the council and allocations subsequently reduced.

B Duration/Security of title

The key to market allocation is a well-defined, enforceable system of transferable property rights.¹⁰¹ It has been stated that the single greatest problem in water resource management in the developing world is that “property rights in water are very insecure and ineffective”.¹⁰² The Council of Australian Governments’ stipulated that for the successful implementation of a strategic framework for water property rights, water entitlements needed to be clearly specified in terms of rights and conditions of the ownership tenure, the share of the resource being allocated, the details of agreed standards of services being delivered, any constraints on transferability and any constraints on resource use or access.¹⁰³

“Security” has been defined as not being guaranteed a precise amount of water at any time, but rather means knowing about the probability of water availability, and being certain of allocation procedures under changing circumstances.¹⁰⁴ “Duration” is especially important where water investment is concentrated in assets, such as irrigation infrastructure and dams. A short term property right does not encourage long term investment in, and sustainability of the resource, because the permit owner has to extract the maximum value from the resource in a more limited period of time. It is noted that this type of permit ownership may lead to management strategies which differ from those of a right owner whose right runs for a longer duration of time.¹⁰⁵ It should also be noted however that increasing the quality of title without ensuring that transferability and an operating

¹⁰¹ Robert C Johansson, above n 99, 22.

¹⁰² Pigram, above n 58, 14.

¹⁰³ Pigram, above n 58, 10.

¹⁰⁴ Marie Leigh Livingston “Designing Water Institutions: Market Failures and Institutional Response” (1993) Policy Research Working Paper 1227 World Bank, 20.

¹⁰⁵ Harris Consulting The Agribusiness Group, above n 13, 9.

market is in place may result in the water rights being locked in so solidly that the water is unable to move to its most efficient or high value use.¹⁰⁶

New Zealand permit holders who hold their permits for a term of 35 years felt that this term was essentially worthless as the consent conditions are vulnerable to change at any time

Quality of title can be affected by water scarcity or availability, permit reviews to accommodate changes in catchment, regional, or national planning mechanisms, efficiency of use reviews, the granting of further permits for the same area, review at the end of the period and cancellation if the permit is not used for five or more years. The “use it or lose it” philosophy can backfire, as in the Tasman District where combined with over-allocated resources and potential clawbacks by the council, permit owners have incentives to use their entire allocation so as to preserve their existing rights. The threat of further allocations also affects the security of existing permit holders rights.

A secure, defined property rights system includes certainty (engendered by specificity as to all aspects of the water right such as quantity, quality, location, and time of use), ease of transferability, an absence of externalities and the existence of market competition in both supply and demand. It was noted in the decision of *Murrumbidgee Groundwater Preservation Association Inc v Minister for Natural Resources*¹⁰⁷ by Spigelman CJ that a trading regime in access licences could only operate, and actual trading could only occur, if precise entitlements were known. It has also been noted that the Government should play a part in the basic a basic role of defining property rights.¹⁰⁸

¹⁰⁶ Harris Consulting The Agribusiness Group, above n 13, 22.

¹⁰⁷ *Murrumbidgee Groundwater Preservation Association Inc v Minister for Natural Resources* [2005] 138 LGRA 11, 26.

¹⁰⁸ John McMillan, above n 48, 11.

The lack of definition around property rights is a major issue for permit holders. Buyers and sellers need to be confident of the entitlements that they are trading and be aware of any conditions on the transferred rights.

Therefore, it is fundamental that water rights be properly specified including security of tenure post transfer.¹⁰⁹ There is considered to be a lack of investigation and knowledge regarding the resource, resulting in uncertainty as to how much of a resource there is and how much can be allocated without affecting other permit holders' rights and the resource itself.¹¹⁰ The lack of a sound, scientifically based planning environment adversely affects the security of a permit, especially if there is a lack of understanding on the side of the council as to the current allocation of a resource.

C *Flexibility*

Permits are often very specific for take and use, with the intention that take permit addresses effects on the resource and use deals with efficiency requirements and effects associated with how water used.¹¹¹ Digression from the terms of the permit usually requires a review of the permit. While this can be useful when the permit holder wishes to alter or vary the permit, tying the permit to specific land uses and areas places an additional barrier on the transferability of that permit, although, as noted above, in some cases this will be unavoidable.

Although the permit will usually be able to be altered to reflect a new land use, subject to the uncertainty that an increased allocation will be given if that is what the new land use requires, it still results in increased transaction costs. Although increased transactions costs are accepted by many permit holders as an inevitable part of the water permit system, they still represent a further barrier to a market system.

¹⁰⁹ Pigram, above n 58, 143.

¹¹⁰ Harris Consulting The Agribusiness Group, above n 13, 20.

¹¹¹ Harris Consulting The Agribusiness Group, above n 13, 15.

Permits issued in New Zealand appear to be relatively flexible, or where constraints are imposed, they are seen by the permit holders to be no more than minor inconveniences. Permit holders did consider however, that while the permits were flexible in terms of allocations decreasing as a result of less water being used for a different use, the reverse was unlikely to happen in that the allocation would more than likely not increase if the change in use required more water. This one way flow was intensified by the absence of transfers because the users felt that once the water was gone, it would be extremely difficult for them to regain it by further allocation.

VII *What will make it difficult for Tradable Water Rights to work?*

A Concerns with water transfers

The users who would potentially be involved in transferring water permits articulated their concerns in a report prepared for the Ministry of the Environment.¹¹² People consider water to be a “free” resource or a public/common community property and are philosophically opposed to buying or selling it. This historical perception of water poses a hurdle for adequately placing a price on a water permit. This is an issue which will resolve itself in time, as water markets become established and users become more familiar with the system. Given the demand for water in the future, it is a truism that the public will have to make a philosophical leap to look at water as a commodity that can be bought and sold.¹¹³ Water is now being treated as an economic good, as noted in the 1992 International Conference on Water and the Environment where it was concluded that “water has an economic value in all its competing uses and should be recognised as an economic good”.¹¹⁴ Some users consider that any unused water should be returned to the common pool for reallocation, while others indicated reluctance to trade excess water because of a concern that the

¹¹² Christina Robb, Matthew Morgan and Simon Harris, above n 27, 4.

¹¹³ Andrew MacDonald, above n 33.

¹¹⁴ Roger Kerr, above n 30, 6.

water might be needed at some stage.¹¹⁵ Again, this appears to be a mind-set which stems from unfamiliarity with the concept of transferable water permits and could be altered after interaction with the system, especially as the “opportunity cost” of retaining the excess water as opposed to selling it is realised.¹¹⁶ One study suggests that as irrigators begin to evaluate different means of obtaining extra water, such as applying for a new permit from the council, investing in building retention dams or upgrading the irrigation system, transferring water may well emerge as the preferred option. Other users, while not objecting to transfers specifically, did oppose consent holders from profiting from a common resource and considered transferability needed to be paid for by those consent holders in some manner. An overriding concern relates back to the certainty of the water permit and its duration with users considering that time lengths on water rights might potentially be too restrictive. The effect of uncertainty over renewal could possibly result in water users delaying and restricting investment in water intensive uses, and exhibiting an increased reluctance to transfer excess water allocations, especially as the date of renewal approaches.¹¹⁷ To do so, or even to transfer water as a matter of course, may suggest to the council that the permit holder does not require the full allocation they currently possess. It has been suggested that this concern could be allayed by the council treating, and announcing, that a transfer of water will be considered as a valid use in its own right with no impact on future allocation decisions.¹¹⁸

A potential loss of the resource is seen as a real threat, with fears that water would be lost from agriculture to industry, urban uses and large processors. This concern emerges generally in regard to the monopolisation of a water market, invoking the image of a “water baron”. The Commerce Act could potentially deal with any aggregation of interests by any one user, while a

¹¹⁵ Mike Kearney and Jim Sinner, above n 97, 15.

¹¹⁶ Mike Kearney and Jim Sinner, above n 97, 17.

¹¹⁷ Counsell, above n 5, 20.

¹¹⁸ Mike Kearney and Jim Sinner, above n 97, 17.

Water Commission could also be established to prevent any monopolisation occurring.

Speculative buying and selling is seen as a potential issue, with water users desiring that water be kept for productive uses, rather than traded off with little concern as to the end destination of that water. This issue could be potentially exacerbated by the perception of some users that unused water rights will be retained by the permit holder until the highest prices can be obtained for those rights, i.e. in times of drought.¹¹⁹

Transfer of water permits is also seen to potentially increase the use of the resource, with consequent negative environmental effects. Increased use could potentially occur if currently unused permits ("sleeper permits") were transferred and subsequently exercised. Another side-effect of the activation of sleeper permits could be an increase of the frequency of restrictions on existing permit holders.

Reduced productivity from the resource is also seen as a concern, in that currently the permit holder's most fertile land in the area is irrigated and any movement of the water from that land, such as by transfer of water allocation, would represent a reduction in productivity. This argument can be countered by the fact that if the productivity from that land does indeed outweigh what has been offered for the water irrigating that land, the permit holder will doubtless continue to irrigate that land. The transfer of water allocations is not obligatory and depends entirely on the returns the permit holder receives from transferring the excess water.

Effects on third parties have also been raised as a potential concern where a third party relying on the return flows from upstream users when the upstream user sells their excess allocation to users that are not from the same area. As a result, downstream users are deprived of the use of return flows. This result could potentially be prevented by a water user association

¹¹⁹ Mike Kearney and Jim Sinner, above n 97, 15.

or public body approving requests for changes of water intake to ensure that third parties are not adversely affected in such a manner.¹²⁰

Many of the concerns noted above stem from a distrust of the unknown. A regime of transferable water permits is unfamiliar to many permit holders and education is required to explain how the system would work and the benefits that can be gained from the implementation of such a system.

VIII Developments to Date

In his address to the Water Conference in pre-RMA 1988, the Rt Hon Geoffrey Palmer, then Minister for the Environment, stated¹²¹:

“At the moment, trade in water rights is prohibited. There is no incentive for surplus water to be returned to the stream or used elsewhere. Potentially efficient users of water may be denied access...rights could be traded on a market.”

As noted earlier in the paper, the Tasman District Council encourages the transfer of water permits. The analysis above shows that the water permits have not been traded frequently and that the permit holders are suspicious of the system for a number of reasons, and that the conditions around the tradability or transferability of water were limiting in their ability to achieve any significant transfer of water.¹²² The Tasman Council takes into account a number of factors when considering water transfers, such as the potential for adverse effects to arise from the transfer or change, as well as the level of knowledge about the water body; the monitoring of water use; whether the transfer is within the same water management zone; the level of

¹²⁰ Holden and Thobani ,above n 2, 17.

¹²¹ Palmer, Rt Hon G W R (1988) Ministerial Address, Water in society, policy and practice Papers of the Fifth National Water Conference, 15-19 August, Dunedin, 16.

¹²² Harris Consulting The Agribusiness Group, above n 13, 19.

allocation within the zone; whether water has been reserved for any purpose in the zone in which the water is being transferred and whether the transfer of water facilitates access to water that is augmented from a water augmentation scheme.

A study was carried out in 1997 examining the Manawatu-Wanganui Regional Council's Oroua Catchment Water Allocation and River Flows Regional Plan, which the first example of a regional plan prepared under the RMA which incorporates a limited transferable water permit system. Transferable water permits were considered by the council to have the potential of increasing flexibility for the water users themselves, encouraging greater efficiency of water use during periods of scarcity and building a sense of community in the area.¹²³ 10 year permits were granted to existing permit holders and new users are required to obtain their requirements from existing irrigators. The whole or part of an interest in a water permit is able to be transferred during water restriction periods, provided that the end use is irrigation, both sites are within the catchment, and the Council is informed in advance of the transfer.¹²⁴ The irrigator users (a large proportion of the resource users in the area) had two major concerns before the implementation of the system. Firstly, that large abstractors would monopolise the resource by virtue of their greater resources, and secondly, that existing permit holders needed protection of their rights while simultaneously not hindering new users wanting a permit.¹²⁵ To assuage these concerns, the Council determined that only agricultural irrigators would be able to transfer the permits so as to preclude the large abstractors from monopolisation of the system. The Council also implemented a two-tier permit system which is tied to threshold points of the river flow. When the river reaches a certain percentage of the mean monthly flow, new permit holders must cease abstraction while existing permit holders may continue restricted abstraction. Through this process, new permit holders must

¹²³ Mike Kearney and Jim Sinner, above n 97, 12.

¹²⁴ Basil M H Sharp, above n 28, 6.

¹²⁵ Mike Kearney and Jim Sinner, above n 97, 12.

negotiate with existing permit holders to obtain water during the low flow periods. Existing permit holders also have had their permits “grandparented” to recognise the cost of the water permit, which was often included in the land price. Potential users wishing to obtain a water permit, or existing users requiring a larger allocation, must either obtain their permit from an existing permit holder, or applying for a permit from the council which is non-transferable.¹²⁶

It is noted that, similarly to the permit system in the Oroua catchment, Environment Canterbury is considering granting second-tier permits to new applicants, which can only be used when rivers are in high flow.

IX Potential New Zealand Water Market

New Zealand is notable in that it has numerous small, independent catchments in that they are not linked with other larger catchments which is the situation in Australia and the Western United States where large rivers with significant catchments are common.¹²⁷ This factor may be beneficial in setting up small water markets where they are most urgently needed and is supported by the idea In a country such as New Zealand, it may be more appropriate that water markets are viewed in terms of relatively independent market regions, defined by relevant catchments, rather than as a single national water market.¹²⁸ Rights to water resources have the difficult task of needing to be both flexible and secure.¹²⁹ Any water allocation decisions should be made in a similar fashion to Australian states where a catchment management system is adopted in which water resource plans are prepared as a result of consultation and modelling to determine the best way to

¹²⁶ Roger Kerr, above n 30, 8.

¹²⁷ Counsell, above n 5, 4.

¹²⁸ Marie Leigh Livingston, above n 101,16.

¹²⁹ Marie Leigh Livingston, above n 101, 2.

allocate water between competing users. The following criteria should also be considered when determining methods of water allocation:¹³⁰

- 1) Is the allocation of supplies flexible? Can the resource be shifted from one area to another as demand may require?
- 2) Is there security of tenure for established water users?
- 3) Is the real opportunity cost of providing the resource being met by the water users?
- 4) Is the outcome of the allocation process predictable so the system is as certain as it possibly may be?
- 5) Is the allocation process equitable and perceived by the water users to be equitable?
- 6) Is there political and public acceptance of the allocation process?
- 7) Does the allocation system facilitate efficiency?
- 8) Is the administrative side of the allocation system feasible and sustainable to allow further growth of the system?

The existing system of water allocation could conceivably remain in place if tradable water rights were a routine part of possessing a water permit. The rights to use the water need to be unbundled from the land however, as this is currently affecting the volume of transfers.

Potentially a Water Commission could undertake the role of granting allocations, notwithstanding that a user may already hold a water permit issued under the RMA, where all users have an option to take a minimum proportionate share of the current inflow that is available at any point in time and a maximum proportionate share of the total resource that is available during any year in that catchment.¹³¹ Users with existing permits under the RMA would find their existing allocations converted, with corresponding takes of water allowed. Therefore each user is entitled to a

¹³⁰ Ariel Dinar, Mark W Rosegrant and Ruth Meinzen-Dick "Water Allocation Mechanisms: Principles and Examples" (1997) World Bank Policy Research Working Paper 1779, Washington DC,4-5.

minimum share of the available inflow at any time, with an annual volumetric cap, with a maximum amount of water that is able to be allocated in any one catchment. The allocations should be periodically reviewed, bearing in mind that an indefinite time limit provides the user with the most security in terms of continued access to water and also weighing up unforeseeable future events, such as climatic change and resource use. A water market still requires that the rights to the water be clearly defined in a measurable way,¹³² and therefore the allocations themselves must be precise as to the quantity of the allocation, the location, the uses to which the allocation is to be put and the times at which it may be used. It is critical that the initial allocations be well-defined to facilitate subsequent trades of the allocations, with each participant in the water trade having certainty as what is being transferred. Each user would be required to be registered and keep accurate records of take or use from the relevant catchment. The register of permit owners would need, as per the Australian guidelines, to specify the quantity allowed in the allocation, the location of the allocation and that of any transfers that occur, and provide for the consultation with affected third parties as described below.

As New Zealand has a small population and relatively small catchments, any water market that arises is likely to be a thin one, given that there will be only small numbers of buyers and sellers. This is not a limiting factor however as many water markets develop in isolation given the expenditure involved in physically transporting water.¹³³

Given this expenditure and its limiting effect on transactions, long-term secure arrangements would be optimal for the facilitation of water transfers, and building confidence in the tradable water rights regime. The Government should play a role in maintaining existing infrastructure and developing additional infrastructure as adequate infrastructure can increase

¹³¹ Tim Stewart (2004) Water Allocation Presentation to the CE's Forum" Meridian Energy, 8.

¹³² Holden and Thobani ,above n 2, 14.

¹³³ Robert C Johansson, above n 99, 10.

the success of water markets by expanding its boundaries. A physical delivery system is a key factor in the success of a water market. The issue of privatisation has relevance here but requires greater analysis than this paper can devote to it. Privatisation is controversial and requires in-depth public consultation and discussion. Before investment was warranted in such infrastructure expenditure, it would need to be determined that a water market would produce sufficient benefits to outweigh the costs.

The ability to transfer the allocation either permanently or temporarily should be explicit, as well as information regarding the ownership of the allocation once it has been transferred. The allocations should not be tied to land uses or to specific areas, although it is inevitable that the geographical nature of the country will inhibit transfers in some areas. In this regard, there should not be a differentiation in consumptive uses and non-consumptive uses because all water users should be treated equally. To try and distinguish between the two uses may lead to discrepancies in treatment and a resultant skewed perception of the system by a consumptive user or a non-consumptive user. For a water market to be successful, it is vital that the initial allocation of water rights be regarded as equitable in the dispensing of allocations and treatment of participants. In order to maintain equitableness of the system, an effective system of monitoring needs to be established, so that any adverse effects on the environmental health of the catchment is detected in time for any required changes to be made, with the minimum disruption to the security of permit holders' rights. This is paramount in maintaining the health and longevity of the resource, and lessons can be learned from the Australian experience. The transaction costs should not be so high that they outweigh the benefits of transfer. If they are so substantial that no economic benefit will arise from the transfer, they will inhibit any transfers occurring. Transactions costs can include the costs of negotiation with the other water user or users involved, as well as the costs involved with fulfilling legal and administrative requirements necessary to complete the transfer. They have been cited as the cause of

limited transfers in some water markets.¹³⁴ Affected third parties would need to be informed as to the potential transfer and have the ability to withhold consent where their interests would be adversely affected. A disputes resolution service would need to be implemented to resolve issues that arose over proposed transfers or to address the concerns of third parties who had not been consulted with.

It was noted earlier in this paper that a water market still requires the allocation of water rights to be enforced. An effective system of enforcing allocations and dealing with transgressions would need to be established, with water use monitored, breaches of the system detected and punished in accordance with provisions in the RMA that provide for the imposition of fines and imprisonment. Monitoring and detection of breaches is admittedly a difficult issue given the number of users, however reliable use monitoring is important to a functioning water market. Installing such a system may be an unfeasible expense for many users. It is noted that the Tasman Council has considered making financial contributions obligatory in its regional plan. All councils charge applicants directly for the costs associated with granting a consent.¹³⁵ This is provided for in section 108 of the RMA which allows the imposition of conditions associated with any resource consent granted. A financial contribution would be a pre-condition of obtaining a resource consent to use water in order to remedy or mitigate the adverse effects of reduced water flows or levels. Factors taken into account would include the effectiveness of such a financial contribution to offset adverse effects; the effectiveness of a financial contribution to offset adverse effects on other water users, or uses and values of a water body; the effectiveness of a financial contribution to improve existing water users security of supply; the need for a direct relationship between the size and significance of any adverse effect of the resource consent and the level of any financial contribution. A percentage of contributions could be directed towards increasing the monitoring of water allocations, especially given that

¹³⁴ Marie Leigh Livingston, above n 101, 16.

¹³⁵ Lincoln Environmental, above n 32.

accurate statistics on the water take would provide useful information on the state of the catchment, with potential problems able to be identified at an early stage, allowing intervention. It is considered that this is an area where the Government should play a role in facilitating the effectiveness and success of the water market.

As observed in Chile, there could be potential for water user associations to be established by certain groups, potentially farmers in the same area or with takes from the same catchment, or irrigators in one area. The use of such an association could result in successful negotiations for water transfers, acceptable costs for such transfers which outweigh transaction costs, and an increased sense of security and community. Belonging to a water user association may help to allay the trepidation of many water users with regards to the concept of tradable water rights, given that a group of water users would generally collectively have greater experience and confidence in dealing with other buyers and sellers than if each water user were negotiating on their own. These associations are often set up for the benefit of irrigators, although there have been examples of associations that serve all water users for a common water source. The associations manage and maintain infrastructure to deliver the water and are also responsible for recording, managing and enforcing the water rights and transfers.¹³⁶ Water user associations could also play a role in the monitoring of allocation use by its members. Rosegrant and Gazmuri¹³⁷ consider that assigning tradable water rights to individuals within water user associations should have the effect of enhancing the control of the group over the water resource as well as creating incentives for the association members to economise on water use and providing the members with the legal standing to negotiate, for example with water delivery agencies, for timely and efficient service.

¹³⁶ Counsell, above n 5, 40.

¹³⁷ Mark W Rosegrant and Renato Gazmuri, above n 42.

IX Conclusion

There is no universal best practice for New Zealand. It is considered that government intervention by way of administrative water allocation is an unsuitable process for water allocation in New Zealand by virtue of the considerable negative economic and environmental effects that result from the administrative process.¹³⁸ Centralised decision-making has not resulted in a comprehensive, working water allocation regime. The current system does not distinguish between high value uses and low value uses, and provides no incentive for conservation of water. Consequently the resource is utilised in an inefficient and unsustainable manner.

The issue of demand outstripping supply is already present in some areas of New Zealand, with some resources over-allocated while others are nearing full allocation. Increasing demand for water in the future, especially given uncertain energy supplies, will exacerbate the problem, a situation which the cumbersome, inflexible administrative allocation system will not be able to respond and adapt to. The alternative of tradable water rights ensure that water will go to the best valued use, with the price of the resource reflecting the value of the potential alternative uses. Incentives are created to put the water to its most productive use, whether that is selling an excess allocation or putting it to an alternative use. A market-based system also encourages the conservation of the resource. A water market allows the decisions about water use to be made by those who possess the greatest information on the use and value of the resources, as well as providing the flexibility and adaptability to respond to the dynamism of changes in demand and supply of water in response to market variations and external influences, such as weather conditions.¹³⁹

For a market to work efficiently, permit holders require certainty, flexibility and transferability. For a permit holder to have confidence in the certainty of

¹³⁸ Robert Brooks and Edwynna Harris, above n 6, 3.

¹³⁹ Roger Kerr, above n 30, 4.

his or her allocation, the right to the water must be clearly defined with specificity as to all aspects of that right, such as quantity, location, and use. Without this certainty, buyers of water rights cannot have confidence in the entitlements they are purchasing. If a buyer cannot have confidence in their investment, a water market will not be successful. Flexibility is essential for transferring a water right without undue complication and difficulty. If restraints on the transfer of the water permit are minor, users will continue to trade, however if the restraints are too restrictive, trading in water rights will simply not occur. Finally, a lack of impediments to the transferability of allocations is key. If the allocation is unable to be transferred, this naturally will never happen.

For tradable water rights to be implemented with success in New Zealand, education of water users as to the benefits of such a system is vital. There is evidence that some users are completely unconcerned about the prospect of trading water and simply see it as means to direct water to its highest value or most efficient use. The unfavourable attitude of many water users towards a tradable water rights system is potentially the greatest barrier in implementing such a system, yet could also be one of the least costly barriers to remove. Presently many of the concerns raised regarding tradable water rights stem from an attitudinal aspect and from unfamiliarity with the process. Examples of these concerns are that water is a “public good” and as such should not be bought and sold, and that a tradable water rights system will lead to potential monopolisation of the resource by those with the greatest resources. A change in mindset to viewing water as an economic good is inevitable, as demand grows and scarcity increases. Education about the system and assurances that users will not be forced out of the water market will be crucial to addressing most uncertainties about the tradable water rights system.

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