

WATER MANAGEMENT REFORM – WHAT ROLE DOES THE MARKET HAVE TO PLAY?

*G.R Milner-White
Kensington Swan, Auckland.*

ABSTRACT

'When the Well's Dry, we know the Worth of Water' - Benjamin Franklin, 1746

This paper examines current water management issues facing New Zealand, the existing legal framework and problems and challenges to that system. It focuses on water markets; the barriers to an effective trading regime, and the reasons that widespread water permit transfers have not occurred to date. It also looks at lessons that can be learnt from water law reform in Australia and the development of water allocation and trading systems in New South Wales in particular.

In order to facilitate an enhanced market, it is suggested that there is a need for reform of our existing resource management framework. In undertaking this task, an appropriate balance must be struck between private property interests and the flexibility required for adaptive management that is appropriate for a natural and fluctuating resource such as fresh water. Particular proposals examined include decoupling 'take' and 'use' consents, whether we should follow the NSW approach of removing finite terms of water-taking permits and other reforms to create an enhanced market.

In combination with regulatory initiatives to improve our allocation framework, it is considered that markets have a significant part to play in improving efficiency of allocation and use. Regional Plan processes will remain essential to identifying environmental bottom lines, but these need to be complemented by a system that encourages water available for abstraction to be allocated to its highest and best uses. This is where an effective water trading market can play a valuable role.

KEYWORDS

Water trading, water markets, resource management reform

1 INTRODUCTION

2010 will be an important year for the future of water allocation in New Zealand. The Government announced in June 2009 its *New Start for Fresh Water* programme. This recognises that there are areas of the country that are reaching or exceeding water resource limits and/or pollution levels that can be safely assimilated.¹ A key aim of the policy initiative is to get 'best value' for society from New Zealand's water resources by looking across economic, environmental, social and cultural dimensions.²

The Government has asked the Land and Water Forum (LWF) to recommend reforms for freshwater management. The LWF includes stakeholders from different water user groups, ie environmental and recreational groups, industry (irrigators, hydro, other), iwi, farmers and

¹ Cabinet Paper, *New Start for Fresh Water*, CAB Min (09) 20/12, para 15,
<http://www.mfe.govt.nz/issues/water/freshwater/new-start-for-fresh-water-paper.pdf> (at 23 May 2010)

² Ibid, para 20

other interest groups. It is required to report back to the Government by the end of August 2010 on ‘shared outcomes, goals and long term strategies for fresh water’. In tandem with this process, the Government has initiated an officials’ work programme of priority projects, including 5 relating to allocation issues.³ The Government will then determine a package of reforms to address New Zealand water management and allocation issues.

It is timely therefore to examine the current allocation framework in New Zealand, and problems or challenges to that system. This paper explores these issues and looks at ways water markets and enhanced trading systems can play a role improving efficiency of use, while at the same time maintaining environmental and ecological values.

Part 2 explains the water management issues facing New Zealand and the current and future pressures on water quantity and quality. Part 3 examines The current problems with the management framework both in terms of planning and consenting processes. Part 4 looks at the development of water allocation systems in Australia and what part water markets have played in those reforms. It also considers lessons that can be learnt from the experiences of state level implementation in New South Wales. Part 5 examines water trading in New Zealand and how this may be able to assist to allocate water to highest and best uses, and the types of water market currently operating. It explores existing barriers to an effective trading regime, and the reasons why widespread transfers have not occurred to date. Part examines possible reform proposals to facilitate a more effective water market in light of sustainability criteria

2 WATER MANAGEMENT ISSUES FOR NEW ZEALAND

Sound water management is an important environmental issue, but is also essential for a healthy and sustainable economy. Water is central to New Zealand’s agriculture-based export economy, and has been described as a key competitive advantage.⁴ Water also supports a wide range of recreational, environmental and aesthetic uses and is of vital cultural concern to Maori.

Historically, New Zealand has had some of the world’s highest quality freshwater both in terms of its abundance and cleanliness.⁵ The total amount of precipitation that falls on New Zealand varies between 300 and 600 billion litres per year.⁶ The same volume of water falls on New Zealand as falls on the whole of the Australian continent annually.⁷ Of this rainfall, approximately 170 billion litres returns to the atmosphere through evapo-transpiration, leaving the remainder for consumptive uses, stock change in lakes, soil moisture, glaciers and flow to the sea.⁸

A major change in demand for freshwater since the 1980s has been due to agriculture intensification.⁹ Nationally, water allocation has increased between 1999 and 2006 by approximately 50%.¹⁰ Only a very small percentage, approximately 5% of New Zealand’s

³ Cabinet Paper, *Implementing a New Start for Fresh Water: Proposed Official Work Programme*, (Office of the Minister for the Environment and Office of the Minister of Agriculture, 2009), para 22. The workstreams relating to allocation are: environmental flows and water measuring; National Policy Statement for Freshwater Management; allocating water to maximise value; over allocation of baseline and possible interim interventions; and supporting measures.

⁴ Foundation for Research Science and Technology and Ministry for the Environment, *Water Research Strategy 2009*, Wellington, Ministry for the Environment, v.

⁵ Aqualinc Research Limited, *Sustainable Freshwater Management – Towards an Improved New Zealand Approach*, prepared for the New Zealand Council of Sustainable Development, (Report No H07004/1, August 2008), 13.

⁶ Ibid

⁷ Peter Whitehouse, ‘Water – A Key Strategic Advantage’, paper presented to New Zealand Fresh Water Management Forum, Wellington, 15 -16 February 2010.

⁸ Brent Layton, ‘Under Pressure’, paper presented to the Resource Management Law Association Conference on 2 - 3 October 2009, Wellington.

⁹ Aqualinc, above n 5, 14.

¹⁰ Aqualinc Research Limited, *Snapshot of Water Allocation New Zealand*, prepared for Ministry for the Environment (ME 782, November 2006), page x.

total precipitation, is abstracted. Of that, 77% is used for irrigation, 11% for industrial purposes, 9% for public water supplies and 3% for stock water and associated uses.¹¹ There are approximately 580,000 hectares of land irrigated in New Zealand and it is estimated that a further 1.5 million hectares may be irrigated in the near future.¹²

The New Zealand Business Council for Sustainable Development estimates that by 2012 a significant proportion of New Zealand and, in particular, our most economically significant regions, will be fully allocated to users on the current 'first in, first served' basis.¹³ While New Zealand's water scarcity is not yet extreme, the Ministry for the Environment accepts that there are no longer sufficient resources 'to meet all needs, in all places at all times'.¹⁴ The key areas which have been identified as of concern are Canterbury, North Otago, Marlborough, Central Hawkes Bay and Waikato.

In addition to pressures on the quantity of allocation in key catchments, water quality has also been declining in catchments where there is intensification of agricultural activities or urban expansion. There is a particular concern about the effects of non-point discharges (e.g. runoff from land and roads) and this has been identified as a serious challenge to maintaining or improving the quality of freshwater resources.¹⁵

Although this paper focuses on quantity/allocation issues, these are interrelated with water quality concerns. If a water body is over-allocated, this in turn decreases its ability to absorb contaminant discharges without on-going effects. Inadequate management of discharges to streams and rivers (for example from dairy effluent or fertilizer), can therefore exacerbate problems of water allocation.¹⁶

The Government's 'New Start for Freshwater' expresses New Zealand's challenge in the following terms:

'In short, New Zealand is approaching some water resource limits, which can be seen in areas with deteriorating water quality, water demand outstripping supply, and constrained economic opportunities. We are in a period of opportunity to develop a better system and outcomes; we risk squandering New Zealand's natural advantages if the situation does not change'.

2 PROBLEMS WITH THE CURRENT LEGAL FRAMEWORK

The legal framework has been developed during a time when water supply was plentiful in New Zealand. As pressure for water resources has increased in key catchments, the existing system has had difficulties coping with the increased complexities and cumulative impacts of water takes.¹⁷ The 'first in, first served' approach has, in particular, come in for criticism as failing to allocate water to the highest and best use (whether in environmental, social, economic and cultural terms) in a strategic way. There are two key areas of deficiency in the current system:¹⁸

- Regional planning processes; and
- Consenting processes.

¹¹ Peter Whitehouse, above n 7.

¹² Olivia Nyce, 'Water Markets under the Resource Management Act 1991: Do They Hold Water' (2008) 14 Canterbury Law Review 123, 132

¹³ New Zealand Business Council for Sustainable Development, 'A Best Use Solution for New Zealand's Water Problems' (Wellington 2008) ('NZBCSD Report'), 4

¹⁴ Ministry for the Environment, *Freshwater for a Sustainable Future: Issues and Options* (Wellington, December 2004), page 3.

¹⁵ NZBCSD Report, above n 14, 10.

¹⁶ Andrew Hayward, 'Freshwater Management: Water Markets and Novel Pricing Regimes' (2006) 10 NZJEL 215, 218.

¹⁷ Aqualinc, above n 5, 27

¹⁸ *Ibid*, 28

2.1 Regional Planning Processes

There have been concerns that regional plans lack the specificity that is required at catchment level to address water allocation issues adequately. The scope format and content of regional plans varies significantly between regions, but many plans are limited to.¹⁹

- Setting minimum environmental flow requirements in order to protect in-stream values (such as requirements for the aquatic ecosystem and other in-stream uses) ;
- Specifying priorities between consent holders when all allocated water is not naturally available for abstraction (for example during the dry season); and
- Determining how water should be shared between competing users, particularly for irrigation.

Regional councils often take a conservative or risk avoidance approach to managing the environmental effects of water takes, which may be appropriate in catchments which are not fully allocated, but has less value in catchments which are at or approaching full allocation.²⁰ It has been observed that many regional councils have limited their water plans to primarily setting a minimum flow requirements (in taking an ‘effects based’ environmental bottom line interpretation of Part 2 of the Act) and have not included objectives and policies in plans to allocate freshwater between competing uses.²¹

Memon and Skelton have stated this approach may arise from an erroneous understanding of, in particular, Section 5 RMA, and a failure to apply the broad overall judgment approach which has been endorsed by the Courts (i.e. elevating biophysical ecological objectives above all other considerations).²²

As noted, it was only in 2005 that the RMA was amended specifically to clarify that regional councils have a role in relation to water resource allocation, to address the uncertainty amongst some councils about the scope of their functions. In particular, regional plans are able to allocate water amongst competing uses subject to Part 2 of the Act.²³ Although some plans do now contain provisions relating to allocations between competing uses, many still do not attempt to provide an allocation framework or set priorities for water uses.²⁴

Another issue is that environmental base lines or minimum flow requirements often bundle together flow requirements for both the aquatic ecosystem and other in-stream flow uses. This can cause difficulties when the catchment becomes fully allocated as it makes it difficult to compare the relative costs and benefits of retaining allocation for a particular in-stream use (eg recreational activities such as swimming or kayaking) against other high priority uses (e.g. water for municipal supply or electricity generation).²⁵ The conflation of ecological, recreational and/or cultural purposes under the heading ‘in-stream values’ makes allocation choices problematic.

One example of a regional plan which has attempted to include objectives and policies for allocating water between different classes of activities is the Waitaki Catchment Water Allocation Plan 2007. It specifically allocates water by recognising both the effects on the environment, and the national and local costs and benefits of those allocations in environmental, social, economic and cultural terms. Policies are supported by rules which make annual allocations in specified subcatchments to particular activities, including town

¹⁹ Skelton, above n 43, 254.

²⁰ Aqualinc, above n 5, 28.

²¹ Skelton above n 43, 253.

²² Ibid.

²³ Section 30(1)(fa)

²⁴ Skelton, above n 43, 254.

²⁵ Aqualinc, above n 5, 29.

and community water supplies, industrial and commercial uses, tourism and recreational facilities, agricultural and horticultural activities, hydro electricity generation and any other actions.²⁶ Transfers of permits from one place to another must comply with the overall annual allocation for the particular activity and the minimum environmental flows applicable to the area to which the transfer is being made.²⁷ Many other regional plans however are still lacking in detail and direction about allocation between competing uses.

There are other political and practical considerations in the traditionally minimalist approach that regional councils have taken to their water planning functions. Until relatively recently, there has been a vacuum in relation to central or national level guidance for regional councils concerning their fresh water allocation responsibilities. This has meant a lack of central leadership on key issues of water policy and allocation (which are common across many catchments). This, coupled with the political reality in some regions that councils have been captured or significantly influenced by vested interests of existing water users (particularly irrigation/farming interests), has created the current unsatisfactory scope of many regional plans. Lack of resourcing and expertise has also played a significant role. The most recent and high profile example of regional planning failures in this area has been in Environment Canterbury where the Government has recently stepped in and appointed commissioners to address Canterbury water management issues under special empowering legislation.²⁸

2.3 Consenting Process

First in First Served. Many commentators have noted the problems created by processing consent applications on a first come first served basis. A key problem is that there are very limited incentives for those first ‘in the queue’ to limit their demands and the current system arguably encourages applying for more water than is likely to be needed to cover all eventualities. The effect of this can be to deny access to the resource to subsequent applicants who may be informed by the consent authority that the catchment is fully allocated.²⁹

A first in first served rule may be satisfactory when there is sufficient water available to meet all demands within a catchment. Difficulties arise however, when water is scarce to any degree as the first in first served system does not deal with competing demands for the same resource and/or ensure that water is allocated to the highest and best use.³⁰

Although this allocation approach has been developed by the Courts, it has also been favoured by the councils as it has enabled them, in effect, to avoid having to ‘pick winners’; such a task would be time consuming and expensive for councils operating with restricted resources (particularly without a detailed planning framework such as that developed in the Waitaki). This historic attitude also partly explains the limited scope of regional plan making, i.e. focusing on avoiding remedying or mitigating adverse effects of water takes and giving limited weight to efficiency of resource use.³¹

Duration. The maximum consent term is 35 years, although often in practice water-take permits are granted for shorter periods. Ministry for the Environment (MFE) states that the average consent duration for surface water takes is 18 years and 25 years for ground water takes.³² This means that unless there is a specific review condition, there is potentially a very long period before a particular allocation can be reassessed or reviewed.³³ The net effect is a bias in favour of existing users once they have obtained a consent, particularly in light of the

²⁶ See Rule 6 and table 5 of Waitaki Catchment Water Allocation Plan.

²⁷ Ibid, Policy 22 and Explanation.

²⁸ Environment Canterbury (Temporary Commissioners and Improved Water Management) Bill.

²⁹ Neil Gunningham, *Innovative Governance and Regulatory Design : Managing Water Resources*, (Land Care Research Contract Report LC0708/137, August 2008), 19

³⁰ Skelton, above n 43, 257.

³¹ Haywood, above n 17, 230.

³² Ministry for the Environment, *Resource Consent Durations and Reviews* (September 2000), 16 (check for updated data).

³³ Nyce, above n 13 page 131.

practical and political difficulties with attempting to ‘claw back’ a long-standing historic allocation.

Bundling of Take and Use Consents. The current legislative framework allows for separation of take and use consents.³⁴ In practice however, water consents have been and still are often issued to take and use water together, i.e. the take and use are bundled rather than keeping an access entitlement and the end use of the water separate.³⁵ The practical effect is to increase the complexity of conditions that need to be imposed on the consent and therefore potential barriers to intra-catchment transfers.³⁶

‘Lock up’ of Unused Water. Another issue is that allocated volumes under water permits are maximums or peaks and tend to significantly over-estimate the amount of water that is actually abstracted. An analysis of data shows that the proportion of water allocated that is actually used varies between years over a range of 20 – 80%.³⁷

There are a number of reasons for this. For instance, different users require different peak volumes at different times, some water is not used, but is stored up for future purposes, and also natural variations occur in weather patterns (e.g. especially dry years).³⁸ Although it is not possible to ‘unlock’ all of the allocated water, there should be ways to ensure that water that is allocated is used, and used more efficiently.

Lack of Resource Data The level of monitoring and data collection of existing water takes by regional councils is insufficient.³⁹ The conditions of a resource consent may permit a water take as either a flow rate or a volume to be taken annually, but the extent of monitoring varies significantly around the country. As a result, regional councils do not have a full picture of their existing surface and ground water resources, and without this information are not in a position to plan effectively.⁴⁰ Lack of data is a significant impediment to a robust water management system, and also to establishment of an effective water transfer process.

The Government has recently stated that it is estimated that only 31% of water taken nationally is metered. New regulations, The Resource Management (Water Metering) Regulations, will come into effect on 1 July 2010 requiring all water takes of more than 20 litres per second to be metered within 2 years, water takes of more than 10 litres per second to be metered within 4 years, and takes of more than 5 litres per second within 6 years. In this way the Government hopes to have 98% of takes metered by 2016.⁴¹

2.4 Conclusions on Current System

The current framework based on priority (or a ‘prior appropriation’ methodology) is not able to serve the sustainable management purpose of the Act in all circumstances.⁴² It is not satisfactory when there is insufficient water in a catchment to meet all demands and also has

³⁴ Ibid.

³⁵ A key reason that take and use consents have historically been ‘bundled’ as possibly historical. Applicants under the Water, Soil and Conservation Act 1967 usually sought rights to take *and* use water and as there was a duty on regional water boards to promote ‘the conservation and the most beneficial uses of natural water’, applicants were required to show the extent to which their proposed water use would be beneficial: section 20(5)(c) Water, Soil and Conservation Act 1967. See discussion in R Hawke, above n 40, page 17.

³⁶ Aqualinc, above n 5, page 32.

³⁷ Aqualinc, above n 10, xii

³⁸ NZBCSD Report, above n 14, 14.

³⁹ Aqualinc, above n 5, 33.

⁴⁰ NZBCSD Report, above n 14 page 15.

⁴¹ Aqualinc, above n 5, 33. See also press release of Ministry for the Environment website at <http://www.beehive.govt.nz/release/new+regulations+improve+water+management> (last visited on 2 May 2010).

⁴² Nyce, above n 13, 132.

the potential for creating ‘gold rush’ situations as particular water body or aquifer comes close to its allocation limits (which further exacerbates the allocation problems).⁴³

Although there seems to be a consensus that the current framework falls significantly short, the question is what should replace it and, in the light of the growing pressure on the resource, how can water be allocated more equitably and effectively. Before examining some potential solutions (and what role the water market may play in these), it is helpful to look at how our closest neighbour, Australia has with dealt water management issues, which are of a significantly greater scale of magnitude than those currently facing New Zealand.⁴⁴

3 WATER ALLOCATION AND TRADING IN AUSTRALIA

3.1 COAG and the National Water Initiative

Effective water resource management and allocation has been an issue of concern in Australia since pre-federation times.⁴⁵ Historically, water resources have been over allocated in certain catchments (particularly the Murray-Darling Basin), and this has had consequences for both water supply/allocation and also has caused considerable environmental degradation.⁴⁶

The Council of Australian Governments (COAG) adopted a strategic framework for reform of national water governance in 1994. Its aim was to ‘achieve an efficient and sustainable water industry’.⁴⁷ A key aspect of the COAG reforms was the separation of water rights from land title, which was considered a necessary precursor to enhance and expand a trade in water. The reforms also sought to enhance trading arrangements, including for the first time the possibility of interstate trading. Other key elements included: pricing reform; water allocation for environmental purposes; reform of institutional arrangements, and improvement of public consultation. Clause 4A of COAG provided: ⁴⁸

The State government members of the Council would implement comprehensive systems of water allocation or entitlements backed by separation of water property rights from land title and clear specification of entitlements in terms of ownership, volume, reliability, transferability and, if appropriate, quality.

The initial strategy agreement between the federal and state governments needed further detail which culminated in signing of the Inter-Governmental Agreement on a National Water Initiative (NWI) in 2004. Under the NWI, the State Governments made a number of commitments including:⁴⁹

- Preparing water plans with provision for environmental outcomes;
- Dealing with over allocated and stressed water systems and returning these to sustainable levels of use;
- Expanding permanent trade in water and introducing registries of water rights;
- Meeting and managing urban water demands more effectively.

⁴³ Skelton, above n 43, 257. The phenomenon of a ‘Gold Rush’ of water applications has been seen in Canterbury particularly where catchment are at or near full allocation. The first in first served system makes time priority a key issue which has led to litigation about how first in first served should be interpreted, ie first in time to lodge or first in time ready to be notified.

⁴⁴ The Ministry for the Environment (MfE) have also recommended that our policy development in this area should learn from the experiences- both positive and negative - of Australia.

⁴⁵ R Brise, A Kingsland and R Orr, “Swimming in New Waters: Recent Reforms to Australian Water Law”, Australian Government Solicitor Legal Briefing 90, 21 July 2009, 2.

⁴⁶ M McKenzie, “Water Rights in NSW: Properly Property?” (2009) Sydney Law Review, Volume 31, 443, 446.

⁴⁷ Communiqué of the Council of Australian Governments (COAG), February 1994; Attachment A: National Water Reform Framework Agreement, para 2

⁴⁸ Ibid.

⁴⁹ Ibid, para 23.

One of the aims of the NWI was to remove barriers to an effective water trading regime and to ensure that trading was not restricted within catchment areas. Clause 58 of the NWI states that “the States and Territories agree that their water market and trading arrangements will... facilitate the operation of efficient water markets and the opportunities for trading, within and between States and Territories, where water systems are physically shared or hydrologic connections and water supply considerations will permit water trading.”

All the States have now introduced statutory registers to handle registration and trade of water access entitlements as required by the NWI. The NWC’s 2009 biennial assessment⁵⁰ found that significant progress has been made by all states to ensure they have the institutional, regulatory and administrative arrangements to enable trade in water. Water markets have progressed to the point where very large volumes of water have been traded and significant benefits are flowing to buyers and sellers within and outside the Murray-Darling Basin.⁵¹

3.2 State Implementation - New South Wales

To implement the reform framework originally outlined by COAG, State legislation has been passed in the various jurisdictions. As an example, the Water Management Act 2000 (WMA) has been enacted in New South Wales. Its stated purpose is “to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations.”

The WMA has a number of objectives including:⁵²

- to apply the principles of ecologically sustainable development;
- to enhance and restore water sources, their associated ecosystems, ecological processes and biological diversity in their water quality;
- To recognise and foster significant social and economic benefits to the State that result from the sustainable and efficient use of water;
- To provide for the orderly, efficient and equitable sharing of water from water sources;
- To encourage best practice in the management and use of water.

These objectives are also supported by a lengthy list of water management principles relating to different activities.⁵³

The WMA vests rights to the control, use and flow of all water in rivers, lakes and aquifers and groundwater in the Crown. These are referred to as the “State’s Water Rights”. All riparian rights are specifically abolished.⁵⁴

The WMA then sets out a detailed regime which enables the State Government to grant rights to persons to access and use the water in its jurisdiction. It separates out the right to extract water, which requires an access licence, from the right to use it for a particular purpose at a particular place (which requires a ‘water use approval’).⁵⁵

In respect of access licences, these comprise both a share component and an extraction component. The share component entitles the holder of the licence to a specified share in the

⁵⁰ National Water Commission, “Australian Water Reform 2009: Second Biennial Assessment of Progress in implementation of the National Water Initiative”, 126

⁵¹ The NWC’s Australian Water Market’s report 2008-2009 notes that the trade of water entitlements has almost doubled from 2007-2008 (ie from 920 gigalitres (GL) to 1800 GL) and that allocation trade also continued to grow significantly.

⁵² This is a paraphrase of Water Management Act 2000 (NSW), S 3

⁵³ S 5

⁵⁴ S 393

⁵⁵ Chapter 3, Part 2 (Access Licences) and Part 3 (Approvals)

available water within a specified water management area, or from a specified water source.⁵⁶ It may be expressed as either a maximum volume over a specified period, a proportion of available water, a proportion of storage capacity of a specified dam or other storage work, or a specified number of units. The extraction component enables the licence holder to take water at specified times, rates or in particular circumstances and from specified areas and locations.⁵⁷ Shares in available water may be assigned generally or to specified categories of access licence.⁵⁸

However the share component of an access licence is expressed, (even if it is set as a maximum allocation over a year) the amount that a person is entitled to take is dependent on overall water availability. The relevant state minister is required to make a determination as to the availability of water for the particular categories of water access licence in relation to specified water management areas or water sources. This is referred to as an “available water determination”.⁵⁹

An access licence therefore entitles the holder to a proportion of a shared resource, and does not provide absolute exclusivity. Other access licence holders to the same water body are also entitled to their assigned shares. To the extent however that only a particular access holder is entitled to an allocated share, there is a degree of exclusivity for the holder.⁶⁰

As originally enacted, the WMA provided for a limited duration in relation to access licences of 15 years.⁶¹ However, the Act was amended in 2004 and the time limit provisions were replaced with a section that states that “an access licence ceases to be in force on a date that the cancellation of the licence is recorded in the access register”.⁶² This means that it is now possible to have perpetual water rights, albeit that those rights are not guaranteed to produce an allocation for the reasons explained above (i.e. they depend on an available water determination being made).

This compromise results from the need to balance the competing interests in an efficient and effective water trading system (where rights are clearly defined and understood), and the flexibility required for adaptive management which is increasingly recognised as an important factor in management of natural resources such as water.⁶³

There are also provisions relating to priorities between different categories of access entitlements.⁶⁴ Generally, utility access licences, domestic use and stock access licences have the highest priority followed by “high security” licences on regulated rivers and then all other access licences. During times of drought, if water allocations have to be diminished, then allocations of higher priority licences are diminished at a lesser rate than allocations under lower priority licences.⁶⁵ There are also powers to restrict the taking of water from specified water sources at times of severe water shortage or when this is in the public interest.⁶⁶

There are detailed provisions that deal with transfer and assignment of access licences and water allocations. These enable a wide range of possible dealings, including temporary or permanent transfer of access licences, subdivision and consolidation of access licences,

⁵⁶ S 56(1)(a)

⁵⁷ S 56(1)(b)

⁵⁸ 56(3) WMA

⁵⁹ S 60 WMA.

⁶⁰ M McKenzie, above n 92, 454

⁶¹ Ibid

⁶² S 69

⁶³ M McKenzie, above n 92, 444.

⁶⁴ S 58 WMA.

⁶⁵ S 58(2) WMA.

⁶⁶ Ss 49A, 60(3) and 324 .

assignment of rights under a licence, and interstate transfer of access licences or assignment of water allocations.⁶⁷

All these dealings require the consent of the relevant minister, except transfers and temporary transfers.⁶⁸ Applications for consent are required to be dealt with in accordance with the water management principles (set out in section 5) and any access licence dealing principles promulgated by the Minister or rules established under a relevant management plan. It has been suggested that the requirement for ministerial consent demonstrates the attempt to balance the imperative to establish a robust water market against broader environmental and social concerns which are embodied in the water management principles.⁶⁹

Another important aspect of the WMA is how risk for reduction in allocations under access licences is dealt with. In a limited range of circumstances, compensation is available to access holders for reductions in water allocations. Under s 87AA WMA compensation is payable, subject to exceptions, if an allocation has reduced as result of:

- A change in State government policy;⁷⁰ or
- For the purpose of providing additional water to the environment because of more accurate scientific knowledge that demonstrates the amount previously allocated was inadequate.⁷¹

Where a reduction occurs as a result of more accurate scientific knowledge, no compensation is payable for reductions of 3% or less. Compensation is paid partly by the State Government and partly the Federal Government reflecting the shares that were agreed in the NWI.⁷² Overall these provisions provide access holders with further security of rights and some insurance against the possibility of reduction in allocations as a result of rapidly developing knowledge.

3.3 Comment on Australian Water Reform

A key lesson that can be taken from the Australian experience of reform is the importance of central government direction and the establishment of a clear policy framework with input from relevant stakeholders. As a result of the initial COAG investigations, which culminated in the NWI, it was possible to set out an agreed series of objectives in order to establish a more efficient and sustainable water management system for Australia's water resources. As part of that process, it was agreed that an effective market for water trading was necessary to provide users with flexibility to deal with seasonal droughts and emerging issues, such as climate change. It was considered markets were an important tool to help achieve the overall NWI goal of optimising "economic, social and environmental outcomes".⁷³

The development and enhancement of water markets has been a centrepiece of national water reform, and important to raising Australia's economic performance.⁷⁴ The market can provide opportunities for currently allocated water to be reallocated between competing uses to highest and best use. The NWC's 2008 Australian Water Markets Report found that:

- a total of 32,205 trades in water access entitlements and water allocations were recorded throughout Australia during the 2007 and 2008 years;

⁶⁷ S 71M-71V.

⁶⁸ M McKenzie, above n 92, 461.

⁶⁹ Ibid

⁷⁰ S 87AA(5)

⁷¹ Section 87AA(6).

⁷² NWI, above n 95, clause 49. See also Water Act (Cth), Pt 2, Div 4.

⁷³ Ibid, clause 23.

⁷⁴ Second Biennial Review, above n 101, 126.

- Many hundreds of trades occur each day during summer months between October and March; and
- Trading in water access entitlements and allocations in 2007 – 2008 involved 2,515 gigalitres of water.

The NWC considers that the development of water trading has led to benefits at the individual/farm level, industry and regional levels. For example, at the farm level, studies have shown that water trading has benefits for both annual and perennial crops, and gives farmers greater flexibility in making decisions, particularly during dry periods, which assist the growth and development of their businesses.⁷⁵

It is suggested that WMA provides an example of how, if water access rights are given sufficient stability and security to make them a valuable commodity, this will facilitate market trading and improve overall efficiency of water use.

4 WATER TRADING IN NEW ZEALAND

4.1 Overview

A key goal of developing a water market is to achieve greater efficiency in the use of scarce water resources by allocating them to the highest and best use. Enabling the transfer of water permits and reducing transaction costs (by removing barriers to transfer) allows the market to encourage efficient behaviours, and users to maximise their returns from infrastructure investment.⁷⁶ An actively operating water market enables permit holders to obtain economic value from permits that may not otherwise assist. Estimates show that between 20 and 80 per cent of water allocated under permits is not used, so it appears there is considerable scope for development of a water market in New Zealand.⁷⁷

There are a number of aspects to efficiency in relation to water resources. First, there is ‘allocative efficiency’, which relates to the allocation of resources between competing uses and activities, and maximising society’s welfare through the most advantageous arrangement of resources.⁷⁸ When efficiency considerations are referred to, it is often this type of allocative efficiency that is meant. Secondly, ‘technical efficiency’ relates to the way in which water is actually used, and the maximum output that can be produced from it. A third aspect is ‘dynamic efficiency’, which imports temporal aspects, and refers to determining efficiency over time and how to continue to arrange resources so that allocative efficiency is achieved. Dynamic efficiency is an aspect that will often need to be considered, particularly in the policy formulation stage of regional planning. The changing nature of efficiency means that allocation decisions require frequent review.⁷⁹

Water markets can be created at two stages:

- Before water is extracted (i.e. by purchasing a water permit either in whole or in part or on a temporary or permanent basis);
- After the water has been extracted (i.e. by purchasing water from the person who has carried out the extraction).

The second type of market can arise in an irrigation scheme where water is stored and then divided and distributed among scheme participants.⁸⁰ “Water” under the RMA is defined to

⁷⁵ Ibid, 134.

⁷⁶ Skelton, above n 43, 260.

⁷⁷ Aqualinc, above n 10/

⁷⁸ Nyce, above n 13, 134.

⁷⁹ Ibid, 135.

⁸⁰ MAF, above n 42, 19.

exclude water contained in a pipe and therefore transfers under irrigation schemes are not regulated by the RMA.⁸¹ Members of the scheme are able to make their own rules or arrangements relating to transferability of entitlements and creation of a market. The focus of this paper is on the first type of water market, i.e. transfer of water allocations held under existing permits prior to the water being extracted. In this type of market, broadly there are two trading methods. First, there can be a temporary transfer of rights under a permit akin to a lease arrangement. The second method involves a permanent transfer of rights for the term of the permit.

In considering the usefulness of water markets, it is important to consider the issues of pricing and also what determines the value of water rights. Many factors impact the value of water rights including:⁸²

- Flexibility in allocation of supply or the ability to vary uses to maximise benefits to users;
- Excludability (i.e. an ability to prevent others from infringing the right);
- Security of ownership and predictability of the rights conferred (i.e. so that investment can occur without undue risk);
- Duration over which the entitlement operates;
- Divisibility of entitlements (as this contributes the flexibility);
- Transferability, i.e. the ability to divert unused entitlements to higher value uses.

As this list shows, there are various issues to be addressed in establishing a successful water market. In particular, it is necessary to define carefully the legal nature of the water rights to be traded, and to ensure that they provide sufficient security of tenure to be attractive in the market.

There are a number of advantages of water trading. The benefits include:⁸³

- allowing individuals to improve their security of supply via trading at times of drought or scarcity;
- moving water from uses which have a low value to higher value uses;
- increasing flexibility for users and improving efficiency of use of allocated water;
- enabling possible deferral of infrastructure requirements to increase supply (e.g. water storage), as additional water is able to be purchased;
- Removal from the process of allocation of political favouritism and/or requirements for the development of a complex regulatory framework, thus obviating the need for Councils to 'pick winners';
- Improved investment confidence for water-intensive activities;
- Reducing potential conflict between existing permit holders and new applicants in fully or near-fully allocated catchments;

There are however also a number of possible disadvantages including:⁸⁴

⁸¹ Section 2, RMA.

⁸² B Layton, above n 8.

⁸³ G Hewison, above n 8, 12. See also Aqualinc, above n 5, 33

⁸⁴ G Hewison, above n 10,13

- Potential for one user or group of users to gain market dominance and/or monopoly rents by buying up water available for abstractive uses;
- Costs associated with establishing institutional structures necessary for an efficiently operating market, e.g. central registry and water brokerage services;
- limited circumstances in which a market approach is appropriate or can create real benefits (e.g. water must be scarce and demand exceed supply within a catchment);
- Transitional issues caused by movement from a regulatory water allocation system to a market based or mixed system (particularly where there has already been significant existing investment in infrastructure).⁸⁵
- compliance and enforceability issues, including difficulties in measuring and defining rights with variable flows.

4.2 Barriers to Water Trading

Trading of water permits has been used in some parts of New Zealand as a solution to allocation difficulties. The RMA does permit trading of permits in limited circumstances under section 136. On-line trading or brokerage services are slowly developing, particularly in the Canterbury region.⁸⁶ Unlike Australia, however, there is no officially collected data on the operation of the water markets in New Zealand, and the evidence about their extent and effectiveness is, at this stage, anecdotal.

Robb et al (Lincoln Environmental) have undertaken a survey of water users' attitudes to water transfer (Lincoln Environmental Report).⁸⁷ They found that, although 74% of users thought that water should be able to be moved between properties, some very 'deep rooted' attitudes among water users suggest that little trading will actually occur. These arise from a strong association of water rights with land title (and the economic value of land), and a reluctance to participate in any scheme which may speed up or intensify land use or water use within a catchment.⁸⁸ There has also been a long standing view in New Zealand that freshwater resources should be free, and a concern when water markets are raised about the potential for speculators or 'water barons' to gain control of water bodies.

The Auckland Regional Council have also undertaken research in relation to the reasons for limited uptake of water transfers and identified a number of barriers:⁸⁹

- **Lack of Scarcity.** Where catchments have abundant supply, trading is not necessary;
- **Insecurity of property rights to water.** Water permits are granted for a limited period and can also be subject to review of conditions during that time. This can dissuade new users from investing in bore and ancillary equipment where a permit obtained has a limited term;
- **Irreversibility of Transfer.** The permanent transfer or outright sale of a permit reduces considerably future land use options. Water provides users with increased flexibility of use and is also considered to be insurance against drought. The loss of a water permit via transfer is a major concern for users and disincentive to trading;

⁸⁵ For example, for a specific use for water, it may be difficult to attract the water out of that use, which is in a long term sense inefficient.

⁸⁶ See for example www.hydrotrader.co.nz.

⁸⁷ Robb et al, Attitudes and Barriers to Water Transfer (Report No. 4464/1, MFE, December 2001)

⁸⁸ Ibid, 1 and 28.

⁸⁹ Bates, B., Jenner, M. and Murphy, G. (1997). Economic Instruments and Water Allocation—Three Essays. Auckland Regional Council, Working Report No. 72, 6 - 14. See also discussion in MAF, above n 42 and A Hayward, above n 17, 247.

- **Lack of knowledge of transferability.** The ARC study found that many users do not appreciate the possibilities of water transfer. There is not a widespread understanding of the RMA rules relating to transfer;
- **Lack of enforcement.** There are historical problems with lack of monitoring and enforcement of water take limits. This undermines a transfer system as water users may overcome scarcity by exceeding their legal allocations ;
- **Social considerations.** These include negative perceptions of transferable permits and concerns about monopolies developing, unwanted water users coming into the area, losing community control over how the water is allocated, and introducing confrontation within the community over competition for water.
- **Lack of knowledge regarding the value of water.** The economic value of water is poorly understood and therefore users have little incentive to consider transfer of permits; and
- **High transaction costs.** These include search and information prior to transfer, bargaining and decision, and monitoring/ enforcement after transfer has occurred.

Fundamentally also, there is no opportunity cost for holding the permit and not using it. Even if therefore some profit could be obtained from trading an allocation, the ‘upside’ needs to be significant before this offsets the transactional costs when water is not fully priced (in rural areas at least). It has been observed that users are often comfortable with transfers during dry seasons to assist others as a practical measure within the catchment, but their discomfort increases with either permanent transfers or leasing transactions.⁹⁰

The Lincoln Environment Report does not consider it likely that water trading will be used widely under the current allocation framework. It concludes that issues relating to infrastructure costs, lack of water storage, limited and illiquid markets will all mean that water trading will only take place at the margins.⁹¹ The report suggests however that a fundamental change to the current system, i.e. pricing or charging for water may allow the market to become more successful.

The historic problems faced in New Zealand are to a significant extent universal, and the conclusions of the MfE report need to be assessed in light of the success story of water markets in other parts of the world, including Australia. Despite the more limited scope for water markets in the New Zealand context, it is suggested that a number of reforms are possible to the current system to facilitate enhanced water trading, and this has a role to play to achieve improved efficiency of allocation. Water markets are not and will never be a complete answer, but can function well within the context of an overall regulatory framework – i.e. one that protects environmental flows and ensures a sustainable level of allocation for consumptive uses.

5 POSSIBLE AREAS FOR REFORM

5.1 Unbundling of Take and Use Consents

As noted, one of the key initial reforms agreed by the Australian State and Federal Governments was separation of water permits from the land title. This has been the position

⁹⁰ Ibid.

⁹¹ Robb et al, above n 137, 2.

in New Zealand for many years, i.e. it is not necessary to be the owner of land adjacent to a river in order to obtain access to the water resource.⁹²

A second stage reform that occurred in Australia was the separating out of an access entitlement from a use right. It is suggested that this is a model that New Zealand could consider.

It would be possible to amend key provisions (in particular sections 14 and 136) to provide for a clear two part consenting process:

- **Water Access Entitlement** – this would permit a holder legal access to a specified share of available water within a catchment. Water available for consumptive uses would be set via an integrated catchment management process and ensure that in-stream and environmental uses were provided for. The access entitlement would quantify a proportion of water (rather than absolute volume) that might be taken at any given time from the available resource.⁹³ It would also have an extraction component that would provide conditions as to maximum rates of abstraction. The terms of an access entitlement could be standardised to a significant degree, so as to enable it to be transferable and divisible.⁹⁴ A water access entitlement holder would also need to have a water use approval.
- **Water Use Approval** – this would confer a right to use water for a particular purpose at a particular location (i.e. via a specific intake structure). Principally, this consent would be concerned with the environmental effects of specified use, and would grant permission to build and operate a structure to take water. Conditions could also be imposed to manage downstream effects of water use and encourage efficient use.⁹⁵

Institutional reform would be required to support such a two stage model. This would aim to ensure that all transfers and current holdings are transparent for users and stakeholders, and also provide a focus for the market to connect potential transferors and transferees. To address this, it is suggested either a single national register of water entitlements or, possibly, regional registers (for key affected catchments) could be established. In the latter case, there would need to be central guidance to ensure some consistency between regions.⁹⁶

A registry (in whatever form) would record any dealings relating to relevant access entitlements including transfer, subdivision, or registration of any security interest or any other matters. This would provide an increased level of certainty as to the nature of water rights and conditions of entitlement, and would also facilitate the market by providing better publicly available information to all participants. A more centralised system may also enable the development of a model consent conditions to achieve a greater degree of regional consistency (and thereby further facilitate trading).⁹⁷

5.2 Duration of consents

The NWI in Australia attempted to strengthen water rights by requiring states and territories to introduce perpetual water access entitlements, with a similar status to that of freehold

⁹² Ibid, 22. This occurred with the effective abolition of riparian rights following the enactment of the Water, Soil and Conservation Act 1967.

⁹³ NZSCBD Report, above n 14, 20

⁹⁴ G Hewison, above n 30, para 5.1

⁹⁵ NZSCBD Report, above n 14, 20

⁹⁶ G Hewison, above n 30, 19

⁹⁷ G Hewison, above n30, 19

land.⁹⁸ The NWI also recognises that fixed term or other types of entitlements such as annual licences should only be issued where ‘demonstrably necessary’.⁹⁹

Perpetual water rights may be inconsistent with sustainability requirements and/or principles of adaptive management, which aim to be responsive to monitoring and improvements in understanding of ecological water requirements. The WMA attempts to address this by not providing for an absolute right to a set volume of water per year, but only to a perpetual share of the water resource (the actual amount varies depending on the amount of water resources available).

New Zealand currently has a 35 year limit on water permits for take and use. It is suggested that if we do move to a more market based model that this period could be reviewed and consideration given to the concept of a perpetual water access entitlement, which enables users to have a secure share along the lines of the Australian model. This may also facilitate greater investment in water storage devices and infrastructure by improving security of tenure of rights.

Compensation provisions could also be considered. These would apply in the event that water allocations are reduced significantly due either to a change in policy and/or to greater environmental flows as a result of better scientific knowledge. Risk allocation for reductions in water volumes would need to be agreed between all key stakeholders including central and local government and consent holders.

5.3 Transitional Issues

The transition between the current allocation framework and more market based system foreshadowed in *New Start for Fresh Water* is a major design issue. The rights of existing holders would need to be safeguarded in order to protect investments that had previously been made. It is likely there would need to be a ‘grandfathering’ system incorporated into revised regional plans (or integrated catchment management plans) to ensure that existing rights to take and use were converted into new statutory entitlements over time. Although in many cases this would be relatively straightforward, some older consents for irrigation (particularly in the Canterbury region) for other consumptive uses are often expressed as only a maximum flow rate and do not have volume restrictions. For these consents, it may be necessary to assess the consent holder’s actual use of the water, so as to be able to calculate a share component of a water access entitlement.¹⁰⁰

Particular difficulties could also arise where a resource is already over allocated, as any new regional plan or catchment management plan would need to exclude some already allocated water. ‘Sleeper’ or ‘dormant’ water takes may also need to be factored in. This raises the possibility of existing users needing to take a ‘haircut’ in some form of proportional basis.

Although these issues are not as serious for New Zealand as they are in Australia, on an individual level there will inevitably be winners and losers during any transitional period. Overall however, some form of grandfathering system is likely to be the least disruptive (and most politically acceptable) system compared to any alternative (e.g. an initial auction or ‘clean slate’ approach), as it enables existing farmers and other land owners with businesses to continue to operate except in the most unusual circumstances.¹⁰¹

5.4 Sustainability Issues

⁹⁸ M McKenzie, page 448.

⁹⁹ NWI, paragraph 33(1). Such as where water resources are poorly understood and/or less developed, where access is contingent upon opportunistic allocations and/or where access is provided temporarily as part of an adjustment strategy or where trading may otherwise be inappropriate.

¹⁰⁰ Aqualinc, above n 5, 100

¹⁰¹ Ibid

There are significant difficulties under the current ‘first in first served’ approach by Councils performing their duties under Part II of the Act. It is difficult, or impossible in some circumstances, for the Councils to ensure that the adverse environmental effects (particularly cumulative effects) are mitigated using the current allocation system.

There are a number of facets to sustainability considerations, but one important factor in considering the place of an enhanced transfer system is efficiency issues. Both users and regional councils understand the role water markets could play promoting the efficiency of water use.¹⁰² Although the RMA has been amended to ensure that Councils consider efficiency considerations at the point of renewal of any permit (and use of industry good practice), in fact, the ‘use it or lose it’ approach of some Councils continues to promote the opposite; i.e. maximising water use rather than seeking efficiency gains.¹⁰³ This issue is exacerbated by the fact that the regime does not currently put a price on water, and therefore holding onto allocated, but unused, water is effectively a cost-free exercise.¹⁰⁴ New Zealand’s current framework does not incentivise efficiency sufficiently.¹⁰⁵

Although an enhanced trading regime is not a panacea for these issues, the Australian experience suggests that there can be considerable gains from increased transfers. As an example it has been estimated that returns from irrigation have increased in Victoria as a result of improved water transfers by \$12m per annum, and the benefits in New South Wales are between \$60m and \$100m per annum.¹⁰⁶ The NWC considers that there are encouraging signs that water trading is able to generate significant benefits and move water to higher valued uses.

In New Zealand, the Council for Sustainable Development has stated that the amount of water likely to be become available for additional irrigation via transfer is between 12% and 22%.¹⁰⁷ The value of water transferred based on these figures is estimated to be between \$180m and \$330m per annum increase in GDP. The largest beneficiary would be Canterbury with an estimated increase in GDP of between \$80m and \$150m per annum. These estimates are indicative only and based on overseas experience, but do provide some idea of the possible economic benefits from enhanced trading.¹⁰⁸

It has been suggested that to achieve sustainability in a broader sense, central government should consider a fisheries-style quota approach to allocation of water. There are lessons that can be learnt from the quota management system under the fisheries legislation, but a full examination of these issues is beyond the scope of this paper.¹⁰⁹ A quota based framework appears to be what the National Government are now considering in *New Start for Fresh Water*, ie ensuring that there is a sufficient allocation for environmental flows and then making water available for consumptive uses (and allocating pools for different uses). This has also been suggested by other stakeholders including the New Zealand Business Council for Sustainable Development. This paper has suggested that, in addition to amending the planning framework so that an environmental ‘quota’ is achieved, further efficiency and sustainability objectives can be achieved by an enhancement of the existing water trading regime.

¹⁰² Robb et al, above n 138, 27

¹⁰³ Andrew Hayward, above n 17,155.

¹⁰⁴ Ibid 156.

¹⁰⁵ Land Care Research note that water is essentially “free” in rural areas – with the only cost being the costs of applying for resource consent (although fees can be substantial): Gunningham, above n 70, page 38.

¹⁰⁶ R Hawke, above n 40, 24.

¹⁰⁷ Aqualinc, above n 5, 35 - 36. This is based on six percent permanent transfers (of which 70% is unused), between 3% and 8 % temporary transfers and between 5% and 10% efficiency gains in the hands of buyers.

¹⁰⁸ Ibid. Any GDP gains would also need to be offset against the costs of running a trading system - which are estimated to be \$17 million per annum (based on NSW experience). This may however be greater in New Zealand as transfer systems could be more complex because of the larger number of catchment involved.

¹⁰⁹ See detailed discussion of comparisons between fisheries management and water allocation issues in A Hayward, above n 17.

5 CONCLUSIONS

The ability to transfer water permits already exists under the RMA. There are however a number of legislative and non legislative barriers to an effectively operating system. Despite developing scarcity in some catchments around New Zealand, the number of transfers and the extent of the water market remain limited.

This paper has suggested that for a system of tradable water rights to work effectively, the nature of the rights needs to be clearly defined and also separated from land title. This was a fundamental part of the water reform in Australia and a cornerstone of the current successfully operating water market.

This is easier said than done. The legal right must strike a balance between private property interests and the flexibility required for adaptive management that is appropriate for a natural and fluctuating resource such as fresh water.¹¹⁰ Providing protection to private interests is important to facilitate a water market, but this needs to be weighed against broader sustainability considerations, such as environmental / ecological protection and also societal interests in water resource from both a quality and quantity standpoint.

This balance is possible in a framework that provides for protection of minimum flows through a robust regional planning process and allocation of water available for consumptive uses via market mechanisms. This is preferable to leaving allocation for the consumptive pool to the inequities of the first in first served system or requiring regional councils to ‘pick winners’ between competing users. New Zealand is already on the regulated end of the spectrum in terms of water allocation system – which may be appropriate where water is abundant – but requires rethinking where scarcity and competition for abstraction increase within key catchments.

It is suggested that the RMA needs to be comprehensively reviewed to address the current impediments and barriers to an efficiently operating trading system during the Phase 2 RMA Reforms. In particular issues relating to duration of consents, certainty and transferability need to be dealt with to enable the creation of enhanced water markets. The two-stage consenting system outlined in this paper is able to address competing public interest appropriately. Proposed water access entitlements would not give strictly exclusive rights to holders, but would provide access to a specified portion of shared resource.¹¹¹ In this way, although a holder’s rights are exclusive to that person and not available to others, the holder is not entitled to a fixed amount of water, but a share of the water available. Experience of the Australian markets has shown that this form of permit is considered to be a sufficiently certain and valuable commodity to generate significant trading volumes.

In addition there is the need to examine non legislative measures to support the development of a sustainable water market. These include: a public education programme about transferability of permits; more effective monitoring and enforcement by consent authorities of existing permits; granting of permits for longer terms (even under the current legislative constraints), reduction of transaction costs particularly of smaller consents, and the development of a registry systems on either a regional or national basis.¹¹² It is hoped that these measures, with the proposed statutory amendments, will mitigate the risk of market failure and harness the ability of tradable rights to promote more efficient and higher value uses.

It is not considered the establishment of full property rights in water (akin to land ownership) is necessary for the establishment of an effective market. A robust market can develop in the

¹¹⁰ Ibid, 444

¹¹¹ Ibid, 462.

¹¹² Bates et al, above n 149, 17

absence of pure property rights in the traditional sense. The key issue is ownership of sufficiently certain management rights, rather than ownership of the underlying resource. Any change to a pure property rights model would involve a fundamental legal and policy shift and also raise significant issues in terms of the Treaty of Waitangi. The amendments proposed do not seek to determine ownership, but seek to build on the existing rights management regime contained in the RMA.

In the recently released Interim Report of the Land and Water Forum, Alistair Bisley (Chair) suggested that we should regard water not as a problem, but as an opportunity for all of New Zealand. Water should be seen as a strategic advantage in an increasingly water constrained world.¹¹³ New Zealand will not be able to maximise its economic performance unless water dependent economic activities are facilitated, eg agriculture, tourism, forestry, energy, and industry. However it is also important to pay proper attention to other dimensions, eg heritage/ cultural, social, environmental, otherwise New Zealand is likely to stay stuck in 'dispute mode'. The work of the Land and Water Forum to balance these competing tensions and interests and how they will seek to develop water markets will be watched with interest.

ACKNOWLEDGEMENTS

This paper is an abridged version of a paper prepared in completion of a LL.M degree at the University of Auckland. The Author would like to acknowledge Assoc. Professor David Grinlington, who supervised this research, and also Dr Grant Hewison of Kensington Swan for his valuable comments and review.

REFERENCES

Journal Articles

- Jo Appleyard 'Has the Resource Management Act replaced the Property Law Act?' (2007) NZLS Intensive Resource Management 49
- Bates, B., Jenner, M. and Murphy, G. (1997). *Economic Instruments and Water Allocation—Three Essays*. Auckland Regional Council, Working Report No. 72.
- R Brise, A Kingsland and R Orr, "Swimming in New Waters: Recent Reforms to Australian Water Law", Australian Government Solicitor Legal Briefing 90, 21 July 2009
- Neil Gunningham, *Innovative Governance and Regulatory Design : Managing Water Resources*, (Land Care Research Contract Report LC0708/137, August 2008)
- R Hawke, *Improving the Water Allocation Framework in New Zealand: Enhanced Transfer*, Ministry of Economic Development, Occasional Paper 06/09 May 2006,
- Andrew Hayward, 'Freshwater Management: Water Markets and Novel Pricing Regimes' (2006) 10 NZJEL 215
- Grant Hewison, 'Enhanced Water Transfer', Paper prepared for Ministry for the Environment (Auckland, 2006)
- David McGregor, 'Water Allocation and Trading – A New Zealand Perspective'
- M McKenzie, "Water Rights in NSW: Properly Property?" (2009) Sydney Law Review, Volume 31, 443
- Olivia Nyce, 'Water Markets under the Resource Management Act 1991: Do They Hold Water' (2008) 14 Canterbury Law Review 123
- Robb et al, *Attitudes and Barriers to Water Transfer* (Report No. 4464/1, MfE, December 2001)
- R Peart, 'Innovative Approaches to Water Management: A Comparison of New Zealand and South African Approaches' [2001] NZJEL 127

¹¹³ Alistair Bisley, *Interim Report of the Land and Water Forum*, presented to Environmental Defence Society, Auckland, 2-3 June 2010 available at http://www.edskonference.com/content/docs/2010_papers/Bisley,%20A.pdf (as at 20 June 2010)

Peter Skelton & Ali Memon, 'Institutional Arrangement and Planning Practices to Allocate Fresh Water Resources in New Zealand: A Way Forward', [2001] NZJEL 241

Cases

Aoraki Water Trust v Meridan Energy Limited [2005] 2 NZLR 268

Fleetwing Farms Limited v Marlborough District Council [1997] 3 NZLR 257.

Glenmark Homestead Limited v North Canterbury Catchment Board 1978 1 NZLR 407 at 412 (CA).

New Zealand Rail v Marlborough District Council (1994) NZRMA 70

Stewart v Kaneiri Gold Dredging Limited [1982] 1 NZLR 329

Government Papers/Reports

Aqualinc Research Limited, *Snapshot of Water Allocation New Zealand*, prepared for Ministry for the Environment (ME 782, November 2006)

Aqualinc Research Limited, *Sustainable Freshwater Management – Towards an Improved New Zealand Approach*, prepared for the New Zealand Council of Sustainable Development, (Report No H07004/1, August 2008)

Cabinet Paper, *Implementing a New Start for Fresh Water: Proposed Official Work Programme*, (Office of the Minister for the Environment and Office of the Minister of Agriculture, 2009)

Cabinet Paper, *New Start for Fresh Water*, CAB Min (09) 20/12

Foundation for Research Science and Technology and Ministry for the Environment, *Water Research Strategy 2009*, Wellington, Ministry for the Environment.

Harris Consulting / Agribusiness Group for the Ministry of Agriculture and Fisheries Policy team and Ministry for the Environment, *Property Rights in Water: A Review of Stakeholders' Understanding and Behaviour* (November 2003)

Ministry of Agriculture and Fisheries 2001b, *Economic Efficiency of Water Allocation* (MAF Technical Paper No. 2001/7, November 2001), 16.

Ministry for the Environment, *Freshwater for a Sustainable Future: Issues and Options* (Wellington, December 2004).

Dr Nick Smith, "The Bluegreen Vision for New Zealand" (2006)

Ministry for the Environment, *Resource Consent Durations and Reviews* (September 2000)

New Zealand Business Council for Sustainable Development, 'A Best Use Solution for New Zealand's Water Problems' (Wellington 2008)

Proposed National Policy Statement for Freshwater Management, July 2008 Ref 295

Report and Recommendations of the Board of Enquiry into the proposed National Policy Statement for Freshwater Management, January 2010

Other Sources

Alistair Bisley, *Interim Report of the Land and Water Forum*, presented to Environmental Defence Society, Auckland, 2-3 June 2010

Communiqué of the Council of Australian Governments (COAG), February 1994;

Attachment A: National Water Reform Framework Agreement

Inter Governmental Agreement on a National Water Initiative (NWI), 25 June 2004

National Water Commission, "Australian Water Reform 2009: Second Biennial Assessment of Progress in implementation of the National Water Initiative

Peter Whitehouse, 'Water – A Key Strategic Advantage', paper presented to New Zealand Fresh Water Management Forum, Wellington, 15 -16 February 2010.