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REFORMING WATER ALLOCATION AND SUPPLY IN
NEW ZEALAND

ROGER KERR
EXECUTIVE DIRECTOR
NEW ZEALAND BUSINESS ROUNDTABLE

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Introduction

New Zealand's record of water reform is abysmal. Other network industries like electricity, telecommunications, ports and airports have benefited greatly from corporatisation, privatisation and regulatory reform. But in the case of water allocation and the supply of water and wastewater services, little progress has been made. Indeed in several areas we are going backwards.

Ten years ago the New Zealand Business Roundtable published a major study of the water industry.¹ I believe its analysis is still sound and relevant. It gives me no satisfaction at all to say that many of its predictions about what would happen if New Zealand did not reform its water and wastewater systems are coming to pass.

Water standards are not being met and water is becoming increasingly scarce in many parts of the country. Moreover, the environment is being damaged as a result of poor price signals, inefficient use of water, poor supply systems and mismanagement.

Other countries have made considerable progress and are reaping the benefits while New Zealand has been left behind.

The problems

The problems with our water and wastewater systems were identified by the Parliamentary Commissioner for the Environment in a report into water supply.² They include:

- inadequate water flows in rivers and streams arising from excessive and inefficient water use;
- contamination of surface waters and groundwater from uncontrolled or poorly managed stormwater drainage and wastewater disposal;
- poor drinking water quality;
- lack of investment and deferred maintenance, in part through incomplete pricing and inadequate financial contributions from new urban developments;
- institutional and regulatory barriers to improved management; and
- the risk of infrastructure failure.

¹ CS First Boston New Zealand (1995), *Reform of the Water Industry*, New Zealand Business Roundtable.

² 'Ageing pipes and murky waters: urban water system issues for the 21st century', http://pce.govt.nz/reports/allreports/0_908804_91_1.shtml#summary

During 2003, 29 percent of the population was supplied with drinking water that was unable to be shown to comply with the microbiological guidelines in the Ministry of Health's Drinking Water Standards for New Zealand 2000.³

Our water resources are allocated administratively by the government with little scope for reallocation according to their value in alternative uses. With increasing pressures on water supplies, political lobbying for water rights is intensifying.

Price signals are virtually non-existent in New Zealand's water regime. In most industrialised countries, water is metered and paid for by volume. Metrowater in Auckland has introduced water metering. But in most of New Zealand there is very little residential water metering and users do not face the costs of their water-use decisions. So in hot, dry weather they soak their lawns and wash their cars with quality drinking water without regard to the cost.

The assets of local authority water and wastewater infrastructure are valued, on a replacement cost basis, at approximately \$7.5 billion with around \$600 million spent on operational costs each year. It has been estimated that around \$5 billion of investment will be required over the next 20 years to upgrade water, wastewater and stormwater infrastructure.

The problems can be traced in large part to the multiple and conflicting roles of the public agencies involved with water, blurred accountabilities, lack of customer choice, and lack of commercial focus. The roles and responsibilities of public authorities for water services include being the owner of the infrastructure assets and provider of capital for improvements, customer representative, service provider and regulator.

There are at least 60 Acts of Parliament affecting the water supply or drainage of individual localities.⁴

The water sector is highly fragmented in structure. Despite New Zealand's relatively generous endowments of water, shortages are increasingly serious in many regions. The 'infrastructure stocktake' carried out by PricewaterhouseCoopers for the government last year listed seven regions that are experiencing serious summer water shortages, including Canterbury, Otago, Marlborough, the Kapiti Coast and Wairarapa.⁵

³ The major problems are lack of compliance with *E coli*, *Cryptosporidium* and protozoan criteria. See 'Annual Review of Drinking-Water Quality in New Zealand', Ministry of Health, 2005.

⁴ The main pieces of legislation that impact on water supply are the Health Act 1956 and Water Supplies Protection Regulations 1961, the Local Government Act 2002, Conservation Act 1987, Local Government (Rating) Act 2002, Resource Management Act 1991, Building Act 2004, the Health and Safety in Employment Act 1992 and Health and Safety in Employment Regulations 1995.

⁵ 'Infrastructure Stocktake: Infrastructure Audit', PricewaterhouseCoopers, a report prepared for the Ministry of Economic Development, January 2004.

Past reform efforts

The problems in our water and wastewater system have long been recognised. Unfortunately, despite a few half-hearted efforts, few improvements have been made over the last decade.

In 1995, consultation by the Ministry of Health with the water industry and the public showed that legislation protecting the public from diseases from drinking water was incomplete, outdated, fragmented and occasionally inconsistent.

In November 1998, the government announced a comprehensive review of the delivery of water, wastewater (sewerage and trade waste) and stormwater services. However, in the face of strong opposition from councils, responsibility for the review was passed to local authorities, the main providers of such services, in July 1999. Predictably, nothing tangible resulted.

After the 1999 general election, work on the review was placed on hold. Since then, New Zealand has, if anything, gone backwards, with measures such as the Local Government Act 2002 which both made it more difficult for local government to dispose of assets and encouraged an expanded role for local governments through a wide purpose section and the power of general competence.

Most recently, the government has set up a 'Water Programme of Action', coordinated by the Ministry for the Environment and the Ministry for Agriculture and Forestry, to look at water quality and allocation issues. No date has been announced for the completion of this so-called action-group's work. It is my understanding that Cabinet is to consider a report next month but it is unclear whether a robust reform agenda will emerge.

Over the same period, successive governments have fiddled with the Resource Management Act (RMA) but the much-needed first principles reforms have been ducked. The current proposals to amend the RMA do nothing to address the fundamental problems since they further embed central planning and administrative allocation. They do not address the issue of allowing trade in use and discharge rights for water nor the prohibition on private parties defining their own rights and trading. Nor do they realistically address the issue of ensuring self-interested groups face the costs of their political lobbying and the opportunity costs of consultation.

Lessons from Australia

It has become fashionable in recent years for policy makers in New Zealand to cast their eyes across the Tasman with a view to adopting Australian public policies. Too often, unfortunately, the Australian policies we seek to emulate are the bad ones (like aspects of securities market, network industry and banking regulation), with the good ones being ignored.

Water is a case in point. In a 2003 international survey of water policies and issues, *The Economist* magazine concluded that Australia took “top prize for sensible water management.”⁶ Yet, rather than embracing Australia’s moves towards water markets, corporatisation and sensible pricing policies, the New Zealand government seems to be looking the other way.

Last year, Meridian Energy Ltd commissioned ACIL Tasman, an Australian consulting firm, to undertake a review of Australia’s experience with water markets.⁷ This very useful study found that water trading has been highly advantageous. It has facilitated the movement of water from low value to higher value uses. In Victoria, for example, permanent trading has moved water away from low-return sheep and cattle-grazing to higher-valued dairying and high-value horticulture. Water trading has also increased the flexibility available to individual water users in how they operate, manage their risks and utilise their capital. A further significant benefit has been the reduction in resources devoted to lobbying for the purposes of influencing decisions under administrative/political systems of allocation.

Various concerns or objections to water trading – relating to the potential activities of ‘water barons’ and/or speculators, adverse impacts on the environment, and on local regions – were found not to have been borne out in practice.

The study reported that there is now widespread acceptance of markets and market instruments as a means of ensuring the efficient and sustainable use of water resources by all stakeholders, including by environmentalists and others initially opposed to it.

Further, markets have evolved in ways bureaucrats would never have envisaged. It is inconceivable that administrative allocation could have responded to the dynamic changes in the supply and demand for water in competing uses, reflecting product market variations and climatic conditions.

The market has also been used by the government to further its environmental goals in a transparent and equitable fashion. In the Murray-Darling basin, for example, water is purchased on the open market with federal and state government funds for the purpose of restoring and maintaining flows for environmental reasons. In contrast, in New Zealand it is more likely that the government would seek to achieve its environmental goals by passing regulations, with the true cost of the measures hidden and without compensation for those whose property rights were abrogated.

The ACIL Tasman study notes that a prerequisite for an effective market is clearly specified and robust property rights. Previously ill-defined entitlements have been converted into tradeable and bankable assets through the specification of entitlements with clearly defined volumes and reliability, separation of entitlements from land, and ‘unbundling’ of various

⁶ ‘Liquid Assets’, *The Economist* 17 July, 2003.

⁷ ACIL Tasman, ‘Water Markets in Australia’, a report prepared for Meridian Energy Ltd, April 2004.

components of entitlements such as the associated works, and use approvals and delivery capacity.

The market process in Australia has now progressed sufficiently to see a sizeable volume and value of water being traded in most Australian jurisdictions. About A\$50 million a year of water is now traded, mainly during the summer months. Prices are typically around A\$30 per megalitre but can rise to A\$500 or higher during droughts. To date, temporary trades – the transfer of the water allocation for a particular season – have far outweighed permanent trades.

Overall, the ACIL Tasman study concluded that, “while there have been some transitional issues, the benefits from water trading have greatly outweighed the costs.”

Australia is also leading New Zealand in the delivery of water and wastewater services. Most of the water and wastewater industry in Australia was corporatised around a decade ago. The Sydney Water Board was corporatised in 1995. The largest Western Australian water utility was corporatised in 1996. The major water utility in South Australia, the South Australian Water Corporation was corporatised in 1995. Melbourne Water was corporatised in 1991 and then restructured in 1995.

Billions of dollars worth of water, stormwater and wastewater projects have been contracted to the private sector. Following corporatisation, the South Australian Water Corporation franchised all water supply and sewerage services in the Adelaide metropolitan area to a private company, United Water, for 15 years. The franchising arrangement achieved cost savings of around \$10 million per annum.⁸ The New South Wales government has recently announced that the private sector would be able to compete with the public sector to provide sewerage and water infrastructure to residents in new urban centres around Sydney.⁹

The National Competition Council has ruled that Sydney's sewerage operations should be open to private competition. One company, Services Sydney, plans to compete with Sydney Water for the fees paid by water customers, pay Sydney Water for using its network of sewers and pipelines and then divert a proportion of the city's waste to a recycling plant that would turn it into drinkable water (to be sold to industrial and agricultural users).

Other reforms have been implemented. The Hunter Water Board introduced user-pays price reforms as far back as 1982. The Sydney Water Board moved from property-based charges to usage charges in 1995 and 1996. Rural councils have also moved to usage-based water pricing. The moves to tradable water permits began in 1998.

Most of these market-oriented reforms in Australia's water industry got underway around a decade ago or more. New Zealand has yet to get to the starting gates.

⁸ *Australian Financial Review*, 18 August 1998.

⁹ *Australian Financial Review*, 14 December, 2004.

Progress in other countries

Australia is by no means alone in reforming its water supply and allocation regimes. Frustration over the failure of administrative planning to meet the basic needs for water, especially in developing countries, has led to a widespread rethinking of national and international water priorities and policies.

As far back as 1992, the International Conference on Water and the Environment held in Dublin concluded, among other things, that:

Water has an economic value in all its competing uses and should be recognised as an economic good.

Even the United Nations has recognised that economics must play a part in efficient water management.

In the last decade, water has come to be regarded as an economic good (ie subject to the laws of supply and demand) in dozens of ways and in hundreds of places, affecting millions of people. Prices have been set for water previously provided for free. Private companies have been invited to take over the management, operation and sometimes the ownership of public water systems. Private companies that build, own and operate water systems around the world now have annual revenues of around US\$300 billion, excluding revenues for the sale of bottled water. At the same time, commercial trade in bottled water has boomed. Proposals have been made to transfer fresh water in bulk across international borders and even across oceans.

Treating water as an economic good and introducing private sector disciplines into water systems are not new ideas. Private entrepreneurs, investor-owned utilities or other market tools have long provided water or wastewater services in different parts of the world. What is new is the extent of the privatisation moves in the water industry underway in different parts of the world. International agencies like the World Bank, aid agencies and some water organisations like the World Water Council that used to work with governments on central planning have been at the forefront in pushing privatisation initiatives. Such options should be considered on their merits. Opposition to them on the part of the government and councils in New Zealand can only be ideological.

Nevertheless, the extent of private involvement to date should not be overstated. Most water distribution worldwide is still in government hands. And the introduction of greater private sector participation has not been without its opponents, or its controversies.

For example, in Buenos Aires a concession was awarded to a consortium owned mainly by French water company, Suez. The consortium managed to cut water tariffs and to extend 24-hour service to an extra 3 million poor people, who found that their piped supplies cost one-tenth or less of what they had been paying to private water vendors. Unfortunately, the catastrophic Argentine devaluation of early 2002 destroyed the economics

of the operation, the government refused to let the consortium invoke a clause allowing it to raise prices to offset the devaluation, and Suez pulled out.

Probably the most controversial case has been in Cochabamba, Bolivia. It has become the poster child for the anti-privatisation brigade after street riots in response to a trebling of water charges by the private operator. However, according to *The Economist*:

... the correct conclusion from the Cochabamba fiasco has little to do with privatisation. The mayor and the Bolivian government were wrong to insist on an expensive and unnecessary dam. But the bigger problem was that water tariffs had been too low for too long, starving the system of investment. Had the tariffs been raised earlier, more cash would have been available to improve service. These twin failings meant that any new contract, public or private, was bound to lead to unacceptable price rises.¹⁰

Chile provides a better South American model of water reform, as it does in most economic and social areas. Chile now has near-universal water-supply and sanitation coverage. Aguas Andinas, the utility that supplies Santiago and its region, has successfully let a contract to Suez that has survived exchange-rate problems, though the exchange rate movements were much less severe than in Argentina. The country has also enforced proper pricing for water. Rather than dishing out blanket subsidies to hold down water tariffs, a policy that usually benefits the middle classes most, Chile charges everybody the full cost of their water, but gives poor people stamps to redeem against their bills.

Probably the best test of the private versus public argument in water is to be found in England. Until 1989, most British water was delivered by public utilities. That year, all 10 English and Welsh water utilities were floated on the stockmarket. How does the record look 14 years on? According to a review in *The Economist*, "in terms of quality, service delivery and efficiency, the answer is excellent; in terms of stockmarket performance, less so."¹¹

It is interesting to compare the situation in England with that in Scotland. In 1989, Scotland's water industry was comparable to the English utilities in every respect, but the government kept it in public hands. For a while, the Scots benefited from lower bills. But as Scottish regulator, Alan Sutherland, recently conceded, things look different now. Scottish Water is less efficient than its southern peers, its service delivery is poorer and its water quality is worse; it is, in short, ten years behind.

Priorities for reform

The contrast between Scotland and England parallels in many ways the differences between New Zealand and Australia.

In New Zealand, the area of land being irrigated has doubled every decade since the 1960s and irrigation now takes up 77 percent of all allocated

¹⁰ 'Private passions', *The Economist*, 17 July 2003.

¹¹ *Ibid.*

water. East Coast New Zealand rivers are under considerable pressure. More than 30 waterways in Canterbury are on the danger list. Ground water is also being raised at an increasing rate to cope with dairying, viticulture and cropping on formerly dry farming areas. Yet on bright sunny nor' west days the irrigation continues, as there is no incentive to avoid evaporation. The water is used wastefully because it is free and the true opportunity cost of using the water is not faced by the user.

In the absence of pricing signals, regional councils are resorting to rationing or regulation. Environment Canterbury (E-Can) has established 'red-zones' where no new water allocation is to be permitted, regardless of the economic merits of the development. With the available water fully allocated and water-use rights unable to be transferred through normal market mechanisms, potentially valuable development opportunities are going begging. E-Can is also contemplating 'B' permits to newcomers such that they only get access to water when rivers are very high. The Waitaki Allocation Board has even proposed setting aside a certain amount of water for "future unknown needs", apparently oblivious to the fact that it is both impossible and unnecessary to try to predict future technological change.

These administrative devices by E-Can and other bodies are not only very poor second-best options compared to establishing market mechanisms. As with any administrative intervention, they are also likely to have unintended consequences requiring further administrative fixes over time.

The problems are most evident on the Waitaki River where, after intense political lobbying, the government passed special legislation establishing an Allocation Board for the catchment. However, in its draft water plan, the Board has failed to grasp the opportunity to introduce market-oriented water allocation mechanisms. Instead it has perpetuated a central-planning approach. The New Zealand Institute of Economic Research (NZIER) has noted that, by diminishing Meridian Energy's access to water, the Allocation Board's draft plan is likely to result in increased electricity prices and increased risks to the security of electricity supply, without any evidence of likely benefits to the environment. As the NZIER notes, "if there is a precedent for regional councils to arbitrarily claw back rights to the use of water then existing investment will be undermined and further or new investment will not proceed."¹²

Similar pressures on water supply are starting to emerge in the Waikato, albeit on a smaller scale at this stage. Environment Waikato has recently published a report projecting that up to 60,000 hectares of land in the Waikato will be under irrigation by 2020 (and 200,000 hectares by 2050).¹³

These issues ought to be addressed in the government's 'Water Programme of Action'. There is little evidence to date, however, that they will be.

¹² New Zealand Institute of Economic Research, 'A review of the draft Waitaki Catchment plan', April 2005, p.18.

¹³ Environment Waikato, 'Future Water Demand from Pasture Irrigation in the Waikato Region', 30 July 2004.

Key steps that need to be taken include:

- clear and robust definitions of water-use rights, with risk-sharing and metering arrangements in place;
- removal of unnecessary barriers to transferability of such rights;
- introducing marginal-cost pricing for piped water and wastewater services;
- reform of governance arrangements; and
- greater use of franchising and contracting-out.

Such reforms in the water industry have the potential to achieve the same kind of efficiency gains and unleash the same kind of innovations that we have seen in one industry after another with market-oriented reforms.

Even further gains could be achieved from privatisation of providers of water and wastewater services within an appropriate regulatory environment.

The arguments against greater private sector involvement in water and wastewater don't stack up. Nearly half by number (much less by volume) of New Zealand's water supply schemes are already privately owned. Private forms of water supply are the norm in most rural areas and have been in place for many years in places such as Oamaru and Waiheke Island.

One of the most common criticisms of private sector participation in the water industry is the claim that since water is necessary for life, it needs to be distributed 'democratically' – ie by the government.¹⁴ Yet food is also necessary for humans to survive. And in countries where food is produced 'democratically', there tends to be neither food nor democracy.

Another emotive claim is that because water falls from the skies, it should be free. However, as Gérard Mestrallet of Suez, the world's biggest water company, says, "God provided the water, but not the pipes". Water supply is a hugely capital intensive process and someone needs to pay for the costs of collecting, cleaning, storing and distributing it, to say nothing of treating wastewater and sewage.

Privatisation of infrastructure assets need not mean that ratepayers relinquish ownership of the assets. The most obvious way to give ratepayers ownership and control over their assets is to allocate shares to them so that they can choose whether to hold or sell the shares. If some ratepayers value community ownership, a trust could be established.

¹⁴ In fact, a study by three economists, two based in Argentina and one at the Haas School in Berkeley, California, found that in Argentina, privatisation had reduced child mortality, with an estimated 375 young children's lives saved per year as a result of lower rates of spread of infectious and parasitic diseases and improved access. http://faculty.haas.berkeley.edu/gertler/working_papers/Water%20for%20life%20June30.pdf

Ratepayers who wanted to continue with community ownership could choose to assign their shares to the trust.

The evidence in favour of private ownership of infrastructure assets is overwhelming. The authors of a survey of the effects of privatisation published in the *Journal of Finance* concluded on the basis of their own research and a review of 14 studies of several thousand companies in 50 countries involving “every imaginable industry” that the “papers ... speak with a consistent voice documenting privatisation-induced output, efficiency and profitability increases”. They concluded that “privatisation ‘works’ and it works in almost every institutional setting.”¹⁵

If private ownership is ruled out in New Zealand, then at the very least we should see local governments improve the incentives for performance by corporatising their water and wastewater businesses. This is pretty much the norm in Auckland with Watercare responsible for bulk supply in the region and Metrowater the corporatised retail utility in Auckland City. As I noted earlier, local governments could also make greater use of franchising and contracting-out under private-public partnerships.

Conclusions

Delivering clean water and removing wastewater is expensive, but it is not rocket science. The misuse of water is one of the few environmental problems that is readily solvable. And the best way of solving it is to treat water pretty much as a business like any other.

The lack of progress in water reform in New Zealand is an indictment on both central and local government. New Zealand's poor track record stands in stark contrast to the achievements of other countries where commercialisation and private sector involvement have become increasingly common. Australia has made considerable progress and its regime, while by no means perfect, is now regarded as one of the best in the world.

Increasing pressures on water supplies, poor quality of drinking water and increasing environmental problems will eventually make water reform in New Zealand unavoidable. The only question is how much longer will we have to wait?

¹⁵ D'Souza, J and Megginson, W L, 'The Financial and Operating Performance of Privatised Firms During the 1990s', *Journal of Finance*, vol LIV, no 4, August 1999.