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Insight

Maximising the value of water

New Zealand policy makers are paying growing attention to the way that water is allocated.[1] As with any scarce resource, there are economic benefits from ensuring that water is distributed optimally across society. This *Insight* outlines how New Zealand's freshwater resources are currently managed, the problems that arise from the present approach and what an alternative allocation mechanism might look like.

Water allocation in theory

To maximise the value of a shared resource like freshwater when it has multiple and potentially competing uses, the general economic principle is to allocate the resource to each use until the marginal value in each use is the same and equal to the marginal cost of supply. At this point allocating more water to one user will yield less value than that lost by the other that has to give up water to make the allocation or the cost of supply, so the additional allocation lowers the overall value obtained from the available water relative to the maximum.

If water permits – consents granted by council for firms to use water – were readily transferable at no cost, and no party was able to exercise power in the market for water permits, the operation of the market would lead to water permits being allocated so as to maximise the value of water to society. This would occur irrespective of the initial method of allocation. The initial allocation would affect the wealth distribution among members of the community with those granted water permits at below their market value being the winners, but the eventual allocation would still be that which maximises overall value to society. This is because those holding water permits would have to face the opportunity cost of the value of water in other uses and as a result permits would be transferred to the parties and uses in which they offer most value.

[1] See for example Treasury's 2008 Briefing to the Incoming Minister of Finance at http://www.treasury.govt.nz/publications/briefings/2008/10.htm and the Ministry for the Environment's 2009 "New Start for Fresh Water" at http://www.mfe.govt.nz/issues/water/freshwater/new-start-for-fresh-water-paper.pdf

Water allocation in practice: the current regime

In New Zealand freshwater is vested in the Crown but is managed by regional councils[2] operating under the Resource Management Act 1991 (RMA). Each regional council is responsible for specifying in its regional plan rules to allocate the taking and use of water and the capacity of water to assimilate a discharge of a contaminant. In addition, the regional council has the function of controlling the taking, use, damming and diversion of water and the quantity, level and flow of water in any water body. It can do this by such means as setting minimum and maximum levels or flows and controlling the range or rate of change of levels or flows.[3]

Consents relating to water are known as water permits, and these permits have several key features:

- The maximum period a water permit can be granted for is 35 years.
- There is no automatic right of renewal to the existing consent holder, although an amendment to the RMA in 2005 requires consent authorities to "have regard to the value of the investment of the existing consent holder."[4]
- Permits are allocated on a first come–first served basis, although if there is an existing consent about to expire the consent holder is notified of any competing application and given the right to apply. If he or she does, his or her application is given priority over alternative competing applications.[5]
- A regional council can over-ride or suspend any water permit for up to 14 days if it considers "there is a serious temporary shortage of water". The direction can be renewed at the end of 14 days if the council still considers there is a serious temporary shortage of water.[6]
- Water permits attach to individual consent-holders. A water permit granted for damming or diverting water may only be transferred to a new owner or occupier of the site in respect of which the permit is granted. It cannot be transferred to any other person or from site to site.[7]
- Water permits to take or use water can be transferred, in whole or in part, to any owner of the site in respect of which the permit is granted or to another person on another site, or to another site, if both sites are in the same catchment or aquifer. A further requirement for transfer is that either transfer must be *expressly allowed* in the regional plan or the transfer must be approved by the consent authority.[8]

Decisions at the regional council level may be subject to appeal to the Environment Court.

[2] In regions where the roles of the regional and district council have been combined into a unitary authority, this authority fulfils the functions of the regional council in relation to water.

[3] Resource management Act 1991, s.30 (1)

[4] Resource management Act 1991, s. 104 (2A)

[5] Resource Management Act 1991, s. 124C

[6] Resource Management Act 1991, s. 329

[7] Resource Management Act 1991, s. 136 (1)

[8] Resource Management Act 1991, s. 136 (2)

Problems with the current regime

Water permits are not readily transferable in New Zealand. Regional councils in general do not expressly permit transfer in their regional plans and the approval processes which have to be used in the absence of such approval are administratively quite burdensome. This is especially so since most transfers between sites would be for a short term and so of limited total value relative to the potential costs incurred seeking approval.

Moreover, in many instances the right to take water and the right to use water are bundled up together and this restricts the ease of transfer between sites. In practice, transfer of water permits usually only occurs in conjunction with changes of ownership or occupation of the site to which they relate. The corollary is that there is no means to ensure that water permits do flow to their most valuable use, so the method of allocation does have a lasting impact on the inefficiency of water use.

The current basis for allocating consents incentivises applicants to seek a larger entitlement than they may realistically require. The consent authority can allocate less than the amount applied for or refuse an allocation completely if it believes the application is excessive. However, it is often hard for a consent authority to determine whether this is the case.

The costs of a water permit to an applicant are its legal and administrative costs incurred in the process of making the application, and the opportunity costs of any time spent. These do not necessarily vary directly with the size of the resource over which consent is sought, although applications for larger allocations are likely to be more contentious and, as a result, potentially more prone to appeal, so there is some relationship between the size of the allocation sought and cost.

Regional councils are not permitted to charge applicants for the resource over which they grant consent, only for their own costs. The upshot is that applicants are best to err on the side of seeking consents bigger than they may need, and the limitations on transferability means that those holding water permits with greater entitlements than they need often do not face the opportunity costs of doing so. The resource remains locked in a use with lower value than alternatives. In fact, water that would be valuable in some other use can remain completely unused.

The maximum 35 year entitlement with no guarantee of renewal discourages efficient investment in the use of water permits. Any party investing in order to use the water resource runs the risk that in 35 years or less its investment will become worthless, except to the extent its investment can be moved. Many of the investments to use water, such as irrigation dams and channels and ridged fields, are very long lived assets and very immobile, so the attenuation of rights of water permit holders to a maximum 35 year term potentially has a material impact on investment and the efficiency with which water is used.

The ability for regional councils in a serious temporary water shortage to over-ride existing consents undermines the value of consents to holders and is likely to limit the extent to which they invest in activities and capital dependent upon them. Since regional councils are elected by the citizenry at large they are most likely to intervene to maintain municipal water supplies and

other uses valued by electors. These uses are not necessarily those with the highest value to society as a whole. It is likely that when water is really scarce the value of consents would be greatest for many of their holders. If councils were required to buy back entitlements to deal with water shortages, rather than have the ability to suspend or over-ride existing entitlements, the resulting temporary reallocation would improve the efficiency with which water is used, and the negative potential effects on investments subject to these rights would be avoided.

Conclusion

The current system of water permits in New Zealand is not consistent with maximising the value of the water available. Some simple reforms to improve tradability, extend the duration of water permits and require regional councils to buy back entitlements to deal with temporary water shortages would contribute to improving the performance of the New Zealand economy.

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