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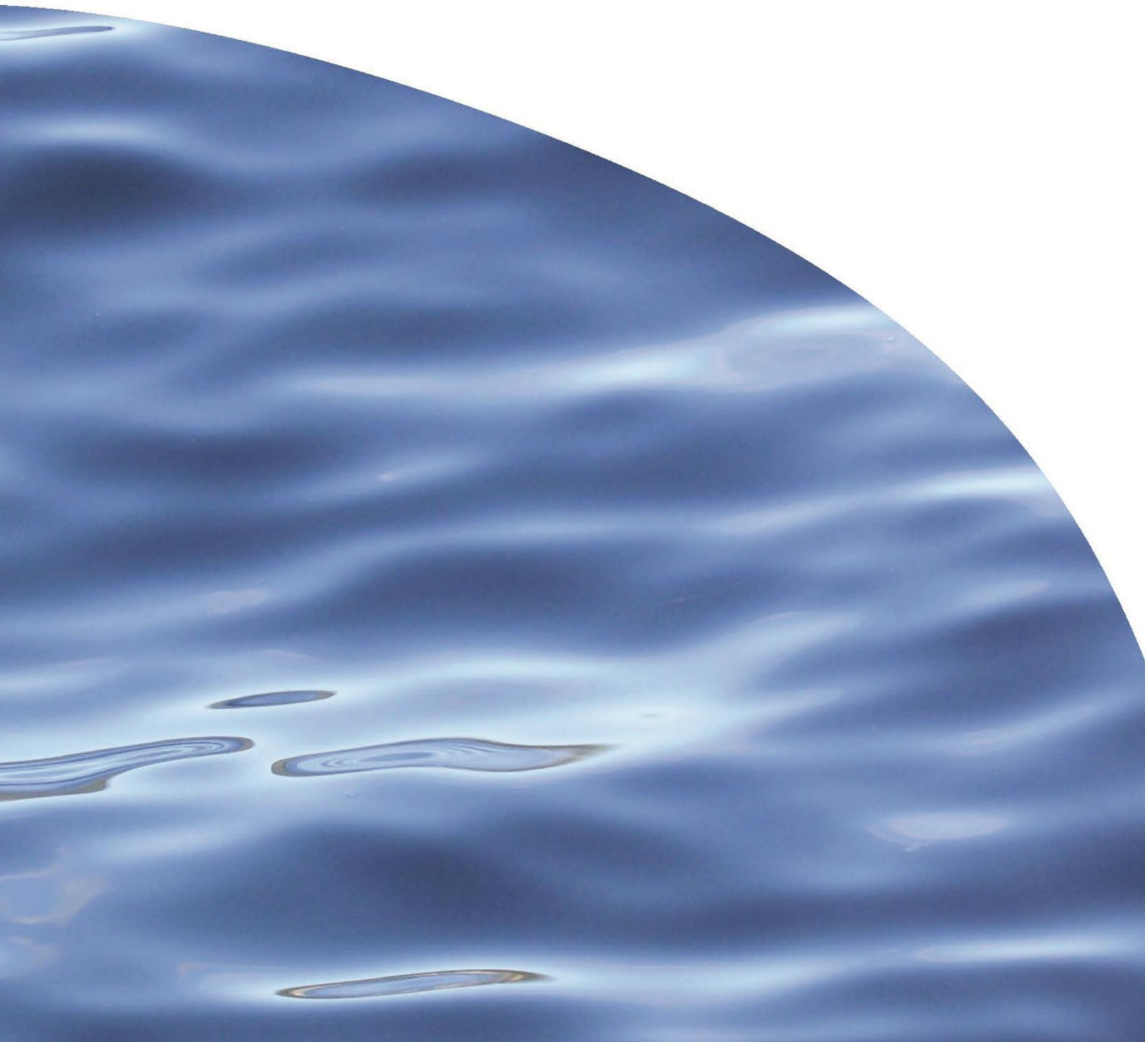

# EQUITY CONSIDERATIONS IN FRESHWATER MANAGEMENT

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Prepared for Greater Wellington Regional Council and the Ruamāhanga Whaitua Committee

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# 1. INTRODUCTION

The Greater Wellington Regional Council (GWRC) has established citizen-based whaitua committees to make recommendations on the implementation of the National Policy Statement for Freshwater Management (NPSFM). The Ruamāhanga Whaitua Committee is tasked with delivering recommendations for land and water management in the Ruamāhanga catchment, which comprises most of the area known as Wairarapa. Formed in 2013, the committee has representatives from Ngāti Kahungunu ki Wairarapa, Rangitāne o Wairarapa, South Wairarapa and Carterton district councils, GWRC and community representatives.

The Ruamāhanga Whaitua Committee has identified equity in freshwater management as one of the issues it would like to understand better. This is equity as it relates to fairness, not equity in the sense of the financial value of a company.

This short report was commissioned to provide a brief overview of equity as it relates to freshwater management.

# 2. THE CONCEPT OF EQUITY

## 2.1. Definitions and criteria

Equity is relevant to the task of the Ruamāhanga Whaitua Committee because freshwater planning involves determinations of who has access to water, who benefits, what quality of water and aquatic habitat will be available to the community, whose land use options are affected and how, and who receives benefits and bears costs, including with respect to future generations.

There is an extensive literature on environmental justice and equity. While not attempting to summarise this literature here, some central ideas can be noted, starting with a simple definition of equity from the Merriam-Webster Dictionary:

> Equity – fairness or justice in the way people are treated[1].

Equity in environmental policy mainly concerns issues of how resources, costs and benefits are distributed, and many approaches and principles have been suggested. Some of these are summarised in Table 1.

Equity is often described as being at odds with the goal of efficiency, e.g. decisions for 'the greater good' sometimes entail adverse effects on a minority of the population.

[1] http://www.merriam-webster.com/dictionary/equity

This description is based on a 20th century definition of efficiency as a situation of maximum net benefit, where those who gain could compensate those made worse off, even if such compensation does not actually take place (Sinner et al. 2005). In fact, the classical definition of efficiency, called pareto optimality, considers an outcome to be efficient only if no one can be made better off without someone else being made worse off. This can be phrased as an equity principle; see Table 1.

Sen (2001) argued that governments should be judged according to their citizens' actual capabilities—their freedoms to achieve desired ends—as opposed to the idealised formal rights they are legally accorded. In this view, equity requires enabling 'everyone's human potential, achieved by both material provision of basic needs (water, food, shelter) and the social institutions necessary for everyone to attain them' (Perreault 2014, p 239). This is a variation of the 'minimum standards' approach and is shown in Table 1.

Table 1. Some equity principles and approaches

| Equity principle | Description | Reference |
|---|---|---|
| Total equality | Everyone should have the same income, wealth or other opportunity. | Ikeme (2003) |
| Meritocracy | Inequality is accepted if everyone has had equal opportunity at initial allocation and differentials are only accounted for by difference in effort and hard work. | Ikeme (2003) |
| Minimum standard (basic needs) | No person's income (or allocation, in the case of water) should fall below a certain minimum level required to provide for basic needs. | Ikeme (2003) |
| Pareto optimality | No one should be made better off if it involves making someone else worse off. | Sinner et al. (2005) |
| Freedom to achieve human potential | Everyone should have an opportunity to meet their basic needs and human development potential, and should not be inhibited from doing so by institutions that give privileged access to others. | Sen (2001) |

Questions of equity are an important matter of public policy because individuals and groups are less likely to support and comply with policy or legislation if they consider it unfair.

In sum, equity is about the access that people have to resources, especially those related to basic human needs, and how access to these resources is shared amongst individuals and groups within society.

There is no universally agreed approach or criterion for deciding what is equitable in any given situation. Indeed, different criteria might be appropriate in different contexts. Equity is often in the eye of the beholder. What one person considers fair or equitable may be considered unfair or inequitable by someone else. It all depends on the perspective one takes and the factors that one considers. Nonetheless, to apply the concept of equity to freshwater management decisions requires clarity about the issues and the criteria for assessing equity.

## 2.2. Equity in freshwater law and policy

New Zealand resource management law has no specific requirement that decision-makers consider issues of equity, though there are some indirect references.

Section 5(2) of the Resource Management Act 1991 (RMA) defines sustainable management, in part, as that which 'enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety'. Section 5(2)(a) refers to 'sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations'.
This wording clearly implies some consideration of equity (e.g. see the 'basic need' approach referred to in the previous section) (Milligan 2000), but the author is not aware of any case law that directly addresses these equity issues.

Regional councils are able to make rules regarding allocation (i.e. sharing) of resources. RMA s30(1) states that the functions of regional councils include:

> (fa) if appropriate, the establishment of rules in a regional plan to allocate any of the following:
>
> (i) the taking or use of water …
>
> (iv) the capacity of air or water to assimilate a discharge of a contaminant

The NPSFM has objectives and policies that require regional councils to 'improve and maximise the efficient allocation and efficient use of water' (New Zealand Government 2014, p 11) but no explicit reference to equity. It does however include some statements that can be interpreted as being relevant for equity considerations. For example, the Preamble says:

> *It is up to communities and iwi to determine the pathway and timeframe* for ensuring freshwater management units meet the national bottom lines. Where changes in community behaviours are required, *adjustment timeframes should be decided based on the economic effects* that result from the speed of change (New Zealand Government 2014, p 4, emphasis added).

A bit further on, the Preamble says:

> Water quality and quantity limits must reflect local and national values. The process for setting limits should be informed by the best available information and scientific and socio-economic knowledge (New Zealand Government 2014, p 4).

This last statement acknowledges that the setting of limits, whether it be how much water can be abstracted or how much sediment, nutrient or other contaminants can be allowed to enter water, is not just a technical issue about the needs of fish and other aquatic biodiversity. It is also a question of how to share the water and the water body between people with different uses, interests and values. The NPSFM also requires councils to avoid decisions that are likely to cause a limit to be exceeded. In effect, this means that councils must act to protect the allocation (i.e. sharing) that is established in the limit-setting process.

## 2.3. Dimensions of equity

Considerations of equity necessarily involve a comparison of process or outcomes for one group versus another group. There are multiple dimensions along which such comparisons can be made, for example:

- abstractive users vs. other abstractive users (e.g. urban vs. rural, existing vs. prospective future users)
- abstractive users vs. dischargers vs. in-stream users
- commercial vs. recreational vs. cultural users
- users vs. general public, possibly with reference to groups who have difficulty meeting basic needs or are otherwise disadvantaged
- present vs. future generations.

Consistency with the Treaty of Waitangi might be considered by some to be an issue of equity, but as equity is defined here, Treaty issues are considered more a matter of justice than equity. That is, Treaty issues are not so much a question of whether iwi are treated the same or differently as other groups (in fact, the NPSFM acknowledges a particular role for iwi), but rather whether legal rights and interests have been appropriately recognised and due process has been followed. One could, of course, raise equity issues about whether the NPSFM provides adequately and appropriately for iwi rights and interests, but that is beyond the scope of this paper.

That said, whether Māori as individuals and social groups are treated fairly *is* a matter of equity.

# 3. ABSTRACTIVE USE OF WATER

## 3.1. Equity between different abstractive users

Under section 14 of the Resource Management Act 1991 (RMA), water can only be abstracted from a natural water body if a person has a water permit (i.e. a resource consent from a regional council) or if the abstraction is authorised by a permitted activity rule in a regional plan[2]. In New Zealand, water permits have typically been granted on a 'first in first served' basis. That is, in the absence of a plan specifying otherwise, applications are considered in the order received and are granted as long as the adverse effects of taking the proposed amount of water are deemed to be acceptable.

### *3.1.1. Equity issues in fully allocated resources*

Many councils have set limits on the amount of water that can be abstracted from a given water body, and the NPSFM now requires all councils to do this for all water bodies. As a result, some prospective users of water miss out because the resource they want to take water from is fully allocated. Furthermore, RMA section 124B(2) states that a person applying to replace an existing consent gets priority over other applicants. The existing user's efficiency of use, good practice and compliance record can be considered, but section 104(2A) also requires the consent authority to 'have regard to the value of the investment of the existing consent holder'.

However, a council can allocate a portion of a resource for particular types of activity, such as domestic supply, irrigation, commercial use etc. Under section 124A, this acts to limit the extent to which replacement consents for existing users get priority over other users.

The 'first in first served' allocation method is sensible when a resource is not limited. In other words, when there is plenty of water for everyone, no one misses out and there is no need for alternative allocation methods. This changes when the limit has been reached because no more water permits can be granted. Some consider that it is not equitable that some people have continued access to water just because they got in first, while others go without even if their water use is more economically beneficial or deserving for other reasons.

Various approaches have been used or suggested to address these equity concerns:

- 'Use it or lose it' policies. Many water permits have conditions stating that they must be used within a specified period of time, often two years. Councils sometimes also review, either upon renewal or through reviews of conditions

[2] There are exceptions for firefighting, stock drinking water and an individual's 'reasonable domestic needs'.

under RMA section 128, whether users need the full amount stated on their water permit, and if not may reduce a user's allocation. Such policies, however, can create incentives to use water inefficiently because a person might use more than they need, just to avoid the council reducing their allocation.

- Transferable water permits. Under the RMA, an existing water user can apply to transfer all or part of a water permit to another user at a different location. Alternatively, councils can make this process easier by specifying in regional plans the conditions and locations for transfers of water permits without applying for a consent, or as a controlled activity. While this can help to make water available to new users, the existing user may expect payment for giving up some of their allocation. Some consider this fair and equitable, since the user is giving up a valuable resource. Others consider this to be inequitable, since the existing user is selling access to a public resource from which they have benefited for many years and for which they have paid nothing to the community other than annual consent administration charges.

- Auctions. When water permits expire, they could be allocated by auction, with the council getting the proceeds on behalf of the community (rather than the existing user, as in the case of water transfers). Auctions have been used in New Zealand for resources like the radio spectrum for broadcasting[3], but not for water permits. (It is not clear whether auctions are possible under the RMA; legal advice would be required.) While auctions give all users an equal opportunity to bid for water permits, some consider this gives unfair advantage to those with deep pockets; others consider it is unfair on existing users who have made considerable investment predicated on access to water. It is also argued that this approach creates investment uncertainty and is therefore inefficient.

#### *3.1.2. Equity issues in over-allocated resources*

A further equity issue arises if a council has to reduce the total volume of water permits because a resource is over-allocated. How should reduction in use be shared between users?

Faced with this, councils often start by applying 'use-it-or-lose-it' policies if these are provided for in their regional plans or consents, and then may look for storage or other options for augmenting the available supply. In some cases, the council will still need to reduce water allocations; this is likely to be done when water permits expire, as councils are reluctant to change conditions of a permit during its term, among other things because users rely on these conditions for business certainty and changing consent conditions might be politically unpopular.

[3] See e.g. http://www.rsm.govt.nz/projects-auctions/completed/auction-13.

To reduce total allocation, all users can be reduced by the same amount, or the council can establish criteria specifying how much water will be available for particular uses, either per hectare or in total across all users of a particular type. For irrigation, for example, this could be based on soil type, land use, climate, efficiency of water use or a combination of criteria. It is difficult, however, for councils to take account of all factors that affect different users' demand for water. Whatever criteria are chosen, someone is likely to consider them, and the resulting reductions in water allocations, to be unfair.

## 3.2. Equity between abstractive users and the public

Equity issues can also arise when considering how much water should be allocated for abstractive use vs. water left in the natural water body. While in-stream flow requirements are often seen as determined by needs of fish and other aquatic species, there are also implications for other human users. More abstraction from a river for irrigation, for example, will generally lead to reduced summer flows and worse conditions for swimming, kayaking and amenity value. How much impact on other users is acceptable? Should they be compensated in some way?

There is no simple answer to the question of how much water should be allocated to abstraction vs instream users. The NPSFM says such decisions should be based on values but provides no further guidance on how competing values should be balanced or what is considered fair and equitable. Nor does the RMA help very much; one can only refer to the general statement in section 5 about enabling people and communities to provide for their social, economic, and cultural well-being.

Abstractive users of water are able to capture economic benefit from the use of water on land or in an industrial process. This may come at the expense of other user groups. It has been suggested that this can be inefficient as well as unfair, and that to address this, water users could be required to pay some amount of resource rent to the community (Sinner & Scherzer 2007). Conversely, it might be argued that the wider community benefits from the economic activity generated by abstractive water use and the taxes paid by water users, and that no payment is warranted. Economic analysis can be done to estimate how much of the value of water stays within a given region (or even within New Zealand) and how much is spent on imported inputs or on consumer goods imported from outside the region or overseas.

# 4. DISCHARGES AND HABITAT EFFECTS

Similar equity issues arise with water quality and effects on aquatic habitat as with water allocation.

## 4.1. Equity between those who generate discharges and other users

Discharges, runoff from land use, and changes to stream banks and vegetation often are caused by uses of land and water that provide benefit to some users. However, these generate adverse effects and costs on other users, giving rise to equity issues. These adverse effects can include, among other things, reduced water quality for contact recreation, unhealthy drinking water for communities and even for livestock, and poor habitat for mahinga kai such as whitebait and freshwater crayfish, with consequent cultural implications for Māori.

What water quality standards should a council aim for and what level of effects is acceptable? Regional councils must set their own standards for each water body, and these cannot be below national bottom lines specified in the National Objectives Framework of the NPSFM. There is no formula for setting standards so that they are considered equitable by everyone, including instream users.

When standards and limits are established, there may still be some adverse effects on other users. Businesses that generate discharges or runoff are able to capture economic benefit from this use of water. Should there be some compensation for these affected parties, or a return to the community?

Auctions are one option for allocating nutrient allowances, and have similar advantages and disadvantages as described above when used for allocating water permits. Financial charges are another mechanism that could in theory be used to get a return to the community for the use of a public resource. Councils are able to collect financial contributions from land developers for infrastructure and other costs of new residential developments, but there is no experience of councils using the RMA to impose pollution charges.

## 4.2. Equity between users who generate discharges

Now that the NPSFM requires councils to set limits on contaminant loads, the allocation of this load between those who generate the discharges has also raised issues of equity. These questions have been particularly prominent where nutrient loads on water bodies are considered a problem. If land use controls are required to achieve water quality limits, what pattern of land uses should be allowed? If the discharge load is allocated to individual properties or groups, what allocation

mechanism is fair? What are the implications for landowners' ability to continue their current land use or business, or to realise the potential of their land for a new use?

Some methods that have been suggested for allocating nutrient discharge allowances (NDAs) are shown in Table 2. Greenhalgh et al. (2015) describe the calculations and implications for these approaches. Where a reduction in the total existing load is required to achieve water quality standards, a grandparenting approach would require everyone to make the same proportional reduction from their existing (benchmarked) amount. The other approaches would apportion the available total load among land users according to their respective criteria. A landowner who received an allocation that is less than their existing nutrient loss would be required to reduce their discharge unless they could acquire additional allocation (if this were allowed by their council's policies).

The options presented in Table 2 can be analysed in terms of both efficiency and equity; each has advantages and disadvantages. The point here is not to argue that one is more equitable than other, but rather to show that there are a range of options and that the relative equity of these different options depends on one's perspective and the equity criteria that are applied. The distributional effects of any particular option may well differ across catchments because the mix of current land use will differ.

Table 2. Options for allocating nutrient discharge allowances (adapted from Greenhalgh et al. 2015).

| Allocation method | Description |
|---|---|
| Grandparenting | NDA* based on nutrient loss rates during a baseline or benchmarking period and proportional to reduction target. |
| Natural capital | NDAs are allocated based on the physical quality of the land, soil and environment. Land use capability (LUC) is used as a proxy for natural capital, and more NDAs are allocated to higher class land. |
| Catchment average | All landowners are given the same NDA regardless of land use. |
| Land cover average | Landowners managing a specific land cover (e.g. pasture, forest, arable) are given the same NDA. |
| Sector average | Landowners within the same sector (e.g. dairy, sheep and beef) are given the same NDA. |
| Nutrient vulnerability | NDAs allocated based on the nutrient leaching capacity of the soil. More NDA would be allocated to land with lower 'vulnerability'. |

*NDA = nutrient discharge allowance (per hectare)

# 5. INTERGENERATIONAL EQUITY

Intergenerational equity – i.e. fairness between present and future generations – may be of concern in at least three situations in freshwater management.

The first occurs where water bodies are degraded and have long recovery times. This applies mostly to lakes, especially shallow lakes such as Lake Wairarapa and Te Waihora/Lake Ellesmere. Present and past generations have benefited from the land uses that have contributed to significant ecological decline of these lakes, and future generations are likely to bear the consequences. Even if steps are taken now to restore these lakes, it is likely to be two or three generations or more before they are returned to a healthy state. More drastic steps might enable speedier recovery but could impose higher costs on existing landusers who may not be able to afford the changes required. What is fair, especially when it is primarily the legacy of past land uses that need to be remedied? How should the costs and benefits be shared?

Intergenerational equity is also an issue when councils or central government take on debt to pay for clean-up of water bodies, e.g. subsidising new fencing or paying land users to change their practices. This debt might be carried for decades, which means that future generations are helping to pay to remedy the mistakes of present and past land and water users. On the other hand, it can be argued that future generations will also benefit from the economic infrastructure made possible by the profits earned from past land and water use, and that it is not unreasonable for them to share the costs.

Finally, intergenerational equity can be an issue in terms of access of future generations to water. In many catchments, water is fully allocated to present day users and the presumptions that favour renewal mean that their water permits are likely to be renewed. Members of future generations wanting water for domestic, industrial or agricultural use might have to acquire water from existing users, and that could come at a cost. This is no different than for land, of course, but water is a basic human need and, unlike land, the current legal position is that water is not owned by anyone. If growing towns and cities need more water, should they be required to buy it from power companies, processing plants or irrigators? Conversely, is it fair for power companies, processing plants and irrigators to be required to make do with less water than they have had in the past?

# 6. EQUITY AS A CRITERION FOR DECISIONS

Equity is about the access that people have to resources, and how access to these resources is shared among individuals and groups within society. It is an important matter of public policy because individuals and groups are less likely to support and comply with policy or legislation if they consider it unfair.

When applying equity considerations to assess different policy options, decision-makers should identify which dimensions or aspects of equity are of most concern and draft a clear statement about the equity objective for each of these. Policy options or scenarios can then be assessed for how well these objectives are likely to be achieved.

Equity objectives will sometimes conflict with each other. For example, taking sufficient water to meet irrigation demand could result in low flows and nutrient runoff that cause poor swimming conditions for much of the summer. Thus, an objective about sharing water between landowners (e.g. that all landowners should have an equal opportunity to develop their land through irrigation) might not be fully compatible with an objective about sharing between abstractive and instream users (e.g. a river should be suitable for swimming throughout the summer months except when it is in flood).

In such situations, decision-makers may decide that one equity objective takes precedence over another. Otherwise, they will need to search for options that partially satisfy both objectives (without impinging on other equity criteria, e.g. by imposing costs on third parties who do not share proportionately in the benefits). This can sometimes be done by introducing conditions or qualifications on the objectives, for example it might be considered fair for cities to increase their take from available water supplies, at the expense of other users, only if city residents have demonstrated that they are using water efficiently and responsibly. Thus, dealing with equity issues (like many other issues) will often require an iterative approach to setting objectives, policies and rules—drafting, testing, revising and retesting until an acceptable formulation is found.

# 7. CONCLUSIONS

There are many dimensions to equity issues in freshwater management. For some of these, e.g. how a discharge limit should allocated between land users, many approaches have been suggested, and each has implications for both efficiency and equity.

Different criteria might be appropriate in different contexts. What one person considers fair or equitable may be considered unfair or inequitable by someone else.

When applying equity considerations to assess policy, decision-makers should identify which dimensions or aspects of equity are of most concern, and draft a clear statement about the equity objective for each of these. Policy options or scenarios can then be assessed for how well these objectives are likely to be achieved, and conditions or qualifications on the objectives can be introduced if necessary to resolve conflicting objectives.

# 8. ACKNOWLEDGEMENTS

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