A Case Study of Water Management in the Motueka Catchment: Responses to Water Allocation Reform Proposals

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Executive Summary

Ecologic Foundation and Landcare Research are researching new policy approaches that could improve outcomes from water allocation, using as a case study the Motueka catchment in Tasman District.

Methodology

To develop our understanding of the catchment and the relevant issues, we reviewed literature of overseas experience with water allocation and conducted an initial round of interviews with a dozen key water sector stakeholders. We also developed an "interaction matrix" to identify, in a preliminary way, key interactions between bio-physical, economic, and socio-cultural systems related to water management and use in the Motueka catchment.

We then distributed a discussion paper '*Enhancing Water Use Flexibility and Security using the Motueka Catchment as a case study'* to about 40 stakeholders (including the initial group) and invited them to a half-day workshop. Twenty-four attended, representing these sectors: irrigation, environmental interests, government/regional council, community development, research and tangata whenua. Drawing upon the lessons learned from our earlier case studies on market-based instruments, and observations and feedback about the current water allocation system, the discussion paper developed a mix of policy options that aimed to address the concerns of stakeholders and, in particular, sought to avoid making any stakeholder group worse off. These policy measures were designed to be complementary rather than alternatives.

Responses to policy options

Some of the salient outcomes of the discussions are noted below, along with responses (shown in italics below) from a post-workshop survey completed by each participant.

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- The workshop supported giving more responsibility to **stakeholder-based water management committees** (WMCs) to roster water usage during shortages and to meeting water quality targets, but wanted more detail on how the committees would operate. Discussion ranged from *ad hoc* committees with no formal statutory functions (but supported by the council) to new governance arrangements for the catchment.

  The post-workshop survey showed a consensus for giving stakeholder-based committees greater responsibility, but participants held a range of views on whether the committees' role should extend to preparing catchment plans that specify land use practices to address water quality impacts. In-stream interests, iwi and government representatives generally favoured this, while some (but not all) irrigation and community development interests opposed it. There were also questions raised about the legal status of WMCs and committee members' mandate for representation.

- The workshop supported **making water permits more transferable**, although there were some reservations about permanent transfers and the need to clarify property rights issues. *The survey showed that irrigation and community development interests supported transferability, while the other participants were, on average, close to neutral, although there was some mild opposition within both in-stream interests and government representatives. These latter groups emphasised that the conditions of local use need to be carefully specified. Concerns were also expressed about transferability detracting from an ethic of guardianship and wise use of a public resource.*

- Regarding **water metering**, participants went further than the discussion paper and said that metering should be mandatory for all water users. *The survey confirmed a consensus on this point.*

- "**User pays**" for water planning and management received some support. The discussion group suggested that a 50/50 split between abstractive users and general ratepayers – similar to the status quo in Tasman District – would be a pragmatic cost-sharing formula. *The survey focussed on a narrower set of costs – compliance and monitoring. Irrigators were opposed to the proposition that water permit holders should bear all the compliance and monitoring costs, although this was supported by in-stream and iwi interests.*

- There was little support for changing the current **"first-in, first-served"** allocation method, although this did not receive much discussion. *Irrigators tended to agree that an alternative was needed where demand is approaching allocation limits, while other interests were generally neutral.*

- A proposal to **separate the right to take water from the management of site-specific effects** of use (to facilitate transferability and improve management of effects) was seen as increasing bureaucracy for little benefit. Given that site-specific effects of water use such as nutrient leaching are generally not addressed in the current water permits issued by TDC, this reaction is perhaps not surprising, although it was not clear that participants fully understood the proposal. *Views on this proposal ranged from "strongly agree" to "strongly disagree" - although there was more support than opposition, half the*

participants were neutral, and there was no polarisation by interest groups. Two survey responses said that participants had difficulty fully understanding the proposal.

In many cases, participants wanted further detail on how a policy measure would work. There was not sufficient time during the workshop to explore each measure, but there is a clear need to elaborate some of the approaches more fully and to seek further feedback on them from stakeholders.

Opinion shifts as a result of the workshop

In the post-workshop questionnaire, participants also reported the extent to which their support for each option had increased or decreased as a result of the workshop. For most issues, most participants reported that the workshop had not changed their views. However, there was some shift on each policy measure, with a total of 52 shifts in a positive direction (more supportive) and 33 negative shifts, compared with 165 "no change/not sure" responses.

The strongest positive shifts concerned the propositions regarding security of supply, flow sharing, transferability downstream, longer duration of permits, and mandatory metering. The strongest negative shifts (though generally weaker than the positive shifts) concerned full user-pays and water management committees developing plans that specify land use practices to address water quality impacts.

The workshop as a collaborative process

In the workshop, many stakeholders demonstrated a willingness to see issues from others' perspectives. There was a reasonable degree of consensus on some of the policy options across the various interests represented. This was in contrast to the responses to the post-workshop survey, which showed a more diverse range of views and less apparent consensus.

We take this as an indication that, when involved in a collaborative process, stakeholders are more likely to acknowledge and accommodate competing views than they are if asked to express their individual views in a "positional" context. Whether the degree of consensus apparent in the workshop would be maintained in a discussion with more direct policy implications, i.e. if stakeholders believed that decisions were likely to lead directly to policy changes by the council, remains a question for further investigation.

1. Introduction

Ecologic Foundation and Landcare Research are undertaking a joint research project to develop policy approaches that could improve outcomes from water allocation, using as a case study the Motueka catchment in Tasman District (see Figure 1).

Ecologic is testing an informal methodology for integrating ecological, socio-cultural, and economic aspects of resource management, and to determine whether application of this methodology, involving stakeholder input, will facilitate the adoption of market-based instruments for resource management.

Landcare Research, through its Integrated Catchment Management Programme, is seeking to demonstrate how bio-physical and socio-economic knowledge can be integrated to inform water management policy.

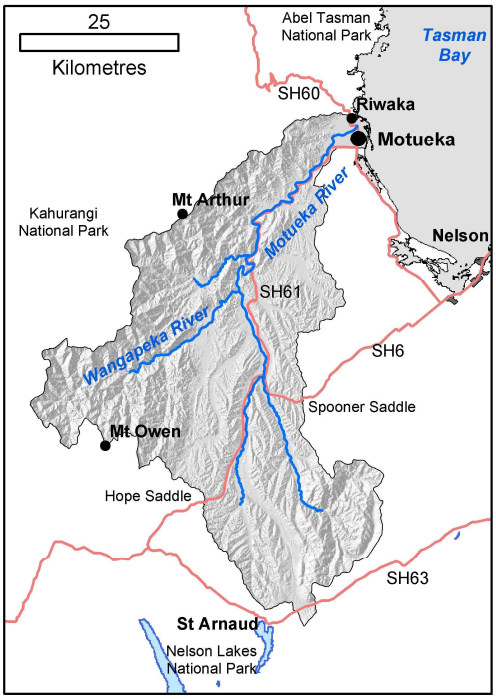


Figure 1. The Motueka catchment

More specifically, the project is exploring proposals for improving outcomes from water allocation and use, from both surface and groundwater, in the Motueka catchment. The project takes as given the in-stream and aquifer sustainability limits that have already been determined, and does not seek to review these.

There is no pressing or imminent water crisis in the Motueka River catchment, but some pressure points are emerging. Three of four water management zones in the upper Motueka, and two of six in the Motueka/Riwaka Plains are now "fully allocated" and there is additional unmet demand for water. Water quality and habitat have declined over time, particularly in the lower catchment.

Policy options being researched include enhancing the transferability of water permits, as part of a range of policy options designed to address water quality issues as well as water allocation and re-allocation.

We anticipate that management approaches and policies identified for the Motueka catchment will have relevance for other New Zealand catchments, as many of the conflicts and issues are the same.

2. Methodology

The case study has thus far included the following:

- Compilation of background material on bio-physical, economic, and socio-cultural aspects of the Motueka catchment.
- Literature review of overseas experience with water allocation, focussing on water trading in Australia and the USA.
- Development of an "Interaction Matrix" to identify, in a preliminary way, key interactions between bio-physical, economic, and socio-cultural systems related to water management and use in the Motueka catchment.
- Interviews with 12 key stakeholders to seek their views on emerging issues for water management in the Motueka catchment over the next 20-50 years, and their initial reactions to a range of possible policy approaches for addressing these issues.
- Distribution to about 40 key stakeholders of a discussion paper (available at http://icm.landcareresearch.co.nz) on emerging issues and possible policy approaches, followed by a workshop with 24 of these stakeholders on 23 March 2006.
- A written survey of workshop participants to gauge their perception of key issues for water management, their support for the policy options discussed in the paper and at the workshop, and the extent to which their support for each option had increased or decreased as a result of the workshop.
- Preliminary analysis, reported in this paper, of stakeholder feedback from the workshop and from the individual surveys.

The next steps in the case study will involve:

- Revision of policy options in response to stakeholder feedback, including review of the Interaction Matrix to check for interaction effects on bio-physical, economic and socio-cultural outcomes.
- A further round of consultation with stakeholders – whether this will be via a second workshop or some other format has yet to be determined.
- Final report to Partners (mid-2007).

Below, we provide further detail on some of these steps and outline briefly the preliminary findings from the case study thus far.

3. Literature review

At the beginning of the case study, an intern reviewed the literature regarding overseas experience with transferability of water permits and water allocation. We were interested in how permits are defined and specified in other jurisdictions, how this affects transferability, and how third-party effects of transferability are managed.

We also wanted to know what allocation methods are used in other jurisdictions and what their implications are for economic efficiency and capture of resource rent.

The review focussed on Australia and the USA, as these countries have the most experience with water trading.

The review uncovered little detail on how permits are specified – it would be necessary to get this information directly from management agencies in the relevant jurisdictions. Literature from the USA, however, suggests that water rights with multiple levels of priority can be a major impediment to trade. Simplicity of entitlements does much to facilitate transactions, and Australia is making an effort to increase the uniformity of its water entitlements for this reason. Victoria's Watermove exchange (www.watermove.com.au) provides a useful model for management of water transfers, even though there are aspects that need improvement.

In both Australia and the USA, policies that encouraged irrigation in marginal areas have left some communities vulnerable to the export of water to more productive areas. Such communities have sought to limit exports of water entitlements, especially where irrigated agriculture is a significant employer. In Victoria, for example, most irrigation districts limit the amount of water that can be transferred out of the district to no more than 2% per year. However, such caps can lead to surges in trade as buyers and sellers rush to complete transactions before the cap is reached. Delivery access charges and exit fees are two methods used in Victoria to avoid stranded assets. Delivery access charges are imposed by an irrigation district (or other supply authority) to reflect operation and maintenance of the irrigation infrastructure. These obligations continue even if water rights are sold, but can be met by payment of lump sum exit fees[2].

Cities' purchases of water rights and their lease back to irrigators on a yearly basis show that irrigators (particularly of annual crops) are often willing to settle for lower-security, lower-cost entitlements even when they initially protested vociferously against cities "sucking away their water rights" and seemed unmollified by promised compensation.

Regarding management of environmental effects, the review identified conflict over in-stream flows generally, but found little information regarding whether or how impacts on flows are addressed when permits are transferred.

The concept of resource rent barely features in the literature reviewed. Existing users tend to capture this value through first-in-first served allocation systems and appropriative rights, supplemented in some cases through generous subsidies for construction of irrigation infrastructure.

4. Interaction matrix and integrated assessment

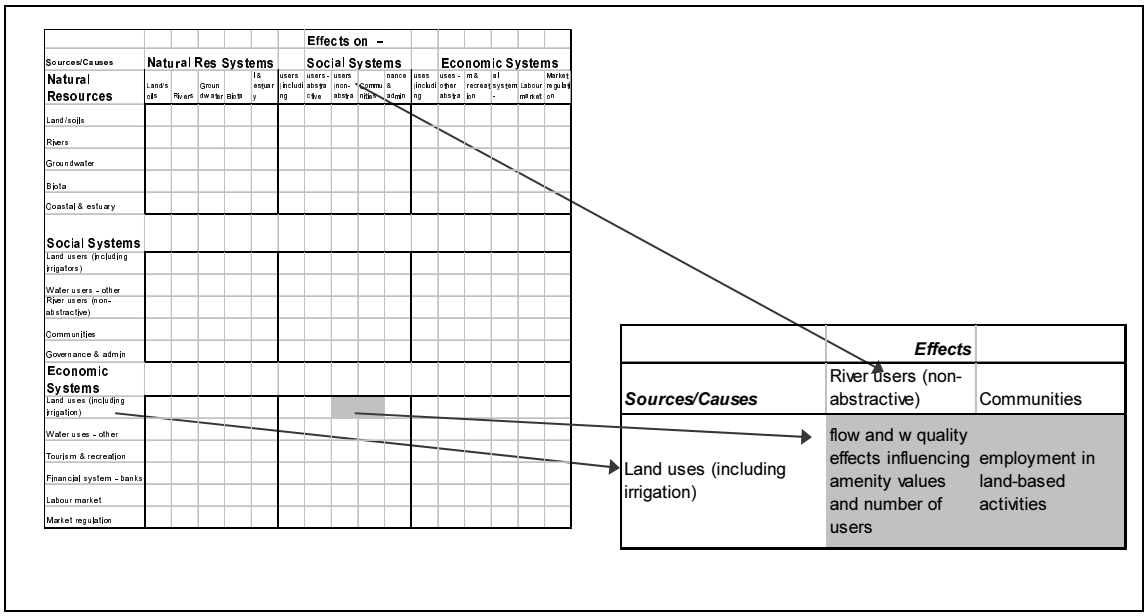
The case study aims to be more structured and transparent about conducting an integrated assessment of possible policy approaches for the Motueka catchment from environmental, economic and social perspectives. We therefore prepared an

[2] National Competition Council (Australia), Assessment of governments' progress in implementing the National Competition Policy and Related Reforms: 2004, Volume two: Water, pp. 3.43ff.

Interaction Matrix to achieve descriptive integration in a structured manner. Descriptive integration involves developing an understanding of a system, and the effects of proposed changes to that system, that accommodates a range of disciplines and perspectives and recognises the interactions between different parts of the system[3].

The Interaction Matrix contains rows and columns that represent natural resource systems, socio-cultural systems, and economic systems. Each constituent cell describes in words the effect of a change in one system (the row) on another (the column). For example, a change in land use, an economic system, causes changes in social systems: for in-stream users of the river, due to changes in flow and water quality, and for local communities, due to changes in employment and residential patterns. See Figure 2.

Figure 2. Interaction Matrix of Systems and Linkages in the Motueka catchment



The matrix provides a conceptual framework that explicitly links environmental, social and economic dimensions and prompts the research team to think about the various interests and potential trade-offs involved when changes are made to the system. While qualitative, the matrix draws upon the varied experience of the research team, including the manager of the Motueka Integrated Catchment Management programme.

The team used the matrix to track chains of effects that might be caused by the introduction of new policy measures, and incorporated these possible outcomes into the discussion paper circulated to workshop participants.

[3] See J. Baines and B. Morgan, "Review of Integrated Impact Assessment," Ecologic Research Report No. 7, http://www.ecologic.org.nz/index.cfm/Sdreports.

5. Stakeholder workshop and survey

After an initial round of interviews with a dozen key stakeholders, we distributed a discussion paper '*Enhancing Water Use Flexibility and Security using the Motueka Catchment as a case study'* to a group of about 40 stakeholders (including the initial group) and invited them to a half-day workshop.

Drawing upon the lessons learned from our earlier case studies on market-based instruments (see http://www.ecologic.org.nz/index.cfm/integration), and observations and feedback about the current water allocation system, the discussion paper developed a mix of policy options that aimed to address the concerns of stakeholders and, in particular, sought to avoid making any stakeholder group worse off.

The discussion paper provided some background information and suggested a management objective (*Enhance public benefit - i.e. long-term community well-being - from water resources in the Motueka catchment*) for water management policy. A set of "desired outcomes" provided further detail for this objective (see Annex 1). The main body of the paper focussed on emerging issues for the catchment and policy options for addressing these.

Twenty-four stakeholders attended the workshop on 23 March 2006, including irrigators, in-stream interests, tangata whenua, administrators of public water supplies, local business community, Tasman District Council (TDC) staff and one councillor, and two officials from a central government department. The irrigators and others affiliated with primary production comprised the largest interest group attending the workshop. Each participant completed a post-workshop survey before they left.

Future trends and emerging issues

At the workshop, we first asked participants to identify possible future scenarios and issues arising over a 20-50 year timeframe that would affect water use and management in the Motueka catchment.

In summary, workshop participants identified the following **trends**, many of which would apply in other catchments around New Zealand:

- Changes in land use, including intensification of some areas with potential water quality impacts
- Further processing of primary production, most likely forestry related
- Construction of water storage, as surface water then groundwater allocation limits are reached
- Ongoing urban and rural residential growth, with associated increased water demand, recreational use of rivers and expectations for in-stream values
- "Export" of water out of the catchment for rural residential and irrigation use in adjacent water-short catchments
- Increased awareness and advocacy by tangata whenua for recognition of cultural values for water

- Higher energy costs leading to renewed interest in hydro power generation, probably at mini and micro scales, as the Motueka Water Conservation Order prevents construction of large dams
- Climate change leading to more water storage, more 'Kyoto' forestry, and rapid land use change (e.g. for fuel crops for energy) with associated water demand and water quality impacts
- Increased conflict over water, and increasing legal challenges for use of water
- Increased biosecurity risks, especially the risk of *Didymo* reaching the Motueka catchment from the adjacent Buller
- A more holistic view of water management emerging; an integrated catchment management approach, and maybe even the creation of some sort of water management authority for Nelson-Tasman.

Participants also listed the water management issues that were likely to arise as a result of these trends. Their responses generally fell into the following categories (note that this is not a consensus list, but a compilation from four groups' varied responses – see Annex 2 for a more detailed compilation of responses):

- The need for flexible and adaptive approaches to water management for both water users and the Tasman District Council
- Security of supply for users
- Allocation issues, including the level of environmental flows as well as competition between extractive users
- Land use impacts on water quality and means to address them
- Stakeholder involvement in decision-making and possible consideration of resource rentals
- Storage or other forms of augmentation and how it would be managed and funded.

The first four of these issues were identified and addressed in the discussion paper, except that the level of environmental flows was excluded because this is already prescribed for the major rivers of the Motueka by the Water Conservation Order. It was evident from the workshop, however, that stakeholders expect there to be further debate on environmental flows in the future, especially at subcatchment scale.

The discussion paper addressed the issue of stakeholder involvement in terms of water management committees, but not in terms of higher-level issues such as environmental flows, allocation between competing uses or resource rentals. The paper also did not address the question of storage or other forms of augmentation.

Overall, the issues most commonly identified by workshop participants centred around increasing competition for limited supplies of water and the effects on water quality of land use change and land management practices. These same issues have been prominent in the Government's Sustainable Water Programme of Action[4].

[4] See http://www.mfe.govt.nz/publications/water/#wpoa.

6. Policy approaches

Workshop participants then discussed, in small groups, policy approaches put forward in the discussion paper to address the main issues identified above. These policy measures were designed to be complementary rather than alternatives. Below, each of the measures is presented (*in italics*), followed by graphical and written summaries of the responses and an indication of the next steps for this project. Figures present the written survey responses by stakeholder type. It must be stressed that there were only 22 stakeholder responses, and some of the interests shown below were represented by only two participants. ***The results presented below must therefore be seen as indicative rather than definitive or representative of the wider stakeholder community.*** An aggregated 'traffic light' summary of survey responses to the policy options is presented in Annex 3.

6.1. Flexibility and security for users

1. **Security of Supply** – *Allocation limits should explicitly state the security of supply objective, e.g. aim to provide irrigators with 100% of their authorised water allocation in 9 years out of 10. Where not already established, in-stream flow regimes need to be defined for tributaries, and management triggers for groundwater abstractions, along with allocation limits, before threats to sustainability arise.*

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
*1. Users would benefit from a clear indication, on their water permit, of their **Security of Supply**, with associated low flow restrictions.*	5.7	6.2	5.3	5.8	5.4	5.7

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)

There was strong support for this proposition in both the workshop and post-workshop survey (Fig. 3). Security of supply (SoS) is very important to users, who would benefit from clear information on what SoS they could expect. SoS also needs to be defined so that everyone is talking about the same thing. Some users questioned whether the current TDC policy of a 35% cut during a 10-year drought adequately accounts for economic consequences for water users (one council rep suggested that SoS based on a 35% cut once every 20 years, with fewer water users, should be considered). Others noted that SoS cannot be guaranteed, and could change in future as rainfall patterns change. Data is important to determine SoS and consequences for users with reasonable accuracy. Water augmentation may be necessary in some situations to provide adequate SoS.

In our next paper for this project, we will propose a definition of Security of Supply that is economically meaningful for users and an approach for how councils could quantify and give effect to it through regional plans and resource consents. A definition needs to include the level of water usage restrictions, and their frequency and duration; the likely timing of restrictions also needs to be considered because of its economic consequences.

2. **Flow Sharing** – *Water user/catchment groups should be enabled to manage the available water supplies during restrictions, provided they record actual usage and do not exceed the total permitted takes. This could be facilitated by greater transferability of permits (see below). The TRMP currently provides for flow sharing in the Riwaka catchment, but this could be extended to management zones throughout the Motueka catchment.*

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
*2. **Flow sharing** - Users should be able to roster and/or ration themselves during restrictions, ...*	**5.0**	**5.8**	**4.3**	**4.2**	**6.0**	**4.0**

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)

Workshop participants generally agreed that water users should be enabled to roster use amongst themselves. This did not come through as strongly in the survey, where some council and instream interests were concerned it gave too much discretion to users. It was noted that flow sharing requires leadership from TDC and community involvement, that environmental limits need to be well understood, and that provisions could be needed to prevent undue pressure being put on individuals to share water. There are various models that could be used, so there is a need to define how this would work in practice.

Our next step is to define more precisely how flow sharing by water users could work (who to involve in the decision-making, which will depend on the extent of in-stream values), and the circumstances in which it would be most appropriate. Flow-sharing would typically operate when restrictions are in place. We anticipate that it would be by voluntary agreement amongst permit-holders and apply only to those who signal their formal agreement. Other users would be unaffected, i.e. subject to the default restrictions in their consent. There are opportunities for internet-based negotiation of and/or agreement to flow-sharing plans, and opportunities to aggregate water permits with the water management committee responsible for internal agreements on water sharing and ensuring compliance.

3. **Transferability** – *Downstream transfers of water take permits could be permitted subject to compliance with conditions regarding local effects (specified in the regional plan or the site consent). Subject to these same conditions, upstream transfers could be permitted within defined zones once these are reviewed to ensure the boundaries are sufficient for this purpose. Transfers could be reported to TDC via the internet and be effective immediately, facilitating flow sharing and leasing of allocations (non-permanent transfers) during times of water restrictions.*

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
3. ***Downstream transfers of water permits (or down gradient, for an aquifer) should be made a "permitted activity"*** *subject to compliance with conditions ...*	**4.8**	**5.3**	**3.7**	**4.2**	**5.8**	**4.0**

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)

The survey revealed strong support from irrigators and community development interests but a mixed response from council, instream interests and iwi. There was general agreement that transferability promotes efficiency and increases flexibility for users. Price (if any) should be by private negotiation, not dictated by Council or anyone else. Again, there are various models so there is a need to define how transfers would work in practice. Specifying the conditions of local use needs to be done well ("not just lip service"), and this requires council staff resources – some expressed doubt that the gains from transferability would be worth the trouble.

There is more support for transfers on a temporary basis than for permanent transfers (i.e. for the duration of the permit). Transferability raises philosophical and ethical issues, e.g. ownership is an issue for iwi and others; concerns were also expressed about transferability detracting from an ethic of guardianship and wise use of a public resource.

Our next step is therefore to explore in more detail how transferability, either permanent or temporary, could be increased, such as through permitted or controlled activity status. For example, we would describe generic constraints on transferability that would protect environmental thresholds (in-stream flows, saltwater intrusion, etc), control for effects on other users, and take into account social concerns and objectives.

6.2. Allocation

4. **Priority classes of permits** – *Once the first allocation limit has been reached, the council could make available additional permits (e.g. Class B & C) with lower priority (and lower security of supply) – these would have to cease take or suffer larger cutbacks in take before Class A permits were subject to restrictions.*[5] *TDC could reserve water for future use by saving a*

[5] e.g. The Motueka Water Conservation Order allows abstraction of 12% of the river flow. The TDC allocation limit of 1000 l/sec is the amount available when no restrictions are in force. If this allocation limit were fully subscribed, restrictions would start when river flows fall to about a 5-year low flow (a 20% cut 1 year out of 5). This equates to about a 96% security of supply – i.e. over 5 years, a user has access to 96% of her allocation. If the allocation limit were split into A and B components, with A permits unrestricted until flows fall to a 10-year low flow, then the A allocation limit would be about 815 l/sec with 98% security of supply. The remaining 195 l/sec could be allocated to B permits (or more if they were first restricted earlier, say at a 2-year low flow), and still more could be allocated as C permits e.g. for filling storage at times of high flow. Such "storage" permits would be required to cease takes well in advance of any low flows, e.g. at median annual flow, to avoid exacerbating low flows.

specific amount of the Class A allocation. Class B permits could still be issued, and these would have relatively high security of supply in the meantime. This security would gradually decline to that of a normal 'B' permit as the reserved Class A water was taken up.

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
4. ***Priority classes for permits*** *- Once the allocation limit for high priority permits has been reached, Council should issue lower priority Class B permits ...*	**4.1**	**3.8**	**3.0**	**4.5**	**4.6**	**5.0**

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)

The survey revealed a wide range of views on this question. Some participants saw merit in this concept, because it allows greater use and storage of water available for use. However, there was doubt about applying it where most use is from groundwater because depletion of storage must be considered alongside variability in flows. If priority classes were introduced, many thought in-catchment use should have the first priority.

Extractive users expressed some concerns that allocating additional water, even as a lower priority, could undermine security of supply for existing (i.e. class A) permit holders. One noted that it could generate a debate about which users should get highest priority. One in-stream user was strongly opposed; others in this category were open to the idea as long as it does not result in "flat-lining" flows in the river, noting that flood flows are needed to flush the river and replenish aquifers.

Feedback since the workshop from one stakeholder suggests that in Marlborough, where priority classes are in effect, the result has been to pit groups of stakeholders against each other, destroying rather than building social capital. At this point, we do not propose to explore this idea further.

5. **First-in First-served (FIFS) vs. alternatives** – *As a water resource nears full allocation, there is sometimes a "gold rush" to get a permit. Where demand exceeds supply for allocation of the available water, how should water be allocated? Options include:*

- *First-in, first-served (as at present)*
- *Ballot*
- *Council determination (e.g. based on efficiency, equity and/or uses most consistent with Council policy and sustainable development generally)*
- *Sale by Council (e.g. auction, tender or fixed price)*
- *Other?*

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
*5. Something other than **first-in, first-served** is needed to allocate water permits ...*	**4.1**	**5.0**	**4.0**	**4.0**	**3.4**	**3.5**

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)

There was limited discussion of this topic, as the groups were running out of time. None of the suggested alternatives was seen as better than FIFS, and there is no perception of a "shortage" of water yet in the Motueka. There could be a role for Water Management Committees to help allocate water when a catchment was becoming water-short. Tendering or some other approach could be useful for "new water" eg. from new storage.

Irrigators felt FIFS was OK in Tasman District but other options may need consideration in places like Canterbury where there is more of a 'gold rush'. Council, instream values and research interests favoured the council making a determination consistent with policy if an alternative was required, while several irrigators considered tendering an option. Some also suggested water management committees could decide who gets new allocations.

We do not propose to analyse alternatives to FIFS further.

6. Specification and administration of permits – *a number of improvements could be made in the way that permits are specified and administered.*

a. Abstraction volumes *– Permits would specify a maximum instantaneous abstraction in l/sec, a weekly maximum and a seasonal or annual maximum. For new permits and renewals, the allocation would be based, as at present, solely on soil type.*

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
*6. Water permits should specify a **seasonal and/or annual maximum***	**3.7**	**2.7**	**5.0**	**3.8**	**3.8**	**4.5**

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)

Participants saw no particular benefit from seasonal or annual maximums in the Motueka catchment, and said this would restrict options for existing users. Education and peer pressure were seen as more effective means of promoting efficient water use. However, instream interests felt it deserved consideration as there is growing pressure for winter use of some water permits, e.g. for frost fighting. Irrigators felt daily and weekly allocations give sufficient control, and further prescription could threaten their security of supply.

We consider that specifying a seasonal or annual maximum abstraction is

only necessary for resources that have significant storage capability, e.g. dams and some aquifers. In other situations, a seasonal maximum would restrict flexibility for users with little benefit. This approach is used for some water resources in Canterbury. Further analysis is needed to generically define the water resources where a seasonal or annual maximum abstraction would have a net benefit for water management.

b. Duration and scheduling of permits – *Duration should reflect the payback period for water use infrastructure. This could be 30 years but with a 10-year review period to adjust, if necessary, to changing flow information. Another possibility is renewal for an additional 10 years after each review, so permits would never expire. [This would require a change to the RMA.]. Continue the process of common expiry and/or review dates within each management zone, to enable costs of the review process to be shared across all users and to ensure that any changes to permit conditions will take effect for all permit holders at the same time.*

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
*7. Water permits should have a **longer duration** e.g. 30 years with 10-yearly reviews to ensure the restriction regime is adequate to protect in-stream flows.*	**4.5**	**5.8**	**2.7**	**5.0**	**4.6**	**2.0**

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)

Extending duration of permits (e.g. to 30 years with 10-yearly reviews) would be welcomed by users because of added certainty, but it doesn't allow the community to re-allocate water if demands change over time. In the survey, community and instream interests felt 30 years was too long, and that there needs to be an expiry date to allow community choice to change the allocations, while irrigators stressed the importance of tenure, and of reviews being 'balanced and reasonable'. Costs of reviews may be an issue (i.e. amount, and legal ability to recover costs from consent holders).

We consider there is an opportunity to extend permit duration somewhat, which provides more certainty for investment by users, but only where there are prescribed regular reviews of allocation limits and related issues to provide more assurance that third-party effects are being adequately managed. The RMA may need to be strengthened to ensure that these reviews are done rigorously and on time. Costs of reviews should be funded through consent charges (just as the cost of renewing a shorter-term consent would be met by the user).

c. Metering – *Compliance with prescribed allocation limits is important for users to have trust in the allocation system. Under the TRMP, water metering is currently required of larger new takes, and will be required of all water permit holders in the Motupiko, Tadmor, Tapawera Plains and*

Wangapeka catchments by May 2006. It is already mandatory for permits in these zones of the Motueka/Riwaka Plains: Riwaka, King Edward, Hau Plains, Swamp and Umukuri Zones. Water meters should be required in all zones by the time their allocation limit has been reached. Reporting and recording could be simplified (e.g. via electronic transmission rather than manual data entry).

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
8. ***Metering of water use should be mandatory*** *for all zones at or near full allocation.*	**6.0**	**5.0**	**7.0**	**6.2**	**6.2**	**6.5**

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)

Metering should be mandatory for all water users, not just when resources approach full allocation. It is an essential tool of good water management. There was surprising unanimity from all groups that metering should be required of all users, a possible exception being users of small amounts of water. Metering provides useful information for users and for council.

In our next paper, we will provide further commentary on water metering, taking into account proposals for a national environmental standard for water metering as part of the Sustainable Water Programme of Action. This commentary would cover issues such as meter accuracy, cost recovery, timely provision of data, exemptions and reporting summary data back to users.

d. User pays - *All monitoring and compliance costs should be funded by water users rather than general rates.*

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
9. ***User pays*** *- Water users should pay for all water monitoring and compliance costs of council, based on amount of water on permit.*	**4.1**	**3.0**	**6.3**	**3.8**	**4.0**	**5.5**

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)

The wider community benefits from water management, so 50/50 cost sharing between abstractive users and the general ratepayer was seen by workshop participants as a reasonable rule of thumb.

The survey, however, asked more specifically about compliance and monitoring costs, rather than all management costs (this could have caused some confusion, since the workshop discussion was about all costs). On this question, some instream interests supported full user pays on the basis that without water permits there would be no costs incurred for monitoring and compliance. Irrigators contended that the community benefits from

water use and should contribute to the costs; they also said that they can't control what the council wants to monitor and hence the cost, so the costs should be shared.

From a strict efficiency perspective, management costs should be fully recovered from users, and RMA s.36 and s.108 enable councils to do so. There is however a decision needed as to which costs are included as water management costs and which users (including passive users) should pay for which costs.

Compliance and monitoring costs are brought about by water use, but costs relating to water resource investigations and policy development have also broader community benefit. The share of costs to be borne by different sectors is a political judgment to be made by individual councils (or by central government if it wants to impose some uniformity across councils). We do not plan to do further work on this question as part of the present research project.

6.3. Managing third-party effects of local use

7. **Permit to take vs site-specific effects** – *The water permit would specify the amount of allocation and rationing rules, with a standard format for all permits. Site-specific effects of take and use, including proximity effects on neighbours and streams, would be managed through rules in the regional plan or, where these are incomplete, via a non-transferable site consent.*

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
*10. **The local effects of take and use** (e.g. water quality, effects on neighbours or nearby streams) should be separated from the water permit ...*	**4.2**	**4.0**	**4.3**	**4.5**	**4.0**	**4.0**

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)

In the feedback session, participants said this proposal would increase bureaucracy to achieve limited efficiency gains that could better be achieved in other ways. It would create uncertainty regarding the ability to transfer the water use/site permit. An alternative would be joint monitoring with TDC to address the nutrient leaching and other water quality issues that became the focus of this discussion.

The survey results were more mixed. One respondent wrote on the survey form "This is the boldest and best step proposed." However, another noted that participants had difficulty understanding the proposal, and a third said that more discussion was needed.

We believe that separating management of site-specific effects from the water permit has considerable merit, but the next paper will need to be more explicit

about what this would entail and seek to address concerns raised by stakeholders.

8. **Water Management Committees (WMCs)** – *WMCs could have a stronger role for liaison with the council, implementing voluntary flow sharing (as per 2 above), advising on consent applications and other water allocation decisions (as per 5 above) and developing and implementing plans for meeting sub-catchment or tributary targets for water quality. Committees should include representatives of in-stream interests as well as abstractive users.*

Regarding water quality, committees and/or catchment groups (e.g. of about 10-20 properties) would be encouraged to develop voluntary catchment plans identifying land use practices that could achieve water quality objectives. Individual land users would then develop property plans incorporating these practices. If necessary to achieve the targets, and if the catchment plans were supported by the council, the plans could be given statutory effect through the regional plan, e.g. as the basis for a "site consent" referred to above.

The survey included two questions regarding WMCs, one dealing asking generally whether WMCs should have more responsibility for water quality, the other asking more specifically that WMCs should develop catchment plans that would be implemented by individual property owners to achieve agreed water quality objectives.

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
*11. **Water management committees**, similar to existing water user committees, should have more responsibility for management of water quality issues.*	**5.3**	**4.2**	**5.3**	**6.2**	**5.2**	**6.5**
*12. **Water management committees, assisted by TDC, should develop catchment plans** specifying land use practices that will be implemented by individual property owners to achieve agreed water quality objectives.*	**4.2**	**3.2**	**5.3**	**4.8**	**3.6**	**5.5**

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)

WMCs were seen as a good concept, but there were operational questions. They need a clear Terms of Reference, leadership and resourcing from TDC and good access to science. Membership should include iwi and relevant environmental interests, not just water users. WMCs might work best with 15-20 members, but then an umbrella committee might be required for the entire catchment. This raised the issue of whether there should be a new governance model (i.e. to complement or replace some TDC functions), perhaps similar to the former catchment board model (part elected, part appointed), or whether WMCs would be simply enhanced versions of existing ad hoc Water User Committees, with no statutory powers.

Questions were raised about the legal status of WMCs and members' mandate for representation, as well as the demand it puts on community members, and the potential for local groups to be 'hijacked'. One wrote "Sounds like we are reinventing the Catchment Boards!" The survey responses showed more polarised views than the discussion groups, with some highly enthusiastic responses countered by concerns about the committees becoming 'water police' requiring land users to implement centrally determined practices and needing considerable resources. Irrigation and community interests were, on average, reluctant to have WMCs taking on the role of developing catchment plans that would be implemented by individual property owners, although there was also some moderate support for the idea within these groups.

Water management committees could help to address water quality issues at a sub-catchment level. A positive aspect is their ability to integrate water quality issues with other issues of concern to local stakeholders. As noted above, leadership from TDC would be required for WMCs to work well.

Iwi would be included in WMCs, which would streamline the consultation process, and all members of WMCs should be eligible for meeting fees funded by council through charges on permit holders. This approach would introduce new water users to the water management regime for the resource and thereby help to build social capital among users and other parties on the WMC.

In our next paper, we will spell out more clearly how WMCs could operate, including what role they could have in managing water quality issues. We believe there are some significant devolved governance opportunities at sub-catchment scale.

7. Preliminary conclusions regarding methodology and engagement with stakeholders

Pre-workshop interviews were useful to ensure some level of understanding of the policy options and to identify major issues for stakeholders.

The interaction matrix, while not yielding any surprising insights, increased the likelihood that significant linkages and outcomes would be recognised.

The workshop format provided a further check on this, and enabled stakeholders to explore policy options in a non-threatening way. The high level of collegiality among participants allowed a good exchange of views, leading a number of participants to adjust their opinions regarding the policy measures being discussed.

Many stakeholders demonstrated a willingness to see issues from others' perspectives; there was a reasonable degree of consensus on some of the policy options across the various interests represented. This was in contrast to the responses to the post-workshop survey, which showed a more diverse range of views and less apparent consensus. We take this as an indication that, when involved in a collaborative

process, stakeholders are more likely to acknowledge and accommodate competing views than they are if asked to express their individual views in a "positional" context. Whether the degree of consensus apparent in the workshop would be maintained in a discussion with more direct policy implications, i.e. if stakeholders believed that decisions were likely to lead directly to policy changes by the council, remains a question for further investigation.

Despite being reasonably satisfied with the status quo, Motueka stakeholders are open to policy innovations, but they want more detail on how these would work before they give a full endorsement.

The research team is now considering the next steps in this process. This is likely to involve a further paper regarding policy proposals and an opportunity for stakeholders to provide further comment.

Annex 1. Objectives and desired outcomes

This Annex provides an excerpt from the discussion paper distributed to stakeholders prior to the workshop on 23 March 2006.

Objectives for water management

In considering possible changes to the water management regime for the Motueka catchment, it is important to have clear objectives in mind, recognising that the economy and society are embedded within a bio-physical system (Fig. 3).

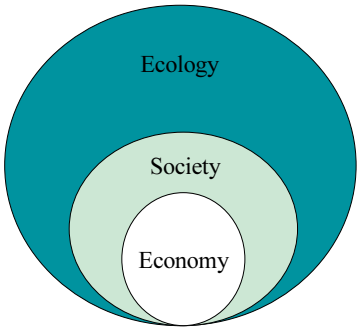


Figure 3. Embedded systems

In the broad context of sustainable development, we suggest the following as a (draft) objective for management of water resources in the Motueka catchment:

Enhance public benefit (i.e. long-term community well-being) from water resources in the Motueka catchment taking into consideration:

- *Ecological requirements (such as those established by the Motueka Water Conservation Order and any other standards established by the Tasman Resource Management Plan);*
- *Social concerns (such as any TDC policy regarding change to existing land use patterns) and the equitable distribution of benefits across different groups of water uses in the catchment;*
- *Cultural values associated with water and any iwi claims to water; and*
- *Economic values (e.g. productive, amenity, etc) associated with both out-of-stream use (i.e. abstraction) and in-stream flows.*

Desired outcomes
Thus, in practice we suggest that any policy changes should be consistent with the following outcomes:

1. Ecological/biophysical –

   In-stream flows, groundwater levels and water quality will be maintained at current settings and, in some cases, possibly enhanced (e.g. by specification of in-stream flow protections where they do not currently exist).

2. Economic –

   The value of output from irrigated land will increase over time, and the value of water permits will rise accordingly. This will have flow-on effects for local service and input providers. At the same time, the value of river-related tourism activity will be maintained or enhanced.

3. Socio-cultural –

Employment in land-based industries will increase gradually over time, providing stability and possibly some population growth for Tapawera and the surrounding area, as well as for the township of Motueka.

Population growth in existing urban settlements will not be constrained and rural sub-division for lifestyle properties will continue.

Recreational, amenity and spiritual values associated with the Motueka River and its tributaries will be maintained and, in some cases, possibly enhanced.

Land use will change gradually over time, well within the ability of communities to adapt to any resulting social changes.

Tangata whenua will have access to water for development of tribal lands, or for other uses if this better enables them to provide for their well-being.

Annex 2. Workshop feedback on emerging issues for water management

Participants identified the following as **issues** likely to arise in the Motueka catchment over the next 20-50 years (this is not a consensus list, but a compilation from four groups' varied responses):

- Well researched reviews of allocation limits, and long-term planning
- Water management responses to climate change, which will affect both water demand and availability
- How to manage changing demands for water over time, especially re-allocation
- Deciding whether water allocations should be kept with the land
- Recognising that the value of water as it becomes scarcer could exceed the value of land
- All stakeholders should get involved in the debate, as some sectors don't have a voice
- Communities more actively involved in developing community solutions for water management
- How to put storage in place - and within shorter timeframes than at present - to meet the increasing demand and even bolster in-stream flows in some rivers
- Incentivising efficient use of allocated water
- Better definition of security of supply of allocated water and environmental flows, including understanding water demands at different times of year
- Ongoing reviews of environmental flow requirements, including consideration of landscape and access issues around rivers
- A process for deciding who gets the water, and who pays for water management and related research
- Governance and funding issues for water, including – with some dissension – consideration of resource rentals
- Reconciling social as well as monetary costs of water use and water quality impairment
- Recognising the contribution of forests for maintaining water quality
- Sedimentation, nutrient and pathogen contamination from land use changes
- Recognising the role that biodiversity, riparian habitat and corridors can have in maintaining water quality
- Managing effects of subdivision, especially stormwater
- Recognising that mixing waters of one catchment with another damages the *mauri* of the water
- Maintenance of infrastructure for water and waste, especially risks from leaky sewerage reticulation.

Annex 3. Aggregated survey results from workshop participants on policy approaches for water management

At the conclusion of the workshop, participants completed questionnaires that asked them to indicate, on a 7-point scale, whether they agreed or disagreed with statements describing the policy approaches discussed at the workshop. A '1' represented strong disagreement, '4' was neutral, while a '7' represented strong agreement.

Figure 4 below (continued on next page) shows the responses by type of participant. Green indicates that, on average, participants of the type shown agreed with the proposition; white indicates a neutral/don't know response; and red indicates, on average, disagreement with the proposition.

It must be stressed that there were only 24 responses in total, and some of the interests shown below were represented by only two participants. ***The results must therefore be seen as preliminary and indicative rather than definitive or representative of the wider stakeholder community.***

Figure 4. Support for policy propositions by type of participant

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
*1. Users would benefit from a clear indication, on their water permit, of their **Security of Supply**, with associated low flow restrictions.*	5.7	6.2	5.3	5.8	5.4	5.7
*2. **Flow sharing** - Users should be able to roster and/or ration themselves during restrictions, ...*	5.0	5.8	4.3	4.2	6.0	4.0
*3. **Downstream transfers of water permits (or down gradient, for an aquifer) should be made a "permitted activity"** subject to compliance with ...*	4.8	5.3	3.7	4.2	5.8	4.0
*4. **Priority classes for permits** - Once the allocation limit for high priority permits has been reached, Council should issue lower priority Class B permits ...*	4.1	3.8	3.0	4.5	4.6	5.0
*5. Something other than **first-in, first-served** is needed to allocate water permits ...*	4.1	5.0	4.0	4.0	3.4	3.5
*6. Water permits should specify a **seasonal and/or annual maximum***	3.7	2.7	5.0	3.8	3.8	4.5

Proposition	Overall weighted score	Irrigation interests	In-stream interests	Central/ reg gov't	Comm. Dev.	Iwi
*7. Water permits should have a **longer duration** e.g. 30 years with 10-yearly reviews to ensure the restriction regime is adequate to protect in-stream flows.*	**4.5**	**5.8**	**2.7**	**5.0**	**4.6**	**2.0**
*8. **Metering of water use should be mandatory** for all zones at or near full allocation.*	**6.0**	**5.0**	**7.0**	**6.2**	**6.2**	**6.5**
*9. **User pays** - Water users should pay for all water monitoring and compliance costs of council, based on amount of water on permit.*	**4.1**	**3.0**	**6.3**	**3.8**	**4.0**	**5.5**
*10. **The local effects of take and use** (e.g. water quality, effects on neighbours or nearby streams) should be separated from the water permit ...*	**4.2**	**4.0**	**4.3**	**4.5**	**4.0**	**4.0**
*11. **Water management committees**, similar to existing water user committees, should have more responsibility for management of water quality issues.*	**5.3**	**4.2**	**5.3**	**6.2**	**5.2**	**6.5**
*12. **Water management committees, assisted by TDC, should develop catchment plans** specifying land use practices that will be implemented by individual property owners to achieve agreed water quality objectives.*	**4.2**	**3.2**	**5.3**	**4.8**	**3.6**	**5.5**

Key: Green = support (≥4.4); White = neutral (3.7-4.3); Red = opposed (≤3.6)