HUNTER WATER CORPORATION . PO BOX 5171 HRMC NSW 2310 . TEL 1300 657 657
36 HONEYSUCKLE DRIVE NEWCASTLE . ABN 46 228 513 446 . HUNTERWATER.COM.AU

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Telephone: 02 4979 9521
Facsimile: 02 4925 2078

Mr James Cox
Chief Executive Officer and
Full Time Member
IPART
PO Box Q290
QVB POST OFFICE NSW 1230

Dear Mr Cox

RE HUNTER WATER CORPORATION OPERATING LICENCE REVIEW – SUPPLEMENTARY SUBMISSION

At the public workshop on Hunter Water's operating licence review, held in Newcastle on 5 December 2006, there was a request for further information on multi-criteria analysis and the WSAA asset management benchmarking process.

A response to the issues raised is provided in the attached Supplementary Submission.

Hunter Water considers the use of multi-criteria analysis as a more holistic decision making tool for the IWRP, in that it considers not only the economic, but also social and environmental costs and benefits. This will involve greater community input into the process than existing licence requirements.

In terms of asset management, Hunter Water welcomes such provisions to be included in the new operating licence. Based on contemporary practice and our experience in the area, Hunter Water believes that it would be appropriate to include a requirement for the Corporation to undertake a complete asset management benchmarking exercise each licence period. In particular, the WSAA framework, which is an established and recognised tool both nationally and internationally, is comprehensive, involves independent auditing of performance scoring, and is designed as a business improvement tool.

If you require any further information or wish to discuss, please contact Mr John O'Hearn on 4979 9748.

Yours sincerely

KEVIN YOUNG
Managing Director

1 MULTI CRITERIA ANALYSIS

1.1 Background

As outlined in Hunter Water's October 2006 submission, Hunter Water's principle vehicle for managing demand and supply is the Integrated Water Resource Plan (IWRP). Hunter Water developed the first IWRP in 2002 in accordance with the requirements of the current operating licence.

The IWRP seeks to provide for the water demands of projected population growth with an appropriate level of drought security in a sustainable manner. The plan aims to find the best solution to meet future water demands after appropriate consideration of social, economic and environmental factors. It balances both demand management and supply development options so that the optimal sequencing of options is identified.

The current operating licence is also quite prescriptive about inputs to the IWRP, the method of options analysis and how the outcomes should be implemented.

Hunter Water believes that these requirements could be made more flexible to take better account of the community's subjective preferences and offer more transparency in decision making. Specifically, the operating licence requires that the costs of each option include financial, social and environmental costs for each year of the plan. While some social and environmental costs can be readily quantified, others are very difficult to quantify.

For this reason, resource planners now widely employ multi-criteria analysis to better take account of non-monetary costs and benefits. Multi-criteria techniques also have the advantage in that they often improve community input by assisting the community to express preferences for options using a wider range of decision-making criteria.

Multi-criteria decision-making techniques are already used in water planning in NSW. Simple multi-criteria evaluations were used to by consultants Sinclair Knight Merz to rank recycling opportunities for the Sydney metropolitan water plan, and the Department of Energy, Utilities and Sustainability uses multi-criteria ranking in assessing proposals submitted for funding under the water savings fund. Elsewhere, multi-criteria analysis has been used by Queensland agencies and authorities in integrated water planning for south-east Queensland.

Hunter Water proposed in its October 2006 submission that it would be appropriate to replace the existing licence requirements so that only financial benefits and costs are required to be valued and that other social and environmental benefits and costs be considered using a multi-criteria approach.

1.2 Multi-criteria analysis

As mentioned above, the current operating licence is quite rigid in terms of prescribing least-cost planning as the primary method for evaluating and ranking options under consideration in the IWRP. However, worldwide, limitations of evaluating options on criteria such as benefit-cost and least-cost have gradually led to the adoption of multi-criteria assessment in complex decision-making like natural resource planning.

Multi-criteria analysis permits water resource planning to take account of a range of related issues that are important to the community. The current upswell in community interest in climate change is a good example. Research is indicating that the community wants climate

change issues addressed and is willing to pay for this to occur[1]. Thus options assessment in water resource planning needs to take account of these other community preferences as well as factors such as least-cost or cost-benefit.

Integrated water resource planning is about finding the best mix of demand management and supply expansion options to meet the demand for water from projected population growth. Today, there is often an array of options to be evaluated in such a planning exercise.

The benefits and costs of individual options will also differ quite significantly in scale and in terms of externalities. For example, some options may reduce each individuals demand by a small amount and, once implemented, that benefit will have been achieved for all time and may be relatively small in overall scale – offsetting the effect of demand growth by just a year or two. The costs of implementation – of achieving implementation at the individual or household level – may be high. Other options may be able to achieve similar demand reductions without direct involvement of individuals. On the supply side, recycling or desalination options may have high energy costs and associated externalities while new dams similarly may have social and local environment impacts but also offer definite benefits such as drought security and long-term energy savings.

Thus from all available options, there will be a mix of positive and negative direct impacts and externalities. Some of these will be able to be quantified and valued, or at least estimated, in monetary terms. These include capital costs, ongoing operating costs, demand reductions, energy savings and external direct benefits/costs.

However, there will be other direct and indirect impacts that may be equally significant to the community in the decision-making process that cannot be easily (or fully) quantified or valued. Multi-criteria analysis provides a vehicle that enables formal, and to some extent quantifiable, assessment of a wide range of options and community preferences.

1.3 Structuring Multi-Criteria Analysis

Multi-criteria analyses can range from relatively simple to major and complex exercises. Generally, multi-criteria analysis has four key stages. These are:

1. Identifying options and stakeholders in the decision process
2. Establishing assessment criteria and appropriate weightings for each criteria
3. Scoring options against each of the criteria
4. Ranking of options by aggregating scores across all criteria.

Identifying Options and Stakeholders

In some decision settings, there can be an almost infinite array of options to consider. An initial task is to identify options at an appropriate level of detail and to screen options to produce a “short list” for detailed evaluation.

Setting the level of detail can help collapse the range of options. For example, in considering residential demand management options, a number of measures may be possible such as water audits, shower head refits, toilet refits and tap exchanges. Each one of these could be considered as a separate option or they could be aggregated into a refit package that contains all these components. This refit package would then be a single option for consideration as a refit program.

[1] For example, the Lowy Institute Poll 2006, which found two thirds of those polled wanted steps taken now to address global warming even if the costs are high.

Other short listing tools will revolve around what is technically feasible. For example, supply augmentation options generally will have evolved from a history of technical investigation and knowledge of the accessible natural resources. Supply options also will be influenced by resource availability articulated through water sharing plans and access licensing rules.

Successful programs in other regions and used by other utilities also provide a basis for initial option identification and the experience of other utilities can assist with option screening.

Stakeholder forums and focus groups also can be employed in short-listing options. Stakeholders are persons, groups or institutions who can significantly influence the outcome of the evaluation and those with a legitimate interest in the outcome. Typically, the stakeholder groups that could be involved in IWRP assessment processes include customers (both residential and industry), resource regulators, community and environmental groups, catchment area landholders, local government and other relevant groups.

Identification of criteria and weights

In least-cost planning, there is essentially one criterion – the lowest present value cost. Where possible, costs for each option will include environmental and social costs and identifiable externalities. Multi-criteria evaluation allows a broader range of economic and other criteria that cannot easily be valued in financial terms. These include environmental and social impacts as well as some risk factors.

The criteria are generally developed by the IWRP team. Information obtained from early stakeholder consultation would assist in this process. While Hunter Water has not yet developed criteria for the use in multi-criteria evaluation for the IWRP, the criteria could cover measures like levelised cost, project scale, certainty of benefit (risk), drought security, energy and greenhouse impacts, natural ecology impacts and community disruption.

Multi-criteria analysis also relies on the importance of each criterion in the overall assessment being made explicit in the analysis. This is achieved by attaching weights to each criterion reflecting the importance of each criterion.

Scoring options against each criterion

There are various ways of scoring options according to each criterion. Within each criterion there will be a number of considerations that need to be considered. The IWRP project team would develop these considerations and the scoring process for consideration by stakeholders.

Overall scoring is achieved by allocating scores to each criterion. As an example, the scores for qualitative issues could range from -10 to +10, where -10 is at the adverse extreme, 0 is neutral and +10 is very beneficial. Everyone involved in scoring would be carefully briefed on scoring.

In more complex criteria, several scoring processes may be needed to make a composite score for a single criterion. For example, a “natural ecology impacts” criterion may involve separately considering and scoring issues like impacts on riverine vegetation, fish breeding, biodiversity and in-stream water quality.

Ranking of options by aggregating scores across all criteria

There are various statistical methods for aggregating the scores across all criteria to rank options. The degree of rigour will depend on the number and nature of the criteria. Simple approaches are often best as they maintain transparency for stakeholders and the wider community. The simplest approach – and the one most suited to the type of analysis envisaged for the Hunter Water IWRP – is to multiply the score for each criterion by the weight and then add the results for all criteria to derive a total score for each option. A simple hypothetical illustration of this aggregation of scores is shown in the table below.

Option	Levelised cost	Scale	Certainty of benefit	Drought security	Energy & climate change	Natural ecology impacts	Community disruption	Overall
Weight	**0.3**	**0.05**	**0.1**	**0.1**	**0.2**	**0.1**	**0.5**	**1.0**
Option A								
Raw	2.0	8.0	8.0	9.0	6.0	- 3.0	- 3.0	**3.15**
Weighted	0.6	0.4	0.8	0.9	1.2	- 0.3	- 0.45	
Option B								
Raw	8.0	1.0	2.0	- 3.0	5.0	0	0	**3.35**
Weighted	2.4	0.05	0.2	- 0.3	1.0	0	0	
Option C								
Raw	2.0	1.0	0	- 2.0	- 1.0	0	0	**0.25**
Weighted	0.6	0.05	0	- 0.2	- 0.2	0	0	
Option D								
Raw	- 3.0	5.0	9.0	9.0	- 6.0	- 1.0	- 1.0	**-0.30**
Weighted	- 0.9	0.25	0.9	0.9	- 1.2	- 0.1	- 0.15	

Note. The data in this table is hypothetical and options, weights and scores do not relate to any analysis undertaken or proposed by Hunter Water Corporation.

On the basis of this analysis, the above options would be ranked in order as B, A, C and D. This overall ranking is the same as the ranking derived on the basis of levelised cost.

However, on levelised cost alone, Options A and C rank equally but on the basis of multi-criteria analysis Option A is clearly preferred ahead of Option C. This reflects Option A's better performance on the criteria of scale of benefit, drought security and energy and climate change impacts. Thus if decisions were made on levelised cost alone, Hunter Water would be obliged to put equal effort into pursuing options A and C after Option B. On the basis of the multi- criteria results, the more acceptable strategy to the community is to pursue only Option A in support of the highest ranking option (Option B).

1.4 Multi criteria analysis and the IWRP

The decision-making process required for integrated water resource planning is characterised by parameters that make it ideally suited to multi-criteria analysis. There are multiple objectives, multiple decision criteria to be considered, a variety of interests from stakeholders and impacts that are most readily quantified and considered in non-monetary terms.

Where least-cost methods alone are used, all costs, whatever their nature, need to be translated into monetary equivalents for the analysis and ranking of options. By contrast, multi-criteria analysis compares options with each other using a number of criteria, some of which may be qualitative in nature. In other words, all options are compared on the same basis with the overall assessment comprising a range of assessment criteria – some financial and others quantified in other ways. However, each criterion is applied to each option using the same measurement and assessment terms.

As indicated in Hunter Water's October 2006 submission to IPART, the Corporation considers that some of the current operating licence requirements about the analysis required by the IWRP could be made more flexible to improve the analysis and facilitate community understanding and decision making on future water options for the lower Hunter region. Hunter Water considers that a multi-criteria approach along the lines outlined above would improve community input by assisting the community to express preferences for options on a range of criteria.

Hunter Water therefore believes it would be appropriate to replace the existing provision so that only financial benefits and costs are required to be valued and that other social and environmental benefits and costs be considered using a multi-criteria approach.

2 WSAA ASSET MANAGEMENT PERFORMANCE BENCHMARKING

Hunter Water acknowledges its responsibility to ensure the safe, reliable and efficient management of its assets. The Corporation is committed to benchmarking its asset management systems and processes periodically. As well as assisting Hunter Water to identify areas for improvement, this benchmarking could also be used to provide assurance to the community and IPART that sound asset management practices are in place.

In its issues paper and at the December 2006 public workshop, IPART asked what obligations relating to the development and implementation of suitable asset management strategies should be included in Hunter Water's operating licence. In particular, whether the Sydney Water Corporation (SWC) and Sydney Catchment Authority (SCA) asset management obligations should apply to Hunter Water.

The SWC/SCA licence requirements are very detailed, prescriptive and contain a relatively large amount of reporting that does not necessarily lead to improved asset management practices. In this regard, it not only conflicts with the Tribunal's objective of "not being overly prescriptive" but lacks the sophistication necessary to assure good asset management, and more importantly, continuous improvement.

Hunter Water's October 2006 submission outlined our preference to undertake a complete asset management benchmarking review each licence period (ie every five years) using the WSAA (Water Services Association of Australia) framework. Hunter Water believes this approach is preferable to the asset management requirements in the SWC/SCA licences. Further, it is more consistent with contemporary thinking on best practice in asset management, which increasingly is favouring such benchmarking processes over traditional asset management plans. Asset management through benchmarking of processes provides an opportunity for participants to learn from the total cohort of current and past participants in the benchmarking and continually improve their asset management performance.

The WSAA benchmarking approach was developed and tested in 2003 and 2004. The framework is comprehensive and custom-designed by water industry practitioners to test a wide range of processes directly related to urban water asset management.

The benchmarking process focuses on asset management to deliver services with the best environmental, social and lowest life-cycle cost outcomes. It is comprehensive in that it tests asset management at an "activity level" across some 960 specific urban water asset management activities. These activities are in seven functional areas:

- Business planning
- Asset capability planning
- Asset acquisition
- Asset operations
- Maintenance of assets
- Disposal/renewal
- Information systems.

Each activity within these areas is assessed, scored and aggregated to give an overall score for the function. Accredited consultants then provide an independent audit of the performance ratings given to each activity and to ensure consistency of scoring.

An asset management profile can then be established for the utility and individual agency results are benchmarked against an expanding data base of results, as more agencies

worldwide undertake the benchmarking or repeat the benchmarking exercise. The tool is now used by around 26 agencies across Australia, New Zealand and in the United States. This number and diversity of participants adds greatly to the strength of the benchmarking tool by building a strong comparative data base.

The framework was peer reviewed by an independent international consultant in terms of the methodology's structure, content, scoring and consistency in application. The peer review concluded that the "*framework is robust, comprehensive and fit for purpose*.[2] "

An important feature of the WSAA framework is that it is designed as a business improvement tool. It automatically and objectively identifies and reports on areas for improvement in asset management identified by comparison with a data assembled from all participating utilities. Hunter Water considers that, by contrast, the descriptive reporting requirements in the SWC/SCA licences lead to a more subjective and opinioned assessment. Further, the SWC/SCA reporting and auditing requirements lack any firm commitment to comparative assessment against industry best practice – the strength of any such assessment relying on the strength and scope of audit processes.

In 2004, Hunter Water participated in asset management benchmarking conducted by WSAA using the framework. Participating agencies in the benchmarking project undertook a self-assessment of their asset management practices which was then audited by consultants with extensive asset management experience who have been accredited by WSAA.

Based on the benchmarking results, Hunter Water is one of the best practice agencies in asset management in the Australian water industry with scores above the median for all key asset management functions.

Hunter Water considers that an audited assessment using the WSAA framework provides a sound basis for assessing the strength of its asset management and for identifying areas and opportunities for improvement. It is Hunter Water's intention to carry out a complete assessment of this type every five years or the equivalent of once during each operating licence period and believe this should be included as an operating licence requirement.

The Corporation has searched, both nationally and internationally, for tools to ensure its asset management is consistent with best practice. The Corporation also has been involved with overseas agencies on asset management exercises. As a result of these experiences, Hunter Water believes the WSAA framework is the best tool of its type available at this time – it is the leading edge approach to asset management.

Hunter Water's concern is that replicating the SWC/SCA licence requirements in the new Hunter Water operating licence does not achieve contemporary best practice asset management. A more flexible licence requirement that could be met by a benchmarking exercise, like WSAA benchmarking process, being carried out during the licence period provides the community with surety that assets are being managed well and provides the Corporation will tools to improve its asset management. From an IPART standpoint, it ensures regulatory requirements are in line with contemporary asset management best practice.

[2] Foley A, 2005

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