Valuation of Natural Assets — What the Courts Have Said So Far

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Introduction

In May 2013 the New Zealand Institute of Economic Research released a public discussion document titled *Valuing Natural Assets*. The Paper noted that New Zealand producers and consumers get a lot of value from natural assets, much of which is intangible. This was seen as a fundamental reason to make "special effort to measure the value of natural assets, to make sure we make the right decisions about their use and conservation".

The Paper states that a key barrier to using economic valuation is the cost and uncertainty of values obtained from the variety of techniques being used: "This is a real issue, to the extent that doubts are being expressed in resource management cases whether economics has much to add when considering environmental effects".

The thesis of the NZIER Discussion Paper is that to "remove this barrier, valuations need to be cheaper and easier to compare", and that a "standardised technique could provide relative values for different types of natural asset or service. This would make economic value estimates from across a range of natural asset settings more consistent".

The NZIER Paper notes that while economic valuation is not straightforward, this does not justify "doing away with analysis and assuming that judgement is the only way forward". The Paper states:

> There is a widespread view among the practitioners (including some economists) in the Environment Court and resource management hearings that uncertainties in economic valuation mean economists have nothing to add to the consideration of the environmental effects. This view surfaced in recent Court decisions on the Denniston Mine and the Mount Cass windfarm.
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> As cases taken for determination by these hearings can have serious implications, the uncertainty over economic valuation is a problem needing remedy rather than an issue to be excluded from consideration.

In light of these comments, this article sets out what the courts have said about valuing natural assets under the Resource Management Act 1991. In summary:

- Economic considerations are an integral component of sustainable management. Economic efficiency is to be considered by decision-makers both for resource consent applications and for plan provisions.
- An economic analysis is, however, only one component of the overall assessment which is to be made. An holistic approach is to be preferred so that while an economic analysis can be helpful, the RMA requires a wider exercise of judgment.
- The RMA does not require a quantitative and explicit cost-benefit analysis of effects on natural assets to be undertaken.
- While the RMA does not prevent a quantitative cost-benefit analysis including natural assets being introduced into evidence (and there is recognition by some courts that such analysis would be of benefit in certain situations), the courts generally have expressed considerable reservations about the usefulness of economic valuations of natural assets or effects on natural assets.

We question the assumption which is implicit in the NZIER Paper that decisions by the courts to date have been deficient because of the way they have dealt with (or not dealt with) the economic valuation of natural assets, and effects on those assets. In our view the question remains as to the extent to which the economic valuation of natural assets suggested in the NZIER Paper would in reality lead to better decisions.

Economics under the RMA — the general principles

Resource Management Act provisions

Economic considerations are intertwined with the concept of the sustainable management of natural and physical resources. Section 5(2) refers to enabling "people and communities to provide for their ... economic ... well being" as a part of the meaning of "sustainable management".

When considering an application for a resource consent, s 7(b) states that a decision-maker must have particular regard (amongst a range of matters) to:

> The efficient use and development of natural and physical resources.

When preparing a policy statement or a regional or district plan, s 32 requires councils to prepare an evaluation which demonstrates they have

considered the costs, benefits and alternatives of a proposed policy. Section 32 states:

> Consideration of alternatives, benefits, and costs
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> ...
>
> (3) An evaluation must examine—
>
> (a) the extent to which each objective is the most appropriate way to achieve the purpose of this Act; and
>
> (b) whether, having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives.
>
> ...
>
> (4) For the purposes of the examinations referred to in subsections (3) and (3A), an evaluation must take into account—
>
> (a) the benefits and costs of policies, rules, or other methods; and
>
> (b) the risk of not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods.

Section 32 is the more comprehensive requirement. That is because when considering a policy position, a council is likely to be able to consider a wider range of alternatives, including the alternative of not acting. By contrast, an applicant for a resource consent is much more likely to be restricted in terms of being able to consider alternatives.

The Resource Management Reform Bill 2012 proposes substantive changes to s 32, with more weight given to quantification of particular benefits and costs. When the final form of the Reform Bill becomes law the implications of these changes will need to be reconsidered.

Wide exercise of judgment required compared with a strict economic approach

In *Geotherm Group Ltd v Waikato Regional Council* EnvC A151/06, 19 November 2006, the Environment Court considered the requirements of s 32 as it applied to the setting of geothermal discharge thresholds in the Waikato Regional Plan.

In its decision, the Environment Court concluded that:

> While acknowledging the usefulness of a marginal cost-benefit analysis, we also consider that a section 32 analysis requires a wider exercise of judgment in determining whether or not a rule is the most appropriate method of achieving the objectives of the plan and the purpose of the Act. We have regard to the economic evidence in this context. (at [48])

In 2011, in *Carter Holt Harvey Ltd v Waikato Regional Council* [2011] NZEnvC 380 the Environment Court considered appeals against provisions of the Proposed Waikato Regional Plan to address the adverse effects of the taking and use of ground and surface water. The Court confirmed that the RMA includes economic efficiency as a consideration under s 32, but that is only one of the matters to be taken into account:

> [177] There has been considerable debate about the extent of the relevance of economic evidence under the Act. Economic evidence can cover a wide spectrum. It can address macro and micro economic considerations. It can address international, national, regional and local economic considerations. It can provide an in-depth cost/benefit analysis as to the use of alternative sites or methods, or as to doing or not doing something. These examples are by no means exhaustive.
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> ...
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> [181] Thus, there can be no doubt that the Act includes economic considerations. But the manner in which such considerations are to be taken into account is sometimes complex and depends on the nature of each individual case. Economics is just one of the various threads discernible in the Act which contributes to the attainment of sustainable management.

The Court considered that the complexity of the economic evidence presented was compounded by the fact that different methodologies were employed and that there was no consensus as to appropriate base data (at [182]). The Court went on to state that for economic evidence to be useful, there needs to be clear and ideally agreed identification of the issues to be addressed, and the methodologies to be applied when addressing them (at [185]).

In evaluating the cost-benefit analysis undertaken by the parties, the Court stated that it was not possible, in this situation, for one cost-benefit analysis to be preferred over another because:

> [199] ... The assessment of such modelling includes a number of factors that need to be evaluated including:

(a) The context and framing — this includes the methodologies applied and the range of factors to incorporate into the analysis, and specific prediction choices;

(b) The uncertainties — there are always uncertainties about inputs that drive a cost/benefit assessment. This includes uncertainties about such factors as the amount, if any, of downstream irrigation displaced by consumptive takes upstream at Karapiro;

(c) The structure — the model structure needs to reflect reality and where different structures or methodologies are used, this increases uncertainty.

The Court concluded that:

> Because there are so many variables that underlay the economic analysis, there can be no absolute answer. To this extent the economic evidence has its limitations. To enwrap issues, that rely to a large extent on human rationality, within fixed mathematic formulae, is confounded by the many variables that human rationality gives rise to. Further, a slight change to any one of the variables could give rise to dramatically different results. (at [200])

While the Court agreed that cost-benefit analysis did give an insight into the potential economic effects of displacing hydro-generation with water for dairy irrigation it was critical of the fact that the cost-benefit analysis was too narrowly constructed and did not take into account the contribution of dairying to the regional economy (at [201]–[203]).

Section 7(b)

In terms of s 7(b), the courts have stated that evaluation of economic efficiency is not an end in itself. An efficient use of resources in an economic sense must be weighed against broader environmental factors (see *Intercontinental Hotel v Wellington Regional Council* EnvC W15/08, 14 March 2008). Consent authorities do not need to determine the relative efficiency of the use of resources, compared with other possible uses of those resources and the exclusion of the activity (see *Awly Investments Ltd v Christchurch City Council* Env C103/02, 29 August 2002).

Section 7(b) does not require consideration of the use or development of other resources that might have been used instead (see *Cullen v Kaipara District Council* EnvC A015/99, 17 February 1999). It is the broad aspects of economic efficiency that are relevant, rather than narrower considerations such as financial viability or potential profit for a developer (see *NZ Rail Ltd v Marlborough District Council* [1994] NZRMA 70 (HC)).

Section 7(b) is also relevant in assessing the efficiency of methods such as plan provisions under the Act and accordingly has a relationship to s 32 (see *Marlborough Ridge Ltd v Marlborough District Council* [1998] NZRMA 73 (EnvC)).

The economic valuation of natural assets

There has been considerable uncertainty around the appropriateness of economic valuation of natural assets, or of environmental values, in the context of decision-making under the RMA.

Otago Regional Plan: Water

In 2002, the Environment Court released a decision on minimum water flows in the Otago region (*Minister of Conservation v Otago Regional Council* EnvC C71/02, 25 June 2002). The Court considered the appropriateness of economic valuations of non-use values. In this situation, the non-use values attached to water included the maintenance of instream ecology and habitat:

> In any proper analysis of economic matters it is our view that the valuation of the non-use values including externalities are essential to any proper balancing for sustainable management under section 5 of the RMA. (at [159])

In conclusion, the Court was satisfied that the minimum flow figures it proposed adopted an appropriate balancing of competing interests.

North Bank Tunnel — Waitaki River

The Environment Court decision in *Lower Waitaki River Management Society Inc v Canterbury Regional Council* EnvC C080/09, 21 September 2009 concerned an appeal against water permits granted by the Canterbury Regional Council to Meridian Energy. The permits were to take water from the Waitaki Dam Reservoir for Meridian's North Bank Tunnel Concept, a hydropower proposal which was expected to generate an extra 1100 GWh per year.

In dealing with s 7(b) the Environment Court first set out its interpretation of that section. The High Court subsequently approved this interpretation when considering the Project Hayes appeal, noted below.

The Environment Court then considered the evidence presented about the concept of economic efficiency and stated:

> [201] We conclude that the role of a consent authority, when having particular regard to section 7(b), is, where possible, to internalise the effects of a proposal, so that the cost of the externalities are imposed on the consent holder. It is then left to that person to decide whether their proposal can compete against others in the market. Consequently it is not usually necessary to consider alternative uses of the resources in question, or the use of alternative resources to obtain a similar benefit. However, there are at least three exceptions:
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> (1) where the costs cannot be fully internalised to the consent holder;
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> (2) where there is no competitive market (eg, in congestion on roads where the relevant resource is the land near those roads; we also note there is a very limited market in water permits); or
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> (3) where there is a matter of national importance in Part 2 of the Act involved and the cost-benefit analysis requires comparing measured and unmeasured benefits and costs (as is usually the case) so that the consent authority has to rely principally on its qualitative assessment, eg *TV 3 Network Services Ltd v Waikato District Council* [1998] 1 NZLR 360, [1997] NZRMA 539 (HC).

After discussing the extensive evidence presented in the case, the Court went on to set out its findings on the cost-benefit analysis:

> [525] Our role is to determine, firstly, whether there is an overall net benefit, taking account of both the measured costs and benefits and the unmeasured externalities that remain after remedy and mitigation. Secondly, and only if there is a net overall benefit, we need to decide whether we should have regard to possible alternative uses of the resources or, in special cases like this one where the resources proposed to be used are of national importance under section 6, the use of alternative resources to produce the same or similar benefits. The third step, if we get there, is to decide what alternatives we should consider, and then to consider them. The final task in considering the efficient use and development of the natural and physical resources involved is to draw a conclusion as to whether the NBTC is an efficient use of the natural and physical resources involved.
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> [526] Considering both the measured benefits and the positive and negative externalities that remain, we conclude that the NBTC does produce a net economic benefit.

Importantly, the Court did not state that a full cost-benefit analysis inclusive of natural assets is required by s 7(b), or that the consent should be declined if the analysis showed that there was not a net economic benefit.

Project Hayes

The same division of the Environment Court took its comments in *Lower Waitaki* several steps further in *Maniototo Environmental Soc Inc v Central Otago District Council* EnvC C103/09, 28 October 2009. This case concerned a proposal by Meridian Energy to operate a wind farm on the Lammermoor Range in Central Otago. In declining consent, the Environment Court held that Meridian was required by the RMA to produce evidence of quantifiable costs and benefits even where such quantification could not be performed using market techniques. The Court held that if that evidence had been provided, there was at least some likelihood that the wind farm proposal would not be found to be efficient in cost-benefit terms.

On appeal in *Meridian Energy Ltd v Central Otago District Council* [2011] 1 NZLR 482, [2010] NZRMA 477 (HC), the High Court considered the Environment Court decision in detail. The High Court held that the Environment Court had made an error of law by stating that when considering an application for a resource consent, s 7(b) requires a comprehensive cost-benefit analysis, including a monetised valuation of effects on natural assets.

The High Court began by discussing the approach used by the Environment Court:

> [95] Building on the formulation in *Lower Waitaki* that economic efficiency generally requires all credible alternatives to a proposal to be identified and included within a cost-benefit analysis, the Court decided:
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> [242] ... s 7(b) requires a comprehensive and explicit cost-benefit analysis of the proposal. In that analysis:
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> (a) where market valuations are not available, non-market techniques may be used; and
>
> (b) where the values of the market are different from those of society, alternative societal values may be applied.

> The idea behind the cost-benefit analysis is to assess, firstly, whether the proposal has a positive net benefit, and then whether there are credible alternative uses of the resources, or credible alternative resources that could produce the desired output, which have a greater net benefit. ...

...

[98] A theme of seeking to maximise the *quantification* of values through s 7(b) can be traced through the Environment Court's decision. The Court explained:

> [226] We are uncomfortable with a cherry-picking approach to efficiency. We prefer to follow the decision of the Court (slightly differently composed) in *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council* at [196]:
>
> > We consider that efficiency in section 7(b) of the RMA requires a consent authority to consider the use of all the relevant resources and, preferably, their benefits and costs. It is nearly meaningless to consider the benefits of only some of the resources involved in the proceeding because the artificial weighting created by sections 5 to 8 of the Act will not be kept within the statutory proportions if the only matters given the 'particular regard to' multiplier (see *Baker Boys Ltd v Christchurch City Council* [1998] NZRMA 433 (EnvC) at [98]) in section 7(b) are those which are not identified elsewhere in section 7. *Further, it is very helpful if the benefits and costs can be quantified because otherwise the section 7(b) analysis merely repeats the qualitative analysis carried out elsewhere in respect of sections 5 to 8 of the Act.*

In the *Lower Waitaki* case the Court had gone on to say in the next paragraph that "the potential power of s 7(b) is in giving a relatively more objective measure of the efficiency of the proposal" at [197]. (original emphasis)

The High Court continued:

> [101] Finally, when deciding whether the wind farm should be approved under the operative District Plan the Court said:
>
> > [745] The most objective way of testing whether the wind farm would be sustainable management of the Lammermoor's resources is whether it would be an efficient use of those resources under section 7(b) of the Act. On the evidence that has been presented, we find that the use of the wind resource is efficient, but consider it of at least medium likelihood that addressing the evidential deficiencies identified would lead us to conclude that a wind farm on the Lammermoor was not an efficient use and development of natural and physical resources. Further, Meridian has also failed in the backup to that, in that it has not sufficiently analysed relevant alternatives.
>
> The application was refused. In part this reflected the Court's view that Meridian, CODC and the Crown had failed to put full evidence before the Court about all the costs of the proposal which "would have further increased the objectivity of this decision" at [757](5).

The High Court considered that the Environment Court's comments at [745], quoted above, provided considerable insight into the Court's thinking:

> Clearly its desire for quantification and objectivity had significantly influenced its approach to the s 7(b) efficiency criterion (and to the ultimate issue of sustainable management). On the evidence actually presented the Court would have found that the use of the Lammermoor wind resource *was efficient*. Nevertheless the Court decided that if the evidential deficiencies (which we interpret as the lack of evidence applying the non-market techniques and alternative societal values mentioned by Dr Layton) had been remedied there was at least a "medium likelihood" the Court would have concluded that the wind farm was *not efficient*. (at [102], original emphasis)

At the Environment Court, Dr Layton had stated in his evidence:

> 8.25 Non-market valuation techniques are complex and often contentious. Where there are no such valuations available, the weighting of market and non-market impacts is undertaken by consent authorities as part of their broad overall judgement of applications under Part II of the RMA. My understanding is that the relevant experts providing evidence for Meridian Energy have assessed the environmental effects of the wind farm as having an acceptable impact.

The High Court considered that this evidence was the source of the Environment Court's statement that the comprehensive and explicit cost-benefit analysis it had in mind should use non-market techniques where market values are not available and that alternative societal values could be applied when the values of the market differ from those of society.

The High Court considered the requirements of s 32, noting that it does not carry any mandatory requirement for all the benefits and costs to be

quantified in economic terms, and that no such requirement can be reasonably inferred:

> [107] The issue whether s 32 requires a strict economic theory of efficiency or a more holistic approach was raised before Woodhouse J in *Contact Energy Ltd v Waikato Regional Council* [2007] 14 ELRNZ 128 at [47]–[51] and [88]–[92]. He declined to interfere with the Environment Court's conclusion that while economic evidence can be useful, a s 32 analysis requires a wider exercise of judgment. This reflects that it is simply not possible to express some benefits or costs in dollar or economic terms. For example, the loss of an ecosystem such as a wetland hosting a large bird population which is going to be overwhelmed by land reclamation may not be capable of expression in dollar terms.
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> [108] Likewise it would be difficult, if not impossible, to express some of the criteria within Part 2 of the Act (ss 5–8) in terms of quantitative values. We take by way of example the following paragraphs in s 7:
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> > (c) The maintenance and enhancement of amenity values:
> >
> > (d) Intrinsic values of ecosystems:
> >
> > ...
> >
> > (f) Maintenance and enhancement of the quality of the environment:
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> If any of these matters are relevant, the consent authority "shall have particular regard to" them even if they are only capable of expression in *qualitative*, as opposed to *quantitative*, terms. As Dr Layton said, in this situation it is necessary for the consent authority to weigh market and non-market impacts as part of its broad overall judgment under Part 2 of the RMA. We have not been referred to any provision stating that this process should be exercised or expressed in dollar terms or by some other economic formula. (original emphasis)

In deciding that an explicit monetarised cost-benefit analysis was not required by the RMA, the High Court said:

> [110] [Resource consent] decisions involve an evaluation of the merits by committees of elected councillors, or a panel of commissioners (as here), and, if there is an appeal, by the Environment Court. A degree, even a relatively high degree, of subjectivity is virtually inevitable. It needs to be kept in mind that the scheme of the RMA is that decisions are made by a number of persons acting together. Persons on the Regional or District Council, or Committee, or panel of the Environment Court, discuss these "subjective" evaluations and reach a consensus. The outcome is not one person's evaluation, except in simple cases of delegation to a single commissioner.
>
> [111] Parliament has not mandated that the decisions of consent authorities should be "objectified" by some kind of quantification process. Nor does it disparage, as a lesser means of decision-making, the need for duly authorised decision-makers to reach decisions which are ultimately an evaluation of the merits of the proposal against relevant provisions of policy statements and plans and the criteria arrayed in Part 2. That process cannot be criticised as "subjective". It is not inferior to a cost-benefit analysis. Consent authorities, be they councillors, commissioners or the Environment Court, and upon appeal the High Court Judges, have to respect that reality and approach decision-making in accordance with the process mandated by the statute. It is not a good or bad process, it simply is the statutory process.
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> [112] Before leaving this cost-benefit issue we should briefly comment on the Environment Court's approach to internalising costs. The Court found, at [703], that costs in terms of landscape and various other matters had not been internalised to Meridian.
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> ...
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> [114] The underlying purpose of internalising these externalities is to enable all the benefits and costs to be quantified so that a net benefit or net loss, as the case may be, can be calculated. The problem is that where all the benefits and costs are not the subject of market transactions there is no readily quantifiable financial sum reflecting the demand or price to be paid for such benefits or the imposition of detriments. To put dollars on them requires some sort of imputing of demand. Sometimes this can be achieved by way of surveys: *"How much would you pay to visit a national park?"* Sometimes it is not possible to put dollar terms on them.
>
> [115] But it is all very controversial, as Dr Layton confirmed. We cannot accept that it was within the contemplation of the RMA that failure to fully internalise costs would carry the consequences that the Environment Court contemplated.
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> [116] While we can understand the Environment Court's desire to maximise objectivity in the decision-making process, it is our view that the Court went too far when it decided that s 7(b) required a comprehensive and explicit cost-benefit analysis in this case. We believe this resulted in s 7(b) being overplayed. Rather than

> dominating any other relevant Part 2 criteria, s 7(b) was intended to be weighed and balanced alongside them. In particular Parliament did not intend other criteria in s 7 to receive a truncated evaluation because the subject matter had already been evaluated in the s 7(b) analysis.

In January 2012 Meridian surrendered the land-use consent granted by the Central Otago District Council (*Maniototo Environmental Soc Inc v Central Otago District Council* [2012] NZEnvC 23).

Parkins Bay

The Parkins Bay case (*Upper Clutha Tracks Trust v Queenstown Lakes District Council* [2010] NZEnvC 432) concerned a proposal to build and operate a golf resort, including golf course and clubhouse, in addition to 42 residential units at Parkins Bay, Lake Wanaka.

When considering what is meant by the efficient use of natural and physical resources, the Court looked to the Project Hayes High Court decision in deciding that s 7(b) did not require a comprehensive and explicit cost-benefit analysis (at [233]). However, the Court did consider that for a s 7(b) analysis to be useful in adding to the judgement required under s 5, a cost-benefit analysis is the most objective test in deciding whether a proposed use or development of a resource is more sustainable. But:

> If [such an analysis] is not supplied then an applicant loses its benefit, but is not penalised because the consent authority cannot have particular regard to ... evidence which does not exist. (at [233])

Mt Cass windfarm

When considering the effects on environmental values such as biodiversity, landscape and recreational values, in its decision on the proposal by MainPower for a wind farm on the Mt Cass ridge in North Canterbury (*Mainpower NZ Ltd v Hurunui District Council* [2011] NZEnvC 384), the Court stated:

> Mr Copeland's opinion is that it is better not to attempt to estimate monetary values for these effects but to leave them to be part of the overall judgement under section 5 of the Act. We agree with him and have considered both the costs and benefits to the local and regional economies in our overall evaluation of the proposal under Part 2 of the Act, where we consider also the benefits of the proposal in the context of renewable electricity generation. (at [73])

The Court concluded that the proposal would result in an efficient use of the natural and physical resources on the site. This, when considered with the benefits to be derived from the use and development of renewable energy would satisfy the sustainable management purpose of the Act. While there were undeniable adverse effects on the landscape, visual character and amenity, when viewed overall, the outcomes for the environment were positive. Accordingly, the Court granted consent to the proposal.

Escarpment coal mine — Denniston Plateau

The Environment Court decision *West Coast Environmental Network Inc v West Coast Regional Council and Buller District Council* [2013] NZEnvC 47 relates to an application by Buller Coal Ltd for resource consents for the proposed Escarpment Mine Project on the Denniston Plateau.

The economics expert witness called by Forest and Bird was critical of the failure of Buller Coal's witness in not providing an economic analysis of adverse environmental effects potentially caused by the proposed mine. It was contended that non-market matters such as pollution of air, soil and water, loss of indigenous vegetation and animal life, displacement of recreation and tourist activities, visual intrusion and noise disturbance should all be taken into account (at [109]).

The witnesses, however, did agree that non-market valuation was fraught with difficulties, which included the experimental nature of some of the methods used and reliance on hypothetical questions which might give unrealistic answers. Further, the economists acknowledged that the techniques used to arrive at non-market valuations were time-consuming and resource-intensive, and that the variable methodologies used in New Zealand did not provide a reliable set of indicative values (at [110]).

The Court accepted that the best way to evaluate the environmental costs of the proposed mine was to hear evidence and cross-examination from expert witnesses, and then weigh-up the effects anticipated by those witnesses alongside the effects for which financial consequences could be calculated:

> Mr Butcher has not attempted to deny that the project will result in losses to the natural character and ecology of the mined area and to its surrounding landscape. What he said is that the Court has been provided expert evaluation of what those losses are from witnesses with expertise in these areas, and having read their evidence and heard cross-examination, is in the best position to

> weigh-up the effects that these witnesses anticipate alongside those for which he is able to calculate (within a range) financial consequences. We acknowledge that as a correct and appropriate view. (at [111])

Conclusion

This review of the case law confirms that an explicit cost-benefit analysis is not required by the RMA, and that effects on natural assets such as biodiversity, landscape and recreational values need not be monetised, and can be considered in a qualitative manner as part of an holistic assessment. This qualitative holistic assessment must be carried out, regardless of the extent of economic evidence.

That is not to say that if contentious issues surrounding methodologies, inputs and models could be overcome, that additional economic evidence might prove to be of further assistance to decision-making under the RMA, when considering potential impacts on the natural environment. Such advancements would complement the current holistic assessment.