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Natural capital and New Zealand's Resource Management Act (1991)

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Natural capital and New Zealand's *Resource Management Act* (1991)

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Abstract

Quantifying natural resources as natural capital and the valuation of the ecosystem services that flow from natural capital stocks are emerging areas of science. Are these developing concepts compatible with current resource management legislation? Can these ideas be used in judicial proceedings to protect natural capital and maintain the portfolio value of nature's ecosystem services? We describe two recent cases in New Zealand where natural capital concepts were used in the Environment Court to protect land from peri-urban creep and to protect receiving water quality through the allocation of a nutrient discharge allowance to land. Results have been mixed, with prospects appearing good.

The Resource Management Act (1991)

In 1991, New Zealand passed an innovative and omnibus legislation to deal with environmental and developmental issues: the *Resource Management Act* (RMA). Section 5 details that the '... purpose of this Act is to promote the sustainable management of natural and physical resources'. The Act would enable "... managing the use, development and protection of natural and physical resources to enable people and communities ... to provide for their social economic and cultural well being and for their health and safety while ...

- a) sustaining the potential and natural physical resources ...
- b) safeguarding *the life-supporting capacity* of air, water, soil, and ecosystems; and
- c) avoiding, remedying, or mitigating any adverse effects of activities on the environment."

How then is the RMA applied? Regional Councils are required to develop Regional Plans, which Section 63 states are for '... the purpose of the preparation, implementations and administration of regional plans to assist a regional council to achieve the purpose of [the] act".

Likewise, District Councils are required to prepare district plans (Section 72) "... to assist territorial local authorities to achieve the purpose of [the] act". The Environment Court hears appeals against regional and district plans. We discuss two appeal cases in which natural capital arguments were used by the respondents in these appeals: one against a District Council; the other a Regional Council

Natural Capital

Natural capital can be defined as the earth's stocks of natural material and energy, which is akin to the RMA's prescient words of 'natural and physical resources'. The sum of these natural capital stocks can be referred to as our ecological infrastructures. From natural capital stocks there are flows of ecosystem services, which can be defined as the beneficial flows of goods and services between natural capital stocks, or between these stocks and humans.

The RMA's goals even presaged those of the Millennium Ecosystem Assessment released by the United Nations in 2001 (<http://www.maweb.org/documents/document.429.aspx.pdf>), wherein the four types of ecosystem services were linked to the constituents of human well-being (Figure 1).

It would seem then, given the apparent link between 'natural capital' and 'natural resources', plus that between 'life supporting capacity' and 'ecosystem services', that arguments in Court hearings based on natural capital and ecosystem services (Figure 1) are compatible with the goals and applications of the RMA.

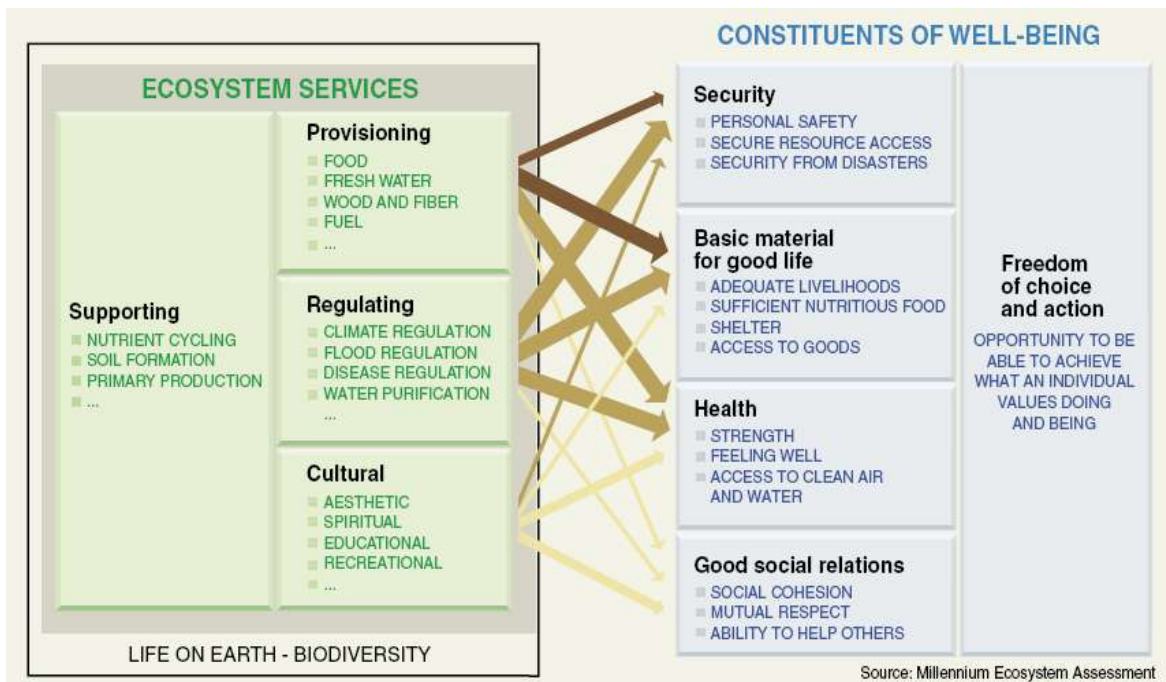


Figure 1: Linking ecosystem services to the constituents of human well-being (MEA, 2001).

In other jurisdictions, particularly with Europe, ecosystem-services thinking has been guiding policy development in a patent manner, along with the burgeoning development of regulatory controls based on natural capital and ecosystem services. This can be seen in the United Kingdom with the agency DEFRA (Department of Environment Food and Rural Affairs)

(<http://www.defra.gov.uk/environment/natural/ecosystems-services/>), as well as in the European Union (<http://ec.europa.eu/environment/integration/research/newsalert/pdf/20si.pdf>).

However, here in New Zealand, it would seem that there have only been a few attempts to use natural-capital thinking to sustain natural resources and safeguard life-supporting capacities. We describe two attempts. The first is in relation to peri-urban expansion of a city on to horticultural land and involved a district plan, whereas the second was in relation to farming as a controlled activity to protect receiving-water quality in a regional plan.

Peri-Urban Expansion

The hardware retailer Bunnings' purchased 4 ha of orchard land on the outskirts of Hastings and sought a consent to build a large-format store. The Hastings District Council (HDC) appointed independent commissioners to hear the Bunnings' application. In July 2009 the Commissioners declined Bunnings' consent and stated that "... if these soils are as valuable as described, their loss should be avoided". Bunnings' appealed that decision and the appeal was heard during March 2011 (NZEnvC ENV-2009-WLG-000182). One of us (BEC – hereafter referred to as 'I') acted as an expert witness for the respondent, the HDC. I argued that "... we cannot afford to lose such valuable natural capital assets, whose presence is needed for their ecosystem services, and whose use will be needed to enable the horticultural industries to realise their strategic goals, and whose functioning will continue to enhance the life-supporting capacities of the Heretaunga Plains (Paragraph 99)", as required by the Hastings' District Council's District Plan for the Heretaunga Plains.

An expert witness for Bunnings argued that "... the concept of natural capital value was still an emerging discipline" and that the concept of natural capital was in his view "... unhelpful in terms of the issue confronting this Court. That issue is, as expressed in the RMA, 'safeguarding the life supporting capacity of the air, water, soil and ecosystems' ". Bunnings' lawyer in his closing address considered that "... there is no quantitative or qualitative analysis of the ecosystem services at the site other than in relation to food production".

The judgement was cautious and noted that "... we do not propose to enter that [natural capital] debate ... but it seemed to us that Dr Clothier took a somewhat more holistic approach to assessment of the value of the

soils of the site”. The judgement noted that although the “... loss of 4 ha of Plains land is insignificant in itself the wider policy implications are significant.” The appeal was declined, and costs awarded to the HDC. So although the Judge and his two Commissioners did not directly buy into a natural capital argument, they did note a holistic view was needed. Holism is, it seems to us, an ecosystem services approach in principle, at least in a quasi-judicial sense. It would appear then that some headway has been made for the use of natural capital reasoning in judicial proceedings in relation to the ‘safeguarding the life-supporting capacity of ... soil, and ecosystems’ (RMA, Sect., 5). Yet, precedence in a legal sense would not, however, seem to have been registered. But the indications are somewhat positive.

Nutrient discharges & natural capital

The Manawatu-Wanganui Regional Council (known as Horizons) embarked on a second-generation Regional Plan, called the Proposed One Plan (POP) several years ago. They decided that intensive agriculture would become a controlled activity requiring of resource consent. Part of that consent would be a nutrient discharge limit for intensive farming.

A team from SLURI (the Sustainable Land Use Research Initiative of 3 CRIs) was contracted to determine the nutrient discharge limit. We (ADM and BEC were part of the SLURI team) first looked into the loading of nutrients in the river so as to work back to a loss rate from the various farm types in the catchment. Then we used the Land Use Capability (LUC) class as a proxy for natural capital. “Attainable potential livestock carrying capacity” is akin to an ‘ecosystem service’ as noted in the extended legend of Land Use Capability Classification. By using the OVERSEER™ model to determine the nutrient leachate levels from this attainable potential livestock carrying capacity, it was possible to link nitrate leaching to LUC class, as shown in Figure 2 below.

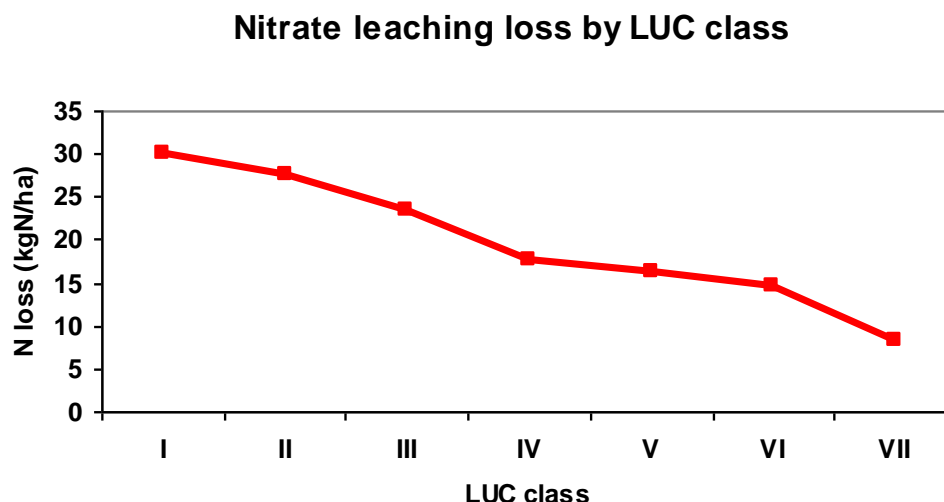


Figure 2. The nitrate leaching loss from the attainable potential livestock carrying capacity of the various Land Use Capability (LUC) classes. LUC is a proxy for natural capital of this self-regulating grass-legume pasture system.

The numbers in Figure 2 were entered into the notified version of the POP (NVPOP) as Table 13-2, which formed the basis for the resource consent Rule 13-1. Given the large number of submissions on the NVPOP, Horizons set up a panel of Commissioners to assess the One Plan. The Hearings took place in early 2010. The natural capital approach using LUC did not fare well in the Commissioners’ decisions. They decided ...

“.... Table 13.2 is not appropriate for existing dairy farms for the following reasons:

- (a) Dr Mackay’s “natural capital” approach is not based on technological changes that have enabled farmers to lift productivity levels since the 1980s;
- (b) For existing farms, the “natural capital” approach therefore ignores existing land use and existing levels of farm production. That is inequitable and impracticable;”

The Commissioners, it seems to us, had missed the point about the natural capital of a self-regulating system of pasture growth, and the role of the built capital of technologies such as irrigation, synthetic fertilisers, and imported feed stocks.

In dispensing with Rule 13-2, they sought instead a “... nutrient management plan [that] would require the implementation of practicable and affordable “best management practices” (BMPs) that are designed to reduce nitrogen leaching.” Ironically then, no designated discharge allowance was even provided, just a vague BMP. However, the Commissioners did consider that the natural capital LUC approach should apply to new dairy conversions.

The Commissioners’ decisions’ version of the POP (DVPOP) was appealed by five appellants and one Section 274 party. Some appellants wanted restoration of the NVPOP, and others sought the complete removal of the LUC approach from the POP. The appeal was heard in Environment Court in early May 2012, and judgement has been reserved. That decision is awaited with interest.

Conclusions

Although it would seem that the purpose of New Zealand’s *Resource Management Act* (1991) is very much aligned with natural-capital and ecosystem-services thinking, there is as yet only meagre evidence that this approach has directly influenced decision making in hearings. Early days?