

Big Issues, Bigger Solutions are bottom lines enough?

Introduction

The life-supporting capacity of New Zealand's environments has been much reduced and the pace of degradation shows little sign of abating (Ministry for the Environment and Statistics New Zealand, 2015). Few countries are experiencing greater biodiversity loss, more rapid freshwater deterioration or greater per capita increases in greenhouse gas emissions (Myers et al., 2013; Parliamentary Commissioner for the Environment, 2016; Gluckman, 2017). The climate is changing fast and it is already clear that a number of communities cannot be sustained for more than another decade or two in their current locations (Parliamentary Commissioner for the Environment, 2017).

Marie Brown is a researcher and consultant interested in good governance of the environment. Theo Stephens is a retired conservation scientist interested in understanding why good governance of the environment is so elusive.

The degradation of fresh water and loss of freshwater ecosystems is currently the most observable, culturally offensive and publicised environmental issue. Pathogens in drinking water are causing serious illness in increasing numbers of people, and it is only a matter of time before the availability of fresh water and its pollution constrain the national economy (OECD, 2017). However, freshwater management is only one of a range of environmental problems that diminish our quality of life and threaten our well-being.

The politics of environmental management have been brought into focus over the current election cycle, but environmental connections with social and economic management have yet to capture public attention. Economic and social issues such as New Zealand's dependence on commodity exports, weaknesses in the tax system, high levels of private debt, wealth inequality, land price inflation and the housing crisis are typically debated separately and without recognition of the potential for environmental policies to contribute to their resolution. Given the plethora of competing and serious issues, the electorate may be looking for more than vague assurance and marginal improve-

ment this year. Here, we suggest that principled integration of novel policies and institutions across environmental, economic and social realms is necessary to make the best of opportunities and minimise the pain and suffering of restructuring.

The policy debate

The fundamental issue for New Zealand is that social, environmental and economic sustainability is simply not possible under current policy settings, and therefore a wide-ranging and potentially painful restructuring is inevitable. Winning sufficient and timely public support for reform is one problem; another is how reform should be designed to make restructuring as orderly and fair as possible.

Central to environmental policy debates is whether it is reasonable for the public to impose constraints on private economic opportunity reliant on consumption of public environmental goods. Those debates unfold quite predictably, because many of those in power depend on support from private interests who are concerned with protecting their right to extract from nature at minimal cost. The interest of the general public in maintaining environmental quality is typically diffuse and politically weaker. Consequently, policy debate is usually dominated by private concerns about additional costs and loss of commercial returns. Although many rally to defend environmental values that are less easily expressed in dollars, there is little political motivation to properly address their concerns, and few actions are undertaken that result in improved environmental outcomes.

The framing of policies depends on beliefs about the fundamental drivers of environmental degradation. A popular narrative is that the main causes of degradation are lack of knowledge about natural values, overestimation of nature's assimilative capacity, and ignorance about less damaging ways to do things. From this belief, it follows that appropriate and reasonable policies provide information, education and awards, with regulation and sanction only as a last resort. An alternative narrative is that harming the

environment is a crime that should simply be strictly regulated and penalised. We think it is abundantly clear that neither approach alone is tenable in New Zealand: the first is clearly insufficient to halt ongoing environmental degradation, and the second politically unsustainable.

A technocratic narrative and belief – the one we represent here – is that environmental degradation results from the unequal power of public and private vested interests. The benefits of environmentally degrading activities are usually attained rapidly and are concentrated in the hands of comparatively powerful, motivated and organised private interests whose rational interest is

forward by a consortium of academics, NGOs, industry representatives and others (the 'freshwater rescue plan', available at <https://www.freshwaterrescueplan.org/>). As a contribution to that trend, in this article we discuss two approaches that could potentially be taken to solving New Zealand's environmental problems – one essentially regulatory, and the other essentially economic. Both, of course, rely on sufficient mandate for reform.

Solving the problem

New Zealand could add a suite of clearly defined bottom lines to its present regulatory approach to addressing environmental harm. The aim would be

The integrated economic approach uses a suite of taxes and trading schemes to promote efficient use of the natural environment by recovering environmental costs, restraining environmental consumption ...

to maximise private benefit. The environmental costs of their activities are longer term, cumulative and dispersed. Costs are largely borne by members of the wider public (including future generations), who, though numerous, are comparatively disorganised and distracted, with more limited access to power. This allows the overall costs of environmental degradation to substantially exceed the value of benefits extracted.

Unfortunately, the only way out of this entrenched pattern is for those who represent public interests in the environment to organise and mobilise more effectively to win a mandate for the external costs of development and production to be absorbed by those who reap most benefit. This requires political activism. But having gained that mandate, meaningful change will require cohesion and clarity in the solutions proposed. There are signs of this emerging, for example in the recent proposal put

to issue consents and allow for permitted activities only within a carefully defined system of biophysical bottom lines for all aspects of concern (nitrogen, phosphorus, sediment, pathogens, abstractions, discharges, run-off, greenhouse gas emissions, habitat protection, landscapes, threatened species and biodiversity, etc.). In this approach, bottom lines are negotiated via planning processes and implemented via consenting processes, and compliance with conditions and limits is strictly enforced. In this scenario, regulatory plans and consents constrained by bottom lines form the system of defence against social and economic drivers of environmental degradation. This puts environmental regulation in competition with social and economic goals, leading to a focus on trade-offs instead of the wider benefits potentially available with policy integration.

An alternative approach, usually framed as 'polluter pays', is essentially economic.

The integrated economic approach uses a suite of taxes and trading schemes to promote efficient use of the natural environment by recovering environmental costs, restraining environmental consumption and, most importantly, contributing to the resolution of social and economic problems. This approach is underpinned by plans based on environmental goals, the regulatory biophysical bottom lines to achieve those goals, and systems to administer the purchase of resource allocations. We posit that bottom lines act as cap parameters for the resource trading schemes and that resource consents create the right to purchase a portion of that resource cap.

Economic approaches along these

person has an environmental footprint from which private benefits are obtained.

Many private benefits gained from land ownership and environmental footprints fall outside our current tax system. This creates investment bias towards property ownership and environmental degradation. This investment bias has driven growing concentration of wealth among property owners and contributed to current social and economic issues, including:

- housing affordability due to property price inflation relative to income growth;
- lack of affordable housing due to tax-driven bias towards investment in

insufficiently addressed by the footprint tax. The footprint tax is a land tax levied annually on all landowners according to property area and footprint depth estimated from the level of environmental degradation discernible from satellite imagery. This form of tax was first proposed during property tax reform discussions in Germany (Bizer and Lang, 2000, cited in Brandt, 2014) and has been further developed for the New Zealand context by Stephens et al. (2016). In essence, the footprint tax is an annual payment to the public purse for private benefits now gained from past consumption of public environmental goods. The tax creates incentives for maintenance and restoration of biodiversity and ecosystem services. It is a form of economic instrument suitable for maintaining aspects of the environment that cannot be addressed by resource trading schemes. Biodiversity and landscape quality are important aspects of the environment that defy quantification by simple units of measurement needed for resource trading schemes to operate. We assume that revenue from environmental taxes will be partly recycled via cuts to other taxes such as income, company and GST.

The footprint tax cannot provide certainty about environmental outcomes because specified bottom lines are not a part of its design. Furthermore, evidence from satellite imagery is a poor proxy for some critically important aspects of environmental consumption (e.g. water takes, nitrogen loading and greenhouse gas emissions) that are unlikely to be sufficiently reduced by the footprint tax. Therefore, resource cap-and-trade schemes will be needed to create the additional incentives necessary to achieve desired outcomes. These schemes depend on the existence of negotiated regulatory bottom lines to create a 'cap' for the trading system. The cap provides certainty about the overall quantum of emissions allowed and must be easily defined in commodity units, such as litres of water, *E. coli* cells per litre, kilograms of nitrogen and tonnes of CO₂ equivalents, in order to be able to be divided fairly. The trade of individual allocations promotes efficient resource use and provides flexibility for

The footprint tax cannot provide certainty about environmental outcomes because specified bottom lines are not a part of its design.

lines have been proposed and some are active in particular areas (for example, Lake Taupō nitrogen trading). While such piecemeal economic approaches (such as regional-scale water, nitrogen and carbon trading) could support achievement of some bottom lines, they are unlikely to contribute much to resolution of wider environmental, social and economic issues. The real value of an integrated economic approach lies in environmental policy tools being specifically designed to help resolve issues in other policy realms. This is the essential difference that distinguishes the integrated economic approach from the regulatory bottom lines approach.

Our conception of the integrated economic approach is founded on the following ideas:

- the tax system should tax all forms of benefit equally in order to be fair and minimise harmful economic distortion;
- a fair polluter-pays approach would touch every individual because every

large properties and deep environmental footprints;

- investment bias towards commodity production businesses with large environmental footprints relative to small-footprint, value-adding enterprises;
- high levels of foreign-owned private property debt now posing a risk to financial stability.

A comprehensive system of land and environmental taxes is necessary to correct the social and economic damage resulting from its absence. Implementation of such a system presents opportunities to raise productivity and well-being by shifting the tax base away from social goods such as employment, enterprise and trade and on to social bads such as environmental degradation, harmful products and high-risk activities.

We envisage an integrated economic approach comprising a tax on everyone's environmental footprint, supplemented by resource-specific cap-and-trade schemes to address environmental issues

businesses to respond to increased environmental costs in whatever ways best suit their particular circumstances. In addition, resource-specific taxes, also termed royalties, may also be applied as recompense for the private consumption of publicly owned resources and to cover administrative costs. These taxes can be stand-alone systems (e.g. royalties on mined minerals) or built into trading schemes as a charge per unit. The charge may be fixed or determined by auction.

The distributional characteristics of both the footprint tax and resource trading schemes are highly progressive. Land area owned and footprint depth (i.e. environmental resources consumed) are strongly correlated with wealth. However, if that wealth is largely debt funded, then the footprint tax and/or the cost of obtaining resource allocations will be problematic for its owner. Clearly a generous transition period will be important to provide time for financial restructuring, but other solutions may also be appropriate. One is to distribute footprint tax liability according to owner equity so that the owner is liable only for the portion of the business or property owned and the lender is liable for the debt-funded remainder. This would give financiers some much-needed incentive to consider the environmental costs of the enterprises they lend to. The other solution is to defer payment, potentially until the land is sold.

We anticipate that the corrective contribution of environmental taxes to social and economic goals should confer acceptability and resilience unattainable with environmental policy that is independent of, or in competition with, other goals. Furthermore, opposition to environmental reforms may be assuaged by accompanied lowering of income and company tax rates, plus the marketing opportunities provided by known and diminishing environmental footprints.

Costs and benefits of the two approaches

On their own, regulatory bottom lines are minimum standards that in theory should protect the public interest in nature from the damaging activities of humans. They have several key ingredients: limits that stakeholders can abide (so they

actually make it into policy); a regulated community to adhere to them; and an agency to take action when they do not. The benefits of regulatory bottom lines include:

- clear thresholds that are publicly known;
- an indication of agency commitment to addressing a given issue;
- some assurance that minimum protections are in place over which extraction and use of resources is allowed; and

reliance on consent monitoring and enforcement to bring about behaviour change. This may be expensive, costs may be difficult to recover from environmental consumers and poor outcomes are likely (Brown, 2017).

- Bottom lines are also likely to conflict with existing social and economic objectives and can thus be subject to long-running and litigious argument. The benefits of the integrated economic approach include:

Environmental management seems certain to be an important election issue, both in 2017 and over the coming decades.

- simplicity, in that there is little need for engagement and integration with other policy realms.

However, costs and uncertainties of regulatory bottom lines can be significant. They include:

- Planning processes may be expensive and cumbersome as environment–economy trade-offs are contested in the absence of accompanying economic institutions.
- Pollution rights are allocated on a first come, first served basis and there is no mechanism to transfer these rights to the most efficient resource users. This is a constraint on economic productivity.
- Outcomes are uncertain, because parties whose activities may cause environmental damage are likely to contest the parameters of bottom lines or to render them too high to drive sustainable behaviour.
- Parameters may not be technically straightforward to set: they will of necessity be numerous, and will need to differ among locations and may require frequent adjustment.
- Weak incentives to adhere to regulatory limits place significant

- contributions to amelioration of systemic social and economic sustainability issues;
- increased supply of ecosystem services and reduced area of land unable to supply basic ecosystem services;
- better care and maintenance of natural areas on private land;
- outcome certainty created by bottom lines required for cap-and-trade schemes; and
- improved economic productivity as resource use rights transfer to the most economically efficient users.

The costs of implementing such ambitious reform are substantial and include:

- design, including understanding the effects on environmental and investment behaviour sufficiently to achieve desired social, economic and environmental goals and avoid or remedy potentially perverse outcomes;
- that vested interests may be able to influence the design of economic instruments to the extent that the desired incentives and revenues are unachievable (Leining and Kerr, 2016);

- setting up the institutional and administrative arrangements to implement novel systems for which extant public agencies are probably not well equipped (which will include disestablishing agency functions made redundant by these systems);
- potential failure of businesses that cannot afford to pay environmental costs (because their present model relies on common resources provided at no charge).

Proposed or recommended course of action

Environmental management seems certain to be an important election issue, both in 2017 and over the coming decades. Few days go by without concerns about freshwater degradation, climate change or biodiversity loss being expressed

rising bottom lines and tighter regulation are more feasible if the components of our environmental and economic systems do not work against each other as they do at present. We propose an integrated national suite of economic instruments based on the polluter-pays principle to address environmental problems and many systemic economic and social sustainability issues as well. It has three major components:

- a tax on everyone's environmental footprint akin to that proposed by Stephens et al. (2016): a form of land tax on every landowner's environmental footprint, with inbuilt economic incentives for best-practice land use, sustainable management of natural values, including permanent forest sinks, covenanting of significant

restrictive to ensure that prices paid provide net revenue after administrative costs;

- robust monitoring and reporting on outcomes to enable the success of different approaches to be evident to the public and for scheme adjustments to be made in order to improve effectiveness and fairness.

The overall system should be designed to generate substantial revenue. Public support for implementation is likely to be stronger if revenue is used to lower taxes on social goods such as employment and trade and to fund social and economic objectives. Its success could be enhanced by ending environmentally degrading funding (such as that for mass irrigation in dryland environments, and for fossil fuel exploration and production). Some revenue should be returned to Māori in recognition of Treaty of Waitangi rights, and some used to help turn around centuries of freshwater and wetland degradation.

In the background there will need to be a concerted effort to limit the influence of vested interests in environmental governance. Much environmental degradation has been enabled and promoted by political and agency capture (Office of the Auditor-General, 2011; Clare and Krogman, 2013; Brown et al., 2015; Brown, 2017). The auditor-general has recognised this and plans to examine several aspects of the problem in 2017–18. It is also the subject of action 7 in the recently released freshwater rescue plan mentioned above. Policy solutions are needed that motivate politicians and agency managers to resist pressure from vested interests and promulgate effective policy solutions that protect the public interest in social, environmental and economic sustainability.

Owners of highly leveraged businesses involving intensive land uses would be most affected by our policy prescription. Liability would be large relative to profit (made small by debt-servicing costs) and any company tax cut would be likely to be small relative to environmental payments. In contrast, people with little property on low incomes are likely to be very much better off. Members of this group typically have small environmental footprints and

Policy solutions are needed that motivate politicians and agency managers to resist pressure from vested interests and promulgate effective policy solutions that protect the public interest in social, environmental and economic sustainability.

in the mainstream media. Recent attempts to introduce and lift New Zealand's environmental bottom lines and tighten regulation for fresh water have not yet been successfully implemented in the face of conflicting economic policies and without adequate economic incentives. To address its environmental problems, New Zealand clearly needs major policy reform, not the legal and policy fiddling witnessed to date.

If environmental policy is to be aligned with social, fiscal and economic policies, or at least not in conflict with them, then economic instruments to incentivise efficient use of the environment and give private interests plenty of choice about how to manage individual liabilities may be more politically viable than conventional approaches relying on regulated bottom lines alone. Gradually

habitat and other restoration initiatives;

- cap-and-trade systems for greenhouse gases, nitrogen and water take. Regulated bottom line caps, set at a national level for greenhouse gases and at local catchment scale for nitrogen and water but subject to overarching national cap-setting rules to protect wider public interests, must underpin each system. For example, people downstream need their interests protected from the excesses of those upstream. The right to use a resource (the consent) should be distinct from the amount of resource that can be used (the individual's allocation). This should be purchased by auction to encourage the transfer of allocation to the most efficient users. Caps should be sufficiently

would be beneficiaries of any accompanying income tax cuts. Their environmental costs would lie in what may be passed on in rents and in the higher cost of consumer products with large environmental inputs. The ultimate winners could be those living in apartment buildings. Although the footprint of an apartment block is deep, it is small in area and shared by many people. Ordinary suburban home owners with land of only a few hundred square metres would feel

more impact, but some may nevertheless be better off following cuts in other taxes.

In summary

Environmental degradation is more and more evident to the voting public. A new government in 2017 will take power at an important crossroads for the sustainability of New Zealand's social, economic and natural systems. Progress towards sustainability will require rather more ambitious proposals than have been implemented in recent years. The

best chance of success will come from robust regulatory changes, backed with effective and responsive policy solutions that integrate environmental objectives into the economic and social policy context. These initiatives will be most likely to occur in a context that dilutes the influence of extractive interests and better provides for the interests of future generations.

References

- Bizer, K. and J. Lang (2000) *Ansätze für ökonomische Anreize zum sparsamen und schonenden Umgang mit Böden*, Berlin: Umweltbundesamt
- Brandt, N. (2014) *Greening the Property Tax*, OECD working papers on fiscal federalism, 17, Paris: OECD Publishing, <http://dx.doi.org/10.1787/5jz5pzw9mwzn-en>
- Brown, M.A. (2017) *Last Line of Defence: compliance monitoring and enforcement of New Zealand's environmental law*, Auckland: Environmental Defence Society
- Brown, M.A., R.T.T. Stephens, R. Peart and B. Fedder (2015) *Vanishing Nature: facing New Zealand's biodiversity crisis*, Auckland: Environmental Defence Society
- Clare, S. and N. Krogman (2013) 'Bureaucratic slippage and environmental offset policies: the case of wetland management in Alberta', *Society and Natural Resources*, 26 (6), pp.672-87
- Gluckman, P. (2017) *New Zealand's Fresh Waters: values, state, trends and human impacts*, Auckland: Office of the Prime Minister's Chief Science Advisor
- Hardin, G. (1968) 'The tragedy of the commons', *Science*, 162 (3859), pp.1243-8
- Leining, C. and S. Kerr (2016) *Lessons Learned from the New Zealand Emissions Trading Scheme*, Motu working paper 16-06, Wellington: Motu Economic and Public Policy Research, available at http://motu-www.motu.org.nz/wpapers/16_06.pdf
- Ministry for the Environment and Statistics New Zealand (2015) *Environment Aotearoa 2015: data to 2013*, Wellington: New Zealand Government, available at <http://www.mfe.govt.nz> and <http://stats.govt.nz>
- Myers, S.C., B.R. Clarkson, P.N. Reeves and B.D. Clarkson (2013) 'Wetland management in New Zealand: are current approaches and policies sustaining wetland ecosystems in agricultural landscapes?', *Ecological Engineering*, 56, pp.107-20
- OECD (2017) *Environmental Performance Reviews: New Zealand 2017*, Geneva: OECD, available at <http://www.oecd.org/newzealand/oecd-environmental-performance-reviews-new-zealand-2017-9789264268203-en.htm>
- Office of the Auditor-General (2011) *Managing Freshwater Quality: challenges for regional councils*, available at: <http://www.oag.govt.nz/2011/freshwater/docs/managing-freshwater-quality.pdf>
- Parliamentary Commissioner for the Environment (2017) *Climate Change and Agriculture: understanding the biological greenhouse gases*, Wellington: Office of the Parliamentary Commissioner for the Environment
- Stephens, R.T.T., S. Greenhalgh, M.A. Brown and A. Daigneault (2016) 'Enhancing the tax system to halt the decline of nature in New Zealand', *Policy Quarterly*, 12 (1), pp.26-34

The 2017 Sir Frank Holmes Memorial Lecture in Policy Studies will be given by
Dr Alan Bollard, *Executive Director of the APEC Secretariat*

Disruption: Some big changes in Asia-Pacific economic integration

When: Wednesday 4 October. Doors open 5:45pm for 6pm lecture. Refreshments will follow the lecture.

Where: Rutherford House Lecture Theatre 1, 23 Lambton Quay, Wellington

RSVP: Required by Friday 29 September.
Email igps@vuw.ac.nz
with 'Sir Frank Holmes' in the subject line



School of
Government
Te Kura Kāwanatanga

**EARLY
NOTICE OF
A SPECIAL
EVENT**