Changing New Zealand's Environmental Practices with Impact-Weighted Taxation

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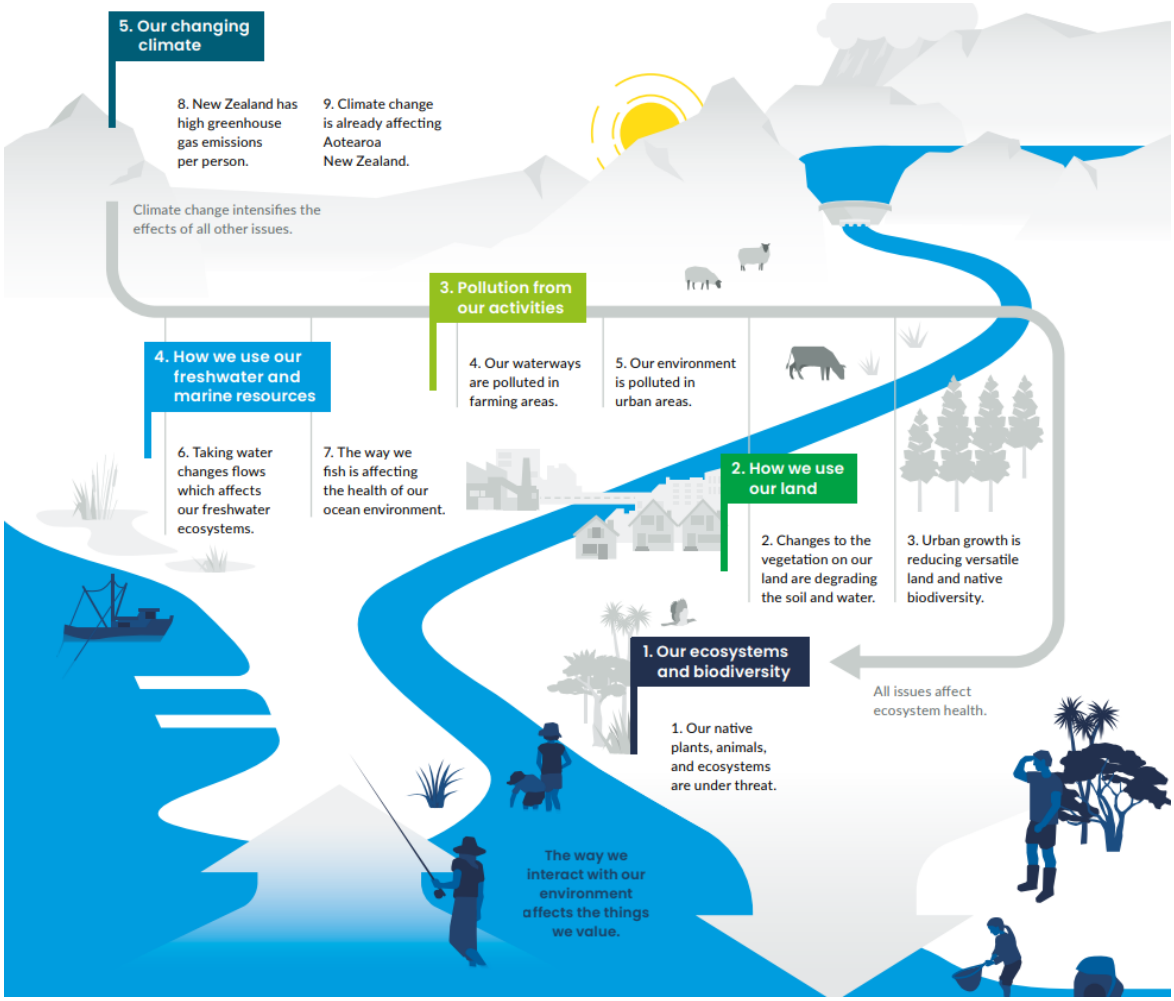
1. Background

1.1 Our actions have an impact on the environment, be it positive or negative. Such impacts may alter the ecological balance of existing ecosystems and cause irreversible effects on the environment. Examples of the effects of human activity include pollution, depletion of resources and habitat destruction. The Māori world view recognises that this is all interconnected and ultimately hurting the environment's mauri (health and vitality) hurts all of us.

1.2 Aotearoa New Zealand ("NZ") has the sixth highest emissions per person in the world.[1] 46% of NZ's lakes have poor water quality and 64% of NZ's rivers have phosphorus and nitrogen concentrations indicating risk of environmental impairment.[2] Between 2012 and 2018, indigenous land cover area decreased by 12,869 hectares.[3] Climate change caused by the accumulation of emissions and other activities is already affecting NZ and global ecosystems.[4] This has flow-on consequences on our water, land, biodiversity and more (see below diagram).[5]



[1] Ministry for the Environment (15 April 2021) *New Zealand's Greenhouse Gas Inventory 1990-2019 Snapshot*. Accessed at https://environment.govt.nz/publications/new-zealands-greenhouse-gas-inventory-1990-2019-snapshot/how-new-zealand-compares-to-other-countries/.
[2] Stats NZ "Indicators". Accessed at https://www.stats.govt.nz/indicators/ on 25 April 2022.
[3] Ministry for the Environment & Stats NZ (2022) *New Zealand's Environmental Reporting Series: Environment Aotearoa 2022* at 19.
[4] IPCC (2021) *Summary for Policymakers*. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press.
[5] Ministry for the Environment & Stats NZ (2019) *New Zealand's Environmental Reporting Series: Environment Aotearoa 2019* at 9 and 97.

1.3 Negative environmental impacts cost governments and society. The 2011 Rena grounding disaster cost our Government $46 million to clean up the oil spill, of which only $27 million was paid for by ship owners and insurers.[6] NIWA analysis estimates that nationwide infrastructure replacement would cost $19 billion if a future sea level rise of 1.5m occurred[7] and this does not include the cost of further consequences of damaged infrastructure assets, such as loss of production and the impacts on our economy. Currently negative environmental impacts are partially subsidised by all taxpayers instead of the specific organisations causing the harm.

2 The opportunity

2.1 There is an increasing societal expectation for organisations to be responsible social citizens, or at least minimise their negative impacts. In the backdrop of the current pandemic, people all over the world are thinking more about wellbeing and their connection with the environment. However, there is currently no defined measurement of an organisation's environmental impact. Most organisations therefore continue to make decisions and act in ways incentivised by existing financial metrics rather than environmental considerations.

2.2 When we pay for only part of the cost of an activity, it appears cheaper than it actually is and encourages people to continue that activity. For example, American Airlines would be unprofitable if it accounted for its environmental costs of $4.8 billion.[8] Another example is that an analysis of transport found an emissions price of NZ$235 per ton is needed to align transport emissions with NZ's Paris Agreement commitments,[9] which is three times higher than the current NZ emissions trading scheme ("ETS") price. We need a deliberate approach to environmental impact to accurately see the costs involved and drive improvements.

2.3 Traditional financial statements do not fully show an organisation's broader environmental impact. As organisations increasingly engage with stakeholders and stakeholder expectations, organisations are moving towards a different way of reporting to measure their environmental impacts and integrate it into financial statements.

2.3.1 For example, professional accounting bodies like CPA Australia and CAANZ advocate for 'integrated reporting', which seeks to bring a holistic approach to presenting an organisation's financial and non-financial information under the International Integrated Reporting Framework.[10]

2.3.2 Another example is carbon accounting and Harvard Business School's 'impact-weighted accounting', which adds line items to financial statements to supplement existing reporting. The additional information reflects a company's positive and negative impacts on the environment and its stakeholders.

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[6] Maritime NZ *Maritime NZ: reflecting on ten years since the Rena grounding and oil spill response* (1 October 2021). Accessed at https://www.maritimenz.govt.nz/public/news/media-releases-2021/20211001a.asp.
[7] NIWA *National and regional risk exposure in low-lying coastal areas, prepared for the Parliamentary Commissioner for the Environment* (October 2015) at 15. Accessed at https://www.pce.parliament.nz/media/1384/national-and-regional-risk-exposure-in-low-lying-coastal-areas-niwa-2015.pdf.
[8] Ronald Cohen and George Serafeim "How to Measure a Company's Real Impact" (3 September 2020) *Harvard Business Review*. Accessed at https://hbr.org/2020/09/how-to-measure-a-companys-real-impact on 30 March 2022.
[9] Md Arif Hasan "Understanding the costs, benefits, mitigation potentials and ethical aspects of New Zealand's transport emissions reduction policies" (August 2020) Doctor of Philosophy thesis, Victoria University of Wellington, at 142.
[10] See https://www.integratedreporting.org/ for more.

2.3.3 Similar movements are developing in NZ too. NZ Government entities must measure their emissions under the Carbon Neutral Government Programme,[11] and in 2021 NZ became the first country to require certain financial organisations to disclose and ultimately act on climate-related risks and opportunities[12] in accordance with the NZ External Reporting Board's climate standards.[13]

2.4 Organisations will be increasingly expected to measure their environmental impact.

3 The solution

3.1 Impact-weighted taxation ("IWT") taxes organisations based on their calculated net positive or negative environmental impact. This reflects the scarcity rent on resources and the respective savings or cost to the government to clean up or otherwise deal with negative environmental externalities. It also raises tax revenue which may be invested in green technologies and solutions. The measurement of environmental impact should leverage existing disclosures to make compliance and audits easier.

3.2 IWT encourages organisations in NZ's economy to have positive environmental impact. This approach targets organisations with the information and authority to undertake actions with a significant positive impact due to their scale or size. IWT effectively reduces the net cost of such actions. For example, planting native forests currently has higher costs of establishment than commercial pine plantations but have significant biodiversity advantages. IWT seeks to re-weight the overall costs of such activities that may have greater fiscal gains but actually have an environmental cost not currently accounted for. This encourages people's capacity to find and invest in environmental solutions and action them, instead of being reliant on the Government. This could change behaviours and norms on a larger scale than excise or carbon taxes, which are likely to have regressive effects on essentials such as transport and electricity and do not directly incentivise innovation.

3.3 A balance is required between the complexity of measuring environmental impact and the likely costs the government may need to subsidise without IWT. Large organisations are most likely to be the biggest contributors to emissions and pollution. Smaller organisations are unlikely to have large environmental impacts and may struggle with the additional administration. Further, we want to encourage innovation and new businesses by streamlining their compliance. As such, IWT should initially be aimed at large organisations. What constitutes a 'large organisation' should be in accordance with IFRS accounting definitions (currently revenue based). Other organisations should continue to be subject to their usual tax rate with no modifications unless they volunteer to opt in to IWT. Tools and frameworks are being developed to help SMEs produce climate-related reporting, including the Sustainable Business Network's free Climate Action Toolbox.[14] It may be appropriate to widen this definition in future as impact measurement capability becomes commonplace and accounting standards evolve.

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[11] See https://environment.govt.nz/what-government-is-doing/key-initiatives/carbon-neutral-government-programme/.
[12] NZ Government *NZ passes world-first climate reporting legislation* (21 October 2021). Accessed on https://www.beehive.govt.nz/release/nz-passes-world-first-climate-reporting-legislation.
[13] See https://www.xrb.govt.nz/standards/climate-related-disclosures/.
[14] Grant Thornton *The Circular Revolution* (August 2022) at 22.

4 Feasibility and the calculation explained

4.1 Large organisations should continue to be taxed at their standard tax rate, but will use their calculated net environmental impact to quantify an additional permanent tax adjustment.

4.2 The IWT calculation should use numbers from accounting disclosures or environmental reporting which feed into an output-input analysis. Positive and negative environmental impacts are quantified in dollars at the social cost of that impact and the amounts are netted off to calculate a permanent add-back or deduction for that year. Only actions with a direct impact are included because indirect impacts are harder to quantify and to attribute to a certain taxpayer.

4.2.1 *Add back:* Social costs of external and internal failures.

4.2.2 *Deduct*: Impact of allowable prevention, reduction and removal activities.

4.3 There is a broad range of possible environmental impacts. Some impacts may be new or of a nature that is difficult for individual organisations to measure, such as biodiversity. The initial IWT implementation should focus on three domains relating to NZ's top environmental issues for simplicity: (1) air and atmosphere, (2) freshwater and marine, and (3) land. The domains mirror the ones set out under the Environmental Reporting Act 2015.[15] In reality, the domains are interrelated but this best expresses the scope of the IWT. There is no weighting between these domains as they are all critical to our future and any efforts in any domain should be equally encouraged.

4.4 Impact measurement is not a straightforward exercise. No methodology is universally agreed upon yet, although this may change as accounting standards develop. However, currently many companies already undertake impact measurement for voluntary disclosures and reporting. There is no need for the IWT to reinvent the wheel and set its own impact measurement methodology when there are already several existing ones. Companies using an existing methodology reviewed by an accredited third party to assess the impact of their product, service and operations should use those numbers for IWT purposes. In future, the IWT regime should align with impact accounting standards for ease of compliance.

4.4.1 One example of an existing framework is Australasia's Environmental Product Declarations ("EPD"). The EPDs involves a third party that verifies the life cycle environmental impact of a product. On the next page is an example from New Zealand King Salmon of the life cycle environmental impact of 1kg of head-on gutted salmon. [16]

[15] Section 10(1), Environmental Reporting Act 2015.
[16] New Zealand King Salmon *Environmental Product Declaration* (October 2021) at 22.

Table 2: Head-on gutted salmon environmental impact

Indicator	Unit	Upstream	Core	Downstream	Total
Global Warming Potential - Total	kg CO_2 eq.	5.70	0.540	7.07	13.3
Global Warming Potential – Fossil	kg CO_2 eq.	4.14	0.530	6.87	11.5
Global Warming Potential – Biogenic	kg CO_2 eq.	0.1000	0.0102	0.203	0.313
Global Warming Potential – Land Use and Land Use Change	kg CO_2 eq.	1.46	2.58E-04	9.37E-04	1.47
Acidification Potential	kg SO_2 eq.	0.0401	0.00155	0.0294	0.0711
Eutrophication Potential	kg PO_4^{3-} eq.	0.0827	7.69E-04	0.00594	0.0894
Ozone Depletion Potential	kg CFC-11 eq	2.90E-07	1.10E-07	1.18E-06	1.58E-06
Photochemical Oxidation Formation Potential	kg NMVOC	0.0261	0.00141	0.0332	0.0607
Abiotic Depletion Potential, Elements	kg Sb eq	9.80E-06	3.62E-06	1.88E-05	3.22E-05
Abiotic Depletion Potential, Fossil Fuels	MJ	49.9	7.05	95.5	152
Water Scarcity Footprint	m^3 eq.	0.757	0.232	0.178	1.17
Land Competition	m^2.a	5.86	0.0103	0.0800	5.96

4.4.2 Another example source of data is many large corporates undertake sustainability-related audits, such as carbon footprint audits, and make climate-related financial disclosures. Below is an excerpt from Fisher & Paykel Healthcare's FY22 Annual Report which includes audited carbon disclosures:[17]

CDP SCORES

Topic	FY20	FY21	FY22
Climate	B	A-	B
Supplier engagement	B-	A-	A
Water	C	B	B
Forests	-	C	C

KEY ENVIRONMENTAL METRICS

Topic	FY20	FY21	FY22
Scope 1 emissions (tonnes CO_2e)	1,914	1,465	1,777
Scope 2 emissions (tonnes CO_2e)	8,814	11,050	10,309
Scope 3 emissions (tonnes CO_2e)	650,000	718,991	457,112
Total emissions (tonnes CO_2e)	660,728	734,452	469,198
Water usage (cubic metres)	98,772	134,900	184,171
Landfill waste diverted (cubic metres)	1,032	1,630	2,035
NZ recycling efficiency (percentage of waste diverted from landfill)	66%	62%	68%
Global recycling efficiency (percentage of waste diverted from landfill)	58%	29%	52%

[17] Fisher & Paykel Healthcare *Annual Report 2022* at 50. Accessed at https://resources.fphcare.com/content/2022-fph-annual-report.pdf on 28 July 2022.

4.4.3 Independent assurance or verification is key to ensure credibility and the onus should be on taxpayers to provide expert proof of any tax adjustment claimed. Other organisations may obtain assistance from professional firms or specialist impact consultancies to undertake life cycle assessments or other environmental impact analyses. It is acknowledged that this is likely to give rise to additional costs for taxpayers. However, many taxpayers are already voluntarily reporting similar data and the social expectations around this will go up over time. It will be key to explain that these costs are part of the costs of operating in NZ and that this will drive the dramatic change we need for the environment and ultimately the country's long-term future.

4.5 When looking at negative environmental impact, the IWT weighs the measured impact and multiplies them by the marginal prevention costs of that type of harm. The impact is quantified in absolute terms for the organisation and not considered on a per product basis.

4.5.1 There is no single metric that applies across domains. The below table provides examples of negative environmental impact and key metrics to measure the impact.

Domain	Example negative impacts	Environmental metrics or indicators
Air and atmosphere	• Emissions from vehicles • Air pollution from manufacturing • Emissions from agricultural operations	• Absolute Scope 1, Scope 2, Scope 3 GHG emissions • Weighted average carbon intensity
Freshwater and marine	• Microplastics • Over-exploitation through vast water taking or water usage • Blocking or altering water flow patterns • Overfishing, seabed trawling and dredging • Excess use of fertiliser that runs off into water • Eutrophication and nutrient leaching • Wastewater discharge	• Water usage in cubic metres • Waste water treatment costs • Chemical oxygen demand from company's operations • Ocean acidity: pH
Land	• Land use intensification, e.g. for dairy farming, urbanisation, housing development, exotic forestry • Eutrophication and nutrient leaching • Loss of productive soil • Erosion and land fragmentation	• Soil fertility: total carbon, Olsen phosphorus, total nitrogen, mineralisable nitrogen • Soil compaction: macroporosity (whether roots can access air and whether water can flow through the soil), bulk density • Soil acidity: pH

4.5.2 Company data on the quantity of resources used or pollutants emitted is multiplied by the cost of that negative impact to society. Similar to measuring the impact, determining the exact fiscal cost of a negative impact is difficult and subject to ongoing research. Leading frameworks that the IWT could leverage is either the Sustainability Impact

Metrics eco-costs or the TruCost environmental valuation coefficients, which are both commonly used by impact consultants.

4.5.3 The Sustainability Impact Metrics is a long-standing not-for-profit project by Delft University of Technology researchers. Eco-costs express the amount of environmental burden of a product on the basis of what it costs to reduce that negative environmental impact to a level in line with the carrying capacity of Earth. Relevant eco-costs to the IWT's domains are summarised as follows:[18]

Domain	Eco-cost category	Multiplier (EUR)	Multiplier (NZD equivalent)
Air and atmosphere	Climate change	0.116 €/kg CO2 equivalent	NZ$0.19/kg CO2 equivalent
	Fine dust	35.0 €/kg fine dust PM2.5 equivalent	NZ$58.33/kg fine dust PM2.5 equivalent
Freshwater and marine	Acidification	8.75 € / kg SO2 equivalent	NZ$14.58/ kg SO2 equivalent
	Water extraction	1 €/m3	NZ$1.67 / m3
Land	Eutrophication	4.70 € / kg PO4 equivalent	NZ$7.83/ kg PO4 equivalent
	Landfill	0.123 € /kg	NZ$0.21/kg

4.5.4 The TruCost environmental valuation coefficients are factors that represent the value of damages resulting from an organisation's operations. Multiplying the environmental valuation coefficients by the amount of resources used and pollutants emitted therefore estimates an organisation's negative externalities. The environmental valuation coefficients are reviewed annually and published in an S&P Global database.

4.6 When looking at positive environmental impact, the IWT takes into account the expenditure incurred in relation to allowable prevention, reduction and removal activities that target the above listed types of negative environmental impact. The approach to looking at the expenditure incurred on positive activities rather than the estimated monetary value of the impact achieved is deliberate for ease of compliance and to reward activities that require high upfront investment to set up the infrastructure for ongoing positive environmental impact. Future analysis should consider whether the monetary value of the positive environmental impact would be greater.

4.6.1 Prevention activities are interventions that avoid negative environmental impact that would otherwise have occurred if not for the intervention. Examples include preventing the release of emissions from a manufacturing process or using electric vehicles for the company car fleet.

[18] Sustainability Impact Metrics *Eco-costs*. Accessed at https://www.ecocostsvalue.com/eco-costs/eco-costs-resource-scarcity/ and https://www.ecocostsvalue.com/eco-costs/ on 12 August 2022.

4.6.2 Reduction activities are interventions that reduce negative environmental impact. Examples include engaging in more efficient processes to reduce emissions, consuming less carbon intensive resources, replacing old technology with more carbon efficient technology or replanting low-density shrubland such as mānuka on sloping land to reduce soil erosion.

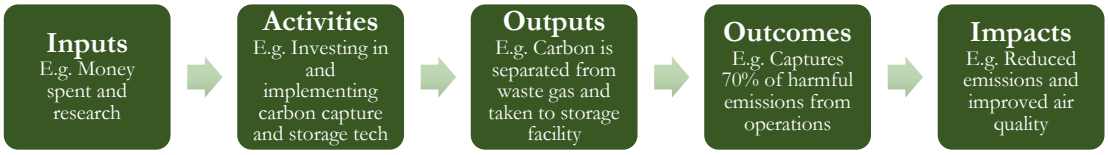
4.6.3 Removal activities are interventions that remove negative environmental impact already in the current environment. Examples include planting trees to capture carbon content from the atmosphere, direct air capture technology that store captured emissions in geological reservoirs, or destruction or export of greenhouse gas emissions.

4.6.4 A prevention, reduction or removal activity is allowable if it:

- Either:
  - Relates to a valid NZ ETS credit, or
  - Has a disclosed theory of change, with no further review required if it has been reviewed by a third-party environmental consultant,
- Occurs in NZ, and
- It has permanent impact (i.e. does not reverse later).[19]

4.6.5 Allowable prevention, reduction or removal activities remain deductible under the general permission and any specific provisions. This effectively gives rise to a double deduction if they also qualify under the IWT regime, but this has to be offset against the additional deemed cost of the organisation's negative environmental impact.

4.6.6 For IWT purposes, it is important to show the alleged positive environmental impact is deliberate, rather than incidental. A common concept in the social enterprise and not-for-profit sectors is to have a "theory of change". A theory of change explains how the activities undertaken contribute to a chain of results that lead to the intended or observed impacts. It is also referred to as an "impact pathway" or "results chain" and has similarities to the Environmental Reporting Act 2015 pressure-state-impact framework for reporting. The most basic form of a theory of change is expressed linearly:



Having a good theory of change helps organisations articulate the goal of their planned activities, identify key performance indicators for monitoring, collect the relevant data and provide a structure for reporting to stakeholders.

4.6.7 Limiting activities to NZ ensures simplicity in the initial implementation. There may be potential later for IWT to take into account cross-border emissions reduction transactions if we see countries implementing voluntary international cooperation under article 6 of the Paris Agreement.

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[19] See the International Carbon Reduction and Offset Alliance *Code of Best Practice 2022* on the principle of permanence. Accessed at https://www.icroa.org/_files/ugd/653476_d76cf631001143069f0d64a075d90efd.pdf on 13 August 2022.

4.7 Where appropriate, the IWT leverages existing regimes relevant to determining allowable prevention, reduction or removal activities, such as the NZ ETS. In the case of greenhouse gas emissions, it is helpful to include the existing NZ ETS scheme as part of IWT. It already sets out what are eligible removal activities that give rise to a credit and these would be considered as an allowable prevention, reduction or removal activity in the IWT regime.

4.8 Ultimately the goal of IWT is to go beyond existing regimes and actively encourage behaviour to achieve positive environmental impact. The current approach of certain industries buying emission offsets is not driving enough change. The IWT regime will be more effective because it is targeted at changing behaviours and norms through encouraging active solution seeking, which will be key to have long-lasting impact on our environment.

4.9 Please see Appendix A for an illustrative IWT calculation.

5 Simplicity and ease of administration and compliance

5.1 IWT will impact on the simplicity of the tax system. This is minimised by adding another tax adjustment that reflects the environmental cost of the organisation's activities to the Government, instead of changing the tax rate. IWT is designed to improve ease of administration and compliance by leveraging existing impact reporting data, accounting standards and definitions.

5.2 Although quantifying an organisation's environmental impact is not straightforward, some organisations already undertake voluntary environmental reporting (see GRI and other frameworks). Further, it is likely there will be an increasing expectation in the near future for organisations to measure environmental impact for purposes unrelated to tax (e.g. to meet evolving accounting standards or stakeholder expectations to publish certain data). These changes are due to society increasingly caring about the environment and organisations' impacts. The tax rules should adapt as other standards change.

5.3 An annual sample of organisations subject to IWT for their first tax year should have their IWT workpapers audited in the first five years of implementation and then subsequently all organisations by risk analysis to ensure integrity. Inland Revenue is unlikely to be able to audit the appropriateness of the adjustments, so audits could perhaps be done by the Ministry for the Environment and accredited professional services firms.

6 Measuring success of IWT

6.1 The IWT's theory of change is that having a tax cost on negative environmental impact makes it expensive for organisations to have negative environmental impact, which then encourages organisations to innovate for more positive environmental impact.

6.2 The nature of environmental interventions means it can be a long time before we see the benefits of reduced environmental impact. The Parliamentary Commissioner for the

Environment acknowledged that "most of the key environmental issues that concern us have developed over lengthy timeframes and are unlikely to be remedied in short order".[20]

6.3 We should therefore focus on evaluating the direct outputs of IWT rather than the ultimate outcomes. Success of IWT should be measured as either reduced behaviour with negative environmental impacts and/or increase in positive impact innovation. These are the prerequisites for reduced negative environmental impact. Success may also be an increase in tax revenue or increase in government spending in green technologies and solutions from investing IWT revenue.

7 Impact on the NZ economy

7.1 As explained in the introduction, negative environmental impacts affect how we live and work. Currently, organisations with negative impact have the consequences of their actions subsidised by the Government. IWT seeks to recover the associated costs, such as clean up, directly through tax. This reduces Government subsidisation required, freeing up funds to be applied elsewhere.

7.2 Treasury recommends that a cost-benefit analysis of policies should take into account the deadweight cost of taxation.[21] The IWT reflects the amount of savings or cost to the government to deal with negative environmental externalities with a significant tax uptake from the increased taxable income. As a result, it better approximates market prices for externalities and I consider the deadweight cost to be nil.

7.3 Continuing negative environmental impacts will ultimately affect our productivity and business growth. It is difficult to continue producing goods and services if the resources we need to do so are exhausted.

7.3.1 Degrading soil health has flow-on effects on soil productivity. NZ pasture production is estimated to decrease by 2.5% for every 1% decrease in macroporosity within the first 10 cm of the soil layer.[22] This could limit the variety, quality, and amount of food we can grow and reduces the primary sector's productivity. Fine sedimentation can also increase flooding, disrupt hydroelectric power dams, and make rivers less suitable for recreation and food gathering.[23]

7.3.2 In 2020, 27,000 tonnes of honey was produced in NZ from 9,585 beekeeping enterprises.[24] Mānuka honey is over half of honey export volume and commanded a higher price than other varieties for the year ended March 2021.[25] However, the mānuka

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[20] Parliamentary Commissioner for the Environment *Focusing Aotearoa New Zealand's environmental reporting system* (7 November 2019) at 47.
[21] Treasury *Guide to Social Cost Benefit Analysis* (July 2015) at 15.
[22] Hu W et al. *Compaction induced soil structural degradation affects productivity and environmental outcomes: A review and New Zealand case study* (2021) Geoderma, 395, 115035. Accessed at https://doi.org/10.1016/j.geoderma.2021.115035
[23] Collier K et al (2017) *Physical and chemical attributes affecting survival and collection of freshwater mahinga kai species.* Environmental Research Institute report no. 106, and Rey F (2021) *Harmonizing erosion control and flood prevention with restoration of biodiversity through ecological engineering used for co-benefits nature-based solutions* Sustainability, 13, 11150.
[24] Ministry for the Environment & Stats NZ *New Zealand's Environmental Reporting Series: Environment Aotearoa 2022* (2022) at 34.
[25] Ministry for Primary Industries (2021) NZ export and trade data: ice cream, honey, organics, non-alcoholic beverages. Accessed at https://www.mpi.govt.nz/resources-and-forms/economic-intelligence/market-insights-for-the-primary-sector/nzexport-statistics-and-trade-data-for-ice-cream-honey-organics-and-non-alcoholic-beverages/

area has been decreasing and some variants threatened by introduced pathogen myrtle rust.[26]

7.3.3 Modelling estimates show that more than a quarter of NZ estuaries are highly or very highly susceptible to ecosystem harm resulting from excessive nutrient levels.[27] This will have many flow-on impacts on our economy. For the year ended March 2017, around 33,000 people were employed in NZ's marine economy and the total value of the marine economy was $7b.[28] Ocean acidification is also affecting our ability to gather seafood, such as causing pāua larvae to have lower survival and growth rates.[29]

7.3.4 Dairy is NZ's biggest export earner at around $17b a year,[30] but directly relies on our natural environment. Dairy farming is vulnerable to natural events like floods as it occurs on flat and low-lying land on floodplains, involves regular transport of fresh milk to dairy factories and involves many fixed assets.[31] Droughts cause the soil to dry out, and can lead to the loss of almost all of a farm's profits.[32] The NZ Treasury estimates that the major drought events of 2007–08 and 2012–13 costed about $4.8b, including indirect losses.

7.4 IWT discourages behaviour with negative impacts and helps us move to a circular economy faster, therefore contributing to improving NZ's economy long-term. The potential economic benefits of a circular economy is estimated to benefit the Auckland economy alone by $8b by 2030.[33] And a 2016 study found that shifting EUR 554b of taxes from labour to pollution and resource utilisation in the EU would create jobs for 6.6m more people, reduce carbon emissions by 8.2% in four years and save EUR 27.7b on energy imports in five years.[34]

8 Social and environmental acceptability

8.1 In short, IWT seeks to incentivise actions with positive environmental impact and recover the costs of activities with negative impact. This aligns with societal expectations of social responsibility and environmental care.

8.2 It will also contribute to improvements in environment-related outcomes and natural capital and ultimately accelerate our journey to becoming a circular economy. Currently, most organisations are still operating in a way that takes from exhaustive environmental resources to make products that end up as waste. To protect our environment and future, we need to transition to a circular economy. NZ's Emissions Reduction Plan's vision for 2050 includes having a circular economy. A circular economy is about keeping resources in use for as long as possible and then recovered

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[26] Ministry for the Environment & Stats NZ *New Zealand's Environmental Reporting Series: Environment Aotearoa 2022* (2022) at 37.
[27] Plew et al (2018) *Assessment of the eutrophication susceptibility of New Zealand estuaries* NIWA Client Report No. 2018206CH page 63. Accessed at https://environment.govt.nz/assets/Publications/Files/assessment-of-eutrophication-susceptibility-in-nzestauries.pdf
[28] Ministry for the Environment & Stats NZ *New Zealand's Environmental Reporting Series: Environment Aotearoa 2022* (2022) at 48.
[29] At 50.
[30] New Zealand Productivity Commission *The Dairy Sector in New Zealand: Extending the Boundaries* (October 2020) at 5.
[31] Craig H et al (2021) *Quantifying national-scale changes in agricultural land exposure to fluvial flooding* Sustainability, 13, 12495. Accessed at https://doi.org/10.3390/su132212495
[32] Bell KM, Samarasinghe O, Riggs L, & Pourzand F (2021) *Empirical effects of drought and climate change on farms and rural communities.* Accessed at https://deepsouthchallenge.co.nz/wp-content/uploads/2021/05/Empirical-effects-of-drought-and-climate-Final-Report.pdf
[33] SBN *A Circular Economy for Auckland – scoping the potential economic benefits* (2018).
[34] Grant Thornton *The Circular Revolution* (August 2022) at 7.

or regenerated.[35] The IWT focuses organisations on the life cycle of their goods and services and the impacts of their activities, which will help drive behaviour towards circular economy models.

8.3 Despite being a relatively small portion of global emissions, NZ has an opportunity to lead a paradigm shift with IWT. Changing our behaviours to align with the goal of positive environmental impact will ultimately lead to long-term benefits for our local environment and help us achieve our emissions reduction targets under legislation and international agreements.

Word count: 3,993 words

[35] At 17.

Appendix A: Example impact-weighted tax calculation

Profit / (loss) before tax		**500m**
Permanent differences		**+155m**
Entertainment	+53m	
GST on entertainment	-5m	
Legal fees	+5m	
IWT income / (credit)	+102m	
Temporary differences		**-400m**
Taxable income		**255m**
Tax on taxable income (at 28%)		**72m**
Alternate taxable income (no IWT)		153m
Alternate tax on taxable income (no IWT) (at 28%)		43m

<u>IWT income / (credit) workpaper</u>

Emissions produced by vehicles sold		
Vehicle emissions (grams / km)	-100	
x Average km driven	25,000	
/ grams per ton	1,000,000	
x vehicles sold	1,000,000	
= average emissions produced by vehicles sold (tonnes)	-2,500,000	
+ CO2 removed by purchased carbon credits (tonnes)	+1,000,000	
x cost of carbon per ton	$140	
= emissions impact		-210m
End of life recyclability of product		
Average recyclability of cars sold per SASB disclosure	85%	
x cars recycled in operating markets	79%	
x weight	2,000 kg	
x value per weight	$0.08	
x cars sold	1,000,000	
= recycling impact		+108m
Net environmental impact of products sold		**-102m**