



Reducing waste: a more effective landfill levy

Consultation document



Ministry for the
Environment
Manatū Mō Te Taiao

New Zealand Government

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Message from the Associate Minister for the Environment



New Zealanders are united in their concern about waste. A 2018 Ministry for the Environment survey showed we rank waste as one of the three most important challenges facing our country in the next 20 years.

Yet, incredibly, we have one of the highest rates of per capita waste production in the developed world, according to the Organisation for Economic Co-operation and Development (OECD). This is not how we want to lead the world.

I would like to see something different for New Zealand's future. Valuable resources would no longer be thrown away, they would be kept in circulation. Products being sold would have clear, easy options for end-of-life disposal. Any residual household rubbish would be sorted and diverted from landfill. I envisage New Zealand having the capability to deal with our own waste, with our own onshore recycling infrastructure.

This sort of transformation to a circular economy won't happen overnight. But getting the price levers right will help encourage that shift, and the landfill levy provides us with a tremendous opportunity to invest in the infrastructure and systems we will need for a lower-waste future.

The Government has an ambitious, well-advanced and well-supported work programme to turn around New Zealand's record on waste.

Over the past 18 months our programme has included:

- investing in more onshore recycling infrastructure so products can be used again and again
- beginning work on designing a beverage container return scheme to recover the many millions of beverage containers used in our country each year
- banning microbeads and plastic bags
- public campaigns and working with business and industry to reduce packaging
- consulting on regulated product stewardship proposals to manage certain harmful products at the end of their life – such as plastic packaging, tyres, e-waste and refrigerants
- carrying out a nationwide historic landfill risk assessment, following the massive waste clean-up needed after flooding exposed the closed Fox Glacier landfill.

The proposals in the consultation document form one of the most important tools in the Government's work programme: expanding the national landfill levy scheme and progressively increasing levy rates to help reduce the ever-increasing amount of rubbish ending up in New Zealand's more than 350 landfills.

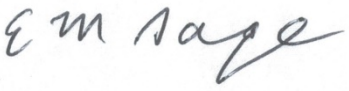
The reality is that many resources sent to New Zealand landfills could be recycled, composted or reused. There are many reasons why this is not happening. The main ones are lack of incentives, and lack of easy, readily available alternatives. The relatively low cost of disposal to landfill and the higher cost of recovering and recycling materials leads to products that could be recycled being taken to landfill.

New Zealand also cannot keep sending our waste products overseas in the hope they will be recycled. China and other countries have restricted the types of recyclables they will accept, meaning if we want products to be recycled we will have to do it ourselves.

Revenue from the landfill levy is all invested in minimising waste. Increasing and expanding the levy will not just allow us to help support more investment in onshore recycling infrastructure, but it will create new industries and new jobs, and create a sustainable future we can all be proud of.

I would like to thank those who have assisted in the development of this discussion document. I acknowledge many of you have been calling for these changes for a long time. We want your feedback so we can refine these proposals, and take all perspectives into account.

I encourage you to let us know your views – we look forward to receiving them.

A handwritten signature in black ink that reads "E M Sage". The signature is written in a cursive, flowing style.

Hon Minister Sage
Associate Minister for the Environment

Executive summary

New Zealand has a waste problem. Other countries are leading the way on using new technologies and approaches to radically reduce waste and increase recovery and recycling of materials, while in New Zealand, waste sent to landfills has been steadily increasing. Only a small proportion of New Zealand's waste is currently reused or recycled. It has become much more difficult to send waste overseas for recycling due to recent import restrictions and dramatic global price falls for materials for recycling, but there is limited infrastructure in New Zealand for recycling and re-using materials. This doesn't match our values: surveys show that New Zealanders are increasingly concerned about waste and its effects on the environment.

There is also significant room for improvement on the data that is collected on waste. Better waste data would make it easier to identify opportunities and assess the effectiveness of waste minimisation measures.

Sending waste to landfill has environmental and social costs, as well as opportunity costs – that is, the value that is lost from continuing to extract and use virgin materials instead of recovering and re-using material. Reducing the waste that goes to landfill would also benefit the climate through reducing greenhouse gas emissions.

Much more could be done to reduce waste and turn around recent trends by providing the right infrastructure, services and incentives so that sending waste to landfill is no longer the cheapest and easiest option. We now have the opportunity to change the way we do things, and the Waste Disposal Levy ('landfill levy') is an important tool to help us do so.

A low-waste future for New Zealand – where less waste is produced, and where significantly more of the materials that are produced are reused and recycled rather than going to landfill – requires the development of large-scale resource recovery infrastructure. New Zealand needs to deal with its own waste rather than relying on sending it overseas. This might include:

- increased on-shore processing and manufacturing capacity for a range of commodities from plastics to paper and glass
- anaerobic digestion¹
- investment in improving the quality of our recycling commodities (such as better systems for collecting and sorting materials)
- more extensive networks of resource recovery centres, including for construction and demolition materials.

Investment is needed at every stage of a product's life cycle, from more thoughtful product design that considers how products will be disposed of at the end of their lives to comprehensive and accessible recycling services for a wide range of waste.

Work is already under way on a waste reduction programme including the design of a modern Container Return Scheme, the recent ban on single-use plastic bags and development of regulated product stewardship. A plan to invest in New Zealand's resource recovery and recycling sector has also been drawn up in response to international restrictions on exporting waste.

¹ Anaerobic digestion is the process by which micro-organisms break down biodegradable matter in the absence of oxygen. During the process, biodegradable waste materials are degraded and biogas that can be used as a fuel is produced.

Improving the effectiveness of the landfill levy is a key part of this work programme. The landfill levy is currently set at \$10 per tonne (excluding GST), which is low by international standards. The levy only applies to municipal landfills (which take around 45 per cent of the waste disposed of in New Zealand, excluding waste disposed of into cleanfills).

A number of organisations, including the Organisation for Economic Co-operation and Development (OECD),² the Productivity Commission,³ the Tax Working Group,⁴ Local Government New Zealand (LGNZ)⁵ and the Territorial Authorities' Officers Forum within WasteMINZ (a waste sector representative group),⁶ have recommended an increase and/or expansion of the levy.

LGNZ passed a remit in 2018 calling for the Government to expand the waste disposal levy and progressively raise the levy rate in order to reduce total waste to landfills. LGNZ also adopted a waste manifesto in 2018, which cites research on a range of scenarios for increasing the levy progressively over time to rates of between \$20 and \$140 per tonne. The report concluded that a rate of \$140 per tonne would bring the most benefits.

Revenue from the levy is used to fund a wide range of waste minimisation activities but there is much more that could be done. If it were set at a higher rate and applied to more landfills, the levy could:

- provide a much greater incentive for businesses and households to reduce their waste
- better reflect the full social and environmental costs of using and disposing of resources in landfills, making alternative resource recovery and recycling options more viable
- raise the revenue that is needed for large-scale investment in resource recovery and recycling to turn around our record on waste.

This consultation document is seeking feedback on proposals to:

- increase the levy for municipal landfills (those that take household waste)
- apply the levy to all types of landfill except cleanfills (accepting only virgin excavated natural materials) and farm dumps
- apply the levy at different rates for different landfill types, to reflect different environmental and social costs of disposal, and different opportunities for recovery of different materials (see [table 2](#) for an explanation of landfill classes).

The rates proposed are considered high enough to provide incentives and price signals to divert waste from landfill and increase sufficient revenue to invest in a wider range of waste minimisation initiatives including large-scale resource recovery and recycling, but not so high as to create undue incentives for illegal waste disposal. It is not anticipated these rates would significantly increase waste disposal costs for households and small businesses in the short term (while new recycling options are developed). This consultation is an opportunity for stakeholders to provide further information on anticipated costs and benefits of the proposals.

² OECD, 2017b.

³ New Zealand Productivity Commission, 2018.

⁴ Tax Working Group, 2019.

⁵ LGNZ, 2018.

⁶ WasteMINZ Territorial Authority Forum, 2018.

It is proposed to phase in changes to allow sufficient time for the waste management and resource recovery sectors and the Government to prepare. Feedback is being sought on four implementation options (one of which reaches a higher levy rate by 2023).

Table 1: Landfill types and levy options

Landfill types	Options (all figures are GST exclusive)			
	A (Increase then expand)	B (Expand and increase)	C (Expand then increase)	D (Expand then higher increase)
Municipal landfills (class 1)	\$20 1 July 2020 \$30 1 July 2021 \$50 1 July 2022	\$20 1 July 2021 \$30 1 July 2022 \$50 1 July 2023	\$30 1 July 2022 \$50 1 July 2023	\$30 1 July 2022 \$60 1 July 2023
Industrial monofills (class 1)	\$20 1 July 2021	\$20 1 July 2021	\$10 1 July 2021 \$20 1 July 2023	\$10 1 July 2021 \$20 1 July 2022
Construction and demolition fills (class 2)				
Contaminated soils and inert materials (managed and controlled fill sites; class 3 & 4)	\$10 1 July 2023	\$10 1 July 2023	\$10 1 July 2023	\$10 1 July 2023

It is proposed to establish regulations that set the levy rates that will apply for each landfill type, out to 2023.

The Waste Minimisation Act 2008 (the WMA) requires a review of the effectiveness of the levy every three years. The review in 2023 will be an opportunity to review the success of the current proposals (if implemented) and evaluate next steps.

The approach of many countries is to use an ‘escalator’ approach with regular increases in levy rates. It may well be the case that New Zealand’s landfill levy could rise further in the future (ie, after 2023), so it can continue to be effective at driving waste minimisation and meeting New Zealanders’ expectations for a lower-waste future. The Government is interested in your views on continuing to progressively increase the levy after 2023.

Revenue raised from the landfill levy is currently around \$36 million per annum, which must be spent on waste minimisation. It is projected that the proposals would result in an increase of levy revenue to around \$220 to \$247 million by 2023.

Half of the levy revenue is allocated to territorial authorities for waste minimisation purposes. The increased levy revenue allocated to local government would enable councils to take further action on local priorities for minimising waste.

The remainder of the revenue (minus administrative costs) goes to waste minimisation projects, largely allocated through a contestable Waste Minimisation Fund. An investment plan will be developed, providing a more strategic approach to allocating the increased levy funding. This will help ensure it is spent where it can be most effective: this is likely to include large-scale investment in recycling and other alternatives to landfill as well as smaller-scale initiatives to develop innovative approaches and public awareness. The Government is seeking feedback on the principles of this plan.

An effective compliance regime will help address any potential risks of illegal disposal of waste such as fly tipping. Central and local government both have roles to play in ensuring compliance

with the landfill levy. Phasing the implementation of the changes will help with compliance, as there will be more time to work with the classes of landfill that will be affected by the changes.

This document also sets out proposals to improve data and reporting on waste by 1 July 2021, including:

- establishing a central record of landfill and cleanfill sites and transfer stations
- waste quantity data from landfills, cleanfills and transfer stations, including the amount diverted and disposed of (if applicable), and the source of that material
- requiring reporting from territorial authorities about how they are spending the revenue they receive from the levy and their performance in achieving waste minimisation.

A classification system for landfills

For the purposes of the landfill levy and data reporting proposals set out in this document, the following system for classifying different types of landfill is used, based on definitions in the *Technical Guidelines for Disposal to Land* (the landfill guidelines).⁷

Table 2: Landfill classes and waste accepted

	Class under the landfill guidelines	Waste that should be accepted at these facilities
Municipal landfill	Class 1	Wastes that could discharge contaminants/emissions, from households as well as commercial, institutional and/or industrial sources disposed of at facilities that accept household waste.
Industrial monofill	Class 1	Solid wastes that could discharge contaminants/emissions, from industrial sources including steel- or aluminium-making and pulp- and paper-making.
Construction and demolition fill	Class 2	Solid wastes with lower potential for environmental harm, including rubble, plasterboard, treated timber and other construction and demolition materials.
Managed fill	Class 3	Contaminated but non-hazardous soils and other inert materials (eg, rubble) that allow the landfill site to be used for a restricted purpose on closure. Future excavation into the landfilled materials will require management.
Controlled fill	Class 4	Soils and other inert materials (eg, rubble) with low levels of contamination relative to receiving environment, which allow the landfill site to be used for an unrestricted purpose on closure.
Cleanfill	Class 5	Virgin excavated natural materials such as clay, soil and rock.

⁷ Waste Management Institute New Zealand (WasteMINZ) (2018a).

1 Overview

This document sets out proposals for improving the effectiveness of New Zealand's existing landfill levy, which is currently \$10 per tonne for waste disposed of at municipal landfills (ie, those that accept household waste). It also outlines proposals to improve waste data.

The discussion is laid out as follows:

- the status quo and the need for change ([section 2](#))
- proposals to increase the levy, and expand it to additional sites ([section 3](#))
- implementation, including technical details, effective compliance, monitoring and enforcement and the plan for how levy funds will be spent ([section 4](#))
- proposals to improve waste data through mandatory reporting ([section 5](#))
- impacts of proposals ([section 6](#))
- consultation questions and process ([section 7](#)).

The Government is seeking your feedback on these proposals. The questions throughout the document are to guide your submissions. You do not have to answer all of the questions, just those you are interested in. The full set of questions, and further information on how to make a submission, are set out in [section 7](#).

In preparing this document, the Ministry for the Environment made a preliminary review of the effectiveness of the existing waste disposal levy (in accordance with section 39 of the Waste Minimisation Act 2008 (the WMA) – see [appendix A](#) for more details). The Government considers that the proposals in this document will improve the future effectiveness of the levy. You are also invited to comment on this assessment.

Submissions close at 5pm on 3 February 2020.

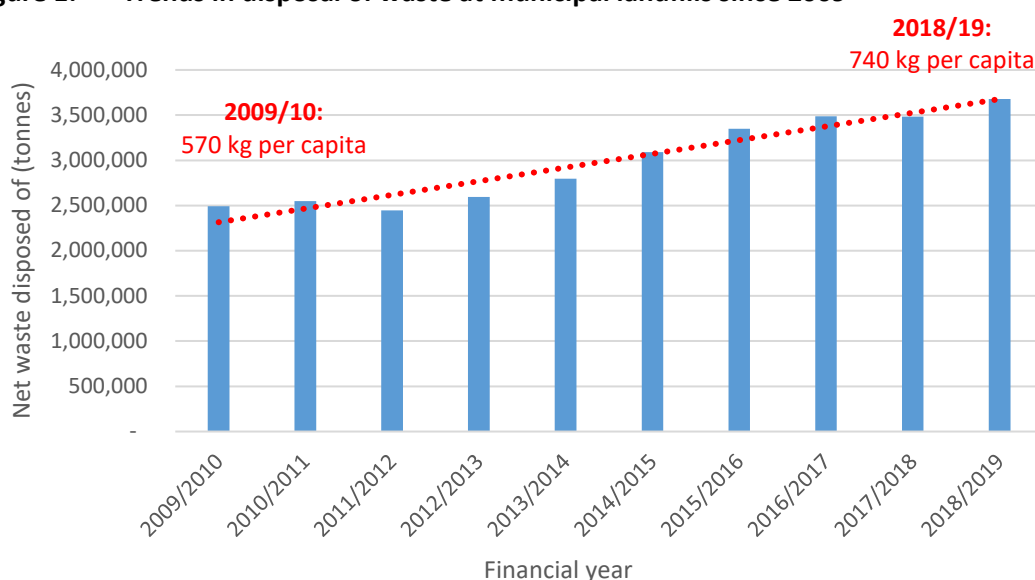
2 The current situation and the need for change

New Zealand has a problem with waste

New Zealand lags well behind the countries that are leading the way in dealing with waste. Many European countries such as the Netherlands, Austria and Germany have used new technologies and approaches to increase the rates of recycling and recovery, radically reducing the amount of waste they send to landfill. On the other hand, the amount of waste that New Zealanders are sending to landfill is going up. Our disposal to municipal landfills increased by 48 per cent in the last decade (figure 1). Total disposal of waste to municipal landfills for the year from 1 July 2018 to 30 June 2019 was 3.68 million tonnes.⁸

Waste trends for other types of landfill are not as well understood, but it is likely that disposals to these sites are also increasing.

Figure 1: Trends in disposal of waste at municipal landfills since 2009



Only a small proportion of New Zealand's waste is currently reused or recycled, because:

- it has become much more difficult to send waste overseas for recycling with recent restrictions on importing waste for recycling, and dramatic price falls for materials for recycling in international markets; this has particularly affected recycling of plastics, paper and card
- there is limited infrastructure in New Zealand for recycling and re-using waste
- many products are not designed to be reused or recycled
- it is often much cheaper and easier to dispose of materials to landfill than to reuse them.

⁸ This figure may vary slightly, as disposal facility operators may amend their reports up to two years after submitting them.

There are ongoing social and environmental costs associated with disposing of waste to landfill, as well as the value lost from not recovering and re-using material. This includes resources that are used in extracting and manufacturing items from virgin materials.

The extreme flooding that washed away a closed landfill next to the Fox River has highlighted that future, and often inter-generational, problems can arise from current waste disposal activities. The Fox River flood swept rubbish over an area of approximately 2100 hectares, including riverbanks, river braids, islands and coastline.⁹

Local Government New Zealand (LGNZ) has estimated there are 110–163 closed landfills vulnerable to climate-induced sea level rises.¹⁰

There is an urgent need to increase reuse and recycling of materials and, in particular, to address the gap in infrastructure and services for recycling and reusing materials, otherwise waste going to landfill will continue to increase.

Limited data on waste and recycling also makes it more difficult to identify opportunities or assess the effectiveness of waste minimisation measures. More comprehensive and consistent national data on waste will allow central and local government and the private sector to better prioritise, plan and execute activities to reduce waste and move to a circular economy. It will also help to meet national and international obligations to measure and report on production and management of waste.

Many New Zealanders want to reduce waste

Many New Zealanders hold strong views on the need to reduce waste. A recent survey found that 72 per cent of New Zealanders were concerned about the build-up of plastic in the environment, making it the number one concern in the survey (above other topics including the cost of living and protection of children).¹¹ Another survey showed 50 per cent of New Zealanders are very or extremely worried about the effects of waste and 62 per cent had a high commitment to recycling.¹² Building new landfills is often subject to public opposition.¹³

Poor waste management can threaten the mauri (life force) of the environment, including its abilities to provide kai (food). Reducing waste volumes is a priority action in many iwi management plans.¹⁴ Tangata whenua are also at the forefront of zero waste initiatives, with a focus on managing waste in environmentally sustainable ways based on mātauranga Māori.¹⁵ The Para Kore movement is designed to support marae to reduce waste, and is leading work to extend this kaupapa (approach) to all aspects of collective Māori spaces.

⁹ Department of Conservation, 2019.

¹⁰ Simonson and Hall, 2019.

¹¹ Colmar Brunton, 2019.

¹² Colmar Brunton, 2018.

¹³ For example, *Petition of Michelle Carmichael for Fight the Tip: Tiaki te Whenua Incorporated: Ban landfills near waterways*.

¹⁴ For example, Mahaanui Kurataiao Ltd, 2013; Te Ātiawa o Te Waka-a-Māui, 2014, cited in New Zealand Productivity Commission, 2018.

¹⁵ Mātauranga Māori are Māori worldviews. It is a system of knowledge and understanding about Māori beliefs relating to creation and the relationship between supernatural beings (atua) and people, and how these relationships affect both people and the environment (Ministry for the Environment, 2010).

Mātauranga Māori has also been central to recent expressions of a Pacific-based circular economy (Ōhanga Āmiomio).¹⁶

More can be done to reduce waste

The Government wants to minimise waste and encourage more efficient use of resources, moving from a linear ‘take, make and waste’ economy to a circular economy approach where resources are cycled (make, use, return) and waste is designed out of production. This is part of a longer-term goal of moving to a low-emissions, sustainable and inclusive economy for New Zealand.

This would require a significant but achievable shift in New Zealand’s approach to dealing with waste. It should be possible to turn around recent trends of increasing waste going to landfill and achieve much higher rates of reuse and recycling by providing the right infrastructure and incentives so that sending waste to landfill is no longer the cheapest and easiest option.

A low-waste future would include:

- products being sold would have clear, easy options for what happens to them when they are no longer needed, so that they can easily be repaired, reused, recycled or safely disposed of
- accessible recycling services for a wide range of different materials
- new and innovative approaches for dealing with waste
- effective resource recovery infrastructure within New Zealand, so that most materials are dealt with here rather than being sent overseas for recycling.

This low-waste future would create a number of benefits:

- reduced resource use and impacts associated with virgin extraction of resources¹⁷
- fewer greenhouse gas emissions¹⁸ – waste represents about five per cent of New Zealand’s greenhouse gas emissions, of which the majority (90 per cent) are methane from organic solid waste disposed to landfill, and the rest from wastewater treatment and discharge; just over two-thirds of total waste emissions are from waste disposed to non-municipal landfills and farm dumps¹⁹
- domestic market resilience (eg, less reliance on offshore processing of recycling)
- meeting consumer and societal expectations
- additional employment opportunities; as an average across a range of studies, for every five jobs in landfilling, 15 to 20 jobs could be created in resource recovery (see [table 10](#) for further details).

¹⁶ Illes, 2019.

¹⁷ Bartl, 2014.

¹⁸ Goldstein & Electris, 2011. Deloitte, 2016.

¹⁹ New Zealand Productivity Commission, 2018.

Work is already under way

A waste reduction programme has been developed and a number of initiatives are already under way, including:

- the recent ban on single-use plastic bags
- a comprehensive plan to invest in New Zealand's resource recovery and recycling sector as part of the response to international restrictions on exporting waste, ranging from a national kerbside recycling education campaign to investment in critical infrastructure for onshore processing
- design of a modern Container Return Scheme aimed at lifting recovery and recycling rates for beverage containers
- development of regulated product stewardship proposals which would make producers responsible for specified problematic products at the end of life. Six priority products are being considered: tyres, electrical and electronic products, agrichemicals and their containers, refrigerants and other synthetic greenhouse gases and farm plastics and packaging.

New Zealand's landfill levy could be a significant catalyst for change

The proposals in this document for changing New Zealand's landfill levy are a key part of the waste reduction work programme.

Landfill levies are a tool for minimising waste:

- they can be set at a rate that better reflects the full social and environmental costs of disposing of waste to landfill
- they provide incentives for individuals and businesses to reduce their waste
- by increasing the cost of disposal to landfill they can make alternatives such as recycling more commercially viable
- they raise revenue that can be invested in modern resource recovery infrastructure, services and other waste diversion initiatives, making it easier for households and businesses to choose alternative ways of dealing with their waste.

How the landfill levy works

The landfill levy was introduced in 2009 under the Waste Minimisation Act 2008 (the WMA). The levy rate was set at \$10 per tonne, and applies to municipal landfills that take household waste.

Money raised by the levy is used to fund investment through territorial authorities (50 per cent) and waste minimisation projects, including through the contestable Waste Minimisation Fund (WMF). The Ministry for the Environment also retains a portion for collecting and administering the levy and waste minimisation projects.

HOW IS THE LANDFILL LEVY REVENUE CURRENTLY SPENT?

Waste minimisation projects and the WMF

Since its first funding round in March 2010, the WMF has invited applications through 14 funding rounds. Approximately \$112.46 million has been distributed through the WMF to the 219 projects approved for funding. The WMF is currently a contestable fund, which generally has an annual funding round. It supports projects that promote or achieve waste minimisation, including:

- a) short-term projects (feasibility studies and capability building efforts)
- b) longer term projects (which include projects that are based on established work and/or require multiple years for delivery of outcomes).

Territorial local authorities

Under the WMA, territorial local authorities are required to use the levy funding they receive 'on matters that promote or achieve waste minimisation', and 'in accordance with its waste management and minimisation plan'. Each territorial authority must create, maintain and review a waste management and minimisation plan that details planned projects and activities. These plans must be revised at least every six years, meaning most councils will be adopting their third-generation plans in around 2022/23.

The 2017 Review of the Effectiveness of the Waste Disposal Levy reported that the levy collector distributed \$46.1 million to the 67 territorial authorities across New Zealand during the current review period (2013/14 to 2015/16). \$50.3 million was distributed between 2016/17 and 2018/19. Funding is apportioned based on the population in each territorial authority.

Section 4 (Implementation) outlines work to ensure future investment in waste minimisation is effective, well governed and strategic.

WHAT IS THE LANDFILL LEVY REVENUE CURRENTLY SPENT ON?

The landfill levy is used to fund a wide range of waste minimisation projects, including through the WMF. WMF projects can range from small community groups with a local waste issue to tackle, through to large-scale infrastructure investment. Some examples are given below.

CivilShare Limited (\$75,000) – CivilShare aims to reduce construction waste, with a free app that provides a digital marketplace for the construction industry. To date, the project has diverted nearly 10,000 tonnes of materials from landfill and its target is 60,000 tonnes per annum.

Flight Plastics (\$30,000 in 2011 and \$4 million in 2013) - Flight Plastics received an initial grant to assess the economic viability of installing a plant to recycle PET (number 1) plastic in Wellington. With further investment the company built a wash plant to enable the complete onshore recycling of PET into food-safe plastic packaging. Flight's new plant can recycle up to 8,000 tonnes of plastic – about a third of New Zealand's PET plastic imports. The recycled plastic packaging can be recycled again and again in New Zealand, creating a closed loop system rather than sending waste offshore.

WHAT IS THE LANDFILL LEVY REVENUE CURRENTLY SPENT ON?

One Double Five Awhina Whare Community House Trust (\$150,000 in 2016 and \$350,700 in 2018) – received funding to establish a food rescue organisation in Northland, which re-distributes quality surplus food from food retailers to community groups, providing them with a wide range of healthy and nutritious food (free of charge). Food Rescue Northland diverted 42 tonnes of food waste from landfill in the last 12 months, and provided 27,000 meals.

Para Kore (\$1.9 million across 11 projects and 15 regions since 2011) – The Para Kore programme works with marae to increase the reuse, recycling and composting of materials. It has been implemented in Taranaki, Bay of Plenty, Waikato, Hauraki, Ruakawa, Ruapehu, Far North, Gisborne, East Coast, Hawke’s Bay and Rotorua, with 349 participating marae. The most recent grant was for expanding into Wairarapa, Wairoa, Maniapoto and Te Tai Tokerau (Northland) over the next three years.

The landfill levy complements other environmental legislation

The levy plays a role in recognising the full cost of waste disposal, including opportunity costs, where other pricing tools or regulations do not.

Some of the costs to avoid, remedy and mitigate discharges of contaminants to the environment are addressed through council consenting under the Resource Management Act 1991 (RMA). The RMA also addresses amenity effects (eg, noise, dust, odour) associated with waste disposal.

The New Zealand Emissions Trading Scheme (ETS) seeks to address the greenhouse gases produced by disposal of organic wastes that decay anaerobically in landfill conditions (estimated to be around five per cent of New Zealand’s greenhouse gas emissions).²⁰

The current landfill levy could be more effective

The existing levy, at \$10 per tonne, is too low, and too narrow in coverage to achieve its objectives of raising revenue to promote and achieve waste minimisation and increasing the cost of waste disposal to recognise the environmental, social and economic costs. The levy only applies to municipal landfills (ie, those that accept household waste), which comprise only 41 of the approximately 427 consented landfills listed in the most recent national survey.²¹ This represents around 45 per cent of the materials New Zealand disposes of (not including material disposed of at cleanfills – see [table 15](#) in [appendix D](#) for details).

At current rates and coverage, the landfill levy does not:

- capture the full social and environmental costs of sending waste to landfills
- generate sufficient revenue for investment in waste minimisation, including onshore reuse and recycling
- provide adequate incentives to minimise waste or change how waste is disposed of.

²⁰ New Zealand Productivity Commission, 2018.

²¹ MWH, 2017. The Ministry for the Environment has worked with regional councils to update the list of known, consented landfills in this report, as outlined in [appendix D](#). The revised number (excluding cleanfills) is approximately 359.

A number of organisations, including the Organisation for Economic Co-operation and Development (OECD),²² the Productivity Commission,²³ the Tax Working Group,²⁴ Local Government New Zealand²⁵ and the Territorial Authorities' Officers Forum within WasteMINZ (a waste sector representative group),²⁶ have recommended an increase and/or expansion of the levy.

The OECD noted the levy's limited coverage, its relatively low level and the practice of levy avoidance hamper its effectiveness. The OECD recommended that New Zealand extend the waste disposal levy to cover all relevant landfill types; and improve the collection of data on the generation, disposal and treatment of waste, with a view to producing timely, comprehensive and internationally comparable information.²⁷

The Productivity Commission recommended that:

"The Government should, under the Waste Minimisation Act 2008, apply the waste disposal levy to all known, consented waste disposal facilities. The rate of the levy should be steadily increased over time, and a differentiated levy rate introduced where active waste is charged at a higher rate than inert waste."²⁸

The Productivity Commission considered a higher waste disposal levy would be more effective at reducing greenhouse gas emissions than its current rate, and would also encourage better waste stream management on the part of unmanaged site operators.

Local government called on the Government to expand the waste disposal levy and progressively raise the levy rate in a 2018 remit. In 2018, Local Government NZ also adopted a waste management manifesto that states "The levy is the single most powerful tool available to Government to reduce waste and improve resource efficiency and recovery."²⁹ The manifesto draws on work commissioned by a consortium of councils and waste and recycling companies which investigated a range of levy options for 'active' (from \$20 to \$140 per tonne) and 'inert' waste (from \$2 to \$15 per tonne).³⁰ This report concluded that extending the levy to all classes of fill, raising the rate for active waste to \$140 per tonne, setting a rate of \$15 per tonne for inert waste and an incineration levy of \$40 per tonne would give the greatest net benefits.

The Tax Working Group concluded overseas experience has shown that landfilling is responsive to price signals, and that a significant increase in the levy rate will likely change behaviour.³¹

²² OECD, 2017b.

²³ New Zealand Productivity Commission, 2018.

²⁴ Tax Working Group, 2019.

²⁵ LGNZ, 2018.

²⁶ WasteMINZ Territorial Authority Forum, 2018.

²⁷ OECD, 2017b.

²⁸ New Zealand Productivity Commission, 2018.

²⁹ WasteMINZ Territorial Authority Forum, 2018

³⁰ Eunomia, 2018. The report defines active waste as waste other than inert waste (which is defined as inert manufactured materials (concrete, brick, tiles) and natural materials (soils, clays, gravel and rocks), as well as material that is not chemically inert but is an aggregate-type material eg, slag from the steel industry, ash; virgin excavated natural materials from mining activities are not included as they are assumed to be exempt from the levy). The report also proposes an 'incineration levy' that would apply to waste from energy operations (to deter this from becoming an economically viable disposal option as a replacement for existing disposal facilities).

³¹ Tax Working Group, 2019.

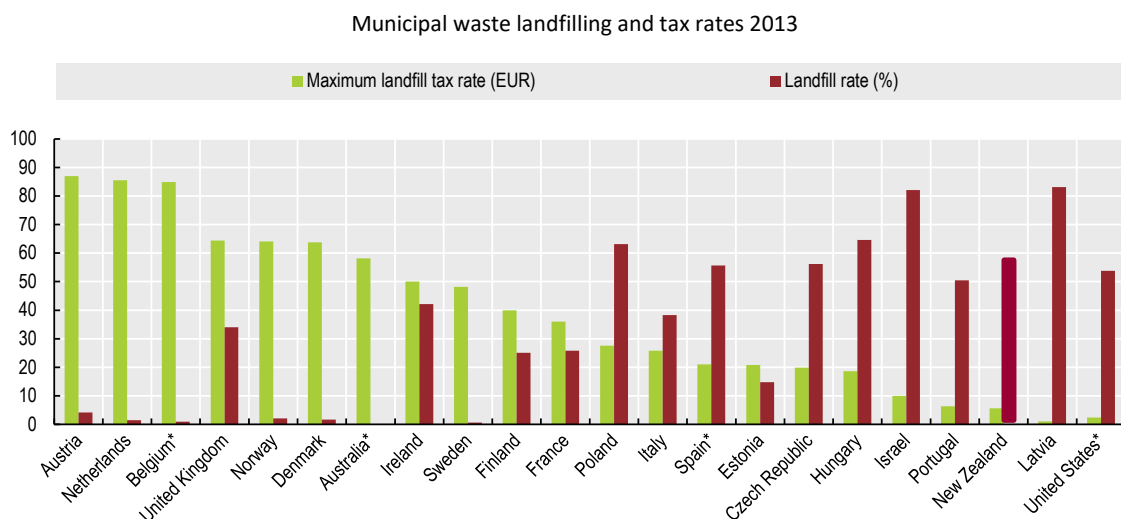
Successive reviews of the effectiveness of the landfill levy in 2014 and 2017 have also identified the need for change.³² The 2017 levy review identified that levies can be powerful economic instruments, and are used successfully in many countries to discourage waste disposal and encourage investment in innovative alternatives to disposal such as recycling.

International experience

As noted above, many countries have made significant efforts to reduce waste. Placing a levy on disposal of waste is a common tool internationally, with levies often set at much higher rates than in New Zealand. Some circular economy leaders, such as Finland and the Netherlands, charge the equivalent of NZ\$120–\$180 per tonne.³³ Most Australian states have implemented a landfill levy (table 9, appendix B).

Countries have achieved varying levels of success with their waste levies; however, a general pattern can be seen that those with higher landfill rates tend to have lower rates of waste going to landfill (figure 2). Usually, with these countries, a landfill levy is just one tool among a range of approaches, which is why the Government in New Zealand has developed a comprehensive work programme for dealing with waste.

Figure 2: Landfill taxes and rates by country



Source: OECD (2017a).

Note: *tax rates refer to Flanders for Belgium, to New South Wales for Australia, to Catalonia for Spain, and to New Jersey, North Carolina, Mississippi and Indiana for the United States. Landfill rate refers to percentage of total waste production that is disposed of to landfills (instead of being recycled, or disposed of another way eg, through incineration).

Not all countries report data to the OECD in a way that allows the landfill rate (ie, the percentage of total waste produced that is sent to landfill) to be calculated. The New Zealand landfill rate has been added to the figure, and is estimated drawing on Eunomia (2017). Some countries with a low landfill rate use incineration as their main disposal method (but most also have high recycling and recovery rates).

³² Ministry for the Environment, 2014b. Ministry for the Environment, 2017.

³³ In the case of the Netherlands, a landfill tax for combustible or biodegradable waste of around NZ\$186 per tonne that was formerly in place has now been removed (due to very low levels of landfilling). A single rate, equivalent to around NZ\$56 has since been re-instated (see table 9 for details).

How the landfill levy could help achieve a lower-waste future

As well as providing more of an incentive for businesses and households to reduce the waste they send to landfill and making alternatives more viable, the increased revenue from the levy could be used to fund a wide range of technologies and initiatives to help divert waste away from landfill. To date, landfill revenue has been used to fund a range of waste minimisation projects ranging from small community initiatives through to infrastructure used for recycling. But with more revenue, there would be opportunities to achieve significantly more, including through central and local government investment of levy funds.

The types of infrastructure and systems that could be invested in include:

- increased on-shore processing and manufacturing capacity for a range of commodities from plastics to paper and glass
- anaerobic digestion, a technology to generate bioenergy and biofertiliser from organic waste (leading to reduced greenhouse gas emissions from organic waste, an alternative energy source, and offering an alternative to fossil-fuel based fertilisers)
- investment in improving the quality of our recycling commodities (such as better systems and technologies for collecting and sorting materials)
- more extensive networks of resource recovery centres, including for construction and demolition materials
- investment in circular solutions, such as the waste products from one industry becoming a feedstock for another
- investing in research and development eg, to find solutions to current packaging challenges and provide alternatives to single-use products
- substantial public education campaigns with national coverage.

Collectively, this represents a sizeable investment in doing things better, and is likely to require further investment over and above what will be raised under the proposals outlined in the following section. It is proposed to establish regulations that set the levy rates that will apply for each landfill type, out to 2023.

The WMA requires a review of the effectiveness of the levy every three years. The review in 2023 will be an opportunity to review the success of the current proposals (if implemented) and evaluate the next steps.

The approach of many countries is to use an ‘escalator’ approach with regular increases in levy rates. It may well be the case that New Zealand’s landfill levy could rise further in the future (ie, after 2023), so it can continue to be effective at driving waste minimisation and meeting New Zealanders expectations for a lower-waste future. Setting the proposed future direction could be achieved by regulations in the short term, and a revised *New Zealand Waste Strategy* in the medium-long term. The Government is interested in your views on continuing to progressively increase the levy after 2023.

Questions

1. Do you agree the current situation of increasing amounts of waste going to landfill needs to change?
2. Do you have any comments on the preliminary *Review of the effectiveness of the waste disposal levy* outlined in appendix A?
3. Do you think the landfill levy needs to be progressively increased to higher rates in the future (beyond 2023)?

3 Levy proposals

Summary

The Government proposes:

- increasing the levy rate on municipal landfills
- applying the landfill levy to more landfills
- applying different levies for different landfill types, to reflect different environmental and social costs of disposal, and different opportunities for recovery of different materials, with phased implementation to reach the following levy rates:

Landfill types	Current rate	Transitional rate	Rate in 2023
Municipal landfills (class 1)	\$10	\$20 or \$30	\$50 or \$60
Industrial monofills (class 1)	–	\$10	\$20
Construction and demolition fills (class 2)	–	\$10	\$20
Contaminated soils and inert materials (managed and controlled fill sites; class 3 & 4)	–	\$10	\$10

The landfill levy would not apply to cleanfills that accept only virgin excavated natural materials (class 5) or to farm dumps.

This section sets out proposals for applying the landfill levy to additional landfills, and increasing the existing levy that applies to waste disposed of at municipal landfills (through regulations made under section 41 of the Waste Minimisation Act 2008 (the WMA)), in order to:

- decrease waste disposed of to landfills
- increase waste diverted from landfills through recovery, reuse and recycling
- raise revenue to re-invest in waste minimisation.

Criteria for developing the proposals

A number of options were considered as part of developing the proposals. The following criteria were used for deciding which would be the best approach.

Design criteria:	Implementation criteria:
<ul style="list-style-type: none"> • makes waste subject to a levy, regardless of where it is disposed of • increases the cost of waste disposal to recognise that disposal imposes costs on the environment, society and the economy • raises additional revenue for promoting and achieving waste minimisation • does not create undue incentives for levy avoidance behaviour. 	<ul style="list-style-type: none"> • allows for a timely response to New Zealand’s waste minimisation challenges • allows sufficient time for regulated parties and the Ministry for the Environment to prepare for the new requirements.

Alternative options that were considered are set out in [appendix C](#), along with an assessment of the key uncertainties in the analysis.

Expanding the coverage of the landfill levy

The Government has worked with stakeholders to develop a set of landfill classifications – the *Technical Guidelines for Disposal to Land*³⁴ (the landfill guidelines) – that are proposed to provide the basis for applying a levy to different classes of landfill. The classifications are set out in [table 3](#) (see also [appendix D](#)). [Table 15, appendix D](#), provides estimated disposals to each landfill type.

Table 3: Landfill classifications and how these are proposed to apply to landfill levy settings

Fill type	Class under landfill guidelines	Waste that should be accepted at these sites	Approximate number of sites
Already subject to a levy (increase proposed)			
Municipal landfill	Class 1	Wastes that could discharge contaminants/ emissions, from households as well as commercial, institutional and/or industrial sources disposed of at facilities that accept household waste.	41
Proposed to be subject to a levy			
Industrial monofill	Class 1	Solid wastes that could discharge contaminants/emissions, from a range of industrial sources including steel- or aluminium-making and pulp- and paper-making.	14
Construction and demolition fill	Class 2	Solid wastes with lower potential for environmental harm, including rubble, plasterboard and other construction and demolition materials.	22
Managed fill	Class 3	Contaminated but non-hazardous soils and other inert materials (eg, rubble) that allow the site to be used for a restricted purpose on closure.	56
Controlled fill	Class 4	Soils and other inert materials with low levels of contamination relative to receiving environment, which allow the site to be used for an unrestricted purpose on closure.	226
Not proposed to be subject to a levy			
Cleanfill	Class 5	Virgin excavated natural materials such as clay, soil and rock.	Unknown
Farm dumps	N/A	Disposal on farmland where the waste comes only from that property. Generally a permitted activity in council plans if it meets specified criteria (eg, not on a floodplain; not containing hazardous substances, sewage, offal or animal carcasses).	46,680

Source: based on WasteMINZ (2018a) and unpublished research undertaken by the Ministry for the Environment in 2019. Farm dumps are estimated based on Stats NZ data on the number of farms in New Zealand in 2018 (50,739), of which 92 per cent are estimated to have a farm dump (GHD, 2013). The number of cleanfills cannot be accurately estimated without resource consent information (as it is hard to verify if sites also accept materials other than virgin, excavated natural materials (and should therefore be classified as another landfill type)).

³⁴ WasteMINZ, 2018a.

Rationale for expansion of levy to additional landfill classes

Currently only about 45 per cent of the waste disposed of in New Zealand goes to municipal landfills (as shown in [table 15](#), [appendix D](#)) – those landfills that take waste from households and businesses. Significant quantities of waste from sectors such as construction and demolition are not subject to a levy. This means that current economic incentives to minimise waste are more limited, because a substantial proportion of waste produced and disposed of is not subject to a levy. This can also create incentives for waste to be disposed of at non-levied sites, when it should be disposed of at levied sites.

The WMA currently defines sites subject to a levy as facilities:

- at which waste is disposed of; and
- at which the waste disposed of includes household waste; and
- that operate, at least in part, as a business to dispose of waste.

There is also provision in the WMA to prescribe any other facility or class of facility at which waste is disposed as a ‘disposal facility’, and set levy rates for them.³⁵ It is proposed to prescribe the following sites as disposal facilities described in more detail in [table 2](#) and [table 3](#) above and in the sections below:

- industrial monofills (class 1)
- construction and demolition fills (class 2)
- managed fills (class 3)
- controlled fills (class 4).

It is proposed to exclude cleanfills (class 5) and farm dumps from the levy.

Once subject to the levy, sites would have an obligation to report waste quantities to the Ministry for the Environment, and pay a levy on the basis of reported waste disposed of. As outlined in [section 4](#), a range of options is available for measuring and reporting waste quantities. While sites would need to be able to report accurate tonnages, it is not envisaged that smaller sites would necessarily need to install a weighbridge (eg, in cases where the small volume of waste being accepted would make it uneconomic to do so).

Industrial monofills (class 1)

Industrial monofills are class 1 landfills that only take a specific waste type from specific firms or industries. The waste going to monofills varies widely from the by-products of steel or aluminium making (inorganic), to pulp and paper making and sawmilling (mostly organic), to bio-solids from sewage treatment. Because monofills do not accept household wastes, they are not currently subject to the levy, although the types of waste accepted share some of the same characteristics. Both types of landfill accept solid wastes that could discharge contaminants/emissions, requiring landfill management features such as an engineered liner to contain leachate, leachate management systems, gas collection, discharge monitoring and reporting to an appropriate regulator. The Government lacks data on the quantities of waste currently being sent to industrial monofills.

³⁵ These sites would not have to accept household waste nor operate, at least in part, as a business to dispose of waste.

There are opportunities for reductions in the types of waste being disposed of at these sites, and applying a levy could provide an incentive for further recovery to occur. [Appendix E](#) outlines further information on indicative waste types, quantities and opportunities for waste minimisation.

Construction and demolition landfills (class 2)

Construction and demolition activities include residential and commercial property developments, infrastructure development and demolition.

Construction and demolition fills (class 2) receive a large portion of New Zealand's waste, so including these sites will encourage users to consider alternatives like resource recovery, and help make alternatives more cost effective. Because of current data limitations, the Government does not have comprehensive data on the quantities of waste currently being disposed of at construction and demolition fills. The best available estimate is that in the order of 2.9 million tonnes per annum are disposed of at construction and demolition fills (see [table 15](#), [appendix D](#)).

Scale of construction and demolition activities

Consents for all buildings totalled \$21.7 billion in 2018, with a split of roughly two-thirds residential and one-third non-residential. Stats NZ reports that in the year ended July 2019, 35,472 new homes were consented.

The civil construction sector is estimated to carry out more than \$12 billion of work annually.³⁶ This includes works for water, transport, telecommunications and power infrastructure. Some projects already have processes in place to minimise waste. For example, under the New Zealand Transport Authority's Environmental Policy, large-scale roading projects have resource efficiency and waste management plans, with an emphasis on reuse where possible.³⁷

The Government does not currently have good data on how much demolition takes place in New Zealand each year. Studies estimate that between 2000 and 8000 houses per annum are demolished.³⁸ Housing New Zealand's Environment Strategy outlines plans for a national waste diversion programme for its demolition, retrofit and new build programme.³⁹

Opportunities for recovery of construction and demolition wastes

Construction waste typically includes wood and particle board (20 per cent), plasterboard (13 per cent), concrete and bricks (12 per cent), metal (five per cent), packaging (five per cent), with a high proportion of mixed materials (eg, sweepings, other plastic, green waste, soil, fixtures) (45 per cent).⁴⁰ Products end up as waste during construction through offcuts, mistakes, temporary works, poor workmanship, inefficient installation or use or because of

³⁶ Civil Contractors New Zealand, 2019.

³⁷ New Zealand Transport Agency, 2008.

³⁸ Page & Fung, 2009. One report notes that as part of the redevelopment and intensification of many state housing areas, around 10,000 state houses will be removed in Auckland over the next 5–10 years. An estimated 250,000 tonnes of waste would be generated from these projects if demolition is the primary means of removal (Envision, 2019).

³⁹ Housing New Zealand, 2019.

⁴⁰ BRANZ, 2014b.

damage. During demolition, products become waste when they cannot be salvaged efficiently, recycled or reused. Product design and materials selection, manufacturing specifications and methods, the way products are packaged and delivered to site and the instructions on product use and installation can also contribute to waste.⁴¹

There is significant potential for reducing waste (through for example more efficient use of materials), and for reuse and recycling of building materials from construction and demolition projects. Current recovery is estimated at around 28 per cent.⁴² Typically, at least 50 per cent of waste can be recycled from a construction site.⁴³ Many case studies indicate diversion rates of 70 per cent or higher have been achieved, including in some cases 90 per cent or more.⁴⁴

Housing New Zealand subsidiary HLC's demolition projects in Auckland have been able to achieve high rates of saving materials from removed houses for reuse (up to 75 per cent) and high recycling rates (over 80 per cent) on timber, concrete and metals. A recent economic cost-benefit analysis concluded that property developers would essentially break even by diverting construction and demolition waste from landfill, and net returns to developers would increase as the waste levy increases.⁴⁵

Work is currently under way on reforming the legislative system for the building sector to lift the quality of building work. More efficient and higher quality work has the potential to reduce waste (through reducing rework, repair and using materials more efficiently). The reforms also aim to address barriers to using Modern Methods of Construction – methods that have the potential to increase production efficiencies and reduce waste.

Development of potentially contaminated sites (eg, brownfields developments) must be consistent with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Heavily contaminated soils must be disposed of to municipal landfills, while less contaminated soils can go to controlled or managed fills. Increases to disposal costs may make it more viable for developers to separate out the most contaminated soils to go to municipal landfills, and manage the rest onsite or send them to a cheaper controlled or managed fill site.

Managed (class 3) and controlled (class 4) fills

A large number of landfills operate as managed or controlled fills ([table 3](#) and [table 15](#) – [appendix D](#)). The main difference between these categories relates to any restrictions on future use of the sites once closed (managed fills do not typically have restrictions on future land use, whereas controlled fills have some restrictions). Existing data on these landfill classes is poor, because most regional councils do not use this classification at present. The information contained in [table 15](#), [appendix D](#) about the quantities disposed of to this type of landfill are considered to be a substantial under-estimate. Conversely, the quantities disposed of to cleanfill are likely to be an over-estimate, as many of the materials may not be virgin excavated materials suitable for cleanfills.

⁴¹ BRANZ, 2014b.

⁴² Eunomia, 2017.

⁴³ BRANZ Ltd, 2014b.

⁴⁴ See example case studies at www.ccc.govt.nz/environment/sustainability/target-sustainability/case-studies/construction-and-demolition-projects/

⁴⁵ Rohani et al., 2019.

The Government considers the materials disposed of to these fill types should also be subject to a levy, to help create an incentive for increasing recovery rates, and to more fully recognise the costs of disposal. Examples of opportunities for reuse of materials include onsite use of lightly contaminated soils in development sites or roading projects and use of rubble as an alternative to quarried materials.

However, it is noted that some managed or controlled fill operators may see themselves primarily as earth movers rather than landfill operators. In addition, some managed or controlled fills may operate for a relatively short period of time (around two years). Both of these factors may make including managed and controlled fill sites more administratively complex.

The Government is intending to cover sites acting as managed or controlled fills (ie, sites where the primary purpose is the permanent disposal of unwanted materials). It is not intended to cover:

- site remediation (eg, filling in a quarry after it ceases operation)
- movement of soil during subdivision (eg, creation of engineered contours as part of site development).

However, feedback is sought on how such sites or activities could be excluded without creating unintended loopholes. For example, whether a payment has been made to dispose of the material could be one way of differentiating a fill site from remediation or subdivision activity.

Sites that would not be covered by the landfill levy

Cleanfills (class 5)

A levy is not proposed for cleanfill sites, although these sites may have a new requirement to report to the Ministry for the Environment on quantities of material they receive (see [section 5](#)). The main impact on cleanfill operators will be the need for monitoring to ensure cleanfill sites are only accepting virgin excavated natural materials and that waste is not being disposed of to cleanfills that should be disposed of in a levied landfill.

Farm dumps

Agriculture produces a relatively large quantity of waste – close to 20 per cent of total disposals, of which only 7.5 per cent is currently disposed of in municipal landfills (see [table 15](#), [appendix D](#) for details). Studies suggest the large majority of agricultural waste is disposed of onsite, including in farm dumps.⁴⁶

The Government does not propose including these activities in the landfill levy, because it is not viewed as an effective way of encouraging reduction in this waste, or encouraging appropriate disposal. Instead, the Ministry for the Environment is working with the sector to provide better disposal options (with a current focus on non-organic wastes).

The Government has also agreed to the recommendation from the Productivity Commission that local government should be better supported to develop effective bylaws or consenting requirements for farm dumps, including investigating whether a national environmental standard about waste is the appropriate mechanism to do so.⁴⁷

⁴⁶ GHD, 2013.

⁴⁷ Ministry for the Environment, 2019.

Incineration

Incineration is a form of waste-to-energy, which is the process of generating energy in the form of electricity and/or heat from the primary treatment of waste, or the processing of waste into a fuel source.⁴⁸ While incineration is widely used overseas, the high capital investment required and the need for relatively large quantities of waste makes this option less attractive for New Zealand. Waste-to-energy incineration plants would also cut across the overall Government goals of reducing waste production and moving towards a more circular use of resources. The current provisions in the WMA do not allow for a levy to be placed on waste-to-energy incineration plants.

The National Environmental Standards for Air Quality place controls on the disposal of waste through incineration.⁴⁹ The standards do not apply to incinerators converting municipal waste to energy, which would be subject to any relevant regional plan rules and obtaining resource consent approval. There are no plants of this type in New Zealand currently.

Exemptions for exceptional circumstances

The WMA allows for other specific disposal sites and/or waste types to be exempt from a levy in exceptional circumstances. At this time, the Ministry for the Environment is not aware of any exceptional circumstances that would justify any exemption, but feedback on this topic is welcomed.

Questions

4. Do you support expanding the landfill levy to more landfills, including:
 - i. waste disposed of at industrial monofills (class 1)
 - ii. non-hazardous construction, demolition waste (eg, rubble, concrete, plasterboard, timber) (class 2)
 - iii. contaminated soils and inert materials (class 3 and 4) (whether requiring restrictions on future use of site or not)?
5. Do you think that some activities, sites, or types of waste should be excluded from being classified as disposal facilities subject to the landfill levy, including:
 - i. cleanfills (class 5)
 - ii. farm dumps
 - iii. any others (eg, any exceptional circumstances)? If so, please specify.
6. Do you have any views on how sites that are not intended to be subject to a levy should be defined (eg, remediation sites, subdivision works)?

⁴⁸ Anaerobic digestion is another form of waste-to-energy, one which uses biological processes rather than thermal destruction/transformation to generate energy and other products. Anaerobic digestion is often used overseas as an alternative to landfilling for organic waste.

⁴⁹ Burning of waste at landfills is prohibited. High-temperature hazardous waste incinerators are also prohibited (with limited exceptions), as is the operation of incinerators at schools or healthcare institutions unless a resource consent has been granted.

Setting levy rates

There are a number of different approaches for estimating the direct environmental effects associated with disposal of waste to land (these are known as ‘externalities’ and include discharges to the air of greenhouse gases and other substances affecting local air quality; discharges of leachates and other pollutants into the soil and sub-soil water sources; general impacts on amenity values from the presence of the landfill and landfill traffic, eg, odours, operation noise and so on).⁵⁰ In New Zealand, most of these direct effects are managed under the Resource Management Act 1991 (RMA), and the costs of complying with relevant environmental conditions are incorporated into landfill gate fees. Additional costs associated with generation of greenhouse gases are managed under the Emissions Trading Scheme (ETS) (for municipal landfills).

However, it is common overseas to set levy rates at a higher level that reflects not only the cost of externalities, but also the indirect costs of disposal to landfill, including:

- the value lost from not recycling and reusing materials
- raising revenue for waste minimisation activities
- encouraging diversion of material from landfilling to reuse or recycling.⁵¹

While New Zealand’s current levy rate of \$10 per tonne on municipal waste raises around \$36 million per annum for investment in waste minimisation activities, the rate is set too low to directly incentivise much waste diversion, or to allow alternatives such as resource recovery and recycling to be competitive.

Some commentators have suggested that the New Zealand landfill levy should be set at significantly higher rates than at present. Eunomia, in a report for a consortium of waste stakeholders, concluded that progressively increasing the levy rate to \$140 per tonne for active waste by 2024 would have greater benefits than options applying a lower levy rate, including a higher level of diversion from landfill.⁵² A number of submitters (including several territorial authorities) to the Productivity Commission’s inquiry into a low emissions economy called for a landfill levy of \$150 per tonne.⁵³

In considering the appropriate levy rate for municipal landfills, key decision-making factors include:

- setting a rate that is high enough to **change behaviour and divert waste** from landfills, and make alternatives such as recycling, composting and reuse more competitive
- balancing the benefits of a higher landfill levy with potential **compliance, monitoring and enforcement risks**.

While the cost-benefit analysis (which is discussed further in [section 6 – Impacts of proposals](#)) shows higher net present values at higher levy rates, it is also likely that incentives for levy avoidance behaviour (including fly tipping and illegal dumping) will increase at higher levy rates.

⁵⁰ NZIER, 2019.

⁵¹ Ibid.

⁵² Eunomia, 2017.

⁵³ New Zealand Productivity Commission, 2018.

An additional consideration would be to not raise the levy too high before levy funds can be invested into effective waste minimisation infrastructure, so that businesses and households have a range of opportunities to decrease their waste disposal (rather than facing higher levy costs).

It is considered that the levy rates proposed in this document strike a balance between the factors above: they provide incentives for behaviour change and would make alternatives to waste disposal more viable but would not have a significant financial impact on households and businesses that do not dispose of significant amounts of waste.

The phasing of proposals is discussed further in [section 4 – Implementation](#).

Rationale for differential levy rates for different classes of landfill

The proposal is to:

- increase the existing rate for municipal landfills
- set new rates for other landfill types
- set levy rates for different classes of landfill, to reflect the potential for environmental harm of the waste that is disposed of, and the availability of alternatives to disposal to landfill.

Charging differential levy rates for a variety of reasons is common practice in many overseas jurisdictions.

Proposal to increase municipal landfill levy to \$50 or \$60 per tonne by 2023

The Government is proposing to increase the current levy rate of \$10 per tonne for municipal landfills in stages, to \$20 or \$30 per tonne and then to \$50 or \$60 per tonne. The proposed rates are based on assessment of approaches overseas, and balancing the calls from within New Zealand for a much higher rate against the need to ensure appropriate systems are in place to manage a higher rate.

It is proposed for the regulations to progressively increase the levy rate for municipal landfills up to \$50 or \$60 per tonne. The levy rate would then remain at that level pending the statutory review of the effectiveness of the levy in 2023. At that point, further increases might be required in order to achieve the levy's goals and raise sufficient levy revenue for investment in the substantial changes to New Zealand's waste and resource recovery systems outlined in the preceding section.

Research shows that thresholds at which alternative disposal options become commercially viable can have a big effect on how people respond to increases in the cost of disposal. The Ministry for the Environment has commissioned research on the charges for disposal at municipal landfills (ie, the gate fees likely paid by commercial, bulk operators). This suggests the cost varies across the country, but averages \$79 (including the current levy and ETS charges but excluding GST).

Table 4: Average commercial gate fee charges (including current levy and Emissions Trading Scheme charges, excluding GST)

Location	Weighted average gate fee	Quantity of waste charged at this rate
Upper North Island	\$59	1.95 million tonnes
Lower North Island	\$94	0.70 million tonnes
South Island	\$135	0.50 million tonnes
Total New Zealand	\$79	3.2 million tonnes

Source: unpublished research prepared for the Ministry for the Environment by Eunomia Ltd in 2019

Increasing the levy to \$50 or \$60 for municipal landfills would bring the total gate fee to an average of \$119 to \$129 per tonne. This is very close to the average rate of \$120 per tonne that Eunomia (2017) reports for processing and disposal of organic waste. Most other recovery activity would also be better able to compete with landfilling at that rate (see [appendix F](#) for indicative costs for disposal options, including various forms of resource recovery).

At the same time, this rate would not introduce significantly higher costs – particularly for households and small businesses – before alternatives to landfill have been developed.

\$20 per tonne levy proposed for industrial monofills (class 1)

A lower rate is proposed for these sites than for municipal sites, because waste avoidance opportunities are likely to be more limited. Government also considers that businesses disposing of waste to these sites will require some time to adjust to the introduction of a levy before further changes are introduced. In time, it may be appropriate for these sites to be levied at the same rate as municipal sites, to avoid the risk of waste being shifted from higher to lower cost sites.

\$20 per tonne levy proposed for construction and demolition fills (class 2)

As with industrial monofills, a lower rate is proposed than for municipal sites because these sites tend to take less active waste types, and to allow businesses using these sites time to adjust to the levy. Industry research indicates that there is significant potential for reuse and recycling of construction and demolition material, and it is expected that this rate will provide an incentive for more recovery.

There are alternatives to disposal such as crushing concrete for aggregate that may be able to directly compete with disposal to landfill at a rate of \$20 (see [appendix F](#) for details).⁵⁴

\$10 per tonne levy proposed for managed (class 3) and controlled (class 4) fills

A lower levy on controlled/managed sites would reflect that there may be more limited opportunities to divert materials to other uses. These sites take inert rather than active materials. Applying a lower levy rate to inert materials is in line with approaches commonly used overseas.

⁵⁴ Eunomia (2017) provides indicative charges for processing and disposal, including construction and demolition sorting ranging from \$5 to \$40 (average \$22.50). Construction and demolition/industrial fill gate fees are listed as \$25 to \$40 (average \$32.50).

Alternative levy rates

Comment is also invited on making by-products of recycling operations subject to a lower levy (eg, retaining the existing levy of \$10 per tonne). If this were to happen, the Ministry for the Environment would need access to sector-specific data from recycling operators to understand their current 'recovery rates' (ie, how much waste is produced from their current operations), and be able to monitor to ensure only specified wastes were being charged at the reduced levy rate.

Potential for overlap with the Emissions Trading Scheme

The Productivity Commission recommended that, when determining the rate of the waste disposal levy, the Government should consider whether a partial levy offset is required to avoid unnecessary overlap with the emissions price (including consideration of default and unique emissions factors in properly incentivising emissions reductions).⁵⁵ It is not proposed to partially offset the levy, because its purpose is to incentivise overall reductions in disposal of waste to landfill, rather than specifically organic waste (which is targeted by the ETS).

Questions

7. Do you prefer the proposed rate for municipal (class 1) landfills of:
 - i. \$50 per tonne
 - ii. \$60 per tonne
 - iii. other (please specify eg, should the rate be higher or lower)?

8. Do you think that the levy rate should be the same for all waste types? If not:
 - i. should the levy be highest for municipal landfills (class 1)?
 - ii. should the levy be lower for industrial monofills (class 1) than municipal landfills (class 1)?
 - iii. should the levy be lower for construction and demolition sites (class 2) than municipal landfills (class 1)?
 - iv. should the levy be lowest for contaminated soils and other inert materials (class 3 and 4)?
 - v. should a lower levy apply for specified by-products of recycling operations?

⁵⁵ Ministry for the Environment, 2019.

4 Implementation

Summary

Four options are proposed for phasing in levy changes:

- increasing the rate for municipal (class 1) landfills before expanding to additional sites (starting 1 July 2020) (option A – “**increase then expand**”)
- increasing the rate for municipal landfills at the same time as expanding to additional sites (starting 1 July 2021) (option B – “**increase and expand**”)
- first expanding to additional sites in 1 July 2021, followed by increases to the rate for municipal (class 1) landfills from 2022 (option C – “**expand then increase**”).
- an alternative ‘expand then increase’ option where higher rates are reached for municipal landfills by 2023 (option D – “**expand then higher increase**”).

Effective **compliance, monitoring and enforcement** is important for successful implementation.

A **levy investment plan** is proposed to ensure effective spending of levy funds. Comment is invited on principles to guide:

- the purposes for which levy funds may be applied
- what characteristics funded initiatives should have
- how decisions should be made.

Phase-in of levy changes

A phase-in of landfill levy changes will allow the waste management and resource recovery sector and other businesses sufficient time to prepare for new levy requirements and respond to stronger price signals. Preparation may include installing appropriate equipment, and processes for measuring and reporting waste. The Government will also need time to establish appropriate systems and processes to levy more sites (including back-end IT systems such as updates to the existing Online Waste Levy System).

Three implementation options are being proposed as outlined in [table 5](#).

Table 5: Phasing options for expansion and increase of the landfill levy

Landfill types	Options (all figures are GST exclusive)			
	A (Increase then expand)	B (Expand and increase)	C (Expand then increase)	D (Expand then higher increase)
Municipal landfills (class 1)	\$20 1 July 2020	\$20 1 July 2021	\$30 1 July 2022	\$30 1 July 2022
	\$30 1 July 2021	\$30 1 July 2022	\$50 1 July 2023	\$60 1 July 2023
	\$50 1 July 2022	\$50 1 July 2023		
Industrial monofills (class 1)	\$20 1 July 2021	\$20 1 July 2021	\$10 1 July 2021	\$10 1 July 2021
Construction and demolition fills (class 2)			\$20 1 July 2023	\$20 1 July 2022
Contaminated soils and inert materials (managed and controlled fill sites; class 3 & 4)	\$10 1 July 2023	\$10 1 July 2023	\$10 1 July 2023	\$10 1 July 2023

These place a different emphasis on the trade-offs between allowing:

- for a timely response to New Zealand’s waste minimisation challenges by raising revenue more quickly for investment in infrastructure and services that provide alternatives to disposal to landfill
- more time for regulated parties and the Ministry for the Environment to meet new requirements.

Expanding the landfill levy to additional sites is complex and requires a lead-in time of at least 12 months to ensure that appropriate systems, equipment and capabilities are in place, and to identify all affected landfills. Increasing the rate for existing landfills is less administratively complex, so requires less lead-in time although businesses would be better able to change their practices to reduce their waste disposal in response if they had a greater lead-in time.

Option A would raise the most additional levy revenue for investment in infrastructure and services in the short term. However, increasing the levy before expanding to additional sites (option A) means some types of waste will face increased costs while others will continue to not face any levy in the short term. There is also potential risk of greater diversion from municipal landfills to non-levied landfills.

Option B would raise the costs for existing levy payers at the same time as making new sites subject to a levy, while options C and D place the most emphasis on first making additional types subject to a levy before any increases.

This means option C would result in the lowest increase in levy revenue in the short term, and modelling suggests that reductions in waste disposal and increases in resource recovery would take longer to occur, although by 2023 options A-C are estimated to all result in the same per annum increase in levy revenue and resource recovery.

Option D balances the slower phasing of changes by moving to higher levy rates more quickly for municipal landfills (which would rise to \$60 by 2023) and construction and demolition and industrial monofills (which would rise to \$20 by 2022).

The Government’s implementation plan will focus on working with all regulated parties to make sure they understand their obligations. The Government is also aware that businesses will have commercial contracts in place, which is why the proposed changes would take effect on 1 July, to align with the financial year.

Question

9. Do you support phasing in of changes to the levy, and if so, which option do you prefer – increase then expand (option A); expand and increase (option B); expand then increase (option C); expand then higher increase (option D); or none of the above?

How the levy will be calculated and administered

The regulations that set out obligations for disposal facilities to pay a levy are called the Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Regulations 2009 (the Regulations). These Regulations will be revised or replaced as required to implement the results of this consultation. The Regulations allow for waste quantities to be calculated in three ways:

1. use of a weighbridge (which the majority of municipal (class 1) landfill sites use)
2. a conversion rate of cubic metres (often used when dealing with lorry and earth moving trucks) to tonnes. Conversion rates are detailed in section 14 and the Schedule of the Regulations.
3. approval may be sought from the Ministry for the Environment for the use of an average tonnage system that ascribes a weight to waste or diverted material that enters the facility, based on specific types of vehicle it is carried in.

The existing regulated conversion rate is based on the general weight of material. The regulations are focused on soils and clays and make general reference to conversion factors for some types of construction and demolition waste, but more specific conversion factors (eg, for bricks, sawn timber, plastic pipes) may be required.

Disposal facility operators also record and report on the weight of materials exiting the site once sorted as these can be reused or sent to different landfill classes where appropriate. The 2014 levy review raised a possible issue related to how landfill operators were interpreting what materials could be classed as 'recovered' (and therefore not subject to a levy).⁵⁶ This issue has now been largely clarified, with a standardised approach for how cleanfill materials can be treated as recovered materials when used as landfill cover. Although related questions come up from time to time, the Government considers the existing Regulations are still fit for purpose and does not propose any changes to the definitions in them, but invites comment on this.

Questions

10. Do you think any changes are required to the existing ways of measuring waste quantities in the Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Regulations 2009?
11. Do you think any changes are required to the definitions in the Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Regulations 2009?

Landfill classifications

Because there would be different levy rates for different landfill classes, it will be important to determine the appropriate classification for each landfill. At present, regional council plans and consent requirements do not match the proposed classifications based on the landfill guidelines (see [table 3](#) and [table 13](#)).

The Ministry for the Environment will develop an implementation plan to work with landfill operators on the appropriate classification for their site, including a dispute resolution process if the operator and the Ministry do not initially agree on classification.

Compliance regime

Expanding the landfill levy to more landfills and increasing the rate could result in more illegal disposal of waste, such as fly tipping, or disposing of waste to the wrong class of landfill.

An effective compliance regime will help address this risk. Central and local government all have roles to play in ensuring compliance with the landfill levy.

⁵⁶ Ministry for the Environment, 2014b.

Phasing the implementation of the changes will help with compliance, giving more time to work with the classes of landfill that will be affected by the changes.

Central government

The Ministry for the Environment is responsible for the compliance assurance programme that monitors disposal facilities, territorial authorities and the levy collector, to ensure they are fulfilling their obligations under the Waste Minimisation Act 2008 (the WMA) and the associated regulations, including collecting the landfill levy from disposal facility operators.

The Ministry for the Environment proposes increasing its own capacity for compliance assurance, funded through the increased levy revenue, with a focus on:

- communication to and education of landfill operators newly included in the expanded levy regime
- continuing to use external auditors when required, and site visits by compliance staff.

Proposals for new data and information reporting requirements, including a nationwide record of landfills and cleanfills currently operating (set out in [section 5 – Data proposals](#)) will help with the compliance programme.

Local government

Regional councils

Under the Resource Management Act 1991 (RMA), regional councils are responsible for monitoring and enforcing rules about the environmental effects of waste disposal on land. These include provisions to manage discharges, use an effective liner to prevent leaching and ensure only the consented waste type is disposed of at the site.

RMA controls will be important to ensure that levy avoidance behaviour does not lead to waste being disposed of in the wrong type of landfill, or into cleanfills. Illegal dumping can be addressed under the provisions of the RMA, but this can take time and be resource intensive. It can also be difficult for smaller authorities with limited resources and large areas to monitor.

Effective management of waste disposal requires national consistency in how landfills are defined, consented and managed. As noted, work is currently under way to revise the existing landfill guidelines to be more specific about the types of waste these fill types can take (see [table 13](#)).

In the short term, updated landfill guidelines will help regional councils include more effective consent conditions for new fill sites. There will be better clarity around what monitoring and reporting is required, and what waste types are acceptable at the specific type of fill. Effective levy implementation will include a medium- to long-term work programme to improve plan rules (in line with the updated landfill guidelines) and provide councils with better support for monitoring and enforcing rules.

Territorial authorities

Waste collection and disposal is a core service that territorial authorities are responsible for. Territorial authorities also have a role under the Litter Act 1979. Territorial authorities must appoint litter control officers, who have powers to prevent littering from occurring, can require

litter to be cleared, and issue infringement notices. Councils may spend considerable amounts on managing fly tipping.⁵⁷

People are not only motivated to fly tip because of the cost of appropriate disposal. Lack of access to services and facilities is often also important.⁵⁸ Levy funds have in the past been directed to litter minimisation projects. It would be beneficial for all council waste management and minimisation plans to include a section addressing the issues of fly tipping and illegal dumping.

Territorial authorities can improve their ability to regulate the deposit of waste and protect the public through bylaw-making powers under section 56 of the WMA, and sections 145 and 146 of the Local Government Act 2002 (LGA). For example, Christchurch and Auckland councils have both adopted bylaws under the WMA and the LGA to help manage disposal of cleanfill. Councils can also establish educational/awareness campaigns, or drop-off sites for waste. If bylaws are listed in council waste management and minimisation plans, levy funds could then be used for associated monitoring and enforcement activities.

The LGA has considerable regulatory and enforcement powers in relation to bylaws, which enable local authorities to regulate waste management, investigate, and prevent a person from committing a breach of a bylaw or an offence.

Investment plan to allocate levy funds

Expanding and increasing the landfill levy would lead to a significant increase in revenue – it is estimated that levy revenue could increase from approximately \$36 million per annum at present to up to \$247 million by 2023.

The National Resource Recovery Taskforce, led by the Ministry for the Environment, recently examined New Zealand's resource recovery sector and identified a number of gaps, particularly in relation to resource recovery infrastructure. The increased levy revenue provides an opportunity to address some of these gaps. Ensuring this additional revenue is spent where it can be most effective will require a more strategic approach to investment, governance and monitoring.

Current levy funding allocation

As outlined in [section 2 \(The current situation and the need for change\)](#), the current approach to investment of levy funds is specified in the WMA. Landfill levy revenue allocation is:

- 50 per cent to territorial authorities for waste minimisation activities specified in their waste management and minimisation plans
- the rest of the revenue (minus administrative costs) to projects that “promote or achieve waste minimisation”, mostly through the contestable WMF; projects are approved by the Minister for the Environment, following recommendations from a Waste Minimisation Fund Assessment Panel.

⁵⁷ For example, Rotorua Lakes Council spends about \$100,000 per year on cleaning up fly tipping. Auckland Council received more than 17,000 reports of dumped rubbish, and removing litter and fly tipping cost ratepayers more than \$1 million in 2017.

⁵⁸ Smith (2019) outlines three main causes, including financial gain or saving, lack of waste disposal facilities or access to them, and a perception that someone else will clear up the problem.

Levy investment plan – opportunity to comment on principles

It is proposed to develop a levy investment plan that will become an update to the New Zealand Waste Strategy.

The levy investment plan will guide government investment decisions on the WMF, and on other waste minimisation projects and activities (eg, those funded by other government agencies). It is also intended that the levy investment plan will inform territorial authorities' waste management and minimisation plans, which guide how territorial authorities spend their share of levy revenue. The assessment and eligibility criteria for the WMF will be updated (if necessary) following the development of the investment plan. [Section 5 \(Data proposals\)](#) outlines proposals that would require territorial authorities to report on their spending of levy money.

The proposed investment plan is aligned with what is currently permitted under the WMA, that is, that the revenue can only be spent on waste minimisation activities. If the WMA is reviewed in the future, there may be opportunities to amend the purposes for which levy revenue can be used, the hypothecation of the funds,⁵⁹ and the process under which funding decisions are made. The Government welcomes your views on what a potential review of the WMA could consider, as well as on the following principles for the levy investment plan.

Priority areas for investment

Funded projects must promote or achieve waste minimisation. The investment plan should have regard to national and regional priorities, and avoid duplication of initiatives that already exist or are being developed. Areas prioritised include:

- initiatives that address an area where there is demand for a particular service, coupled with **insufficient local provision**
- initiatives that have the potential to lead to **new methods** of waste minimisation and drive **innovation** in the sector
- creation of **onshore waste/materials (re)processing capability** to build resilience for external market changes and reduce reliance on overseas recyclers
- **monitoring and enforcement** of the levy, including measures to combat inappropriate forms of disposal (littering, fly tipping, illegal dumping)
- **data** on waste quantities and composition, behaviour or economic incentives⁶⁰
- **legacy and ongoing cases of non-compliant waste disposal methods** that are not aligned with the objectives of the WMA.

⁵⁹ Hypothecation (also known as ring-fencing or earmarking) is the dedication of the revenue from a specific tax for a particular purpose (ie, funds from the waste disposal levy are used to promote or achieve waste minimisation). The review of the WMA could consider whether it remains appropriate to have funds hypothecated.

⁶⁰ In order to meet criteria for spending of levy funds, such data would need to be collected as a precursor to effectively reducing waste and/or increasing reuse, recycling, and recovery of waste materials.

Types of initiatives

The levy investment plan will give guidance about the balance of initiatives sought:

- a mix of different sizes of initiatives is desirable:
 - **large-scale initiatives** are needed to make significant progress on New Zealand's waste minimisation objectives, and should form a large part of the investment of levy revenue
 - there is also a role for **smaller initiatives** to develop innovative approaches and raise public awareness of what is possible, as well as help embed more circular approaches to resource use in households and small businesses
- funding should primarily be **discrete** rather than ongoing; levy funding should be directed to initiatives that need capital at the start to cover setup costs that might otherwise be uneconomical, but over time can become self-sustaining. However, the Government is interested in views about how to ensure this would not unfairly penalise existing operators over new entrants to the sector
- projects should have **clear, time-bound strategic outcomes and objectives**. All projects supported by levy funding should have clear objectives and plans for how those objectives will be met, and project management and governance arrangements that are appropriate for each project's size and complexity
- where relevant, projects should seek opportunities to **partner with stakeholders** (including local government, private sector, iwi and communities)
- projects should **cover a range of investments** in infrastructure, education and awareness-raising, investigations and feasibility assessments and community projects.

Waste Minimisation Fund decision-making

Currently, funding from the WMF is allocated as grants. This may not be the best approach for a significantly increased fund with the potential for funding larger-scale projects. The Government proposes the following principles:

- grant-style application processes are most appropriate for relatively small-scale projects. More work is needed to reduce the relatively high cost of participation and administration for applicants and the Ministry for the Environment. Clearer guidance on the types of projects that are likely to be successful may help with this
- for large-scale projects, a more structured approach would be appropriate. This may involve central or local government and/or an advisory body identifying particular projects that would address a need, and seeking proposals. Funding for these investments could be delivered in line with funding models already used by government and social investment funds, including suspensory loans, equity shares or hybrid models aligned with performance measures (eg, loans converting to grants and vice versa)
- decision-makers could also ring-fence sums within the total levy funding for particular purposes (eg, infrastructure, compliance, innovation, circular economy, local government), and invite applications for funding for these.

Governance and advisory arrangements should be proportionate to the size and complexity of investments. Higher value projects will need stronger governance structures, which could include industry leaders, representatives from waste management forums and other state agencies and fund managers.

Questions

12. What do you think about the levy investment plan?
13. If the Waste Minimisation Act 2008 were to be reviewed in the future, what are the changes you would like a review to consider?

5 Data proposals

Summary

There are significant gaps in data about the quantity and type of waste disposed in New Zealand, as well as about the type and location of landfills. This section outlines proposals for improving this situation through regulations under section 86 of the Waste Minimisation Act 2008 (the WMA):

- a record of landfills, cleanfills and transfer stations
- data on waste quantity data from landfills, cleanfills and transfer stations, including the amount diverted and disposed of (if applicable), and the source of that material
- information from territorial authorities about their spending of levy money, and their performance in achieving waste minimisation outcomes.

The Ministry for the Environment only has comprehensive data on the volumes of waste disposed of at landfills that are currently subject to the landfill levy. There is limited data available on waste disposed of at other types of landfill, and on recycling.

Better data is needed to monitor compliance, to identify gaps and opportunities in waste minimisation activities, and to measure the success of waste minimisation projects and strategies.

Better waste data would also assist in the development of waste-related indicators as part of Stats NZ's Ngā Tūtohu Aotearoa (Indicators Aotearoa New Zealand) project. The project aims to provide a holistic view of wellbeing and sustainable development in New Zealand. These data proposals would assist in the development of indicators including volumes of waste generated in New Zealand, and material intensity (a measure of resources consumed to support economic activity).

The Minister for the Environment has broad powers under the WMA to require reporting from any parties, including disposal facility operators, territorial authorities and any others involved in waste management and minimisation (eg, recycling operators).

Aside from regulations under the WMA, other options for improving waste data in New Zealand include:

- encouraging voluntary data collection and reporting
- collecting data periodically (eg, via surveys)
- wider application of the New Zealand Waste Data Framework (NZWDF).⁶¹

However, a regulatory approach is considered likely to be most effective to gain timely, consistent access to data.

⁶¹ The NZWDF is the result of a project undertaken during 2014/15. It established definitions for waste data terms, protocols for managing data, and some other information. Future application of the NZWDF could include applying it to a broader range of landfill types (it currently focuses on levied, Class 1 landfills); and encouraging more territorial authorities to use the Framework (it is currently used by a small number of New Zealand councils).

Regulatory proposals

It is proposed that new mandatory reporting requirements would be introduced, to improve waste data. The Ministry for the Environment will be the agency responsible for storing and managing the data required in the following proposals. All regulations are proposed to take effect from 1 July 2021.

A record of New Zealand landfills, cleanfills and transfer stations

There is currently no complete list of all of the landfills and cleanfills (classes 1–5) and transfer stations⁶² that are currently operating in New Zealand, and no central mechanism for recording new disposal facilities. This makes it challenging for the Ministry for the Environment to gain a complete picture of waste production and disposal in New Zealand, or to identify new sites that should potentially be subject to a levy.

The Government proposes working with the waste sector and local government to develop a nationally consistent record of all waste disposal facilities in New Zealand, including their names, locations and (for landfills and cleanfills) the landfill classification (based on WasteMINZ's *Technical Guidelines for Disposal to Land*).⁶³

There are **two options** for how this could be done.

- For new facilities, (both those that are subject to a levy and those that are not), there could be a requirement for operators to notify the Ministry for the Environment at the time they begin operating. Territorial authorities and/or regional councils could provide new facilities with information about their obligations to notify the Ministry for the Environment as part of their consenting process. Where facilities are not consented (eg, cleanfills (class 5) are often permitted activities) and/or are already operating, the Ministry for the Environment may need to work with councils to ensure such facilities are able to be identified.
- Councils (regional councils and/or territorial authorities) could provide periodic reports to the Ministry for the Environment on the waste facilities present in their jurisdictions, based on consenting activity. As above, the Ministry for the Environment may need to work with councils to identify facilities where they do not require a consent (such as cleanfills (class 5)). The Ministry for the Environment could use this information to identify when and where new facilities had begun operating. This would need to occur often enough for the Ministry for the Environment to make new sites aware of their obligations in a timely fashion, but not so often as to be onerous. For example, a quarterly report could be made on an exceptions basis, ie, only if new information is available.

The Ministry for the Environment would assign the appropriate landfill class for application of the levy to new facilities as set out in [section 4 – Implementation](#).

⁶² A transfer station is a waste management facility with a designated receiving area, where waste collection vehicles discharge their loads so that waste from multiple collection vehicles can be consolidated into larger, high-volume transfer vehicles, and transferred to a final disposal site or further processing. In general, no long-term storage of waste occurs.

⁶³ WasteMINZ, 2018a.

Regulations for waste quantity data from landfills, cleanfills and transfer stations

It is proposed that all landfills and cleanfills (classes 1–5) and transfer stations would be required to report **waste quantity data** to the Ministry for the Environment. The Government currently requires levied sites to calculate the total tonnage disposed of to (and diverted from) levied landfills, and this is recorded in the Ministry for the Environment’s Online Waste Levy System (OWLS). It is proposed that this requirement be applied to all landfills, cleanfills and transfer stations. In line with current provisions, reporting for most sites would be monthly, but sites taking 1000 tonnes or less per year could request approval for an annual return.

More comprehensive data on waste quantities would:

- help inform investment in waste minimisation infrastructure and services, and monitoring the results of that investment
- allow more accurate reporting on waste statistics, including total and per capita waste production and trends over time, for a variety of domestic and international purposes
- improve estimates of greenhouse gas emissions from waste
- assist in compliance; eg, monitoring disposal patterns between different landfill classes over time.

The July 2021 start date should provide sites with enough time to adjust their systems for data collection and reporting.

Regulations requiring activity source and geographic source

It is proposed that under the new regulations, landfill and cleanfill sites (classes 1–5) and transfer stations would report **activity source** and **geographic source** data.

‘Activity source’ refers to the type of activity that generates the waste or diverted material.⁶⁴ The ‘geographic source’ of the waste and diverted material received would be based on local government boundaries (with an option of ‘unknown region of origin’ where required).

Many council-run levied facilities already capture activity source and composition information, which is fed into waste assessments that form the basis for waste management and minimisation plans. Some levied facilities already report activity source and/or composition information to the Ministry for the Environment on a voluntary basis.

Activity source data would be matched with waste composition data to provide an improved understanding of the types and quantities of waste being disposed of. These regulations could also require the collection of ‘composition’ information.⁶⁵ However, the Government’s proposal is that landfill-specific composition data would be collected from landfills and transfer stations via periodic surveys by the Ministry for the Environment. Regulations are not proposed to enable this periodic surveying. Surveys will be undertaken after gaining the agreement of relevant sites to enter their premises. This would give the Ministry for the Environment the ability to modify data collection protocols to collect additional information on wastes of interest as they emerge, and ensure national consistency in data collection.

⁶⁴ The activity sources used in the National Waste Data Framework are domestic kerbside, residential, industrial/commercial/institutional, landscaping, construction & demolition, special, and virgin excavated natural material.

⁶⁵ ‘Composition’ refers to the type of material(s) included in the waste (eg, wood, paper, green waste) and could be based on Solid Waste Analysis Protocols (Ministry for the Environment, 2002a).

The benefits of collecting information about activity source, geographic source and composition include:

- identifying resources currently being landfilled, allowing alternative management options (eg, resource recovery) to be considered
- assessing effectiveness of management (eg, if quantities of different waste types have changed as a result of management)
- information about the geographic source of waste will assist the Ministry for the Environment and territorial authorities to better understand waste flows between regions
- providing information about specific wastes of interest (eg, plastic, construction and demolition waste).

Landfills can only gather activity source data on waste that they receive directly, such as a load of construction and demolition waste that arrives at landfill from a construction site. However, many landfills receive a high proportion of their waste from transfer stations. This transfer station waste is a mix of several activity sources (eg, domestic kerbside, commercial waste), and it would not be practical for landfill operators to identify the various activity sources within a load of waste arriving from a transfer station. As such, it is proposed that transfer stations would also collect and report on activity source information. This will result in more detailed information about the make-up of waste being available.

Transfer stations usually have a weighbridge and/or the ability to collect data electronically. Therefore, the steps involved in collecting activity source information should be similar for transfer stations and landfills.

It is proposed that sites would report activity source and geographic source information on a monthly basis, which would align with the frequency for waste quantity data. Sites receiving less than 1000 tonnes per year could request approval for an annual return.

Regulations for territorial authority waste management and minimisation activities

New regulations could require territorial authorities to provide information to the Government about their spending of levy money, their performance in achieving waste minimisation (including provision of recycling and waste management services) and their performance against any standards that may be set under section 49 of the WMA.

Currently, territorial authorities' spending of levy money is voluntarily reported to the Ministry for the Environment. Information received from territorial authorities is sometimes not complete, and there is variation in how information is reported. The proposed regulations would make levy spend reporting mandatory, and aim to standardise the way information was reported.

It is also proposed that territorial authorities be required to provide information about their performance in achieving waste minimisation outcomes. As an example, performance information may include information on the waste and recycling services offered by a particular territorial authority. The Ministry for the Environment would work with territorial authorities to develop the type of information that would be required via these regulations, and the best way of collecting and reporting the data.

The information collected through these regulations would:

- provide a clearer picture of levy spending, and performance in achieving waste minimisation
- allow meaningful comparison amongst territorial authorities, and the measurement of progress toward targets (such as national or local goals to reduce waste volumes over time).

Users of waste data

The data gathered through the above proposals will be of interest to a variety of groups. Potential users will include (but may not be limited to) the following:

- the Ministry for the Environment
- other central government agencies (eg, Stats NZ, the Treasury)
- researchers and academic professionals
- territorial authorities.

Guidelines would be developed on how data is made available, including how data will be aggregated in order to maintain confidentiality.

Information about recycling activity

Recent work in response to international import restrictions has highlighted the importance of a robust New Zealand resource recovery sector. Improved data and reporting on resource recovery are likely to be an important component of this. While no specific regulations on recycling operations are proposed as part of this regulations, this may well be the subject of future regulatory proposals. Scoping work is likely to take place in 2020, which could lead to additional proposals in the future.

Questions

14. Do you agree that waste data needs to be improved?
15. If the waste data proposals outlined are likely to apply to you or your organisation, can you estimate any costs you would expect to incur to collect, store and report such information? What challenges might you face in complying with the proposed reporting requirements for waste data?

6 Impacts of proposals

The impacts of the levy will depend on how businesses and councils pass costs on to consumers and ratepayers, as well as the opportunities (and motivation) businesses and individuals have to increase their resource efficiency and minimise waste. This will affect both the extent to which potential benefits such as increased resource efficiency are realised, and what costs will be incurred.

The direct costs of an expanded and increased levy would be borne by landfill operators, who are likely to pass the costs on to customers. The financial impacts on customers are difficult to estimate because landfill operators are likely to adjust pricing and practices in different ways.

In general, the impact on individual households or businesses is likely to be at the low end of the scale, while larger producers of waste would be more exposed to any cost increases. Larger businesses are more likely to be able to use efficiencies of scale to minimise waste and the levy increase would create direct incentives for reducing waste production and/or increasing reuse and recycling.

WHAT RESOURCES COULD BE RECOVERED INSTEAD OF LANDFILLED?

Across New Zealand, over 6.7 million tonnes of material are disposed of in municipal, industrial, construction and demolition, controlled and managed landfills each year. An estimated 4.9 million tonnes are recycled or recovered in some way.⁶⁶

Materials that could be recovered instead of landfilled include:

Organic materials (green waste and food/perishable materials) generated by households and businesses (including food manufacturing and retailing businesses, cafes and restaurants). Potentially around 900,000 tonnes per annum are disposed of at municipal (class 1) landfills currently.⁶⁷ Benefits of keeping this material out of landfill include reduced greenhouse gas emissions, increased food security and reduced use of fossil-fuel based fertilisers. Alternatives to landfill include food collection services and commercial composting. However, services and infrastructure currently have limited capacity.⁶⁸

Packaging, including plastics (between 8 and 12 per cent of materials currently disposed of),⁶⁹ fibre (cardboard and paper) and metals. Depending on the material, values currently range from close to zero for some grades of plastic, up to \$1000 per tonne (for non-ferrous metals, ie, those that do not contain iron).⁷⁰

⁶⁶ Disposal and recovery estimates are from Eunomia (2017), pro-rated to actual 2018/19 disposals to municipal (class 1) landfills.

⁶⁷ The figure of 900,000+ tonnes of organic waste in municipal (class 1) landfills is derived from Eunomia (2017), table 1-7 (total disposals by activity source) and table 1-10 (composition of waste sent to municipal (class 1) landfills), and includes both food waste and green waste.

⁶⁸ For example, Envirofert in Auckland has a capacity of around 60,000 tonnes per annum, and takes a range of food and green waste. Living Earth in Christchurch can accept up to 50,000 tonnes of organic waste per year, mostly green waste and residential organic waste.

⁶⁹ Royal Society, 2019.

⁷⁰ Eunomia, 2017.

WHAT RESOURCES COULD BE RECOVERED INSTEAD OF LANDFILLED?

Businesses generally produce higher-quality recyclables with greater potential for reuse than the residential sector. Onsite separation to reduce contamination can also increase the value of recycling commodities. Recycling opportunities for packaging may be affected by import restrictions from countries such as China, however there are still export markets for some recyclables. Current onshore processing is already at capacity and future options are being assessed through the national resource recovery work programme, along with substantial work on improvements to kerbside recycling collections.

Minerals, including rubble and concrete from infrastructure and construction projects. Potential benefits include reduced use of virgin materials, with associated reductions in emissions associated with extraction and processing (concrete in particular has a high emissions profile). Concrete and rubble can be crushed and used as an alternative to quarried materials.

Timber – potential benefits include reduced use of virgin materials, reduced emissions and an estimated resale value of \$100/tonne,⁷¹ although treated timber may have more limitations for reuse or fuel.⁷² Depending on the type of timber, offcuts can be reused or used as an alternative fuel source.

Cost-benefit analysis

The Government commissioned the New Zealand Institute of Economic Research (NZIER) to model the costs and benefits of changes to the landfill levy. The modelling provides information on how waste production and disposal could change in response to changes to the levy, including:

- how resource recovery (ie, materials reused or recycled) might increase
- how disposal to landfill might decrease
- how waste might shift between different landfill types as the relative costs of different disposal options change
- what levy revenue might be under different scenarios
- how the costs of the levy (generally incurred by landfill operators, and passed on to producers of waste) weigh up against benefits.

Key cost-benefit analysis results are summarised in [table 6](#). The cost-benefit ratio of all four options is 1.01 (meaning the benefits modelled slightly exceed costs).

The cost benefit analysis focuses on direct benefits and costs. Due to data limitations, wider societal benefits from a different way of using resources are not quantitatively assessed in the model (eg, additional benefits from more efficient production, reduced use of virgin materials, reduced energy and resource use during extraction and production and increased employment and innovation).

⁷¹ Eunomia, 2017.

⁷² BRANZ, 2014a.

The main benefits modelled include:

- increased revenue from materials diverted from disposal and recovered for use
- benefits to communities from avoided environmental costs due to reduced landfilling (eg, greenhouse gas emissions, other emissions to air, leachates, amenity effects)
- added revenue to support waste minimisation for central and local government and recipients of funding.

How people respond to an increase in price (referred to as 'elasticity' in the modelling) depends on a range of factors, including:

- what alternatives might be available to them to reduce their waste and/or increase their recycling
- the relative importance of cost, convenience, labour, timing and other factors that influence waste management decision-making.

In general, if the model assumes lower responsiveness to the price signal, then the value and quantity of recovered materials is assumed to be lower, and revenue increase is assumed to be higher. Conversely, if responsiveness is higher, then value and quantities of recovered materials are higher and levy revenue is lower (because overall disposal to landfill is lower). This is the aim of the proposals, and the range of other measures being put in place are intended to help ensure stronger price responsiveness. At the upper end of responsiveness, by 2030 the model indicates that material recovery could increase by close to 630,000 tonnes (at a value of \$5.9 million).

The model assumes the main costs include:

- levy payments
- administration costs (eg, installing a weighbridge if required, operating systems, calibration and maintenance)
- costs for the Ministry of the Environment to administer the levy.

In general, costs modelled are likely to be at the upper end of the spectrum, as not all sites would need to put in place a weighbridge.

Table 6: Cost-benefit analysis results for expanding and increasing the landfill levy

Option	Effective date	Total levy revenue	Additional tonnes recovered (not landfilled)	Value of additional tonnes recovered (\$)	Avoided emissions (tonnes CO ₂ equivalent)	Net jobs created	Net present value	
A	Increase then expand	1 July 2020	\$68m	32,165t	\$301,034	37,239	30–45	Cumulative net present value (2020 – 2030) \$16.79 million
		1 July 2021	\$153m	156,152t	\$1.46 million	107,095	155–230	
		1 July 2022	\$216m	225,630t	\$2.11 million	189,933	220–340	
		1 July 2023	\$220m	230,928t	\$2.16 million	193,729	230–345	
		Cumulative (2020 – 2023)	\$657m	644,875t	\$6.04 million	527,996	N/A	
B	Increase and expand	1 July 2020	\$36m	0	0	0	0	Cumulative net present value (2020 – 2030) \$12.49 million
		1 July 2021	\$121m	123,408t	\$1.15 million	67,355	125–190	
		1 July 2022	\$156m	158,963t	\$1.49 million	109,023	160–240	
		1 July 2023	\$220m	230,928t	\$2.16 million	193,729	230–345	
		Cumulative (2020 – 2023)	\$533m	513,298t	\$4.80 million	370,106	N/A	
C	Expand then increase	1 July 2020	\$36m	0	0	0	0	Cumulative net present value (2020 – 2030) \$8.06 million
		1 July 2021	\$63m	45,332t	\$424,258	13,807	45–70	
		1 July 2022	\$130m	112,815t	\$1.06 million	94,967	110–165	
		1 July 2023	\$220m	230,928t	\$2.16 million	193,729	230–345	
		Cumulative (2020 – 2023)	\$449m	389,075t	\$3.64 million	302,503	N/A	
D	Expand then higher increase	1 July 2020	\$36m	0	0	0	0	Cumulative net present value (2020 – 2030) \$20.56 million
		1 July 2021	\$63m	45,332t	\$424,258	13,807	45–70	
		1 July 2022	\$156m	158,963t	\$1.49 million	109,023	160–240	
		1 July 2023	\$247m	264,862t	\$2.48 million	234,912	265–400	
		Cumulative (2020 – 2023)	\$502m	469,156t	\$4.39 million	357,742	N/A	

Source: NZIER, 2019. Figures may not sum to stated total due to rounding. All figures given are for the middle of three ‘elasticity’ rates modelled – 0.23 – ie, how responsive people will be to changes in the cost of disposal. As an example, for elasticity of -0.2, a levy that raised disposal price by 10 per cent would reduce volumes being disposed in landfills by 2 per cent. Emissions are reported as average reduced emissions of CO₂ equivalent over the period 2020 to 2030. Different studies estimate the employment opportunities in resource recovery and reuse compared to landfilling in different ways, but an average across studies suggests for every five jobs in landfilling, 15 to 20 jobs could be created in resource recovery (for every 10,000 tonnes of waste) (see [table 10](#) for details).

The waste and recycling sector

The levy may currently represent a small part of municipal landfill operator public 'gate fees' or commercial rates they charge to accept waste, meaning it is hard to accurately predict impacts of changes to the levy. These rates vary depending on economies of scale, the age of the landfill, its capacity to accept waste and other commercial factors such as the degree of local competition. One recent report cites bulk rates as variable as \$20 to \$190 per tonne.⁷³ Research commissioned by the Ministry for the Environment shows large discrepancies in how much it costs to dispose of waste at a landfill between different parts of the country (table 4).

Appendix D outlines current information on disposal sites across New Zealand, including the numbers in each landfill class. Municipal landfills are typically owned and/or operated by one of two large-scale waste management companies, often in conjunction with local government. These companies offer a range of services, from commercial and residential waste collection to recycling and other diversion (eg, of green waste) and waste disposal. Other landfill types have a diverse range of operators.

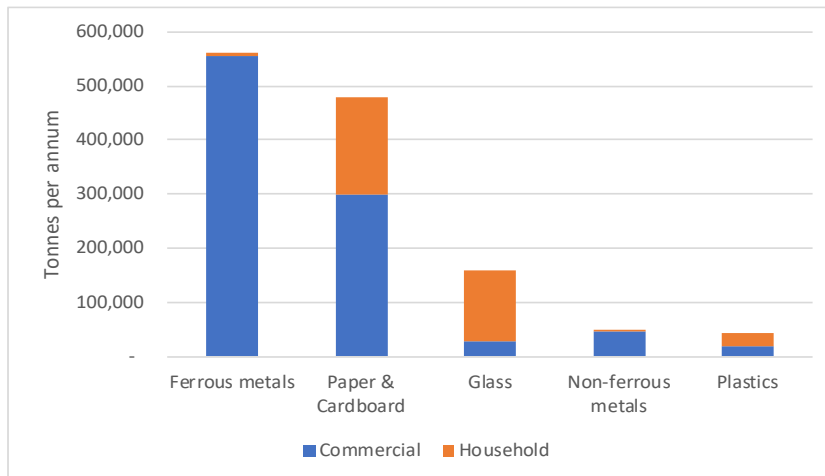
The Government cannot predict how the sector will pass increased levy costs onto customers because waste services are subject to varying degrees of price competition in different areas. As a general rule the assumption is that landfill operators will directly pass the cost of an increased levy on to customers. Smaller landfills may find it harder to incorporate higher costs, and landfills not currently subject to a levy will also have new costs associated with installing a weighbridge or alternative system for accurately measuring and reporting weights.

An existing trend is the consolidation of material sent to disposal from small, local (usually council-owned) landfills to large regional facilities (usually private sector or public/privately owned). This trend may continue or be exacerbated under a higher levy. It is also likely that some material for disposal may 'migrate' to cheaper disposal options (eg, some material currently being disposed of at construction and demolition fills may shift to controlled or managed fills).

The New Zealand recycling sector manages approximately 1.295 million tonnes of material per annum through a network of kerbside and business collections, drop-offs and secondary collection and sorting. The majority of all recycling categories are processed offshore at present. Ferrous metals, paper and cardboard make up the bulk of this, with glass also being important. Material from household sources (largely paper, glass and plastics) makes up approximately a quarter (27 per cent) of the total quantity. Glass is the only material for which households are the main source (figure 3).

⁷³ Eunomia, 2017.

Figure 3: Recycling commodities in New Zealand from commercial and household sources



Source: Eunomia (2018)

Recycling operators could benefit from increased demand for recycling services as it becomes less attractive to send material to landfill, changing the cost-benefit ratio for operations to invest in new recycling operations. For example, a recent cost-benefit analysis of construction and demolition waste shows net returns to developers would increase as the landfill levy increases.⁷⁴ There will be opportunities, including investment of levy funds into new recycling infrastructure and services, with appropriate investment guided by the national resource recovery and levy investment plan work programmes.

There is also potential for increased costs for recycling operators who need to dispose of the by-products of their operations. For example, scrap metal processors may extract valuable metals from cars and whiteware, but are left with low-value residual materials such as plastics, which will cost more to dispose of.

Ensuring landfills and cleanfills can meet data requirements

The cost of calculating waste volumes to comply with proposed levy and data regulations will vary depending on which method is chosen. Upfront costs per facility could be around \$5000 for ensuring recording systems are accurate enough for using a conversion factor (assuming a weighbridge is already installed).

Weighbridge installation is estimated at \$60,000 to \$80,000 per facility. Ongoing costs for each facility could be around \$5500 per annum for weighbridge maintenance and calibration (or \$1000–\$5000 per annum for those without weighbridges to ensure average tonnages or conversion factors are applied correctly).

As noted above, it is not anticipated that smaller sites would install a weighbridge, so the costs for most managed or controlled fills and cleanfills (classes 3–5) would be at the lower end of the estimates.

It may cost any given facility up to \$10,000 per annum to administer the collection of waste information and report it to the Ministry for the Environment (ie, costs of a staff member responsible for reporting).

⁷⁴ Rohani et al., 2019.

In relation to reporting of activity and geographic source, the Ministry for the Environment estimates that municipal landfills would face low costs in meeting these regulations, which may involve slight adaptation of existing weighbridge software and reporting systems. Costs for other sites are harder to estimate, as they may not currently collect activity and geographic source information, and may need to establish new tools or systems in order to do so. The Ministry for the Environment would also need to work with the sector to modify the existing New Zealand Waste Data Framework so that it is appropriate for other landfill classes (the Data Framework currently focusses on levied, Class 1 landfills only).

Construction and demolition

Based on current disposal patterns (as outlined in [table 15](#)), the Ministry for the Environment estimates current levy-related waste disposal charges for the sector of around \$6.6 million per annum (see [appendix G](#) for details of calculations and associated assumptions). The levy-related cost of disposal under the proposed new levy could be between \$68.9 and \$75.55 million per annum ([table 19](#)). The construction sector contributed nearly \$15 billion to the economy in 2017.

The landfill levy could increase the levy-related costs of disposing of waste from the average house build from less than \$10 at present up to between \$70 and \$75.⁷⁵ The levy-related cost of disposing of waste from a house demolition is estimated to be around \$25 at present.⁷⁶ This could rise to between \$280 and \$300 under the proposed levy rates (with opportunities to minimise or avoid these costs if additional recovery of construction materials takes place).

While this is not necessarily a significant sum relative to overall construction or demolition costs for a single dwelling, it would be a more substantial increase for a large-scale developer. As noted above, larger developers would potentially have more opportunities for reducing waste through efficiencies of scale, for example through using standardised housing designs.

Businesses

The main sectors of the economy that generate waste include construction and demolition (covered above), hospitality, manufacturing, wholesale and retail trade and the primary sector.

Current levy-related charges are estimated at around \$10.4 million per annum (based on estimated waste production). Total waste disposal costs are difficult to estimate, since larger customers typically have bulk rate agreements. Most businesses have a commercial waste collection service, with fees covering both collection and disposal.

Levy-related charges at municipal landfills are estimated to increase to between \$52.2 and \$62.61 million under a levy at \$50 to \$60 per tonne ([appendix G](#)). A smaller amount of commercial waste is also currently disposed of at construction and demolition fills, which are proposed to be subject to a \$20 levy (\$5.9 million in total).

⁷⁵ Based on an estimated 5 tonnes of waste per newbuild three-bedroom house (using the mid-point of 4 tonnes – Rohani et al. (2019) and Beacon Pathway (2013)), and assuming the split of that waste between different disposal options based on Eunomia (2017) (ie, some of that waste already goes to municipal (class 1) landfills, while other components go to construction and demolition sites and so on).

⁷⁶ Based on an estimated 20 tonnes of waste, drawing on Envision (2019) and assuming disposal of waste based on Eunomia (2017).

Table 20 provides more information on different sub-sectors of businesses and their estimated waste production patterns and associated disposal costs. Because sector-by-sector waste production and disposal data is not available for New Zealand, these figures are indicative only.

A major source of industrial and commercial waste is likely to be hospitality businesses. As an example of the likely impact of increasing the landfill levy, a small-scale survey of 20 cafes across New Zealand found that, on average, cafes and restaurants produced 2.8 tonnes of food waste per year. This means that a landfill levy increase to \$50 to \$60 per tonne would result in an increased food waste disposal cost of between \$112 and \$140 per year for the average cafe or restaurant owner (assuming no diversion to composting, animal feed or other options for dealing with organic waste).⁷⁷ Across the hospitality sector, levy-related costs for hospitality could increase from \$4 million currently to between \$21 and \$25 million by 2023. Hospitality sales exceeded \$11 billion in 2018.

Primary sector

Around an estimated 7.5 per cent of rural waste is disposed of at municipal landfills,⁷⁸ and would be subject to a higher levy based on these proposals. Current levy costs for this are estimated to be \$1.3 million, with potential to rise to between \$6.3 and \$7.6 million at a higher levy rate (table 18).

Small amounts of waste from other primary sectors including forestry, fisheries and aquaculture are likely also disposed of at landfills. These types of waste can already sometimes serve as 'feedstocks' for other businesses (a critical part of a circular economy), and it is expected similar opportunities will be developed in the future. For example, funding from the Waste Minimisation Fund (the WMF) is currently being used to investigate alternative uses of grape marc (a by-product of wine-making).⁷⁹

Territorial authorities

Territorial authorities have obligations under the WMA to ensure that waste is collected promptly, efficiently and regularly. They receive 50 per cent of funds raised by the landfill levy, to use in accordance with their waste management and minimisation plan. They are therefore likely to face both increased costs (for disposal of household waste) but will gain increased benefits through additional levy funds to use for local waste minimisation priorities.

The cost to councils can be estimated based on the share of waste to municipal landfills that comes from kerbside collections (around 35 per cent – see table 15, appendix D for details). The levy-related costs of disposing of this waste would be around \$12.7 million at present, which could rise to around \$63.4 million under a levy of \$50 per tonne or \$76.1 million at a levy of \$60 per tonne.

Some councils cover waste services from general rates, while others have a targeted rate or adopt a user-pays approach (eg, through purchase of rubbish bags). Many councils subsidise kerbside recycling collections to help achieve their waste minimisation goals and meet public expectations for service delivery.

⁷⁷ WasteMINZ, 2018b.

⁷⁸ Eunomia, 2017.

⁷⁹ Eder, 2019.

Indicative total disposal costs, of which the levy forms a part, are outlined below.

Figure 4: Landfill levy as a proportion of total household waste disposal costs

For a \$2.50 bag



Source: based on an indicative example for an average-sized rubbish bag (6.5 kilograms), and a landfill gate fee of \$120 (including the current levy). Actual prices will vary from place to place.

Data proposals

Costs for the proposed reporting requirements would be likely to vary between councils. Councils already provide some of the information to the Ministry for the Environment on a voluntary basis, but it is proposed that this process would be improved. Councils are also required to undertake a waste assessment for their waste management and minimisation plan every six years. It is envisaged that improved national data on waste will help councils fulfil this obligation.

Households

The costs to individuals will depend on their consumption patterns, and how councils and businesses pass on costs. Waste from households contributes about 40 per cent of deposits to municipal landfills, the majority coming from kerbside collections.

If an individual has an average per capita waste production (314 kilograms per annum), the direct cost of the levy to them may increase from \$3.14 plus GST (at a levy of \$10 per tonne) to \$15.70 plus GST per year at a levy of \$50 per tonne or \$18.84 at a levy of \$60 per tonne.⁸⁰

⁸⁰ Per capita waste production is taken by dividing total household waste ('Domestic kerbside' and 'Other residential' categories in table 16, appendix D) by New Zealand's population as at September 2019 (4.79 million). This differs from the figure of over 700 kilograms cited by the Organisation for Economic Co-operation and Development (OECD) for New Zealand (which includes all municipal waste, not just that attributed to households).

Because of the different approaches taken by different councils, it is difficult to estimate the impact on individual ratepayers of a change to the levy. Some studies indicate individuals may not be particularly responsive to changes in the price of waste disposal. This is partly because residential waste production is typically measured by volume rather than weight.⁸¹

Figure 4 provides an overview of typical costs for household waste collection and disposal, of which the levy is only a small component. In this example, with an increased levy, the new bag cost is estimated to rise from \$2.50 to \$2.76 (at \$50 per tonne – 10 per cent) or \$2.83 (at \$60 per tonne – 11.5 per cent). Assuming one rubbish bag per week, annual costs would increase from \$130 to between \$143 and \$147.

There may be a bigger impact on households in rural areas, including Māori communities in remote areas, where collection and disposal costs are often higher and there are fewer opportunities for waste diversion.

The proposed levies could also have a disproportionate impact on low-income families. These impacts will depend in part on how businesses and councils pass increased costs on to consumers and rate payers, and in part on how consumers respond. Some of the options for reducing waste involve higher upfront costs, which are paid off over time (eg, switching to reusable options or buying in bulk).

The impact on rural and low income households is likely to still be low. Thought should still be given, however, to mitigating any disproportionate impacts, including through targeted use of levy funds. The Government also encourages territorial authorities to consider impacts in their regions, and look at ways of using increased levy funding to help mitigate impacts, for example through subsidising reusable products and assisting with recycling of bulkier or problematic items.

An example for rural areas is the New Zealand Rural Waste Minimisation Project (partially funded through the WMF) which provides waste pick-ups and events in rural communities, and opportunities for farmers to recycle or safely dispose of agricultural waste such as agrichemical containers, used motor oil and soft plastics such as silage and bale wrap.

Central government

The main impacts of the proposals on central government are an expansion of the Ministry for the Environment's current role in collecting and administering the levy and administering waste minimisation projects funded by the levy. Levy funds can be used to cover these administrative costs, so overall it is likely to be fiscally neutral although there is likely to be a need for additional resources to assist with effective implementation in the short term.

Questions

16. What are the main costs and benefits for you of the proposals to increase the levy rate for municipal landfills, expand the levy to additional sites and improve waste data?

⁸¹ Covec, 2012.

7 Consultation process

Timeframes and next steps

This consultation ends at 5pm on 3 February 2020.

Process following consultation

The feedback to this consultation will inform the Government's final decisions about proposed changes to the landfill levy and waste data. After the consultation period has ended, the Ministry for the Environment will prepare a report that summarises the submissions and recommends changes in response. If Ministerial and Cabinet approval is given, the proposed changes will be made around mid-2020, and implemented progressively from 1 July 2020 or 2021 (depending on which option is chosen).

Implementation planning will ensure parties who are to be regulated are aware of and can meet any new obligations.

How to give your views

The Government welcomes your feedback on this consultation document. The questions asked in sections 3, 4, and 5 and summarised in this section are a guide only, and all comments are welcome. Equally, you do not have to answer all the questions. Please explain the reasons for your views and provide supporting evidence where appropriate to help with the Ministry for the Environment's analysis of submissions.

Questions

1. Do you agree the current situation of increasing amounts of waste going to landfill needs to change?
2. Do you have any comments on the preliminary *Review of the effectiveness of the waste disposal levy* outlined in appendix A?
3. Do you think the landfill levy needs to be progressively increased to higher rates in the future (beyond 2023)?
4. Do you support expanding the landfill levy to more landfills, including:
 - i. waste disposed of at industrial monofills (class 1)
 - ii. non-hazardous construction, demolition waste (eg, rubble, concrete, plasterboard, timber) (class 2)
 - iii. contaminated soils and inert materials (class 3 and 4) (whether requiring restrictions on future use of site or not)?
5. Do you think that some activities, sites, or types of waste should be excluded from the landfill levy, including:
 - i. cleanfills (class 5)
 - ii. farm dumps
 - iii. any others (eg, any exceptional circumstances)? If so, please specify.

6. Do you have any views on how sites that are not intended to be subject to a levy should be defined (eg, remediation sites, subdivision works)?
7. Do you prefer the proposed rate for municipal (class 1) landfills of:
 - i. \$50 per tonne
 - ii. \$60 per tonne
 - iii. other (please specify, eg, should the rate be higher or lower?)
8. Do you think that the levy rate should be the same for all waste types? If not:
 - i. should the levy be highest for municipal landfills (class 1)?
 - ii. should the levy be lower for industrial monofills (class 1) than municipal landfills (class 1)?
 - iii. should the levy be lower for construction and demolition sites (class 2) than municipal landfills (class 1)?
 - iv. should the levy be lowest for contaminated soils and other inert materials (class 3 and 4)?
 - v. should a lower levy apply for specified by-products of recycling operations?
9. Do you support phasing in of changes to the levy, and if so, which option do you prefer – increase then expand (option A); expand and increase (option B); expand then increase (option C); expand then higher increase (option D); or none of the above?
10. Do you think any changes are required to the existing ways of measuring waste quantities in the Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Regulations 2009?
11. Do you think any changes are required to the definitions in the Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Regulations 2009?
12. What do you think about the levy investment plan?
13. If the Waste Minimisation Act 2008 were to be reviewed in the future, what are the changes you would like a review to consider?
14. Do you agree that waste data needs to be improved?
15. If the waste data proposals outlined are likely to apply to you or your organisation, can you estimate any costs you would expect to incur to collect, store and report such information? What challenges might you face in complying with the proposed reporting requirements for waste data?
16. What are the main costs and benefits for you of the proposals to increase the levy rate for municipal landfills, expand the levy to additional sites and improve waste data?

You can make a submission:

- Using the online submission tool, available at www.mfe.govt.nz/consultations/landfill-levy **This is the preferred way to receive submissions.**
- By downloading a copy of the submission form to complete and return to us. This is available at www.mfe.govt.nz/consultations/landfill-levy. The Ministry for the Environment can also post a copy of the submission form to you on request.
- Write your own submission.

If you are posting your submission, send it to: Waste disposal levy expansion consultation, Ministry for the Environment, PO Box 10362, Wellington 6143.

Please include:

- the title of the consultation: Reducing waste: a more effective landfill levy
- your name or organisation
- your postal address
- your telephone number
- your email address.

If you are emailing your submission, send it to LandfillLevyConsultation@mfe.govt.nz as either a:

- PDF
- Microsoft Word document (2003 or later version).

Submissions close at 5pm on 3 February 2020.

Contact for queries

Please direct any queries to: Email: LandfillLevyConsultation@mfe.govt.nz

Phone: +64 4 439 7400 Freephone: 0800 499 700

Publishing and releasing submissions

All or part of any written submission (including names of submitters) may be published on the Ministry for the Environment's website, www.mfe.govt.nz. Unless you clearly specify otherwise in your submission, the Ministry for the Environment will consider that you have agreed to have your submission and your name posted on its website.

Contents of submissions may be released to the public under the Official Information Act 1982, if requested. Please let us know if you do not want some or all of your submission released, stating which part(s) you consider should be withheld and the reason(s) for withholding the information.

Under the Privacy Act 1993, people have access to information held by agencies about them. Any personal information you send to the Ministry for the Environment with your submission will only be used in relation to matters covered by this document. In your submission, please indicate if you prefer your name not be included in the published summary of submissions.

If you have any questions about the publishing and releasing of submissions, or if you would like to access or correct any personal information you have supplied, please email info@mfe.govt.nz.

Appendix A: Statutory review under section 39 of the Waste Minimisation Act

A statutory levy review takes place every three years. As part of the review, the Minister for the Environment considers whether, since the last review, the amount of waste:

- disposed of in New Zealand has decreased
- reused, recycled, or recovered in New Zealand has increased.

The Minister may also consider any other matters that they think relevant. The Government intends to use this consultation process as an opportunity for stakeholders to provide input on the effectiveness of the waste levy. As part of the process of compiling policy advice for Cabinet after this consultation, the Ministry for the Environment will also provide a formal review of the effectiveness of the levy. The preliminary understanding is as follows:

Table 7: Assessment of the effectiveness of the levy

Statutory criteria		
Since the last review, has the amount of waste:	Preliminary view Outcome	Comment
disposed of in New Zealand decreased	Probably not	Disposal to levied landfills has increased by around 15 per cent since the 2014 levy review (see table 9). Waste trends for non-levied sites are less well understood, but disposals to these sites are assumed to also be increasing.
reused, recycled, or recovered in New Zealand increased.	Probably not but insufficient data to determine	The Government lacks consistent national data to answer this question (see section 5 – Data proposals for how it is proposed to improve data availability in the future). Recycling of some materials such as polyethylene terephthalate (PET) plastics are likely to have increased since 2017, with expanded capacity of onshore options such as Wellington-based company Flight Plastics, which can recycle certain plastics (resin code 1) domestically. However, other materials have been affected by import restrictions on recycling commodities imposed by China. In particular, recycling of lower value plastics (resin codes 3–7) may have decreased since 2017.
Other factors		
Progress meeting the recommendations of the last review:	Preliminary view Outcome	Comment
Focus 1. Strategy Develop a clear vision, strategy and set of outcomes for the future direction of the waste disposal levy. Develop an aligned approach to invest funding into projects that are targeted, measurable and provide the greatest returns.	Under way (this consultation)	Section 4 – Implementation outlines the Government’s proposed approach for a strategy to guide investment in waste minimisation.

Other factors		
Progress meeting the recommendations of the last review:	Preliminary view	
	Outcome	Comment
Focus 2. Data Invest in developing a national waste data collection and evaluation framework that targets key information to prioritise waste issues and measures effectiveness of the waste disposal levy.	Under way (this consultation)	Section 5 – Data proposals outlines the Government’s proposals for improving waste data.
Focus 3: Approach Develop and implement a staged approach to applying the waste disposal levy across additional classes of landfills, and assess the role of a differential rating system.	Under way (this consultation)	Section 3 – Levy proposals outlines the Government’s proposals for applying the levy across additional landfill classes and applying a differential rating system.

Table 8: Total gross, diverted and net tonnages of waste disposed of at levied waste disposal facilities for the 2017 and 2020 review periods

	2013/14 to 2015/16	2016/17 to 2018/19	Difference	% change
Total gross tonnage	10,327,187	11,432,012	1,104,825	10.70
Total diverted tonnage	1,092,987	783,751	-309,236	-28.29
Total net tonnage	9,234,200	10,648,261	1,414,061	15.31

Source: reported returns from the Online Waste Levy System. Note that disposal facility operators may amend their reports up to two years after submitting them, so figures may be subject to slight change.

Appendix B: International examples of landfill levies

Table 9: Examples of landfill levies in other countries

Authority/ jurisdiction	Single or multiple	Type and levy rate \$ per tonne
Australia		
New South Wales	Multiple	Metropolitan AU\$143.60 (NZ\$ 151.78) Regional AU\$82.70 (NZ\$ 87.41); Metro – virgin excavated natural material AU\$129.20 (NZ\$ 136.56); Regional – AU\$74.40 (NZ\$ 78.64); Liquids – AU\$76.50 (NZ\$ 81.28)
Queensland	Multiple	Treated timber sawdust/shavings (AU\$75) (NZ\$80.22); regulated waste category 1 AU\$155 (NZ\$165.79); category 2 AU\$105 (NZ\$112.31); other AU\$75 (NZ\$80.22)
South Australia	Multiple	Metropolitan Adelaide AU\$110 (NZ\$ 116.26); Non–Metropolitan Adelaide AU\$55 (NZ\$ 58.13) Metro Adelaide Liquid AU\$38.30 (NZ\$ 40.48) per kilo-litre; Non–Metro Liquid AU\$38.30 (NZ\$ 40.48) per kilo-litre; Metro Scrap metal – AU\$62 (NZ\$ 65.53) Rural – AU\$31 (NZ\$ 32.76)
Tasmania	None	No mandatory state-wide levy at present but some councils have a AU\$5 levy in place. A government waste management plan proposes a levy by 2021.
Victoria	Multiple	Metropolitan Municipal AU\$65.90 (NZ\$ 69.65); Metropolitan Industrial AU\$65.90 (NZ\$ 69.65) Rural Municipal AU\$33.03 (NZ\$ 34.91); Rural Industrial AU\$57.76 (NZ\$ 61.05)
Western Australia	Multiple	Putrescible rate AU\$70; Inert rate AU\$70 (= 1.5 m3) (NZ\$ 73.99)
Europe		
Austria	Multiple	Inert wastes €9.20 (NZ\$16.08); residual waste €20.60 (NZ\$36.01); hazardous €29.80 (NZ\$52.10); untreated municipal solid waste in a lower standard landfill €87 (NZ\$152.10)
Belgium	Multiple	Flanders: Combustible waste €101.90 (NZ\$178.15); non-combustible waste €56.05 (NZ\$97.99) Wallonia: General €113.01 (NZ\$197.57); non-combustible €62.16 (NZ\$108.67) (reference year 2017 – adjusted to annual consumer price index)
Czech Republic	Multiple	500 Kc (NZ\$33.89) per tonne for municipal waste; additional fees for other types of waste, including a ‘risk fee’ for hazardous waste.
Denmark	Single	475 DKK per tonne (NZ\$111.18)
Finland	Single	€70 (NZ\$122.38)
France	Multiple	€150 per tonne (NZ\$262.24) in ‘non-authorized’ landfills; €15–€32 (NZ\$26.22–NZ\$55.94) in ‘authorized’ landfills (depending on landfill characteristics eg, biogas capture)
Hungary	Single	6000 HUF (NZ\$31.41)
Italy	Multiple	Varies between regions, ranging from €5.20 (NZ\$9.10) to €25.82 (NZ\$45.14) per tonne.

Authority/ jurisdiction	Single or multiple	Type and levy rate \$ per tonne
Netherlands	Single	Previously: Inert waste €13.11 (NZ\$22.92) per tonne; combustible or biodegradable waste €107 (NZ\$186) per tonne. Currently: due to very low rates of landfilling, the landfill tax was cancelled for a time and then re-introduced at a single rate of This means option C would result in the lowest increase in levy revenue in the short term, and modelled reductions in waste disposal and increases in resource recovery would take longer to occur, although by 2023 options A-C are estimated to all result in the same per annum increase in levy revenue and resource recovery. 32.12 (NZ\$55.84) per tonne.
Poland	Single	170 PLN (NZ\$68.15) per tonne in 2019; 270 PLN (NZ\$108.24) per tonne from 2020
Portugal	Single	€9.90 (NZ\$17.31) per tonne in 2019; €11 (NZ\$19.23) per tonne in 2020
Republic of Ireland	Single	€75 (NZ\$131.12) per tonne
Spain	Multiple	Varies by region, ranging from €12 (NZ\$20.98) (Extremadura, La Rioja) to €41.3 (NZ\$72.20) (Catalonia, Valencia); also some variation by waste type
Sweden	Single	500 SEK (NZ\$80.77)
UK, Scotland	Multiple	Higher rate £91.35 (NZ\$ 173.33); Inert £2.90 (NZ\$ 5.50) Aggregates levy approx. £2 (NZ\$ \$3.79); Energy from Waste approx. £83 – £110 (NZ\$157–208)

Table 10: Estimates of employment opportunities associated with resource recovery and/or recycling and waste disposal (per 10,000 metric tonnes)

Source	Jobs created in recycling	Jobs created in disposal	Country of focus
Eunomia (2017)	Reprocessing 20–110 (depending on materials eg, lower for glass, paper but higher for plastics, non-ferrous metals) (weighted average 45)	1	New Zealand
Access Economics Pty Limited (2009)	9.2	2.8	Australia
Friends of the Earth (2010)	50–62	11	United Kingdom
Goldstein & Electris (2011)	16.7	5.6	America
Platt et al (2013)	4.1	2.2	America
Gill & James (2014)	23.9–40.5	7.4	Canada
US EPA (2016)	8.5–17.3	Not provided	America
Average	22.5–27.8	5	Overall ratio: 4.5–5.6

Table 11: Policy rationale for differential rates applied in overseas jurisdictions

Material to which differential levy is applied	State or country	Differential rating	Inferred or stated policy objective
Asbestos	Queensland, South Australia, Victoria (Australia)	Zero rated	Ensure appropriate disposal
Waste resulting from a declared natural disaster, or a serious local event (by notification)	Queensland (Australia)	Zero rated/exempt	Not stated (presumed to reduce the cost to communities)
Litter and illegally dumped waste collected as part of a community activity (by application)	Queensland (Australia)	Zero rated/exempt	Not stated (presumed to reduce the cost to communities)
By-products from recycling operations (eg, shredder floc)	South Australia, Victoria (Australia)	Lower rated	Reduce costs to recycling operators
Waste from recycling activities that meet a recycling efficiency threshold	Queensland (Australia)	50 per cent discount (by application)	Reduce costs to recycling operators
Waste received as part of charity donations that cannot practically be reused, recycled or sold	Queensland, South Australia, Victoria (Australia)	Lower or zero rated	Reduce costs to those involved in recovery of materials
Clean earth	Queensland (Australia)	Exempt	
Non-hazardous and low-polluting materials	Scotland, United Kingdom	Lower rated	Largely inert materials
Prescribed industrial wastes from manufacturing industries	Victoria (Australia)	Higher rated	To reflect the level of hazard posed and provide a financial incentive to industry to accelerate waste avoidance, reuse and recycling
Specific categories of highest risk regulated waste, eg, liquid or solid wastes containing heavy metals and harmful chemicals	Queensland (Australia)	Higher rated	Presumed as above

Source: compiled by Ministry for the Environment, 2019, from publicly available information

Appendix C: Alternative approaches and data gaps

Developing the proposals for this consultation document also involved considering how the landfill levy could be changed to make it more effective. Five broad options were considered:

- applying the levy more narrowly
- applying a flat levy rate to all landfills
- applying different levy rates to different types of waste
- setting a higher levy rate
- applying different levies in different areas.

These options are not mutually exclusive; for example, setting a much higher rate could be combined with other options such as applying the levy more narrowly.

The key areas of uncertainty in the analysis are also discussed further below.

Applying the landfill levy more narrowly

The landfill levy could be applied to classes of landfill that take active waste – broadly speaking, municipal landfills (class 1), industrial monofills (class 1), and construction and demolition fills (class 2) – but not to landfills that take inert material (that is managed and controlled fills, classes 3 and 4). This would still increase levy revenue, but would focus on the landfills with greatest potential for environmental harm.

This option could have lower implementation costs and risks as the levy would be applied to far fewer additional landfills – approximately 30 extra landfills (compared with over 400 if classes 3 and 4 are included). It is difficult to estimate the additional tonnage to which the levy would be applied if classes 3 and 4 were also included, due to current data limitations and the changing way in which landfill classifications are now used.

However, not applying the levy to all landfills would make it more attractive to divert waste from levied to non-levied landfills, which don't have appropriate controls for dealing with active waste. This would also create a significant compliance and enforcement burden on local authorities, as well as an increased risk of environmental harm. It's proposed that the levy for classes 3 and 4 be set at a lower rate to reflect that these landfills take waste with lower potential for environmental harm. Excluding classes 3 and 4 from the levy would make it more difficult to monitor, and there would be foregone opportunities for further waste reduction (eg, reduced incentives for onsite remediation of contaminated sites, or use of concrete and rubble as an alternative to quarried materials).

Applying a flat levy rate to all landfills

Applying the same levy rate across all landfills was also considered. It would be administratively simpler to do this, and it could also reduce incentives to dispose of waste in inappropriate landfills (although there is likely to still be a price differential between different landfill classes for other reasons, including the higher level of environmental controls required for landfills that take active types of waste).

However, one of the objectives of the levy is that the rate should better reflect the true cost of disposal to landfill. It is more equitable to apply a rate that reflected the potential for harm from the material being disposed of. This in turn would reflect the increased costs of managing landfills to minimise emissions and hazards.

It is common practice overseas for landfill levies to differentiate between active and inert wastes.

Applying different levy rates to different types of waste

There is provision in the Waste Minimisation Act 2008 (the WMA) to set different levies for different types of waste. Various New Zealand commentators consider this would be the fairest approach to applying a levy, because the same rate would apply regardless of where the material is disposed of. This could be used to ensure a level playing field for operators of different landfill classes.

It is common for overseas jurisdictions to make specific materials subject to either a lower or higher rate than general waste, to achieve various policy objectives (table 11). Landfill bans are also used overseas to control specific materials from being disposed of in landfills (eg, organic waste or items that could be recycled).

This is an option that could be considered in future. It would be better to expand the landfill levy to all classes of landfill (excluding cleanfill and farm dumps) first, and establish the necessary systems and infrastructure for implementing the levy, including collection of data, before seeking to apply levy rates to different types of waste. It would be challenging to impose obligations on landfill operators and seek levy payments on specific waste types at sites that are not otherwise subject to the levy.

Once the levy has been expanded to all landfill types, there is potential in future to use some of these more specific tools (and/or a targeted levy for specific waste types) and develop a more fine-tuned approach to specific wastes of interest. Further regulatory changes could be made in the future, for instance following the 2023 levy review. At that point, the Government plans to also have improved waste data available to help identify which wastes should be subject to a specific levy and what the impact of those proposals might be.

Applying different levies in different areas

There may be scope in the WMA to set different levy rates for different disposal facilities. One potential concern the Government is aware of is that, because of economies of scale, smaller areas may already face higher costs of waste disposal, and this may be exacerbated by higher levy rates.

The WMA provisions could be used to set a lower levy rate in rural areas, if there was concern that a higher levy would make a landfill uneconomic and therefore create challenges for disposing of waste in that area. However, there has been experience in Australia of substantial cross-boundary movements of waste, reflecting regional differences in levy rates, with associated compliance and monitoring challenges. At this point the Government does not propose any lower rate for specific waste disposal facilities.

Setting a higher levy rate

A number of other jurisdictions charge significantly higher rates for their landfill levy – for example, the UK’s highest levy rate is set at NZ\$173.33 per tonne, and in Metropolitan New South Wales, the levy rate is NZ \$151.78 per tonne. The approach of many countries is to use an ‘escalator’ approach with regular increases in levy rates.

Some commentators have suggested that the New Zealand landfill levy should be set at significantly higher rates than at present (eg, \$140 to \$150 per tonne).⁸²

Setting the levy at a much higher rate would make alternatives to landfill more competitive, could create greater incentives for recycling, and would lead to a much greater increase in levy revenue. The cost-benefit analysis for the proposals also shows high net present values at higher levy rates.

As noted in [section 3 – Levy proposals](#), setting the rate of the landfill levy involves a careful balance between:

- setting a rate that is high enough to change behaviour and divert waste from landfills
- balancing the benefits of a higher landfill levy with potential compliance, monitoring and enforcement risks.

It is considered that the levy rates proposed in this document strikes a balance between these factors: they provide incentives for behaviour change, and would make alternatives to waste disposal more viable but would not have a significant financial impact on households and businesses that do not dispose of significant amounts of waste.

It takes time for alternatives to landfill to be developed. While a much higher levy rate would create more revenue and make recycling, composting and other alternatives more viable, it would still take time for these to be developed.

Setting the levy at a much higher rate within the timescales of the proposal could place an undue burden on households and businesses, particularly in the short to medium term when there are limited alternatives to disposal to landfill. It is also considered that the full benefits identified in the cost-benefit analysis are less likely to be achieved because of the likely increase in incentives for levy avoidance behaviour (such as fly tipping) at higher levy rates. This would create an enforcement and compliance burden for local authorities and central government. However, it may well be the case that New Zealand’s landfill levy could rise further in the future (ie, after 2023), so it can continue to be effective at driving waste minimisation and meeting New Zealanders’ expectations for a lower-waste future.

Uncertainties and constraints

As identified in [section 5 – Data proposals](#), there are substantial gaps at present in the availability of data on waste and recycling in New Zealand. Key limitations and the approach to those limitations is summarised in [table 12](#), below.

This consultation will provide an opportunity for further input on these questions. The implementation phase will also be critical for minimising impacts and ensuring regulated parties are aware of and can adapt to any new requirements.

⁸² Eunomia, 2017 and submitters cited in New Zealand Productivity Commission, 2018.

Table 12: Data limitations and approach

Data limitations – lack of knowledge on:	Impact	Approach
Where current landfills are, how to contact them, and what their appropriate classification should be (ie, what types of waste they are consented to accept, and what types of waste they do accept)	Challenges in regulating sites and ensuring potentially regulated parties are aware of proposals and potential impacts.	The Ministry for the Environment has worked with regional councils to update existing information, and will develop an implementation plan for ongoing identification and agreed classification of sites. The proposed new record of landfill, cleanfill (class 1-5) and transfer station sites will help address this problem for the future.
The main industries and economic activities that produce waste and the opportunities for waste reduction	Lower confidence in predicting outcomes and impacts of proposals eg, how specific sub-sectors will respond.	Existing sources of data have been used (including domestic and international studies). ⁸³ Additional feedback is being sought from this consultation. Future data needs will be scoped further and data will be progressively improved.
How businesses and individuals will respond to any change in the price of waste disposal, including whether price responsiveness (elasticity) will be low, moderate or high	Anticipated benefits and costs of proposals are difficult to fully quantify.	The cost benefit analysis models three elasticity options to reflect different potential outcomes.
Some benefits of a more circular way of using resources are difficult to quantify	The cost benefit analysis is not able to directly estimate the full range of potential benefits.	Quantitative cost benefit analysis outcomes should be considered alongside a broader understanding of potential outcomes. For example, using resources in a more circular way could result in reduced use of virgin materials, reduced power during production and consumption, and potentially additional employment.
Whether illegal dumping or fly tipping will increase in response and how effective measures to control these activities will be, and how much support councils will need to carry out their roles	Some anticipated benefits may not eventuate if waste is disposed of illegally.	Councils may be able to provide more information on this during consultation, which can be incorporated into implementation planning.
Regional variations in access to and costs of waste management services	Impacts of proposals on different regions may be less well understood.	Research was commissioned on costs of disposal to class 1 (municipal) landfills (ie, the gate fees for bulk customers) around the country, and there is high confidence in this information. However, less information is available on gate fees for other landfill classes. Stakeholders may be able to provide further information on this during consultation, which could be incorporated into implementation planning.

⁸³ For example Eumonia (2017) is a comprehensive analysis of New Zealand’s waste and recycling sector. O’Farrell *et al.* (2013) provides Australian estimates that have been drawn on to provide potential waste production estimates for different sub-sectors of the economy (used in conjunction with relevant New Zealand employment statistics from Stats NZ).

Appendix D: Landfill classification

There are three guidance documents regarding landfill classification and management:

- *Landfill Guidelines. Towards Sustainable Waste Management in New Zealand* (Centre for Advanced Engineering (CAE), 2000)
- *A Guide to the Management of Cleanfills* (Ministry for the Environment, 2002b)
- *Module 2 – Hazardous Waste Guidelines: Landfill Waste Acceptance Criteria and landfill classification* (Ministry for the Environment, 2004).

In accordance with these documents, landfill classes were defined as follows:

- **class A** landfills meet, or are consistent with, the site selection and design standards outlined in the Centre for Advanced Engineering’s Landfill Guidelines (CAE, 2000). Class A landfills are sited in areas that reduce the potential for adverse environmental effects, have engineered systems to provide a degree of redundancy for leachate containment and collect landfill leachate and landfill gas
- **class B** landfills are existing landfills that do not meet the site selection and design standards outlined in the Centre for Advanced Engineering’s Landfill Guidelines (CAE, 2000) and are consented to accept general domestic and commercial waste. They have limited or no engineered systems to collect landfill leachate or gases, and may be in areas that pose a risk to the environment (eg, sited over highly permeable sands and/or gravels, active faults, or floodplains)
- **cleanfill** landfills are promoted as low-cost alternatives to landfills for ‘inert’ waste that will have potentially no adverse environmental effect, or only minor effects. The cleanfill site selection process can be less stringent. There is no need for the construction of liners, leachate collection systems or gas control systems, and the required environmental monitoring can be reduced. The result is a significant reduction in the cost of establishing and operating a cleanfill, compared to a landfill.

All regional authorities require resource consents for solid waste disposal. However disposal of ‘cleanfill’ material is either a permitted activity, or is permitted below certain threshold quantities. Cleanfill definitions can vary at the regional level, although most have adopted or reference the Ministry for the Environment’s *Guide to the Management of Cleanfill Guidelines*.⁸⁴ In general, older consents have fewer consent conditions and varying definitions of cleanfill. Resource consents issued under older regional rules often only refer to landfill as class 1, with classes 2–4 under a generic ‘cleanfill’ description.

The updated *Technical Guidelines for Disposal to Land*⁸⁵ were published on the WasteMINZ website in August 2018. This revision introduces newer classes of landfills, specific waste acceptance criteria, siting and construction, operations and management practices, and specific monitoring required to ensure good practice is occurring.

Landfills are classed into five types. Essentially, the old class 3 (controlled) landfill was split into two: class 3 (managed) landfills that will take more contaminated soils that may require greater management, and the Class 4 (controlled) landfill that will take less contaminated soils and other low-grade inert waste.

⁸⁴ Ministry for the Environment, 2002b.

⁸⁵ WasteMINZ, 2018a.

Table 13: Landfill class rationales

Class	Common name	Waste material	Material source	Contaminant risk
1	Municipal solid waste landfill	Non-hazardous waste. Typically mixed waste from multiple sources and containing a high content of organic material; may include waste cited for classes 2, 3, 4 and 5. May be developed for specific industrial wastes (eg, monofills or residual waste sites).	Households, industry, institutions, construction sites, contaminated sites.	Leachate, contaminated stormwater and landfill gas.
2	Construction and demolition (C&D) landfill	Unsorted/uncontrolled construction and demolition material. May be developed for specific industrial wastes (eg, monofills or residual waste sites).	Construction sites, demolition material, soil from areas with significantly different chemical properties.	Leachate and contaminated stormwater; low risk of landfill gas, but may get smell due to hydrogen sulphide. Dust.
3	Managed fill	Inert material (eg, selected inert construction or demolition material) or soils with specified maximum contaminant concentrations greater than applicable local background concentrations.	Selected materials from construction and demolition sites, earthworks and site remediation.	Contaminant mobility, risk to groundwater and surface water. Dust.
4	Controlled fill	Inert material (eg, selected inert construction or demolition material) or soils with trace element concentrations greater than applicable regional background concentrations.	Selected materials from construction sites and demolition sites and earthworks.	Minor risk of contaminant mobility and sediment contamination of surface water. Dust.
5	Cleanfill	Virgin excavated natural material (VENM).	Slips/road clearance, construction site clearance, earthworks surplus.	Sediment contamination of surface water. Dust.

The Government has a range of estimates for the historical portion of waste that each class of landfill accepts and number of known, consented landfills and cleanfills but these vary significantly as demonstrated in [table 14](#). Much of the data on the number of landfills taking waste was from two surveys (in 2014 and 2017). In 2019, the Ministry for the Environment contacted regional councils to update the results of the 2017 survey.

Table 14: Estimates for waste coverage and estimated disposal facilities

Class of facility	Information source for estimates					
	Tonkin & Taylor (2014)		MWH (2017)		Research undertaken by Ministry for the Environment in conjunction with regional councils in 2019 (unpublished)	
	% of waste	Sites	% of waste	Sites	% of waste	Sites
Class 1 Municipal	13.8	34	Not reported	9 (unlevied) 46 (levied – Ministry for the Environment records)	N/A (data not robust)	55 (41 levied)
Class 2 Construction and demolition	26.5	44		46		22
Class 3 Managed	0.01	5		139		56
Class 4–5 Clean	58.8	163		81		226 (Class 4 only)
Unknown class				106		
TOTAL		246		427		359

Table 15: Estimated waste composition and disposal per annum

Activity source and/or waste type	Types of waste produced by that sector	Potential for reduction of this waste	Tonnes of waste potentially expected from this activity source, by disposal type					
			Municipal landfills (class 1)	Construction and demolition fills (class 2)	Controlled and managed fills (class 3 and 4)	Farm dumps	Cleanfills (class 5)	Recovery (reused, recycled)
Construction and demolition	Rubble, concrete, timber, plasterboard, metal	Moderate to high (depends on local conditions eg, transport and labour costs)	661,474 tonnes	1,765,904 tonnes	55,185 tonnes	0	1,120,374 tonnes	1,409,808 tonnes
Virgin excavated natural materials	Rocks, clay, soil	Variable. Not proposed to be subject to levy if disposed of to cleanfill sites	0	588,634 tonnes	14,716 tonnes	0	2,912,971 tonnes	0
Industrial, commercial, institutional	Organics, packaging, paper and card, steel	Moderate (eg, organic waste collection, additional recycling)	1,043,481 tonnes	294,317 tonnes	0	0	224,075 tonnes	2,587,970 tonnes
Domestic kerbside	Food waste (40–50%), packaging (plastics, paper, glass, metals), textiles, nappies	High (eg, recycling, organic waste collection)	1,268,822 tonnes	0	0	0		420,192 tonnes
Other residential	Household waste dropped off to landfill directly (includes higher proportion green waste)	Low to moderate	235,829 tonnes	0	0	0		290,054 tonnes
Rural waste	Organic and inorganic waste	Moderate (depends on distance)	126,008 tonnes	0	0	1,557,033 tonnes		32,339 tonnes
Special	eg, medical waste, bio solids	Low	211,518 tonnes	147,159 tonnes	3,679 tonnes	0	224,075 tonnes	11,573 tonnes
Landscape	Green waste, earthworks	Unknown	133,178 tonnes	147,159 tonnes	0	0		148,543 tonnes
Totals			3,680,310 tonnes (actual)	2,943,173 tonnes (estimated)	73,579 tonnes (estimated)	1,557,033 tonnes (estimated)	4,341,180 tonnes (estimated)	4,900,479 tonnes (estimated)
Estimated percentage of waste subject to a levy (excluding waste disposed of to cleanfill)			45% subject to a levy	55% not subject to a levy			N/A	N/A

Source: adapted from Eunomia, 2017 (taking figures from Solid Waste Analysis Protocol (SWAP) surveys at various landfill sites) and pro-rated to reflect actual disposal to municipal (class 1) landfills in 2018/19 (based on reports to the Online Waste Levy System); ie, the total figure for municipal landfills is the actual reported quantity; all other figures are estimated, based on Eunomia (2017), including the split by activity source. Note Eunomia (2017) divided landfills in four classes, while this document uses five categories, as outlined in table 3. Note that Eunomia (2017) does not differentiate between class 1 landfills that are municipal (and subject to the levy) and class 1 landfills that are industrial monofills (and not subject to a levy). This category may be included with construction and demolition (class 2) in Eunomia's report.

Appendix E: Industrial monofills

Table 16: Indicative waste types, quantities, and minimisation opportunities for waste disposed of at industrial monofills (class 1)

Source of waste material	Indicative number of sites (if known)	Locations	Indicative quantity / type of waste (if known)	Minimisation opportunities
Steel manufacturing	1	Glenbrook	140,000 tonnes per annum ⁸⁶	Some potential for use as a construction material, based on international experience (eg, Nwaubani, 2018).
Pulp and paper	4	Kawerau (x2) Napier Whakatane	Around 150,000 tonnes per annum sent to landfill across the sector (around a third of total waste production)	The percentage of waste going to landfill varied substantially between categories, from 100 per cent of boiler ash and causticizing residuals, to less than one per cent for wood yard debris (McGrouther <i>et al.</i> , 2013). A 2013 strategy identified boiler ash as a priority for potential waste minimisation.
Saw mills	6	Taranaki (x2), Horizons, Rotorua, Ohakune, Western Bay of Plenty	Timber waste (eg, bark, soiled woodchip/saw dust)	Biofuel. Other uses including animal bedding for the dairy industry, compost, garden mulch, commercial motorway mulch and playground bark. ⁸⁷
Bio-solids	1	Mangere	Around 120,450 tonnes per annum ⁸⁸	Land-based disposal (eg, Tinholt, 2019).
Aluminium manufacturing	1	Tiwai Point (NZAS landfill)	Around 1000 tonnes ⁸⁹	Not known. New Zealand's Aluminium Smelter (NZAS) reports it has a strategy in place that aims to reduce generation and take advantage of reuse, recycling and energy recovery opportunities. During 2018 approximately 2,500 tonnes of waste metal, paper, plastics, and cardboard were recycled.
Other	Approx. 1		Organic materials (eg, food waste)	Unknown.

⁸⁶ As reported by NZ Steel (www.nzsteel.co.nz/sustainability/redefining-waste/).

⁸⁷ For example, a \$359,000 grant from the Waste Minimisation Fund was made in 2017 to Goodwood Ltd to facilitate collection and reuse of wood waste in the Tauranga region (where over 2000t of untreated timber was estimated to go to landfill per annum).

⁸⁸ As reported by Watercare (<https://www.watercare.co.nz/Help-and-advice/Environment-and-community/Rehabilitating-Puketutu-Island-with-biosolids>).

⁸⁹ New Zealand's Aluminium Smelter reports its 2018 waste disposal to landfill as general waste 373m³; clean waste 563m³; carbon material 4771m³. Assuming an average conversion of 0.200 tonnes/cubic metre (as outlined in the Schedule to the Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Regulations 2009) gives an estimate of 1,141 tonnes (possible range 742 to 8,561 tonnes depending on the density of the material).

Appendix F: Indicative costs of different disposal options in New Zealand

Table 17: Indicative charges for processing or disposal of waste (\$ per tonne)

Activity			
Selected resource recovery options	Low	High	Average
Organic waste processing (ie, composting or similar)	\$80	\$160	\$120
Green waste processing	\$30	\$50	\$40
Stockfood	\$25	\$40	\$32.50
Construction and demolition sorting	\$5	\$40	\$22.50
Transfer stations	\$110	\$180	\$145
Selected disposal options	Low	High	Average
Municipal (class 1) landfill gate fee (including levy and ETS charges but not GST)	\$59	\$135	\$79
Construction and demolition (class 2) or managed or controlled fill site (class 3 or 4) gate fee	\$25	\$40	\$32.50
Cleanfill (class 5) gate fee	\$-	\$15	\$7.50

Source: Eunomia (2017) and unpublished data prepared for the Ministry for the Environment in 2019.

Appendix G: Indicative waste disposal costs by sector

This appendix outlines potential short-term costs of the proposed levy changes to the following sectors of the economy: agricultural (table 18); construction and demolition (table 19); and industrial, commercial, and institutional (table 20). In each case, Eunomia (2017) has been used as a source of current waste disposal patterns and associated costs. Because the Eunomia report is from 2017 and is based on 2015/16 data, the Ministry for the Environment has used the proportions reported in Eunomia, pro-rated to total disposals to municipal landfills (as reported to the Ministry for the Environment’s Online Waste Levy System). Costs are estimated at the date of full implementation of levy rate proposals ie, 2023. This means the estimated costs are the same for implementation models A, B and C (which reach the same rate in 2023), but different for option D (which reaches a higher levy rate in 2023 for municipal landfills). The estimated future charges are not modelled (ie, they are based on current waste disposal patterns, so are likely to be an over-estimate).

For the industrial, commercial and institutional division, the estimates draw on Australian research on waste disposal by sub-division, since it is not aware of any New Zealand-based estimates.⁹⁰ Stats NZ employment figures have been used to come up with a New Zealand estimate of waste disposal for each of the sub-divisions in the Australian study (both Australia and New Zealand use the Australian and New Zealand Standard Industrial Classification (ANZSIC), so the sub-divisions are defined in the same way).

The combined estimate for waste disposal from the industrial, commercial and institutional division has then been pro-rated to current disposals reported for municipal landfills for 2018/19, and assuming the split between divisions from Eunomia (2017). This is necessarily based on an assumption that waste production and disposal practices in New Zealand and Melbourne are the same. Since this assumption is not likely to be entirely accurate, the figures should be viewed as indicative rather than definitive.

Table 18: Indicative waste disposal costs for agriculture sector based on current estimated charges and possible future charges

Activity source	Estimated waste disposal		Current indicative levy cost		Estimated future levy costs	
	Farm waste disposed of to municipal landfills	Farm waste disposed of to farm dumps	Farm waste disposed of at municipal landfills	Farm waste disposed of in farm dumps	Farm waste disposed of at municipal landfills (@\$50/tonne)	Farm waste disposed of in farm dumps
Rural	126,008 tonnes	1,557,033 tonnes	\$1.26 million	N/A	Options A–C \$6.30 million Option D \$7.56 million	N/A

Source: Ministry for the Environment, drawing on Eunomia (2017)

⁹⁰ O’Farrell et al, 2013.

Table 19: Indicative waste disposal costs for construction and demolition sector based on current estimated charges and possible future charges

Activity source	Estimated waste disposal				Current indicative levy charges				Estimated future levy charges				TOTAL
	Class 1	Class 2	Class 3/4	Cleanfill	Class 1	Class 2	Class 3/4	Cleanfill	Class 1	Class 2	Class 3/4	Cleanfill	
Construction and demolition (C&D)	661,319	1,765,904	55,185	1,120,374	\$6.61 million	0	0	0	Options A–C \$33.07 million Option D \$39.68 million	\$35.32 million	\$551,850	0	\$68.94 million to \$75.55 million
Virgin excavated natural material (VENM)	0	588,634	14,716	2,912,971	0	0	0	0	0	\$11.77 million	\$147,716	0	\$11.92 million
TOTAL	661,319	2,354,538	69,901	4,033,345	\$6.61 m	0	0	0	\$33.07 to \$39.68m	\$47.09m	\$699,566	0	\$80.86to \$87.47m

Source: Ministry for the Environment. Disposal quantities are based on proportions by activity source reported in Eunomia (2017), pro-rated to actual 2018/19 disposal figures as reported to the Online Waste Levy System. Current indicative levy charges are based on a \$10 levy for waste disposed at municipal (class 1) landfills, while estimated future charges are based on waste disposed of at class 1 landfills being subject to a \$50 levy (options A–C) or \$60 levy (option D), class 2 \$20 and class 3 \$10.

Table 20: Indicative waste disposal costs for the Industrial, commercial, and institutional waste sector based on estimated current and possible future charges

Australian and New Zealand Standard Industrial Classification (ANZSIC)	Waste per Equivalent Fulltime Employee (FTE) (kgs)	NZ FTEs	NZ waste by sub-sector (tonnes)	Per cent	Estimated current levy costs (\$)	Estimated future levy costs – options A–C	Estimated future levy costs – option D
H44 Accommodation and food services	3,470	164,700	415,706	40	\$4.16 million	\$20.79 million	\$24.94 million
C11 Manufacturing	1,330	249,600	241,468	23	\$2.41 million	\$12.07 million	\$14.49 million
G39 Retail trade	890	217,500	140,803	13	\$1.41 million	\$7.04 million	\$8.45 million
F00 Wholesale trade	1,120	111,800	91,080	9	\$910,800	\$4.55 million	\$5.46 million
R00 Arts and recreation services	1,370	40,900	40,757	4	\$407,574	\$2.04 million	\$2.46 million
P00 Education and training	250	187,500	34,096	3	\$340,961	\$1.70 million	\$2.05 million
Q00 Healthcare and social assistance	140	239,500	24,389	2	\$243,891	\$1.22 million	\$1.46 million
O00 Public administration and safety	240	136,400	23,812	2	\$238,116	\$1.19 million	\$1.43 million
M00 Professional, scientific and technical services	90	161,500	10,573	1	\$105,725	\$528,626	\$634,380
N00 Administrative and support services	90	117,400	7,686	1	\$76,855	\$384,276	\$461,160
I00 Transport postal and warehousing	100	96,200	6,997	1	\$69,974	\$349,871	\$419,820
K00 Financial and insurance services	90	58,300	3,817	0	\$38,166	\$190,829	\$229,020
L00 Rental, hiring and real estate services	90	35,100	2,298	0	\$22,978	\$114,890	\$137,880
Total	9,270kgs	1,816,400	1,043,481	100	\$10.43 million	\$52.17 million	\$62.61 million

Source: Ministry for the Environment, drawing on Stats NZ, Eumonia (2017) and O’Farrell et al. (2013). Waste figures are pro-rated to 2018/19 figures using split from Eumonia (2017). Current levy \$10/tonne and estimated future levy costs at \$50/tonne.

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