Regulatory Impact Statement: Phasing out specific hard-to-recycle plastics and single-use plastic items

Coversheet

Purpose	
Decision Sought:	*Analysis produced for the purpose of informing: final Cabinet decisions*
Advising Agencies:	*Ministry for the Environment*
Proposing Ministers:	*Minister for the Environment*
Date:	*May 2021*

Problem Definition

The proposals aim to reduce harm to the environment from plastic waste and to take further steps toward a more circular plastics economy in New Zealand by:

a. increasing the recyclability of plastic packaging, and reducing the use of hard-to-recycle plastics, so that more plastics can be recycled and less plastic ends up in landfill or litter; and

b. eliminating unnecessary single-use plastic items to reduce harm from plastic litter and micro-plastics.

Executive Summary

Moving plastics to a circular system

New Zealand society is primarily based on a linear (take, make, dispose) economy. The proposals represent the Government's intention to move New Zealand towards a circular system, where materials, including plastics, are circulated in the system for as long as possible through reuse, recycling and repurposing.

This Regulatory Impact Statement (RIS) covers proposals to prohibit specific hard-to-recycle materials and certain single-use plastic items. Research suggests that without fundamental redesign and innovation, about 30 per cent of plastic packaging globally will never be suitable for reuse or recycling.

The 'hard-to-recycle' plastic materials in scope of the proposals have attributes that make them difficult to recycle, they have low economic value for recyclers, and are likely to contaminate recycling streams of high-value recyclable plastics.

The single-use plastic items in scope of the proposals represent inefficient use of resources, are not commonly recycled, and often end up as litter in the environment where they cause harm to marine animals and visual pollution. These costs are not accounted

for within the market price of these plastic items. Providers of these single-use items do not have incentives to address these externality costs.

Increasing recyclability of plastic and reducing environmental harm

We consulted on two broad proposals under the Waste Minimisation Act 2008 (the WMA) to prohibit the sale and manufacture of:

1. Hard-to-recycle materials

a) food and beverage packaging made from polyvinyl chloride (PVC)
b) food and beverage packaging made from polystyrene
c) all expanded polystyrene (EPS) packaging
d) all oxo-degradable plastic products.

2. Single-use plastic items

e) plastic drink stirrers
f) plastic stemmed cotton buds
g) plastic produce bags
h) plastic tableware (plates/trays, bowls and cutlery)
i) plastic produce labels
j) plastic straws
k) some plastic cups and their plastic lids.

We presented eight options for consultation[1] across these proposals, ranging from doing nothing, to various voluntary approaches, and a number of regulatory interventions. Mandatory phase-out was the highest-ranking option and this was the preferred approach identified in the consultation document.

The consultation document was drafted as an interim regulatory impact assessment.

What did we hear from stakeholders

Consultation took place from 12 August to 4 December 2020, and resulted in 7,878 submissions. The proposals received broad support with 97 per cent of submitters indicating support or partial support for the proposals.

Most submitters to the consultation felt that we had identified the right options.

Oxo-degradable products, plastic drink stirrers and plastic stemmed cotton buds

Submitters supported the proposals to phase-out oxo-degradable products, plastic drink stirrers and plastic stemmed cotton buds, and signalled that these phase-outs could happen earlier than other items. We propose to recommend these plastics for phase-out by October 2022.

[1] Ministry for the Environment (2020) consultation document *'Reducing the impact of plastic on our environment'.*

Single-use plastic produce bags and plastic tableware

Submitters largely supported the proposed phase-out of single-use plastic produce bags and plastic tableware. We propose to phase-out these items by July 2023.

Non-home compostable plastic produce labels

There was strong support for the phase-out of all non-compostable plastic produce labels across individual, NGO, and local government submitters. Business and industry tended to indicate more partial support. Five industry submitters opposed the phase-out which, although a small number, represents a large proportion of the horticulture industry. We have balanced industry's request for a voluntary agreement or a longer lead-in timeframe (if a phase-out is progressed) with the fact that European regulations are coming into effect within the next two years, which is accelerating the development of home compostable labels. At least one international labelling manufacturer expects to have home compostable labels available to meet the French regulations coming into effect 1 January 2022.

We consider that given global trends away from non-compostable labels, the commercialisation of home compostable labels is possible by 2025. Based on consultation feedback, a shift to a home compostable label by 2025 may be a challenge for industry. However, on balance it would be inequitable to provide a 2025 phase-out timeframe for complex phase-outs such as PVC and polystyrene and a longer timeframe for produce labels.

PVC and polystyrene packaging

There was broad support for the proposal across submitters to prohibit the sale and manuacture of all food and beverage items that contain PVC packaging by January 2023, but many industry and business submitters indicated partial support. Most submitters, including industry groups, requested we went further than proposed and include all PVC packaging in the phase-out, rather than just food and beverage. Individual submitters wanted a phase-out to occur as early as possible. Many business/industry submitters considered the proposed timeframe of January 2023 too soon for some applications of PVC. This was in part due to the impact of COVID-19 on supply chains and the ability to product test new packaging design, invest and procure new infrastructure (where required), and access expertise from overseas in that timeframe. Submitters also noted technical challenges with a phase-out of flexible (soft) PVC packaging.

Following industry feedback we considered polystyrene (expanded and rigid) food and beverage packaging, and expanded polystyrene protective packaging separately. We propose to phase-out food and beverage polystyrene packaging (expanded and rigid) in a staged approach, as consulted on. We do not recommend EPS protective and cold-chain packaging for regulation (see below).

Further work required

We propose to undertake further investigation of:

Expanded polystyrene bins and expanded polystyrene protective packaging

- there was strong opposition from industry and business submitters for phasing out these products
- they noted that alternatives are not viable and phase-outs would likely lead to product loss and compromised food safety and health services
- lack of viable alternatives means a phase-out of EPS packaging would have significant cost on business/industry and potentially lead to increased waste and risk to human health.

There may be an opportunity to develop reuse schemes for transporting cold-chain items such as seafood through our domestic supply chains, and to move away from some polystyrene protective packaging for items under a certain weight threshold. We recommend that a decision on phasing out this type of polystyrene packaging is deferred until we can undertake further work.[2]

Single-use cups and lids

- proposals excluded disposable coffee cups (paper cups lined with plastic), and exempted cups made from polyethylene terephthalate (PET, 1), high density polyethylene (HDPE, 2), and polypropylene (PP, 5)
- feedback from consultation indicated broad support across business/industry, NGOs and individuals for taking action to reduce single-use cups and the inclusion of coffee-cups in a cups and lids phase-out, although there may be some technical challenges associated to lids (especially for hot beverages)
- feedback also suggested that there was some confusion and divergence of views about the scope of a proposed phase-out, for example when does a 'cup' become a 'coffee cup' if the same type of cup is used for other purposes.

We consider that additional work is required, including targeted engagement to make the approach to single-use plastic cups consistent across hot and cold beverages, and to define the scope of a proposed phase-out with more clarity.

Single-use plastic straws

- feedback raised concerns about the accessibility of straws for people who require straws to drink, and the disabled community more generally
- the consultation document did not include the wording of a proposed exemption for such use
- a phase-out of single-use plastic straws without a fit-for-purpose exemption would have signifiant impact on the disabled community
- a fit-for-purpose exemption would need to be drafted in consultation with the disabled community.

We propose further work and engagement with the impacted communities before a decision is made.

[2] Plastic packaging was declared a priority product for the establishment of a regulated product stewardship scheme in July 2020. Expanded polystyrene packaging would fall under this.

Our final proposals

Government intervention, by requiring mandatory phase-out of the hard-to-recycle plastics and single-use plastic items, is considered the most effective option to move away from these plastics and reduce:

- litter in the environment
- contamination in the recycling stream so that high-value plastics like PET can be recycled effectively
- waste to landfill
- public confusion by simplifying the materials in circulation.

The items and materials recommended for manufacture and sale phase-outs are proposed over three stages between 2022 and 2025:

Stage 1 mandatory phase-out October 2022

Material or product	Description
PVC meat trays	A PVC meat tray is a flat, shallow container with a raised rim, made primarily from polyvinyl chloride plastic, used to package or contain meat for sale.
EPS food and beverage packaging including takeaway containers	Expanded polystyrene food and beverage packaging is a container (either with lids, without lids, or clamshell) plate, bowl or cup made from expanded polystyrene, which is used to contain food and carry it from the point of sale for consumption.
Rigid polystyrene takeaway packaging	Rigid polystyrene takeaway packaging is a single-use container (either with lids, without lids, or clamshell), plate, bowl or cup, made from rigid polystyrene, used to contain food and carry it from the point of sale for consumption.
All oxo-degradable plastic products[3]	A degradable plastic is a material made of plastic, which includes pro-degradant additives to accelerate the fragmentation of the material into smaller pieces.
Plastic drink stirrers	A drink stirrer is a short plastic stick used to stir drinks, made partly or wholly of any type of plastic including degradable, biodegradable, and compostable plastics.
Plastic stemmed cotton buds	A plastic stemmed cotton-bud is a small rod made wholly or partly of any type of plastic including degradable, biodegradable and compostable plastics, with cotton wrapped around one or both ends; not designed or intended for reuse.

Stage 2 mandatory phase-out July 2023

Material or product	Description

[3] We have used the term oxo-degradable throughout this RIS but intend for this to cover a broader range of degradable plastics including oxo and photo degradable and that contain pro-degradants for accelerating fragmentation of the plastic.

Plastic produce bags	A single-use plastic produce bag is a lightweight bag under 70 microns thick, without handles, made from any type of plastic including degradable, biodegradable and compostable plastics, and used for the purpose of carrying fruit or vegetables from the point of sale.
Plastic tableware	Plastic tableware includes plates, bowls, trays and cutlery designed for single-use and made primarily of any type of plastic including degradable, biodegradable and compostable plastics and sold for the purpose of eating food. Cutlery includes any utensil that can be used to eat food – spoons, forks, knives, sporks, splayds[4] and chopsticks.

Stage 3 mandatory phase-out July 2025	
Material or product	**Description**
All other PVC food and beverage packaging	PVC food and beverage packaging is a tray, container (either with a lid or without a lid), packet, bowl, cup, film or wrap, sold as packaging that contains food and beverage products, or with the purpose of containing food and beverage products for sale and made from polyvinyl chloride.
All other rigid and high-impact polystyrene food and beverage packaging	Polystyrene food and beverage packaging is a tray, container (either with a lid or without a lid), packet, bowl or cup sold as packaging that contains food and beverage products, or with the purpose of containing food and beverage products and is made from rigid polystyrene including high-impact polystyrene.
Non-home compostable produce labels	A non-home compostable produce label is a label on fruit or vegetables, sold in New Zealand, and made partly or primarily of plastic, which is not certified as home compostable.

The proposals are consistent with the WMA as the main legislative framework that applies and meets the requirements for making regulations to control or prohibit the manufacture or sale of products that contain specified materials that:

- a reasonably practicable alternative to the specified materials is available
- the benefits from the regulations are greater than the cost
- the regulations are consistent with New Zealand's international obligations.

We consider that suitable alternatives are available and that prohibiting these single-use items and hard-to-recycle plastics will have an immediate benefit to the environment and the recycling system. The proposed regulations are consistent with our international obligations.

[4] Splayd: eating utensil combining the functions of spoon, knife and fork.

Impacts of the proposals

A phase-out means that producers and consumers no longer have access to the materials and items, and it will require businesses and individuals to transition to using alternative products and packaging. Businesses may switch to other plastic materials[5] like PET (1), HDPE (2), or PP (5), which are suitable alternate materials (in many cases) and have good recycling markets onshore and internationally. Alternatively, they may move to non-plastics like cardboard or glass (particularly for single-use items or takeaway packaging), or to reusable rather than single-use alternatives. There may be some costs to business in the short term (the nature and size of this will vary by each material/item).

The Ministry will work closely with industry associations to help affected sectors prepare for the phase-outs.

A mandatory phase-out will bring new costs to Government for public information and advice to businesses, as well as monitoring and enforcement.

Limitations or Constraints on Analysis

Our constraints

The proposals included in the consultation document are broad in scope. Although there are similarities in the costs and benefits for the proposed hard-to-recycle and single-use phase-outs, there are nuanced differences within the problem definition for each proposal. Presenting the two proposals within the same consultation document has made it more challenging to draw out the unique problems (and potential solutions) for each proposal.

The breadth and scale of what is proposed also made it more challenging to provide in-depth analysis on each of the proposed plastics/items subject to phase-out. This may have affected the type of feedback received from submitters and the information available to inform this analysis.

The consultation document was released during the pre-election period, which meant that the Ministry for the Environment could not actively promote the consultation until after the General Election, in line with pre-election guidance for Government advertising. This was mitigated by allowing four months for the consultation period to ensure that businesses had enough time to engage and working with relevant industry stakeholders to create awareness about the consultation.

The COVID-19 pandemic made it more challenging to engage with stakeholders, for example in the hospitality sector.

Our assumptions

There are several assumptions underlying this policy. These are:

- elimination of these plastic materials items will help move New Zealand closer to a circular economy for plastics

[5] Appendix 1 has an explanation of the plastic types.

- plastic packaging can extend the life of products
- packaging with recycled content is preferable to new plastic (where feasible) and will reduce its waste and emissions footprint
- elimination of these plastic materials will help move producers to use alternative materials, including higher value plastics (types 1, 2 and 5) that have reliable recycling markets
- phasing out these products sends a clear signal that hard-to-recycle packaging is not useful in New Zealand's recycling system and does not align with best practice
- phasing out these products may create opportunities for businesses and individuals to look more closely at the waste they create, e.g. cafes may stop offering certain single-use items altogether, or retailers and brands may look at whether they can offer a refill service.

Our data limitations

Where possible, we have used the available data and evidence to gauge possible impacts, but the resulting assessments have been hindered to an extent by a lack of data. This lack of data and evidence is not uncommon in environmentally-based studies of this nature, but is exacerbated by the scale and breadth of proposed phase-outs and some of the complexity involved (i.e. that some of the proposed phase-outs involve inputs into products and some involve actual end-use products).

In general, the quality of data and evidence is measured in relation to both the volume and strength of material. The strength of data and evidence refers to its source and the underlying methods used to produce the data/evidence.

A so-called strength of evidence pyramid provides an effective ranking of evidence as a measure of quality. At the top of the pyramid are randomised-controlled trials and systematic reviews (that can also encompass a meta-analysis). At the other end of the spectrum are opinions (expert or otherwise) and cross-sectional data collection methods (e.g. point-in-time questionnaires).[6]

The pyramid shape connotes prevalence, which could also be explained by cost/ease of undertaking. The sources at the bottom are generally easier/less costly to do and, *all else equal,* there is likely to more of such data and evidence. The opposite applies for the top of the pyramid.

The data and evidence used to develop the proposals in this RIS is at the bottom end of the pyramid, best described as patchy, context-specific, and indicative. That is, there is missing data on both the initial baseline conditions and likely impacts, either because it is not collected, is subject to commercial confidentiality restrictions or costly and time-consuming to obtain. Further, the ready availability of alternatives is not straightforward to determine, impacting the precision attached to impacts estimated.

[6] A range of other evidence sources is contained in the 'middle' of the pyramid, including cohort studies and other simulation modelling techniques.

This lack of data and evidence is true of both domestic and international sources. For example, one of the major supermarket chains was not able to provide data on existing use of relevant single-use or hard-to-recycle plastics while another chain was able to provide insights into some, but not all relevant items. While some useful studies have been carried out in Australia and the United Kingdom, the number of studies is small and the transferability of results requires important assumptions (e.g. about the consumption habits of New Zealanders versus overseas counterparts and the behaviour of providers of take-away food products in relation to plastic cutlery and containers).

Responsible Manager(s) (completed by relevant manager)
Shaun Lewis *Director – Waste and Resource Efficiency* *Ministry for the Environment*  *03/06/2021*

Quality Assurance (completed by QA panel)	
Reviewing Agency/Agencies:	Ministry for the Environment Ministry for Business, Innovation and Employment Treasury
Panel Assessment & Comment:	The panel considers that the RIS partially meets Cabinet's quality assurance criteria for impact analysis. The RIS clearly establishes the problems the interventions are seeking to address, considers a range of possible solutions, and potential impacts of the solutions. Consultation feedback has been considered in detail and is drawn on throughout the analysis. Some proposals have been changed as a result of consultation feedback, including to respond to concerns about particular impacts on certain groups. The analysis is hampered by a lack of available data on both the extent of the problem (eg, quantities of certain items on the market), and to an extent, any impacts that might be specific to a certain product type (rather than general to plastics more widely). However, the analysis draws on a range of information sources to counter this, including international research. The proposals cover a wide range of products, including many imported products, and further consideration would be beneficial on the monitoring and other tools that will be necessary to ensure successful implementation. The RIS is clear and well-communicated, although the range of materials covered does contribute to it being a lengthy document.

Section 1: Outlining the problem

Context/Background Information

Why we use plastic

Plastic has many desirable properties that make it suitable for a range of applications. It is affordable to produce, lightweight and can help maintain product quality. Packaging and single-use plastic items enter our economy at various points in the supply chain depending on the material and item. Both can be imported as finished products or are manufactured onshore. Additionally, the packaging used for these products may be manufactured alongside the food or beverage product or at a separate site. Packaging manufacturers play an important role in providing the right type of packaging for the product, brand and function. Packaging suppliers also provide 'empty' packaging (e.g. cups and takeaway containers) and single-use items like straws and stirrers for use by the hospitality sector and for general sale.

There are seven main types of plastic globally. Each material (or resin type) has unique properties making them suitable for different applications. Each type also has different recycling attributes and different values as commodities. Appendix one provides an overview of plastic types, their recyclability and recycling value.

In New Zealand, the most likely plastic materials to be recycled are plastic types 1 (PET), 2 (PE) and 5 (PP). This is because there is onshore reprocessing capability and good markets to create demand for these plastic types when recycled.[7]

What happens when plastic is not recyclable or ends up as litter

The plastics considered in these proposals are:

1. hard-to-recycle food and beverage packaging made from polyvinyl chloride (PVC, type 3) and polystyrene (PS, type 6), all expanded polystyrene (EPS, type 6) packaging, and all oxo-degradable plastic products (subset of type 7), and

2. seven single-use plastic items: plastic produce bags, plastic drink stirrers, plastic stemmed cotton buds, some plastic cups and their plastic lids, plastic tableware (plates/trays, bowls and cutlery), plastic produce labels and plastic straws.

Hard-to-recycle plastics have limited markets for recycling and/or are technically difficult to recycle. Where recycling is possible, they represent low economic value for recycling purposes. Unrecyclable packaging and single-use plastic items represent an inefficient use of resources. Many of the single-use plastic items discussed in this RIS are items often found during litter clean-ups. These items are low-cost products, which cannot be easily recycled due to their size, the type of plastic used, and difficulties with collecting, cleaning and sorting the items. For hard-to-recycle and single-use plastic items, the best disposal option is often landfill meaning that the opportunity to circulate resources through our economy is lost.

Consumer NZ recently took part in a study alongside eight other countries that assessed packaging recyclability and labelling on eleven popular products.[8] New Zealand ranked as the

[7] Office of the Prime Minister's Chief Science Advisor (2019)

[8] Consumer NZ (2021)

second-worst country for recyclability with 57 per cent of the packaging assessed as not recyclable in practice. For a product to be recycled in practice it means there must be an existing collection, sorting, and recycling system in place that recycles the packaging. Reasons that packaging may be unrecyclable include size, shape, colour and the materials used.

The main issues with hard-to-recycle plastic packaging and single-use plastic items are:

- the prevalence of single-use plastics in our economy is causing high proportions of plastic litter
    - plastic in the environment can degrade into smaller and smaller pieces (micro-plastics), which represent a risk to marine life and freshwater ecosystems
- limited (or no) recycling occurs:
    - not all plastic packaging or single-use items are designed for reuse or recycling
    - some plastic types are hard to recycle due to limited markets onshore and internationally, which makes New Zealand's recycling system less effective
- some items and materials are common contaminants for compost or recycling streams
- while available, alternatives for hard-to-recycle PVC, polystyrene and oxo-degradable plastics are not currently commonly used, possibly for cost reasons.

Table 1 summarises the problems associated with the plastics discussed in this RIS.

Table 1 Summary of key issues with plastics within the scope of this RIS

Plastic category/item	Litter risk	Limited (or no) recycling occurs	Contaminant for recycling or compost	Can be replaced by reusable or recyclable alternatives	Causes confusion for public, retailers, recyclers
PVC food and beverage packaging	× - not more likely to be littered than other plastic types	✓	✓ - interferes directly with PET recycling	✓ - in most cases	✓
Polystyrene food and beverage packaging	× - not more likely to be littered than other plastic types	✓	✓	✓ - in most cases	✓
Other Expanded polystyrene packaging	✓ - fragments easily into smaller pieces	? – some recycling is occurring but not widespread	✓	? – in some cases it can be replaced	×
Oxo-degradable plastic products	✓ - fragments easily into smaller pieces	✓	✓	✓	✓
Drink stirrers	✓	✓	×	✓	×
Plastic stemmed cotton buds	✓	✓	×	✓	×
Produce bags	?	? – conventional plastic produce bags can be recycled in soft-plastics	×	✓	✓

		recycling scheme			
Tableware	✓	✓	✓	✓	✓
Plastic produce labels	?	✓	✓	× – alternatives most likely to be home compostable	×
Cups and lids (excluding plastic types 1, 2 and 5 and coffee cups)	✓	✓	✓	✓	✓
Straws	✓	✓	×	✓ - in most cases	×

Hard-to-recycle plastics used in packaging

Estimates suggest that about 60 per cent of the plastic resin[9] imported into New Zealand is to make packaging.

For many businesses, the type of packaging will be a commercial decision, based on affordability of alternatives, functionality, sustainability, as well as their access to good guidance. Research suggests that without fundamental redesign and innovation, about 30 per cent of plastic packaging globally will never be suitable for reuse or recycling.[10]

Without incentives to reduce waste, some businesses will continue to use materials that are hard-to-recycle. This means that the resources are used for a limited time and then disposed, rather than re-circulated into new products / packaging.

Our proposals focus on plastic types 3 (PVC) and 6 (PS and EPS) used for packaging, and oxo-degradable plastics which is a subset of type 7. PVC, polystyrene and oxo-degradable plastics can be replaced in packaging with recyclable materials. Less hard-to-recycle plastic in the recycling system will help to ensure that high-value packaging is recycled, rather than sent to landfill because of contamination. Plastic type 4 (LDPE) is difficult to replace with other materials currently and is out-of-scope for this work programme.

Table 2 expands the issues experienced with hard-to-recycle plastics summarised in Table 1.

PVC and polystyrene

In the total plastic packaging waste stream, PVC and polystyrene are only small volumes (estimated at 0.19 per cent and 2.47 per cent respectively[11]). However, they have a disproportionately large impact on New Zealand's recycling system and environment, because they contaminate higher value plastic streams and must be removed before high-value plastic streams can be on-sold for re-processing. Both material types also have limited markets for

[9] Plastic resin: the core ingredient used to manufacture plastic products. Traditionally resins are made from fossil fuel. In recent years, 'bioplastics' have emerged which are made from plant sources like corn starch or sugarcane.

[10] Ellen MacArthur Foundation (2017)

[11] WasteMINZ TAO Forum (2020)

recycling in New Zealand and internationally. For these reasons, recyclers are reluctant to deal with these materials.

Food and beverage packaging makes up a high proportion of the materials collected through kerbside recycling. As of October 2020, less than a third of New Zealand's 67 territorial authorities were collecting plastic types 3, 4, 6 and 7. Auckland, Hamilton and Central Hawke's Bay have publicly stated that while they are still collecting these plastic types at kerbside, they are landfilling these plastics. At least two other councils are actively considering a stop to their collections of these low-value plastic types.

Most of the PVC and polystyrene items considered in this RIS have viable replacements. We note that many companies are already moving to high-value materials and we consider the food and beverage industry to be a good starting point for driving a transition away from low-value and hard-to-recycle plastics.

PVC and hard polystyrene packaging beyond that for food and beverages is out of scope.[12]

Expanded polystyrene (EPS)

All EPS packaging was included in the proposals for consultation due to concern about the environmental impacts of EPS litter. EPS is lightweight and fragments easily making it problematic if it escapes containment. EPS is also bulky, making it difficult to collect and transport for recycling and it takes up space in landfill.

Oxo-degradable plastic

Oxo-degradable plastics[13] are used for a wide range of packaging and single-use items. Oxo-degradable plastic items include bin liners, refuse bags, dog poo bags, straws, cutlery, single-use plastic cups, clothing and food and beverage packaging, and agricultural film and wrap. For some items a transition to plastic types 1, 2 or 5 is viable.

Oxo-degradable plastics are not compostable, either at home or in a commercial facility. If placed in kerbside recycling collections they contaminate the waste stream, as they cannot be recycled. If they enter the environment (by escaping containment or as litter) they degrade into smaller pieces of plastics (micro-plastics) that can enter the environment and ultimately the food chain (the extent of their toxicity is currently unknown).

Because of the term 'degradable', these plastic products are confusing to businesses and consumers. In addition, some suppliers and manufacturers market oxo-degradable plastics as being better for the environment due to their ability to degrade. Businesses may therefore choose oxo-degradable plastics because they perceive this to be a more sustainable option.

[12] We have limited information to understand the prevalence of PVC and PS packaging in wider use (beyond food and beverage packaging). Other applications for PVC and polystyrene, e.g. in products such as wiring, downpipes, and insulation used in the construction industry, tend to have a much longer life cycle than food packaging and are less likely to appear in kerbside recycling.

[13] We have used the term oxo-degradable throughout this RIS but it is intended to include all degradable plastic products, which include pro-degradants to accelerate fragmentation of the material into smaller pieces.

Table 2 Scale of the problem with hard-to-recycle plastics items

Hard-to-recycle plastic	Description	Scale of the problem	Alternatives
PVC food and beverage packaging	Common items include: • biscuit trays • meat trays • PVC food containers including clamshell containers • flexible PVC packaging e.g. for deli meats and cheese • PVC cling film	PVC is a recycling contaminant in PET recycling streams. Clear PVC can look identical to PET making it hard for retailers and consumers to know the difference.	For rigid PVC, alternatives include other plastics made from PET and polypropylene For flexible PVC the most likely replacement is a composite film made from combining other plastic resins or low density polyethylene (only suitable for some items) Compostable plastics
Polystyrene food and beverage packaging	Common items include: • expanded polystyrene plates, bowls, trays and cups • polystyrene meat trays • rigid polystyrene takeaway containers (e.g. sushi packaging) • high-impact polystyrene containers for chilled food including yoghurt pottles	There are limited markets for polystyrene in New Zealand. Industry are already moving away from some rigid polystyrene applications such as meat trays, while high-impact polystyrene for chilled food will be more challenging to phase-out. Expanded polystyrene breaks into micro-plastics when it is littered making it difficult to recover and harmful to marine life.	For takeaway packaging, alternatives include containers made from PET and polypropylene plastics, cardboard and paper-based containers, and reusable containers For other items, alternatives may include PET and polypropylene pouches made from composite materials, and glass Compostable plastics
Oxo-degradable plastic products	Common items include: • pet waste bags • bin liners • clothing packaging • straws • cups • food containers	Oxo-degradable plastics quickly degrade into micro-plastics when littered, making them impossible to recover and harmful to marine life	Alternatives include conventional plastics made from low-density polyethylene, paper-based alternatives, and reusable alternatives

Single-use plastic items

Globally, about 36 per cent of the plastic produced is for packaging and single-use plastic items.[14] These items are particularly problematic as they are designed for single-use, e.g. for stirring a single drink, and are then thrown away. They are often used for convenience or 'on

[14] Office of the Prime Minister's Chief Science Advisor (2019)

the go', where there is a high risk of not being disposed properly and therefore entering the environment.

Plastic waste makes up a considerable volume of the litter found on our beaches (60.9 per cent by count[15]), and is ranked second behind cigarette butts for the most common litter item found in our cities, towns and parks.[16] Single-use plastics also affect the environment in terms of the resources required for production, including raw materials, energy and water.

For many single-use products, recycling is not feasible as they are often made from low-value and hard-to-recycle plastics. They are also small and not easily separated, sorted and cleaned for recycling.

For single-use items such as cutlery, straws and plastic cups, there are re-usable alternatives (although in some cases alternatives present challenges for specific groups such as disabled people). Where reuse is not possible, there are other alternatives such as paper or bamboo that, if littered, are more likely to degrade safely back into nature and do not pose the same micro-plastic risk to wildlife.

Table 3 expands the issues with single-use plastic items summarised in Table 1. It sets out the scale of the problem of the single-use items proposed for phase-out, based on use data and/or data on the item being found as litter. These single-use plastic items are ubiquitous, are very likely to end up as litter and/or contaminate recycling streams, and have alternatives.

Table 3 Scale of the problem with single-use plastic items

Single-use tem	Description	Scale of the problem	Alternatives
Plastic drink stirrers	A short stick to stir drinks, made partly or wholly of plastic	New Zealand data is not available on the use of drink stirrers. In England, an estimated 316 million plastic stirrers are used every year.[17] If New Zealand's use per capita rate is similar, this would equate to over 28 million drink stirrers but data collection enquiries suggest a baseline figure of about 23 million per annum. Enquiries suggest that the market has already shifted away from plastic to wooden stirrers. Further, some beverage service businesses have adjusted practices, with sugars and syrups often added by baristas, reducing the need for stirrers.	No stirrer Wooden stirrers Reusable stirrers, e.g. metal spoons
Plastic-stemmed cotton buds	A small rod made wholly or partly of plastic with cotton	No data is publicly available on how many plastic cotton buds are used by New Zealanders each year.	Cotton buds with stems made from

[15] Data collected through the Sustainable Coastline Litter intelligence programme which is a citizen science project that collates the results of litter surveys around New Zealand.

[16] Keep New Zealand Beautiful National Litter Audit (2019)

[17] Department for Environment, Food and Rural Affairs (2020)

	wrapped around one or both ends, not designed or intended for reuse.	In England, an estimated 1.8 billion plastic-stemmed cotton buds are used every year. About 10 per cent of these are flushed down toilets and can end up in waterways and oceans and threaten marine wildlife.[18] If New Zealand's use per capita rate is similar to England, this would equate to about 165 million each year. A beach clean-up at Waikanae Beach (Gisborne) found that cotton buds and lollipop sticks were the second most common type of plastic litter, comprising 28% of the waste.[19] Data collection enquiries suggest that large manufacturers are already shifting away from plastic and major retailers have stopped selling plastic-stemmed products.	paper, bamboo or other materials Reusable cotton buds with replaceable heads
Plastic produce bags	A lightweight bag under 70 microns thick, without handles, for carrying fruit and vegetables	There is no publicly available data on the total use of plastic produce bags currently. For the purposes of estimating likely impacts, an indicative total is around 500 million bags per year.[20] As with plastic straws, these bags are prone to being moved to the ocean by wind and waterways. The environmental impacts of these bags are similar to those of the plastic shopping bags already phased-out in New Zealand. Ocean Conservancy lists plastic bags alongside plastic cutlery as a 'most deadly' item, and a threat to birds, turtles and marine mammals who mistake it for food.[21] The 2018 Keep New Zealand Beautiful Litter Audit found 118 'supermarket type' lightweight plastic bags (out of 56,322 items) which weighed 424 grams from a total weight of over 293	No bag Paper bag Reusable produce bags made from e.g. hessian, hemp, cotton

[18] Department for Environment, Food and Rural Affairs (2020)

[19] Ministry for the Environment and Statistics NZ (2019)

[20] This assumes 1.8 million households in New Zealand shop once a week and use four plastic produce bags each time they shop.

[21] Ocean Conservancy (2020)

		kilograms.[22] It is not clear if these bags were the type already phased-out. Palmy's Plastic Pollution Challenge found that plastic bags (including but not limited to produce bags) were in the top four litter items across the collection sites.[23]	
Plastic tableware and cutlery	Plastic tableware (plates, trays, bowls) and cutlery intended for single use, including multi-packs	New Zealand data on how many of these items are used each year is not available. Some estimates suggest 40 billion plastic cutlery items are used each year in the US.[24] If New Zealand's use rate per capita is similar, this would equate to nearly 600 million items each year. We based estimates on 250 million sets of cutlery and plates used per year.[25] The 2019 Keep New Zealand Beautiful Litter Audit found 161 items classified as 'plastic spoons/cutlery' out of 56,322 items, which weighed 360 grams from a total weight of 293 kilograms.[26]	Reusable plates, crockery and cutlery Paper, cardboard or bamboo alternatives
Non-home compostable produce labels	Any single-use label on fruit or vegetables that are sold in New Zealand and made partly or wholly of plastic that is not certified home compostable.	Although the labels are small, over the entire economy their numbers create a larger environmental issue. Evidence gathering suggests that as many as 7.5 billion produce labels are used annually in New Zealand. Almost all of these labels are plastic (about 98 per cent) and about 95 per cent of these labels are used on fruit for export, predominantly kiwifruit. Currently, almost all produce labels are non-recyclable, non-biodegradable, and can contaminate compost. Produce that is labelled can be problematic for compost producers. If the labels remain, compost products are contaminated with traces of plastic, affecting markets for their products.	Home compostable labels No produce label where label has low branding value
Plastic straws	Drinking straw made wholly or partly from plastic,	It is estimated that in 2018 New Zealanders used over 200 million	No straw

[22] Keep New Zealand Beautiful (2019)

[23] Manawatū River Source to Sea (2019)

[24] Root (2019)

[25] Based on 1.8 million households using 140 items a year.

[26] Keep New Zealand Beautiful (2019)

	not designed or intended for reuse.	plastic straws and potentially as many as 500 million each year.[27] Plastic straws are lightweight and very prone to being moved by wind and waterways if not contained as waste. Each year, Sustainable Coastlines picks up more than 23,200 plastic straws from Auckland beaches alone; they are the ninth most-prevalent item found in beach clean-ups.[28] Straws comprised 2% of the litter items found in the Palmy Plastic Pollution Challenge.[29] The 2019 Keep New Zealand Beautiful Litter Audit found 415 plastic straws out of 56,322 items. These straws weighed 238 grams from a total weight of over 293 kilograms collected.[30] These figures give a static sense of the problem. Emerging evidence suggests that there is already a movement away from plastic straws in supermarket sales and in take-away and on-premise beverage consumption.	Reusable material or bamboo straws Edible straws Paper straws
Single-use plastic cups and lids (excluding disposable coffee cups and their lids)	Single-use plastic cups and their lid, made from hard-to-recycle plastics (3, 4, 6 and 7), including paper cups with plastic or wax lining, provided singly or in bulk-packs. Excludes single-use plastic cups made from recyclable plastics (1, 2 and 5).	The Packaging Forum estimates New Zealand uses 295 million hot and cold disposable cups every year.[31] This equates to each household using 1 to 2 single-use plastic cups per week. Zero Waste Scotland estimates single-use disposable beverage cups generate about 4000 tonnes of waste in Scotland each year. An estimated 40,000 are littered in Scotland each year, making them one of the most commonly littered items.[32] Scotland's population (approx. 5.5 million) is only slightly larger than that of New Zealand, suggesting the impacts could be of a similar scale. The 2019 Keep New Zealand Beautiful Litter Audit found 422 items it classified	Reusable cups Paper cups Cups made from plastic types 1, 2 or 5 as these are more likely to be recyclable

[27] Auckland Council (2019)

[28] Auckland Council (2019)

[29] Manawatū River Source to Sea (2019)

[30] Keep New Zealand Beautiful (2019). Note: 13,908 of the 56,322 items were made of plastic, which contributed 54 kilograms of the total weight of over 293 kilograms

[31] Packaging Forum (2017). Our estimate is 300 million based on 1.8 households using 170 cups a year.

[32] Scottish Government (2019)

		as plastic 'takeaway & cups' out of 56,322 items, weighing 2.5 kilograms from a total weight of 293 kilograms. It is not clear how many of these items were cups.	

Government priorities to reduce plastics on the environment

In December 2019, the Government announced a commitment to set goals to move away from hard-to-recycle plastics, starting with a phase-out of PVC and polystyrene packaging. This commitment was in response to a report by the Office of the Prime Minister's Chief Science Advisor – *Rethinking Plastics in Aotearoa New Zealand* – with over 50 recommendations for how New Zealand can reduce the impact of plastics on our environment, while keeping some of the benefits that plastic offers.[33] The *Rethinking Plastics* report noted a broad acknowledgement across key waste and plastic stakeholders that the status quo is not working, and a move away from hard-to-recycle packing is necessary.

New Zealand has also pledged its commitment to reducing plastic pollution under the United Nations Environment Programme (UNEP) and Ellen MacArthur Foundation *New Plastics Economy* Global Commitment.[34] This is a globally accepted framework for organisations and governments that outlines a vision of an economy for plastic where it never becomes waste. The Commitment has three key actions:

- eliminating problematic and unnecessary plastic items
- innovating to ensure that the plastic we use is reusable, recyclable or compostable, and
- keeping plastic circulating within the system and out of the environment.

Limits of current regulatory framework

There are no regulations or standards that packaging designers and producers must meet to ensure the products they sell into the New Zealand market can be effectively recycled, or to influence production of packaging and single-use items. In 2020, the Commerce Commission released guidance on environmental claims, which make it clear that companies can be liable under the Fair Trading Act for making false claims around things like recyclability and compostability.[35] This new guidance may deter some brands from making certain claims about their packaging but it will not necessarily influence sustainable design.

The WMA is New Zealand's main legislative framework for waste minimisation. The WMA encourages a reduction in the amount of waste we generate and dispose of. The aim is to protect the environment from harm and provide New Zealand with economic, social and cultural benefits.

In 2020, the Government declared plastic packaging as a priority product under the WMA. This declaration means that a product stewardship scheme (or schemes) must be co-designed (with industry and other stakeholders) for plastic packaging sold into the New Zealand market. The

[33] Office of the Prime Minister's Chief Science Advisor (2019)

[34] Ellen MacArthur Foundation (2017)

[35] https://comcom.govt.nz/business/dealing-with-typical-situations/environmental-claims

deadline for a proposed scheme (for consideration by the Minister for the Environment) is within three years (i.e. by July 2023), while scheme implementation would take an additional period. Co-design conversations have not commenced yet and any plastic packaging phased out will not be subject to a future product stewardship scheme. These proposals are viewed as complementary – by phasing out certain hard-to-recycle and single use products, it will be easier to design effective product stewardship schemes for the remaining plastic packaging types.

The WMA provides for making regulations to control or prohibit the manufacture or sale of products that contain specified materials.[36] This would capture products made onshore, as well as those imported to New Zealand for sale. To make new regulations, the Minister for the Environment must be satisfied that:

- a reasonably practicable alternative to the specified materials is available
- the benefits from the regulations are greater than the cost
- the regulations are consistent with New Zealand's international obligations
- the regulations are consistent with the purpose of the WMA.[37]

Improving the quality of plastic waste exports

From 1 January 2021, new rules requiring exporters to obtain prior consent from the importing country for shipments of certain types of plastic waste came into effect globally under the Basel Convention.[38]

This means that in New Zealand, importers and exporters need a permit from the Environmental Protection Authority under the Imports and Exports (Restrictions) Prohibition Order (No 2) 2004 to import or export most mixed plastic waste. 'Mixed plastic waste' is a mixture of different types and values of plastic waste, usually exported in a mixed bale. Prior to January 2021, this was the main way that recyclers would export PVC and polystyrene. PVC and polystyrene are low in volume and not economic to separate from other mixed plastics for recycling.[39]

What is the policy problem or opportunity?

What happens if we do nothing

The status quo will continue to impact New Zealand's resource recovery system and the environment:

- PVC in kerbside collection will continue to reduce the efficacy of PET recycling in New Zealand, particularly for Material Recovery Facilities without optical sorters
- oxo-degradable plastics will persist in the market and cause harm as micro-plastics
- potential increase in waste to landfill as international markets for low-value plastics diminish and fewer councils accept hard-to-recycle items in kerbside recycling

[36] Section 23(1)(b) of the WMA

[37] Sections 23(2)(b), (3)(b)(ii) and 3(b)(iii) of the WMA

[38] Basel Convention on the Transboundary Movements of Hazardous Wastes and their Disposal 1989

[39] Separated plastic waste: plastic waste that has been separated into single streams by plastic type (e.g. a bale of separated clear PET plastic), which can be shipped without a permit as long as they are almost free from contamination and other waste, and destined for recycling in an environmentally sound manner.

- reputational cost if New Zealand is unable to meet international obligations and commitments such as the *New Plastics Economy* Global Commitment
- some businesses that have moved away from the phased-out plastics may return to using these, depending on market conditions (e.g. cost, customer preference)
- there may be an increase in reuse behaviour due to already growing public awareness around waste but the convenience and prevalence of single-use plastic items may limit change
- the single-use items proposed for phase-out will continue to appear as litter on land and in the marine environment, leading to loss of amenity and harm to marine life.

Creating a level playing field to improve plastics recycling and reduce plastics litter

Voluntary action by businesses can drive change, but this change will happen inconsistently and over a range of timeframes. Some businesses may choose to move away from hard-to-recycle and single-use plastic items on their own accord, due to environmental concerns, public pressure, and international trends. Others will make a commercial decision based on the options available, the functionality required and the perceived cost. Companies that move to recyclable plastic materials voluntarily and early may be disadvantaged financially compared to those who do not.

New Zealand has an existing pledge-based agreement, known as the New Zealand Plastic Packaging Declaration. Over 20 businesses are signed up to the goal of 100 per cent reusable, recyclable, and compostable packaging by 2025. We do not know what share of the fast-moving consumer goods (FMGC) market that these businesses hold. The companies taking part in the Declaration include some key players such as both New Zealand supermarket companies, international brands (e.g. Coca-Cola, Danone, Unilever) as well as New Zealand companies like Fonterra and Frucor Suntory.

International experience suggests voluntary arrangements are most effective when backed by government regulation if they break down or as a complementary measure to regulation.

The use estimates in Table 3 indicate habitual use of the single-use plastic items in scope of the proposals. While there are feasible alternatives, there is not sufficient incentive for consumers and businesses to change behaviour. There is also confusion about whether the single-use items can be recycled, which means they can end up contaminating the recycling system.

The Ministry's work programme to standardise kerbside recycling will lead to more consistency across the country on what can and cannot be included in kerbside recycling collections. It does not deal with the material or item being available in the first place, or users placing items in the wrong bin. As noted above, the Government has declared plastic packaging as a priority product under the WMA, which will require a system to be developed for the collection and recycling of all plastic packaging on the market. This work stream is still at an early stage. The costs of administering a scheme for the target single-use items would likely be high, as the items are not easily collected after use. A product stewardship scheme also will not solve the problem of the poor recyclability (and lack of end-markets) for the materials.

Many countries are setting targets for mandatory recycled content in packaging, to drive demand for recycled plastic over virgin materials. The WMA framework does not enable setting mandatory targets. Feedback from consultation supports work to increase the demand for recycled content in high-value packaging but indicates that it is not technically feasible to include recycled content in the hard-to-recycle plastics within scope of the policy proposals.

A regulatory phase-out would ensure that the same rules apply to everyone at the same time. A regulatory phase-out of hard-to-recycle plastics and single-use plastics items will:

- help New Zealand achieve its obligations under the Basel Convention to export only high value plastic waste for recycling
- help to clarify public messaging about plastic materials accepted for recycling
- lead to less litter, and cleaner waterways and oceans, which will reduce some risk to animals and marine life from plastic pollution
- reduce costs to local government for collection, separation, and disposal of unrecyclable products
- move New Zealand closer to the goal of 100 per cent reusable, recyclable or compostable packaging by 2025
- support New Zealand's commitments under the *New Plastics Economy* Global Commitment
- create more public awareness around waste, encourage behaviour change including less reliance on single-use items and increase in reuse behaviours
- better reflect a circular economy approach and align with the *Rethinking Plastics* report.

Affected stakeholders

Table 4 sets out the main categories of stakeholders, the nature of their interest, and how they are affected by the proposals to phase-out hard-to-recycle plastics and the single-use plastic items. This is high-level only and the options analysis in Section 3 contains information about stakeholder views specific to each proposal.

Table 4 Stakeholder interest and impact

Stakeholder	Nature of interest	Effect of phase-out of hard-to-recycle plastics	Effect of phase-out of single-use plastic items
New Zealand manufacturers	Material and market access	Some may need to discontinue certain product lines, and develop other product/revenue streams as a result Some may need to invest in new capital There are a small number of manufacturers (one or two) where a plastic product subject to phase-out makes up a larger proportion of their business.[40] These companies would need to pivot to producing alternatives or increase	Some may need to discontinue certain product lines, and develop other product/revenue streams as a result[41] Some may need to invest in new capital.

[40] Officials are aware of a small number (one or two) of New Zealand manufacturers who specialise in expanded polystyrene bins used in cold supply chains. A phase-out of expanded polystyrene protective packaging would have a large impact on their businesses (and is not recommended in this RIS).

[41] Almost all manufacturers of single-use items have already diversified into different product lines, often selling plastic items alongside alternatives.

		their revenue from other products to minimise the impact on their business.	
Importers and suppliers	Market access	Those who can no longer sell the products in New Zealand may lose income.	Those who can no longer sell the products in New Zealand may need to deal in other products or relocate to other markets.
Retailers	Transitional effects	There may be a loss in income if unable to import and sell products that contain PVC or polystyrene packaging or oxo-degradable plastics Cost of moving in-store items to other materials Potential challenges negotiating with supply chain and accessing sufficient information around packaging materials for imported items.	Will need to switch to alternatives or offer no alternative Will be on the frontline communicating with customers when phased-out items are no longer available.
Brand owners	Infrastructure and product safety	Potentially large one-off cost to change food production infrastructure Potential increased cost for alternative packaging materials Responsible for ensuring food and beverage product safety, and the protection of consumer goods.	Some may need to switch to alternatives or offer no alternative.
Food outlets	Transitional effects	Outlets may need to replace packaging, this may have an increased cost Outlets will need to ensure that alternative options provide the necessary functionality and are safe May be left with unused stock from phased-out packaging and items.	Outlets may need to switch to alternatives or offer no alternative. Outlets could pass these costs on to the consumer.
Public	Cost and choice	Brands, retailers and food outlets could pass on costs to cover alternative packaging More clarity about recyclable packaging	Transitional cost of alternatives could be passed on to consumer Possible loss of preferred item

		Consumer may no longer have access to preferred item.	Some may have cost to invest in reusable items.
Waste management sector (including local government)	Efficiency	Less materials in the system should result in improved material recovery and reuse Less contamination from hard-to-recycle plastics and potentially lower costs if materials can be recycled rather than landfilled.	Less contamination in the recycling stream Less litter Less cost passed on to community.
Community / environmental groups	Efficiency and cost	More clarity about resource use	Less litter clean-up and monitoring activities

Public consultation

The Ministry has run a robust consultation process. We began high-level engagement on potential phase-outs as early as November 2019, in the lead-up to the launch of the Prime Minister's Chief Science Advisor's report *Rethinking Plastics in Aotearoa New Zealand*. The Government made formal announcements in December 2019, signalling the phase-outs. The Ministry had further, targeted engagement through 2020 with industry groups and individual companies.

Formal consultation ran from 12 August to 4 December 2020. Submitters were able to have their say through three main ways:

- substantive online form which asked a range of questions and included questions specific to business and industry
- short-form online survey (Citizen Space), which included a reduced number of questions (10 rather than 23)
- email and post to the Ministry for the Environment.

The consultation resulted in 7,878 submissions from 3,712 individuals (includes 3,350 form submissions), 136 submissions from groups (includes business/industry, local government, non-governmental organisations and others) and 4,030 submissions through Citizen Space (mostly individual submitters).

The proposals received broad overall support with 97 per cent of submitters indicating support or partial support for the proposals.

Group submitters also indicated high levels of support for the proposals, but a lower proportion of full support (and more partial support) when compared against the individual submissions. Reasons for supporting in part include:

- concern around unintended consequences
- wanting to see a blend of other options alongside a phase-out
- wanting more focus on reuse

- cost to transition to alternatives
- disagreement with a particular item or packaging type being included in the scope.

Is anyone affected disproportionately?

Over 80 per cent of substantive submissions[42] either raised concerns or disagreed with the proposed phase-out of straws due to the potential impact on people with a disability who may require a straw to drink. A large proportion of the submissions against a straw phase-out were from pro-forma responses. Limited engagement has taken place with the disabled community. We are recommending that targeted engagement on this item takes place prior to a decision by Cabinet on a phase-out (see Section 3).

International approaches

Consultation under international trade agreements

s 9(2)(h)

[redacted]

International actions

We considered relevant examples from other countries to move away from hard-to-recycle plastics. Some international measures target hard-to-recycle plastics, while others address packaging more generally. Measures vary in terms of their approach between countries.

We also considered international examples to reduce the use of non-recyclable single-use plastics. A growing number of countries are phasing out single-use items through regulation or co-regulatory measures.

Appendix 2 provides examples of relevant international action on hard-to-recycle plastics and single-use plastic items.

What objectives are you seeking in relation to this policy problem or opportunity?

The main policy objective is to:

[42] Substantive submissions refer to all the long-form submissions, emails and letters. Substantive submissions are about half of the total submissions. Out of the total submissions, 42 per cent of submitters raised concerns or disagreed. This is considered further in the analysis on straws in Section 2 of the RIS.

Reduce the impact on New Zealand's resource recovery system and the environment from hard-to-recycle plastic packaging, and single-use plastic items.

The proposals specifically targeted PVC, polystyrene, oxo-degradable plastics, and seven single-use items for elimination.

The secondary objectives relating to the proposals are:

- lower risk of environmental damage through reduced litter and improved waste management
- less contamination in the recycling stream, so high-value materials like PET can be recycled rather than sent to landfill
- increasing the uptake of high-value packaging materials (PET, HDPE and PP)
- improving the recyclability of plastic packaging
- encouraging reuse
- improving public understanding
- over time, create positive behaviour change as businesses and individuals look for more sustainable alternatives including reusable options.

The policy objective is primarily aimed at reducing environmental harm from hard-to-recycle plastics and certain single-use plastic items by reducing their use. We note that there may be a trade-off between reducing waste and minimising the impact of plastic waste. A move to other materials will not always reduce waste but may improve recyclability of packaging or reduce the micro-plastic risk associated with certain littered items. There is also a trade-off between the Government's broader climate objectives and reducing plastic waste, as some alternatives may be better if littered but have a higher climate impact (although the net impact is considered to be marginal).

Section 2: Option identification and impact analysis

What criteria will be used to evaluate options against the status quo?

We applied the following criteria to evaluate options against the status quo:

1. Litter - does the phase-out reduce harmful impacts of litter?
2. Improves resource recovery – does the phase-out reduce contamination of the kerbside recycling stream for plastic types 1, 2 and 5?
3. Fairness – will the phase-out enable a more certain and predictable market for businesses that are trying to reduce use of hard-to-recycle and single-use plastics? Does it reduce confusion and simplify the system?
4. Achievability – are there commercially feasible, sustainable alternatives? Is the phase-out achievable for industry and consumers?
5. Unintended consequences – could negative or positive unintended consequences (or externalities) arise if material/product was phased-out? This includes social, environmental and economic impacts.
6. Strategic alignment – does the phase-out align with Government priorities, international obligations, and the Ministry's other work programmes?

In our options and impact analysis sections, where options have come out with similar overall assessments, we have given more weighting to the first three criteria because they are directly linked to the policy objectives.

What scope are you considering options within?

Ministers' commissioning

In July 2020, Cabinet agreed to publicly consult (CBC-18-MIN-0076 refers) on proposals for a mandatory phase-out, subject to the outcome of consultation:

1. hard-to-recycle food and beverage packaging made from polyvinyl chloride (PVC) and polystyrene, all expanded polystyrene (EPS) packaging, and all oxo-degradable plastic products.
2. seven single-use plastic items: produce bags, drink stirrers, plastic stemmed cotton buds, some cups and their lids, plastic tableware (plates/trays, bowls and cutlery), produce labels and straws.

What options did we consider prior to consultation?

The consultation document was drafted as an interim regulatory impact assessment. It assessed eight options. Of the options presented, mandatory phase-out was the highest-ranking option and this was the preferred approach identified in the consultation document.

Table 5 summarises the options as presented in the consultation document. We have not included other options that may reduce litter or recycling contamination such as investment in optical sorting technology at Material Recovery Facilities as these may improve recycling but will not change packaging recyclability or encourage reuse behaviours.

Table 5 Options considered prior to consultation

Option	Constraints
Voluntary agreement with industry or business	On their own there would be uncertainty about the timing and extent of the impact it could achieve. It would rely on uptake by businesses and industry, and would be subject to late adopters and the unwilling. International experience suggests these arrangements are most effective when backed by government regulation if they break down or as a complementary measure. They could therefore act as a complementary action to a mandatory phase-out, to unify forward-leaning businesses.
Plastic reduction targets	Could sit within a broader national strategy or action plan. This could be effective for meeting the objectives, particularly if work is coordinated across a range of stakeholders. Although the potential for mobilising action is strong, it is reliant on voluntary uptake and could not be more effective in eliminating the target plastics than a mandatory phase-out. Without supporting regulation, there is also limited ability to enforce targets and ensure that there are mechanisms in place to drive change.
Labelling requirements	This option will still allow businesses and consumers to use these materials and items, and is unlikely to drive a significant reduction in use. Labelling would help brands and the public to identify hard-to-recycle packaging and provide on-pack information on how to dispose of it. Labelling is not feasible for most single-use items. The cost of labelling a single-use item, such as a straw, would outweigh any benefits.
Levy or tax	Could help to reduce the production and use of the target plastics but at a slower rate than a mandatory phase-out. As the target plastics are still available under this option, there is still a risk to the waste stream and litter. This option also requires new legislation, which would take time to develop.
Product stewardship	The costs of administering a scheme for the target single-use items would likely be high, as the items are not easily collected after use. This option may make using hard-to-recycle materials more costly in the long-term when compared with the current state. Ultimately it will not solve the problem of their poor recyclability. The proposed plastic phase-outs are complementary to product stewardship and will result in more effective product stewardship of remaining plastic packaging.
Mandatory recycled content for hard-to-recycle packaging	Many countries are setting targets for mandatory recycled content in packaging, to drive demand for recycled plastic over virgin materials. The current WMA framework does not enable setting mandatory targets, making this option difficult to achieve in the short- to medium-term. In addition, even if it has recycled content, hard-to-recycle packaging is likely to end up in a landfill (meaning little net benefit overall).
Continue as usual and rely on voluntary action	This was assessed to be the lowest ranking option as the status quo is contributing to unacceptable impacts on recycling systems and the environment, as set out in this analysis.

In the consultation document we sought feedback on whether we had considered the right options. In general, the majority of stakeholders felt that we had identified the relevant options

for consideration. Most submitters also agreed in full or in part with our proposal of a mandatory phase-out being the preferred option. Those that agreed in part commented that they would like to see a broader range of options taken forward that could complement each other. We intend to prioritise other policy options alongside the phase-outs, through the Government's resource efficiency and waste work programme.

Describe and analyse the options

Options considered in this RIS

For each proposal, this RIS considers the status quo and mandatory phase-out. Where relevant in light of consultation feedback, other options are also assessed. Depending on the proposal, these options include partial phase-out; staged or delayed approach; voluntary agreement and/or deferred decisions.

When deciding timeframes for phase-out dates, we considered the level of support for the phase-out in consultation feedback and the barriers to phasing out the particular item or material. We considered multiple phase-out timeframes for those proposed materials and items where the potential impacts of the phase-out are complex or significant. We have considered short phase-out timeframes for items/materials where this was preferred in consultation feedback and where it is feasible for industry.

For the purposes of this analysis, the options are presented as mutually exclusive ways of achieving the same outcome. However, it should be noted that many of the options under each proposal will be combined as a package of recommendations.

We did not consider product stewardship feasible for many single-use plastic items due to their small size and high number. This makes them difficult to collect and the cost of administering a scheme would likely be high.

Data limitations

Given the data and evidence limitations set out in the Executive Summary, the impact analysis is predominantly qualitative. Where quantitative estimates of costs and benefits have been included, the figures have been derived using:

- the most likely alternatives to the items being phased-out and their relative financial cost
- expected take-up of alternatives and other behaviour changes
- available baseline data on the status quo
- a time period of ten years and discount rate of five per cent
- only an individual approach to each of the proposals separately (i.e. no interactive effects are assumed or measured).

There is a lack of lifecycle analysis available for fibre-based alternatives for some single-use items such as tableware, cotton buds, and produce bags. Some submitters are concerned about the potential increased emissions resulting from these alternatives.[43] We acknowledge this but consider this impact to be low overall. We have balanced this potential increase with

[43] Fibre releases carbon dioxide in landfills, whereas plastic generally remains inert.

the expectation that some retailers and consumers will move toward reusable items for some applications (supported by the Ministry), and that fibre-based items are less harmful if littered.

Structure of analysis

The RIS assesses each of the materials and items considered for regulation in the consultation document individually.

Each proposal being recommended for regulation has undergone options analysis, multi-criteria analysis, and impact analysis.

Proposals that are not being recommended for regulation have undergone analysis of consultation feedback and options. The Ministry's preferred option for straws is to defer the decision and undertake further engagement with the disabled community, however we have completed the full analysis for straws following Ministerial direction.

The order of the analysis is as follows:

Hard-to-recycle materials

1. all oxo-degradable plastics
2. PVC food and beverage packaging
3. polystyrene food and beverage packaging.

Single-use plastic items

4. drink stirrers
5. cotton buds
6. produce bags
7. tableware
8. produce labels.

Materials and items that were considered in consultation but are not recommended for regulation

9. straws
10. cups and their lids (including coffee cups)
11. expanded polystyrene packaging (used as protective packaging and for cold-chain packaging).

Hard-to-recycle materials recommended for regulation

1. Oxo-degradable plastics[44]

The consultation document proposed:

[44] We have used the term oxo-degradable throughout this RIS but it is intended to include all degradable plastic products, which include pro-degradants to accelerate fragmentation of the material into smaller pieces.

- phase-out of all oxo-degradable plastics (commonly used for bin liners, refuse bags, food and clothing packaging)
- open to feedback around a date, but by January 2023 at the latest.

Options analysis

For the purpose of this RIS we considered two options: the status quo and a mandatory phase-out. Other options were ruled out in the consultation document.

A mandatory phase-out was supported by the majority of submitters including most industry submitters.

Option 1: Status quo

Under this option, oxo-degradable plastics would continue to be sold in New Zealand. There will be no controls in place to reduce the risk from micro-plastics associated with the degradation of these products, or to prevent them from contaminating composting or recycling streams. Producers and suppliers of oxo-degradable plastic products could continue to sell and market these products as an alternative to conventional plastic. It is likely that confusion around the environmental benefits of oxo-degradable products compared with other alternatives would remain. This option works against both the objectives to reduce plastic litter and improve resource recovery systems. Importers and retailers of these plastics would benefit from this option, as they would not need to make any changes.

Option 2: Mandatory phase-out

This option would phase-out oxo-degradable plastics by October 2022. The key beneficiaries would be the environment from reduced plastic litter and micro-plastics. There would also be benefits for compost processors and recyclers who would have less contamination by removing oxo-degradable plastics from infiltrating the market. There will be some cost to importers and retailers who currently sell oxo-degradable plastics but this is expected to be low as alternatives are so widely available and of similar price. A phase-out sends a strong message to manufacturers, importers and suppliers of oxo-degradable plastics that they do not fit within a low-waste economy and would eliminate any associated confusion for users.

This option received very strong and broad support (98 per cent) across all stakeholder groups, and most submitters supported the phase out to occur as soon as possible.

Multi-criteria analysis for oxo-degradable plastics

Key: ++ much better than the status quo; + better than the status quo; 0 about the same/status quo; - worse than the status quo; - - much worse than the status quo

	1. Status quo	2. Phase-out by October 2022
Litter	0 The current regulations (WMA and Litter Act) do not prevent oxo-degradable plastics being littered, and they quickly break down into micro-plastics.	++ Oxo-degradable plastics quickly break down into micro-plastics in the environment, phasing them out will reduce their harm to the marine environment.
Improves resource recovery	0	++

	Oxo-degradable plastics are a recycling and compost contaminant.	Phasing out oxo-degradable plastics will improve NZ's resource recovery (compost and recycling streams).
Fairness	0 Current regulations do not create a fair and certain market for businesses who are already moving away from oxo-degradable plastics.	++ A phase-out will level the playing field for businesses who are already moving away from oxo-degradable plastics.
Achievability – alternatives, implementation	0 No change for importers and retailers required.	0 Broad support, including from industry. Widespread alternatives available.
Unintended consequences	0 Oxo-degradable plastics are confusing for businesses and the public as they are often marketed as being more environmentally friendly despite their significant litter impact.	0 Unlikely.
Strategic alignment	0 Not aligned with strategic direction toward a low-waste more circular economy.	++ Aligns with strategic direction toward a low-waste more circular economy, and aligns and support international commitments and trends.
Overall assessment	0 Net decrease to society based on the objectives and criteria, particularly over time.	++ Net positive impact.

Costs and benefits of preferred option – phase-out by October 2022

Affected groups	**Comment**: nature of cost or benefit (e.g. ongoing, one-off), evidence and assumption (e.g. compliance rates), risks	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*
Additional costs of the preferred option compared to taking no action		
Importers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Retailers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Consumers	Passed-on increased industry costs, ongoing	Low
Ministry for the Environment	Regulation and implementation costs, ongoing	Low
Total monetised costs		
Total non-monetised costs		*Low*

Additional benefits of the preferred option compared to taking no action		
Environment	Reduced litter and micro-plastics, ongoing	Low
Government	Alignment with international trends and commitments	Low
Retailers, hospitality and general public	Cost savings from lower priced alternatives, ongoing	Low
General public	Reduced confusion around perceived benefits of oxo-degradable plastics, ongoing Improved amenity, ongoing	Low
Iwi/Māori, indigenous communities	Reduced environment degradation which impacts on customary practices, ongoing	Low
Rate-payers and communities	Reduced beach clean-up cost, ongoing	Low
Total monetised benefits		
Total non-monetised benefits		*Low*

Further comments

Key assumptions underlying this analysis:

- That many businesses are moving away from oxo-degradable plastics already or have never adopted them
- That some retailers and consumers will replace oxo-degradable plastics with more recyclable and/or reusable materials

While changing stock is a cost to some retailers and importers, this does not assume that the alternatives are more expensive than oxo-degradable plastics. Many packaging alternatives have a similar price to oxo-degradable plastics (which are often chosen for their perceived environmental benefit) and many are cheaper, which would lead to cost-savings.

Non-monetised costs and benefits have been identified for this analysis. The impact has been determined through consultation feedback, the regulatory change required relative to other policy approaches, and relative to the role oxo-degradable plastics have in the New Zealand economy and society.

Conclusion

We recommend a shorter phase-out timeframe than proposed in consultation due to broad submission feedback to bring the proposed timing forward. Our preferred option for oxo-degradable plastics is mandatory phase-out by October 2022 (option 2) as it delivers on both the reduced plastic litter and improved resource recovery objectives. It also aligns with our strategic direction and international trends and commitments. The impact to retailers and importers is considered low as alternatives are so widely available. We consider this to be a straightforward phase-out, which will enable a level playing field across the system.

2. PVC food and beverage packaging

The consultation document proposed:

- to prohibit the sale and manuacture of all food and beverage items that contain PVC packaging,
- by January 2023.

Consultation feedback

There was broad support for the PVC food and beverage packaging phase-out (96 per cent).[45] Industry and business were supportive but with some more caution, with many indicating partial support. Many submitters, including industry groups, requested we went further than proposed and include all PVC packaging in the phase-out, rather than just food and beverage.

Although individual submitters wanted a phase-out to occur as early as possible, many business/industry submitters consider the proposed timeframe of January 2023 for phasing-out PVC food and beverage packaging to be too soon for some applications of PVC. This was in part due to the impact of COVID-19 on supply chains and the ability to product test new packaging design, invest and procure new infrastructure (where required), and access expertise from overseas within the 2023 timeframe.

Technical challenges exist with a phase-out of flexible (soft) PVC packaging particularly commercial cling-film wrap, which has unique properties enabling it to stick to itself and allow oxygen for food to breathe both improving its shelf-life and maintaining food quality.

> *NZ manufacturers began moving away from rigid PVC to PET several years ago. The majority of remaining rigid PVC packaging could be converted to PET within the proposed timeframe. The NZ plastics industry is ready for this change. – Plastics NZ, 11*[46]

Options for PVC food and beverage packaging

Due to the challenges raised by industry around alternatives for flexible PVC, we considered the following options:

1. Status quo
2. Full phase-out in staged approach – meat trays by October 2022, other food and beverage packaging by July 2025, potential exemptions for some applications of flexible PVC
3. Partial phase-out – only phase-out rigid PVC.

Option one – status quo

[45] 96 per cent of submitters supported the proposal to phase out both PVC and polystyrene food and beverage packaging.

[46] Submissions received through consultation are quoted throughout Section 2.

Under the status quo, PVC food and beverage packaging will remain as a contaminant for recyclers. The status quo works against delivering the objective to improve New Zealand's resource recovery system.

Without regulation there is little incentive for industry and consumers to switch products. Some businesses are voluntarily moving away from PVC food and beverage packaging, which is factored into this option. However, voluntary action is uncertain, inconsistent, and likely to have limited reach.

Packaging manufacturers and retailers would benefit from this option as they could continue using PVC (and not need to make changes to their packaging lines) until they choose to transition to other packaging of their own accord.

Option two – full phase-out in staged approach

This option considers a three-staged approach:

- PVC meat trays by October 2022
- all other PVC food and beverage packaging by July 2025
- potential exemptions for certain applications of flexible PVC.

Consultation feedback showed high support from individual and industry submitters for a PVC food and beverage packaging phase-out, although some businesses cautioned about including flexible PVC. This option would have the greatest impact in reducing litter and improving resource recovery. The key benefit of this option is reduced contamination in our PET recycling streams for recyclers, and reduced litter in our environment, and alignment with Ministry work programmes and waste priorities.

There would be capital costs to some businesses that have not yet moved away from PVC. However, feedback also shows that industry is already moving in this direction and this impact would be low. There is also potential for investment in innovation to support solutions to the flexible PVC problem in time for 2025.

Option three – partial phase-out

This option would apply to rigid PVC only.

This would primarily benefit industry as they do not need to find alternatives to flexible PVC.

It would also reduce litter of PVC packaging and the contamination of PET recycling streams, although due to the reduced scope it would have a lower impact.

Multi-criteria analysis for food and beverage PVC

Key: ++ much better than the status quo; + better than the status quo; 0 about the same/status quo; - worse than the status quo; - - much worse than the status quo

	1. Status quo	2. Full phase-out in staged approach	3. Partial phase-out (rigid PVC only)
Litter	0 The current regulations (WMA and Litter Act) do not prevent PVC food and beverage packaging being littered.	++ Full phase-out would reduce PVC food and beverage packaging litter.	+ Partial phase-out would reduce PVC food and beverage packaging litter.
Improves resource recovery	0 PVC food and beverage packaging is a recycling contaminant.	++ Full phase-out would improve resource recovery.	+ Partial phase-out would improve resource recovery.
Fairness	0 The current regulations create an inconsistent market for businesses who are trying to move away from PVC packaging.	++ Full phase-out would create a fair and certain market around the use of PVC packaging.	+ Partial phase-out would create a fair and certain market around the use of rigid PVC packaging.
Achievability – alternatives, implementation	0	- - Industry is already moving away from PVC food and beverage packaging. PET alternatives are widely available. There are some challenges with suitable alternatives for flexible PVC applications but exemptions are expected for them.	- More achievable for industry than a full phase-out. PET alternatives are widely available for rigid PVC.
Unintended consequences	0	0 There is potential for some uptake of composite materials which are also challenging to recycle but this is low.	0 There is potential for some uptake of composite materials which are also challenging to recycle but this is low.
Strategic alignment	0	++ Aligned with international trends and commitments and steps toward a more circular economy.	+ Aligned with international trends and commitments and steps toward a more circular economy.

Overall assessment	0 Net decrease to society based on the objectives and criteria, particularly over time.	++ Net positive impact, and delivers highly on the first two criteria.	+ Net positive impact, however delivers less on the first two criteria which are weighted heavier.

Costs and benefits of preferred option – full phase-out in staged approach

Affected groups	**Comment**: nature of cost or benefit (e.g. ongoing, one-off), evidence and assumption (e.g. compliance rates), risks	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*
Additional costs of the preferred option compared to taking no action		
Manufacturers	Cost of changing or discontinuing product line, one-off	Medium
Importers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Retailers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Consumers	Passed-on increased cost of alternatives, ongoing	$12.1 million, present value over ten years at five per cent discount rate[47]
Ministry for the Environment	Regulation and compliance, ongoing	Low
Total monetised costs		$12.1 million
Total non-monetised costs		*Low*
Additional benefits of the preferred option compared to taking no action		
Environment	Reduced plastic litter and micro-plastics, ongoing	Low
Māori/iwi, indigenous community	Reduced degradation of environment that impacts on customary practices	Low
General public	Reduced visual pollution/improved amenity, ongoing Opportunity to increase awareness and drive behaviour change, ongoing	$2.6 million, present value over ten years at five per cent discount rate Low
Government	Alignment with international trends and commitments	Low

[47] The Ministry commissioned the monetised costs and benefits referenced in this Statement through an independent contractor, Sapere Research Group.

Plastic recyclers	Reduced contamination	$12.4 million, present value over ten years at five per cent discount rate
Retailers	Positive PR – 'doing the right thing'	Low
Retailer that have already moved away from polystyrene food and beverage packaging	Benefit from 'even playing field'	Low
Rate-payers and communities	Reduced beach clean-up cost, ongoing	Low
Total monetised benefits		$15.0 million
Total non-monetised benefits		*Low*

Further comments

Key assumptions underlying this impact analysis:

- That some businesses are moving away from PVC food and beverage packaging already.
- That some retailers and consumers will replace PVC food and beverage packaging with more recyclable plastics and reusable items and some may choose other alternatives.
- That the likely increase in recycling is valued by the general public according to available data on their willingness-to-pay for greater recycling.
- Additional costs of $9.1 million for the PET meat tray alternative and $3 million for the PET biscuit and cracker trays alternative are fully passed through to consumers.
- That there is benefit from lower rates of contamination in the recycling stream, with the majority share (around 83 per cent) accruing to meat trays.
- The estimated impacts relate to meat trays as well as biscuit and cracker trays. No impact is estimated for butter packs and wraps and sleeves, due to lack of data and likely changes already underway.
- That an effective exemption process will allow continued use of certain applications of flexible PVC, where viable alternatives do not exist and a phase-out would result in adverse impacts.

Both monetised and non-monetised costs and benefits have been identified for this analysis. The impact has been determined through consultation feedback, the regulatory change required relative to other policy approaches, and relative to the role PVC food and beverage packaging has in the New Zealand economy and society. Overall, the net impact is a benefit of around $2.9 million in present value terms across ten years with a five per cent discount rate. Almost all of the net benefit relates to the PVC meat tray phase-out and replacement with PET.

Conclusion

Our preferred option for food and beverage PVC packaging is a full phase-out with a staged approach (option 2). This would have some key costs for some businesses who still use PVC, including capital costs of re-tooling manufacturing sites, research and development, and product testing. The earlier phase-out of meat trays reflects the feedback from consultation. This will remove an easier-to-phase-out but problem contaminant from the system.

On balance, we consider that for most PVC applications there are recyclable alternatives available (e.g. PET plastic). There may be a need for exemptions for specific applications of flexible PVC, where alternatives are not available within the 2025 timeframe. Benefits of this approach include reducing a greater proportion of PVC food and beverage packaging from circulation and enabling a simplified system.

3. Polystyrene

What was proposed in consultation:

- all food and beverage packaging made from polystyrene, in two stages; January 2023 and January 2025
- all other expanded polystyrene (EPS) packaging including homewares and electronics, by January 2025

Consultation feedback and following changes to the proposal

While individual submitters were supportive of the full scope of polystyrene proposed for phase-out, submissions from local government, NGOs, business and industry highlighted complexity in taking a polymer type approach to phasing out polystyrene. Some industry submitters considered that it was not appropriate to assess the options against polystyrene as a material category and that this should have been broken down into EPS takeaway and grocery packaging, rigid polystyrene (such as for yoghurt packs) and other EPS protective packaging.

96 per cent of all submitters supported the proposal to phase-out polystyrene food and beverage packaging. While individual submitters were generally supportive of a phase-out for all food and beverage polystyrene packaging, there was mixed support amongst business and industry, particularly for high-impact polystyrene (HIPS) used for yoghurt packs. Cost is the main concern, as companies will need to invest in new packaging lines. Some industry submitters (such as Plastics NZ) recommend investigation into product stewardship approach for HIPS.

> *Alternatives [for rigid polystyrene] are theoretically available. However, these all require changes to packaging formats and possibly product formulation (in food space). To implement alternatives will take significant capital expenditure, and a long period of R&D, testing and regulatory compliance activities. – Plastics NZ, 10*

Major producers like Fonterra and Danone have also publicly pledged to move toward 100 per cent reusable, recyclable and compostable packaging by 2025 through signing New Zealand's Plastics Packaging Declaration. To fulfill this commitment these companies will need to move away from single-use high-impact polystyrene.

Following industry feedback from consultation, polystyrene (expanded and rigid) food and beverage packaging, and expanded polystyrene protective packaging, have been assessed separately.

EPS protective and cold-chain packaging is no longer recommended for regulation following stakeholder feedback, and is discussed on page 72 of this RIS.

Food and beverage polystyrene packaging (expanded and rigid) is recommended for regulation and is assessed below.

Options for food and beverage polystyrene packaging

We considered the following options:

1. Status quo
2. Full phase-out in staged approach – all polystyrene takeaway and EPS grocery packaging by October 2022, all other rigid polystyrene (including yoghurt packs) by July 2025
3. Full phase-out with an exemption for HIPS (such as yoghurt packs) and consider HIPS for regulated product stewardship

Option one – status quo

The key cost of this option is the continued use of polystyrene packaging by brands who are not ready to transition to new packaging materials. This packaging cannot be recycled and if it remains in the system, it will continue to affect recyclers, as it needs to be separated from other plastics for recycling, and sent to landfill. This has time and cost implications for recyclers. Once the packaging goes to landfill the resources are lost and cannot be circulated through the economy for further use. This works against delivering the objective to improve NZ's resource recovery and move toward a more circular packaging system.

Without regulation there is little incentive for industry and consumers to switch products. Some businesses are voluntarily moving away from polystyrene food and beverage packaging, which is factored into this option. However, comprehensive voluntary action is uncertain, likely to have a limited impact, and financially disadvantages the businesses who are trying to move away from these products.

The key beneficiaries of this option are manufacturers and retailers, who would not need to make any changes.

Option two – full phase-out in staged approach

This option proposed a two-staged approach:

- all polystyrene takeaway and EPS grocery packaging by October 2022
- all other rigid polystyrene (including high-impact yoghurt containers) by July 2025.

The focus is first on a phase-out of the applications that raised no industry concern and where a broad range of alternatives exist. The option proposes a longer lead-in time for rigid polystyrene to allow time for industry to prepare and make necessary changes to their product lines. For some products this will include the capital cost of re-tooling machinery lines to move away from HIPS packaging (yoghurt packs).

This option would have the greatest impact on reducing litter and improving resource recovery.

Option three – full phase-out with exemption for HIPS and consider HIPS for regulated product stewardship

This option would exempt high-impact polystyrene and consider it as part of co-design process for regulated product stewardship.

The key benefit of this option is the cost-savings to industry as businesses would not need to re-tool their machinery but in the long-term, there is likely to be ongoing costs associated with implementing a product stewardship scheme.

Costs of this option are the environmental harm (and associated amenity cost) from litter and contamination in the resource recovery system. We do not expect that a product stewardship scheme for HIPS would result in increased recycling. Such a scheme would rely on sufficient uptake to provide scale for recycling and would be dependent on finding suitable end-markets for recycled material. With some brands moving away from polystyrene voluntarily the volume available for recycling will also decrease over time, which will impact the economies of scale. If this packaging remains in the system it will also remain as a contaminant in kerbside systems.

Multi-criteria analysis for food and beverage polystyrene packaging

Key: ++ much better than the status quo; + better than the status quo; 0 about the same/status quo; - worse than the status quo; -- much worse than the status quo

	1. Status quo	2. Full phase-out in staged approach	3. Full phase-out with exemption for HIPS • Consider HIPS for product stewardship
Litter	0 The current regulations (WMA and Litter Act) do not prevent polystyrene food and beverage packaging being littered.	++ Full phase-out would reduce polystyrene food and beverage packaging litter.	++ Partial phase-out would reduce polystyrene food and beverage packaging litter. Foam EPS takeaway containers are the most likely to be littered and they are phased out in this option.
Improves resource recovery	0 Polystyrene food and beverage packaging is a recycling contaminant.	++ Full phase-out would improve resource recovery.	+ Partial phase-out would improve resource recovery.
Fairness	0	++	+

		Full phase out would improve fairness and certainty around polystyrene packaging.	Partial phase-out would improve fairness and certainty around polystyrene packaging.
Achievability – alternatives, implementation	0	- - Industry have identified this would be challenging, although major producers have already pledged to move away from unrecyclable packaging by 2025. There is a capital expenditure cost to industry.	- More achievable for industry than a full-phase out but still more challenging than no action. If a product stewardship scheme was developed this would come at some cost (set up of collection infrastructure, ongoing operational costs).
Unintended consequences	0	0 There could be some potential emissions increase from fibre-based alternatives.	0 There could be some potential emissions increase from fibre-based alternatives.
Strategic alignment	0 Not aligned with international direction or steps toward a more circular economy.	++ Aligns with international direction and steps toward a more circular economy.	+ Aligns with international direction and steps toward a more circular economy.
Overall assessment	0 Net decrease to society based on the objectives and criteria, particularly over time.	++ Net positive impact, particularly with the first two criteria which are weighted heavier.	+ Net positive impact.

Costs and benefits of preferred option – full phase-out in staged approach

Affected groups	**Comment**: nature of cost or benefit (e.g. ongoing, one-off), evidence and assumption (e.g. compliance rates), risks	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*
Additional costs of the preferred option compared to taking no action		
Manufacturers	Cost of changing or discontinuing product line, one-off	Medium
Consumers	Passed-on increased industry costs, ongoing	$18 million, present value over ten years at five per cent discount rate

Importers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Retailers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Hospitality sector	Cost of changing packaging (ongoing due to price increase) and/or disposing of unused stock (one-off)	Low
Total monetised costs		$18 million
Non-monetised costs		*Low*
Additional benefits of the preferred option compared to taking no action		
Environment	Reduced plastic litter and micro-plastics, ongoing	Low-medium
Iwi/Māori, indigenous communities	Reduced environment degradation which impacts on customary practices	Low
General public	Reduced visual pollution/improved amenity, ongoing	Low
Plastic recyclers	Reduced contamination	Medium
Government	Alignment with international trends and commitments	Low
Retailers	Positive PR – 'doing the right thing', short-term	Low
Retailers that have already moved away from polystyrene food and beverage packaging	Financial benefit from 'even playing field'	Low
Total monetised benefits		
Non-monetised benefits		*Low-medium*

Further comments

Key assumptions underlying this impact analysis:

- That many businesses are moving away from polystyrene food and beverage packaging already.
- That some retailers and consumers will replace polystyrene food and beverage packaging with more recyclable plastics and reusable items whereas others may move to different alternatives.
- That the full cost of alternatives following the phase-out will be passed onto consumers, but that any consumption response will be muted due to the modest proportion of the purchase price accounted for by the container.
- That the price of alternatives is five cents more than the status quo.

- That, due to data limitations, the broad range of items under this category (polystyrene food and beverage packaging) can be represented by expanded polystyrene takeaway clamshell containers only.
- That around 50 million takeaway clamshell containers are used currently.
- That impacts associated with meat trays are best considered in the analysis of phasing out of PVC.

Both monetised and non-monetised costs and benefits have been identified for this analysis. The impact has been determined through consultation feedback, consideration of the regulatory change required relative to other policy approaches, and relative to the role polystyrene food and beverage packaging has in the New Zealand economy.

Most of the estimated costs ($11 million in present value terms) relate to takeaway containers, with the remainder relating to yoghurt pots. The additional costs to households is around 70 cents per household per year, which is a very small fraction of the estimated $3,300 households spent on takeaway food per year in 2019.[48]

Conclusion

A phase-out of polystyrene food and beverage packaging would primarily cost industry, and will include the capital cost of re-tooling manufacturing sites for certain products. High impact polystyrene (HIPS) is particularly problematic to replace, due to its unique 'snap' functionality, which enable individual portions without additional packaging.

A full mandatory phase-out by 2025 is our preferred option (option 2). We consider that although a full phase-out will cost industry/business, on balance industry is already moving in this direction. The staged approach aligns with the timelines some major producers are already working toward, so is intended to mitigate impact. We do not consider that the cost of administering a product stewardship scheme for HIPS (option 3) would result in increased recycling over the long-term and these items would still be a contaminant in kerbside systems.

Single-use plastic item proposals

4. Drink stirrers

The consultation documented proposed:

- to phase-out drink stirrers, described as 'a short stick to stir drinks, made partly or wholly of plastic'.
- no proposed date, but by January 2025 at the latest (subject to feedback from consultation).

Options

[48] https://www.stats.govt.nz/information-releases/household-expenditure-statistics-year-ended-june-2019; https://www.stats.govt.nz/news/kiwis-growing-taste-for-takeaways-and-eating-out

We considered two options: the status quo and a mandatory phase-out.

Option one – status quo

The key cost of this option is to the environment, as drink stirrers will continue to escape into our land and marine environments through litter. This works against achieving the objective to reduce harm from litter from single-use plastic items. This option could also cause frustration by the general public, given the strong support to phase-out drink stirrers shown through the consultation feedback. Beneficiaries of this option would be New Zealand-based plastic drink-stirrer manufacturers and retailers who would not need to make any changes to their business.

Taking no action on drink stirrers supports the continued inefficient use of resources and represents a lost opportunity to reduce plastic litter and encourage reuse. Drink stirrers have low value, have widespread reusable alternatives such as spoons, and are discarded soon after use. Continuing to allow the manufacture and sale of drink stirrers despite the materials, resources and emissions that go into manufacturing them is not aligned with this government's action to move towards a more circular economy.

Option two – mandatory phase-out by October 2022

Drink stirrers are a source of single-use plastic litter and this option supports achieving the objective to reduce harm from plastic litter, and the move towards a more circular economy. Consultation feedback showed strong support for this phase-out, across individual, NGO, local government and industry submitters, with over 96 per cent of submitters in support. Many also preferred a shorter lead-in timeframe in comparison to more complex phase-outs (e.g. PVC and polystyrene).

There will be some costs to some New Zealand plastic manufacturers, but this is expected to be low as the plastic stirrers only make up a small part of their operations. Some retailers could save money from no longer providing them for free. There are not expected to be any distributional impacts as alternatives are so widely available, such as reusable stirrers like spoons.

> *"Several NZ manufacturers make these drink stirrers. However, they are a small part of their overall operations therefore the economic impact on their businesses will be small." – Plastics NZ, 18.*

Multi-criteria analysis for drink-stirrers

Key: ++ much better than the status quo; + better than the status quo; 0 about the same/status quo; - worse than the status quo; - - much worse than the status quo

	1. Status quo	2. Phase-out by October 2022
Litter	0 The current regulations (WMA and Litter Act) do not prevent drink-stirrers being littered.	+ Drink-stirrers are a source of single-use plastic litter and phasing them out will reduce micro-plastic litter (and possibly total litter depending on behaviour change) as well as harm to marine life.

Improves resource recovery	0 Drink stirrers have minimal impact on resource recovery, they are not significant recycling contaminants.	0 Drink stirrers have minimal impact on resource recovery, they are not significant recycling contaminants. Alternatives could increase weight going to landfill, but unlikely to be significant.
Fairness	0	0 Minimal impact on levelling the playing field for businesses.
Achievability – alternatives, implementation	0 No change required for NZ manufacturers.	0 Industry have not raised any concerns around a drink-stirrer phase-out. Reusable drink stirrers are commercially feasible (e.g. metal spoons). This also helps to encourage reuse behaviour.
Unintended consequences	0 The litter of drink-stirrers would continue as an unintended consequence of the current legislative and regulatory settings.	0 Unlikely.
Strategic direction	0 Taking no action is not aligned with Government's strategic direction.	++ This approach supports efficient use of resources and aligns with international trends and commitments. Other territories such as the United Kingdom and Australian states are also phasing out drink-stirrers.
Overall assessment	0 Net negative impact over time, based on the objectives and criteria.	+ Net positive impact to society based on the objectives and criteria.

Costs and benefits of preferred option – phase-out by October 2022

Affected groups	**Comment**: nature of cost or benefit (e.g. ongoing, one-off), evidence and assumption (e.g. compliance rates), risks	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*
Additional costs of the preferred option compared to taking no action		
Manufacturers	Cost of changing or discontinuing product line, one-off	Low-medium

Retailers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Importers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Consumers	Passed-on increased industry costs, ongoing	Low
Ministry for the Environment	Regulation and compliance, ongoing	Low
Total monetised costs		
Total non-monetised costs		*Low*
Additional benefits of the preferred option compared to taking no action		
Environment	Reduced plastic litter and micro-plastics, ongoing	Low
General public	Reduced visual pollution/improved amenity, ongoing Opportunity to increase awareness and drive behaviour change, ongoing	Low Low
Government	Alignment with international trends and commitments	Medium
Iwi/Māori, indigenous communities	Reduced environment degradation which impacts on customary practices	Low
Hospitality	Cost savings from not providing free stirrers, ongoing	Low
Rate-payers and communities, local government	Reduced beach clean-up cost, ongoing	Low
Total monetised benefits		
Total non-monetised benefits		*Low*

Further comments

Key assumptions underlying this analysis:

- That many businesses are moving away from single-use plastic drink-stirrers already and thus the impact is lower.
- That some retailers and consumers will replace single-use plastic drink-stirrers with reusable items.

Non-monetised costs and benefits have been identified for this analysis. The impact has been determined through consultation feedback, the regulatory change required relative to other policy approaches, and relative to the role drink-stirrers have in the New Zealand economy and society.

Conclusion

Mandatory phase-out (option 2) is our preferred option for single-use plastic drink-stirrers. This delivers on the plastic litter reduction objective and is achievable for industry. Several New Zealand manufacturers make drink-stirrers but as they are a small part of their operations we consider the cost to be low. As there was high public support for this phase-out and no industry opposition, we consider this to be a straightforward phase-out. The potential for additional costs from alternatives is negligible as they are priced similarly to the status quo. Any other possible additional costs (e.g. greater weight being sent to landfill if there is no behaviour change) are offset by potential benefits (e.g. reduction in volume of plastics entering marine environment).

5. Cotton buds

The consultation document proposed:

- to phase-out plastic-stemmed cotton buds, defined as 'a small rod made wholly or partly of plastic with cotton wrapped around one or both ends; not designed or intended for reuse'
- no proposed date, but by January 2025 at the latest (subject to feedback from consultation).

Options

We considered two options: status quo and mandatory phase-out.

Option one – status quo

The key cost from this option is to the environment, into which plastic-stemmed cotton buds will continue to escape, working against achieving the objective to reduce harm from litter. Retailers and importers would be the primary beneficiary from this option as they would not need to make any changes to their product lines. We are not aware of any NZ-based plastic cotton bud manufacturers.

Option two – mandatory phase-out by October 2022

The key benefit of this option is the reduction of litter of plastic-stemmed cotton buds, and the movement towards a more circular economy. There was broad support for this option in the public consultation, with over 87 per cent of submitters in support, and no industry opposition. Many submitters preferred a shorter timeframe over a longer lead in time.

Three individual submitters noted that cotton buds may be required for medical purposes. We received a few submissions from District Health Boards and none commented on requiring exemptions for single-use plastic cotton bud use in the medical field but further consideration can be given to this if regulations are developed.

Most New Zealand retailers have already moved away from plastic cotton buds, so the impact to businesses as a whole would be low. Alternatives, such as fibre-stemmed, are widely available and accessible. For example, the Swissper's paper-stemmed cotton buds available at Countdown are $3.50 for a pack of 240 cotton buds, and The Warehouse has paper-stemmed cotton-bud packs of 120 available for $1.00.[49]

There are not expected to be any distributional impacts as fibre-based alternatives are so widely available and accessible (in fact it is harder to find plastic-stemmed cotton buds). Alternatives may be more energy intensive to produce, however, if littered they are more likely to degrade naturally and will not pose a micro-plastic risk.

Multi-criteria analysis for cotton buds

Key: ++ much better than the status quo; + better than the status quo; 0 about the same/status quo; - worse than the status quo; - - much worse than the status quo

	1. Status quo	2. Phase-out by October 2022
Litter	0 The current regulations (WMA and Litter Act) do not prevent cotton buds being littered.	+ Cotton buds are a source of single-use plastic litter and phasing them out will reduce micro-plastic litter (and possibly total litter depending on behaviour change) as well as harm to marine life.
Improves resource recovery	0 Cotton buds have minimal impact on resource recovery, they are not significant recycling contaminants.	0 Cotton buds have minimal impact on resource recovery, they are not significant recycling contaminants.
Fairness	0 Minimal impact on levelled playing field.	+ A phase-out will level the playing field for smaller businesses who have not yet moved away from plastic cotton buds due to their price.
Achievability – alternatives, implementation	0 No change required for NZ manufacturers and retailers.	0 Strong support, including from industry. Widespread alternatives available, which contribute to simplifying materials in circulation, encouraging reuse, and creating positive behaviour change.
Unintended consequences	0 The litter of cotton buds would continue as an unintended	0 Unlikely.

[49] Prices checked in April 2021.

	consequence of the current legislative and regulatory settings.	
Strategic alignment	0 Not aligned with international direction and steps toward a more circular economy.	++ Aligns with international trends and commitments, and steps toward a more circular economy.
Overall assessment	0 No impact.	+ Net positive impact.

Costs and benefits of preferred option – phase-out by October 2022

Affected groups	**Comment**: nature of cost or benefit (e.g. ongoing, one-off), evidence and assumption (e.g. compliance rates), risks	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*
Additional costs of the preferred option compared to taking no action		
Retailers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Importers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Ministry for the Environment	Regulation and compliance, ongoing	Low
Consumers	Passed-on increased industry costs, ongoing	Low
Total monetised costs		
Total non-monetised costs		*Low*
Additional benefits of the preferred option compared to taking no action		
Environment	Reduced plastic litter and micro-plastics, ongoing	Low
Government	Alignment with international trends and commitments	Low
General public	Reduced visual pollution/improved amenity, ongoing	Low
Iwi/Māori, indigenous communities	Reduced environment degradation which impacts on customary practices	Low
Rate-payers and communities	Reduced beach clean-up cost, ongoing	Low

General public	Opportunity to increase awareness and drive behaviour change, ongoing	Low
Total monetised benefits		
Total non-monetised benefits		*Low*

Further comments

Key assumptions underlying this analysis:

- That many businesses have begun and will continue to move away from single-use plastic stemmed cotton buds already.
- There are no New Zealand-based single-use plastic cotton bud manufacturers.
- That Government will confirm with the medical industry whether exemptions are required for their field, and if so, will work with them to develop an exemption appropriately.

Non-monetised costs and benefits have been identified for this analysis. The impact has been determined through consultation feedback, the regulatory change required relative to other policy approaches, and relative to the role cotton buds have in the New Zealand economy and society.

Conclusion

Mandatory phase-out (option 2) is our preferred option for cotton buds. A regulatory approach delivers on the objective to reduce harm from plastic litter and takes a tangible step toward eliminating unnecessary and problematic plastics, which aligns with our strategic direction. This option also creates a more even playing field meaning that all retailers/importers must adhere to the same rules. Due to the high public support and availability of alternatives, we consider this a straightforward phase-out with minimal costs.

6. Produce bags

The consultation document proposed:

- to phase out produce bags (a lightweight bag under 70 microns thick, without handles, for carrying fruit and vegetables). It does not include similar barrier type bags used for other products such as deli meats and seafood.
- open to timeframes, but by January 2025 at the latest.

Consultation feedback

There was high public and industry support (over 94 per cent) to phase-out produce bags, following the exclusion of these bags from the plastic bag phase-out.[50] Supermarkets are also on track to phase them out voluntarily. Some submitters noted the importance of produce bags

[50] The ban on single-use plastic shopping bags came into force on 1 July 2019.

to reduce contamination, and raised concern about the replacement with paper bags from a climate lifecycle perspective.[51]

> *We… do not support the replacement of single-use-plastic produce bags with single-use paper bags. This is damaging to the environment due to the increased climate and water impacts. We propose a ban on all single-use produce bags not just plastic ones, similar to what has been signed into law in New Jersey, USA. – Plastics NZ, 19*

The Packaging Forum's soft plastic recycling scheme and the National Retail Association both raised concerns about the phase-out. While they agree with the intent of the proposal, they note the existing soft plastic recycling schemes and are concerned about the potential uptake with thicker plastics as a result.

Options

We considered three options:

1. status quo
2. phase-out by July 2023
3. voluntary agreement.

Option one – status quo

The key cost from this option is to the environment, as plastic produce bags will continue to escape into our land and marine environments, and work against reducing litter. It would also continue to support an uneven market for businesses and retailers that are already moving away from plastic produce bags, but are financially disadvantaged by doing so.

Option two – phase-out by July 2023

There is wide support for this option. Alternatives are widely available, and include no bag, single-use paper bags, or reusable options such as cotton, hemp, fabric, or boxes provided by retailers. This phase-out will deliver on reducing harm from plastic litter but the main benefit of a phase-out is the opportunity for driving behaviour change and encourage reuse, which aligns with our strategic direction to move New Zealand closer to a low-waste and low-carbon future.

The two year lead-in with this option aligns with the Ministry's other waste work programmes and priorities. Two years is also a reasonable amount of time for the Ministry for the Environment (and other relevant stakeholders) to deliver communications campaigns to shift behaviour change towards more sustainable alternatives such as reusable options.

There is a small number of New Zealand businesses who will be negatively impacted by a phase-out where produce bags make up a high-proportion of the products that they put into

[51] Paper bags, if disposed in landfills, will release carbon emissions. Plastic generally remains inert in landfills (does not release emissions). Paper bags take more energy to produce than plastic, however plastic is more problematic if littered.

the market. There will also be some cost to retailers and importers who need to change stock and processes, although this is expected to be low as alternatives are widely available.

The cost to the public is low. People on lower incomes might be disproportionately affected if they cannot afford reusable bags, but alternatives with no cost are likely to also be available (for example, single-use paper bags provided by the retailer). Retailers might profit from selling alternatives instead.

Option three – voluntary agreement

This option primarily benefits industry who are not mandated to make any changes and can choose whether to participate in a voluntary initiative. A voluntary initiative may have lower costs for industry but does not align well with our strategic direction or create fairness across the system meaning that free-riders and hold-outs will interfere with the effectiveness of a voluntary approach.

A voluntary agreement for produce bags could also be inequitable in comparison to the recommended phase-outs for complex materials like PVC and polystyrene.

Multi-criteria analysis for produce bags

Key: ++ much better than status quo; + better than status quo; 0 about the same/status quo; - worse than the status quo; - - much worse than the status quo

	1. Status quo	2. Phase-out by 2023	3. Voluntary agreement
Litter	0 The current regulations (WMA and Litter Act) do not prevent produce bags being littered in practice, and they are a significant marine litter issue.	++ Produce bags are a source of single-use plastic litter and phasing them out will reduce their harm to the environment.	+ Produce bags are a source of single-use plastic litter and an agreement will reduce their harm to the environment.
Improves resource recovery	0 Produce bags are a minor recycling contaminant.	+ Small improvement to resource recovery, produce bags are minor recycling contaminants.	+ Small improvement to resource recovery, produce bags are minor recycling contaminants.
Fairness	0 Current regulations do not create a fair and certain market for businesses who are already moving away from plastic produce bags.	++ A phase-out will level the playing field for businesses who are already moving away from plastic produce bags.	0 A voluntary agreement will not create a fair and certain market for businesses who are already moving away from plastic produce bags.

Achievability – alternatives, implementation	0	- Most industry is supportive but this is still more challenging to implement than the status quo. Widespread alternatives available.	+ A voluntary agreement would be achievable to implement and benefit industries' PR/reputation.
Unintended consequences	0 Produce bags continue to end up as litter.	- There could be some uptake of paper bags which have a higher emissions profile, or are of thicker plastic (thus creating more waste). This would be mitigated with a communications campaign helping people move to more sustainable alternatives.	- There could be some uptake of paper bags which have a higher emissions profile.
Strategic direction	0 Not working towards NZ international or Ministry priorities.	++ Aligns with international direction and steps toward a more circular economy.	0 Is partially aligned with government waste work programmes and international direction.
Overall assessment	0 Net decrease to society, particularly over time.	++ Net positive impact to society based on the objectives and criteria.	+ Net positive impact to society based on the objectives and criteria.

Costs and benefits of preferred option – phase-out by July 2023

Affected groups	**Comment**: nature of cost or benefit (e.g. ongoing, one-off), evidence and assumption (e.g. compliance rates), risks	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*
Additional costs of the preferred option compared to taking no action		
Manufacturers	Cost of changing or discontinuing product line, one-off	Low-medium
Retailers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Ministry for the Environment	Regulation and compliance, ongoing	Low
Consumers	Increased cost of alternatives, ongoing	$2 million per year (steady state)
Importers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Total monetised costs		$2 million
Total non-monetised costs		*Low*
Additional benefits of the preferred option compared to taking no action		
Environment	Reduced plastic litter and micro-plastics and impact on marine life, ongoing	Low-medium
General public	Reduced visual pollution/improved amenity, ongoing	Low
Government	Alignment with international trends and commitments	Low
Iwi/Māori, indigenous communities	Reduced environment degradation which impacts on customary practices	Low
Retailers and hospitality	Profit from selling alternative bags and not providing bags for free, ongoing	$4 million per year, steady state
Rate-payers and communities	Reduced beach clean-up cost, ongoing	Low
General public	Opportunity to increase awareness and drive behaviour change, ongoing	Low
Total monetised benefits		$4 million
Total non-monetised benefits		*Low*
Further comments		

Key assumptions underlying this impact analysis:

- That some retailers and consumers will replace single-use plastic produce bags with reusable items (or no replacement in some situations).
- That the increased cost of alternatives will be small for most households (i.e. $1 for three mesh bags, each weighing three grams, used 52 times then replaced).
- That, over time the increased costs to retailers of paper alternatives is more than offset by the reduction in bag use over time.
- Recent evidence suggests that there is potential for a significant reduction in plastic bag litter (i.e. up to a 46 per cent reduction), though this is not monetised.

Both monetised and non-monetised costs and benefits have been identified for this analysis. The impact has been determined through consultation feedback, the regulatory change required relative to other policy approaches, and relative to the role produce bags have in the New Zealand economy and society.

Conclusion

Our preferred option for single-use plastic produce bags is a mandatory phase-out by July 2023 (option 2). There is wide and broad support for this phase-out, and it will have positive impact on reducing litter. We consider this phase-out is relatively straightforward, although we have carefully considered the most appropriate timeframe.

The two year timeframe allows two years for industry to adapt, as requested through consultation feedback. We have identified the key factor to ensure the successful transition from plastic produce-bags to the most sustainable alternatives, such as reusable produce bags or no produce bag (in situations where the amount of produce purchased is singular), is behaviour change. We consider two years should be sufficient time to create awareness and for the Ministry to run communications campaigns encouraging reuse behaviour. The timeframe aligns with the Ministry's waste work programmes and priorities, and with international direction.

7. Plastic tableware

The consultation document proposed:

- to phase-out plastic tableware and cutlery intended for single-use (including multi-packs),
- no proposed date, but by January 2025 at the latest.

Consultation feedback and following changes to the proposal

There was wide support for this phase-out (over 91 per cent). None of the substantive submissions specified opposition to this phase-out, and many NGO and public submissions also wanted to see an investment in reuse, and called for the inclusion of degradable plastics as well. Consequently we have clarified the definition of tableware and cutlery included in the phase-out to:

- plastic tableware and cutlery intended for single-use (including degradable plastics), including multi-packs.

Most industry submissions supported the proposal in-principle, but wanted to see a longer lead-in time to allow businesses time to adapt. Some businesses also noted concern with fibre-based alternatives that rely on per-and polyfluoroalkyl (PFAS) coatings to repel water and oil.[52]

> *There are a number of NZ manufacturers who will be impacted by a ban on single-use plastic tableware and cutlery. However, most, if not all, of these manufacturers are also making non-plastic alternatives and/or reusable tableware and cutlery. – Plastics NZ, 19*

Options

We considered four options:

1. status quo
2. mandatory phase-out by July 2023
3. mandatory phase-out with a longer phase out period e.g. 2025
4. defer decision.

Option one – status quo

The key cost from this option is the environmental harm of plastic tableware continuing to cause litter in our land and marine environments. Plastic tableware is lightweight, which makes it easy for it to become windblown and be swept into our marine environments. Their common use in outdoor eating settings (where there may be limited rubbish bins available) also makes them a high-litter risk. This option works against delivering on reduced harm from single-use plastic litter and does not align well with a low-waste and more circular economy.

Option two – mandatory phase-out by July 2023

The key benefits of this option are reduced litter in the environment and the associated amenity improvement for the public. There is wide support for this option and it will deliver on the litter reduction objective.

Key costs of this option are to some New Zealand-based manufactures and retailers. However, most (if not all) of the New Zealand-based manufacturers also manufacture non-plastic alternatives (reusable and fibre-based) so we consider the impact on business is low.

Alternatives are readily available, including reusable tableware, and single-use paper, bamboo and wood options. As with other single-use plastic items, we recommend reusable options as the 'first best' alternative. Given the availability of alternatives, the impact and cost to the public is also expected to be low. People on lower incomes might be disproportionately impacted as

[52] PFAS (per- and poly-fluoroalkyl substances) is a group of manufactured chemicals, that are resistant to water, oil and heat. Foods exposed to PFAS are a potential health risk and can become soil contaminants.

reusable and fibre-based single-use tableware tends to be more expensive, although this is by a decreasing margin as they become more mainstream.

There is an implementation issue for the Government to address around a subset of fibre-based alternatives that use PFAS coatings, which can leach from containers into compost and become a soil contaminant. s 9(2)(ba)(i) [redacted]

Understanding which products contain PFAS will help inform suitable measures for mitigating their risks. We intend to provide implementation guidance to New Zealand businesses that will help to identify the most suitable alternatives. There is also an opportunity to investigate and invest in reuse systems that would displace single-use alternatives all together.

Option three – longer phase-out period e.g. 2025

This option primarily benefits industry and retailers as it allows more time for businesses to change their processes and potentially manufacturing lines, while also delivering on reducing harm from litter. It still comes with some cost to some manufacturers and retailers, although the intention of this longer lead in time is to mitigate this.

Another benefit of this longer lead in is it allows more time to head off the PFAS risk.

Option four – defer decision

This would provide no immediate contribution to delivering the objectives. The benefit of this option would be for the Ministry to do further work on the potential climate and environmental (soil and pollution) risks around alternatives. The Ministry could then provide a clearer policy approach and guidance to businesses/industry, which would be a benefit for them.

Multi-criteria analysis

Key: ++ much better than the status quo; + better than the status quo; 0 about the same/status quo; - worse than the status quo; - - much worse than the status quo

	1. Status quo	2. Phase-out by July 2023	3. Phase-out by 2025	4. Defer decision
Litter	0 The current regulations (WMA and Litter Act) do not prevent single-use plastic tableware being littered in practice.	++ Single-use plastic tableware is a source of single-use plastic litter and phasing them out will reduce their harm to the environment.	++ Single-use plastic tableware is a source of single-use plastic litter and phasing them out will reduce their harm to the environment.	0 No immediate impact on litter.
Improves resource recovery	0 No impact on resource recovery, not a recycling contaminant.	0 No impact on resource recovery, not a recycling contaminant.	0 No impact on resource recovery, not a recycling contaminant.	0 No impact on resource recovery, not a recycling contaminant.
Fairness	0 The current regulations are not fair for businesses that are moving away from single-use plastic tableware already.	++ Would level the playing field for businesses that are moving away from single-use plastic tableware already.	++ Would level the playing field for businesses that are moving away from single-use plastic tableware already.	0 Not certain to level the playing field for businesses that are moving away from single-use plastic tableware already.
Achievability – alternatives, implementation	0	- Wide support, including from most industry, although this is still more challenging than the status quo. Alternatives are easily available and include reusable and fibre-based single-use options. Alternatives are currently more expensive than	- Wide support, including from industry. Key industry stakeholders have recommended a three year time frame for this phase-out, although this is still more challenging than the status quo.	0 Achievable for industry and government.

		single-use plastic tableware but this margin is decreasing as they become more mainstream.	Alternatives are easily available and include reusable and fibre-based single-use options. Alternatives are currently more expensive than single-use plastic tableware but this margin is decreasing as they become more mainstream.	
Unintended consequences	0	- Some submitters are concerned about the potential uptake of PFAS in fibre-based tableware alternatives. There may also be increased emissions from fibre-based alternatives.	- The longer lead-in time is more likely to mitigate any unintended consequences from PFAS. There may also be increased emissions from fibre-based alternatives.	0 Unlikely.
Strategic alignment	0	++ Timeframe aligns with waste work programmes and international trends and commitments.	+ Timeframe aligns with waste work programmes and international trends and commitments.	0 Partially aligned with waste work programmes. However, this deferred decision could be unequitable in comparison to more complex phase-outs.
Overall assessment	0 No impact.	++ Net positive impact to society based on the objectives and criteria.	++ Net positive impact to society based on the objectives and criteria.	0 Very achievable but also low-impact.

Costs and benefits of preferred option – phase-out by July 2023

Affected groups	**Comment**: nature of cost or benefit (e.g. ongoing, one-off), evidence and assumption (e.g. compliance rates), risks	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*
Additional costs of the preferred option compared to taking no action		
Manufacturers	Cost of changing or discontinuing product line, one-off	Low-medium
Retailers and hospitality	Cost of changing stock and/or disposing of unused stock, one-off	Low
Consumers	Increased cost of alternatives, ongoing	$8 million across ten-year period, with 5% discount rate
Importers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Ministry for the Environment	Regulation and compliance, ongoing	Low
Total monetised costs		$8 million
Non-monetised costs		*Low*
Additional benefits of the preferred option compared to taking no action		
General public	Reduced visual pollution/improved amenity, ongoing	Low
Environment	Reduced plastic litter and micro-plastics, ongoing	Low-medium
Government	Alignment with international trends and commitments	Low
Iwi/Māori, indigenous communities	Reduced environment degradation which impacts on customary practices	Low
General public	Opportunity to increase awareness and drive behaviour change, ongoing	Low
Total monetised benefits		
Non-monetised benefits		*Low*

Further comments

Key assumptions underlying this impact analysis:

- That many businesses are moving away from single-use plastic tableware already.
- That some retailers and consumers will replace single-use plastic tableware with reusable items.
- That costs of alternatives will be passed through to consumers.

Both monetised and non-monetised costs and benefits have been identified for this analysis. The impact has been determined through consultation feedback, the regulatory change required relative to other policy approaches, and relative to the role single-use plastic tableware has in the New Zealand economy and society.

Conclusion

We consider that no action and deferring the decision (options 1 and 4) will have little or no impact on achieving the objectives.

This phase-out will bring some cost to industry, particularly manufacturers and retailers. However, given New Zealand manufacturers of plastic tableware also manufacture other items in their portfolio, we consider this cost low-medium. As alternatives are so widely available for retailers and of a similar price, we also consider that this impact is low.

PFAS

There is work underway internationally to address the PFAS risk that New Zealand can learn from. Globally packing manufacturers are already responding to the market demand for PFAS-free fibre options. The scale-up of reusable alternatives (which do not contain PFAS) would also help reduce this risk.

Preferred option and timeframe

Submitters were supportive of a phase-out as soon as possible for single-use plastic tableware. We consider there is a balance between the public pull for action and time for industry to adapt and innovate.

Option 2 is our preferred option, as we consider two years is enough time to mitigate any potential impacts. We expect that two years should be enough time for industry to use up existing stock and move to alternatives. Two years will also allow enough time for officials to provide sufficient guidance to industry to support the transition to alternatives. While we acknowledge the PFAS concern around some fibre-based alternatives, we expect that driving behaviour change away from these potentially harmful options will limit this risk.

8. Produce labels

The consultation document proposed:

- to phase-out any single-use sticker on fruits or vegetables that are sold in New Zealand and made partly or wholly of plastic that is not compostable
- no proposed date, by January 2025 at the latest.

Consultation feedback and following changes to the proposal

Consultation feedback raised that “produce label” (rather than produce sticker) was the correct term for the items we were referring to. Our definition for the proposed item has been amended to:

- Non-compostable produce labels.

There was strong support for this phase-out (over 96 per cent) across individual, NGOs, and local government submitters. Some submitters requested the phase-out was refined to non-home compostable labels, to ensure the labels degrade successfully regardless of whether they make it to a commercial composter.[53] Business and industry tended to indicate more partial support for a phase-out and five industry submitters opposed the phase-out, which although a small number, represents a large proportion of the horticulture industry.

Commercially compostable label alternatives exist but would need to be scaled-up to replace all labels in use. Commercially compostable labels will still generate micro-plastics if composted or disposed of outside of a commercial facility, which is particularly problematic to marine environments if littered.

Label producers are working in partnership with the New Zealand horticulture industry to develop home compostable labels. At least one international labelling manufacturer expects to have home compostable labels available by early 2022.[54] The New Zealand horticulture industry favours a voluntary phase-out rather than a regulatory phase-out, and prefers a timeframe of at least eight years if a phase-out is progressed. One of the challenges industry have conveyed is that a domestic labelling change would force them to also change their labelling used for export due to the difficulty to organise separate tools for separate labelling.

> *Price Look Up (PLU) stickers identify the variety, origin and organic status of the fruit using a barcode. They feature a four- or five-digit number that lets cashiers know what the product is and how much it costs… Given the important brand identification and traceability role that the fruit labels have, we believe that they should be considered on their own merit in this discussion. – Apples and Pears Incorporated, 2*

Options

We considered five options:

1. status quo
2. mandatory phase out of non-compostable produce labels by 2025 – both commercial compostable and home compostable labels are allowed
3. mandatory phase out of non-home compostable produce labels by 2025 – only home compostable labels are allowed
4. mandatory phase out of non-home compostable produce labels by 2027 – only home compostable labels are allowed
5. voluntary agreement.

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[53] Commercially compostable labels will only degrade in industrial compost environments. Home compostable labels will degrade in more variable environments.

[54] Sinclair International expects to have home compostable labels available by 1 January 2022 to meet the French regulations coming into effect on this date. How the labels perform is still being tested and we do not know when Sinclair International expect to provide this label to the New Zealand market but we note that Sinclair are affiliated with New Zealand based label suppliers.

Option one – status quo

The costs of this option would be to compost processors and the marine and land environment, as non-compostable produce labels would continue to contaminate compost recycling streams and cause environmental harm as they break down into micro-plastics. The majority of submitters are opposed to this option, so this could cause public frustration.

Key beneficiaries would be the horticulture industry and retailers who would not need to make any business changes more rapidly than they already have underway.

Option two – mandatory phase-out of non-compostable produce labels by 2025

Under this option, both commercially compostable and home compostable labels would be allowed.

The key beneficiaries of this option are the environment, due to reduced litter and micro-plastics, and compost processors due to reduced contamination. There would still be some micro-plastic risk from commercial compostable labels that got littered or ended up in home compost systems.

The costs from this option would primarily fall on the horticulture industry, who would need to scale-up alternatives. There are three main alternatives:

- Commercially compostable labels – these are already in use by some growers and it would be feasible for industry to scale these up by 2025.
- Home compostable labels – New Zealand industry is on track to developing these by 2025. This could be fast-tracked so these labels can be scaled-up for commercial use, although feedback from consultation suggests that this would be challenging.
- Remove produce labels on individual fruit. Labelling can be included in signage at the point of sale for marketing and traceability purposes.

While moving away from individual produce labels would be the lowest cost option for industry, industry feel that labelling or packaging is required on produce for marketing purposes, as below.

> *Fruit is often sold loose in market and the fruit label is the only piece of Zespri branding that many of our consumers see, helping to guide them to choose our premium product over others… Fruit labels [also] have a role to play in helping us confirm our brand authenticity. – Zespri, 6-7.*

Option three – mandatory phase-out of non-home compostable produce labels by 2025

Under this option, only home compostable labels would be allowed.

As home compostable labels will degrade in more variable conditions than commercial compostable labels, this option would deliver the highest benefits to the environment due to reduced micro-plastic risk and to compost processors due to reduced contamination.

The tradeoff of this benefit is the challenge for industry to achieve commercialisation of home compostable labels by this date and have them available at scale to replace the current volume of labels used across both domestic and international markets. Industry could utilise non-label means of marketing and traceability, but they have conveyed that labels are their preference.

Option four – mandatory phase-out of non-home compostable produce labels by 2027

Under this option, only home compostable labels would be allowed.

This option would deliver the same high environmental benefits as option 3, over a slightly longer timeframe. It would have lower cost to industry as they have more time to adjust to home compostable alternatives.

Regarding alignment with other phase-outs, it could be inequitable to allow a longer time frame for produce lables, in comparison to polystyrene and PVC.

Option five – voluntary agreement

This option would provide flexibility to manfacturers and industry. However, the tradeoff would be limited achievement of the policy objectives. Plastic produce labels would persist, and there would not be a level playing field between members who have committed to moving to compostable labels by 2025 and those who have not. Increasing fairness across businesses is one of our highest weighted criteria, and a voluntary agreement would not deliver this certainty.

This is industry's preferred option.

Multi-criteria analysis

Key: ++ much better than the status quo; + better than the status quo; 0 about the same/status quo; - worse than the status quo; - - much worse than the status quo

	1. Status quo	2. Phase-out by 2025 • Both commercial compostable and home compostable labels are allowed	3. Phase-out by 2025 • Only home compostable labels are allowed	4. Phase-out by 2027 • Only home compostable labels are allowed	5. Voluntary agreement
Reduces litter	0 The current regulations (WMA and Litter Act) do not prevent plastic produce labels being littered.	+ Would reduce harm from plastic labels. There would still be some risk of micro-plastics from commercial compostable labels that did not make it to commercial compost facilities.	++ Would reduce harm from plastic labels and lower risk of micro-plastics from labels that did not make it to home or commercial compost facilities.	++ Would reduce harm from plastic labels and lower risk of micro-plastics from labels that did not make it to home or commercial compost facilities.	+ Voluntary agreements would have some impact on reducing harm from litter, but this would be limited.
Improves resource recovery	0 Produce labels are a compost contaminant – produce destined for compost may be refused if the labels remain, as the compost is then contaminated with traces of plastic.	++ Would improve compost resource recovery.	++ Would improve compost resource recovery.	++ Would improve compost resource recovery.	+ Voluntary agreements would have some impact on improving compost resource recovery, but this would be limited.
Fairness	0 The current regulations are not fair for businesses	++ Would level the playing field for and reduce burden to businesses	++ Would level the playing field for and reduce burden to	++ Would level the playing field for and reduce burden to	0 Voluntary agreement would not level the playing field for

	that are moving away from plastic labels already.	already moving away from plastic labels.	businesses already moving away from plastic labels.	businesses already moving away from plastic labels.	businesses that are moving away from plastic labels already.
Achievability – alternatives, implementation	0	- Commercial compostable alternatives exist and a scale-up is possible, although this is more challenging than the status quo.	- - Label producers are working to develop home compostable labels, and could be available internationally from 2022. However, widespread availability of these in New Zealand by 2025 could be challenging for industry.	- Commercialising home compostable labels by 2027 is more feasible than by 2025. Industry have conveyed that if a phase-out was to occur they would prefer a longer timeframe.	0 Preferred option from the horticulture industry.
Unintended consequences	0	- Commercially compostable alternatives can be more harmful if they are littered, as they break down quicker into micro-plastics.	- Given the challenge for industry to commercialise home compostable labels by 2025, there is a risk that some produce businesses would use additional plastic packaging (pre-packaged at the point of manufacture) to substitute the produce labels, which would create more plastic waste.	0 Unlikely, given industry have conveyed that they could achieve this phase-out with a slightly longer timeframe than was proposed.	+ Unlikely, given industry will determine when they can feasibly phase-out plastic product labels.
Strategic alignment	0	++ Aligns with international trends and commitments and waste work programmes.	++ Aligns with international trends and commitments and waste work programmes.	0 Aligns with international direction on produce labels although at a slower timeframe than export markets. Does not	0 Partially aligns with other work programmes and international direction on produce labels.

				align with the timeframes of other phase-outs.	Does not align with other phase-outs.
Overall assessment	0 No improvement to society based on the objectives and criteria.	++ Achieves on the objectives while being achievable for industry.	++ Highest benefit to the environment, but the most challenging for industry.	++ Achieves on the objectives while being achievable for industry.	+ Limited positive impact, particularly considered highest weighted criteria.

Costs and benefits of preferred option – phase-out by 2025

- **only home compostable labels are allowed**

Affected groups	**Comment**: nature of cost or benefit (e.g. ongoing, one-off), evidence and assumption (e.g. compliance rates), risks	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*
Additional costs of the preferred option compared to taking no action		
Horticulture industry	Cost of home compostable labels, ongoing Cost of re-tooling labelling systems, one-off	Low[55]
Retailers	Cost of ensuring produce is compliant, ongoing	Low
Manufacturers	Cost of scaling up compostable labels, one-off Research and development, one-off	Medium
Ministry for the Environment	Compliance	Low
Total monetised costs		
Non-monetised costs		*Low*
Additional benefits of the preferred option compared to taking no action		
Compost processors	Reduced contamination	$0.1 million present value over ten years with a discount rate of five per cent
General public	Time savings benefit Reduced visual pollution/improved amenity, ongoing Opportunity to increase awareness and drive behaviour change, ongoing	$0.3 million present value over ten years with a discount rate of five per cent

[55] We were not able to estimate a monetised cost of a move to home compostable labels on the horticulture industry as this information is not available. The cost of a move to commercially compostable labels by 2025 is estimated as $0.4 million present value, over a ten year period with five per cent discount rate. We expect the cost of home compostable labels to be slightly higher, particularly in the outset.

New Zealand horticulture industry	Avoided costs of no longer needing to label produce Reputational and cost benefit from compliance/consistence with overseas markets that are also moving in this direction	$0.24 million present value over ten years at five per cent discount rate
Label manufacturers	Benefit from commercialising new product line, ongoing	Low-medium
Environment	Reduced plastic litter and micro-plastics, ongoing	Low
Iwi/Māori, indigenous communities	Reduced environment degradation which impacts on customary practices	Low
Rate-payers and communities	Reduced beach clean-up cost, ongoing	Low
Total monetised benefits		$0.6 million
Non-monetised benefits		*Low*

Further comments

Key assumptions underlying this impact analysis:

- That the cost of this option is absorbed by the horticulture industry, as supermarkets (and other buyers) set the price for produce, which makes it harder to pass the costs onto customers, which is what the horticulture industry conveyed through consultation.
- That the alternative labels cost 30 per cent more than plastic labels.
- That costs of change are driven by requirements from overseas regulations and that only five per cent of such costs relate to the domestic market. Hence, producers may face additional labelling costs in excess of those stated here, but those costs are not driven by the proposed phase-out.
- That consumers would save time in disposing of the produce labels that would be removed in the preferred option. The preferred option involves a total of five per cent of produce that would no longer have a label, versus a status quo situation of one per cent of produce not having labels.
- That domestic and imported produce will be treated equally.
- That benefits to the marine environment are likely but not sufficiently material to include in a monetised manner.

Both monetised and non-monetised costs and benefits have been identified for this analysis. The impact has been determined through consultation feedback, the regulatory change required relative to other policy approaches, and relative to the role plastic produce labels have in the New Zealand economy and society. The net impact is slightly positive across the ten year analysis period.

Conclusion

We consider that options for a voluntary agreement or continuing with the status quo (options 1 and 4) would have low or no impact at achieving the objectives.

Although industry has identified a domestic labelling change would force them to change their labelling for export due to difficulty in organising different labelling for different markets, we consider that international markets are also moving towards phasing out non-home compostable produce labels, and industry would need to adapt to this anyway to meet export requirements. France has passed legislation that comes into effect 1 January 2022 banning produce labels unless they are home compostable. Flanders, Belgium, have also passed legislation to phase-out non-home compostable labels, although we understand this to be with a transition period where commercial compostable alternatives are allowed.

We consider that the main beneficiary of produce labels are the producers, growers and exporters. Ultimately, labelling produce is a choice made by the producer. This is because the label can provide a marketing function to enable particular brands of fruit to be easily distinguished. There may be some benefits to retailers for traceability and identification but we consider that there are other mechanisms that can be put in place to replace this function.

Commercial vs home compostable labels

Despite this, we expect that most of the horticulture industry will continue to use produce labels due to their brand value. Commercially compostable labels will reduce contamination in compost streams, benefiting compost processors by improving the value of compost and their ability to process more food waste. However, commercially compostable labels still pose micro-plastic risks if they do not make it to a commercial facility, as they only fully degrade in industrial compost environments.

Home compostable labels deliver the highest environmental benefit (apart from no label at all). As well as improving our compost recycling stream, they have a reduced risk of generating micro-plastic, as they are designed to degrade in more variable environments.

International movement toward home compostable labels is driving market changes. At least one international labelling manufacturer (Sinclair International) expects to have home compostable labels available in time to meet the French legislation (1 January 2022). It is not clear when the labels would be available to the New Zealand market or how the labels perform in New Zealand supply chains or compost environments. Although, the standard that the supplier is working toward is recognised as an accepted standard by the New Zealand compost sector.

Preferred option and timeframe

A mandatory phase-out of non-home compostable labels by 2025 (option 3) is our preferred option. We consider a phase-out of non-home compostable labels will achieve the highest environmental benefit. We have balanced industry's request for a voluntary agreement or a longer lead-in timeframe with the fact that home compostable labels are likely to be developed by early 2022. This allows some time for New Zealand industry to test the labels in our supply chains and compost environments before commercialisation. For brands who export produce to France and Belgium, it is likely that they will be looking to uptake these labels in the near term. We also consider that non-label alternatives can be used to achieve the traceability and branding function of labels, particularly in our domestic market.

On balance it would also be inequitable to provide a 2025 phase-out timeframe for complex phase-outs such as PVC and polystyrene and a longer timeframe for produce labels.

We note that imported produce may be challenging to influence. Under the WMA, the responsibility for selling compliant produce will fall on retailers. This may cause problems for retailers if overseas suppliers refuse to comply. As alterantives become more widely available and more countries move in the direction of France and Flanders, this risk will reduce. The Ministry will work closely with the horticulture industry and retailers in the lead-up to any phase-out to mitigate adverse impacts.

Items and materials considered in consultation but not recommended for regulation

9. Plastic straws

The consultation document proposed:

- to phase-out drinking straws made wholly or partly from plastic; not designed or intended for reuse.
- that exemptions will be considered to allow access to plastic straws for disabled persons and for medical purposes (but a drafted exemption was not provided).
- by January 2025 at the latest.

Consultation feedback

58 per cent of all submitters supported the proposal, although this is a lower level of support compared to responses on other single-use items. Consultation feedback raised concern about the accessibility of straws for people who require straws to drink, and the disabled community more generally. 42 per cent of submitters overall, and over 80 per cent of substantive submitters, disagreed with the phase-out of plastic straws or raised concern with an exemption for them.

The consultation document did not include a drafted exemption for this proposal. Those who could be significantly affected by this option were of the view that they could not comment on whether an exemption was suitable, and many submitters raised that exemptions can be stigmatising. Plastic straw alternatives, such as paper, silicone, and bamboo straws, are unsuitable for some people due to their inflexibility and/or disintegration. Reusable steel straws can also be unsafe.

> *There are currently no alternatives that provide the access features that single-use plastic straws provide. Paper straws in particular are a very poor substitute and are unsuitable for the large majority of disabled people who use straws. – Disabled Persons Assembly, 3.*

Options

We considered three options:

1. status quo
2. mandatory phase-out by 2023
3. defer decision and undertake further work.

Option one*:* status quo

The key impacted group from this option is the environment, as the litter of plastic straws will continue to incur clean-up and amenity costs, as well as marine wildlife and seafood (including commercial fisheries). Some businesses are taking voluntary action to move away from plastic straws, and while this is likely to increase, taking no action on plastic straws will not achieve a level playing field for those businesses that are trying to move away from them. There is little incentive for industry and consumers to switch products.

The key beneficiaries of this option are business and industry, who would be able to adopt change (if desired) at their own scale/pace, consumers who enjoy using plastic straws, and the disabled community, who would continue to have easy access to the plastic straws they require.

Option two – mandatory phase-out by July 2023

The beneficiaries of this option are the environment and marine wildlife, due the reduced litter of plastic straws. Alternatives are widely available for most people.

While a majority of submitters supported a phase-out, many submitters, including the disabled community expressed a desire to design an exemption scheme before policy decisions are made. Therefore, a phase out by 2023 would need to be mitigated by a robust process with the disabled community around an exemption scheme. The scheme would need to be designed before regulations are made.

Other costs of this option would depend on which alternatives business/industry and consumers use. For example, using no straw is a free alternative that better reflects the waste hierarchy. However, we do expect there would be an increase in paper straws which have higher production costs. This cost to business/industry may also be passed onto consumers. Although paper straws have some associated costs, they are widely available in New Zealand and therefore achievable to transition to for retailers and hospitality businesses.

Option three – defer decision and undertake further work

This option reflects the preference from at least 42 per cent of submitters[56], including the disabled community, and is the Ministry's preferred option. This would involve the Ministry completing targeted engagement with the disabled community over the next 12 months to

[56] Over 80 per cent of substantive submitters also preferred this option.

develop an approach to reduce the impact of plastic straws while ensuring they remain accessible to those that need them.

The benefit of this option is enabling the disabled community's voice to be heard as part of the policy decision process. While there will be no immediate impact to reduce harm from plastics, this option will signal to New Zealanders that we still intend to take action to reduce harm from plastic straws.

Multi-criteria analysis for straws

Key: ++ much better than the status quo; + better than the status quo; 0 about the same/status quo; - worse than the status quo; - - much worse than the status quo

	1. Status quo	2. Phase-out by July 2023	3. Defer decision
Litter	0 The current regulations (WMA and Litter Act) do not prevent plastic straws from being littered.	+ Plastic straws are a source of single-use plastic litter and phasing them out will reduce their harm to the environment.[57]	0 Deferred decision would have no immediate impact on litter.
Improves resource recovery	0 Plastic straws have minimal impact on resource recovery, they are not significant recycling contaminants.	0 Plastic straws have minimal impact on resource recovery, they are not significant recycling contaminants.	0 Plastic straws have minimal impact on resource recovery, they are not significant recycling contaminants.
Fairness	0 Current regulations do not create a fair and certain market for businesses who are already moving away from plastic straws.	++ A phase-out will level the playing field for businesses who are already moving away from plastic straws.	0 Deferred decision will not impact the market.
Achievability – alternatives, implementation	0 No change for importers and retailers required.	- Alternatives are widely available but they are not appropriate for everyone. A fit-for-purpose exemption clause would need to be	0

[57] Single-use paper straws are the most widely available alternative and we expect there will be shift in use to these. While reduced use of straws (where possible) best reflects the waste hierarchy, paper straws do not pose a micro-plastic risk and are more likely to break down safely into the environment.

		drafted in consultation with the disabled community.	No immediate change for importers and retailers required.
Unintended consequences	0 The litter of plastic straws would continue as an unintended consequence of the current legislative and regulatory settings.	- Progressing a plastic straw phase-out prior to specific consultation with the disabled community on including a fit-for-purpose exemption clause could disadvantage the disabled community.	0 The litter of plastic straws would continue as an unintended consequence of the current legislative and regulatory settings.
Strategic alignment	0 Not aligned with strategic direction toward a low-waste more circular economy.	++ Aligns with international trends and strategic direction toward a low-waste more circular economy.	+ Aligns with international trends and strategic direction toward a low-waste more circular economy.
Overall assessment	0 Net decrease to society based on the objectives and criteria, particularly over time.	+ Net positive impact, with challenges around unintended consequences to work through in the implementation period.	+ Net positive impact, although no immediate action that will support the environmental objectives.

Costs and benefits of option 2 – phase-out by 2023[58]

Affected groups	**Comment**: nature of cost or benefit (e.g. ongoing, one-off), evidence and assumption (e.g. compliance rates), risks	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*
Additional costs of option 2 compared to taking no action		
Disabled community	Potential perceived inequity due to policy decisions made prior to targeted consultation around a fit-for-purpose exemption, on-going	Medium
Consumers	Increased cost of paper alternatives, ongoing	$6 million over ten years and $7.5 million over twenty years (present value with 5% discount rate)
Retailers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Importers	Cost of changing stock and/or disposing of unused stock, one-off	Low
Ministry for the Environment	Compliance	Low
Total monetised costs		$6 million over ten years and $7.5 million over twenty years (present value with 5% discount rate)
Non-monetised costs		*Low-medium*
Additional benefits of option 2 compared to taking no action		
General public	Reduced visual pollution/improved amenity, ongoing Opportunity to increase awareness and drive behaviour change, ongoing	Low
Environment	Reduced plastic litter and micro-plastics, ongoing	Low
Iwi/Māori, indigenous communities	Reduced environment degradation which impacts on customary practices	Low

[58] This option was requested for assessment following consultation with Ministers. Consequently we have completed cost and benefit analysis on this option in addition to the Ministry's preferred option.

Government	Alignment with international trends and commitments	Low
Rate-payers and communities	Reduced beach clean-up cost, ongoing	Low
Total monetised benefits		
Non-monetised benefits		*Low*

Further comments

Key assumptions underlying this impact analysis:

- Perfect substitution to paper straws is assumed.
- Perfect pass through of costs to consumers is assumed.
- The rate of plastic straw use among the disabled community is estimated to be around 2 million plastic straws per year which the phase out is modelled to have no impact on.
- The consumption of straws is predicted to decrease in the status quo scenario from 83 million plastic straws in 2023 to 43 million plastic straws in 2030. The impact analysis is based on this dynamic counterfactual.

Both monetised and non-monetised costs and benefits have been identified for this analysis. The impact has been determined through consultation feedback, the regulatory change required relative to other policy approaches, and relative to the role plastic straws have in the New Zealand economy and society.

Costs and benefits of option 3 – defer decision

Affected groups	**Comment**: nature of cost or benefit (e.g. ongoing, one-off), evidence and assumption (e.g. compliance rates), risks	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*
Additional costs of option 3 compared to taking no action		
Disabled community	Engagement with the Ministry, some uncertainty around the suitability of the exemption, ongoing	Low[59]
Retailers	Uncertainty around regulation, ongoing	Low
Importers	Uncertainty around regulation, ongoing	Low
Ministry for the Environment	Further work	Low

[59] Considered low impact as the intent of deferring the decision is to reduce uncertainty around the exemption clause for the disabled community.

Total monetised costs		
Non-monetised costs		*Low*
Additional benefits of option 3 compared to taking no action		
General public	Reduced visual pollution/improved amenity, ongoing Opportunity to increase awareness and drive behaviour change, ongoing	Low
Environment	Reduced plastic litter and micro-plastics, ongoing	Low
Iwi/Māori, indigenous communities	Reduced environment degradation which impacts on customary practices	Low
Government	Alignment with international trends and commitments	Low
Rate-payers and communities	Reduced beach clean-up cost, ongoing	Low
Total monetised benefits		
Non-monetised benefits		*Low*

Further comments

Non-monetised costs and benefits have been identified for this analysis. The impact has been determined through consultation feedback, the regulatory change required relative to other policy approaches, and relative to the role plastic straws have in the New Zealand economy and society.

Conclusion

A phase-out of single-use plastic straws will require a fit-for-purpose exemption clause ensuring people who need straws still have access to them. Although we noted in the consultation document that exemptions would be considered for the disabled community, we have learnt from consultation and overseas experience that it is best practise to draft these in consultation with the disabled community, as exemptions can be hard to design in a way that is inclusive.

While the Ministry would still engage with the disabled community on developing a fit-for-purpose exemption if option 2 was progressed, the engagement would be more restricted which could make individuals and/or the community feel that their voice is not significant to the policy decisions.

Our recommended approach is option 3, which is to complete further work and engagement with the disabled community over the next twelve months, and report back with options for phasing out single-use plastic straws while ensuring their accessibility to those that require them. We consider this is a sensitive area and it is more pragmatic to engage further with the disabled community before progressing a decision on this phase-out.

We also consider that while some market uncertainty may arise from option 3, this can be limited with clear signalling that a plastic straw phase-out is imminent, once accesibility issues have been worked through. This option also provides a longer lead-in time for businesses to change and use up their existing stock.

10. Single-use cups and lids

The consultation document proposed:

- to phase-out cups made from hard-to-recycle plastics (types 3, 4, 6 and 7)
- this includes PVC, both types of polystyrene, and bio-based plastics and mixed materials
- it is also intended to cover plastic-lined cups, except for disposable coffee cups
- it excludes disposable coffee cups (paper cups lined with plastic)
- And exempts cups made from PET (1), HDPE (2), and polypropylene (5) which can be recycled.

The broader phase-outs of PVC and polystyrene packaging would remove two types of hard-to-recycle cups from circulation without progressing a separate phase-out, and could enable some action to occur irrespective of a phase-out in the short-term.

Consultation feedback

Feedback from submitters indicates broad support across business/industry, NGOs and individuals for taking action to reduce single-use cups but confusion and divergence of views around the scope of a proposed phase-out.

49 per cent of all submitters also wanted single-use coffee cups included in the phase-out. Many NGOs and individuals noted the litter risk is tied to the item being a convenience 'on the go' product rather than the type of plastic used. Submitters noted that this would require commitment by the Government to provide an enabling regulatory environment and investment in the scale up of reuse systems.

Some submitters also noted that PET, polystyrene, and polylactic acid (PLA) cups can all look identical, so if polystyrene and PLA cups were prohibited for cold drinks but still available as coffee cups it would be hard for users (business and public) to tell the difference.

s 9(2)(a) [redacted]

Part of the reason we find the exclusion odd is the fact that there is cross-over between the cups used for hot and cold beverages… Saying that you can use this

packaging format [plastic cup] for coffee but nor for cold drinks is confusing to the public. – Plastics NZ, 20

Lids may be a particular challenge as many are made from either polystyrene or PLA,[60] which have unique properties around the way that they seal to the cup thus offering health and safety benefits, particularly for hot beverages. Regardless of the material type, lids will likely remain unrecyclable in kerbside systems due to their shape and size.

Options

We considered three options:

1. status quo
2. mandatory phase-out
3. further work.

Option one – status quo

Key costs of this option are the continued impact of plastic cups as litter and the associated amenity costs, and the impact of litter on our land and marine environments (including beach clean-ups). This option also costs some recyclers and commercial composters, when plastic cups contaminate their feed streams. This option works against delivering the objective to reduce environmental harm from litter, and to improve New Zealand's resource recovery.

Without regulation there is little incentive for industry and consumers to switch products. Some businesses are voluntarily moving away from plastic single-use cups which is factored into this option, however voluntary reduction is uncertain, likely to have a limited impact, and financially disadvantages the businesses who are trying to reduce use of single-use items. The key beneficiaries of this option are retailers and hospitality, who would not need to make any changes.

Option two: mandatory phase-out (excluding coffee cups)

Consultation feedback raised general confusion over the types of cups included and excluded in the phase-out. While the phase-out would support the policy objectives, it would not satisfy the 49 per cent of submitters who wanted coffee cups included in the phase-out.

Alternatives are widely available for plastic cups, including re-usable options, which are the preferred alternative and becoming more common. Single-use paper cups are also easily available. Alternatives are currently more expensive than single-use plastic cups but this margin is decreasing as they become more mainstream.

[60] A type of bioplastic made from renewed materials which is commercially compostable.

Option three: defer decision

The primary benefit of this option is providing a more comprehensive and consistent approach to plastic cups, and the potential inclusion of coffee cups which would generate increased impact.

It also delivers on reducing litter over the slightly longer-term. While there will be no immediate impact reducing the harm from plastics, this option will signal to New Zealanders the coming action to reduce harm from plastic cups (which may be a mandatory phase-out or other measures). As this option will lead to future measures that reduce plastic cups in use (potentially including coffee cups), it will have benefits to the environment, social amenity and resource recovery. It will also even the playing field for many businesses and retailers that are already moving away from plastic cups including coffee cups.

Submitter feedback indicates that there is high support for the inclusion of coffee-cups in a cups and lids phase-out. Additional work is required to make this approach consistent and support reuse initiatives.

Conclusion

Due to the confusion noted in consultation feedback about the scope of this proposal, our preferred option (option 3) is to defer the decision on single-use cups and lids, so that officials can develop a consistent approach that includes coffee cups.

As coffee cups were not proposed for mandatory phase-out in the consultation document, it is not feasible to phase them out in the resulting recommendations due to insufficient engagement.

While a phase-out as proposed (excluding coffee cups) would provide environmental benefit, we consider this would also be a missed opportunity to also reduce impact of a high volume litter item (coffee cups).

A more consistent approach will allow for a broader scope of items within the phase-out, and consequently provide the highest environmental benefit. Further work balances a broader scope included with a longer time period for the phase-out, while providing a clearer approach to the public.

11. Expanded polystyrene protective packaging

The consultation document proposed:

- to phase-out of all expanded polystyrene (EPS) packaging including homewares and electronics, by January 2025.

Consultation feedback

There was strong opposition from industry and business submitters on phasing out EPS in cold-chain supply lines and as protective packaging. Submitters noted that alternatives are not viable and phase-outs would likely lead to product loss and compromised food safety and health services.

Alternatives proposed in the consultation document for EPS cold-chain supply bins and protective packaging were moulded cardboard with wool insulation. While these alternatives may be viable for some domestic cold-chain supply chains, they are not viable for these supply chains across longer journeys or the shipment of heavy products.

> *While [moulded cardboard] has been successfully used on small-scale products and electronic goods it is not robust enough to withstand the high impact requirements of packaging for heavy electronic goods such as whiteware and refrigerators. – EPS sector group, 21.*

> *Pursue formalised product stewardship for EPS packaging used in cold-chain supply lines and as protective packaging for heavy electronics. Mandatory phaseout is not suitable… the alternatives are not viable replacements. – Plastics NZ, 9*

Options for expanded polystyrene protective packaging

We considered three options:

1. status quo
2. mandatory phase-out
3. further work.

Option one – status quo

The key costs of this option are the continued impact of EPS as litter. This would continue to cost recyclers and councils, as EPS contaminates kerbside recycling and recycling feed streams. There would be no benefit to the environment or our resource recovery systems from this option, and over time it would work against delivering on these objectives.

> *EPS, which becomes litter in the environment, crumbles into thousands of tiny balls of plastic that are impossible to recover and can be mistaken for food by birds and fish. This creates lasting damage to our soil, water-ways and marine environment… Phasing out EPS would therefore protect our soil, marine ecosystem and waterways, which are so fundamental to our future survival. – Zero Waste community, 8*

Without regulation there is little incentive for industry and consumers to switch products. Some businesses are voluntarily moving away from EPS where possible for shorter supply-chain journeys, which is factored into this option. However, voluntary action is uncertain, likely to have a limited impact, and financially disadvantages the businesses who are trying to do the right thing.

The key beneficiaries of this option are packaging manufacturers, importers, and exporters, who would not need to make any changes to ensure their products are transported safely.

Option two – mandatory phase-out

Submissions from business/industry and other groups raised concern over an EPS protective packaging phase-out due to the lack of viable alternatives for some cold-chain supply lines, including medical supplies. Alternatives, such as moulded cardboard with wool insulation, do

not offer the same temperature control functionality as EPS, meaning they are not viable for all cold-chain supply lines. Cardboard does not keep temperatures stable for as long as EPS, and is not resistant to moisture from wet products or ice.

EPS is also required for packaging large whiteware items such as heat pumps and washing machines. Due to their weight, EPS is required to protect the produce from damage during transit. Alternative packaging options are not viable for this yet.

While the phase-out would support the objectives of reducing litter and improving recovery, it would also have severe impacts of product loss (increasing waste) and compromised food safety (for food products in cold-chain supply chains), and would be a high cost to business/industry and society.

Option three – further work and consider product stewardship

Under this option, officials will engage with the EPS protective packaging industry to develop a workable product stewardship scheme.

The significant benefit of this option is the minimised harm from EPS protective packaging on the environment while mitigating severe impacts on product supply-chains, product loss and food safety. This packaging is within scope of the priority product declaration for plastic packaging. Therefore, if not phased out with these proposals, it will require the development of a product stewardship scheme.

Conclusion

Due to the lack of viable alternatives, a phase-out of EPS packaging would have significant cost on business/industry and also potentially lead to increased waste and risk to human health. To mitigate these impacts and reduce the impact of EPS as particularly harmful litter, we consider that further work to develop a product stewardship scheme is the most effective way to manage this problematic plastic (option 3). Product stewardship was the recommended approach from industry/business, local government and DHBs regarding EPS for protective packaging. Officials will continue to engage with industry to co-design a product stewardship scheme for plastic packaging.

Section 3: Implementing the preferred option

How will it be implemented?

Three stages of implementation

The regulations would come into force in three stages based on the level of complexity and change required, which will enable preparation time for the regulated groups:

Stage 1 October 2022		
Material for phase-out	**Description**	**Not in scope / possible exemptions**
PVC meat trays	A PVC meat tray is a flat, shallow container with a raised rim, made primarily from polyvinyl chloride plastic, used to package or contain meat for sale.	N/A
EPS food and beverage packaging including takeaway containers	Expanded polystyrene food and beverage packaging is a container (either with lids, without lids, or clamshell) plate, bowl or cup made from expanded polystyrene, which is used to contain food and carry it from the point of sale for consumption.	EPS bins used in cold-chain supply lines
Rigid polystyrene takeaway packaging	Rigid polystyrene takeaway packaging is a single-use container (either with lids, without lids, or clamshell), plate, bowl or cup, made from rigid polystyrene, used to contain food and carry it from the point of sale for consumption.	Polystyrene cup lids
Oxo-degradable plastic products	An oxo-degradable plastic is a material made of plastic, which includes pro-degradant additives to accelerate the fragmentation of the material into smaller pieces.	N/A
Plastic drink stirrers	A drink stirrer is a short plastic stick to stir drinks, made partly or wholly of any type of plastic including degradable, biodegradable and compostable plastics.	N/A
Plastic stemmed cotton buds	A plastic stemmed cotton-bud is a small rod made wholly or partly of any type of plastic including degradable, biodegradable and compostable plastics, with cotton wrapped around one or both ends; not designed or intended for reuse.	Plastic stemmed cotton buds required for medical or science purposes
Stage 2 July 2023		
Material for phase-out	**Description**	**Not in scope / possible exemptions**

Single use plastic produce bags	A single-use produce bag is a lightweight bag under 70 microns thick, without handles, made from any type of plastic including degradable, biodegradable and compostable plastics, and used for the purpose of carrying fruit or vegetables from the point of sale.	Produce pre-packaged into bags at point of manufacture Re-usable produce bags made from synthetic fabrics and under 70 microns thick
Tableware	Plastic tableware includes plates, bowls, trays and cutlery designed for single-use and made primarily of any type of plastic including degradable, biodegradable and compostable plastics, or lined with plastic coatings and sold for the purpose of eating food. Cutlery includes any utensil that can be used to eat food – spoons, forks, knives, sporks, splayds and chopsticks.	Plastic bowls made with attached lids
Stage 3 July 2025		
Material for phase-out	**Description**	**Not in scope / possible exemptions**
All other PVC food and beverage packaging	PVC food and beverage packaging is a tray, container (either with a lid or without a lid), packet, bowl, cup, film or wrap, sold as packaging that contains food and beverage products, or with the purpose of containing food and beverage products for sale and made from polyvinyl chloride.	PVC cling film used for commercial purposes such as wrapping meat and in catering. Other flexible PVC applications to be identified through follow-up targeted engagement.
All other rigid and high-impact polystyrene food and beverage packaging	Polystyrene food and beverage packaging is a tray, container (either with a lid or without a lid), packet, bowl or cup sold as packaging that contains food and beverage products, or with the purpose of containing food and beverage products and is made from rigid polystyrene including high-impact polystyrene.	N/A
Non-home compostable produce labels	A non-home compostable produce label is a label on fruit or vegetables, sold in New Zealand, and made partly or primarily of plastic, which is not certified as home compostable.	N/A

Implementation process

If Cabinet agrees to the proposed policy, regulations will be developed under Section 23(1)(b) of the WMA and the Ministry will work with the Parliamentary Counsel Office over the second half of 2021 to draft regulations.

The Ministry for the Environment is the primary regulator for the WMA, and is responsible for undertaking audits and investigating potential breaches of regulations made to phase-outs of specific plastic materials and plastic items.

Stakeholder involvement in implementation and ongoing operation

If Cabinet agrees, the Ministry will make an exposure draft of the proposed regulations available for a limited group of affected parties to obtain technical input and ensure workability of the regulations. We will also work with stakeholders to draft key definitions and any exemptions for some of the proposed phase-outs. For the more complex phase-outs including PVC, polystyrene and tableware, the definitions and clarity will be critical for industry and business users of these plastic products. This will be an implementation challenge, which will require the Ministry to work closely with key stakeholders in the sector during the regulation development phase.

The Ministry will work with appropriate representatives from the disabled community to develop a fit-for-purpose exemption clause that ensures single-use plastic straws remain accessible to those that require them.

The Ministry will work closely with industry associations to help affected sectors prepare for the phase-outs.

Once the new requirements have been published in the New Zealand Gazette, they will be communicated via email to stakeholders, via newsletter to councils, as well as being publicised on the Ministry's website. There may be a press release to provide information more widely and to direct the public to the Ministry's website.

Effective implementation

The Ministry intends to develop implementation guidance to support businesses in the uptake of sustainable alternatives.

The vast majority of submitters (91 per cent) also signalled support for a blend of options such as:

- recycled content requirements to reduce reliance on virgin plastics
- recyclability labelling (to make it easier for the public to recycle right)
- national plastics targets
- education and behaviour change
- support for reusable and refillable systems.

As part of the Government's wider work programme on resource efficiency and waste, the Government will:

- investigate reusable and refillable alternatives that will displace single-use products altogether
- consider ways to increase recycled content in packaging and demand for recycled plastic materials
- make it easier for communities to recycle through initiatives such as improved labelling, more recycling infrastructure, and information.

Implementation risks

Some phase-outs will be challenging for businesses and industry, and we propose that investment in innovation could be used as a source of funding to assist the transition. This will enable targeted investment toward finding solutions for problem products that are challenging to phase-out. Innovation investment can also be targeted at projects that prioritise reuse.

The staged phase-out approach means that businesses have time to reduce their stocks of hard-to-recycle materials and/or single-use plastic items.

Monitoring, Evaluation, and Review

As part of the Ministry's regulatory stewardship responsibilities, it may undertake compliance, monitoring and enforcement (CME) to:

- determine the extent of compliance with the phase-out rules
- investigate and determine the nature and extent of any non-compliance
- take appropriate enforcement action.

Under section 76 of the WMA, the Secretary for the Environment can appoint enforcement officers to do this. CME includes compliance monitoring and auditing, as well as investigation and enforcement.

The Ministry has a CME team responsible for the WMA. The team has a compliance strategy and policies and procedures in place that can be adapted to work required to monitor the proposed phase-outs.

Monitoring[61] will show that the recycling streams are improved, due to the reduction in contamination from the hard-to-recycle plastics. Monitoring will show that the single-use items are not being used and that over time their volume as litter will be reduced. We can compare future litter data against baseline litter data, which has been collated by Sustainable Coastlines and Keep New Zealand Beautiful with funding from the Waste Minimisation Fund.

If there is an alleged breach or non-compliance, various enforcement tools may be used to bring about positive behaviour change, take corrective action and apply penalties. Enforcement outcomes will ideally be proportionate to the seriousness of the non-compliance, following an investigation process.

The WMA currently only provides for prosecution with a maximum fine of $100,000 for the contravention of regulations that prohibit the manufacture or sale of products. There is no ability to make infringement fines in regulations to address non-compliant behaviour. This is a limiting

[61] In addition to the CME team, there are work programmes underway to improve the data collected from landfills and standardise WMA reporting requirements from councils which will contribute to this monitoring. Other forms of monitoring may include through direct feedback from Material Recovery Facilities and recyclers.

factor for ensuring high rate of compliance. The range of enforcement tools is a key consideration for the current review of the Waste Minimisation Act.

Given the wide reach of the proposed phase-outs, compliance, monitoring and enforcement will be relatively intensive, particularly in the initial years. The focus will likely need to be on the manufacturers and suppliers of prohibited materials rather than the point of sale.

The Ministry will likely need to increase resourcing by 2025 to monitor and enforce the proposed phase-outs due to their wide reach and complexity, particularly for the phase-outs anticipated in 2025. Additional baseline budget funding will be sought for this purpose.

The new requirements sit within a broader waste and resource efficiency programme, which will result in improved monitoring and reporting on plastic wastes. This includes (from the specific to the systemic):

- monitoring the new plastic waste requirements under the Basel Convention
- development of a National Plastics Action Plan
- development of a regulated Product Stewardship Scheme for plastic packaging
- standardisation of kerbside recycling
- improving national-level waste data systems under the WMA
- development of a new strategy to improve CME activities
- review and reform of the WMA and the tools and levels which sit beneath it
- development of a new long-term waste strategy.

Routine CME auditing will provide information that will assist in the identification of any preliminary issues with implementation and the initial impact of the proposals. The regulated community have the means to raise concerns via the Ministry's CME Team following implementation of the proposals.

Additionally, stakeholders will have the opportunity to raise concerns during subsequent engagement efforts.

The Ministry does not anticipate any other review of the proposed changes unless there was feedback from the regulated community about issues relating to the implementation or the impact of the changes.

Appendix 1 Plastic types and their recyclability and recycling value

Type	Plastic	Use	Recyclability	Recycling value
1	Polyethylene terephthalate (PET)	Often used for soft drink bottles	Clear PET can be recycled internationally and in New Zealand. Coloured PET is recyclable but has fewer markets.	Clear PET has highest recycling value. Coloured PET is lower in value
2	High density polyethylene (HDPE)	Often used for milk bottles	Natural HDPE can be recycled internationally and in New Zealand. Coloured HDPE is recyclable but has fewer markets.	Natural HDPE has highest recycling value. Coloured HDPE is lower in value.
3	Polyvinyl chloride (PVC)	Sometimes used for meat trays and biscuit trays	PVC packaging is low in quantity. Difficult to recycle. Very limited international markets.	Generally lower in value due to the volume needed for recycling, the cost of collecting and sorting, and the types of products the recycled material are made into.
4	Low density polyethylene (LDPE)	Mainly used for making soft- plastic packaging (e.g. bread bags) and is difficult to replace with other materials	LDPE is recyclable but has fewer markets.	LDPE is generally lower in value due to the volume needed for recycling, the cost of collecting and sorting, and the types of products the recycled material are made into.
5	Polypropylene (PP)	Often used for ice cream containers	PP is recyclable but has fewer markets. PP is close to being viable for reprocessing in New Zealand.	PP is lower in value than PET and HDPE but markets are growing.
6	Polystyrene (PS)	Often used for yoghurt containers	PS packaging is low in quantity. It is difficult to recycle with very limited	PS is generally lower in value due to the volume needed for recycling, the cost of collecting and sorting, and the

			international markets.	types of products the recycled material are made into.
	Expanded polystyrene (EPS)	Often used for protective packaging and takeaway containers	EPS takeaway and grocery packaging is generally difficult to recycle. Other types of EPS packaging can be recycled if collected, separated and clean.	Some EPS packaging has okay recycling value if it can be collected, cleaned and sorted. Takeaway EPS packaging has low value.
7	Other (a catch all for all other types of plastic)	Includes plastic made from combining multiple material types, bio-plastics, biodegradable, compostable, and oxo-degradable plastics.	Most will not be recycled and will likely contaminate recycling streams.	Type 7 is generally lower in value due to the volume needed for recycling, the cost of collecting and sorting, and the types of products the recycled material are made into.

Appendix 2 Examples of relevant international action

Hard-to-recycle plastics

Country	Material	Stage of intervention
Australia (federal and/or state level)	PVC, polystyrene, oxo-degradable plastics	National Packaging Targets introduced in 2018 for implementation in 2025 including phasing out of problematic plastics (includes PVC and polystyrene). National plan to phase-out (through voluntary action) certain EPS including protective packaging by July 2022. Australian Capital Territory (ACT) ban on EPS takeaway and food and beverage containers from 1 July 2021, and oxo-degradable plastic products from 2022. Western Australia 2020-2023 phase-out of polystyrene food containers; 2024-2026 phase-out of polystyrene packaging, oxo-degradable plastics. South Australia ban from 1 March 2022 on expanded polystyrene cups, bowls, plates, clamshell containers, oxo-degradable products.
Canada	Six-pack rings, black plastic food take-out containers[62]	Ban by end of 2021
China	EPS food containers used in restaurant industry	Nationwide by 2022
EU (EU Directive level)	EPS food containers Oxo-degradable plastic products	Ban by July 2021
South Korea	Food and beverage plastic packaging with a focus on banning PVC and coloured PET Some exceptions for PVC where there	Ban from September 2020

[62] Black plastic food containers contaminate recycling streams without optical sorters.

	are no alternatives	

Single-use plastic items

Country	Items	Stage of intervention
Australia (federal and/or state level)	Straws, cutlery, stirrers, plastic tableware	National Packaging Targets introduced in 2018 for implementation in 2025 including phasing out of problematic and unnecessary single-use (SU) plastics Queensland ban on straws, stirrers, plates and cutlery from 1 September 2021 ACT ban on cutlery, drink stirrers from 1 July 2021 Western Australia 2020-2023 phase-out of plates, cutlery, stirrers, straws; and 2024-2026 phase-out of cotton buds, produce bags South Australia ban on sale, supply and distribution of straws, cutlery, stirrers from 1 March 2021
Belgium (Flemish region)	Non-compostable produce labels	Ban from 1 January 2021
Canada	Plastic bags, straws, stirrers, cutlery, plates,	Ban by end 2021
China	Cotton buds, cutlery, tableware, straws	Nationwide ban by 2025. Tableware and cotton buds by 2022. Straws from Dec 2020
EU (EU Directive level)	Cotton buds, cutlery, plates, straws, stirrers	Ban from 3 July 2021
France	Non-home compostable produce labels	Ban from 1 January 2022
UK	Cotton buds, straws, stirrers	Ban from October 2020

Glossary

Term	Definition
Biodegradable	Something that can decompose or breakdown naturally and in a way that is not harmful
Circular economy	An approach where resources are cycled through the economy (make, use, return) and waste is designed out of production
Cold-chain	Supply chains where items must be carefully temperature controlled to keep items cold or frozen. Examples, include seafood but also some medicines and vaccines.
Expanded Polystyrene	White foam plastic made from solid beads of polystyrene.
Hard-to-recycle	Limited markets for recycling or technically difficult to recycle
High impact Polystyrene	A rubber modified version of general polystyrene, making it extremely durable. It is a rigid type of polystyrene often used for dairy products such as yoghurt.
Linear economy	An approach of taking resources, making products and disposing of them (make, use, dispose)
Micro-plastics	Small plastic fragments less than 5mm in length
Onshore recycling	Recycling that occurs in New Zealand
Oxo-degradable plastic	A type of plastic that contains an additive causing it to degrade quickly when exposed to light or oxygen. For the purpose of this RIS when we refer to oxo-degradable plastics it is intended to include all degradable plastic products, which include pro-degradants to accelerate fragmentation of the material into smaller pieces. Including both oxo-degradable and photodegradable plastic products.
Phase-out	A plan to stop using something; for the purposes of this document, a mandatory phase-out can also be described as a ban.
Plastic resin	Core ingredient for making plastic products (most resins are made from oil but some can be made from bio-based sources like corn starch)
PLA	A type of bioplastic made from renewed materials which is commercially compostable.
Product stewardship	An approach to managing the environmental impacts of different products and materials. Product stewardship shares the responsibility for reducing a product's environmental impact across producers, brand owners, importers, retailers and consumers
Recycling stream	Materials collected for recycling (as opposed to materials sent to landfill)
Resource recovery system	A solid waste management system that is designed for the collection, separation, recycling, and recovery of solid wastes, including the disposal of non-recoverable waste residues.

Waste minimisation	Reducing the amount of waste that we create

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