



Circular
Economy
Accelerator

2018

NEW ZEALAND'S **PLASTIC PACKAGING SYSTEM**

AN INITIAL CIRCULAR ECONOMY DIAGNOSIS

Powered
by SBN



Produced by

Circular Economy Accelerator

Sustainable Business Network

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EXECUTIVE SUMMARY

THERE HAS BEEN AN EXPLOSION IN THE USE OF PLASTIC PACKAGING OVER THE LAST 60 YEARS. ADEQUATE SYSTEMS TO PROPERLY MANAGE PLASTIC PACKAGING HAVE NOT KEPT PACE. THIS HAS LED TO A GLOBAL WASTE AND POLLUTION CRISIS.

According to a study by the Ellen MacArthur Foundation, in a business-as-usual scenario, there may be more plastic by weight in the ocean than fish by 2050. Meanwhile, the Chinese government has effectively banned the importation of waste for recycling. The closure of this major waste market has highlighted the structural weaknesses in our current systems. Public concern over these issues has helped create an unprecedented opportunity for change.

A system wide approach to solving the issues is required. It must tackle the systemic causes of the problems, rather than individual symptoms.

We propose a circular economy approach. This is where the life cycles of materials are maximised, usage optimised and at the end of life all materials are reutilised. It provides a framework for the solutions required. It is a viable antidote to the dominant linear, 'take, make, waste' approach exemplified by the current problems with plastic packaging.

Our approach is broadly based on the framework provided by the work of The Ellen MacArthur Foundation on [The New Plastics Economy](#). This demonstrates how a circular economy for plastic packaging can be established. It identifies three broad strategies for achieving this:

1. Elimination and fundamental redesign of problematic plastic packaging
2. Move from single-use to reuse models
3. Recycling with radically improved economics and quality

Our analysis and recommendations build on this. They are based on more than 40 qualitative interviews with key representatives of New Zealand's plastics packaging sector, and an accompanying workshop.

The plastics packaging sector is complex. It includes deeply entrenched processes based on a linear economy approach. No one entity will be able to transform it on its own. All stakeholders will need to act collaboratively and cooperatively for this to succeed. Up-to-date information on the import, production, use, disposal and export of plastic packaging in New Zealand is woefully inadequate. Successful transformation will also rely on rectifying this.

Our recommendations seek to establish a circular economy for plastics packaging in New Zealand. This will also enable New Zealand-based organisations to meet and exceed the requirements of the New Zealand Plastic Packaging Declaration and the comprehensive New Plastics Economy Global Commitment which includes among others:

- eliminating the use of problematic or unnecessary packaging
- moving from single-use towards reuse
- using 100% reusable, recyclable or compostable packaging
- using recycled content by 2025 or earlier



The pathways to achieving increased recycling present a significant challenge. However, they are relatively well defined. They involve:

- reducing the types and complex formats of plastic packaging
- an increase in processing facilities in New Zealand
- better labelling and consistent collections around the country

However, we cannot solve the plastic packaging issues by recycling alone.

The pathways to eliminate unnecessary and problematic single use packaging are less clear. They involve fundamental redesign and innovation and moving to re-use rather than single-use models. They require substantive and urgent attention and investment.

This report identifies 47 broad actions to achieve a plastic packaging system firmly based on circular economy principles by 2025. These include:

For businesses using plastic packaging

- undertake a full plastic packaging audit. This should guide the design out of problematic single-use packaging or their movement into reuse systems
- redesign packaging design to enable better recycling value and quality
- support suppliers providing packaging with recycled content

For the packaging sector

- implement a standards based national labelling system for recycling, compostable and recycled content
- expand markets for recycled material
- expand product stewardship schemes into rigid plastics

For government

- enable a system of accurate data collection for plastic packaging
- urgently develop a bold plastic packaging strategy and associated plan, to enable the Government to deliver on its Global Commitment
- increase the waste levy to incentivise change
- invest in onshore recycling facilities
- facilitate common collection and recycling processing nationwide
- use government's own procurement policies to help drive the changes required
- provide direct research and development funding to establish viable alternatives to single use plastic packaging

Collaborative and coordinated approaches are required across all recommendations, with government providing the necessary incentives and obligations to facilitate this change.

We must also speed up the transition from petroleum based to sustainably sourced packaging materials. This will further reduce the environmental and social impact of packaging.

Behaviour shifts and lifestyle changes could further enhance this system.

We must take advantage of this convergence of business, civil and political will to take on this challenge with urgency. We must use it to tackle the issues with plastic packaging and get ahead of the curve of the necessary and inevitable global developments. We have a collective opportunity to demonstrate real leadership.



“ FROM PROTECTING FOOD AND MEDICINES TO MAKING TECHNOLOGY ACCESSIBLE AND AFFORDABLE, OUR MODERN ECONOMY RELIES ON PLASTIC FOR MANY THINGS. BUT THE WAY WE USE THIS MATERIAL HAS RESULTED IN A CRISIS OF WASTE AND POLLUTION. ”

Open Letter announcing the New Plastics Economy Global Commitment¹



INTRODUCTION

PLASTIC IS MATERIAL CONSISTING OF ANY OF A WIDE RANGE OF SYNTHETIC OR SEMI-SYNTHETIC ORGANIC COMPOUNDS THAT ARE MALLEABLE AND CAN BE MOULDED INTO SOLID OBJECTS. ITS USE HAS EXPLODED IN THE LAST 60 YEARS. IT HAS BECOME UBIQUITOUS ACROSS VIRTUALLY EVERY SECTOR OF OUR ECONOMY.

Common plastics include polyethylene, polypropylene, polystyrene and polyvinyl chloride (PVC). These plastic polymers are formed from monomers, such as ethylene and propylene, which are typically derived from fossil hydrocarbons. According to the Ellen MacArthur Foundation,² if trends in oil consumption and plastic production continue as expected the consumption of oil for plastic will account for 20% of the total consumption by 2050.³

Plastic's durability, light weight and malleability make it particularly suitable for packaging. Today 40% of the plastic used worldwide is for packaging, and most plastic packaging is designed to be single use.⁴ It plays a fundamental role in protecting food and other goods, in many cases across long and complex supply chains.

THE PROBLEM

The rapid growth in the use of plastic packaging has not kept pace with appropriate plastic handling systems and infrastructure.

According to *The New Plastics Economy: Rethinking the future of plastics*, produced by the Ellen MacArthur Foundation in 2016, only 14% of the world's plastic packaging is collected for recycling. If left unchecked there will be more plastic by weight in the ocean than fish by 2050.⁵

The study estimates that 95% of plastic packaging material value is lost to the economy. It ends up in landfill, is incinerated or escapes into our oceans, land and urban areas. Inadequate waste infrastructure, especially in developing countries, and careless disposal by people, is causing this leakage into the environment.

Much of the plastic used is associated with plastic packaging. The lack of recycling facilities in New Zealand means the majority of plastics collected for recycling are shipped overseas. Statistics New Zealand reports this country exported \$13.1 million worth of plastic overseas in 2017.⁶

A GROWING DEMAND FOR CHANGE

For many, plastic packaging has now become symbolic of the limitations of a linear (take-make-waste) economy. There is considerable public and regulatory pressure for change.

Awareness of these issues has been building for some time. Globally, this has been driven by the work of The Ellen MacArthur Foundation and its New Plastics Economy initiative. There's also been global media coverage such as the BBC's *Blue Planet* documentary, as well as in publications like *National Geographic*.

In New Zealand, organisations such as Sustainable Coastlines have worked to raise the profile of plastics in our oceans, and inspired local action. Throughout 2018 New Zealand media has regularly featured stories on the crisis facing this country's plastic packaging systems. Research indicates that the build-up of plastic in the environment is now in the top five concerns for New Zealanders.⁷



EMERGING ACTION

In August 2018 the New Zealand Government announced its intention to ban single use plastic bags. The willingness to act on plastic has also been demonstrated by a ban on the use of plastic micro beads in soaps and skin creams. This was introduced by the previous government, and implemented in June 2018.

Many businesses are taking action to reduce plastic use and find alternatives. A number of New Zealand based organisations have signed up to the New Zealand Plastic Packaging Declaration. This commits them to using 100% reusable, recyclable or compostable packaging by 2025 or earlier. Several New Zealand based businesses have also signed up to the New Plastics Economy Global Commitment. This is led by the Ellen MacArthur Foundation in collaboration with UN Environment. Signatories include the Ministry for the Environment on behalf of the New Zealand Government.

The Sustainable Business Network has created the Circular Economy Accelerator (CEA). The CEA is intended to hasten the creation of a circular economy in New Zealand. It provides events, publications and other resources. It is

also intended as a platform for collaboration and innovation, principally among the network's 580+ members.

The Packaging Forum is an amalgamation of the Glass Packaging Forum, Soft Plastic Recycling Scheme and the Public Place Recycling Scheme. It promotes the Government's Love NZ brand. More than 200 companies belong to these voluntary product stewardship schemes. In July 2018 its members committed to make all their packaging recyclable or compostable by 2025.

Packaging NZ represents organisations across the whole packaging life cycle, including raw material suppliers, packaging manufacturers, brand owners, retailers, recycling operators and service providers.

There have also been a number of initiatives by individual businesses and business collaborations. For example, the Full Package is a pilot on-street commercial composting service created by Innocent Packaging and WeCompost.

WHEN AWAY WENT AWAY

In recent years, much of New Zealand's plastic waste was sent to China. In 2017, however, China banned the import of low quality waste materials for recycling under its new National Sword policy. In March this year, this was replaced and tightened with a policy known as Blue Sky 2018, which focuses on the 24

categories of banned solid waste. This includes plastics waste, unsorted waste paper and waste textile materials with a contaminant level of more than 0.5%. The closure of this major recycle market has underlined fundamental questions about New Zealand's plastic packaging system.



PLASTICS AND CARBON EMISSIONS

Production of the plastic raw material (resin) occurs overseas and is a carbon intensive process, as it involves heating the oil feedstock (naphtha) at high temperatures. This heat energy is usually sourced from fossil fuels.

Therefore, the resin production stage yields most of the life-cycle carbon (greenhouse gas) emissions of plastic products. So, most of the emissions associated with plastics used in NZ (even those produced in NZ from imported resin) occur overseas. They aren't included in NZ's (production-based) carbon footprint.

The carbon emissions from the global plastics 'system' (full life-cycle) is estimated at about 390 million tonnes.¹⁴ Based on this global estimate, on a pro-rata basis, NZ's carbon footprint associated with plastic use can be estimated at about 250,000 tonnes. NZ-specific production and usage data would be required to validate this estimate.

A transition to the use of 'closed loop' recycling systems can be expected to lower the carbon footprint of our use of plastics.

Important note: the life-cycles of all packaging materials result in carbon emissions and other environmental impacts, to various degrees. It is important that assessments of packaging material consider the relative impacts across the packaging life-cycle. For example, plastic's light weight mean that the impact from transport is lower than heavier packaging types.

NEW PLASTICS ECONOMY GLOBAL COMMITMENT

The New Plastics Economy Global Commitment¹⁵ is led by the Ellen MacArthur Foundation in collaboration with UN Environment.

Targets include:

- Eliminate problematic or unnecessary plastic packaging and move from single-use to reuse packaging models.
- Innovation to ensure 100% of plastic packaging can be easily and safely reused, recycled, or composted by 2025.
- Circulate the plastic produced, by significantly increasing the amounts of plastics reused or recycled and made into new packaging or products.

Signatories include companies representing 20% of all plastic packaging produced globally. They include well-known consumer businesses: Danone; H&M group; L'Oréal; Mars Incorporated; PepsiCo; The Coca-Cola Company; Unilever; major packaging producers such as Amcor; plastics producers including Novamont; and

resource management specialist Veolia.

It is also supported by the World Wide Fund for Nature (WWF). It is endorsed by the World Economic Forum, and 40 universities, institutions and academics. More than 15 financial institutions with \$2.5 trillion-plus in assets under management have also endorsed it. More than US\$200 million have been pledged by five venture capital funds to create a circular economy for plastic.

The New Zealand Government has signed on via the Ministry for the Environment. The Sustainable Business Network has joined a worldwide network of official endorsers of the process. SBN members New Zealand King Salmon, The Better Packaging Co., Earthwise and ecostore all made the commitment at the Commitment's launch in October 2018.



THE NEW ZEALAND PLASTIC PACKAGING DECLARATION

Launched in June 2018, this was partly as a national reaffirmation of original commitments made as part of the New Plastics Economy work. It also provided an opportunity for New Zealand-based brands to take part. In the Declaration Amcor, Danone, L'Oréal, Mars, Nestlé, PepsiCo, The Coca-Cola Company and Unilever affirm that:

- they recognise New Zealand has an interest in moving towards a more circular economy and reducing the use of virgin plastic packaging
- they will work toward using 100% reusable, recyclable or compostable packaging by 2025 or earlier
- they will report on progress to implement this commitment as part of our global sustainability reporting, and provide annual updates to the New Zealand Ministry for the Environment
- they will encourage other companies operating in New Zealand to look at their plastic packaging and make similar commitments.

The signatories were joined by Countdown, Foodstuffs, Frucor Suntory and NZ Post.








TYPES OF PLASTICS USED IN PACKAGING

Most rigid form plastic packaging, and some flexible (soft) plastic packaging, is marked with an identification code. The code indicates the type of plastic resin, or polymer. This is a global identification system.¹⁶ Its use is encouraged by the plastics industry in New Zealand, although it is not a regulated requirement.¹⁷

The plastic identification coding system was primarily developed to help differentiate between the different types of petroleum oil-derived plastic. The development of bio-plastic (plastics derived from renewable biomass sources, such as vegetable fats and oils, corn starch, straw, woodchips, food waste) based packaging has introduced further

complexity to the identification of plastics. Some types of bio-plastics (e.g. bio-HDPE) are chemically the same as petroleum-based types, whereas others, such as bio-based polylactic acid (PLA) are unique.

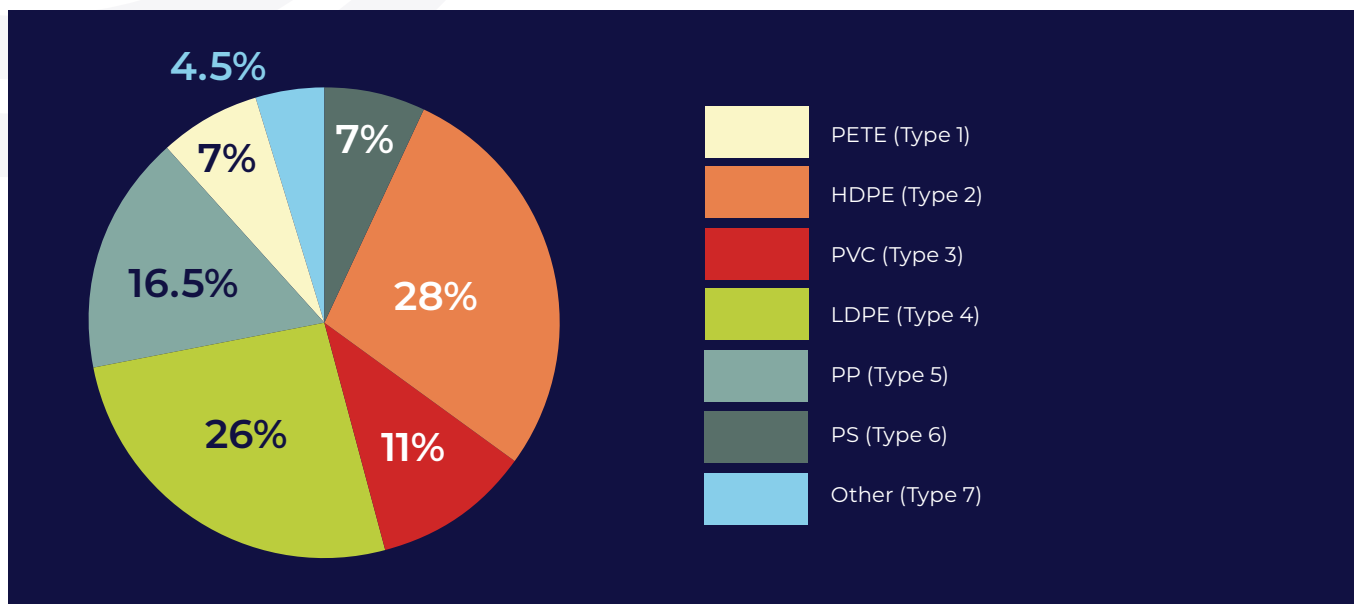
There are seven plastic identification codes, as shown below.

						
PET	HDPE	PVC	LDPE	PP	PS/EPS	OTHER
Polyethylene Terephthalate	High Density Polyethylene	Poly Vinyl Chloride	Low Density Polyethylene	Polypropylene	Polystyrene / Expanded Polystyrene	Other (includes PLA – Poly Lactic Acid)
Soft Drink Bottles, Mineral water, Condiment/Food Jars, Food containers (trays, punnets and clam shells)	Milk Bottles, Cleaning Products, Personal Care	Packaging/Wraps (e.g. on plastic take-away containers), Flexible Packaging/Bags, Sleeves on PET bottles	Stretch film (such as Cling Film), shrink wrap, bubble wrap, zip-lock bags, grocery bags, squeezable bottles, coating of milk cartons.	Takeaway and ready meal (microwaveable) containers, Refrigerated Food Containers, Medicine Bottles, Bottle Caps	Styrofoam Cups, Takeaway food containers (e.g. sushi packs), Meat Trays, Protective Foam Packaging, CD Cases, Small Hard-wearing Bottles	Various (e.g. PLA water bottles)

COMMON TYPES OF PLASTICS USED IN PACKAGING

CONTINUED

Plastic used for the manufacture of packaging in New Zealand is imported in two main forms: as raw material (resin) or as packaging material (e.g. sheets). The relative proportions of each type of imported raw material (resin) into New Zealand in 2017 are listed below¹⁸ (note: this is a breakdown for all plastic resin imported, not just for the plastic resin used to make packaging):



→ It's important to emphasise that the identification code is not a recycling label. The presence of the code does not indicate whether the item is recyclable. Most plastic can theoretically be recycled but in practice this may not be the case – it is location dependent. There is no specific regulation in New Zealand for the use of the term recyclable on packaging. Where it is used it does not necessarily mean that it can actually be recycled in New Zealand.



OTHER RELATED WORK

Below is a brief outline of current organisations and projects with work related to plastic packaging. While not exhaustive, it is published here to provide a sense of the interest and activity on this issue, and the extent of the opportunities for joint working and support on solutions.

→ IN NEW ZEALAND...

GOVERNMENT-LED

[New Zealand Plastic Packaging Declaration](#)

The declaration was launched by the NZ Government in June 2018. By signing the declaration, NZ-based businesses commit to using 100 percent reusable, recyclable or compostable packaging in their New Zealand operations by 2025 or earlier. See also the information on the Global Commitment below.

[Proposed phase-out of single-use plastic shopping bags](#)

In August 2018, the Government announced a proposal to phase out single-use plastic shopping bags in New Zealand by mid-2019. Public consultation on the proposal closed in September.

[Work programme to address waste issues](#)

In August 2018, the Associate Environment Minister Eugenie Sage announced a work programme which included a suite of measures, including an intention to expand the coverage, and consider increasing the amount, of the waste disposal levy.

[Waste Minimisation Fund](#)

The Waste Minimisation Fund funds projects that promote or achieve waste minimisation. It is funded from the Waste Disposal Levy.

SECTOR-LED

[Local Government Waste Management Manifesto](#)

The Local Government Waste Management Manifesto was launched in January 2018 by the WasteMINZ Territorial Authority (TA) Forum, comprising representatives from 64 city and district councils from around New Zealand. The manifesto advocates for a suite of measures from central government, including an updated strategy; an expanded waste disposal levy; implementation of the National Waste Data Framework; the introduction of a container deposit scheme (CDS); and plastics to be included as a priority waste stream.

[National Waste Data Framework](#)

The framework has been developed by WasteMINZ (Waste Management Institute of NZ) to provide a standard for the collection of data at end of life, including for plastic packaging. It has been designed to be implemented across NZ and form the basis of a comprehensive data system. As at October 2018, it is awaiting implementation.

[Rebooting Recycling report](#)

This report from WasteMINZ, published in May 2018, responded to the negative effect on domestic recycling operators as a result of China's decision to no longer accept most waste (including plastic). It advocates a range of measures needed from the government.



Code of Practice, including Packaging Design Checklist

The code of practice is a guide for packaging design, developed by Packaging NZ.

Soft Plastic Recycling Scheme

This is a voluntary scheme, led by the packaging industry (Packaging Forum), based on citizens dropping off soft plastic at participating stores. The material collected is re-processed into durable plastic products.

Compostable standard development

The Packaging Forum has initiated work with the intention to develop an industry standard for certifying compostable items, including common labelling.

OTHER

Biodegradable and compostable plastics in the environment

Published in July 2018 by the Parliamentary Commissioner for the Environment (PCE), this guide provides information to consumers on biodegradable, degradable or compostable plastics, including the meaning of the terms and common mis-conceptions. It highlights the complexities involved and the need for a considered approach before using or consuming these plastics.

→ IN AUSTRALIA...

APCO Packaging Sustainability Framework and Sustainable Packaging Guidelines

The Australian Packaging Covenant Organisation (APCO) is a co-regulatory, not for profit organisation that partners with government and industry to reduce the harmful impact of packaging on the Australian environment. It has a set of comprehensive tools, including the Sustainable Packaging Guidelines, Packaging Sustainability Framework and Annual Reporting Tool, to enable APCO member organisations to develop, monitor and report on their packaging.

APCO Packaging Recycling Label Program

APCO's Packaging Recycling Label Program is a nationwide labelling scheme, incorporating the Australasian Recycling Label (ARL), designed to help consumers better understand how to recycle products effectively and assist brand owners to design packaging that is recyclable at end-of-life. The ARL has been designed to allow for its introduction in New Zealand.

→ GLOBALLY...

The New Plastics Economy Global Commitment

The New Plastics Economy Global Commitment unites businesses, governments, and other organisations behind a common vision and targets to address plastic waste and pollution at its source. The New Plastics Economy Global Commitment is led by the Ellen MacArthur Foundation, in collaboration with UN Environment. *The commitment has been informed by EMF's comprehensive reports on transforming the global plastic system*



ABOUT THIS DIAGNOSIS

THE PURPOSE OF THIS STUDY

This diagnosis outlines pathways towards a circular economy for plastic packaging in New Zealand. We identify and analyse the key issues, and indicate appropriate solutions. This will enable businesses to make more informed decisions on packaging. It will enable more co-ordinated innovation. The results will be used by the Sustainable Business Network's Circular Economy Accelerator and others to develop action programmes to address these issues.

The study is also a necessary first step towards ensuring commitments made under the New Zealand Plastics Packaging Declaration are met in a meaningful, appropriate and coordinated manner.

METHODOLOGY

This is a necessarily qualitative rather than quantitative study. This is partly because up to date information on the production, use, disposal and export of plastic packaging in New Zealand is woefully lacking. Our core data set for this study comprised more than 40 interviews with key representatives from across the plastics packaging sector. We talked to importers, designers, manufacturers, brands, retailers, collectors, recyclers as well as local and national government. To ensure we obtained candid responses and to avoid commercial sensitivities the interviews were conducted under the Chatham House Rule of confidentiality and are not directly attributed here.

The interviews were used to identify key systemic issues, barriers, opportunities and leverage points.

Our analysis builds on our previous work in this area and our expertise on waste and the circular economy. Desk research was also undertaken to review related published materials and articles.

We validated and built on our initial results at a workshop with representatives from the

plastic packaging system. This also assisted in establishing pathways to meeting the 2025 plastic packaging declarations and commitments.

We framed these pathways around three key insights from *The New Plastics Economy: Catalysing Action*, by the Ellen MacArthur Foundation.

- 1. Fundamental redesign and innovation** is required for approximately 30% of plastic packaging as it will never be reused or recycled.
- 2. Reuse** provides an economically attractive opportunity for 20% of plastic packaging.
- 3. Recycling with radically improved economics and quality** could provide a viable solution for the remaining 50% of plastic packaging. It can keep plastic in valuable circulation and prevent leakage into the environment.

What follows is therefore a view of the plastic packaging system in New Zealand, informed by the views of our interviewees, our expertise and this additional research and framework.



A CIRCULAR ECONOMY APPROACH

THE CIRCULAR ECONOMY OFFERS A VIABLE, ALTERNATIVE AND COMPREHENSIVE SOLUTION TO THE INCUMBENT LINEAR TAKE-MAKE-WASTE ECONOMY.

It will maximise the lifecycles of materials. It will optimise their use. It will ensure they are reused. This will be underpinned by renewable energy.

We are currently using the Earth's resources 1.7 times faster than they are replenished.¹⁹ Our growing population and rising incomes increase consumption. This makes the linear economy unsustainable.

We need to transition to a circular economy. We must undo the effects of centuries of this linear approach. This will require a fundamental paradigm shift. It means changing how we design, produce, distribute and use every product or service.

Previous analysis from the Sustainable Business Network²⁰ has identified six key leverage points to achieve a circular economy in New Zealand.

1. DESIGN

Products need to be designed for a circular economy. This means designing products for longevity, reparability and upgradability. Materials should be selected that can stay in high value circulation or have the ability to be regenerative at the end of their use. We must design out unnecessary materials.

2. DEMAND

Circular solutions need to be desired by the market so they can be scaled. Products won't scale purely based on their circular attributes. They must outperform their linear equivalents.

3. BUSINESS MODELS

New business models are needed. For example, expanding access over ownership provides opportunities to reduce resource use. Retained

commercial ownership can support product stewardship and greater investment in product longevity.

4. INFRASTRUCTURE

The necessary infrastructure to enable a circular economy needs to be in place. Physical re-processing plants, reverse logistics systems, and more.

5. TECHNOLOGY

For example, the emerging Internet of Things can enhance efficient product use. 3D printing offers the potential for expanded on-demand distributed manufacturing. Blockchain offers the potential to track materials to ensure value is captured throughout their life cycle.

6. POLICY

Government needs to provide a regulatory framework that supports and accelerates this transition at scale.

WE NEED CO-ORDINATED CO-OPERATIVE ACTION ACROSS ALL THESE LEVERAGE POINTS.

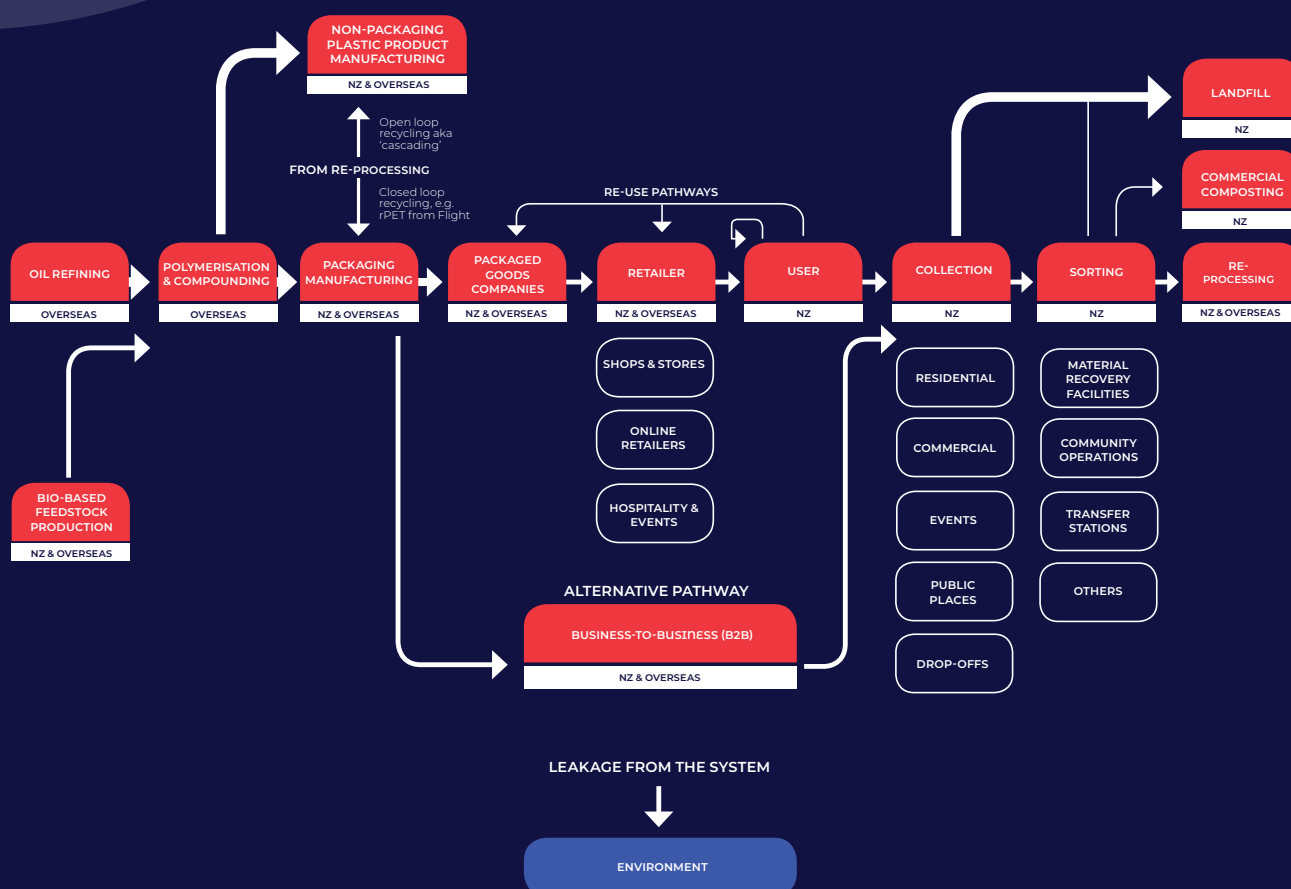


THE CURRENT SYSTEM: AN OVERVIEW

THE CURRENT SYSTEM FOR PLASTIC PACKAGING IN NEW ZEALAND IS ALMOST ENTIRELY BASED ON USING PETROLEUM OIL-BASED PLASTICS AND HAS AN ESSENTIALLY LINEAR FLOW. MOST PLASTIC PACKAGING IS MADE IN NEW ZEALAND FROM OIL-DERIVED POLYMERS IMPORTED FROM OVERSEAS. IT IS USED TO WRAP AND PROTECT A RANGE OF PRODUCTS, AND TYPICALLY IT IS DISPOSED AFTER A SINGLE USE.

Data is very limited for the production and movement of plastic packaging in New Zealand. There are currently no regulations around the collection of data.

AN OVERVIEW OF CURRENT SYSTEM



PRODUCTION AND USE

About half of plastic imported into New Zealand is used to make packaging, with the remainder used to produce durable products.²¹ Of the plastic used for packaging, about half is used for rigid packaging (bottles, trays, pottles, etc.) and half for soft plastic packaging.²² There are many different plastic polymer types used (such as polyethylene, polypropylene and polystyrene) and some packaging products use multiple polymer types. High volume uses include PET (ethylene-based) for drinks bottles, HDPE (also ethylene-based) for milk bottles, and polypropylene (for take away trays and ice cream containers).

COLLECTION AND RECYCLING

Some plastic packaging, especially larger and rigid forms (e.g. bottles), are collected for recycling²³, but significant quantities are disposed into landfill or 'leak' into the environment. Over the last 10 years, as a market for recycled plastic has opened up in Asia (especially China), most local councils in New Zealand have provided residential collection of most rigid-form plastic packaging material.²⁴ Much of the collected material is processed at Material Recovery Facilities (MRF), using automated sorting technologies which typically separate into three streams (clear PET, natural HDPE, and a mixed stream). Data is limited but what is available suggests that about 50% of the larger rigid-form packaging is collected and sorted for recycling use.²⁵

PROCESSING AND EXPORT OF PLASTIC PACKAGING RECYCLATE

Until recently, the plastic packaging collected for recycling (the 'recyclate') has mainly been exported, generally to Asian countries and especially China.²⁶ Some recyclate is re-processed in NZ, which since late 2017 has included a significant quantity of the PET (Type 1) plastic, at the new Lower Hutt based plant (Flight Plastics).²⁷ This is the only

example in NZ of a 'closed loop' system (whereby recyclate is re-processed into the same or similar applications). Other NZ-based operations re-process plastic recyclate into durable products. Both approaches reduce demand for imported polymer resins.

The subsequent use of the exported recyclate is unknown. Higher value recyclate will probably be re-processed into other plastic products, although the very low value (or valueless) recyclate is very likely to have been incinerated or landfilled and some is likely to have 'leaked' into the environment in the recipient countries.

The recent restrictions placed by China on imported plastic waste (the 'National Sword' and 'Blue Sky' policies) have led to reductions in value of all plastic recyclate. Clear PET and natural HDPE recyclate²⁸ remain viable, but mixed plastic recyclate is increasingly uneconomic to collect without support measures.

Soft plastic packaging has generally not been collected for recycling in large quantities. However, some systems have recently been introduced, including the Love NZ Soft Plastic Recycling Scheme (collections at supermarkets)²⁹ and an enhanced system to re-process agricultural soft plastics (silage wrap and milk powder bags).³⁰

Over recent years there has been an increase in the use of bio-based (including compostable) plastics in packaging, but their use is in niche applications and so very low volume. As a result of the low volumes, the collection systems are generally immature, so it is likely that much of the potentially compostable packaging is disposed into landfill.

Similarly, there is very low re-use of plastic packaging in New Zealand. Where it does occur, re-use is ad-hoc, by motivated individuals, rather than as a result of designed systems.



DATA ON THE PLASTIC PACKAGING SYSTEM

There is no official collection of data for most of the life-cycle of plastic packaging in New Zealand, including the manufacture, usage and recovery of used materials in New Zealand. This means that most estimates rely on informal and voluntary data collection.

A 2015 report on the New Zealand packaging system commented that the data available is *'fragmented and lacking in consistency'*.³¹

→ PACKAGING INPUTS

The life-cycle for plastic packaging in New Zealand starts with the import of raw material and other packaging components. There is standards-based publicly available government data for the financial value of the imported materials (total value \$1.378 billion).³² Quantity data is less available but Plastics NZ estimates that there was approximately 250,000 tonnes of plastic resin imported in 2017.³³ Data on the quantity of other packaging inputs is not publicly available.

→ PRODUCTION AND USE OF PACKAGING

There is no data on the quantity of plastic packaging associated with imported packaged goods. There is no publicly available data on the packaging produced in New Zealand. This extends to data on the packaging associated with products used in New Zealand as well as those manufactured in New Zealand but exported. Historic data suggests that 50% to 60% of the imported raw material is converted into rigid packaging (e.g. bottles, trays, pottles) with the remainder converted into soft plastic (e.g. plastic bags and wrap).³⁴

These gaps continue when considering how plastic packaging is re-used, both informally by individuals and through designed re-use systems.

→ DISPOSAL, COLLECTION AND SORTING

The situation improves when considering how used plastic packaging is collected and sorted. Although there is no statutory requirement at present, many local councils, or their contractors, collect data on the composition of kerb-side recycling collections. For example, Auckland Council contractor data estimate that 7,600 tonnes of plastic waste were collected for recycling in 2016, approximately 5 kilograms per person.³⁵

Of the plastic collected from Auckland's kerb-side system, clear PET and natural HDPE items contribute about 20% each, with other plastic types (including coloured PET and HDPE) making up the remaining 60%. Most local council recycling schemes do not collect soft plastic, but the industry-led Soft Plastic Recycling Scheme collected 365 tonnes (approximately 91 million bags) in 2017.³⁶

In addition, there is some data on the proportion of plastic packaging that is recycled. Recent studies have estimated that 47% and 40% of single use plastic drinks containers are recycled.³⁷ A 2016 Wellington study estimated that the proportion of recyclable plastic packaging in landfill waste was 1.2% (by weight).³⁸

By its very nature, the absolute quantity of plastic packaging which is discarded (or 'leaks') into the New Zealand environment is largely unknown. Data collected by the Sustainable Coastlines charity, from 75 beach clean-ups around New Zealand over seven years, show that single use plastic items made up about 77% of the litter collected.³⁹



→ RE-PROCESSING AND END-OF-LIFE

As we move towards the end of the life-cycle, and the re-processing of plastic recyclate, there continues to be limited data on how the recyclate is used. Over the past decade, most waste plastic has been exported. Low volumes are re-processed in New Zealand, including at the Flight Plastics plant in Lower Hutt which, since 2017, has the capacity to process up to 8,000 tonnes of clear PET (Type 1) back into packaging products. Other plants in New Zealand have re-processing capability into more durable products.

There is data on the value of exported waste plastic, which was \$13.1 million in 2017. Most (96% by value) was exported to Asian countries, with about 53% to China and Hong Kong.⁴⁰ The end use of that exported plastic is unknown, with potential pathways including closed loop recycling, open loop recycling (down-cycling), waste-to-energy (or other incineration), as well as leakage into the environment.

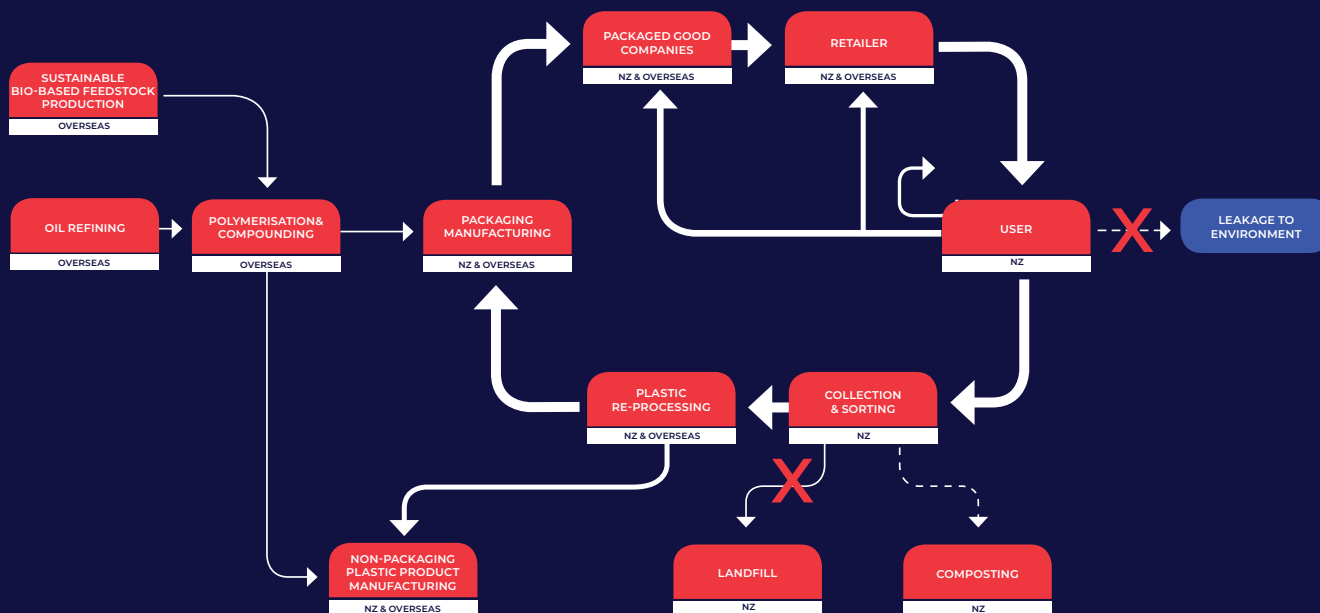


TARGET STATE 2025

This is the vision for the plastic packaging system in 2025.

THE PARADIGM SHIFT IN OUR INTERACTIONS WITH PLASTIC PACKAGING HAS OCCURRED. THE 2025 NZ PLASTIC PACKAGING DECLARATIONS AND GLOBAL COMMITMENTS HAVE BEEN MET. THE SOLUTIONS OUTLINED IN THIS REPORT AND FURTHER INNOVATION AND COLLABORATION HAVE CREATED A WORLD CLASS CIRCULAR SYSTEM FOR PLASTIC PACKAGING IN NEW ZEALAND.

OVERVIEW OF FUTURE SYSTEM (INDICATIVE)



THE TARGET STATE 2025

Plastic packaging remains part of our everyday lives. However, problematic single use formats have been identified and phased out.

New Zealand is operating from a clear ambition to be a leading circular economy nation. It is a pilot market for many of the innovative solutions. The solutions are a mixture of local and overseas innovation. Unnecessary packaging is deemed unacceptable. Reuse models are widely adopted across markets. Plastic packaging use per capita is dramatically reduced.

Collection systems are far more widespread, drastically reducing leakage to the environment. Plastic packaging formats use material types with stable end of life markets. Packaging design choices are aligned to ensure quality feedstock for recycling systems. This includes the use of bioplastics derived from sustainable sources. Their market share has increased. Technological advances mean they are compatible with end of life processing systems.

NZ has dramatically increased its closed loop processing capability. Some recycling is still processed in overseas markets. However, environmental and social monitoring and transparency has matured. This provides a far greater capacity to ensure best practice.

Legislation that cements these changes and drives further improvement is in place and widely accepted. Mature and comprehensive data systems allow for the monitoring of packaging flows throughout the system.

BEYOND 2025 – A CULTURAL SHIFT AWAY FROM OIL BASED MATERIALS

The circular model facilitates a rapid transition from fossil fuel based feedstock for packaging to sustainable bio-based feedstocks that outperform them within the restructured system. This further reduces the environmental and social impact of packaging.

Other developments could include widespread use of the chemical recycling of plastic materials rather than the use of mechanical recycling. This would enable many more material reuses.

Behaviour shifts in these and other areas of our lives in response to climate change and resource depletion could further enhance this system. Examples could include a marked transition towards locally produced, plant-based seasonal whole foods operating in shorter distribution systems that require little or no packaging.

The challenge for New Zealand businesses is to remain ahead of the curve on these developments.



WHAT ARE THE KEY CHALLENGES AND OPPORTUNITIES?

IN THIS ANALYSIS WE USE THE FOLLOWING THREE BROAD STRATEGIES AS A FRAMEWORK TO IDENTIFY KEY ISSUES AND POTENTIAL SOLUTIONS.

- Fundamental redesign and innovation
- Reuse
- Recycling with radically improved economics and quality

First, we discuss overall issues, which cut across all three strategies.

LACK OF COMPREHENSIVE AND CONSISTENT AGREED DATA

THE CHALLENGE

The data available on the plastic packaging system is fragmented and incomplete. There are no common standards for the collection of data for most parts of the system. Data exists for imports and exports (value)⁴¹ and primary form imports (quantity).⁴² Some councils collect data from their contractors (e.g. kerb-side recycling and landfill).⁴³ Attempts have been made to collate system-wide data (e.g. Plastics New Zealand). This was discontinued several years ago.

Currently, there is no quantity data in several fundamental areas. These include:

- primary form plastics converted into packaging in New Zealand (compared with durable products)
- products imported with plastic packaging
- products exported with plastic packaging
- packaging disposed into landfill or the environment
- the quantity of recyclate being stockpiled or landfilled due to operational conditions (e.g. no demand).

A further limitation is that recycled material (e.g. Recycled PET rollstock) is not categorised separately in trade data. It is grouped with virgin material. This inhibits the ability to track the aspiration to increase the use of recycled material.

There is also a lack of transparency about end of life options for plastic packaging.

Typical questions from our interviewees were:

- Is the packaging actually being recycled?
- Is that a cost-effective operation?
- What types of products is the used packaging being converted into?
- In which countries is this happening, NZ or overseas?

Lack of data and knowledge inevitably creates uncertainty. It inhibits prioritisation. It also inhibits well-targeted and timed action and an accurate assessment of the resources required.



THE OPPORTUNITY

The National Waste Data Framework (NWDF) initiative, driven by WasteMINZ, has established standards for end-of-life data collection of plastics and other materials.⁴⁴ This has the support of local and central government.

The New Zealand Government is leading work to improve: *“New Zealand’s waste data by requiring landfill operators to report on the composition and quantity of waste, and obtaining data from councils and the private sector on how much is reduced, reused and recycled.”*⁴⁵

There is an opportunity to build on the foundation of the NWDF. We should extend data collection to include other stages of

the life-cycle (e.g. production). This could be done either through voluntary or mandatory collection of standards-based data. Packaged goods suppliers and retailers need to develop a better understanding of their contribution to the plastic packaging system. For example, they can undertake audits on their own product lines. This will provide a basis for prioritising specific packaging materials across the three circular strategies.

Transparent, voluntary reporting on end of life processes and where they take place is also required. Emerging technology can assist. For example, the use of blockchain to robustly and accurately track resource movements.^[ii]

NO SINGLE ENTITY HAS THE POWER TO CHANGE THE SYSTEM ON ITS OWN

THE CHALLENGE

Packaged goods suppliers and retailers are seeking to make improvements. This includes soft plastics product stewardship and using recycled content. Some companies are creating roles specifically focused on packaging systems and solutions.

Action builds momentum. Well publicised moves on packaging are influencing others to act. These include the use of recycled content by companies such as Lewis Road Creamery and Earthwise, as well as ecostore using bioHDPE

However, there is awareness that a whole system coordinated approach is required. Developments made by organisations in isolation are insufficient to generate fundamental system change. No single entity has the power to change the system on its own.

There is also the need to manage customer expectations. This is particularly true in complex business to business supply chains. Some interviewees voiced concern about balancing progress with not getting “too far ahead” of customers.⁴⁸ This underlines the importance of customer communication and engagement.

“THESE MOVES ARE RESULTING IN OUR EXECUTIVE TEAM TAKING NOTE AND INSPIRING [THE ORGANISATION] TO TAKE ACTION.”⁴⁷

THE OPPORTUNITY

Progressive business can continue to demonstrate clear leadership on packaging development, provided it is done in collaboration with customers.



“IT WOULD BE GREAT IF SOMEONE JUST TOLD US WHAT [PACKAGING FORMATS] IS AND ISN'T ACCEPTABLE”⁴⁹

Tesco's *Preferred Materials List*⁵⁰ from the UK was cited as a positive leadership example. This details materials Tesco is looking to remove, use only where required, or continue to use in its in house brands.

An independent packaging advice service would help provide clarity for decision making. So too

would open access to New Zealand specific Life Cycle Assessments (LCA). This would enable comparison of packaging formats across their life stages.

This should be combined with coordinated multi-stakeholder initiatives. An example is the Packaging Forum's work on compostable packaging.⁵¹

FINANCIAL SIGNALS ARE INSUFFICIENT

THE CHALLENGE

The current system allows for the extensive externalisation of social and environmental cost. It has also created an acceptance of resource value loss.

THE NEW PLASTICS ECONOMY – RETHINKING THE FUTURE OF PLASTICS (2016) REPORT INDICATED 95% OF THE VALUE OF PLASTIC PACKAGING MATERIAL IS LOST TO THE GLOBAL ECONOMY. THIS IS WORTH USD\$80-120 BILLION A YEAR.⁵²

There is no data available on the value loss attributable to packaging in New Zealand. In 2017 the value of primary plastic imports into New Zealand was circa \$1.3 billion, while the value of exported waste plastic was only \$13 million.⁵³ But this is only a crude comparison. Only something like 50% of the primary plastic imported is used to make packaging. Of this, only a proportion is used and disposed of in New Zealand. This ends up in recycling, landfill, or can be discarded ('leak') into the environment. The proportion exported as waste plastic is unknown.

THE OPPORTUNITY

Financial incentives (or dis-incentives) are needed to address externalities. The New Zealand Government has signalled a desire to strengthen the waste disposal levy.⁵⁴ This may mean applying the levy to all landfills. It may also include increasing the levy amount. Both will enable greater investment in the required system changes, such as infrastructure improvements and R&D projects.”

This would be a positive step. But bolder action may well be needed. This could include a targeted tax on problematic materials, or to incentivise use of recycled content. The UK and French governments have signalled their intention to introduce packaging taxes to increasing the use of recycled plastic in packaging.^{55,56}



NO NATIONAL STRATEGY FOR A SHIFT TO A CIRCULAR SYSTEM FOR PACKAGING

THE CHALLENGE

There are useful and important initiatives towards a circular economy already underway. But these are not yet integrated into a unifying strategy. The last national waste strategy was published in 2010 under the previous government.⁵⁷ It contained no specific targets. The recent proposal to ban single use plastic bags sent a strong signal. But the ambition and associated national strategy for plastic packaging remains unclear.

A clear legislative and strategic framework is needed to provide certainty and support innovation at the necessary speed and scale. The current government has indicated that it understands this need.⁵⁸

THE OPPORTUNITY

A comprehensive national strategy is needed. This should have clear goals and targets. It will require appropriate funding to enable implementation. The European Union's *A European Strategy for Plastics in a Circular Economy*⁵⁹ offers a framework.

In the current absence of this, packaged goods suppliers must develop their own. The current commitments and declarations provide a starting point.

NEW ZEALAND IS A SMALL, REMOTE MARKET

THE CHALLENGE

New Zealand is a small and remote economy. It is likely that much of the development in plastic packaging and related systems will be made elsewhere. It is vital that we align the work done here with these developments.

THE OPPORTUNITY

New Zealand's scale, culture and technological advancement offers the potential to trial global solutions. Multiple technology advances are required. Government and the industry can target opportunities through well-directed research and development funding. The work of Scion around bioplastics is a good example.



CIRCULAR STRATEGY 1:

FUNDAMENTAL RE-DESIGN & INNOVATION

On a global level, approximately 30% of packaging requires elimination or fundamental redesign before it can be reused or recycled.⁶⁰ Examples include small format packaging, multi-layered packaging and hard to recycle materials e.g. expanded polystyrene.

→ WHAT EXACTLY NEEDS TO BE DESIGNED OUT?

THE CHALLENGE

Recently, the New Zealand Government moved to ban single-use plastic bags, following pioneering initiatives by major businesses. There has also been a groundswell of concern related to plastic straws.

However, there are myriad plastics types, formats and combinations across multiple sectors in New Zealand. There is currently a lack of uniform understanding and agreement on what needs to be designed out and what the next priorities are.

THE OPPORTUNITY

In the absence of such agreement, business need to audit their individual packaging portfolios and identify the unnecessary and problematic materials, prioritise and implement a plan to design out. To help identify problematic or unnecessary plastic packaging the New Plastics Economy Global Commitment offers the following list of criteria.

PROBLEMATIC OR UNNECESSARY PLASTIC PACKAGING CRITERIA:

1. It is not reusable, recyclable or compostable.
2. It contains, or its manufacturing requires, hazardous chemicals that pose a significant risk to human health or the environment.
3. It can be avoided (or replaced by a reuse model) while maintaining utility.
4. It hinders or disrupts the recyclability or compostability of other items.
5. It has a high likelihood of being littered or ending up in the natural environment.

The Tesco preferred materials list,⁶¹ referred to earlier, is one such approach. It aims to “remove from our products by 2020 if not sooner. Examples of such materials are PVC and Polystyrene.”

Holistic design approaches should focus on looking at new ways of getting products to customers

without using single use plastics. Ethique⁶² has demonstrated this by providing cosmetics like shampoo in a solid format rather than a liquid one. This eliminates the need for a plastic bottle.

The takeaway ButterflyCup has been designed to eliminate the need for a plastic lid.⁶³



→ COMMERCIAL BARRIERS

THE ISSUE

Fundamental redesign requires major change to incumbent linear supply chains. Unsurprisingly, there are a range of barriers that need to be overcome. The search for alternatives to problematic plastic packaging by New Zealand based packaged goods companies has often identified that alternatives have additional costs. This raises the question “who pays?”⁶⁴ Also, in some cases, reduced or unproven functionality. “Our initial order of compostable courier bags started degrading immediately.”⁶⁵ (i.e. before it reached the customer.)

Established systems have inherent advantages, in terms of economies of scale (across the system), proven functionality and customer acceptance. New technologies will take time to scale and develop a competitive position.

Customer acceptance of any fundamental packaging changes is obviously a crucial element for success. Risks can exist if changes are introduced “too far ahead”⁶⁶ of customers and without adequate education along the supply chain. However, the current elevated sentiment for proactive change could mitigate this.

Another important barrier is the extensive and increasing use of plastic packaging outside the home and in uncontrolled/open environments. This has been partly driven by societal changes, including increasingly busy lives and the desire for convenient solutions necessitating very well designed systems. These types of challenges are well understood by many stakeholders. Some providers are already developing system solutions. An example is the ‘Full Package’⁶⁷ compostable packaging on-street collection system and campaign piloted in Auckland.

THE OPPORTUNITY

Alternative technology and solutions need to scale. Demand plays a fundamental role in pulling solutions through. Targeted government and business procurement can play a significant role. Furthermore, co-ordinated efforts can be made to aggregate the demand required.

Local sourcing with simpler supply chains could also provide an opportunity to reduce packaging requirements. If food items could reach their end destination faster, for example, theoretically there is less of a need for packaging to provide life extension and protection from multiple handling throughout the supply chain.

Collaborative innovation programmes with major industry players’ involvement offer the potential to move beyond step change progress and achieve fundamental change. The NextGen Cup⁶⁸ initiative, involving sector goliaths Starbucks and McDonald’s, is an example of this, albeit at an embryonic stage.

Open source design challenges provide another route for bringing the required alternative solutions to fruition. The New Plastics Economy Innovation Prize⁶⁹ has provided a vehicle for helping to identify and scale new emerging solutions. The Copenhagen based Launch initiative⁷⁰ represents another example of a platform for accelerating circular solutions.



→ THE ROLE FOR RIGID BIO-PLASTICS IS UNCLEAR

THE ISSUE

The move to rigid bio-plastics has intuitive appeal, but there are a range of potential issues. There needs to be clarity around terminology; currently there is limited understanding. Confusion exists in areas like end-of-life/recyclability and relative life cycle impacts compared with conventional plastics. Uncertainty over correct disposal can lead to contamination of recycling streams and effect on recycling economics. This is exacerbated by the lack of standards, including the use of standard recycling codes on some bio-plastics. Poor choices on the bio-based feedstock can negatively impact food systems. In addition, low production volumes may not deliver the necessary scale for cost effectiveness. The smaller scale also affects the potential cost-effectiveness of recycling.

There is a need to clearly differentiate between 'drop-in' and non-'drop-in' bio-plastics. Bio based, non-biodegradable 'drop-in' plastics such as bio-PP, bio-PE and bio-PET are chemically identical to their fossil counterparts. In theory, they should be sorted out in the same mono streams as conventional plastics, but unless the bio-form is clear (for PET) or natural (for HDPE) then these types will be sorted by most New Zealand MRFs into the low-value mixed plastic

stream. Non-'drop-in' bio-plastics are materials that may or may not be biodegradable but they do not have identical technical properties to their fossil counterparts. (They include PLA, PHA, Bio-PA, etc.) They would contaminate conventional plastic recycle if mis-sorted – an example is clear PLA bottles which have similar density properties to PET but are chemically different. This problem also exists for polystyrene.

THE OPPORTUNITY

There are undoubtedly opportunities for sustainably-sourced rigid bio-plastics but the benefits will be optimised by using best practice based on good analysis (including life-cycle considerations). Standards-based labelling of packaging is essential, to provide appropriate advice to consumers on disposal as well as ensuring adequate systems and infrastructure are actually in place.

A holistic approach is illustrated by For The Better Good,⁷¹ which supplies PLA bottles of water via retail outlets that also act as a collection point for the bottles at the end of use. The bottles are either cycled into new products or taken to an appropriate composting facility. (Reuse is encouraged first via an online map of refill stations.)

→ THE ROLE FOR COMPOSTABLE AND BIODEGRADABLE BIO-PLASTIC PACKAGING IS UNCLEAR

THE ISSUE

As a form of bio-plastic, compostable and biodegradable packaging has some of the same issues as mentioned for rigid bio-plastics above.

Of significance is the lack of standards in New Zealand, including labelling. This has led to 'greenwash' claims and significant consumer confusion around the terms of compostable, biodegradable and especially oxo-biodegradable.

This confusion impacts consumer disposal at end of life. Certain bio-based materials (e.g. PLA and compostable packaging) can contaminate conventional plastic streams. False expectations

on the speed of degradation can 'encourage' littering. Most compostable packaging, in reality, needs specific compost conditions to enable effective degradation.

In well-controlled 'closed' situations (e.g. offices, events) the collection of compostable packaging within a food waste stream works well. However, as the packaging material is very low in nutrient value, the quantities need to be well managed to ensure that the quality of the compost is not degraded. For this reason, for example, the Christchurch food waste system does not allow compostable packaging. Where the biodegradable packaging ends up in landfill,



it can have a greater climate change impact than conventional plastic, if it decomposes anaerobically in the landfill, releasing methane.

Generally, compostable packaging is an appropriate solution for serving food and drinks, especially in closed system scenarios (e.g. events or hospitality), or where conventional packaging material alternatives cannot be cost effectively recycled.

THE OPPORTUNITY

There are undoubtedly opportunities for sustainably-sourced compostable bio-plastics in particular use cases where the appropriate end of life collection and/or processing facilities are in place.

Edible bio based packaging can also provide an alternative for certain use cases. Ooho! edible water pouches made from seaweed have replaced water bottles at some marathon events.⁷²

→ THERE ARE SOME MIXED MESSAGES FROM GLOBAL MARKETS

THE ISSUE

Awareness of the need to reduce, and better manage, plastic packaging is strong in many nations, especially 'western' developed states like New Zealand. However, there is some evidence that other markets (e.g. Asian markets) are seeking additional packaging to provide a greater perception of food safety. Conversely, other markets (e.g. European) are generally looking for reduced and/or alternative packaging.

THE OPPORTUNITY

Individual businesses may struggle to move past making packaging design choices based on customer requirements and an understanding of local end of life practices and infrastructure. A global convergence on agreements on what constitutes best practice will be required to tackle this issue.

The Memorandum of Understanding with The European Union and China on the Circular Economy⁷³ was signed in July 2018. It directly references plastic as a key field for cooperation. This is an early but significant foundation for enabling such a convergence. The New Plastics Economy Global Commitment provides another.



CIRCULAR STRATEGY 2:

REUSE

On a global level there is the opportunity for an estimated 20% of plastic packaging to move from single-use to reuse models.⁷⁴ This includes beverage bottles, home and personal care bottles, carrier bags, pallet wrap and other business to business and home delivery mechanisms.

→ REUSE AT EMBRYONIC LEVELS IN RETAIL ENVIRONMENT

THE CHALLENGE

With the exception of reusing shopping bags, existing retail reuse systems such as refill stations are currently viewed as “far from being mainstream.”⁷⁵ Emerging bulk grocery purchase stores are still seen as niche. Momentum around ‘bring your own’ containers is building. However, uptake is sporadic and has mixed acceptance. Current solutions are driven by individuals as opposed to systemised solutions. “More elegant solutions”⁷⁶ are required for mainstream uptake.

A convenience culture predominates, supporting the use of single use plastics.

THE OPPORTUNITY

A combination of designing reuse solutions to be quick and easy, incentivising and educating customers will be key to moving to a reuse culture for packaging.

A key opportunity exists to build on behaviour change. This is demonstrated by the voluntary phase-out and intended ban of single use shopping bags plus emerging movements for customers to bring their own containers. Grocery chain Farro Fresh launched an initiative in September 2018 where customers can use their own containers in the company’s Auckland stores.⁷⁷

ecostore has over 60 refill stations across the country for its laundry and body care products. The Rubbish Trip resource offers a Regional Zero Waste Shopping guide.⁷⁸ This details retail stores across the country that provide bulk purchase and support bring your own containers.

The SodaStream⁷⁹ ‘make at home’ model offers a recognised system for the reduction of packaging. This model can be developed and moved into other sectors. Splish provides concentrated refills for cleaning products.⁸⁰

→ CONVENIENCE IS KING IN OUT OF HOME PURCHASES

THE CHALLENGE

Out of home consumption presents obvious challenges due to the desire for convenience and lack of widespread systems enabling reuse.

THE OPPORTUNITY

There are emerging solutions that deliver on the desire for convenience. In some cases they also pass on packaging savings direct to the customer. Reusable cup systems such as Globelet⁸¹ are



providing viable solutions in closed environments such as festivals and sporting events. Coffee cup reuse systems are emerging to add to the existing reusable 'IdealCup' option. Again Again⁸² in Wellington is a system where coffee drinkers pay a refundable deposit for use of a cup that is returned, washed and reused within an ecosystem of participating cafés.

Outlets are publicising the 'bring your own' container option and incentivising by offering

discounts as a result. The sushi chain St Pierre's is a recent high profile example.⁸³

The Sustainable Business Network ran a "show us your lunchbox" campaign to raise the profile of bring your own containers for takeaway meals as part of Plastic Free July in 2018.⁸⁴

Raglan Coconut Yoghurt promotes the use of reusable pouches for school lunchboxes as an alternative to single use pouches.⁸⁵

→ ESTABLISHED REUSE MODELS FOR BUSINESS TO BUSINESS EXIST BUT WE NEED INCREASED ADOPTION AND INNOVATION

THE CHALLENGE

Reusable packaging solutions in a B2B logistics context are well established. But there are still key areas that need greater uptake, (e.g. pallet wrapping) and where innovation is required (e.g. where contamination is a significant risk).

THE OPPORTUNITY

Build on accepted systems of packaging reuse and scale, and apply across problematic areas. Multiple options for reusable pallet wrap exist offering a route away from plastic film wrap.

FoodCap⁸⁶ is trialling a reusable storage capsule, originally designed for meat handling, to enable food manufacturing businesses to reduce their use of intermediate plastic packaging.

→ RE-USE IS NOT A KEY PERFORMANCE INDICATOR FOR BUSINESS

THE CHALLENGE

The amount of times materials are reused (in this case, packaging) does not appear to be a key focus area for businesses. There is no evidence that businesses are collecting any associated meaningful data.

Realistically, such data will only become available when well-designed systems are introduced, based on automated technology, rather than bespoke or low-tech solutions.

THE OPPORTUNITY

As 'at scale' re-use systems are introduced it will be important that the systems allow for reporting on their use. Such data can then form part of the comprehensive data system, allowing for strategic progress to be assessed.



CIRCULAR STRATEGY 3:

RECYCLING WITH RADICALLY IMPROVED ECONOMICS & QUALITY

On a global level there is the opportunity for approximately 50% of plastic packaging to remain in circulation, without leakage into the environment via recycling with radically improved economics and quality.⁸⁷

→ A CLEAR VIEW OF SUCCESS

THE ISSUE

There is no clear statement, such as in a national strategy, on the target outcome for the recycling system of the future.

A circular system should be based on 'closed loop' recycling (i.e. recycling plastic into the same or similar quality applications, such as bottle-to-bottle) rather than 'open loop' recycling ('cascading' or 'down-cycling', where recycled plastic is re-processed into lower-value, typically non-packaging applications).

But open loop systems play an important transitional role. They provide some value for waste material and avoid the use of virgin plastic material. However, they are a stopover on the journey, not the destination.

THE OPPORTUNITY

There is an opportunity for a revised national strategy (referred to above) to clearly signal that closed loop solutions should be prioritised for the packaging system. The current New Zealand government has stated support for a circular approach, so this can be refined into more specific direction for the plastic packaging system.⁸⁸

A closed-loop recycling system does not require that the system is wholly within New Zealand, but there should be significant on-shore processing capacity. This would provide various benefits, including local economic and employment opportunities, and reduced transport demands.



→ DIVERSITY OF PACKAGING SOLUTIONS

THE ISSUE

The current system is complex in terms of range of plastic types and formats used, which inhibits cost-effective recycling, especially closed-loop.

Partly driven by the need for brand differentiation and packaging being part of the brand experience, more sophisticated packaging materials and designs are continually being introduced into the packaging system. Unless these are designed with due consideration of cost effective recycling then they are likely to add to the complexity at the end-of-life stage. In New Zealand no such consideration is currently required, although there are some good practice resources.

The introduction of bio-based plastics further adds complexity. At present these are not at the scale to justify system changes at the collection and sorting stages to deliver a closed loop outcome.

THE OPPORTUNITY

There is huge opportunity for brands and producers to restrict packaging materials to those which can be cost-effectively recycled. As mentioned above, there is a chance to use some of the best practices emerging overseas (e.g. through the New Plastics Economy Global Commitment) and develop guidance for New Zealand companies (e.g. materials and formats to use and avoid).

→ RECYCLED CONTENT IN PACKAGING

THE ISSUE

Closed loop recycling is predicated on the demand for recycled content in plastic packaging and a system which delivers recycled content at competitive prices. The need for 'market pull through' is encapsulated in the phrase "you're not recycling if you aren't buying recycled materials". At present, there are barriers and few incentives for the use of recycled content in packaging.

The market price for recycled resin (e.g. rPET) can be more than virgin resin, obviously inhibiting use of recycled resin. But the relative price is affected by a range of factors, including the oil price and supply of PET.

The recent public attention on the plastic 'issue' is beginning to encourage businesses to consider using more recycled plastic in their packaging. It offers brand differentiation and supports sustainability strategies.

Businesses have also been encouraged by the development of the first 'closed loop' plastic

recycling plant in New Zealand. The Flight Plastic plant in Lower Hutt now produces packaging that includes recycled PET (rPET) re-processed at its site. The plant is capable of processing all of New Zealand's clear PET recyclate. But the operation has no preferential access to recyclate in New Zealand and is dependent on market conditions. Also, it is not food contact grade, so requires a thin layer of virgin plastic.

As well as the new domestic production, there are signs that recycled plastic (in primary forms, e.g. resin, flakes, and sheet form) is beginning to be imported into New Zealand for the production of plastic packaging.

However, at present there are no specific controls around the use, and especially labelling of, the recycled plastic, which is a 'greenwash' risk. For example, what percentage of recycled content is needed in a packaging item for it to be marked as 'uses recycled content'? Should it be restricted to post-consumer material, rather than include pre-consumer offcuts?



Other established systems are not set up to differentiate between virgin and recycled plastic, for example the international trade categorisation system. Robust, standards-based disaggregated data will be needed to report on status and trends.

A fully closed-loop system is predicated on limitless re-use of recyclate, with no net increase in packaging material demand. But in reality there are technical limits on the number of times plastic can be mechanically recycled before its functional performance is affected. Further work is required in this area. Chemical recycling may provide the answer.

THE OPPORTUNITY

Uptake of recycled content can be encouraged through voluntary commitments, standards, and through the procurement process.

Individual businesses can set targets and commit to using recycled content in their own packaging, or set expectations for their suppliers through procurement mechanisms (tenders and contracts). Governments can also lead through

procurement, and in time potentially introduce mandatory measures to enforce the use of recycled content in some applications.

There is a need for a standardised approach to the identification and labelling of recycled content. Providing this approach is supported by robust, standardised systems (e.g. chain of custody type system for the recycled plastic) then this is a great opportunity.

Some New Zealand businesses are leading the way in the use of recycled content. Lewis Road Creamery and Earthwise are introducing significant levels of recycled HDPE into their packaging range. Countdown is using rPET from the Flight Plastic plant in its in-store bakeries and delicatessen.⁸⁹

As mentioned above, the UK and French governments are considering the introduction of taxes to incentivise use of recycled plastic in packaging. Other mechanisms could be needed to provide more price certainty to re-processors in the event of a volatile oil market and its effect on the price of virgin plastic.

➔ INFORMATION FOR CONSUMERS AND BUSINESSES

THE ISSUE

The information provided to consumers and businesses is inadequate and unclear, often leading to confusion.

The complexity of the system clearly affects the ease with which consumers and users can understand and effectively engage with it. Unfortunately, the current system does not always provide the necessary information or consistency.

Many plastic packaging items do not have a clearly visible plastic material type identification code (referred above). The code is not a recycling code, but in practice it is used as an indicator for

whether the item can be included in the kerbside recycling stream.

Many packaging items are also marked with the term 'recyclable' but the use of the term is not standardised. Generally the use of the term indicates technical recyclability (which applies to almost any material), rather than whether the item is recycled in practice in the local area.

The effect of this labelling issue is mitigated as there is a common approach across most local authorities on the plastic packaging items which can be collected at kerbside. However, there is no official standard and the current market conditions (see below) risk changes to the



comprehensive approach.

However, the scope of residential kerb-side collection can differ from other collections (e.g. at workplaces), so there is the potential for confusion and inadvertent contamination. The plethora of different bin designs, including inconsistent use of colours, is a further constraint.

Another consequence of confusion is 'wish-cycling' – users disposing of non-recyclable items in the hope that they can be recycled. And of course, there is contamination from careless disposal into the wrong bin.

THE OPPORTUNITY

There are clear and simple solutions, such as informative and consistent labelling, and standardised collection systems (including bin designs and colours) which can address these issues, within an overall systems approach.

Industry can take a lead by developing a consistent labelling scheme, with support from government. The Australasian Recycling Label has been developed, by the Australia Packaging Covenant Organisation (APCO), with a view to its potential introduction in New Zealand. The UK has a similar scheme (On-Pack Recycling Label).

→ COLLECTION AND SORTING SYSTEMS

THE ISSUE

The collection and sorting systems are sub-optimal for delivering high-value recycle. Contamination of recycling streams is reducing quality and adding complexity and costs. This contamination occurs at the point of disposal by the user as well as a result of system conditions. The wide range of packaging material types, combinations and formats also adds to the complexity and uncertainty, which can lead to contamination.

Kerbside recycling collections are well-established in New Zealand, however there are regional differences. One of the main difference is in glass collection, with some local authorities using a separate glass stream. Co-mingled operations can result in glass contaminating plastic recycle, although this generally occurs for the low value mixed plastic stream rather than the higher value natural HDPE and clear PET streams. Bio-plastic (including compostables) can also be a source of contamination if incorrectly disposed.

Co-mingled approaches can also lead to people assuming that a wider range of plastic items than actually possible can be recycled ('wish-cycling').

Large-scale co-mingled based systems have also replaced, or threatened the viability of, some smaller scale community recycling centres. These use more labour intensive approaches, but can result in higher quality recycle.

In the Material Recovery Facilities (MRFs) there is a reliance on manual screening to remove some contaminants. But throughput requirements can result in processing speeds which inhibit the ability to effectively remove non-recyclable items, leading to contaminated recycle.

THE OPPORTUNITY

The best opportunities for delivering high-value recycle exist at various stages of the life-cycle. Adopting a reduced range of packaging materials (especially excluding problematic types and combinations), improving on-pack information, market pull through (recycled content use) and having more consistent collection systems, are all key to the high-value outcome.

At the collection and sorting stage, there can be standardisation of processes, based on best practice, as well as implementation of appropriate sorting technologies (including automatic sorting



of materials other than clear PET and natural HDPE). There is an ongoing opportunity for some communities to use the community recycling centre approach with their more manual-based sorting systems.

Product stewardship schemes will play a key role to enable the increased investment and scale needed to develop collection and end of life markets. There is an opportunity for a well-designed container deposit scheme (CDS) to be part of a strategic response. A New Zealand study has suggested significant benefits from a CDS.⁹⁰

Business and industry-led initiatives have shown that motivated consumers will use new collection systems. For example, the Soft Plastics Recycling Scheme has seen significant increases in volumes of plastic collected since its introduction. But the low demand for the associated plastic products produced from the recycle is an issue. In the compostable packaging area, the collaboration between Innocent Packaging and We Compost has implemented bins for compostable packaging at many cafes in Auckland. There is an opportunity to scale up these types of initiatives, within a more strategic framework.

→ COMMERCIAL VIABILITY FOR RECYCLING SYSTEMS

THE ISSUE

Viable end markets for recyclate do not exist or can change. This has been highlighted by the disruption caused, in New Zealand and overseas, by the recent change in China's policy (National Sword and Blue Sky).

Most large-scale sorting systems in New Zealand only sort into three streams – clear PET, natural HDPE and mixed plastics (which includes coloured PET and HDPE, plus all types 3 to 7). Other plastic types are typically not sorted by large-scale MRF systems in New Zealand.

In the light of the China policy changes, only two plastic types, clear PET and natural HDPE, are now commercially recyclable by the large volume operators in New Zealand. These have suffered recyclate price drops of approximately \$100 per tonne, to circa \$430 and \$550 respectively. But the impact on the mixed stream has been severe, with an 80% drop (from circa \$250 to \$50). The collapse in mixed stream value has highlighted some issues, for example the use of coloured HDPE and PET in some high-volume applications.

Most kerb-side collections are now all standard rigid plastic containers. But as collection and sorting contracts are renewed/re-negotiated, there is the potential for contractors to be unwilling to collect the low-value stream and/or councils being unwilling to accept the additional cost. There is already evidence that local councils are having to re-negotiate their recycling operator contracts to ensure that the systems remain operational.

A similar issue has emerged with the soft plastics collection system, with the original processor (Replas, in Australia) no longer accepting the material from New Zealand.

THE OPPORTUNITY

The prime opportunities for ensuring viable markets have been summarised in the earlier sections. As mentioned earlier, they exist at various stages of the life-cycle. Increasing demand for packaging with recycled content and measures which enable high quality recyclate (e.g. avoiding problematic packaging types and formats, improving labelling and information and having more consistent collection systems) will be essential to ensure viability of the system. Government support will be needed for closed loop solutions.



A STRATEGIC RESPONSE TO DELIVER A CIRCULAR SYSTEM

New Zealand's transition to a circular economy based plastic packaging system will require a range of actions, delivered within a strategic framework. This needs to be developed through a partnership between government and industry. Until such a partnership is in place, coordinated and strategic action is required across the sector. The initial objective is to achieve the vision for 2025. This includes meeting and expanding on the commitments and declarations made.

THIS WILL ACHIEVED BY:

- Fundamental Packaging Redesign & Innovation
- Scaleable Reuse solutions and
- Recycling with radically improved economics and quality.

THERE ARE SIX KEY STRATEGIC AREAS OF ACTIVITY THAT NEED TO BE ADDRESSED:

1. INFORMATION & EDUCATION

Good quality information needs to be collected and presented to a range of parties, in ways that meet their specific needs. This could be advice, guidance or consumer information (e.g. product labelling).

2. VOLUNTARY AGREEMENTS & ACTIONS

Voluntary action by individuals and businesses can shift mindsets. It can prepare the ground for the regulation and financial incentive changes required.

3. INNOVATION & INVESTMENT

Technology and systems innovation, backed by well-directed investment, will help develop new packaging system solutions.

4. PROCUREMENT

Procurement, especially by larger buyers like government and corporations, helps generate demand for new solutions. This enables economies of scale and speeds adoption.

5. REGULATION & POLICY

Solutions addressing externality problems need supportive policy, regulation, legislation or institutional changes.

6. ECONOMIC & PRICING

In the early stages of their diffusion, new technologies have a cost premium. This can inhibit their wide-scale uptake. To compete with lower cost incumbent technologies they need financial and/or regulatory support.



Individual businesses, industry sectors, and government – each has a range of roles in these approaches. At different times, they lead, they do, or they support (and lobby).

Typically, individual businesses and the industry sectors will lead on the first three strategic areas. Government tends to lead on the remaining three.

Business sector pioneers lead the way with innovation and voluntary action. These actions are supported by government, for example through investment/grants and procurement. Engaging and creative communications generate interest and support. This creates the conditions for 'informed regulation'. The government then accelerates the system shift through measures which incentivize the majority and compel the laggards.

THE RANGE OF SOLUTIONS WHICH SHOULD BE DEPLOYED TO DELIVER THE CIRCULAR-BASED SYSTEM IS LISTED IN THE TABLE BELOW.

STRATEGIC AREA	INFORMATION & EDUCATION	VOLUNTARY AGREEMENTS & ACTIONS (INCL. PROCUREMENT)	INNOVATION & INVESTMENT	GOVERNMENT PROCUREMENT	POLICY, REGULATION, LAWS & INSTITUTIONS	ECONOMIC & PRICING
PRIME ROLES	LED BY: Individual businesses & Industry sector SUPPORTED BY: Government			LED BY: Government SUPPORTED BY: Individual businesses & Industry sector		
GENERAL	Customer-focused education campaign	Sign-up to the New Plastics Economy Global Commitment Transparent reporting across packaging life-cycle Undertake packaging audits and develop action plan Independent packaging design advisory group		Include data provision requirements in relevant tenders and contracts	Develop national packaging system strategy (incl. goals and targets) Implement National Waste Data Framework (NWDF) Develop comprehensive and regulated standards-based data collection system (NWDF-plus)	
REDESIGN	Best practice guidance & resources (for businesses)	Best practice agreements / protocols (design, materials) Voluntary phase-out of problematic materials Requirements to avoid single-use plastic packaging in relevant tenders and contracts	R&D in targeted technologies Collaborative innovation initiatives Open source design challenges	Requirements to avoid single-use plastic packaging in relevant tenders and contracts	Regulate the phase-out of problematic materials	Government support for R&D (e.g. grants & WMF)
REUSE	Clear information on re-use opportunities	Support for re-use models (e.g. packaging free aisles) Requirements to include reuse models in relevant tenders and contracts Set reuse-based KPIs	Develop elegant and appealing B2C re-use solutions Expand deployment of efficient B2B re-use solutions (including transport)	Requirements to include reuse models in relevant tenders and contracts		Government support for R&D (e.g. grants & WMF)
RECYCLING	Best practice guidance & resources (for consumers)	Best practice agreements / protocols (for collection & sorting) Voluntary Product Stewardship Schemes (PSS) Voluntary targets for recycled content in own brand packaging Ensure specification and tender documents require whole of life thinking (especially end of life processing) Retailer elimination or take-back of secondary packaging Best practice labelling (e.g. clarity on constituent materials and correct disposal)	New and improved collection & sorting systems Advanced sorting technologies New closed loop solutions and infrastructure	Requirements to promote closed loop recycling in relevant tenders and contracts (e.g. use of PSS, recycled content)	Support for NZ closed loop re-processors Labelling standards (incl. compostables) Consistent approach to recycling collection across NZ Recycled content standards Regulated/ legislated recycled content Mandatory Product Stewardship Schemes (PSS) (e.g. Container Deposit Scheme)	Increased waste levy Introduce a targeted packaging tax Government support for R&D (e.g. grants & WMF)

PATHWAYS TO ACHIEVING 2025 PLASTIC PACKAGING DECLARATIONS

COMPANIES GLOBALLY AND IN NEW ZEALAND HAVE MADE DECLARATIONS FOR 100% OF THEIR PLASTIC PACKAGING TO BE 100% REUSABLE, RECYCLABLE, OR COMPOSTABLE BY 2025 (OR EARLIER). MANY ORGANISATIONS HAVE STARTED WORKING TOWARDS THIS GOAL. NEW LEVELS OF CO-ORDINATION AND COLLABORATION WILL BE NEEDED FOR THEM TO SUCCEED.

However, there is an urgent need to go beyond reusable, recyclable or compostable materials. We need to design out problematic or unnecessary plastic packaging. We must introduce reuse options in place of single use packaging.

The means by which New Zealand can achieve greater levels of recycling are relatively well understood. They too will require significant coordination and collaboration.

Pathways towards redesign and reuse are less clear. Developing them will require new more transformative thinking and the application of solutions yet to emerge or reach the required scale.

See below for our analysis of the high level pathways for achieving the goals of the New Plastics Economy Global Commitment by 2025 in New Zealand.

Note: The sequencing of activities is indicative and in practice activities will often overlap or run in parallel.

→ REUSE

NOW

Relevant single use packaging formats need to move to reusable models by 2025

NEW OPPORTUNITIES IDENTIFIED

- New categories ripe for reuse are identified via incorporating opportunity within internal packaging audits

LEVERING EXISTING REUSE MODELS AND USE CASES

- the user experience is improved
- communications campaigns drive awareness
- customer uptake builds

Momentum builds for more solutions

Reuse innovation challenges and collaborations commence

Reuse pilots launched across sectors

Reuse becomes recognised and celebrated

- Business adopt reuse as a KPI where relevant
- Reuse becomes a celebrated attribute for the public

2025 Outcome: Reuse becomes increasingly part of mainstream culture and reuse behaviour is commonplace.

2025



NOW**→ REDESIGN & INNOVATION**

Fundamental redesign and innovation is required to eliminate the use of problematic or unnecessary packaging by 2025.

IDENTIFICATION

- Identification of problematic and unnecessary single use plastic packaging
 - Lead companies begin internal audits to identify problematic or unnecessary packaging
 - Niche media, earlier adopters and NGO groups exert influence
 - Increased public debate on problem packaging
- Additional packaging categories may become widely renowned as problem packaging.
- Companies and sectors share information on problematic and unnecessary packaging nationally and internationally
- Development begins on designing out processes, either in New Zealand or elsewhere

ORGANISATIONAL ACTION

- Continued investigation of existing solutions globally
- Innovation teams briefed and / or request for proposals out to the market
- Solutions selected for trial

COLLABORATIVE ACTION

- Collaborative innovation initiatives established
- Open source innovation challenges launched to stimulate solutions

BRINGING SOLUTIONS TO MARKET

- Pilots and trials of alternative solutions
- Government action to reinforce solutions, e.g. procurement decisions; disincentives for the importing of problematic packaging
- Alternative solutions break into the mainstream

2025 OUTCOME: Elimination of problematic or unnecessary plastic packaging amongst those organisations who have made 2025 packaging commitments.

2025

→ RECYCLING WITH RADICALLY IMPROVED ECONOMICS AND QUALITY

NOW

Remaining plastic packaging needs to remain in high value circulation by 2025 without leakage into the environment.

Packaged good suppliers make public commitments to use a high percentage of recycled content in packaging.

- Increasing awareness among customers that recycled content is crucial to achieve a positive system shift.

Organisations and government use procurement decisions to stimulate use of recycled content in packaged goods and use of materials which can be recycled economically.

Greater understanding by business of the packaging design requirements to enable effective recycling at scale. (e.g. reducing number of plastic types, combinations, colours, additives, where possible.)

- Packaging design guides utilised.
- Whole of life design advice sought.

Ongoing development of end markets for recycled materials.

Waste levy increases to fund onshore sorting and processing infrastructure and incentivise recycling.

Evidence of these design requirements start to emerge on shelves

- Continued movement to plastics with higher recycled value i.e. clear PET and natural HDPE.
- Range and availability of recycled material increases.

Appropriate use cases for compostable packaging well understood with associated collection and facilities in place.

National labelling system (including recyclability in practice and use of the recycled content term) with guidelines for consumers becomes increasingly adopted.

National strategy for plastic packaging (including targets) developed – determines what success looks like and supports movements already being made by leading organisations.

Government intervention to provide a mechanism to bridge any cost gap between virgin and recycled content.

Consumer education programmes further support and encourage packaging changes.

Consistent collection systems established.

Product stewardship scheme/s for rigid plastics launched.

Cost of recycled content comparable to virgin material.

2025 OUTCOME: Plastic packaging remains in high value circulation.

2025



KEY RECOMMENDATIONS

FOR BUSINESSES SUPPLYING PACKAGED GOODS

1. Undertake a packaging audit to determine formats and plastic types used. Aim would be to identify
 - a. extent of use of problematic single use plastics
 - b. how formats perform in a recycling context
2. Based on the audit findings, develop bold targets and plans to address the priority issues.
 - a. Design out or move to reuse models problematic single use packaging
 - b. Align formats to enable greater recycling value and quality
3. Utilise independent advice and available guidelines (e.g. Packaging NZ's Packaging Design Checklist, part of the [Code of Practice](#), Plastic NZ's Design for the Environment [Guidelines](#), or the APCO Packaging Sustainability [Framework](#).)
4. If new packaging formats and materials are being considered, seek independent advice on their suitability from a recycling and life-cycle impact.
5. Support suppliers who are providing packaging formats with high levels of recycled content
6. Where compostable packaging is used, ensure that it is certified to international standards and that there is appropriate access to dedicated collection and/or processing systems.
7. Review and become a signatory of The New Plastics Economy Global Commitment (from the Ellen MacArthur Foundation)

FOR THE SECTOR

1. Implement a National recycling label system
2. Develop end markets for recycled materials
3. Develop product stewardship schemes for rigid plastics
4. Develop advisory support infrastructure

FOR THE GOVERNMENT

1. Develop plastic packaging strategy, and associated plan, with bold and ambitious targets
2. Establish system to collect accurate data
3. Increase waste levy
4. Provide investment in on-shore recycling facilities
5. Facilitate common collection and recycling processing across country
6. Direct R&D funding to establish viable alternatives to problematic single use plastic packaging
7. Use procurement to drive the change required



CONCLUSION

RECENT PUBLIC CONCERN AND CHANGES IN THE INTERNATIONAL WASTE TRADE HAVE HIGHLIGHTED SEVERE STRUCTURAL WEAKNESSES AND INADEQUATE MONITORING IN NEW ZEALAND'S PLASTIC PACKAGING SYSTEM.

A circular economy approach is required to radically reduce resource loss, particularly into the environment.

The framework for this change has been established by the New Plastics Economy Global Commitment. Meeting this commitment will require concerted effort from individual businesses, the plastic packaging sector and the government.

This includes:

- substantive packaging design changes
- stimulating demand for emerging solutions
- incorporating new reuse business models
- developing infrastructure to keep plastic in high value circulation

- harnessing emerging technologies
- introducing the right supporting policies

It is imperative that we capitalise on current public concern and drive the urgent actions needed. We must drive this necessary and inevitable change. We must establish the means to go beyond the current commitments. We must establish a truly leading circular economy for plastic packaging in New Zealand. It has to include a shift away from problematic fossil fuel based packaging and products.



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Disclaimer

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