

Moving up the waste hierarchy through collective action

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Summary

Project and client

- The zero waste hierarchy concept (hereafter, ‘the waste hierarchy’) offers a ‘whole picture’ approach that shows how societies’ consumption and use of materials need to change to prevent waste and reduce pollution and climate-changing emissions. It encourages societies to prevent waste by reusing manufactured products for as long as possible, rather than recycling and disposing of materials. Activities ranked higher up the waste hierarchy – such as rethinking, reducing, and reusing – are more effective at preventing waste.
- In 2026, the Bioeconomy Science Institute Maiangi Taiao (BSI) partnered with Zero Waste Aotearoa to undertake research on how collective practices can support waste prevention (i.e. move society in New Zealand [NZ] and other countries up the waste hierarchy). This research was commissioned as part of a Marsden funded project called “Reduce, reuse, repair: new kinds of waste-conscious initiatives in circular and postcapitalist economies” (24-MAU-037) led by Professor Kelly Dombroski at Massey University, NZ.

Objectives

- Identify practical actions to move up the waste hierarchy through collective efforts.

Methods

- The research involved 23 semi-structured interviews conducted across two separate research programmes. Participants included representatives from businesses, local government, and non-governmental organisations from NZ, Australia, Italy, Scotland, and England.
- The study employed inductive analysis to identify key themes from the interviews. These analyses were complemented by a literature scan of academic and grey literature focusing on what enables real-world examples of practices at the top of the waste hierarchy.

Results

- Our findings identify a need for system-level interventions rather than only focussing on individual consumer behaviour change. However, such system level change is often hindered by a ‘take-make-waste’ linear economy geared toward constant growth which is enshrined in many governments’ policies. Participants advocated for urgent government-led frameworks, such as mandatory product stewardship, extended producer responsibility, and right to repair laws. Such legislation helps shift the current burden of waste management and disposal from councils and citizens to producers, incentivising better product design to prevent waste.
 - While reaching the point at which mandatory product stewardship (or similar legislation) is politically and socially accepted in NZ and other countries is a significant challenge requiring major shifts, our analysis identified four important practices that can help build the social networks, evidence, and community support for national waste prevention strategies and targets.
 - These four important practices are outlined below.
- 1 *Supporting collectives and networks*: Peak bodies (national or regional groups that represent a specific industry, group, or community sector) and professional networks are vital for fostering the high-trust environments and the collaboration needed to coordinate

changes across complex, distributed supply chains. Examples like the partnership between Zero Waste Scotland and the Glasgow Chamber of Commerce have successfully translated theoretical waste prevention and circular economy concepts into practical actions for businesses that help build resilience, innovation, and tangible economic opportunities.

- 2 *Investing in place-based initiatives*: National strategies can be anchored by local hubs for reuse, repair and material recovery. Initiatives like Wānaka Wastebusters and Auckland Council's resource recovery centres demonstrate how community-led enterprises can build social licence by meeting people's material needs and providing practical alternatives to overconsumption.
- 3 *Using data to show impact*: To secure ongoing investment and social support, organisations can use standardised data to demonstrate the 'triple bottom line' impact of reuse and repair and material recovery, quantifying environmental, social, and economic benefits.
- 4 *Tactical framing and language*: Shifting the narrative from 'waste management' to 'waste prevention' and 'resilience' can help build social support for change. Framing these shifts in ways that highlight what communities and people gain – such as local jobs, greater supply chain security, and improved social wellbeing – is more effective than focusing on what is lost.

Conclusions

- Ultimately, moving up the waste hierarchy requires shifting the goal of economic success from growth and increased linear consumption towards a better quality of life, social equity and ecological health. NZ and other countries can transition to the top of the waste hierarchy by moving away from a focus on individual consumer action toward this wider collective, systemic change.
- Continuing to prioritise investment in the four practice areas identified in our Results (i.e. supporting networks, investing in local hubs, using robust data, and using tactical framing/language) will help businesses and communities to build the necessary evidence and social support for national waste prevention legislation such as mandatory product stewardship.
- Continued investment in these four areas will also help to build the high levels of trust and collaboration across different sectors that is needed to ensure that waste prevention practices become new socially accepted norms.

1 Introduction

Humanity's current use of the Earth's resources is not sustainable. Extraction and consumption practices are causing the interconnected climate change, pollution, and biodiversity crisis (Richardson et al. 2023). New Zealand ranks among the highest producers of waste and consumers of material per capita in the Organisation for Economic Co-operation and Development (OECD) (OECD 2025). In combination with relatively high amounts of waste being produced, New Zealand also has some of the lowest material productivity among OECD countries meaning we do not use resources as efficiently as others (New Zealand Institute of Economic Research [NZIER] 2025). New Zealand and many other countries need to use resources more effectively and equitably, and prevent materials from becoming waste to ensure we maintain a liveable planet (Hickel 2021; Sakschewski et al. 2025).

In response to these challenges the zero waste movement emerged at the turn of the millennium. One of its foundations is the zero waste hierarchy (hereafter, 'the waste hierarchy'; see Zero Waste Network 2018). The waste hierarchy concept (see Figure 1) provides a systems change lens (effectively a 'whole picture' approach) to show how societies' consumption and use of materials need to change to prevent waste, reduce pollution and climate-changing emissions, and protect the Earth's life-supporting capacity.

1.1 Project and client

In 2026, the Bioeconomy Science Institute Maiangi Taiao (BSI) partnered with Zero Waste Aotearoa to undertake research on how collective practices can support waste prevention (i.e. move society in New Zealand [NZ] and other countries up the waste hierarchy). This research was commissioned as part of a Marsden funded project called "Reduce, reuse, repair: new kinds of waste-conscious initiatives in circular and postcapitalist economies" (24-MAU-037) led by Professor Kelly Dombroski at Massey University, NZ.

1.2 The waste hierarchy approach

The waste hierarchy encourages societies to prevent waste by reusing manufactured products for as long as possible, rather than recycling and disposing of materials (Blumhardt & Prince 2022). Activities higher up the waste hierarchy, such as rethinking, reducing, and reusing, are more effective at preventing waste because they bypass raw material extraction by not continually manufacturing new products, which is the most energy-intensive part of production and consumption (Wiefek et al. 2021). Movement towards a circular economy¹ overlaps with zero waste principles in that both approaches take a systems level perspective to prevent waste, rather than just focusing on managing waste through recycling and disposal.

¹ A circular economy seeks to transition from a take-make-waste system to one that designs out waste and pollution, keeps products and materials in use, and regenerates natural systems (Ellen MacArthur Foundation 2013; Stahel 2016; Merli et al. 2018).



Figure 1. Zero waste hierarchy. (Source: Zero Waste International Alliance 2025. Reproduced with permission (without changes) under Creative Commons Attribution-ShareAlike 4.0 International License).

While the principles of the waste hierarchy and circular economy have been increasingly incorporated into some government's policies, the wider economic systems of many countries including NZ, remain geared towards growth through linear production and consumption (often dubbed the 'take-make-waste' system) measured in Gross Domestic Product (GDP). In addition, most government investment in waste infrastructure does not reflect the waste hierarchy with the bulk of funding directed towards recycling, some organic waste disposal, and inorganic waste disposal in landfills and waste to energy (Blumhardt & Prince 2022). Consequently, waste prevention in most countries is riven with contradictions: moving up the waste hierarchy and supporting circular economy initiatives is espoused in some government policies – but the underlying system drivers of economic growth through increasing linear production and consumption do not support the rhetoric² (Hot or Cool Institute 2026).

Research on sustainability, waste and circularity also illustrates tensions reflecting different understandings of social change. A lot of research has focused on change to individual consumer behaviours, and exploring how people's attitudes and values shape their resource use and consumption practices. Much of this research assumes that it is the individual consumer who needs to change their consumption and resource use (Shove 2010). In contrast, other research

² While some argue that economic growth can be decoupled from resource use and ecological impact through 'green growth' the evidence does not indicate that absolute reductions of resource use have occurred through decoupling alone (Haberl et al. 2020). Consequently, we followed Alexander (2026) who argued that while technology may help create some efficiencies, reducing resource use is ultimately necessary on a planet with finite resources.

focuses on the wider systems, infrastructure, and social norms that shape what people can do (Shove et al. 2012).

The more system-focused research highlights that many people might be concerned about sustainability and waste and want to ‘do the right thing’, but individual behaviour change is very difficult in the current linear economy. For example, a consumer cannot avoid excessive packaging if every available product is over-packaged. This research focuses on what changes are needed at a system level, how public infrastructure can enable people to reduce, reuse and repair, and how social norms associated with resource use and consumption can be shifted at the collective rather than individual level (Kirchherr et al. 2017).

For this report we adopted a systems-focused perspective, looking at *collective or system level actions* that help communities and businesses to move up the waste hierarchy. We adopted this perspective because changing upstream decisions that prevent waste being created is beneficial regardless of an individual’s behaviour and end of life waste management options (Hot or Cool Institute 2026).

2 Objectives

Identify practical actions to move up the waste hierarchy through collective efforts.

3 Methods

We interviewed 23 people and undertook a literature scan to identify practical actions that have helped communities and businesses move up the waste hierarchy through collective efforts. Table 1 provides a description of our research participants.

Table 1. Research participants

Organisation participant worked for at time of interview	No of interviewees	Location
Business (including start-ups and for-purpose businesses)	11	New Zealand, Australia
Local government	2	New Zealand, Australia
Non-governmental organisation (NGO) or civil society group (including charities, peak body member organisations, public-good research organisations, and membership networks)	10	New Zealand, Australia, Italy, Scotland, England

3.1 Selecting interviewees

The interviews were conducted as part of two separate research projects. Participants were selected differently in each research project.

2023–2024 surveys: We interviewed 11 participants in 2023–2024 as part of an Endeavour research programme funded by the Ministry of Business Innovation and Employment (MBIE), called ‘Āmiomio Aotearoa – a circular economy for the wellbeing of New Zealand’.

For these 11 participants, the key criterion for inclusion was being a member of the Sustainable Business Network's 'Go Circular' directory. This is because we wanted to interview representatives from businesses who were taking action to become more circular and prevent waste.³ Our 11 participants were located in NZ and the majority worked for businesses who were members of the 'Go Circular' directory at that time.

2026 surveys: We interviewed 12 participants as part of the Marsden-funded research programme called 'Reduce, reuse, repair: new kinds of waste-conscious initiatives in circular and postcapitalist economies'. These participants were located in NZ, Australia, Scotland, England, and Italy.

These 12 participants were selected from a longer list of potential interviewees whom the authors had identified as having experience in practice or policy in activities at the top of the waste hierarchy.⁴

3.2 Interview structure and content

Both sets of interviews used an online semi-structured approach in which the nature of the questions changed in relation to the specific context and job role/experience of the participant.

Interview questions related to barriers and challenges to prevent waste, specific projects or business practices designed to prevent waste, the resources participants draw on (e.g. evidence, data) to garner support for investment in change, and how participants frame waste prevention in relation to their business and/or wider social context.

We used an inductive analysis approach to identify themes guided by our overall research focus. This means we collected and analysed data without pre-conceptions as to categories and allowed themes and patterns to emerge from the data.

We supplemented the interview data with a literature scan of academic and grey literature focused on what enables real-world examples of practices and initiatives that sit at the top of the waste hierarchy.

³ The two research projects also used different language (e.g. 'circular economy' versus 'moving up the waste hierarchy'). In this report we generally refer to 'waste prevention', 'zero waste' and 'the waste hierarchy' rather than 'circular economy'.

⁴ These 12 participants were those from the longer list who responded to our requests and agreed to participate.

4 Results

4.1 The need for system-level interventions

All our participants identified the need for some form of government legislation to support transition to the top of the waste hierarchy. The most common suggestions related to introducing mandatory product stewardship, extended producer responsibility, and/or right to repair legislation.⁵ For example, one of our participants noted:

Pushing for product stewardship has been on the agenda for a very long time - to actually have a systems approach to things rather than piecemeal [rules that don't] do anything. (Local government participant)

While another commented:

[For] things like product stewardship, any kind of requirement on business to help contribute to the cost and the organising of systems to get their things back and put better products onto the market.... You need government to set the frame. You need councils to be doing what they can in their area, but you really need business to be stepping up and putting in money to cover the real cost of what it means to put their products on the market, which they're not doing. (NGO participant)

Participants described how legislation that requires producers and manufacturers to consider reparability and end-of-life for their products and cost this into their production would have multiple benefits: i) It would help to build the true costs of production, consumption and waste disposal into markets.⁶ ii) It would help shift the burden of waste management and pollution (commonly called 'externalities') to those who create and profit from them, rather than relying on local governments and citizens to pay for this. iii) Designing products and services for reuse and repair would help encourage collaboration across supply chains and support new markets and jobs in refurbishment and material recovery. iv) Compulsory legislation would support early adopter producers and manufacturers and help them justify investment in product stewardship to their shareholders.⁷ v) Taking a system-approach to product stewardship would be more efficient and provide greater certainty for producers and manufacturers than ad-hoc banning of individual products.

As an example, here's how one participant from an NGO in Scotland described the situation:

It's kind of been a bit of a 'whack-a-mole' here in terms of how we've responded to products. So there's been legislation on cotton buds, single use plastics, carrier bags...Whereas you could take a more logical approach to identifying products which have the biggest impact and you define what you mean by impact and what is important from that impact perspective. (NGO participant)

⁵ These three policy approaches are related (and often complementary) but address different parts of a product's lifecycle and assign responsibility to different actors. Mandatory product stewardship shares responsibility across a product's lifecycle and usually involves manufacturers, retailers, consumers and recyclers. Extended producer responsibility usually requires product producers to bear responsibility for managing the product once consumers are finished with them. Right to repair aims to keep products in use longer and typically requires producers to enable the repair of products through design and by providing spare parts.

⁶ Some business and NGO participants also called for increases to waste disposal fees to better reflect the true costs of resource use and disposal and encourage more efficient use of material. For example, one business participant noted that as landfill costs had increased in New Zealand, it became profitable to turn surplus untreated plywood into products like garden mulch rather than disposing to landfill.

⁷ Some of our business participants contrasted this with voluntary approaches that often penalise early adopters.

The significance and benefits of mandatory product stewardship, extended producer responsibility, and/or right to repair legislation were reflected in the literature scan (cf. Kalimo et al. 2014; Kirchherr et al. 2017; Cai & Choi 2021; Hot or Cool Institute 2026). In those contexts where forms of product stewardship, extended producer responsibility and/or circular economy legislation has been passed, such as Scotland and Italy, our NGO participants emphasised that the next steps involved translating high level policies into practical action plans with associated targets and monitoring (see Example 1). All our NGO participants noted that changing mindsets to get to the point where product stewardship, extended producer responsibility, and/or right to repair legislation (or similar legislation) is politically and socially accepted and enacted in a country poses a significant challenge.

Example 1. Passing the Circular Economy (Scotland) Act 2024

The adoption of the Circular Economy (Scotland) Act 2024 was the culmination of a decade-long evolution from strategic advocacy to formal legislation.

The process began in approximately 2014, when Zero Waste Scotland (ZWS) commissioned economic research to move beyond recycling targets and identify circular opportunities for the Scottish economy. This research helped the launch of the first Scottish national government circular economy strategy in 2016. Building from this strategy, legislative work for an enabling circular economy act began in 2019 but was halted due to the COVID-19 pandemic.

Following the pandemic response, legislative work resumed. The delay enabled a reset and reframing where the focus of the Act's purpose shifted from only environmental considerations to economic resilience, jobs and well-being, and supply chain security. The widening of the Act's purpose to secure materials and reduce geopolitical risk, enabled the Scottish government to achieve unanimous cross-party support for it in 2024. In fact, when it was at the Bill stage, the Overview of the Bill noted that it was created 'to make steps towards creating a circular economy in Scotland... [where] modernising waste and recycling services will help tackle the climate emergency and the biodiversity crisis.' (Circular Economy Scotland Bill, Overview).

The Act requires publishing a national circular economy strategy, developing statutory circular economy targets for consumption and waste reduction, and enables other government actions such as setting charges on single-use items, penalties for littering and incorrect waste disposal, new enforcement powers, and waste related requirements for local authorities. The Act includes mandatory five-yearly reviews of the national circular economy strategy through to 2045 to track progress.

The Act also formalised ZWS as a funded public body with specific roles, thereby ensuring that circular economy expertise is permanently embedded, but independent of, the Scottish government.

4.2 Practical enablers for change

We identified four important collective practices that help build the social networks, evidence, and community support for national waste prevention strategies and targets (such as product stewardship or similar legislation).⁸ In what follows we describe these four important collective practices and provide examples.

4.2.1 Supporting collectives, peak bodies and networks

All our participants described the important role collectives, peak bodies (national or regional groups that represent a specific industry, group, or community sector), professional networks, and member organisations play in supporting shifts up the waste hierarchy by fostering collaboration and building trust. Participants described this collaboration as vital for two connected reasons. Firstly, the distributed nature of responsibility across supply chains means that the decisions one producer makes can impact many others, including consumers and waste disposal operators. To achieve waste prevention, businesses, institutions and other actors need to work together closely. Secondly, because of the complexity of many products' material composition and length of supply chains, no single business, institution or actor has all the necessary information or ability to shift things alone. For example, participants described how:

Each part of, or the next person in that circular process needs to be aware of how it impacts as it moves around that circular piece... Circular Economy is just very complex and requires a lot of collaboration. Lots of time networking and trying to understand the wider supply chain (including disposal) and then designing products to try and fit within the current system that are safe and as sustainable as the infrastructure allows. This involves checking with waste disposers to ensure they can manage it. (Business participant)

And:

In order to solve [systemic] problems, we need radical collaboration. And so we need that willingness to collaborate. So that requires a high trust environment. (Business participant)

And:

It is about collaboration with people that you probably never collaborated with before, cross-sectional activity. (NGO participant)

And:

[name of peak body organisation] used to be a membership organisation for basically big companies that collected rubbish and recycling, the truck owners and then you the territorial authorities there and some consultants. But now if you look at it, you've got [name of large supermarket] and you've got the retailers in the mix as well. So that gives me heart that we are thinking as a connected society to tackle things. (Local government participant)

⁸ Appendix 1 provides a brief description of the barriers and challenges to moving up the waste hierarchy that our participants described. We do not cover these barriers and challenges in the body of this report as our focus is on what supports shifts up the waste hierarchy.

And:

With transport and logistics, it's better to talk to competitors and work together to use resources efficiently rather than a competitive, individualistic model. (Business participant).

Our participants emphasised that collaboration and trust was particularly enabled through not-for-profit collectives, peak bodies and professional networks because these often focused on facilitating connections and peer-to-peer learning (see Example 2).

Table 2 provides a summary of how our participant's described the important work collectives, peak bodies and networks do, and the associated impacts.⁹

Table 2. Practices and impacts of collectives, peak bodies and networks

What the collective, peak body, or network does	The impact and value
Connecting different groups across supply chains (e.g. connecting producers and retailers with waste management and disposal operators)	Helps develop a system perspective which can help inform design of products, end of life considerations Socialising and sharing information that supports shifts away from protective and individualistic approaches to collaborative and higher-trust approaches Builds understanding of waste profiles, potential waste resources, and new opportunities Facilitates connections with like-minded businesses/people Can support efficiencies, business opportunities, costs savings, waste prevention and reduction
Education and development for members Peer to peer learning Leadership programmes Communities of practice Developing applied tools and practices (e.g. waste audits, CE toolkits, net-zero tools, health & safety policies)	Helps build trust and relationships Sharing problems and identifying solutions Tools and practices provide a starting point for small to medium enterprises (SMEs) and other enterprises (can help reduce people's overwhelm, frustration and despair) Supports development of a community of early adopters and/or community of practice Supports normalising and growth of zero waste practices – can flow into wider society
Research and advocacy (directed towards politicians and decision makers and wider society and/or place-based communities and communities of interest) Commissioning and undertaking research to identify impacts and outcomes Developing standardised data practices and indicators Direct lobbying of politicians Drafting submissions in response to proposed legislation Campaigning for legislation	Building evidence base across a sector or interest group Can be seen as more representative and influential when campaigning and lobbying Can help support wider social shifts and social licence for zero waste policies, investment and practices Can both lead and pull reluctant members into change

⁹ The benefits of collective and networks were also noted in the literature scan. For example, Alexander (2026) and Hot or Cool Institute (2026) noted that coalitions and collectives can help foster peer-to-peer learning, demonstrate viability, set new product standards, share technologies, advocate for policy change, and reduce first-mover disadvantage by moving with others.

Example 2. Zero Waste Scotland and the Glasgow Chamber of Commerce partnership approach

The partnership between Zero Waste Scotland (ZWS) and the Glasgow Chamber of Commerce (GCC) illustrates a pivotal shift from sector-based advocacy to a successful place-based approach that leverages city networks to drive circularity. By collaborating since 2015, these organisations have been able to translate theoretical circular economy concepts into practical actions for businesses that help build resilience, innovation, and tangible economic opportunities. ZWS provided the foundational research and funding to launch the Circular Glasgow network and pilot tools like the Circle City Scan, which helped identify specific material flows and opportunities for local businesses.

The partnership also facilitated the creation of the Circular Economy Leadership Programme, designed to embed circular thinking within businesses decision-making by showcasing best practices from other countries and cities like Amsterdam. The partnership has been useful in a tactical reframing of the circular economy from a purely environmental initiative to a core strategy for supply chain security, economic resilience, and job creation. In turn, this reframing has helped maintain business interest despite global economic shocks. By combining ZWS's research capability with the Chamber's role as a business convener, the relationship has turned abstract policy into credible, local action.

4.2.2 Investing in place-based initiatives

Our NGO and local government participants described the importance of place-based practices and enterprises (i.e. local/community based ones). They noted that while national legislation, strategies and targets are important, these must ultimately be implemented at the local level to have impact. Additionally, as some NGO participants pointed out, certain things may be politically possible in local contexts that are not possible at national levels. For example, place-based enterprises can be particularly significant in contexts that do not currently have enabling national legislation such as NZ. See Example 3. These participants identified multiple benefits of adopting place-based approaches to moving up the waste hierarchy, summarised in the following bullets.

- Starting small and imperfectly allows people, businesses, and communities to test ideas and build social licence/acceptance through direct experience and use.
- Can help ensure that place-specific waste streams and local concerns are responded to.
- Can connect in with other existing top of the waste hierarchy practices that may not have been historically framed as a waste prevention practice (e.g. council-run public libraries and charity-run second hand stores).
- Can use existing community facilities like public libraries, schools and council-owned sites for collection, recycling, exchange, swaps and redistribution of material.
- Tend to start with local assets and relationships and focus on practical actions rather than relying on new expensive technology.
- Can help build active communities of support who then advocate to local politicians (e.g. elected council representatives) for investment and support.
- Can provide new experiences of exchange and social connection outside 'mainstream' consumer interactions.

The importance of place-based initiatives was echoed in the literature scan. There is an increasing trend of governments investing in local hubs for reuse, resource recovery, and redistribution. A key feature of many of these hubs is that they involve co-design and operation with communities through partnerships with charities, businesses, and social enterprises, and focus on social benefits as well as waste prevention (Hot or Cool 2026; Stupples et al. 2026). Some argue that these approaches have emerged as global best practice for helping communities transition up the waste hierarchy towards greater circularity (UTS Design Innovation Research Centre 2021). These hubs may operate like relatively simple sites for reuse, where people drop off objects and materials that could potentially be reused which are then either donated or sold. Or they may also include infrastructure and associated jobs where workers recycle and remanufacture materials into new products and/or manage waste disposal.

Researchers have noted that successful hubs tend to enable people to connect; meet people's material needs; foster a sense of community ownership; partner with not-for-profits, business, industry, and research sectors; have some long-term funding to support succession and development; and often become important destinations (UTS Design Innovation Research Centre 2021; Green Alliance 2025; Hot or Cool 2026; Lane et al. 2026).

Example 3. Wānaka Wastebusters approach

Wānaka Wastebusters was established in 1999 as a not-for-profit community enterprise. It grew from concern about the closure of a local landfill and a lack of affordable goods and employment opportunities in the region. Wānaka Wastebusters launched a reuse shop in 2000 and secured a council-funded kerbside recycling scheme in 2005. This council-funded contract provided the capital to scale infrastructure and shift focus to a wider range of initiatives that include; reuse retail, repair, recycling workshops, education, composting, business recycling services, construction waste reduction, and community engagement programmes.

Wānaka Wastebusters has become a significant local operation that now employs 54 people and pays millions of dollars in annual wages. It has won Wānaka's 'Business of the Year' and the reuse shop has been voted the best shop in town.

Its success has been partly attributed to a focus on presenting the recycling centre as a 'cool' space that offers an alternative experience to overconsumption by valuing resource sharing and durability. Being place-based it can also address specific local waste streams – like resources to support reducing construction waste in a fast-growing town, and providing composting advice suited to its extreme seasonal climate (Stupples et al. 2026).

Our NGO participants pointed out that in the absence of nationally mandated product stewardship, public and philanthropic funding was often necessary to help make place-based hubs and other enterprises that enable reuse and repair economically viable.¹⁰ The means for collecting and distributing public funding to support shifts up the waste hierarchy differed across the countries from which our participants came. For example, in NZ public funding for waste related work has

¹⁰ While our participants did describe examples where hubs had become economically viable over time, most noted that they had required some form of public or philanthropic support at certain stages.

primarily been collected through the national Waste Levy fund. Half of the money collected through this levy goes to territorial authorities (city and district councils) to spend on achieving their waste minimisation plans.¹¹ The other half of the money is used by central government for waste related work including remediation of contaminated sites, the contestable Waste Minimisation Fund, and general environmental protection activities (Ministry for Cities, Environment, Regions & Transport [MCERT] 2024).

Our New Zealand NGO and local government participants noted the importance of this 'ring-fenced' funding for waste-related activities, particularly for territorial authorities. The requirement for territorial authorities to use this levy funding on waste related activities mean that council funding for a resource recovery centre or reusable serveware (i.e. plates and cups) is not competing with other council priorities like roads, stormwater pipes, and community facilities that are funded from general rates. Our NZ participants noted that without the ring-fenced waste levy funding it would be unlikely that the limited top of the waste hierarchy practices currently being funded by territorial authorities could continue.¹²

Example 4. Auckland Council's investment approach

Auckland Council has invested in community recycling and resource recovery centres as part of its goal of 'zero waste by 2040' (Auckland Council 2024a). The Council has a target of 21 community recycling centres (or hubs) and since 2018 it has expanded from 5 to 13. These centres are operated by charities or social enterprises that reinvest surplus to support low-income communities (Auckland Council 2025). For example, the Onehunga Resource Recovery Centre, opened in 2022, is the first community recycling centre run by a Māori–Pasifika social enterprise. It combines waste drop-off, a reuse shop, a café, and an education centre, and achieves a 92% landfill diversion rate (WasteMINZ 2023).

One of our local government participants noted that strong local support is key to ensuring these community recycling and resource recovery centres continue to receive funding from Auckland Council. Auckland Council has also supported 'Zero Waste' learning zones in Waitākere and Waiheke, and innovative education initiatives such as the Noughty Wasters Makerspace in Devonport, which uses creative, hands-on activities to promote waste reduction (Auckland Council 2024b). This emphasis on creativity reflects research showing that positive, action-focused approaches are more effective at prompting pro-environmental action than messages based on guilt and negativity (Tayne et al. 2021).

Some of our NGO and local government participants noted that one practical way public investment can support waste prevention is through social procurement. These participants described the importance of investing in waste prevention infrastructure that has wider social and economic benefits such as employment, social connection, and education (see Example 4).

¹¹ Recent monitoring notes that approximately 90% of territorial authorities use this funding for kerbside recycling and organic waste management (WasteMINZ 2025). While these services are important for waste management and disposal, we note that they are not at the top of the waste hierarchy and do not necessarily support waste prevention that shifts the wider system.

¹² During our 2026 interviews this change was referenced, specifically criticism of the government of the day (National-led coalition) which made changes to the national Waste Levy by widening the criteria that the levy fund could be used for to non-waste related activities (Zero Waste Aotearoa 2024).

Participants cited examples such as community-led resource recovery centres, reuse businesses (such as reusable serveware and building deconstruction) that were partly funded through local and central government social procurement that prioritises wider outcomes, other than just the cheapest price.¹³ However, it is often challenging for these enterprises to compete with for-profit waste disposal businesses because they are preventing waste and focused on more holistic outcomes than simply transporting and disposing of waste.

Despite the funding challenges, cities and countries are investing public money to move up the waste hierarchy. These attempts are characterised by investment in place-based enterprises and practices across the waste hierarchy as part of an initial transition (see Examples 5 and 6). Over time, as waste prevention increases and the costs of waste disposal decline, governments and communities can prioritise future investment towards the top of the waste hierarchy.

4.2.1 Using data to demonstrate impact

Business and NGO participants described how they collect data to identify waste prevention and reduction opportunities and demonstrate impact and outcomes to customers, funders, and policy makers. Most of our business and NGO participants described how they were mapping material flows (including end-of-life destination), undertaking waste audits, completing carbon emissions audits and life-cycle assessments to understand current practices, create baselines, and identify waste prevention opportunities and potential savings. These participants described how these practices had led to some waste prevention shifts such as replacing single-use secondary packaging with reusable options. The evidence base created through these practices was also important to supporting shifts within the wider business. For example, these participants described how waste-related data had been useful to educate staff, convince colleagues and business directors of the benefits of waste prevention investment, and in helping shift attitudes from a linear business mindset to a more circular one.

Our business and NGO participants described the importance of using data to demonstrate impacts and outcomes. The specific impacts and outcomes differed across each participant's context but usually related to waste prevention or diversion, job creation, making economic value and/or evidencing new markets and transactions. Examples included point-of-sale data to demonstrate the size of market for reuse, evidence of new products and services, and social impacts such as education and social connection (see Example 7). These participants described how they often used data to showcase 'good news' stories that highlighted the multiple benefits of preventing waste (e.g. avoided waste disposal costs *and* social benefits from reuse and re-distribution). Participants also described how data collection and evidence could be used to prompt collaboration and positive changes across a sector or industry by developing shared data collection and impact standards.

¹³ This was reflected in our literature scan that described procurement policies to prioritise reduce and reuse particularly in territorial authority-managed closed-loop systems such as venues and facilities. For example, territorial authorities supporting reusable serveware (i.e. plates and cups) in areas they can control and partnering with other public anchor institutions like schools and hospitals to extend these reuse services (McNeill 2020; Upstream 2026).

Example 5. Amsterdam's investment approach

In 2020 Amsterdam adopted a doughnut economic model (based on changing goals from endless GDP growth to more sustainable growth 'in the doughnut' of planetary and societal needs) and released its Circular Strategy over 2020–2025. The strategy aims to halve the use of new raw materials by 2030 and become completely circular by 2050. Key actions that underpin the strategy have included an initial waste audit to understand material flows (City of Amsterdam 2020). This identified major waste streams such as food and organic waste, consumer goods (including electronics), and the built environment (construction & building materials). These materials then became the priority list for targeted investment and action.

The strategy includes a range of investments, from projects focused on reuse and recycling (e.g. re-manufacturing of bricks, pavers, and concrete); to living laboratories and collaborative experiments with universities and businesses to address other waste streams (such as repurposing solar panels and textiles, and reducing food waste); to investment in social infrastructure such as local food production and distribution, promoting second-hand and repair markets and spaces, new exchange platforms that encourage sharing and reuse, and mandating the use of recycled and bio-based materials in new buildings.

While Amsterdam is investing in technological and material innovation and research, there is also a strong emphasis on social shifts: moving people from a culture of consumption to one that values materials, landscapes, and ecosystems (Amsterdam 2025; New Scientist 2025).

Example 6. The Welsh investment approach

In 2021 the Welsh Government released its Beyond Recycling strategy (Welsh Government 2021). This strategy adopted a systems approach, noting that recycling would not shift the linear economy. The strategy was developed in conjunction with the Well-being of Future Generations (Wales) Act 2015, which emphasises the importance of intergenerational economic, social, and environmental outcomes.

The strategy includes specific actions related to the reuse of critical raw materials and improving material and energy security, reducing hazardous materials in products, adopting a whole-life approach to government procurement (particularly in large government-funded projects such as housing and infrastructure), supporting reuse and repair initiatives, and training people in new skills for remanufacture and repair. The strategy is explicit about targeting investment in actions focused on social circularity. This commentary in the strategy highlights how what might look like disconnected initiatives connect to normalise top of the waste hierarchy action:

With lending, hiring, leasing, re-use, repair, re-engineering and remanufacturing increasing, so our infrastructure has to support it, run by social enterprises, community initiatives and the private sector. We have seen the expansion of re-use and repair cafes, zero waste and plastic free shops, scrap stores, a 'library of things' (to borrow), community fridges and community compost initiatives across the country. We have also seen a network of free water refill points appear across Wales in our communities, along our coastal path and at our iconic historic sites – providing an important alternative to single-use drinks containers.

(Welsh Government 2021, p. 25)

Example 7. Charitable Reuse Australia's use of data to demonstrate impact

Charitable Reuse Australia – the collective network of charitable purpose-driven reuse enterprises – has worked with researchers to develop National Reuse Measurement Guidelines (Allen et al. 2024). These measurement guidelines use point-of-sale data and material composition standards so reuse stores (op-shops) can quantify the volume, average weight and material composition of products that are diverted from waste disposal and re-circulated in the economy.

To complement the measurement guidelines, Charitable Reuse Australia has worked with others to develop specific environmental impact factors for 40 op-shop product categories (from clothing and small appliances to large furniture) so that the impacts of waste prevention can be more robustly evidenced. The goal of these data tools is to provide a robust evidence base for government advocacy.

By quantifying the triple bottom line impact of reuse - environmental, social, and economic - Charitable Reuse Australia aims to move reuse into formal government policy and secure statutory targets and ongoing funding for the sector.

4.2.2 Using language to frame change

We asked our participants about the language they use to frame moving up the waste hierarchy because the words people use shape priorities, cultural practices, and policies (Fairclough 1992; Niccolini 2012). How businesses and communities talk about waste, circularity, and moving up the waste hierarchy shapes how they understand the wider economic system. For example, the phrase 'waste prevented' best reflects the waste hierarchy (and circular economy), where reuse intervenes at a higher point in the system, and moves the focus from downstream waste management and disposal to upstream systems change.

Some business and NGO participants deliberately recycled products and emphasised recycling initially to introduce their customers and communities to the waste hierarchy – so that they could then shift focus to reuse and repair later once their customers and communities were on board. These participants noted that recycling is a relatively common practice, with existing infrastructure and broad social acceptance. They then began introducing the terms 'reuse' and/or 'repair'. For example, Charitable Reuse Australia (Example 7) started as Recycling Australia, but rebranded and shifted focus to waste prevention by replacing 'recycling' with 'reuse' in its name. These participants described how they led their businesses and communities on a journey up the waste hierarchy by providing services and using language with which people were already familiar – like recycling - before moving to language and associated actions like reuse and repair.

While our NGO participants broadly agreed that many societies need to reduce consumption overall, they emphasised that this was difficult to advocate for as some groups consume a lot, while other groups need to consume more just to survive or improve their well-being. For example, these participants noted that certain groups, businesses, and sectors need to reduce their production and consumption significantly to get within planetary boundaries but other groups, sectors, and services like public health and education need to be increased to improve the quality of people's lives. These participants also described how some businesses use greenwashing and

political lobbying to stop governments from implementing product stewardship legislation which would reduce their profits.

To address these challenges NGO participants suggested starting by highlighting the impossibility and negative consequences of pursuing endless growth on a finite planet. They suggested that this entry point can then be used to introduce moving up the waste hierarchy and consuming differently. This approach to framing transition aligns with the literature scan, specifically Keep Britain Tidy's research which encourages people and communities to consume differently through 'smarter consumption' (Keep Britain Tidy 2023). Our NGO participants suggested that when advocating to reduce consumption, campaigns and associated communication should emphasise what people gain through simplifying their lives, rather than what they lose (see Example 8).

These NGO participants had different suggestions about what to emphasise in terms of what is gained. For example, some talked about the importance of creativity, fun and creating different kinds of 'consumer' experiences at reuse and second-hand stores. Other participants talked about the importance of designing reuse and repair activities in ways that encouraged social connection, enabled people to develop new skills, and save money. Overall, these participants emphasised the importance of moving beyond talking about waste management, recycling, and disposal, to shifting how people shop by challenging more 'mainstream' social norms and aesthetics associated with buying 'new' products.

Our business and NGO participants suggested that language choice and framing around waste prevention needed to be tailored to different audiences and contexts. For example, one NGO participant described how they would not use the phrase 'circular economy' in their context because it sounded too academic and impractical. They did however use the term 'zero waste' to convey both an aspiration and to help people focus on practical everyday actions that prevent waste. Business participants described how when speaking to business colleagues or warehouse managers they emphasised how waste prevention increased efficiency and ease. However, when speaking with business owners or shareholders they were more likely to emphasise how waste prevention could help reduce costs, increase profit and pay-back periods, or provide positive stories and branding opportunities.

Both our business and NGO participants noted that cost, profit, and return were important factors for the businesses and communities they worked with, however, other values are still important despite cost of living and economic challenges being major concerns at the time of the interviews. These examples illustrate how our participants carefully translate theories and phrases into practical actions for businesses and communities that are tailored to different contexts and audiences.

Example 8. Keep Britain Tidy's advice on how to frame shifts up the waste hierarchy

In 2022 Keep Britain Tidy initiated a research project to explore public understanding of practices at the top of the waste hierarchy. The results showed that while recycling has effectively become a widespread social norm, reduce, reuse, and repair have not, and that both the waste hierarchy and the practices at the top are not well understood by the UK public (Keep Britain Tidy 2023, 2024). To achieve system shift they suggest investment in two areas: i) designing effective communication so that people understand what the practices at the top of the waste hierarchy are and how they prevent waste; and ii) improving access to services/infrastructure to enable these practices (Keep Britain Tidy 2023).

In terms of communications, Keep Britain Tidy (2024) argued that the narrative and framing needed to shift away from 'what people throw out' to 'what people buy'. These insights led Keep Britain Tidy to develop an annual public campaign, 'Buy Nothing New Month', which flips the narrative away from waste to what is bought. They also recommend using verbs to frame waste prevention messages positively. For example, using words like donate, repair, mend, share, borrow, rehome, and swap, rather than reduce, refuse, waste or avoid. Finally, they recommend connecting waste prevention actions to positive social and environmental impacts. For example, highlighting how donating, repairing, and sharing reduces the need for mining and deforestation, reduces litter and pollution, saves people money, and supports local jobs and communities.

Finally, many of our participants noted the increasing concerns about supply chain security, critical minerals and energy and food security due to geopolitical instability. They observed how the circular economy discourse has shifted in recent years, particularly in Europe away from an environmental focus to regional resilience and economic security.¹⁴ Some NGO participants suggested these shifts provided opportunities to try and influence investment and action by emphasising the significance of social aspects of circular economy such as distribution of surplus to improve equity, providing local jobs, and not squeezing out the third sector already operating in the circular economy.

5 Conclusions

This report has adopted the view that collective, system-level interventions are needed to move up the waste hierarchy. To achieve system-level changes New Zealand and other countries must adopt mandatory legislation, such as product stewardship, extended producer responsibility, and right to repair laws.

A systemic approach will be more efficient than the 'whack-a-mole' method of banning individual products; it ensures that the true costs of production and waste are borne by those who profit from them, rather than being shifted to local councils and citizens. However, passing national legislation is challenging due to vested interests and 'business as usual' social norms.

¹⁴ Some NGO participants noted the shared nature of these shifts across the political spectrum in Europe with both the political left and far right agreeing on the importance of regional resilience and economic security albeit with very different ways to achieve this.

Our results and analyses have shown that building the social and political traction for national legislation requires societal investment in the following four areas.

- 1 *Supporting collectives and networks*: Peak bodies and professional networks are vital for fostering the high-trust environments and the collaboration needed to coordinate changes across complex, distributed supply chains. Examples like the partnership between Zero Waste Scotland and the Glasgow Chamber of Commerce have successfully translated theoretical waste prevention and circular economy concepts into practical actions for businesses that help build resilience, innovation, and tangible economic opportunities.
- 2 *Investing in place-based initiatives*: National strategies must be anchored by local hubs for reuse and repair. Initiatives like Wānaka Wastebusters and Auckland Council's resource recovery centres demonstrate how community-led enterprises can build social licence and provide practical alternatives to linear overconsumption.
- 3 *Using data to show impact*: To secure ongoing investment and support, organisations can use standardised data – such as point-of-sale metrics – to demonstrate the 'triple bottom line' impact of reuse and repair, quantifying environmental, social, and economic benefits.
- 4 *Tactical framing and language*: Shifting the narrative from 'waste management' to 'waste prevention' and 'resilience' can help build social support for change. Framing these shifts in ways that highlight what communities and people gain – such as local jobs, greater supply chain security, and improved social well-being – is more effective than focusing on what is lost.

Investing in these four areas will help waste prevention practices become new socially accepted norms and thereby support the political possibility for national waste prevention legislation.

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Appendix 1 – Barriers and challenges to moving up the waste hierarchy

1. Regulatory and policy barriers

- Lack of mandatory legislation: In New Zealand (and elsewhere), the absence of strong government regulation, such as mandatory product stewardship, means the system currently relies on councils and citizens to bear the costs of waste disposal.
- Policy ‘flip-flopping’: Inconsistent government priorities and shifting regulations (especially in New Zealand in recent years) make it difficult for organisations and businesses at the top of the waste hierarchy to maintain long-term traction or financial sustainability.
- Limited regulation on hazardous materials: There is a lack of legislation in many countries regarding risky materials and contaminants (such as PFAS), creating long-term environmental hazards, contamination, and the need for expensive end-of-life management.
- Insufficient enforcement: As landfill levies increase, illegal dumping is rising in many contexts, compounded by a lack of enforcement and insufficient infrastructure to manage diverted waste.

2. Economic and financial barriers

The current economic model incentivises linear ‘take-make-dispose’ production and consumption practices over circular ones through the factors listed below.

- Mispriced externalities: The price of landfilling remains too low to encourage investment in waste prevention, and the negative costs of pollution and end-of-life disposal are not built into product prices.
- High transaction costs: Circular approaches involve higher costs for finding information, designing for end-of-life, and building new supply chain relationships.
- Funding gaps: Public and philanthropic funding often targets reports or technological innovation rather than tangible social innovation or pilot plants and the infrastructure needed to de-risk circular investments.
- Economic viability of repair: High labour costs combined with the availability of cheap, low-quality products that are not designed for repair make professional repair services financially difficult to sustain.

3. Systemic and infrastructure barriers

The physical and organisational systems required for a circular economy are often missing or actively undermined through the following factors.

- Planned obsolescence: Businesses often design goods with limited lifespans or control technology to lock customers into wasteful cycles of replacement to maximise profits.
- Infrastructural deficits: There is a significant lack of pilot-scale plants to test materials and a shortage of affordable land for community-led resource recovery centres.
- Vested interests, lobbying and ‘cost-shifting’: Businesses and powerful industry groups use their influence to protect existing linear business models or delay meaningful change.
- Focusing on recycling rather than waste prevention: A lot of business action merely reinforces the system or delays the inevitable. For example, recycling plastic waste into fence posts that leach microplastics or replacing single-use plastic coffee cups with single-use compostable coffee cups that contaminate recycling.

- Coordination complexity: Transitioning up the waste hierarchy requires coordinating a large number of actors across complex supply chains which is currently difficult to achieve.

4. Social, cultural, and behavioural barriers

Cultural norms and the framing of waste often place an unfair burden on the consumer through the channels identified below.

- Focusing on individual change: Solutions are often framed as ‘individual behaviour change’, which is exhausting and expensive for citizens and fails to address the upstream production decisions that create waste.
- Consumer mindsets: Desires for status, convenience, cheap products, and speed, fuelled by targeted advertising and ‘fast fashion’ platforms like Temu and Shein drive linear over-consumption.
- Lack of professionalisation: There is a lack of clear career paths, professional development, and dedicated networks for those working in reuse and repair industries.

5. New Zealand-specific geographical barriers

New Zealand faces the following unique challenges due to its location and demographics.

- Isolation and scale: As a long ‘skinny’ country with a small population, New Zealand suffers from high transport costs and a lack of economies of scale.
- Volume issues: The country often does not have a large enough volume of specific waste streams to develop financially viable, domestic end-of-life processing options.
- Import/export reliance: New Zealand’s GDP is heavily reliant on importing and exporting products, which necessitates high volumes of single-use packaging and generates significant transport-related carbon emissions.