

Reducing the impact of plastic on our environment

LCANZ Submission Statement

LCANZ welcomes Ministry for the Environment's programme to reduce the impact of plastic on our environment by phasing out some hard-to-recycle PVC and polystyrene packaging and oxo-degradable plastic products, as well as seven single-use plastic items. The New Zealand Government signed the New Plastics Economy Global Commitment with one of the goals being 100% of plastic packaging to be reusable, recyclable, or compostable by 2025. A range of mechanisms for achieving this have been identified and assessed. The best option to achieve this is identified as mandatory phase out of:

- PVC and polystyrene packaging
- oxo-degradable plastics
- some single-use items

Broadly LCANZ fully supports the overall goal of 100% of plastic packaging to be reusable, recyclable, or compostable by 2025. We fully support and understand the reasoning for phase out of PVC and polystyrene packaging and oxo degradable plastics. The prioritisation of single use items to phase out is less understandable and may need additional justification. LCANZ also questions the prioritisation of items and suggests that some key items are missing. Single-use plastic items that are commonly found in the environment include lollypop sticks, cigarette butts, coffee cups, soft plastics, bottle caps, and wet wipes. Additionally, some multi-use products contribute significantly to micro-plastics, including tyres and textiles, while fishing nets are also a common source of plastic pollution and significant environmental harm. LCANZ agrees that uncontrolled use of single-use plastic is an issue for the environment and a move to alternative products and systems (e.g. reuse) that are more sustainable and less environmentally damaging is a great opportunity for Aotearoa New Zealand. The proposal aims to 'turn off' targeted problematic single-use plastics at source. LCANZ are of the view that to realise the benefits of phase outs, the action will need to be supported by consumer behaviour change and supply chain systems change to avoid unintended consequences. This may require additional support from government, including assessment of the whole of life impacts of different products, and systemic changes toward a more sustainable society.

LCANZ recommends that alternative products and systems are independently quantified using life cycle assessment, in combination with environmental leakage risk metrics, so any trade-offs across the entire lifecycle can be identified, communicated, and managed. Ideally this process would provide evidence that alternative products and systems are less damaging to the environment over their entire lifecycle in comparison to the products they are replacing. This approach would need to be supported by improved NZ life cycle inventory datasets and the goal and scope should incorporate circular economy principles from the outset – notably reuse models, technological cycles, biological cycles at end-of-life. As a key example, LCANZ agrees there will be circumstances where the item replacement can shift to a durable replacement and reuse. Potential benefits from this shift from single use to reusable can be tested and quantified through LCA – this could then help provide information to New Zealanders about the positive impacts of reuse and support behaviour change.

As already noted in the New Zealand Government's Rethinking Plastics project, LCA can prove to be a valuable tool to understand the environmental impacts of plastic product systems across their life cycle and not just on their end-of-life fate. Moreover, multiple impact categories are considered and such whole-of-life studies, looking at multiple impact categories, can help consumers make informed choices about the environmental performance of comparable products. UNEP recently conducted a webinar series illustrating government responses to develop and implement policy on single-use

plastic products pollution – with a particular interest in cases where life-cycle thinking has been used to help inform policy development. In addition, Plastics Europe – a pan-European plastics manufacturers association, as well as the European Union and other governments worldwide reflects this view as they both promote the use of Life Cycle Thinking (LCT) to improve the understanding of benefits to both individual products and policy formation and to enable more informed decisions to be made when considering concepts such as the circular economy (European Union, 2010, Lehmann et al., 2015; Seidel, 2016; Sonneman et al., 2018). Another consideration is the impact of changing packaging and causing unintended consequences in product damage and/or reduced shelf life resulting in food waste. This means the inputs that went into producing the product are lost. Although LCANZ is not in the position to comment on alternative materials and technical challenges, understanding and quantifying this risk can be achieved through LCA research and so be better managed.

LCA studies on plastics offer quantitative information about environmental impacts associated with all phases of the plastic life cycle from raw material extraction to end of life. While some studies look at single impact categories like climate change, many others assess multiple impact categories across resource use and emissions. These include non-renewable energy use and resource depletion (fossil fuels and minerals), land use change and water use, as well as emissions leading to climate change impacts, acidification, ozone depletion, photochemical oxidation (smog formation), freshwater and marine eutrophication (nutrient enrichment of waterways), terrestrial eutrophication, and solid waste formation (Khoo et al., 2010; Lewis et al., 2010; Greene, 2011; Suwanmanee et al., 2013; Accorsi et al., 2015; Civancik-Uslu et al., 2019). Some studies also include freshwater ecotoxicity and human health impacts from emissions of respiratory organics and inorganics and carcinogens (Lehmann et al., 2005; Takou et al., 2018). Assessing environmental impacts across multiple such impact categories can offer clarity on the environmental benefits and drawbacks of specific plastic products (Khoo et al., 2010), better insights into more environmentally viable plastics (Accorsi et al., 2015) and even improve production chains by aiding the design of products that perform better environmentally (Civancik-Uslu et al., 2019).

Work is ongoing to develop LCA-based frameworks to better account for the environmental impacts associated with plastic leakage. The Plastic Leak Project, led by Quantis and Environmental Action (EA) in partnership with 35 public, private and scientific organizations, has released a Life cycle-driven methodology to map, measure and forecast plastic leakage across corporate value chains, worldwide. Meanwhile, the Marine Impacts in LCA project will aim to illustrate the different impact pathways associated with marine litter, with the final framework due for completion in 2025.

Further, UNEP, the International Union for Conservation of Nature (IUCN), and the Life Cycle Initiative co-developed a '*National Guidance for Plastic Pollution Hotspotting and Shaping Action*'. The Guidance aims to provide a methodological framework for identifying plastic leakage 'hotspots', finding their impacts along the entire plastic value chain, and then prioritising actions once these hotspots are identified. It is aimed at enabling countries, regions, or cities to take and use this methodological framework in their own environments and establishing a baseline for benchmarking and tracking the progress of interventions. A key aspect of accounting for plastic leakage is to assess the risk of a particular product being leaked into the natural environment, which will vary depending on how the product is used. For instance, the risk is much higher for on-the-go items, such as drinks bottles, since these may be littered. The risk is rather lower for items that are typically taken home, such as produce bags, since the likelihood is that these will then be disposed of within the home. Evidence based metrics, such as the prevalence of specific items being found in the environment, should be used to guide decision making.

As such, LCANZ advocates for evidence-based decision-making when approaching the proposed phase outs.

For the programme to be successful, LCA NZ recommends:

- Taking a whole of life approach using Life Cycle Assessment to quantify the change in impacts and to justify a switch to an alternative:
 - The impacts of the affected products over their whole life-cycle as compared with alternatives
 - Avoid moving impacts from one life-stage to another
 - Avoid increasing overall impacts to avoid impacts from one impact category
 - Ensure metrics beyond waste to environment, as there might be trade-offs between environmental impacts
- Create national approach and estimated data to quantify environmental impacts:
 - Create a national data format standard based on international best practices. LCA NZ's Best practice working group can assist.
 - Support a national digital database of environmental impacts that can be used by multiple user interfaces to ensure consistency of data treatment in determining impact of alternative products
- Skills:
 - Support the training and development of LCA specialists to make this discipline mainstream. This could be via dedicated professional training and/or part of tertiary education system with specific courses.
 - Recognise LCA accreditation.
 - Start training, well before the implementation of the programme, to make sure skills are not a bottleneck. Solutions could include subsidised placement of LCA specialists. This would add a resource and develop LCA knowledge in the businesses ahead of time.

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