



Catholic Religious Australia submission to the Senate Standing Committees on Environment and Communications for the Waste Reduction and Recycling Policies

15 April 2024

The effectiveness of the Albanese Labor Government's waste reduction and recycling policies in delivering a circular economy:

Catholic Religious Australia (CRA) welcomes the opportunity to make a submission to the Senate Standing Committees on Environment and Communications, which is to inquire into and report on the effectiveness of the Albanese Labor Government's waste reduction and recycling policies in delivering a circular economy.

The Albanese government has committed to shifting Australia towards a circular economy through improved waste management and recycling activities. The government defines a circular economy as one in which sustainable consumption and production, as well as nature positive outcomes, are achieved, through a focus on products being recycled, remanufactured or re-used after they have served their initial purpose, thereby reducing waste produced by a country.¹ At present, the goals of the National Waste Policy (2018) and Action Plan (2019, 2022) remain in place to transition the country to a circular economy, through: stopping the export of key waste streams; increasing the resource recovery rate; halving food waste sent to landfill; improving the reusability, recyclability or and/or composability of packaging and phasing out problematic and unnecessary single-use plastic packaging; increasing local processing and recycling capacity; and increasing purchase of products with recycled content.

CRA supports the focus on moving towards a circular economy. CRA sees the government's policy emphasis on increased recycling as the vehicle to achieve a circular economy as downplaying the crucial need to prioritise the reduction of initial production and consumption. This is highly problematic as it is not reducing our national waste output. The total quantity of national waste generated continues to increase with our growing population,² having ramifications for the environment, the health of Australians, those living in developing nations who continue to receive our waste exports, and the climate crisis.

CRA is the peak body representing the Leaders of 150 Catholic Religious Institutes and Societies of Apostolic Life which operate in Australia. Our religious institutes comprise over 4,800 Catholic religious women and men, working in education, health care and social welfare, including aged care and disability support. Australia's Catholic religious congregations are strongly committed to action for justice. Through their justice ministries, they work with and advocate for Australia's most vulnerable communities, including the environment and peoples adversely impacted by environmental destruction and the impacts of climate change.

The scope of the current Inquiry is broad, looking at recycling export regulations, the efficacy and progress on circular economy deliverables, and the progress on the implementation of mandated product stewardship schemes. This submission will particularly examine what CRA believes to be areas of injustice, including the failings of recycling export regulations and the impact of this on ongoing Australia's neighbours in developing countries in South-East Asia, and the misdirected policies that are prohibiting Australia's progress towards a genuinely circular economy that respects planetary limits.

¹ Australian Government, Department of Climate Change, Energy, the Environment and Water, "Transitioning to a More Circular Economy," <https://www.dcceew.gov.au/environment/protection/circular-economy>, accessed 9 April 2024.

² Planet Ark, "How Much Waste Do Aussies Generate and Where Does It All Go?", <https://planetark.org/newsroom/news/how-much-waste-do-aussies-generate-and-where-does-it-all-go>, accessed 9 April 2024.

Recycling export regulations imposed through the Recycling and Waste Reduction Act 2020

Australia has historically had limited local markets for household recyclables, predominantly relying on overseas markets to purchase and reprocess the waste. Of all recycling collected from households, business and industry, Australia was thought to export an annual 1.27 Mt of waste to China, comprising 29% of kerbside collected recyclable paper and 36% of kerbside collected recyclable plastic.³ However, China's 2018 imposition of import restrictions resulted in Australia losing the recycling channel for a third of our paper and plastics, seriously challenging our domestic recycling market which did not have the capacity for onshore reprocessing, causing increased local stockpiling and short-term landfilling. Following China's lead, several other Asian countries also increased import regulations for waste, with India, Taiwan, Malaysia and Thailand introducing bans on the import of waste, and Vietnam also expected to do so from 2025,⁴ further limiting Australia's export options.

In Dec 2020, the federal parliament responded by passing legislation banning the export of unprocessed waste overseas via the *Recycling and Waste Reduction Act 2020*. These bans have meant that Australia should be reducing waste output, developing capacity to process its own waste, and re-shaping local infrastructure to support the reprocessing and re-manufacturing of recyclables onshore. In doing so, this could facilitate greater local demand to reuse these recovered materials in infrastructure, packaging and products, allegedly helping shift the country towards a more circular economy.⁵ But has this been the result of the enforcement of the Act?

Despite Australia's overall waste exports to all countries decreasing to 64.9 million kg per year in 2023 from 74 million kg per year in 2022, Australia's plastic waste exports to non-OECD countries increased 13% from 2022, to 61.1 million kg per year in 2023 from 50.9 million kg per year in 2022, with export increases particularly seen for plastic waste sent to Malaysia, Indonesia and Vietnam.⁶ This increase might be due to several reasons.

The environment Minister Tanya Plibersek granted a number of exemptions under the Act last year, including exempting some categories of household plastic waste from the ban, allowing them to be sent overseas again for processing due to domestic "stockpiling issues."⁷ Another exemption was granted for stockpiling of soft plastics by supermarkets after the REDcycle collapse.⁸ This indicates that the waste exports ban was put in place before local capacity, infrastructure and technology was developed to adequately deal with Australia's waste.

³ Antonia Flowers, "Reconceptualising Waste: Australia's National Waste Policies," *Journal of Australian political economy*, no. 87 (2021): 95–120.

⁴ Joe Pickin and Jenny Trinh, "Data on exports of Australian wastes 2018-19," <https://www.dcceew.gov.au/sites/default/files/documents/data-exports-australian-wastes-2018-19.pdf>, accessed 9 April 2024.

⁵ Jennifer (Downes) Macklin, et. al., "Australia's waste export ban becomes law, but the crisis is far from over," *The Conversation*, <https://theconversation.com/australias-waste-export-ban-becomes-law-but-the-crisis-is-far-from-over-151675>, accessed 9 April 2024.

⁶ Basel Action Network, "Australia Export Data: 2023 Annual Summary," <https://www.ban.org/plastic-waste-project-hub/trade-data/australia-export-data-annual-summary>, accessed 9 April 2024.

⁷ Jake Evans, "Environment Minister Tanya Plibersek grants exemption for some household plastic waste to be exported," *ABC News*, <https://www.abc.net.au/news/2023-05-18/household-plastic-waste-export-ban-exemption-granted/102360994>, accessed 9 April 2024.

⁸ Adam Morton, "Australia's backlog of soft plastic could be processed overseas before supermarket scheme is rebooted," *The Guardian Australia*, <https://www.theguardian.com/australia-news/2023/mar/14/australias-backlog-of-soft-plastic-could-be-processed-overseas-before-supermarket-scheme-is-rebooted>, accessed 9 April 2024.

Further, reports have been made by a number of NGO's in waste countries of destination that contaminated waste from Australia is still being exported. Claims have been made that certain waste management companies in Australia are hiding plastic waste in paper and cardboard exports,⁹ which would amount to illegal waste trafficking. For example, Thai media reported in mid-2022 that Thailand's Minister for the Environment ordered the repatriation of 130 tonnes of Australian waste, imported into the country as paper and cardboard, after they were found to be highly contaminated with plastic wastes.¹⁰ Doing so disregards both countries' laws and perpetuates a waste "colonialism," whereby developed nations dump their waste on developing nations, in which local infrastructure and markets can become overwhelmed, leading to waste leakage into the environment and residential areas. Mismanaged plastic waste is one of the main causes of environmental plastic pollution, with a reported estimate that 56% (equalling 239 million metric tonnes) of global annual plastic waste production by 2040 will be subject to mismanagement.¹¹ Furthermore, the excess of waste encourages the engagement of informal waste processing at a household scale. Informal processing can create further environmental and air quality problems, creating poor working and living conditions and health issues.¹²

Further, a loophole within the Ban has allowed waste to continue to be exported, through an exemption permitted for Processed Engineered Fuel (PEF), (also known as a Refuse Derived Fuel (RDF)). PEF is plastic waste that is processed with other waste material ready for direct use as a fuel, thereby allowing it to be exported from Australia as a 'product,' even though it is comprised of waste.¹³ By rebranding waste as a fuel for export, Australia is undermining its own legislation on banning waste exports. In addition, not only are there possible public health concerns through the burning of PEF, with a limited number of health studies having been completed and known risks from the release of chemicals (such as nitrogen oxide and dioxin), waste-to-energy (WtE) incineration also disincentivises recycling and therefore a circular economy by increasing demand for non-recyclable plastics as fuel,¹⁴ and redirecting what could have been recyclable waste into incinerators.¹⁵ Despite a growing number of thermal WtE plants in developing countries in Asia Pacific, the UN has asserted that these remain a

⁹ Chermaine Lee, "Australia Just Can't Get Past Waste Colonialism," *Fair Planet*, <https://www.fairplanet.org/story/australia-just-cant-get-past-waste-colonialism/>, accessed 9 April 2024.

¹⁰ Apinya Wipatayotin, "Firm told to repatriate illegal waste," *Bangkok Post*, <https://www.bangkokpost.com/thailand/general/2356551/firm-told-to-repatriate-illegal-waste>, accessed 9 April 2024.

¹¹ The Pew Charitable Trust, "Breaking the Plastic Wave: A Comprehensive Assessment of Pathways Towards Stopping Ocean Plastic Pollution," https://www.pewtrusts.org/-/media/assets/2020/10/breakingtheplasticwave_mainreport.pdf, accessed 9 April 2024.

¹² Monique Retamal, et. al., "Here's what happens to our plastic recycling when it goes offshore," *The Conversation*, <https://theconversation.com/heres-what-happens-to-our-plastic-recycling-when-it-goes-offshore-110356>, accessed 9 April 2024.

¹³ IPEN, et. al., "Plastics and Refuse-Derived Fuel: Fuel Product or Plastic Waste Export," COPs Side Event, <https://www.genevaenvironmentnetwork.org/wp-content/uploads/2022/06/9-June-2022-Plastic-Waste-Presentation-compressed.pdf>, accessed 9 April 2024.

¹⁴ Thomas Cole-Hunter, et. al., "Can we safely burn waste to make fuel like they do in Denmark? Well, it's complicated," *The Conversation*, <https://theconversation.com/can-we-safely-burn-waste-to-make-fuel-like-they-do-in-denmark-well-its-complicated-148250>, accessed 9 April 2024.

¹⁵ Jeff Seadon, "Climate explained: seven reasons to be wary of waste-to-energy proposals," *The Conversation*, <https://theconversation.com/climate-explained-seven-reasons-to-be-wary-of-waste-to-energy-proposals-128630>, accessed 9 April 2024.

health and environmental challenge for these countries due to noncompliance to or nondevelopment of adequate safety and environmental standards.¹⁶

The continuing exporting of waste to developing countries is indicative of a failing on Australia's part to introduce initiatives to slow down the generation of waste through the restriction of production and consumption, improvement of local capacity to recycle its own waste, or to take seriously its obligations under the Basel Convention, ratified by Australia in 1992, which requires the consent of the receiving country and accurate labelling of waste. Ethically, the exporting of waste allows Australia to forgo the responsibility to tackle its own waste crisis, perpetuating a "waste colonialism" by shifting the problem onto developing nations, who are also struggling to develop safe and effective capacity for waste processing. This is both an environmental and human health abuse.

The efficacy and progress on circular economy deliverables

Overemphasis on Recycling

A circular economy is one that prioritises keeping products circulating in use for as long as possible, through focussing on long-lasting design, repair, reuse, re-manufacturing, recycling and composting.¹⁷ The ultimate aim, according to the Ellen Macarthur Foundation, is that materials never become waste and nature is subsequently able to regenerate.¹⁸ However, while recycling is a component of a circular economy, a true circular economy involves a transformation of our whole system of production and consumption.¹⁹ The standard waste hierarchy employed within a circular economy prioritises the avoidance of waste generation through a reduction in production and reuse of already circulating materials, over waste management, which includes recycling, recovery and disposal.²⁰ This is because it is impossible to rely on recycling to achieve zero waste. Most materials cannot be recycled infinitely, with degradation into less and less recyclable material over time.²¹ This means that the major focus of Australia's transition to a circular economy should be on avoiding the generation of waste, with recycling a tool to manage unavoidable excess waste responsibly.

Earth has finite resources and a limited capacity for waste absorption, meaning that infinite growth in production, consumption and waste generation is incompatible with ecological limits. 100 billion tonnes of material enter the global economy every year and only 8.6% of it is being cycled back into production processes, for a finite number of times.²² The *UNEP Global Waste Management Outlook 2024* shows that globally, municipal waste is subsequently on the rise and predicted to grow from 2.3 billion tonnes in 2023 to 3.8 billion tonnes by 2050.²³ This waste growth is having a three-fold

¹⁶ United Nations Environment Programme, "Waste to Energy: Considerations For Informed Decision-Making," <https://www.unep.org/ietc/resources/publication/waste-energy-considerations-informed-decision-making>, accessed 9 April 2024.

¹⁷ Jennifer (Downes) Macklin, "The planned national waste policy won't deliver a truly circular economy," *The Conversation*, <https://theconversation.com/the-planned-national-waste-policy-wont-deliver-a-truly-circular-economy-103908>, accessed 9 April 2024.

¹⁸ Ellen Macarthur Foundation, "What is a circular economy?," <https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview>, accessed 9 April 2024.

¹⁹ Ellen Macarthur Foundation, "What is a circular economy?"

²⁰ Jennifer (Downes) Macklin, "We can't recycle our way to 'zero waste'", *The Conversation*, <https://theconversation.com/we-cant-recycle-our-way-to-zero-waste-78598>, accessed 10 April 2024.

²¹ Flowers, "Reconceptualising Waste," 95 – 120.

²² Flowers, "Reconceptualising Waste," 95 – 120.

²³ United Nations Environment Programme, "Beyond an age of waste: Turning rubbish into a resource. Global Waste Management Outlook 2024,"

environmental impact, contributing to climate change through emissions produced by the transporting, processing and disposing of waste (totalling at least 45% of our current global greenhouse gas emissions);²⁴ biodiversity loss through Indiscriminate waste disposal practices; and pollution from mismanaged waste.²⁵

Increasing circular material flows must therefore be accompanied with absolute declines in excessive production and consumption in order to respect ecological limits. This is supported by the *UNEP Global Waste Management Outlook 2024*, who state that a circular economy means decoupling economic growth from resource use (and therefore waste generation).²⁶ Arguments have been made that a true circular economy should measure its success in environmental and social outcomes, rather than growth of the economy, shifting away from models of endless economic growth.²⁷ Instead, the government states that “adopting circular economy principles, models and systems will put our economy on a more sustainable footing for growth over the long-term,”²⁸ demonstrating that recycling and waste policies remain largely focussed on economic growth, essentially commodifying waste and recycling and encouraging increased production volumes to ensure their continuation. CRA urges the government to instead articulate clearly defined environmental and social goals for its envisioned circular economy, and to consider legislative restrictions on production quantities, to be complemented by robust standards for design.

Problems with Recycling Plastic

Government goals to reduce the amount of plastic waste, including those articulated in the 2018 National Waste Policy, the 2019 National Waste Policy Action Plan, the Australian Packaging Covenant, and a goal to recycle or reuse 100% of plastic waste and end plastic pollution by 2040, emphasise the recycling of plastic over reducing its production and consumption. This ignores the reality that recycling plastic is inefficient, expensive and hazardous, and that there is little demand for recycled plastics, with data from the Australia Institute showing that only about 15% of all plastic waste generated over the last 20 years in Australia has been recovered through recycling, composting or energy recovery. Furthermore, Australia’s plastic consumption is set to increase 2.5fold between 2020-21 and 2049-50.²⁹

Challenges for local processing include that there are thousands of different types of plastic, which cannot be recycled together. Contaminants and colourants pose additional issues. Recycling also creates further pollution through the shedding of large quantities of microplastics, which inevitably end up in the environment via the processing plants’ waste.³⁰ Furthermore, there are limits on how many times plastic can be recycled because of this degradation each time it is processed. Just 1% of

https://wedocs.unep.org/bitstream/handle/20.500.11822/44939/global_waste_management_outlook_2024.pdf?sequence=3, accessed 9 April 2024.

²⁴ Flowers, “Reconceptualising Waste,” 95–120.

²⁵ United Nations Environment Programme, “Beyond an age of waste.”

²⁶ United Nations Environment Programme, “Beyond an age of waste.”

²⁷ Lucy Jones, “‘Doughnut Economics’ Is Flipping Our Outdated Economic Model On Its Head,” *Australian Circular Economy Hub*, <https://acehub.org.au/news/doughnut-economics-is-flipping-our-outdated-economic-model-on-its-head>, accessed 10 April 2024.

²⁸ Australian Government, Department of Climate Change, Energy, the Environment and Water, “Transitioning to a More Circular Economy.”

²⁹ Lilia Anderson and Nina Gbor, “Plastic waste in Australia and the recycling greenwash,” *The Australia Institute*, <https://australiainstitute.org.au/wp-content/uploads/2024/01/P1482-Plastic-Waste-in-Australia-Web-1.pdf>, accessed 9 April 2024.

³⁰ Anderson and Gbor, “Plastic waste in Australia and the recycling greenwash.”

plastic has been recycled more than once. Other recycled plastic bottles, cups and takeaway containers generally cannot be made into new food grade packaging because of toxicity risks. Plastic absorbs toxic byproducts of the recycling process, as well as any toxic chemicals contacted throughout its lifecycle.³¹

Recycling to the same or higher-level products could assist circular usage. For plastics, that means reuse or recycling back into the same type of plastic, not lower grade plastic, so that it can be recycled numerous times. Yet, the only global example where this is achieved is the recycling of PET (polyethylene terephthalate) soft-drink bottles in Norway and Switzerland, who achieve recovery rates of 97% and 95% respectively. Lacking adequate reprocessing facilities, Australia's plastic is predominantly "downcycled" into lower quality plastics, with plastic being "lost" in the process. Clear PET beverage bottles are the most circular plastic stream in Australia, with a near 70% recovery rate when they are recycled back into clear PET bottles. However, it has been reported that the 2025 National Packaging Target of 50% recycled content in packaging is encouraging the downcycling of PET bottles into lower-grade items such as meat trays, berry punnets and mayonnaise jars, so that producers can meet targets. Targets need to be harmonised with industry specifications for plastics recovery so that we do not rely on downcycling of PET bottles.³² Or better yet, current goals and policies need to be reassessed to de-emphasise recycling as the plastic solution, and instead develop specific actions and targets to phase down and out the production and consumption of plastics altogether.

Imports

Australia is a major importer of manufactured products. Current policy bans the export of recyclable waste but does not adequately address the detrimental role of imported materials in a circular economy. Improved standards, such as minimum requirements for recyclability and durability for imported goods or prohibiting the import of problematic materials in inferior products with a short lifespan should be enforced.³³ Another strategy to manage imports is the implementation of a plastic tax, such as those being introduced in the EU or UK. These have various forms of taxes imposed on manufacturers and importers of non-recycled plastic products.³⁴ Given the problems outlined with recycled plastic above, Australia should ultimately extend this tax further to all goods containing plastics, to slow plastic production. Although this would initially raise revenue for the State, which could be used to further develop the competency of the local recycling industry for unavoidable excess waste, the ultimate goal should be to disincentivise the manufacturing and importation of plastic, and push businesses towards more sustainable material choices.

The Right to Repair

While reduction in production should be the first priority of Australia's circular economy, the next should be reuse and refurbishment, as per the waste hierarchy. A truly circular economy should encourage repair of products to keep them in circulation, and many countries and jurisdictions are introducing laws enshrining the 'right to repair.' A right to repair is the ability of consumers to have their products repaired at a competitive price using a repairer of their choice, with related legislation needing to span consumer and competition law, intellectual property protections, product labelling,

³¹ Ibid.

³² <https://theconversation.com/3-little-known-reasons-why-plastic-recycling-could-actually-make-things-worse-206060>

³³ Jennifer (Downes) Macklin, et. al., "Australia's waste export ban becomes law, but the crisis is far from over."

³⁴ Anderson and Gbor, "Plastic waste in Australia and the recycling greenwash."

and environmental and resource management. In 2021, The Productivity Commission enquiry into the right to repair found that in Australia, there are significant and unnecessary barriers to repair for some products, resulting in premature replacement of products and growing waste.³⁵ The Commission made a number of excellent recommendations, but Australia has since only passed initial right to repair laws, a mandated data-sharing scheme to make it possible for independent mechanics to get access to diagnostic information, limited to only one sector.³⁶

It is time to re-visit the Productivity Commission's recommendations, as well as looking at right to repair policies being implemented globally, such as the EU's Right to Repair regime through its EcoDesign Directive. Comprehensive right to repair policy would need to span across consumer and competition law, intellectual property protections, product labelling, and environmental and resource management.³⁷ Giving independent repairers greater access to repair supplies, by removing certain barriers such as those contained in the *Copyright Act*, would increase competition for repair services and encourage the growth of repair-based businesses and jobs, while saving everyday Australians money and diverting still usable products from landfill.³⁸ This would need to be coupled with consumer warranty protections for using an unauthorised repairer or spare parts.³⁹ There were many other excellent recommendations from the commission, including mandating product package labelling that states product durability and repairability, requirements for provision of software updates for a reasonable length of time for products with embedded software.⁴⁰ It will be imperative to establish these rights not only for already established sectors, but also emerging sectors for green technologies, such as solar powered electricity and elective vehicles, to assist in reducing e-waste, such as from solar panels and batteries.⁴¹ Explicit targets for reuse, repair, reassembly and remanufacture would also strengthen sector engagement.⁴²

Conclusion

Now, in 2024, it is time for Australia to take serious and expedient action on the environmental crisis our world faces. The triple environmental threats to climate change, biodiversity loss and pollution, as well as the threat to human health, from our exponentially growing waste, needs to be immediately addressed. Last year was the hottest on record and we are at grave risk of exceeding irreversible tipping points in the Earth's climate system.⁴³ The World Wildlife Fund's *Living Planet Report 2022* found that the population sizes of the world's wildlife have experienced a decline of an average of 69% between

³⁵ Australian Government Productivity Commission, "Right to Repair Inquiry Report: Overview and Recommendations," <https://www.pc.gov.au/inquiries/completed/repair/report>, accessed 8 April 2024.

³⁶ Leanne Wiseman and John Gertsakis, "If you buy it, why can't you fix it? Here's why we still don't have the 'right to repair'," *The Conversation*, <https://theconversation.com/if-you-buy-it-why-cant-you-fix-it-heres-why-we-still-dont-have-the-right-to-repair-203236>, accessed 8 April 2024.

³⁷ Australian Government Productivity Commission, "Right to Repair Inquiry Report."

³⁸ Wiseman and Gertsakis, "If you buy it, why can't you fix it?"

³⁹ Matthew Kearnes, et. al., "The Productivity Commission has released proposals to bolster Australians' right to repair. But do they go far enough?", *The Conversation*, <https://theconversation.com/the-productivity-commission-has-released-proposals-to-bolster-australians-right-to-repair-but-do-they-go-far-enough-172961>, accessed 8 April 2024.

⁴⁰ Kearnes, et. al., "The Productivity Commission has released proposals to bolster Australians' right to repair."

⁴¹ Ibid.

⁴² Macklin, "The planned national waste policy won't deliver a truly circular economy."

⁴³ Wesley Morgan, "'It's Not Game Over – It's Game On': Why 2024 Is an Inflection Point For The Climate Crisis," The Climate Council, <https://www.climatecouncil.org.au/inot-game-over-game-on-why-2024-inflection-point-for-climate-crisis/>, accessed 9 April 2024.

1970 and 2016.⁴⁴ Global plastic waste generation more than doubled from 2000 to 2019, to 353 million tonnes, and continues to grow.⁴⁵ These statistics need to spur us into action on our waste crisis.

The United Nations is to deliver a legally binding agreement on plastic pollution by the end of 2024, which will catalyse global action to transform the way we produce and dispose of plastics.⁴⁶ The EU is implementing a suite of directives to transition the continent to a circular economy. Australia is lagging behind these global examples and must better prepare itself to transition away from plastic and other waste generation. CRA urges that Australian waste policies stop using recycling “greenwash” and instead embrace a genuinely sustainable circular economy through policies that consider the overall material throughput of the economy, shifting away from models of increasing material growth of the economy through endless resource extraction. Strategies needed to prioritise reduction in production and consumption, followed by reuse and repair, with a transition to a circular economy articulated in clearly defined environmental goals. CRA believes that urgent reduction our waste generation is imperative for the health of people and the environment, and is essential for the sustainability of the planet.

⁴⁴ World Wildlife Fund, “Living Planet Report 2022,” <https://livingplanet.panda.org/en-US/>, accessed 9 April 2024.

⁴⁵ OECD, “Plastic pollution is growing relentlessly as waste management and recycling fall short, says OECD,” <https://www.oecd.org/environment/plastic-pollution-is-growing-relentlessly-as-waste-management-and-recycling-fall-short.htm>, accessed 9 April 2024.

⁴⁶ UNDP, “The beginning of the end for plastics pollution?,” <https://www.undp.org/blog/beginning-end-plastics-pollution>, 9 April 2024.