

CIRCULÉIRE (2021)

Thematic Working Group (TWG) Fact Sheet



In 2021, CIRCULÉIRE ran a Thematic Working Group (TWG) on Circular Plastics, which was co-designed and co-facilitated by Technical University of the Shannon, Midlands and Midwest (TUS) (formerly Athlone Institute of Technology) and Irish Manufacturing Research (IMR). 20 panel members from industry, solution providers, academia and research, industry representatives, compliance bodies and third sector representatives, examined the status of the Irish Circular Plastics landscape with a view to providing ideas for circular plastics innovation demonstrator projects.

The potential of a Circular Plastics Economy

Plastic is lightweight, functional, durable – characteristics which have seen it used for personal protective equipment (PPE) in the COVID-19 emergency response. Despite its usefulness, there is a growing recognition of the need to circularise the plastics value chain and limit the adverse effects of a linear ‘take-make-use-dispose’ model.

The concept of Circular Plastics is that of a new plastics paradigm, along the value chain from design to reuse, in which resources related to plastics and polymers are reused and revalorised instead of being produced from virgin feedstock. **A circular economy is restorative and regenerative by design. Materials constantly flow around a ‘closed loop’ system, rather than being used once and then discarded. For plastic, this means keeping the value of plastics in the economy, without leakage into the natural environment (ERM, 2021).**

A product’s end of life is taken into consideration, and sustainable materials become a viable alternative to conventional virgin plastic. While much attention is given to the role recycling will play a key role in enabling the transition to a circular plastics economy, efforts must be made to pursue other ‘R’ strategies higher up the waste hierarchy too (like ‘Redesign/Rethink’, ‘Reduce’ and ‘Reuse’).

The National Agenda for Circular Plastics

From 2022, both industry and government will need to redouble efforts to ensure that our recycling and single-use reduction targets for plastics – as outlined in Ireland’s 2021 Climate Action Plan – are met.

These targets include:

1. Increasing plastic packaging recycling rates to 55% by 2030;
2. Substantially reducing the amount of single-use plastic items we use by:
 - a. providing for 90% collection of plastic drinks containers by 2029,
 - b. determining and introducing reduction targets and measures no later than 2022 to be achieved no later than 2026,
 - c. ensuring all plastic packaging is reusable or recyclable by 2030.

Ireland’s innovative and thriving plastics and polymer technology industry, for example Polymer Technology Ireland (PTI) represents over 230 businesses and employs nearly 7,000 people (IBEC, 2020), who are well positioned to drive the development of a Circular Plastics economy.

Shortlisted Circular Plastic Innovation Demonstrator opportunities identified by the 2021 Circular Plastics Thematic Working Group

1. Reprocessing Laboratory waste reusable lab plastic items.
2. Collecting and cleaning single use bioreactors for, decontamination and reuse.
3. Develop a National Reusable Coffee Cup Scheme.
4. Redesign of Expanded Polystyrene (EPS) Fish Containers for Multiple Functions.
5. Enhanced recyclability of Meat Packaging.
6. Decontamination and reuse of PPE in the MedTech and Healthcare Industries.
7. Collect and repurpose other fishing-related materials e.g. marine plastic to cleaning bottle plastic.
8. Co-Processing of fibreglass waste: processing of thermoset waste with concrete.

The Challenges

- An estimated 58 million tonnes of plastic was produced in Europe in 2019 alone, of which over half (26 million tonnes) ends up as plastic waste every year.
- On average, only 30% of plastic waste is recycled in Europe. Meanwhile in Ireland in 2019, 66% plastic waste in kerbside bins was not widely recyclable (EPA, 2019).
- Plastic pollution is a significant environmental issue, with nearly 80% of all marine litter being comprised of plastic (EIT Climate-KIC, 2021).
- Fifty thousand commercially available resins exist which are an amalgamation of any number of plastic types. This complexity that has contributed to many of the difficulties in circularising the plastics value chain.

The Opportunities

- 95% of the value of plastic packaging material is lost to the global economy every year. This represents a significant circular opportunity to recover this material value to the economy (valued at worth USD 80-120 billion annually), and to reduce global greenhouse gas emissions (Ellen MacArthur Foundation, 2017).

Recycling all plastic waste worldwide could:

- Save an amount of energy comparable to 3.5 billion barrels of oil per year, which would have a significant impact on our carbon footprint (EIT Climate-KIC, 2021).
- Each tonne of plastic produced from recycled rather than virgin fossil feedstock, reduces emissions by 1.1–3.0 tonnes of CO₂e (Ellen MacArthur Foundation, 2017).

Key Recommendations

If efforts to circularise polymers are to work, all stakeholders in the value chain must be involved

1. Creation of an All-Island Circular Plastics Strategy to ensure that plastic waste, from whatever stream it comes from, is reduced, revalorised, recaptured and reused.
2. Investment in physical infrastructure and technology upgrades to radically improve recycling economics, quality, and uptake and enable the shift of materials higher up the waste hierarchy.
3. A completed market survey of the Irish circular plastics landscape is critical to any future Circular Plastics strategy for the industry to capitalise on future economic opportunities.
4. There is an information / data disconnect between policy, legislation, targets and rate numbers in relation to plastics and polymers. To tackle data discrepancies an all - island www harmonised data platform should be created.
5. Continued R&D investment into the viability of future technologies which enable a Circular Plastics Economy and their overall impacts and outputs.
6. Regulation should encourage the production of polymers with improved recyclable qualities enabling a plastic to be better circulated in Ireland’s economy.
7. Develop a standardised LCA Assessment model for Plastics.
8. Support Retailers and Brands to pilot products with recycled post-consumer and post-industrial plastic waste.
9. Empower designers, technologists and product developers to build circularity and sustainability into their designs - through awareness raising, capacity building and tools.

A more in-depth discussion of this TWG’s key findings and results can be accessed online at circuleire.ie in the [CIRCULÉIRE \(2021\) Circular Plastics TWG Synthesis Report](#) and [CIRCULÉIRE \(2021\) Circular Packaging TWG Summary Report](#)