

A Circular Scotland

Briefing paper



Scottish Environment LINK: A Circular Economy for a Fairer Footprint

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Scottish Environment LINK is the forum for Scotland's voluntary environment community, with 40 member bodies representing a broad spectrum of environmental interests with the common goal of contributing to a more environmentally sustainable society. LINK provides a forum for these organisations, enabling informed debate, assisting co-operation within the voluntary sector, and acting as a strong voice for the environment.

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Summary

Scotland was an early proponent of the Circular Economy (CE) – an economy where we waste less and make much better use of raw materials – and gained international recognition for this. However, we are now arguably falling behind other countries in the UK¹, as well as leading countries in Europe².

People do not like waste and are becoming increasingly aware of the impact³ of our ‘throw-away’ lifestyle. In a recent survey⁴, 87% of respondents agreed with the statement that ‘in Scotland we should use raw materials more wisely and waste less’. In a more circular economy, we extract less raw material from the planet, make better use of materials we have, and waste less.

Scottish Government consulted on proposals for a circular economy bill in November 2019⁵. Consultation responses were overwhelmingly in support of the measures proposed, and many asked for more ambition⁶.

There is an opportunity in the next parliamentary session to deliver real progress on the circular economy.

Priorities for this parliamentary session:

- **Publish annual material flow accounts, which show the flow of different materials through our economy, including our material footprint; to inform policy⁷.**
- **Introduce the Circular Economy Bill, with headline targets on reducing our overall consumption of raw materials (as in the Netherlands⁸ and voted for by the EU parliament⁹) and our carbon footprint; and a duty to produce Plans which map out how to reduce our footprints¹⁰, obligations on different sectors and how to address problematic materials.**
- **Keep pace with Europe and fully implement the Circular Economy Action Plan (2020).**

In addition, there are a number of cross-cutting policy areas where action can be taken to further the circular economy:

- Tackle problematic materials and pollution. We need to end the unnecessary use of materials that are difficult to recycle. We also need to stop using harmful chemicals in products to enable safe recycling¹¹.

¹ Wales has one of the highest recycling rates in the world and has recently consulted on a new CE Strategy <https://gov.wales/circular-economy-strategy>.

² For example, the Netherlands <https://www.government.nl/topics/circular-economy/circular-dutch-economy-by-2050> and France <https://www.ehslawinsights.com/2019/10/waste-and-the-circular-economy-french-government-proposes-to-increase-liability-for-waste/>

³ The energy used to extract and process raw materials used to make the products we consume, and the associated impact on biodiversity, are key drivers of our climate and nature emergencies. We are consuming far more than our fair share of planetary resources and if everyone lived like UK citizens, we would need about three Earths to sustain ourselves, according to ecological footprint data.

⁴ <https://www.scotlink.org/publication/survey-report-public-attitudes-on-circular-economy-may-2020/>

⁵ <https://consult.gov.scot/environment-forestry/circular-economy-proposals-for-legislation/>

⁶ <https://consult.gov.scot/environment-forestry/circular-economy-proposals-for-legislation/>

⁷ Recommended in a recent report for ZWS <https://www.zerowastescotland.org.uk/metrics>

⁸ <https://www.government.nl/topics/circular-economy/circular-dutch-economy-by-2050>

⁹ <https://europeanmovement.eu/news/eeb-european-parliament-demands-first-ever-eu-targets-to-reduce-over-consumption/>

¹⁰ This will also inform the Environment Strategy Outcomes Pathway on international footprints

¹¹ In a more circular economy, through re-use and recycling, materials and chemicals can move from one product to another and relying on different safety levels for different products is not an effective safety net.

- Until they are banned, harmful chemicals¹² need to be traceable to ensure they can be identified and removed from re-use and recycling streams.
- Phase out single-use items where there are practicable reusable alternatives.
- Introduce an Extended Producer Responsibility framework and apply EPR to additional identified product groups, such as carpets¹³ and furniture¹⁴.
- Introduce resource efficiency standards and labelling requirements for products¹⁵. This will be required under measures to be brought forward under the EU CE Action Plan 2020.
- Investment in circular economy infrastructure. Repair and reuse Hubs, in partnership with social enterprises, will create jobs¹⁶, provide training opportunities, reduce waste and reduce our environmental footprints¹⁷. Investment is needed in recycling facilities to meet our recycling target of 70% by 2025.
- Insist on circular public procurement. Procuring departments should follow the EU Green Public Procurement Guidelines; report on 'circular spending'; and demonstrate a year on year reduction in footprints per £ spent.
- Introduce fiscal instruments to incentivise circularity. Use and align fiscal instruments to ensure that circular enterprises are supported and viable.
- Use section 82 in Scotland's Climate Change Act¹⁸ to require a given percentage of recycle in certain products.

Two further points are important:

Embedding the circular economy across all areas of government and the public sector – it should not be seen as the domain of waste departments and requires comprehensive policy frameworks. All funding and investment should be scrutinised against circular economy principles.

Keeping pace with Europe - The Circular Economy Action Plan (2020)¹⁹ is one of the foundational blocks for the European Green Deal. It is a step change in EU CE policy, with much more focus on product policy.

¹² Other examples are flame retardants, especially problematic in electronic waste

<http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/environmental-audit-committee/electronic-waste-and-the-circular-economy/written/105518.html>, and PFAS in 'compostable' packaging

¹³ <https://changingmarkets.org/portfolio/carpet-recycling/>

¹⁴ Making Things Last <https://www.gov.scot/publications/making-things-last-circular-economy-strategy-scotland/>

¹⁵ The UK Environment Bill 2020 includes powers for Scottish Ministers to do this, relating to the life-cycle impact of the product on the natural environment.

¹⁶ repair and reuse create many more jobs than recycling, incineration or landfill <http://www.rreuse.org/wp-content/uploads/Final-briefing-on-reuse-jobs-website-2.pdf>

¹⁷ <https://www.scotlink.org/scotland-needs-to-embrace-reuse-as-we-seek-to-recover-from-covid-19/>

¹⁸ <https://www.legislation.gov.uk/asp/2009/12/section/82>

¹⁹ <https://ec.europa.eu/environment/circular-economy/>

1. Background

1.1 Introduction

Scotland was an early proponent of the Circular Economy (CE) – an economy where we waste less and make much better use of raw materials – and gained international recognition for this. However, we are now arguably falling behind other countries in the UK²⁰, as well as leading countries in Europe²¹.

People do not like waste and are becoming increasingly aware of the impact of our ‘throw-away’ lifestyle. In a recent survey²², 87% of respondents agreed with the statement that ‘in Scotland we should use raw materials more wisely and waste less’.

Scottish Government consulted on proposals for legislation on the CE in November 2019²³. Consultation responses were overwhelmingly in support of the measures proposed, and many asked for more ambition²⁴.

There is an opportunity in this parliamentary session to deliver real progress on the circular economy. The Government must prioritise a transition to a more circular economy through bringing forward a Circular Economy Bill and embedding circular economy into the Green Recovery.

1.2. Why we need a more circular economy

The world’s consumption of materials has hit a record of 100 bn tonnes a year, and the proportion being recycled is falling – was the sobering headline from January’s Circularity Gap report²⁵. What’s more, the energy used to extract and process these raw materials, and the associated impact on biodiversity, are key drivers of our climate and nature emergencies²⁶. Unsurprisingly, Western societies are the main culprits. We are consuming far more than our fair share of planetary resources and if everyone lived like UK citizens, we would need about three Earths to sustain ourselves, according to ecological footprint data²⁷.

This situation is clearly not sustainable. A more circular economy²⁸, where we extract less raw material from the planet, make better use of materials we have, and waste less; reduces the emissions which are embedded in materials and products we use²⁹. It also reduces our impact on biodiversity by lessening habitat destruction and

²⁰ Wales has one of the highest recycling rates in the world and has recently consulted on a new CE Strategy <https://gov.wales/circular-economy-strategy>.

²¹ For example, the Netherlands <https://www.government.nl/topics/circular-economy/circular-dutch-economy-by-2050> and France <https://www.ehslawinsights.com/2019/10/waste-and-the-circular-economy-french-government-proposes-to-increase-liability-for-waste/>

²² <https://www.scotlink.org/publication/survey-report-public-attitudes-on-circular-economy-may-2020/>

²³ <https://consult.gov.scot/environment-forestry/circular-economy-proposals-for-legislation/>

²⁴ <https://consult.gov.scot/environment-forestry/circular-economy-proposals-for-legislation/>

²⁵ <https://www.circularity-gap.world/2020>

²⁶ UN Environment [finds](#) extractive industries are responsible for half the world’s carbon emissions and carbon footprint [data](#) shows that about 80% of Scotland’s carbon footprint is derived from emissions embedded in goods we consume. Consumption of natural resources has tripled since the 1970’s and is set to further double by 2060 according to [research](#), and 80% of biodiversity loss is caused by resource extraction and processing.

²⁷ http://data.footprintnetwork.org/?_ga=2.189791149.761092198.1580906071-1075653858.1573138714#/

²⁸ A circular economy (as opposed to a ‘take, make, use, discard’ linear economy), aims to optimise the use of materials, for example by sharing products, and making products that last a long time and are easy to repair and re-use. A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use; and regenerating natural systems.

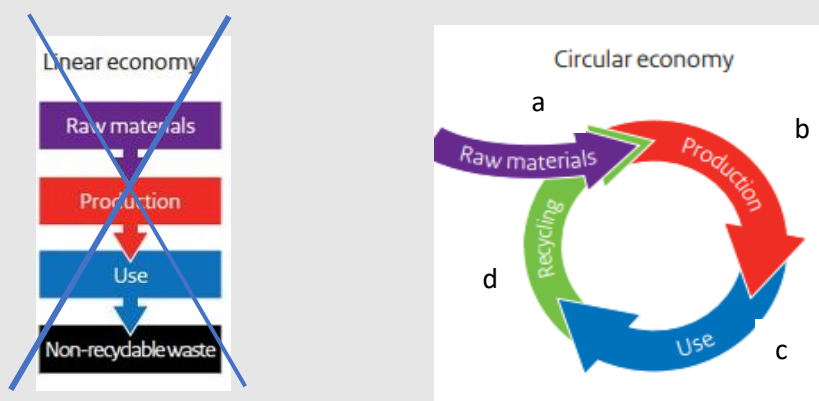
²⁹ <https://www.ellenmacarthurfoundation.org/publications/completing-the-picture-climate-change>

pollution. What's more, a circular economy offers jobs³⁰ and a more resilient trajectory³¹, with more efficient and resilient supply chains and a focus on restorative systems.

1.3. What needs to change

If we are to build back better, now is the time for a purposeful redirection to a more circular economy. In parallel with a focus on carbon, we need a focus on materials and how we optimise their use, and ensure chemical suitability for multiple, and potentially unforeseen, subsequent uses.

Despite the significant economic opportunities, it requires active policy intervention and investment to make our economy more circular. It also requires a suite of interventions - if our approach is piecemeal, we will fail to maximise the potential benefits to our economy, society and environment. This is emphasised in the Ellen MacArthur report: *Universal Circular Economy Policy Goals* ³².



a. Raw materials should be renewable. Other materials used should be secondary materials, ie derived from recycling; and all materials must be safe. Policies are needed to encourage the uptake of renewable and secondary materials and to make sure we reduce our consumption of non-renewable resources.

b. Production should focus on minimising the life-cycle environmental impact of products such that there is minimal pollution associated with their production, use and after-use phases. Products need to be designed to last a long time, be easy to repair and disassemble into re-useable parts. Policies are needed that encourage and require this.

c. Use should be prolonged and intensified such that products and their component parts and materials are used and re-used until they need to be recycled. Different business models that focus on services rather than products and sharing incentivise longevity of products and facilitate intensified use respectively. Enabling policies should ensure that consumers have information and access to affordable, accessible services.

d. As far as possible, all materials should be practicably and safely recyclable or compostable and collection should be widespread. Materials should be processed as locally as economies of scale allow. This needs investment and a planned approach to increase quantity and quality of recyclable materials collected and processed.

The economy must be restorative and replenish soil and biodiversity.

³⁰ <https://zerowasteworld.org/zerowastejobs/>,
https://www.zerowastescotland.org.uk/sites/default/files/Jobs_Scotland_online6.pdf,

³¹ <https://greenallianceblog.org.uk/2020/06/02/a-circular-economy-will-protect-us-against-future-shocks/>
<https://www.ellenmacarthurfoundation.org/news/covid-19-insights-build-back-better-with-the-circular-economy>

³² <https://emf.thirdlight.com/link/kt00azuibf96-ot2800/@/preview/1?o>

2. Circular Economy – key policy recommendations

2.1 Priorities for the next parliamentary session:

- **Publish annual material flow accounts, which show the flow of different materials through our economy and our material footprint, to inform policy³³.**
- **Introduce the Circular Economy Bill, with headline targets on reducing our overall consumption of raw materials (as in the Netherlands³⁴ and voted for in the European Parliament³⁵) and our carbon footprint; and a duty to produce Plans which map out how to reduce our footprints³⁶, how to address problematic materials and obligations on different sectors.**
- **Keep pace with Europe and fully implement the Circular Economy Action Plan (2020)³⁷.**

2.2 Cross cutting policies

- **Tackle problematic materials and pollution.** We need to end the unnecessary use of materials that are difficult to recycle and stop the use of harmful chemicals. Government should commit to comply with EU REACH regulations³⁸. Until harmful chemicals³⁹ are banned, we need traceability and transparency to ensure they can be identified and removed from re-use and recycling streams⁴⁰. We also need work to identify and develop safer alternatives to recognised toxic chemicals, to avoid the health risks of repeated exposure, or the presence of unnecessary chemicals in secondary products, e.g. flame retardants⁴¹ from electronics have been found in plastic cutlery or children's toys⁴². In doing so, we can open up a much wider range of opportunities for reuse and recycling. **Scottish Government should take immediate action on three key groups of known harmful chemicals, whilst also ensuring a working system to enable continued hazard identification, assessment and action; a) ban the use of bisphenols in thermal paper by 2023, b) ban the addition of PFAS to food packaging by 2024⁴³ and c) restrict the use of the most harmful flame retardants by 2025. Scottish Government should ensure traceability and transparency of chemicals through the requirement of full material disclosure for all products.**
- **Single-use items need to be phased out where there are practicable reusable alternatives.** The adoption of re-useable alternatives should be actively supported and promoted. Ireland has recently committed to all packaging being re-useable or recyclable by 2030⁴⁴. **Scotland should commit to all packaging being re-useable or practicably and safely recyclable by 2030.**

³³ Recommended in a recent report for ZWS <https://www.zerowastescotland.org.uk/metrics>

³⁴ <https://www.government.nl/topics/circular-economy/circular-dutch-economy-by-2050>

³⁵ <https://europeanmovement.eu/news/eeb-european-parliament-demands-first-ever-eu-targets-to-reduce-over-consumption/>

³⁶ This will also inform the Environment Strategy Outcomes Pathway on international footprints

³⁷ <https://ec.europa.eu/environment/circular-economy/>

³⁸ https://ec.europa.eu/environment/chemicals/reach/reach_en.htm

³⁹ Other examples are flame retardants, especially problematic in electronic waste

<http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/environmental-audit-committee/electronic-waste-and-the-circular-economy/written/105518.html>, and PFAS in 'compostable' packaging

⁴⁰ In a more circular economy, through re-use and recycling, materials and chemicals can move from one product to another and relying on different safety levels for different products is not an effective safety net.

⁴¹ Where flame retardants are essential for product safety, chemicals need to be designed to perform their function for the lifetime of the product, yet breakdown safely when no longer required

⁴² Kuang J, Abdallah MA, Harrad S. Brominated flame retardants in black plastic kitchen utensils: Concentrations and human exposure implications. *Sci Total Environ*. 2018 Jan 1;610-611:1138-1146. doi: 10.1016/j.scitotenv.2017.08.173. Epub 2017 Aug 30. PMID: 28847134.

https://ipen.org/sites/default/files/documents/toxic_toy_report_2017_update_v1_5-en.pdf

⁴³ This has already been implemented by Denmark in July 2020, and is something that both the UK retail sector and DEFRA are exploring

⁴⁴ <https://www.gov.ie/en/publication/4221c-waste-action-plan-for-a-circular-economy/>

- **Introduce an Extended Producer Responsibility framework**, as in the Government’s CE Strategy *Making Things Last*⁴⁵, with the intention that Producer Responsibility increasingly becomes the norm with producers / retailers being responsible for the lifecycle impact of their products and incentivised to minimise this through modulated fees or compulsory take-back schemes. **In the first instance, EPR should be applied to additional identified product groups, such as carpets⁴⁶ and furniture⁴⁷.**
- **Introduce resource efficiency standards and labelling requirements for products⁴⁸.** This will be required under measures to be brought forward under the EU CE Action Plan 2020. Standards include improving product durability, reusability, upgradability and reparability, addressing the presence of hazardous chemicals in products, and increasing their energy and resource efficiency. Labelling should cover the reparability of products and full material disclosure⁴⁹ to facilitate increased re-use and recycling. France introduced reparability and durability ratings for electronic products from January 2021⁵⁰.
- **Investment in circular economy infrastructure.** Repair and reuse hubs, in partnership with social enterprises, will create jobs⁵¹, provide training opportunities, reduce waste and reduce our environmental footprints⁵². Local authorities (or another public agency) should be tasked with ensuring that households have access to sharing, repairing and re-use services. A re-use target should be introduced in line with EU recommendations and all recycling centres should have re-use facilities. Investment is needed in recycling facilities to meet our recycling target of 70% by 2025. Wales has invested over £1 billion since 2000⁵³.
- **Insist on circular public procurement.** Public authorities are major consumers - by using their purchasing power to choose environmentally friendly goods, services and works; they can make an important contribution to sustainable consumption and production. Procurement decisions need to be screened against environmental impacts, including footprints⁵⁴. Procuring departments should follow the EU Green Public Procurement Guidelines; report on ‘circular spending’ (product-as-service⁵⁵ or product sharing, repairing of existing products, re-use, or purchasing second-hand); and demonstrate a year on year reduction in footprints per £ spent.
- **Fiscal instruments to incentivise circularity.** Fiscal levers are important policy tools in realising a more circular economy, and other environmental, ambitions⁵⁶. Crucially, they should all be aligned, such that they don’t work against each other. Scottish Government should introduce charges on environmentally harmful items⁵⁷ to drive behaviour change, review the taxation of residual waste⁵⁸, and ensure fees under EPR schemes are sufficiently modulated to drive ecodesign. Pay-as-you throw has worked well in driving

⁴⁵ <https://www.gov.scot/publications/making-things-last-circular-economy-strategy-scotland/pages/11/> see section 7.3

⁴⁶ <https://changingmarkets.org/portfolio/carpet-recycling/>

⁴⁷ Making Things Last <https://www.gov.scot/publications/making-things-last-circular-economy-strategy-scotland/>

⁴⁸ The UK Environment Bill 2020 includes powers for Scottish Ministers to do this, relating to the life-cycle impact of the product on the natural environment.

⁴⁹ Material disclosure must include chemical content to ensure that more materials can be recycled safely.

⁵⁰ <https://www.rfi.fr/en/france/20210211-france-launches-worlds-first-repair-index-for-smartphones-laptops-consumer-products-environment-waste-durability-europe>

⁵¹ repair and reuse create many more jobs than recycling, incineration or landfill <http://www.rreuse.org/wp-content/uploads/Final-briefing-on-reuse-jobs-website-2.pdf>

⁵² <https://www.scotlink.org/scotland-needs-to-embrace-reuse-as-we-seek-to-recover-from-covid-19/>

⁵³ <https://gov.wales/how-wales-became-world-leader-recycling>

⁵⁴ The Italian Code for Public Contracts (Legislative Decree 50/2016, as modified by legislative decree n. 57/2017) in Article 34, sets mandatory environmental sustainability criteria that must be applied by public authorities in public procurement. It sets the waste prevention criteria: efficiency and savings in the use of resources, reduction in the use of hazardous substances and quantitative reduction in waste products, as public procurement minimum environmental criteria for 11 product/service categories, such as furnishing, building work, electronics, textiles, catering, energy services, building management services, etc.

⁵⁵ Instead of conventionally selling products, it’s possible to offer the product as a service <http://circulareconomytoolkit.org/products-as-a-service.html>.

⁵⁶ Link to LINKs consultation response on Scotland’s fiscal framework

⁵⁷ Such as single use cups

⁵⁸ In light of more waste going to incineration and to ensure the rates are sufficient to divert reusable waste

down residual waste in other countries such as Germany and Italy⁵⁹ and should be considered. Scottish Government, in collaboration with other UK Governments, should consider a carbon tax, and reduced VAT on repair, refurbishment and re-use.

- **Use section 82** in Scotland's Climate Change Act⁶⁰. Section 82 requires a given percentage of recycle in certain products. This will displace virgin raw materials, reducing our material footprint, and crucially create demand for recycle⁶¹.

2.3 Priorities for different sectors

2.31 Food and farming

The Ellen MacArthur Foundation identifies food as an area where circular economy offers attractive solution for creating a healthier, more resilient system of the future⁶².

Land and sea-based enterprises must be restorative. We need a commitment to:

- Nutrient budgeting for P and C, as well as the planned work on N.
- A National Soils Plan with ambitious targets to increase soil carbon, a duty on land managers to maintain and enhance soil carbon levels and to prevent soil erosion.
- A National Soils Officer in Scottish Government.
- A levy on any activity that seals soil (so preventing its regenerative function).
- Adopt the targets in the EU's Farm to Fork Strategy⁶³, to reduce the use of fertilisers by 20% by 2030, and the use of chemical pesticides by 50% by 2050.

Building on the recent demand for local food, we must support ecologically sympathetic local food initiatives which shorten supply chains and reduce the footprints of our food and farming system⁶⁴.

- Develop and deliver the Local Food Strategy⁶⁵.
- Prioritise local and organic food in public procurement. National and local government must lead the way in procuring sustainable food in its schools, hospitals, care homes and other facilities. The Government must set clear targets on the procurement of local and/or organic food that is climate-friendly, nutritious and meets high environmental and animal welfare standards. This supports the delivery of the duties set out in the Procurement Reform (Scotland) Act 2014, including targets for local and organic food.

The carbon impact of food waste is significant⁶⁶ as is the potential to derive valuable products from it.

- Government should oblige retailers to report on all their food waste and that from their supply chains.

⁵⁹ Whereby households pay by volume or weight for their unrecyclable 'black bin' waste. This has worked well where there is good recycling infrastructure and waste aware citizens.

https://www.researchgate.net/publication/313590695_The_Impact_of_Pay-As-You-Throw_Schemes_on_Municipal_Solid_Waste_Management_The_Exemplar_Case_of_the_County_of_Aschaffenburg_Germany

⁶⁰ <https://www.legislation.gov.uk/asp/2009/12/section/82>

⁶¹ Creating demand for recycle and secondary products is one of the key sticking points in development of a more CE

⁶² <https://www.ellenmacarthurfoundation.org/our-work/activities/covid-19/policy-and-investment-opportunities/food>

⁶³ https://ec.europa.eu/food/sites/food/files/safety/docs/f2f_action-plan_2020_strategy-info_en.pdf

⁶⁴ Some examples in this blog <http://www.nourishscotland.org/desire-lines-what-our-food-practice-during-covid-tells-us-about-the-food-system-we-want/>

⁶⁵ Programme for Government pg 52 <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2020/09/protecting-scotland-renewing-scotland-governments-programme-scotland-2020-2021/documents/protecting-scotland-renewing-scotland/protecting-scotland-renewing-scotland/govscot%3Adocument/protecting-scotland-renewing-scotland.pdf?forceDownload=true>

⁶⁶ <https://www.zerowastescotland.org.uk/sites/default/files/The%20Carbon%20Footprint%20of%20Scotland%E2%80%99s%20Waste%20-%202014%20and%202015%20Carbon%20Metric%20Summary%20Report.pdf>

- Scotland should have a ‘Protein strategy’⁶⁷ to drive a strategic approach to maximising the potential of using bio-waste to grow protein, which would displace unsustainable protein sources such as wildfish and soya.
- The food waste reduction target of 33% (from 2013) by 2025 should be statutory, increasing to 50% by 2030 to be in line with the SDGs.
- The rural exemption for food waste collection should be removed and community-led programmes to support the reduction of household food waste should be supported.

2.32 Plastic

The problems associated with plastic pollution are well versed⁶⁸. Scotland is a founding signatory to the Ellen MacArthur Foundation's New Plastics Economy global commitment to end plastic pollution. Signatories commit to three 2025 targets: eliminate all problematic and unnecessary plastic items; innovate to ensure that the plastics we do need are reusable, recyclable, or compostable; and circulate all the plastic items we use to keep them in the economy and out of the environment⁶⁹. Scottish Government also has a stated aim to match the EU ambition for all plastic packaging to be economically recyclable or reusable by 2030. The Scottish Government should commit to:

- Fully implement the EU Single Use Plastic Directive. For example, Ireland outlines ambitious plans in its new Waste Action Plan (Sept 2020)⁷⁰.
- Phase out all but the safest and most essential single-use plastics and plastics that are difficult to recycle by 2025. For example, South Korea has banned difficult to recycle plastic from all food and beverage packaging⁷¹. Voluntary efforts need to be supplemented by legislation to ‘level the playing field’.
- Address leakages of plastic at all stages of the supply chain to prevent loss of materials to the environment (both terrestrial and marine), such as plastic pellets. For example: introduce legislation that will oblige washing machine manufacturers to fit microfibre filters in all new domestic and commercial machines by 2023 and retrofit commercial machines by 2024.

2.33 Construction

The construction sector has a large carbon footprint and is responsible for about half of all of Scotland’s waste⁷². There needs to be a presumption in favour of reusing and repurposing existing buildings and construction procurement and design that embodies circular principles, including planning for long-term maintenance and re-use of components⁷³. Recommendations of the Infrastructure Commission for Scotland⁷⁴ emphasise the need to make the most of existing assets and build for long-term maintenance. What’s more, there is appetite amongst infrastructure sector leaders in Scotland to use less raw materials and follow more circular practices⁷⁵ and amongst architects for a ‘retrofit first’ approach⁷⁶. There should also be an aspiration to reduce reliance on virgin, imported materials for construction and take fuller advantage of the natural, renewable resources and valuable secondary materials we have on our doorstep. This will reduce externalised / scope 3 emissions and also provide

⁶⁷ <https://www.zerowastescotland.org.uk/press-release/food-reform-vital-climate-goals#:~:text=%E2%80%9CA%20protein%20strategy%20for%20Scotland,from%20everything%20which%20farms%20produce.>

⁶⁸

⁶⁹ <https://www.newplasticseconomy.org/projects/global-commitment>

⁷⁰ <https://www.gov.ie/en/publication/4221c-waste-action-plan-for-a-circular-economy/>

⁷¹ <https://www.foodnavigator-asia.com/Article/2020/01/31/No-colour-no-PVC-South-Korea-bans-hard-to-recycle-plastic-materials-for-F-B-packaging#>

⁷² 6 SEPA, 2018. Waste from all sources. <https://www.sepa.org.uk/media/500273/waste-from-all-sources-summary-documentand-commentary-text-2018.pdf>

⁷³ By MI-ROG https://aecom.com/content/wp-content/uploads/2020/08/MI-ROG_white-paper-4_circular-economy_2020.pdf

⁷⁴ https://infrastructurecommission.scot/storage/281/Phase1_FullReport.pdf page 104

⁷⁵ <https://www.scottishconstructionnow.com/article/scottish-infrastructure-leaders-call-time-on-construction-s-take-make-waste-culture>

⁷⁶ <https://www.architectsjournal.co.uk/news/introducing-retrofirst-a-new-aj-campaign-championing-reuse-in-the-built-environment>

opportunities to local businesses and increase resilience to fluctuations in the global materials market, enhancing the Scottish economy. Supporting infrastructure to enhance the supply of secondary materials is also needed⁷⁷. To that end the Scottish Government should⁷⁸:

- Reduce VAT rates on refurbishment⁷⁹ (in collaboration with other UK Governments)
- Ensure that building regulations are updated to promote circular principles⁸⁰ and consider embodied carbon.
- Create incentives for a minimum content of renewable and natural materials in buildings.
- Ensure that circularity is integrated throughout the 4th National Planning Framework (NPF4) and not a 'nice to have' recommendation.
- Require consideration of the waste hierarchy⁸¹ in planning applications.
- Ensure the 'investment hierarchy'⁸² is embedded and applied across investment decisions.
- Support the development and promotion of a standardised format for material passports⁸³ in Scotland and require the use of material passports in new buildings.
- Fund, support and endorse a means of centrally collecting consistent and robust data about construction resources and waste.
- Require pre-demolition and pre-refurbishment audits⁸⁴ to be applied to projects above a certain size. These should include a clear demarcation of where unused materials from the site are going, to ensure better traceability of resources.
- Insist on public sector leadership through the introduction of a requirement (eg a Built Environment Circularity Commitment) that publicly funded construction projects should meet the Net-Zero Carbon in Public Sector Buildings (NZCPSB) Standard and a) be assessed on total life cycle costs and carbon; b) look to retrofit solutions first and c) procure circular products (reused, designed for disassembly, recyclable).

2.34 Textiles

A House of Commons Select Committee found the way we make, use and throwaway our clothes is unsustainable⁸⁵. Textile production contributes more to climate change than international aviation and shipping combined, consumes lake-sized volumes of fresh water and creates chemical and plastic pollution. Synthetic fibres are being found in the deep sea, in Arctic sea ice, and in fish and shellfish. Textiles 2030⁸⁶ is a UK voluntary initiative with aims for signatory businesses to reduce carbon and water impacts and adopt circular approaches. Textiles are identified by the EU as a priority area in the CE Action Plan 2020 and Ellen MacArthur Foundation note huge scope to reduce the environmental impact of textiles and suggest it as a priority area for attention⁸⁷. The revised EU Waste Framework Directive requires separate collection of textile waste by 2025⁸⁸. Under the EU CE Action Plan

⁷⁷ <https://www.ellenmacarthurfoundation.org/our-work/activities/covid-19/policy-and-investment-opportunities/the-built-environment>

⁷⁸ More detail on many of the below and additional ideas can be found here <https://www.ukgbc.org/wp-content/uploads/2020/05/UKGBC-Circular-Economy-Policy-Asks-May-2020.pdf>

⁷⁹ <https://www.architectsjournal.co.uk/news/vat-chance-can-tax-reforms-spur-a-retrofit-renaissance>

⁸⁰ Such as modular design with easy to repair and re-useable components

⁸¹ The waste hierarchy is commonly shown as an inverted triangle with layers of descending order of priority when considering waste: Reduce, Reuse, Repair, Recycle, Recovery, Dispose. Effort should be focussed high up the hierarchy, such that disposal is the last resort after all other 'layers' have been maximised in order of priority <https://www.gov.scot/publications/guidance-applying-waste-hierarchy/>

⁸² <https://www.gov.scot/publications/national-mission-local-impact-draft-infrastructure-investment-plan-scotland-202122-202526/> see page 9

⁸³ for example using Building Information Modelling (BIM) <https://ukbimframework.org/en/>, to improve productivity and reduce waste. BIM is a collaborative way of working underpinned by digital technology. Passports detail the materials used and how materials and components can be recovered and this information is passed on to subsequent owners / managers of buildings. Currently BIM is required of large projects, but not widely used across the industry

⁸⁴ https://www.designingbuildings.co.uk/wiki/Pre-demolition_audit Austria has introduced the Recycled Construction Materials Regulation. The regulation sets an obligation to carry out a pre-demolition audit for potentially reusable or hazardous construction components and selective demolition requirements.

⁸⁵ <https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/1952/1952.pdf>

⁸⁶ <https://wrap.org.uk/resources/guide/textiles-2030-roadmap#>

⁸⁷ <https://www.ellenmacarthurfoundation.org/our-work/activities/covid-19/policy-and-investment-opportunities/fashion>

⁸⁸ https://ec.europa.eu/info/news/new-waste-rules-will-make-eu-global-front-runner-waste-management-and-recycling-2018-apr-18_en

(2020)⁸⁹ the Commission will develop a strategy for textiles which will include developing eco-design measures; providing incentives for product-as-service models, circular materials and production processes; and boosting re-use and recycling through innovation and regulatory measures such as EPR. Further information on the scope of reform needed is given in a joint paper *European strategy for sustainable textiles*⁹⁰. Scottish Government should:

- Ensure the development of a centralised database linked to smart labelling system⁹¹ by 2025. This would allow reuse sorting facilities and recyclers access to both material and chemical information, e.g. finishes, colouring, dyes, material weave etc. all of which help to retain the 'purity' and value of recycle and significantly increases the value of secondary materials.
- Introduce product standards to ensure design for reuse, e.g. increased use of single materials and a reduction in chemical finishes. There should be a standard test for microfibre loss from garments by the end of 2022.
- Require product information to be made available to consumers on the life-cycle impact of textiles, for example circular.ID⁹².
- Encourage brand take back initiatives.
- Restrict the use of harmful flame retardants in domestic textiles, including mattresses and soft furnishings by 2025.
- Oblige retailers to report on all unwanted surplus stock and textile waste which is not re-used by 2025.
- Require retailers to provide full traceability in their supply chains to prove decent livelihoods and sustainably sourced materials by 2025.

2.35 Electronics

Electronic waste, or e-waste, is a significant problem with products that are difficult to disassemble and contain toxic materials. Electrical and electronic equipment continues to be one of the fastest growing waste streams in the EU. The current stockpile of electronics in people's homes and businesses and the improper disposal of electrical devices poses a wasted opportunity.

There are also significant quantities of embodied carbon, particularly with mobile phones where 81% of the carbon impact is associated with its non-use phase (manufacture, distribution and end of life treatment, rather than use). It is therefore of utmost important to extend the life of phones and other electronics.

Scottish Government should:

- Fully adopt the EU CE Action Plan (2020)⁹³ with:
 - Regulatory measures for electronics and ICT including mobile phones, tablets and laptops so that devices are designed for energy efficiency and durability, reparability, upgradability, maintenance, reuse and recycling.
 - The 'right to repair', including a right to update obsolete software.
 - Improving the collection and treatment of waste electrical and electronic equipment including exploring options for take back schemes to return or sell back old mobile phones, tablets and chargers.
- Require products to be designed avoiding the unnecessary use of chemical flame retardants⁹⁴.
- Invest in scanning technology to separate electronic waste with harmful chemicals from those with materials that are safe for continued use.
- Require labelling and information such that users and recyclers are given the information necessary, in an accessible format, to allow them to make safe and informed decisions.

⁸⁹ https://ec.europa.eu/environment/strategy/circular-economy-action-plan_en

⁹⁰ <https://eeb.org/library/executive-summary-and-covid-19-update-civil-society-european-strategy-for-sustainable-textiles/>

⁹¹ Such as RFID <https://www.ri.se/en/what-we-do/projects/rfid-information-system-for-future-textiles>

⁹² <https://circular.fashion/tools/>

⁹³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN>

⁹⁴ For example, TV casings have been shown to contain harmful flame retardants at concentrations up to 32.2%, almost one third of the total plastics weight Schreder E, Peele C, Uding N. TV Reality: Toxic Flame Retardants in TVs. Toxic-Free Future and Clean Production Action; 2017.

2.36 Residual Waste

Although in an ideal world there would be no waste; we are guaranteed to have residual waste (ie waste that is unsuitable for recycling) in significant quantities for the coming years. In recent years, there has been a reduction in waste sent to landfill and a corresponding increase in waste sent to Energy from Waste plants. There is increasing concern about an over reliance on incineration in a number of countries⁹⁵ and its role is being reviewed in Scotland.

- The overarching focus must be on reducing residual waste.
- Scottish Government needs to develop a strategy for reducing and managing residual waste in the context of a circular economy and net-zero, considering options such as Mechanical Recovery and Biological Treatment⁹⁶.
- Scottish Government should explore the fiscal measures needed to incentivise waste reduction.

3. Embedding the circular economy

In the same way that consideration of carbon emissions is being embedded across Government; there must be a parallel focus on the need to reduce our material footprint and our consumption related impacts. Government needs to:

- Scrutinise all investment and funding against circular economy principles. Funding should be conditional on companies seeking to optimise the use of materials, minimise pollution, and contribute to a more circular economy with reduced footprints. To do this effectively, there may need to be training for government and agency employees involved in administering investment programmes.
- Training and apprenticeships in areas needed to support and develop a more circular economy.
- Embed the circular economy into the Curriculum for Excellence and syllabi of core subjects taught in High School.

4. Keeping pace with Europe

The Circular Economy Action Plan (2020)⁹⁷ is one of the foundational blocks for the European Green Deal. It is a step change in EU CE policy, with much more focus on product policy. It features:

- Sustainable product policy legislative initiative (broadening the Eco-design directive)
- Legislative proposal on information to consumers on product lifespans, availability of repair services, spare parts and repair manuals, and the establishment of a new Right-to-Repair.
- Mandatory Green Public Procurement (GPP) criteria and targets in sectoral legislation
- Value chain and sector-specific actions: Electronics and ICT, Batteries and vehicles, Packaging, Plastics, Textiles, Construction and buildings, Food, water and nutrients.

⁹⁵ <https://www.letsrecycle.com/news/wales-outlines-plans-for-efw-moratorium/>; <https://zerowasteurope.eu/press-release/european-parliament-steps-forward-to-stop-burning-eu-funds/>; <https://www.politico.eu/article/denmark-devilish-waste-trash-energy-incineration-recycling-dilemma/>

⁹⁶ <https://zerowasteurope.eu/library/building-a-bridge-strategy-for-residual-waste/>

⁹⁷ <https://ec.europa.eu/environment/circular-economy/>

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Scottish Environment LINK is the forum for Scotland's voluntary environment community, with 40 member bodies representing a broad spectrum of environmental interests with the common goal of contributing to a more environmentally sustainable society. LINK provides a forum for these organisations, enabling informed debate, assisting co-operation within the voluntary sector, and acting as a strong voice for the environment.

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