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The Governance of the Circular Economy and Bioeconomy in Selected European Countries

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Prepared for the Environmental Protection Agency by Institute of Public Administration

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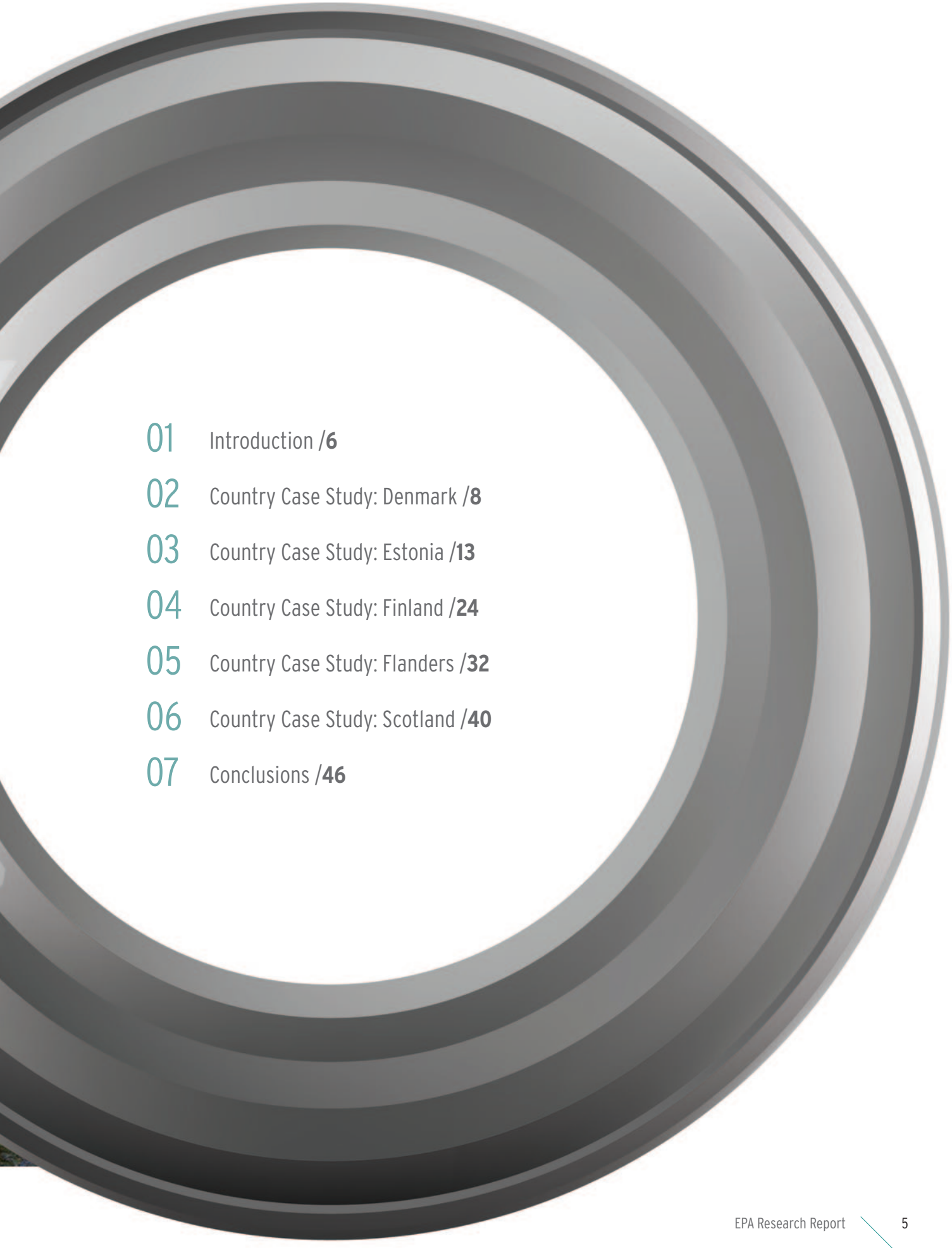
CONTENTS



1

Introduction

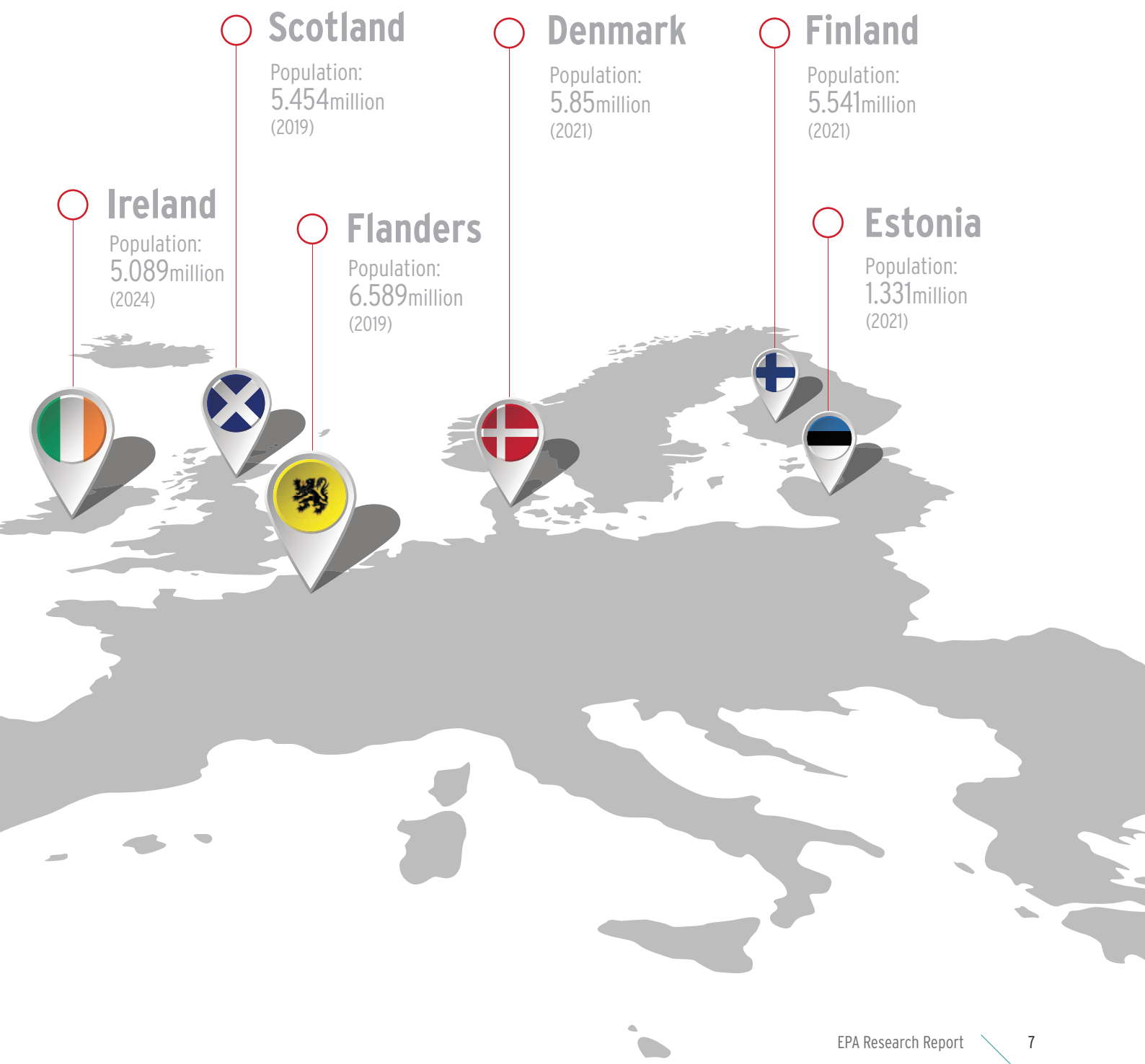
Ireland has considerable potential to improve its circular economy approach. Eurostat indicate that our circular material use rate (the extent to which material resources used come from recycled waste materials) in 2020 was 2%, significantly below the EU average of 13%.[1] In parallel with this, our recycling rates for municipal waste and packaging have levelled off and in some cases declined and across all waste streams significant improvements are needed in order to meet EU targets for 2025 and 2030 (EPA, 2021).

The Environmental Protection Agency (EPA) has commissioned the Research Division of the Institute of Public Administration (IPA) to review governance arrangements in respect of the circular economy and bioeconomy in Ireland. Good governance is regarded as central to the effective implementation of policy in respect of the circular economy and bioeconomy. The objective of the research programme is to review governance strengths and identify areas for improvement in respect of both policy areas.

The research methodology includes a review of approaches to the circular economy and bioeconomy in a small number of European countries. These countries were selected by the project steering group because they are regarded as progressive and/or because they have interesting institutional arrangements for the promotion of the circular

economy and bioeconomy. The countries included are Denmark, Estonia, Finland, Belgium (Flanders), and Scotland. Each case study provides some background context in respect of the circular economy and bioeconomy, an overview of policy, and an overview of institutional arrangements. Key governance learnings are set out at the end of each case study. Overarching conclusions are also made at the end of the paper.

[1] https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20211125-1



CASE STUDY 2

Denmark

2.1 Background context

Denmark is the southernmost of the Scandinavian countries. It has a population of just under six million people. Following the general election in 2022, the country has been run by a three-party coalition, led by the Social Democrats.

Denmark holds the European record for municipal waste per capita, approximately 800kg per capita per annum. Since the adoption of a Utilities Strategy in 2016, Denmark has sought to promote the idea that fostering a more circular approach to production and consumption will ease pressure on natural resources and improve the environment to the benefit of future generations, thereby contributing to all of the United Nation's Sustainable Development Goals. In 2023, Denmark's circularity rate was estimated at four per cent, compared to a global average of 8 per cent.[2]

2.2 Policy framework

The Danish National Strategy for Sustainable Development was published in October 2014 and is built on the three pillars of sustainability:

- financial sustainability
- social sustainability
- green sustainability

Sustainable development, and sustainable consumption and production, while to an extent inherent in Danish culture for many years, emerged as key policy areas following the 2014 Strategy. Collaboration with various sectors of society, along with dialogue and partnerships with stake-holders and public campaigns are regarded as key. Denmark works closely together with other countries in the Nordic Council's Working

[2] https://www.circularity-gap.world/denmark

Slangerup, Denmark

Denmark has sought to promote the idea that fostering a more circular approach to production and consumption will ease pressure on natural resources.

Group for Sustainable Consumption and Production (HKP). Sustainable public procurement is also regarded as central to achieving sustainable development goals. Wide-ranging initiatives are in place to support green public procurement.

In 2018, the Danish Ministry of Environment and Food and the Danish Ministry of Industry, Business and Financial Affairs launched a Strategy for Circular Economy, based on recommendations by an Advisory Board for the circular economy. The strategy had six thematic areas and sought to establish a whole of government approach to the circular economy:

1. Strengthening enterprises as a driving force for circular transition
2. Supporting circular economy through data and digitalisation
3. Promoting circular economy through design
4. Changing consumption patterns through circular economy
5. Creating a proper functioning market for waste and recycled raw materials
6. Getting more value out of buildings and biomass.

The 2018 Strategy was followed in 2021 by the Danish Government's Action Plan for a Circular Economy titled The National Plan for the Prevention and Management of Waste for 2020-2032. The action plan

describes the Danish targets, indicators, policies and initiatives in the entire circular value chain, which ranges from design and consumption to waste management, from which natural resources are recycled into new products and materials. There are five focus areas and 129 specific initiatives in the Plan. The focus areas are:

- Less waste and better use of natural resources
- More and better recycling
- Better use of biomass
- A sustainable built environment
- Plastics in a circular economy

The action plan also presents the Danish government's targets and indicators for the transition to a circular economy. It is envisaged that initiatives and commitments made to date will enable Denmark to meet EU targets on the recycling of municipal waste for 2025 (55%) and 2030 (60%) but further initiatives are likely to be required to meet the 2035 target of 65% recycling of municipal waste and 50% recycling of plastic packaging waste by 2025.

Better use of biomass represents an area of special focus within the Action Plan. In 2018, 213 kg per capita of biowaste was recycled in Denmark. In this regard, the Government has committed to:

- Providing professional assistance to reduce food waste in retail
- Lowering the limit values for heavy metals and physical impurities in food and garden waste used as fertiliser
- Creating a financial incentive to recycle phosphorous from sewage sludge
- Analysing and implementing measures to ensure a reduction of minimum 20 per cent of greenhouse gas emissions from treatment of garden waste.

2.3 Institutional framework and governance

The Ministry for the Environment and Ministry for Food, Agriculture and Fisheries have lead policy responsibility for the circular economy and bioeconomy in Denmark. However, the 2018 Strategy for a Circular Economy sought to identify the circular economy and bioeconomy as whole of government policies requiring cross government ownership. The Danish Environmental Protection Agency (EPA) and the Danish

It is envisaged that initiatives and commitments made to date will enable Denmark to meet EU targets on the recycling of municipal waste for 2025 (55%) and 2030 (60%).

Business Authority are also regarded as important in supporting the transition to a circular economy. Local government plays a role in respect of inspection, regulation, permits and to some extent implementation.

Stakeholder engagement is seen as important in Denmark. The National Bioeconomy Panel was set up in 2013 under the auspices of the Ministry for the Environment and the Ministry for Industry, Business and Financial Affairs. The panel, which is composed of companies, researchers, NGOs and key organisations, has published a number of recommendations and fact sheets on the bioeconomy and biomass. In 2017, the panel was relaunched with a reduced number of panel members and with a stronger focus on industry. It was suggested that the reduction in members was due to the ongoing availability of participants who are engaging in a voluntary capacity. The National Bioeconomy Panel has made specific recommendations on how Denmark can harness the huge potential of biomass production and to support a just transition for agriculture. In 2016, an Advisory Board for the circular economy, was established and helped to inform the Strategy for the Circular Economy.

The Danish Society for Nature Conservation (Danmarks Naturfrednings-forening) is an incorporated non-government organisation, founded in

In 1937, the Nature Conservation Act underpinned the right of the Society to be consulted on conservation matters.

1911, that works to conserve nature and the environment in Denmark. In 1937, the Nature Conservation Act underpinned the right of the Society to be consulted on conservation matters. They are an important stakeholder in respect of the development of Danish circular economy policy.

2.4 Key governance points emerging

- Denmark's Strategy for the Circular Economy helped place a whole of government focus on the circular economy. The inclusion of the bioeconomy as one of the five focus areas in the Strategy helps to highlight the close linkages between the two policy areas and to date it would appear that it has been possible to afford both policy areas equal prominence within the one strategy. Cross government engagement and collaboration is perceived to be the main way in which objectives in respect of the circular economy and bioeconomy can be achieved.[3]
- Making data central is critical to good governance. This encompasses the generation, monitoring, reporting and review of data (O'Riordan *et al.*, 2022). The importance of establishing an evidence base and monitoring progress towards the achievement of objectives is regarded as critical in Denmark. Monitoring is carried out by the Danish EPA and other agencies. Denmark's Strategy for the circular economy includes wide-ranging targets and indicators. The challenge in this area is to produce timely data and also to capture sufficiently comprehensive data to confidently track progress in respect of indicators and outputs.
- Consultation with stakeholders is essential in developing good policy and to achieving real support for policy implementation. However, stakeholder forums or advisory groups need to have clear terms of reference and a sense of purpose.

[3] Danish Department for the Environment interview, September 2023.

CASE STUDY 3

Estonia

3.1 Background context

Estonia, a small Baltic country with a population of approximately 1.4 million, has enjoyed strong economic growth in recent years. In addition to large forestry and water resources, the country is rich in shale oil reserves. Estonia, like all countries, faces a range of environmental challenges.[4]

The Estonian Ministry of Climate (formerly the Ministry of Environment) plays a key management role in the areas of environmental policy and legislation, natural resource protection, land management and compliance monitoring and enforcement. The work of the Ministry of Climate is supported by several environmental bodies, operating under the auspices of the Ministry, which include: the Environmental Board, Environmental Inspectorate, Estonian Environment Agency, Estonian Land Board, State Forest Management Centre, and the Estonian Environmental Research Centre. The Environment Board is an important state agency with six regional offices, and its tasks relate to policy implementation and monitoring (OECD, 2017).

The territory of Estonia is divided into 15 counties, but these are not local governments. Rather, these counties are territorial units consisting of municipalities. In total, there are 79 municipalities: 15 urban and 64 rural. There is only a single tier of subnational government in Estonia.[5] Important environmental services are provided at the local level such as natural resource management, supply of water and sewerage and waste management.

[4] For more, see *Estonia* 2035, pp. 9-10. https://valitsus.ee/en/estonia-2035-development-strategy/strategy/strategic-goals

[5] https://www.sng-wofi.org/country-profiles/estonia.html#:~:text=OVERALL%20DESCRIPTION%3A%20Estonia%20has%20a,with%20the%20same%20legal%20status https://rahvaloendus.ee/en/census-2021/methodology-and-qality/levelof-administrative-units-and-spatial-data

3.2 Policy framework

In their 2017 review, the OECD notes that the concept of a circular economy is new in Estonia with policymakers only starting to prioritise this area. Furthermore, it was thought that the country's lack of a comprehensive policy framework relating to circularity hindered efforts to sustainably use resources throughout the product value chain (OECD, 2017). Recent years, however, have seen a strengthening of the policy framework for the development of the Estonia's circular economy which is vital to realising the ambitions of policymakers.

National Energy and Climate Plan 2030 (2019)

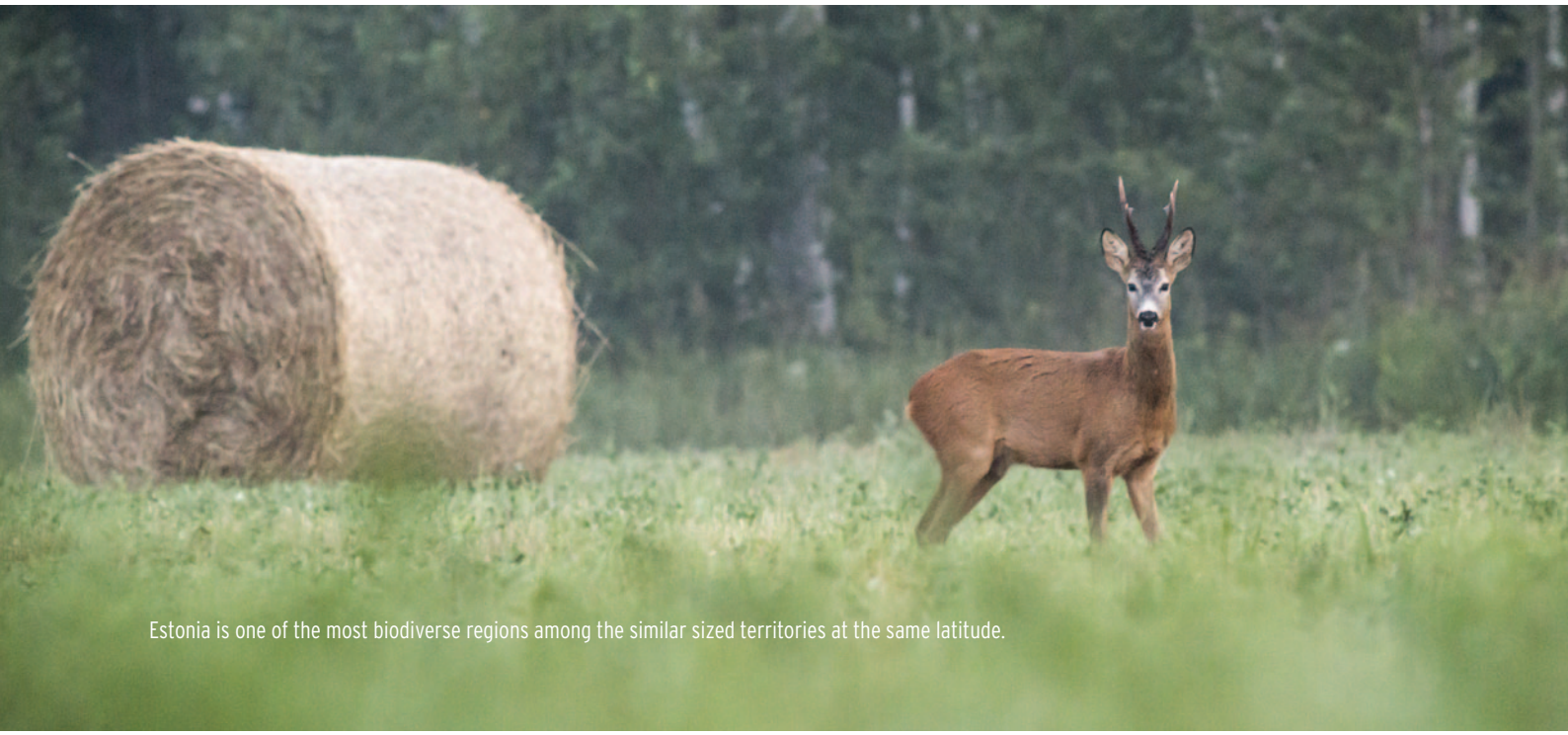
This plan, drafted by the Ministry of Economic Affairs and Communications, the Ministry of Climate and the Ministry of Rural Affairs, emphasises the importance of Estonia's transition to a circular economy, noting that a cross-sectoral approach is required to support change. The plan refers to the national government's facilitator role in 'creating favourable conditions for applying the principles of the circular economy and in removing barriers' (Ministry of Economic Affairs and Communications *et al*., 2019, p.72). In addition, an objective of the plan is to develop the bioeconomy as a priority, which includes agriculture, forestry, fishing, game and hunting, tourism, and peat extraction.

Circular Economy White Paper (2022)

A white paper on the circular economy, published by the Ministry of Climate, outlines a vision and principles agreed between relevant ministries and interest groups. The document is designed to support key stakeholders in their work, while also mainstream the principles of circularity in production, consumption, policies, lifestyle, culture, and values (Ministry of Climate, 2022, p.8).

The paper sets out six development priorities, with accompanying strategic actions, to promote the circular economy. Several of these priorities and actions reflect a need to improve governance. For example, the white paper states that, as a priority, the circular economy needs to be well-coordinated in a supportive legal and economic environment.

The drafting of the document was led by a steering group containing representatives of all Estonian ministries and the government office (OECD, 2023, section 2). As the Ministry of Climate is preparing a national



Estonia is one of the most biodiverse regions among the similar sized territories at the same latitude.

In addition, an objective of the plan is to develop the bioeconomy as a priority, which includes agriculture, forestry, fishing, game and hunting, tourism, and peat extraction.

environmental development plan, there is no separate circular economy strategy. The white paper therefore provides the basis for developing Estonia's circular economy.[6]

Estonian Circular Economy Action Plan (2023)

Following the white paper, a short action plan to develop the circular economy in Estonia, outlining activities and deadlines, was prepared by the Ministry of Climate.[7] This action plan, which covers the next few years, has not been confirmed by the government and is a working document.

Circular Bioeconomy Roadmap

The *Circular Bioeconomy Roodmap for Estonia* was published in 2023. Responsiblity for the development of the bioeconomy lies with the Ministry of Regional Affairs and Agriculture, but it also works closely with other ministries, especially the Ministry of Climate, the Ministry of Economic Affairs and the Ministry of Research and Education. In the plan-making process, the Ministry of Regional Affairs and Agriculture engaged actively with all the key stakeholders through workshops and an information event. Written submissions were also received.

[6] Confirmed by an official in the Ministry of Climate of Estonia.

[7] For more, see https://ringmajandus.envir.ee/sites/default/files/2022-12/Eesti%20ringmajanduse%20tegevuskava%202023.pdf

Local authorities have key environmental responsibilities including management of the utilisation of natural resources (land, forest, and bodies of water)

Tallinn, Estonia

The roadmap defines the broad areas of activity relating to the bioeconomy and the actions necessary for its development in the short and longer terms. This national-level document will inform the preparation of regional roadmaps that 'translate activities into innovative local initiatives and forms of cooperation' (Ministry of Regional Affairs and Agriculture, 2023, p.3).

Other strategies/plans
In addition, strategies like Estonia 2035 Development Strategy, Research and Development, Innovation and Entrepreneurship 2021-35, and Agriculture and Fisheries Strategy 2030 seek to support the circular economy and the bioeconomy.

In May 2023, a new coalition government was formed in Estonia. A programme for government, agreed between the coalition parties, promises to progress the transition to the circular economy and to get maximum value from natural resources.[8]

3.3 Institutional framework and governance

Various organisations exist in Estonia to support the implementation of policy in respect of the circular economy and bioeconomy. From the provision of funding and research, to facilitating stakeholder engagement and managing environmental services, these bodies play important and distinct roles in the governance system.

Local authorities
While the central government in Estonia, through the Ministry of Climate, develops and coordinates environmental policy, local authorities have key environmental responsibilities which include:

- Management of the utilisation of natural resources (land, forest, and bodies of water);
- Supply of water and sewerage;
- Adoption and updating of a waste management plan;
- Establishment of waste management rules;
- Nature conservation on local level.[9]

[8] See https://valitsus.ee/en/coalition-agreement-2023-2027
[9] For more, see https://portal.cor.europa.eu/divisionpowers/Pages/Estonia-Environment-and-fight-against-climate-change-.aspx

Local government plays an important role in the transition to a circular economy. Local municipalities are closest to businesses and consumers and are responsible for waste management. Furthermore, they raise awareness about circularity and provide good examples in the procurement of environmentally friendly goods and services. Support from local government is also crucial in the development of Estonia's bioeconomy.

The preparation of regional roadmaps, provision of training programmes for local officials, and the empowering of county development centres and supporting incubation centres are all part of the government's sub-national approach to grow the bioeconomy.

Environmental Investment Centre
Established in 2000, the Environmental Investment Centre (EIC) provides funding to support environmental projects. Part of the Ministry of Climate, the EIC receives funding from environmental charges and EU and international programmes. Through its Circular Economy Programme, the EIC seeks to develop circular economy models, improve awareness of circularity and promote the adoption of sustainable consumption and production solutions. [10]

It should be noted that the EIC's funding for circular economy projects makes up a relatively small proportion of its overall project sponsorship budget. For example, in 2022, projects under the circular economy programme were funded to the value of €1.8 million, whereas the total value of all EIC-funded projects in 2022 was about €176 million. But according to an Estonian official, circular economy related funding will increase in the coming years as many schemes to promote circularity are planned from 2023/24. This reflects the growing importance placed by policymakers on the circular economy.

[10] For more, see https://kik.ee/en

Estonian circular economy related funding will increase in the coming years as many schemes to promote circularity are planned from 2023/24.

BIOEAST Stakeholder Platform

The BIOEAST initiative, involving central and eastern European countries, promotes knowledge-based agriculture, aquaculture and forestry in the bioeconomy. It offers a shared strategic framework to support the development of sustainable bioeconomies in these countries which include Estonia.[11]

The platform allows members to cooperate and network with regional stakeholders and institutions operating in the various bioeconomy sectors.

The Ministry of Rural Affairs is Estonia's national contact for the BIOEAST initiative and so in this role the ministry coordinates the national views of relevant ministries.[12] The BIOEAST stakeholder platform represents an interesting multilateral initiative, but from an Irish perspective, it is perhaps harder for the country to participate in a similar regional grouping as Ireland is more geographically distanced from other countries.

Accelerate Estonia Programme

Launched by the Ministry of Economic Affairs and Communication in 2018, the Accelerate Estonia innovation lab endeavours to tackle wicked problems by developing innovative ideas, while enhancing Estonia's competitiveness in the process. In its role, Accelerate Estonia supports the transition to a circular economy with several of its projects relating to circularity.[13]

Estonian Business and Innovation Agency

The agency aims to enhance Estonia's international competitiveness while also encourage entrepreneurship and the living environment in the country. It promotes innovation and develops sustainable business models and research-intensive solutions; [14] along with the Ministry of Climate and the EIC, the agency provides funding for Estonia's circular economy.[15]

[11] https://bioeast.eu/
[12] https://bioeast.eu/estonia-the-ministry-of-rural-affairs-of-estonia/
[13] https://ringdisain.ee/en/examples/accelerate-estonia-paving-the-way-to-green-economy-through-public-private-partnership/
https://garage48.org/blog/solving-wicked-problems-with-accelerate-estonia
[14] https://kredex.ee/en/who-we-are/estonian-business-and-innovation-agency
[15] Confirmed by the Ministry of Climate.

The Estonian Strategy Unit appears to be somewhat similar to Ireland's Climate Action Delivery Board.

Circular economy Lead Group

To support the development of the circular economy white paper, a Lead Group was established containing deputy secretaries from each relevant ministry. The objectives of this high level group include:

- create a systematic approach to the transition to a circular economy at the state level and to promote the development of focus areas through state policy-making.
- set the goals and focus of the development document [white paper] and action plan and to make decisions at the level of policy makers.
- the work of the lead group will continue after the completion of the circular economy development document [white paper] and action plan, including advising on related cross-cutting political and strategic issues, such as green agreement activities, banning of single-use plastics, etc.[16]

The Lead Group, which is coordinated by the Ministry of Climate and meets three to four times per year, represents a cross government governance structure in respect of the circular economy. The group does not have a specific monitoring role, but it is responsible for sharing information between the ministries and supports the development of a new circular economy website. This website is intended to improve awareness of sectoral involvement in the circular economy while also provide a roadmap to support the white paper's implementation.[17]

In addition, the Lead Group discusses and decides on matters relating to the bioeconomy.

Strategy Unit

An OECD review from 2017 states that Estonia does not have a special body tasked with 'horizontal environmental coordination' (OECD, 2017, section 2). However, the review does mention the Strategy Unit, within the Government Office, which supervises matters relating to sustainable development and green growth. This unit, which had 16 staff in 2021, supports and coordinates strategies and action plans and monitors their implementation.[18] The unit, in its policy coordination role, also promotes

[16] https://ringmajandus.envir.ee/en/lead-group
[17] Confirmed by the Ministry of Climate Action.
[18] https://www.sgi-network.org/2022/Estonia/Executive_Capacity

information-sharing between relevant ministries, government bodies and working groups. A representative of the Strategy Unit is a member of the Lead Group. The Strategy Unit appears to be somewhat similar to Ireland's Climate Action Delivery Board which provides strategic direction and monitors and supports the delivery of climate action policy.[19]

Circular Bioeconomy Advisory Body

The Ministry of Regional Affairs and Agriculture will establish a Circular Bioeconomy Advisory Body consisting of representatives of all relevant stakeholders (enterprises, academia, NGOs etc). With support from the BIOEAST initiative, it is hoped that this advisory body will be established soon.[20]

Circular Economy Capacity Research Project

The Environmental Agency is carrying out a research project, with a budget of just over €1 million, funded by the European Economic Area, entitled *Enhancing Circular Economy Capacity*. Activities relating to the project include:

- Mapping of the circular economy capacity of local governments and proposals to local governments
- Establishment of training programmes for officials, including environmental specialists
- Organising an international conference on circular economy and developing criterias for Green Public Procurement based on EU-level guidelines
- Development of a circular economy training programme and information days for teachers and a competition for schoolchildren
- Study trips of public sector employees in Estonia as well as to the project partner country Norway to exchange knowledge and experience
- Creation of electronic materials and video clips supporting awareness raising, information campaigns and updating of the website with information
- Information coverage of the activities of the predefined project in the media. [21]

[19] For more on Ireland's Climate Action Delivery Board, see https://www.gov.ie/en/publication/24f0c-climate-action-delivery-board/

[20] Confirmed by an official in the Ministry of Regional Affairs and Agriculture.

[21] https://keskkonnaagentuur.ee/en/enhanced-capacity-circular-economy

The Estonian Environment Agency is responsible for the overall coordination of the project, while the programme operator is the EIC and the activities are carried out in cooperation with the Ministry of Climate. As part of the project, circular economy roadmaps will be completed in 2023 for all of Estonia's 79 local municipalities.

3.4 Key governance points emerging

- Recent efforts by policymakers to develop the circular economy have resulted in the publication of a White Paper and an action plan, while a new website will help to grow public awareness of this area and provide guidance to stakeholders. The official coordination body, the Circular economy Lead Group of deputy secretary generals, provides important policy direction. The group plays a lead role in discussions and decisions in respect of the bioeconomy.
- An Estonian official, working on circular economy policy, reported no issues in terms of policy coherence. Policy states that the circular economy is a horizontal topic affecting all sectors. Due to the efforts of the Lead Group, many sectors see the circular economy as the common way forward. In addition, climate law is currently being prepared which will strengthen the circular economy legal framework.
- However, according to another government official, the number of goals, strategies and plans in respect of the green transition is problematic, even though their overarching objective is essentially the same. This can present coordination issues within and between the ministries. Furthermore, there is a low level of knowledge in society about the bioeconomy and a lack of specialists working in this area, while it seems that Estonian local government is under-funded and lacks the necessary human capacity.

In Estonia, it seems that opportunities to pilot or test new technologies or potential solutions are rather limited.

- In terms of projects and new approaches to promote the circular economy and the bioeconomy, an official spoke of key challenges with scaling up or extending innovative practice. In Estonia, it seems that opportunities to pilot or test new technologies or potential solutions are rather limited. This also applies to scaling up. Secondly, there is a shortage of skilled people in the field of innovation and technology; this is an issue that policymakers need to address in the education system. Thirdly, given the risks associated with innovation, it can be difficult to access the necessary funding. In addition, entrepreneurs make the criticism that it is difficult to clearly understand which policy direction the state is taking and what is expected of them; this ultimately creates uncertainties for entrepreneurs.
- Adapting the regulatory framework to better suit the needs of the bioeconomy was cited as important. In particular, changes at EU-level are needed (e.g., regarding state aid rules and rules for different EU funds) to support the introduction of new and innovative bio-based products into the market. There is also a need to update definitions (e.g., waste, including biowaste and by-products) and related requirements in respect of bioeconomy legislation.
- Regarding the monitoring of progress with the bioeconomy, policy-makers have had discussions on this matter; these have covered the development of indicators for policy targets and ways to monitor progress with the bioeconomy roadmaps. At EU-level, the Ministry of Regional Affairs and Agriculture engages with the Joint Research Centre's work on bioeconomy monitoring.[22]

[22] https://knowledge4policy.ec.europa.eu/bioeconomy/monitoring_en

CASE STUDY 4

Finland

4.1 Background context

Finland, officially the Republic of Finland, is a Nordic country in Northern Europe. Finland covers an area of 338,145 square kilometres with a population of 5.6 million. Finland had a general election in spring 2023. The National Coalition Party won the election with 20.8% of the national popular vote. The party went on to form a government with the Finns, Swedish People's Party, and the Christian Democrats.

Finland generates more than three million tonnes of municipal waste annually, with levels increasing over the past five years (European Environment Agency, 2022, p.3). The waste generation corresponds to 596 kg per capita in 2020, which is above the EU average of 505 kg/cap. The country relies strongly on waste incineration, its share increased to 58 per cent in 2020 (European Environment Agency, 2022, p. 3). In the same year, the rate of recycling was 42 per cent, with composting at 13.5% (European Environment Agency, 2022, p. 3). In 2020, the circular material use rate in Finland was 4.5 per cent.[23]

4.2 Policy framework

The world's first roadmap for the circular economy was published by the Finnish Innovation Fund, Sitra in 2016. The Sitra concept of the circular economy emphasises the role of individuals and enterprises, new kinds of partnerships, changes in attitudes and procedures, and development of the operating environment. The roadmap includes measures to develop the circular economy which stakeholders have committed to. The roadmap was updated in 2019[24] with 30 new measures.

[23] https://www.stat.fi/tup/kiertotalous/kiertotalousliiketoiminnan-indikaattorit_en.html
[24] Sitra website link: The critical move - Finland's road map to a circular economy 2.0 - Sitra

City of Porvoo, Finland

The world's first roadmap for the circular economy was published by the Finnish Innovation Fund, Sitra in 2016.

Promoting the circular economy has also been a government priority. The Finnish Government adopted a resolution on promoting a circular economy in April 2021. The aim of the Strategic Programme to Promote a Circular Economy is to transform the economy into one that is based on circular economy principles by 2035. The transition into a circular economy is also a step towards achieving the Government's carbon neutrality target by 2035.

The strategic programme to promote a circular economy sets out objectives for the use of natural resources. It specifies the measures to be taken and lines of responsibility. A broad spectrum of stakeholders such as different ministries and research institutes, in dialogue with companies, business sectors and local government, participated in the process to prepare the resolution. In addition, all citizens had an opportunity to participate in the preparation of the programme through an online brainstorming platform.

The core objectives of the Programme are a decrease in the consumption of non-renewable natural resources, with a comparable increase in the use of renewable natural resources to a point that total consumption of primary raw materials will not exceed the level in 2015, while the circular material use rate will double by 2035. Measures are identified in respect of six areas:

- Circular economy incentives
- Circular economy market
- Circular economy in key sectors
- Circular economy innovations, digitalisation and competence
- Foreign policy and the Circular economy
- Monitoring progress of the Circular economy.

Progress in respect of the circular economy is monitored by Statistics Finland. Consistent with the concept that transition to a circular economy requires comprehensive system change, they identify the need for development across all product and service value chains. To support understanding, the circular economy is presented as a set of activities that are pivotal from the perspective of a product or service life cycle. There are eight activities, which encompass a total of 18 indicators. These are set out in the figure, opposite.

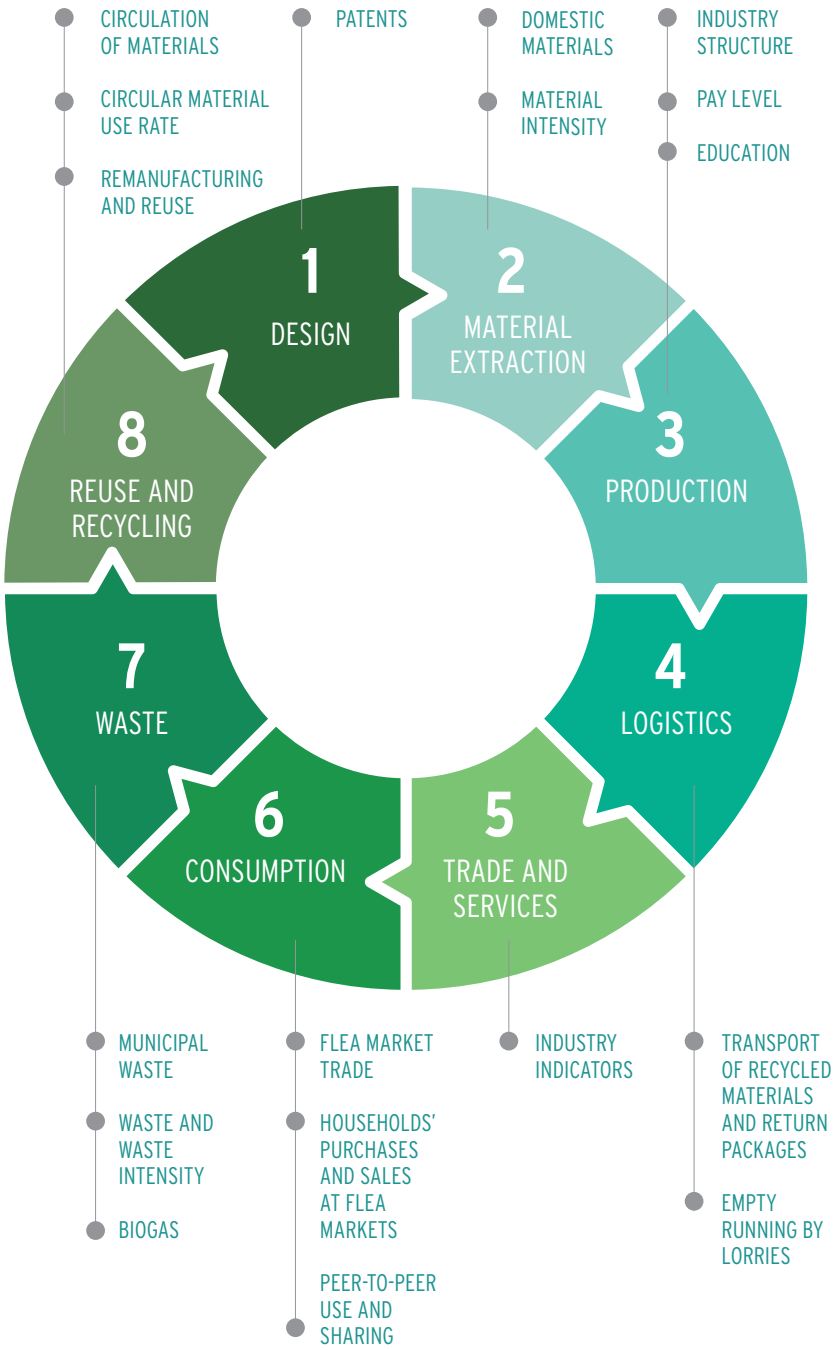
Statistics Finland produced the indicators describing the circular economy for the first time in 2020.[25] The aim was to produce indicators describing the extent and development of the business activity of the Finnish circular economy. The indicators are mainly based on statistical data collected for other purposes and they can be updated annually. The indicators were updated in December 2022.

Bioeconomy

Finland has its own bioeconomy strategy. The Finnish Bioeconomy Strategy was developed by the Ministry of Agriculture and Forestry, the Ministry of Employment and the Economy, and the Ministry of the Environment, with the collaboration of the Ministry of Education and Culture, Ministry of Social Affairs and Health, Ministry of Transport and Communications, Ministry of Finance, Prime Minister's Office. The Finnish Bioeconomy Strategy was initially published in 2014. An updated version of the strategy was published in 2022 and extends to 2035.

[25] https://www.stat.fi/tup/kiertotalous/kiertotalousliiketoiminnan-indikaattorit-2020_en.html

The eight activities and associated indicators that measure Circular Economy activity in Finland.



Source: Statistics Finland
https://www.stat.fi/tup/kiertotalous/kiertotalousliiketoiminnan-indikaattorit_en.html

The stated vision of the new strategy is "sustainably towards higher value added".

The premise for the collaboration around the updated strategy was a recognition of the need to emphasise the bioeconomy's huge potential to deliver co-benefits. In other words, supporting just social and environmental outcomes, while also delivering economic value. The stated vision of the new strategy is "sustainably towards higher value added" (Ministry of Agriculture and Forestry, et al., 2022). This theme is also prominent in the EU's Bioeconomy Strategy, published in 2018.

The measures in the Bioeconomy Strategy are divided under four headings: (1) higher value added from bioeconomy, (2) a strong knowledge and technology base, (3) a competitive operating environment and (4) usability and sustainability of bioresources and other ecosystem services. The strategy also includes sector-specific measures. Other measures particularly aimed at industry include implementing an RDI programme for the green transition of the bioeconomy, and promoting the establishment of innovative pilot and demonstration facilities and the first industrial-scale plants in Finland. Regions are also encouraged to formulate their own action plans for the bioeconomy.

The impact of the Finnish Bioeconomy Strategy is monitored through a set of statistics produced in cooperation between the Natural Resources Institute Finland and Statistics Finland. The indicators for monitoring the implementation of the strategy's key objectives are the bioeconomy's value added, investments, export of goods, and levels of employment. In 2021 the bioeconomy was worth €27 billion or 12 per cent of the national economy.[26] The Ministry of Economic Affairs and Employment is tasked with monitoring the impact of the strategy. This will be assessed in 2024 and subsequently during each government term.

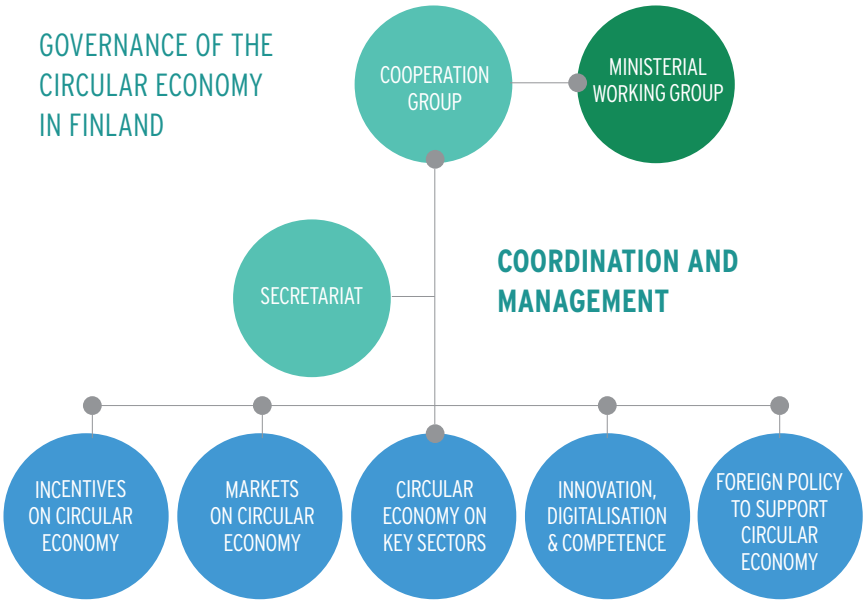
4.3 Institutional framework

A multi-stakeholder steering group (the Cooperation Group) for the Circular Economy Programme has been established. The group consists of representatives from various ministries, sectoral organisations, research institutes, environmental groups and Business Finland. The steering group is responsible for and coordinates the implementation of the programme. For each of the programme's measures, the ministry with lead responsibility and other agencies and actors with

[26] https://www.luke.fi/en/statistics/indicators/bioeconomy-innumbers#more-information

commitments are identified. The group is chaired by the Permanent Secretary of the Ministry for the Environment. On completion of the current term for the Cooperation Group, a new group is due to be appointed at the start of 2024. The new group will focus on leading and monitoring Finland's Circular Economy Green Deal. This is a voluntary initiative which aims to encourage greater synergies between the circular economy and a low carbon emissions economy. [27]

The cooperation group reports to the Ministerial Working Group on Climate and Energy Policy a few times a year. The ministerial working group on clean energy, the environment and security of supply is tasked with guiding and directing the implementation of the Government Programme with regard to climate, environmental and nature policy, clean energy and energy transition. It includes the Ministers for Climate and the Environment (Chair), Agriculture and Forestry (Vice-Chair), European Affairs, Transport and Communications, Economic Affairs, and Employment.



NATIONAL KNOWLEDGE NETWORK ON CIRCULAR ECONOMY (FINNISH ENVIRONMENT INSTITUTE & MOTIVA LTD.)

[27] https://ym.fi/en/circular-economy-green-deal

The Finland Environment Agency also plays an important role in particular in respect of education and citizen awareness of the Circular economy and Bioeconomy.

The Finnish Bioeconomy Strategy will be implemented in cooperation by several ministries. The Ministry of Economic Affairs and Employment coordinates the work as the responsible ministry. While there has bee some delay in establishing governance structures, occasioned by the change of government in summer 2023, it is anticipate that the Ministry of Economic Affairs and Employment will appoint a steering group and a secretariat to progress the action points in the Strategy.

The Finland Environment Agency also plays an important role in particular in respect of education and citizen awareness of the circular economy and bioeconomy. Local government are responsible for organising the collection and management of municipal waste. It is the duty of municipalities to set municipal regulations, organise separate collection and recycling, as well as treatment of mixed wastes, bio-waste and other wastes using other instruments such as payment schemes, define waste fees based on the pay by use principle, and provide waste guidance (including waste prevention guidance) for households (European Environment Agency, 2022).

Sitra (Finnish: Suomen itsenäisyyden juhlarahasto), the Finnish Innovation Fund, is an independent public foundation with a mission of supporting a fair and sustainable Finnish economy and society. It functions both as an investment company and a think-tank with much of their research being future oriented. Sitra was founded in 1967 as a part of the Bank of Finland, on the country's 50th anniversary. Sitra's operational independence is supported by the fact that they report to the Finnish parliament rather than direct to government. Its funding model also enhances its independence as its annual budged is derived from the profits of its endowment. Sitra also has statutory recognition, with its duties set out in legislation.

4.4 Key governance points emerging

- Finland is the first country in the world to set a quantitative target for the use of natural resources. Under the Circular economy Programme there is a commitment that total domestic consumption of primary raw materials will not exceed the 2015 level in 2035; resource productivity will double from the 2015 situation by 2035; and the circular material use rate will double by 2035. The progress of the circular economy is monitored using indicators for the circular economy produced by Statistics Finland.

- Defining the circular economy in terms of statistics was one of the key aims of the report, because the circular economy is new as a statistical topic and prior to this report it had not been examined thoroughly from the perspective of regular statistics production. Measuring and monitoring indicators is essential for understanding the circular economy and for developing solutions.
- For both the circular economy and the bioeconomy, cross government working groups are being established to oversee implementation of policy. To implement and integrate these targets, a Circular economy Green Deal Programme has been established. This initiative involves comprehensive collaboration between key ministries, businesses, organisations, experts, and scientists working together toward the common goal of a low carbon circular economy.
- Ongoing implementation of policy can be impacted if a policy or strategy has strong political associations. Following a change of government, it can take time to re-position and re-establish policy objectives.
- The implementation of any strategy or policy is defined by the available resources.

Central Finland

CASE STUDY 5

Flanders

5.1 Background context

Belgium is a small federal country with four levels of government: federal, regional, provincial and municipal. The three regions (Flanders, Wallonia and Brussels Capital Region (BCR)) are largely autonomous and have their own legislative and executive bodies. Flanders is divided into five regions, with 300 municipalities. The regions are responsible for most matters related to environmental protection. The federal government is responsible for issues such as nuclear safety, product standards, protection of the territorial sea and co-ordination of Belgium's international environmental policy. It also has residual competence for all matters not explicitly allocated to the regions or communities.

The federal government and each region have their own environment minister. Each region also has a competent administrative authority responsible for the environment. The regions delegate significant authority to local authorities, including land-use planning and environmental services (water supply, wastewater and municipal waste management). The provinces are also active in facilitating inter-municipal co-ordination. In Flanders, the provinces have limited regulatory responsibilities in the fields of nature protection and spatial planning. Municipalities and provinces also play an important role in issuing environmental and urban planning permits. Local governments are associated in unions of cities and communes, which promote sustainable development as a key objective.

5.2 Policy framework

In Flanders, the Materials Programme was established in 2011 with three main areas of action: a circular economy hub (Plan C) to develop a long-term vision; scientific research, led by SuMMa (the Policy Research Centre for Sustainable Materials Management); and a set of 45 projects involving public and private organisations.[28] A review found the Materials

[28] https://www.ellenmacarthurfoundation.org/circular-examples/belgium-flanders-materials-programme

Atomium, Brussels

Programme provided a 'unique meeting place for policy makers, researchers and entrepreneurs' working on the circular economy, with high-level representation and a focus on short-term projects. In practice, however, engaging stakeholders beyond their core business and interests proved difficult. While the programme carried out many actions, work was fragmented, and results were not shared to develop common understanding (Courtois, 2017, p. 48).

As a next step in circular economy policy, and partly in response to limitations in earlier policy, the Flanders government developed Vision 2050, published in 2016. This policy document identifies the transition to a circular economy as one of its seven transition priorities: circular procurement, circular cities and circular businesses were its three action areas for the circular economy. The Flemish Energy and Climate Plan 2021-2030 links climate and circular economy objectives and aims at a material footprint reduction of 30 per cent by 2030.

5.3 Institutional framework and governance

Significant elements in the governance arrangements for the circular economy in Flanders are outlined here.

Bruges, Flanders, Belgium

The Circular Construction Strategic Agenda of Circular Flanders is led by the Confederation of the Construction Industry and OVAM.

OVAM [29]

In Flanders, waste management, soil remediation and the transition towards the circular economy is the responsibility of OVAM (Public Waste Agency of Flanders). OVAM is a government agency falling under the Flanders Minister of the Environment and was established in 1981. This independent agency leads policies, initiatives and projects for waste management and soil remediation. Since the introduction of the 2011 Materials Programme, OVAM has led on the transition to the circular economy.

Circular Flanders [30]

Circular Flanders, formed in 2017, brings together regional government bodies – including OVAM, the Department of Environment and the Department of Economy, Science & Innovation – as well as universities, research organisations and industry associations, with the aim of ensuring Flanders' transition to the circular economy by 2050. The Government of Flanders appointed the OVAM as the initiator of Circular Flanders. The operational team, which is responsible for the day-to-day work, is embedded in the OVAM. Circular Flanders was the result of the merger of Plan C, the Flanders' Materials Programme and SuMMa (sustainable materials management policy research centre). Its first two-year work-plan was structured around three strategic themes: circular procurement, circular cities, and circular businesses (Circular Flanders, 2019). The centrepiece of work in the first area was the Green Deal Circular Purchasing project. Towards the end of its first period of operation, up to the end of 2019, a review took place, and a government decision made to move the work of Circular Flanders from trials to scale-ups and generalising best practices.

In 2021, Circular Flanders implemented a new governance structure based on a policy liaison between the Ministers of Environment and the Economy and Innovation, with the objective of scaling up efforts. A steering group with 20 core partners was established, with members from the entire 'societal pentagram': government, private industry and business, civil society, knowledge institutes and the financial world.

[29] https://ovam-english.vlaanderen.be/about-ovam
[30] https://vlaanderen-circulair.be/en

Guided by a steering group, the operational governance is structured around six strategic agendas, in line with the priorities of the EU Green Deal: circular construction; chemistry and plastics; water cycles; bioeconomy; food chain; and manufacturing. The project leads of the strategic agendas operate under the overview of the Circular Flanders Transition Manager to harmonise their efforts and learn from each other. The Circular Flanders coordination team remain part of OVAM.

Each strategic agenda is an autonomous partnership between a public and private coordinating entity. They formulate plans, set out implementation strategies, and implement action on the ground. For example, The Circular Construction Strategic Agenda of Circular Flanders is led by the Confederation of the Construction Industry and OVAM. A public-private duo with the Department of Economy, Science and Innovation and REO Auction lead the Circular Flanders Strategic Agenda for Bioeconomy.

The European Environment Agency (2022) found that the governance structure of a public-private partnership has proved to be a successful way of breaking borders between government and industry and assuring social inclusion in the transition to a circular economy, while maximising the speed of its adoption by different levels of society. The public-private partnership model ensures greater reach, impact, and faster bi-directional feedback loops between government and industry (on, for example, policy barriers faced by private partners, and obtaining a direct view on upcoming legislation and strategy preparation).

A Circular State of the Union event is organised annually, through which circular economy progress in various fields is presented to stakeholders and the public, combined with renewed calls to action, setting the scene for the year ahead. With over 500 participants and more than 100 companies involved, this event stimulates wide interest and increases community-building.

CE Center Flanders [31]
The Circular Economy Policy Research Center (CE Center), a part of Circular Flanders, was established to streamline the research into policy

[31] https://ce-center.vlaanderen-circulair.be/en

Each strategic agenda is an autonomous partnership between a public and private coordinating entity.

measures for the circular economy in Flanders. The CE Center unites researchers from the KU Leuven, Ghent University, the University of Antwerp, and VITO, a research organisation. They will continue to build upon the research results from the previous SuMMa centre, which was active from 2012 to 2016. The OVAM and the Department of Economy, Science and Innovation (EWI) co-finance the CE Center.

Circular Economy Monitor Flanders [32]

To measure the CE in Flanders, OVAM together with the CE Center have developed a Flemish CE Monitor, launched in November 2022 after 5 years of research. Circular Flanders funds and manages the online monitor. It provides indicators on macro- and intermediate levels as well as figures for specific product groups, showing progress towards a CE for Flanders. The macro-level indicators provide insights into the consumption of materials, water, soil and space, and the emissions this produces. On the intermediate level, the CE monitor measures four systems of need for the economy – housing; food and water; consumer goods; and mobility. Finally, the macro- and intermediate layers are complemented by figures for specific product groups and services. Each indicator has been carefully selected and validated by scientific analyses by the CE Center. Results have been systematically made available in both academic publications and other outputs aimed at the general public. All indicators are visually attractive and are publicly available.

The CE Monitor combines data from several sources:

- The CE Center, which built the framework and coordinates the implementation and updates of the monitor.
- OVAM provides relevant indicators from its field of expertise.
- The Department of Economy, Science and Innovation provides feed back and data.
- On behalf of the CE Center, VITO has provided an update of some key circular economy indicators on the basis of the most recent data.
- Within each system of need, numerous organisations and government bodies have figures on individual sub-aspects. For example, MIRA (Environmental Outlook Flanders) with regard to data on emissions.

[32] https://cemonitor.be/en/about/about-this-monitor/

About four times a year, the participants in the Green Deal gather to consider presentations on Flemish and foreign cases.

Local government

The Flemish region consists of five provinces (Antwerp, Flemish Brabant, West Flanders, East Flanders and Limburg) and 300 municipalities. These cities, towns and municipalities play a key role in the local implementation of European, federal and regional policies on waste, material, soil, space and circular economy. Good co-operation between the region and the municipalities is essential. The Association of Flemish Cities and Municipalities (VVSG), represents all 300 Flemish municipalities and cities. Interafval is a partnership of Flemish inter-municipal waste companies. It is legally mandated, together with VVSG, to operate and steer local waste management. [33]

At local level, city governments have launched circular economy initiatives. Antwerp, for example, is developing a circular economy strategy and has focused on using artificial intelligence to identify actions in the energy and building sectors (OECD, 2019). Mechelen has refurbished an old industrial site, De Potterij, for circular economy businesses. It also participates in an EU project, CECI, to support citizen involvement in the circular economy.

Green Deal Circular Construction

The Green Deal emphasises that a combination of practice and learning is at its core. The more than 300 participants start experiments and bring their accumulated knowledge and experience together in a learning network. Tools, methodologies and new forms of cooperation are tested. In addition, a research group is making a concerted effort to develop the so-called preconditions to a circular economy, i.e. the legal, economic and other barriers to be faced and tackled along the way. Data and experience from the experiments feed into this research and the formulation of solutions.

About four times a year, the participants in the Green Deal gather to consider presentations on Flemish and foreign cases. Concrete issues that the participants put forward, such as tools and measuring instruments, are worked on over the course of this event. The point is to work as a team to find out what the transition to a circular economy implies for the construction sector. Participants in the Green Deal Circular Construction must:

[33] See https://ovam-english.vlaanderen.be/institutional-framework

- carry out at least one pilot project during the term of the Green Deal – possibilities include carrying out a construction project, offering a site, carrying out research, offering circular products or services, developing circular materials, facilitating circular building processes, etc.
- actively participate in the learning network through which knowledge and experience is exchanged with the other participants.
- agree that the researchers of the Circular Building living lab should have at their disposal all relevant data, results and lessons from the pilot projects.
- take the necessary steps to structurally embed the principles of circular construction in their own organisations.

5.4 Key governance points emerging

- The policy framework provided by Vision 2050 is important in providing policy coherence. Circular economy policy is clearly linked to related policy areas such as industry policy, lifelong learning and social cohesion. The Flemish Energy and Climate Plan 2021-2030 linking climate and circular economy objectives similarly links and grounds circular economy policy with a key issue of current concern, giving a sense of priority and urgency.
- The cross-agency initiative Circular Flanders, coordinated by OVAM, provides a clear institutional 'home' for driving circular economy actions. After early pilot initiatives, the need to move from trials to scale-ups and generalising best practices was recognised as a priority for Circular Flanders.
- The governance arrangements for Circular Flanders are clearly structured around the six identified strategic agendas, giving a focus for activities. Public-private partnerships are seen as important to ensuring action across the strategic agendas.
- The Circular Economy Policy Research Center (part of Circular Flanders) aims to ensure that research carried out across third-level institutions and state agencies is coordinated and linked to priority agendas.
- The Circular Economy Monitor is an important initiative in terms of public reporting and communications on progress towards the desired outcomes of circular economy policy. An emphasis on outcome indicators, such as modal split of transport, employment in the circular economy, and material footprint of the building stock, provides a sense of the degree of progress being made or not.
- Local governments are encouraged to develop circular economy initiatives.
- Green Deal Circular Construction provides an interesting model of encouraging learning and knowledge transfer.

CASE STUDY 6

Scotland

6.1 Background context

Scotland is one of the four administrations within the United Kingdom of Great Britain and Northern Ireland - England, Scotland, Wales and Northern Ireland. It has a devolved government with a range of responsibilities that include: the economy, education, health, justice, rural affairs, housing, environment, transport and taxation. Some powers are reserved to the UK Government, including immigration, foreign policy and defence. The interaction between reserved and devolved powers means that some elements of the circular economy require joint approaches with UK administrations. It must also align with evolving EU policy given the impact with international supply chains.

The Scottish First Minister is formally nominated by the Scottish Parliament following an election and is then appointed by His Majesty the King. The First Minister leads the Scottish Government with the support of cabinet secretaries (the senior ministers who make up the Scottish Cabinet) and ministers (who are equivalent to junior ministers in the Irish administration). Scotland has thirty-two local authorities which provide a range of services such as education, care, waste management, culture and planning.

Zero Waste Scotland (ZWS), in collaboration with Circle Economy,[34] released a report in April 2023 on the circularity gap in Scotland. It is the first ever quantitative analysis of the state of the circular economy in Scotland. The report analyses material flows, calculating all the raw materials used to make products and all the finished products consumed, both home-made and imported. It shows that only 1.3% of the resources Scotland uses are cycled back into the economy, with over 98% material use coming from virgin resources. The report also sets out seven scenarios that together could cut Scotland's carbon and material footprint by approximately 43% and bring its circularity rate to 11.8% (Circle Economy and Zero Waste Scotland, 2023).

[34] https://www.circle-economy.com/

The Bioeconomy in Scotland is treated as one element in the larger circular economy, rather than a distinct policy area.

6.2 Policy framework for the circular economy

Scotland produced its first dedicated circular economy strategy *Making Things Last* in 2016. It identified four sectors – food, drink and bio-economy; remanufacturing; construction; and energy infrastructure - as priorities. Scotland's 2018 Climate Change Plan has a section dedicated to circular economy, setting actions and milestones for society, business and local administrations to engage in circular dynamics by 2030 and achieve full circularity by 2045.

Scotland's Programme for Government 2021-22 included a proposal for a Circular Economy Bill that would help to reduce the demand for raw materials, make products that last as long as possible and support reuse, repair and recycling. The Circular economy Bill was introduced to Parliament in June 2023, following a public consultation that took place during 2022. The latter was complemented by a parallel consultation process on developing a route map to deliver on Scotland's zero waste and circular economy ambitions.

The consultation document, published in May 2022, includes 2018 data on the country's progress towards 2025 waste and recycling targets, from a 2011 baseline. Headline figures include little or no change in food waste reduction on a 33% target, 45% recycling of household waste against a 60% target, 61% recycling of all waste managed in Scotland against a 70% target and a 4% reduction in all waste arisings against a 15% target. Progress had also slowed in greenhouse gas emissions reduction, requiring new and boosted policy measures to ensure a speedier transition to net zero and a full circular economy (Scottish Government, 2022).

The Scottish Government's proposals include a ban on single use plastics, a deposit-return scheme for single-use drinks containers, a reduction in food waste, improved recycling of commercial waste and extended producer responsibility schemes, among others. There is a specific proposal to embed circular construction practices through

Edinburgh, Scotland, United Kingdom

Zero Waste Scotland is the Government's main agent in its drive for a circular economy.

working with the construction industry, promoting the reuse of construction materials and accelerating action to reduce construction and demolition waste. Cross-cutting measures will include a duty on ministers to develop (or renew) five-year circular economy strategies for their own policy areas, developing an improved approach to data on the movement of materials and products through the economy, sustainable procurement, improved training and gathering robust evidence to evaluate progress.

The Bioeconomy in Scotland is treated as one element in the larger circular economy, rather than a distinct policy area. As elsewhere, it has significant potential. For example, ZWS estimates that Scotland's bioeconomy produces more than 10 million tonnes of organic surplus every year, which could be used as valuable feedstocks for bio-based processes from food and feed ingredients to bio-based materials that can replace petrochemicals. They calculate that a more circular approach to Scotland's beer, whisky and fish sector by-products alone, could generate 500-800 million pounds sterling per year.

6.3 Institutional framework and governance

Zero Waste Scotland is the Government's main agent in its drive for a circular economy. It was established in 2010 and was originally managed by the UK-wide "Waste and Resources Programme" (WRAP) on behalf of the Scottish Government. In 2014, it became an independent company - a not-for-profit environmental organisation - funded by the Scottish Government. Zero Waste Scotland now falls within the same operating framework as a Directorate public body in terms of budget, planning, finance and procurement. Discussions are currently underway on transitioning ZWS to agency status.

Its role is to inform policy and motivate individuals and businesses to move towards a sustainable economy. It encourages respect for limited natural resources, responsible production that extends the life of products and services and maximises the value of material currently considered as waste. ZWS are also active in the areas of capacity building, awareness raising and investment decisions that are based on circular thinking.

SEPA is the Scottish Environment Protection Agency, established in 1996 by the Environment Act 1995 and is responsible for the protection of the natural environment in Scotland. In 2016, SEPA produced a waste and resources framework – One Planet Prosperity - detailing its approach to waste and resources. It proposes to deliver through its broader regulatory strategy, its influencing role and partnerships (including with Zero Waste Scotland) and to develop and report on dedicated performance measures to demonstrate progress. Specifically, it aims to influence and implement Scottish Government policy, influence local authority planning policy, drive and support sustainable resource use, administer producer responsibility schemes and support the collection of landfill tax. SEPA also manage Scotland's Environment Web which is a shared hub for environmental information and data.

Local government has a significant role in delivering on circularity – in particular regarding waste management. Local authorities are responsible for waste collection across Scotland. Incentivisation of waste reduction and recycling is somewhat challenging as customers are not directly charged for waste collection and treatment; such services are financed through a combination of council taxes and central government grants. Reduction and recycling are instead encouraged through a combination of specific waste bin sizes, collection rates and clear guidelines for householders.

6.4 Key governance points emerging:

- Zero Waste Scotland play an important role in capacity building, awareness raising and investment decisions that are being made and informed by circular thinking. They are in the process of evolving from a wholly funded independent body to a government agency.
- Zero Waste Scotland interact with stakeholders across government in an effort to ensure a collaborative approach to implementing the Circular economy; however, further work in this regard is required.

- A number of high-profile circular economy initiatives and pilot projects have been very valuable in raising public awareness but in order to increase circularity rates there is a need for a whole of government approach. It was initially considered that the business sector could lead on many of the challenges in terms of driving change in the economy. However, there is increasingly an understanding that cross-government, cross-sector and relevant public-private groups and agencies need to be brought together for a joined-up approach that might better unlock innovation.
- The imminent enactment of the Circular Economy Bill by the Scottish parliament should create the conditions for a further expansion of Scotland's ambitious plans for a zero waste, fully circular economy.

South Portland Street Suspension Bridge in Glasgow, Scotland

7

Conclusions

The research findings presented in the five case studies in this report point to a range of conclusions from a governance perspective. The circular economy and bioeconomy are new and evolving policy areas. Good governance is essential to achieving better implementation of policy. Public governance relates to the processes, procedures and institutions involved in public management (Hughes, 2023).However, it also encompasses delivery and outcomes. According to the OECD, 'governance is about meeting the needs of, and improving outcomes for citizens' (OECD, 2020).

The OECD (2022) highlight the importance of having a whole of government strategy and vision for the circular economy and bioeconomy, underpinned by legislation. This evidence from these case studies concurs with this conclusion, with some form of whole of government statement critical to achieving the cross-government collaboration necessary to deliver on policy objectives. Some countries, for example Denmark and Scotland, have incorporated the bioeconomy into their circular economy strategy. While this ensures the two related policy areas are linked together and also is attractive from the perspective that many of the same government and non-government actors are involved in both policy areas, there is perhaps some danger of the bioeconomy not achieving significant prominence.

Overall, across the countries reviewed, there is less evidence of focus on the bioeconomy as compared to the circular economy, with only Finland having a dedicated bioeconomy strategy, which actually pre-dates its circular economy strategy. However, the importance of a coordinated approach both in the development of strategies and their implementation was made by one Estonian research participant who commented on the multiplicity of strategies and action plans all broadly linked to the objective of sustainability and the 'green transition', and consequently the risk of duplication of effort and confusion.

Developing action plans or road maps that include measures to support the implementation of the circular economy is common across the countries reviewed. These are typically led by the Ministry of the Environment though in Estonia regional circular economy roadmaps are developed by local government. Indicators to monitor progress in respect of actions identified in action plans and ultimately to review progress towards a circular economy should be prominent within plans. In Finland, Statistics Finland have played an important role in identifying indicators for both the circular economy and the bioeconomy. In Flanders, the development of a Circular Economy Monitor encompasses similar indicators. Developing and monitoring indicators is essential for understanding the circular economy, reviewing progress and where necessary, identifying new approaches.

Ensuring a whole of government approach to the circular economy and bioeconomy is also shown to be supported by cross government working groups. The Lead Group on the circular economy in Estonia was established to ensure a systematic and coherent approach in the development of their circular economy action plan. The group, which is at senior management level, and meets approximately once a quarter is going to continue meeting to ensure ongoing collaboration. In Flanders, the cross-agency initiative, Circular Flanders, coordinated by OVAM, the Public Waste Agency of Flanders, brings together the Department of Environment, the Department of Economy, Science and Innovation, together with regional government bodies, research institutes and industry associations, with the aim of supporting Flanders' transition to a circular economy by 2050. The governance arrangements for Circular Flanders are clearly structures around six identified strategic agendas, giving a focus for activities.

Across the case studies local government is regarded as central to efforts to transition to a circular economy. First and foremost, local government has responsibility for delivering services in respect of waste management, waste collection and recycling, but also the countries

reviewed recognise local government's capacity to engage with citizens in raising the profile of the circular economy. In Estonia, the provision of circular economy training to local government officials has helped support them in their engagement with citizens and businesses.

Beyond local government, organisations like Zero Waste Scotland, Sitra in Finland or the Circular Economy Monitor in Flanders have also been prominent in raising public awareness in respect of the circular economy. Sitra values its independence from government, reporting to the Finnish parliament. Zero Waste Scotland is wholly funded by the Scottish government and is in the process of becoming a government agency. Both Sitra and Zero Waste Scotland are also prominent in carrying out and commissioning research to support the Circular economy. In Flanders, the Circular Economy Policy Research Centre aims to ensure that research carried out across third-level institutions and government agencies is coordinated and linked to priority agendas.

Engagement with non-government stakeholders is recognised as essential in developing good policy and achieving real support for policy implementation. However, it is important that stakeholder forums or advisory groups have a clear terms of reference and a sense of purpose otherwise, as was the case with Denmark's Bioeconomy Panel, they risk becoming dormant.

In conclusion, it would appear that across the five countries surveyed implementing policy and progressing outcomes in respect of the circular economy and bioeconomy is challenging. It takes time to develop the necessary whole of government position and commitment. While many good research initiatives and pilot programmes are in place within each of the countries, scaling up or extending innovative practice is a challenge. Finally, and as noted by a Finnish contact, available resources define what can be done.

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