Embedding Circular Economy

An Outline Framework to Support Local Authorities

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Contents

1 Introduction

This document has been produced to help local authorities embed circular economy into their own operations, their wider cities / districts / regions and to realise the opportunities and benefits of a circular economy.

The production and consumption of products and materials accounts for roughly four fifths of Scotland's carbon footprint, which includes the heat and energy required to grow, make, process, transport and provide them[1].

We import roughly half of these products and materials from countries overseas, where the impact on biodiversity, habitat and water security can be significant. As well as linking to carbon emissions, the linear economy also creates environmental, economic and social challenges associated with supply chain management, material flows, pollution, transportation, loss of value, and waste management, among others.

The transition to a circular economy, where everything has value and nothing is wasted, will require us to move away from overconsumption towards responsible consumption,

Diagram 1 Circular Economy diagram created by Circular Flanders
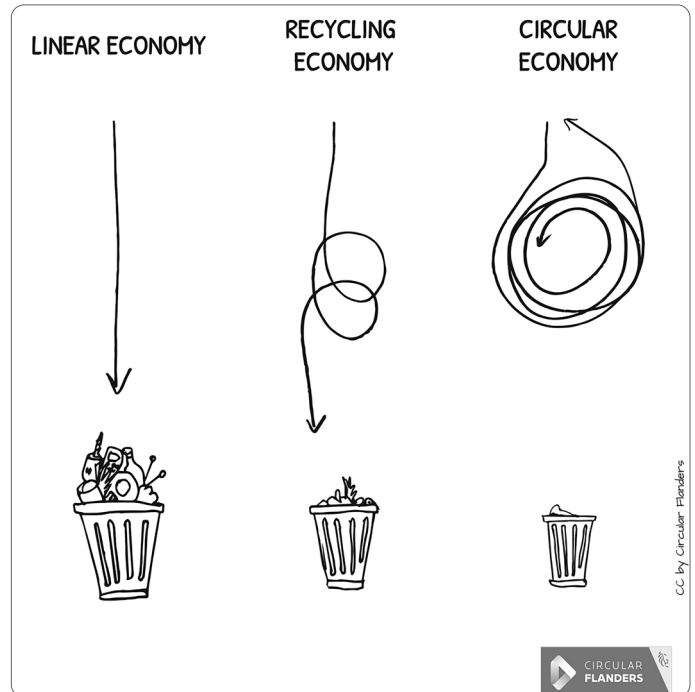
where everyone demands products and services in a way which respects the limits of our natural resources. It will also require responsible production by ensuring businesses that supply products and services get the maximum life and value from the natural resources used to make them.

By keeping products and materials in circulation in a high value state of use for as long as possible, organisations can grow and diversify while mitigating the risks of the climate emergency. In this system, nothing goes to waste – it all stays in a loop.

[1] Scottish Government (2021) Scotland's carbon footprint: 1998-2017

This document sets out:

1. The role of circular economy in tackling climate change and delivering net zero

As demonstrated from the findings of the [Circularity Gap Report](#), [Scotland's Circularity Gap Report](#), [Scottish Material Flow Accounts (MFA)](#), and [Scotland's carbon footprint: 1998-2017](#)

2. Key principles in a circular economy

- A collaborative and integrated approach
- Embracing change and fostering innovation

3. Circular economy opportunities and examples

- Including: improved resilience and relationships; reduced costs, spending, environmental impact, and risk; creation of upskilling and job opportunities.
- Example strategies, route maps and projects including: OECD, Glasgow City Council, Scottish Cities Alliance, Aberdeenshire Council, Amsterdam, London, and the Circular Cities Declaration.

4. The role of local authorities in embedding circular economy[2]

Promoter	acting as a role model, providing clear information and establishing goals and targets
Facilitator	facilitate connections and dialogue and provide soft and hard infrastructure for new circular businesses
Enabler	create the enabling conditions for the transition to a circular economy to happen

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[2] OECD (2020) "The Circular Economy in Cities and Regions: Synthesis Report"

The report is intended to provide local authorities with guidance in addressing some of the specific challenges outlined and it takes into consideration the wider context and broad challenges that local authorities experience. Deliberately, it does not provide a standardised system of integration or a series of steps to embed circular economy since each situation is nuanced and requires a bespoke solution, however it will help to guide thinking and inspire action.

This is a live document which will be periodically updated based on further pilots and learning.

2 The Circular Economy

The circular economy represents a fundamental shift in our economic system and the way we manufacture, use and view materials and products. It requires new business models, new ways of working and changes in how we live our lives in order to:

1
Design out waste and pollution

2
Keep products and materials in use

3
Regenerate natural systems

By embracing new technologies, new materials, and system / product design, it is possible to prevent waste and pollution from arising in the first place. It is important that this kind of thinking is normalised and integrated at an early stage of any design process.

Where resources are used to create products, it is important to think about how that product, its component parts and finally its component materials can be kept in use and circulating in the economy.

"Instead of simply trying to do less harm, we should aim to do good. By returning valuable nutrients to the soil and other ecosystems, we can enhance our natural resources."[3]

Despite its critical importance to achieving net zero[4], the circular economy and how it links to carbon emissions, is not well understood. This is in part due to its breadth and complexity. The concept is often associated with waste and resource management, and while these are important elements, circular economy is more holistic - a cross-cutting, whole-system approach.

It touches on all aspects of our economy and society from material extraction and product design to logistical operations and business models, to consumer behaviours and culture.

Further detail on the link between the circular economy and net zero has been provided at Appendix 2.

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[3] Ellen MacArthur Foundation (2017) "What is the Circular Economy" https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy
[4] See Appendix 2 for more information

2.1 Circular Economy opportunities

The circular economy presents numerous benefits and opportunities for communities, public services, businesses (from all sectors), and the environment in Scotland. These could include:

Improved resilience	Upskilling and reskilling
Reduced spending on raw materials	Creation of local job and business opportunities
Reduced operating costs	Reduction in waste costs
Strengthened relationships with employees, partners, suppliers, and customers	Reduction in adverse environmental impacts and mitigation of biodiversity loss
Alleviation of potential raw material and / or product supply risks	Support for carbon reduction and net zero ambitions
Community wealth building and social inclusion	Restoration and regeneration of bio-systems
Opportunities for innovation and efficiency (e.g. new products, technologies, services, service models, etc.)	

There are also specific benefits for local authorities, including (but not limited to)[5]:

The ability to reuse existing assets, saving costs on disposal and reducing waste	Potentially lower building operating costs by considering long term management at the design stage
Reducing cost through equipment reuse and sharing	Reduced costs through life extension of materials and products

3 How local authorities can drive the transition

Local authorities have a crucial role to play in leading the circular transition. The scale of the impact they can have in their local area cannot be underestimated due to their role and influence in:

- Local employment and economy
- Delivery of public services
- Investment
- Procurement
- Planning
- Trading standards
- Leading and shaping strategic direction (including climate emergency declarations, net zero agenda and targets).

- Engaging and collaborating with local stakeholder networks
- Local health and wellbeing
- Ecological protection and enhancement

Furthermore, with responsibilities in key sectors such as transport, planning, education and resource management, and their proximity to and responsibility for, the needs of residents, visitors and businesses, authorities are well placed to drive the transition both internally and externally.

A selection of relevant strategies, route maps and projects has been provided at Appendix 3.

3.1 Enabling principles

Transitioning to a circular economy will require investment and resourcing, not just from local authorities, and success is dependent on the adoption of two enabling principles: a collaborative & integrated approach and embracing change & fostering innovation.

Collaborative and integrated approach

Embedding circularity is about changing our whole economic system, from product design and manufacture to consumer behaviour and choice, from industrial symbiosis and synergies to public procurement. It touches on all aspects of local authority activity and for it to be fully embedded, it must be viewed holistically. This requires integration into all sectors and all activities.

Collaborative working across and within organisations is crucial to the transition. This kind of system change requires all aspects of society to work together to establish and implement a new model of economics and material use. This includes local government, academia, large businesses, SMEs, community groups, charities, social enterprises, and the wider public. Local government can be the catalyst for change, setting the agenda and offering strategic leadership, but action and real change will require new systems and new thinking to be adopted across all aspects of our economy. Collaboration is therefore essential.

Embracing change and fostering innovation

Since systems-level innovation is required, it needs to be part of all local authority operations, local strategies, business activity, community activity and individual behaviour. Circular approaches that allow for innovative thinking and creative solutions need to be encouraged and supported along with improvements to data capture. Establishing resilient systems and agile working practices which can respond quickly and efficiently to emerging opportunities will help cities, districts, and regions to transition more effectively.

Cultural innovation will be required across households, the third sector, businesses and the public sector. Local mechanisms that create consistent messaging relevant to the community will help accelerate this change. Local government has a role to play in incentivising and supporting action and creating policies that will provide foundations for a shift in attitudes.

3.2 The role of local authorities in embedding the circular economy

The OECD has a programme dedicated to circular economy in cities and regions, and the work of this programme has been used to develop a synthesis report (further details in Appendix 3). This presents key findings as well as a scoreboard and checklist for action to support development and improvement of circular economy governance within cities and regions. The OECD synthesis report outlines three roles for local authorities in delivering the circular economy:

Promoters	Cities and regions can promote the circular economy acting as a role model, providing clear information and establishing goals and targets, in particular through: • Defining who does what and leading by example (roles and responsibilities) • Developing a circular economy strategy with clear goals and actions (strategic vision) • Promoting a circular economy culture and enhancing trust (awareness and transparency).
Facilitators	Cities and regions can facilitate connections and dialogue and provide soft and hard infrastructure for new circular businesses, in particular through: • Implementing effective multi-level governance (co-ordination) • Fostering system thinking (policy coherence) • Facilitating collaboration amongst public, not-for-profit actors and businesses (stakeholder engagement) and • Adopting a functional approach (appropriate scale).
Enablers	Cities and regions create the enabling conditions for the transition to a circular economy to happen, e.g.: • Identify the regulatory instruments that need to be adapted to foster the transition to the circular economy (regulation) • Help mobilise financial resources and allocate them efficiently (financing) • Adapt human and technical resources to the challenges to be met (capacity building) • Support business development (innovation) • Generate an information system and assess results (data and assessment)."[6]

Under each of these roles, there are a variety of areas for action (referred to as "dimensions" by the OECD) as shown in Figure 1 and Table 1.

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[6] OECD (2020) "The Circular Economy in Cities and Regions: Synthesis Report" pp138

Figure 1 OECD roles and dimensions
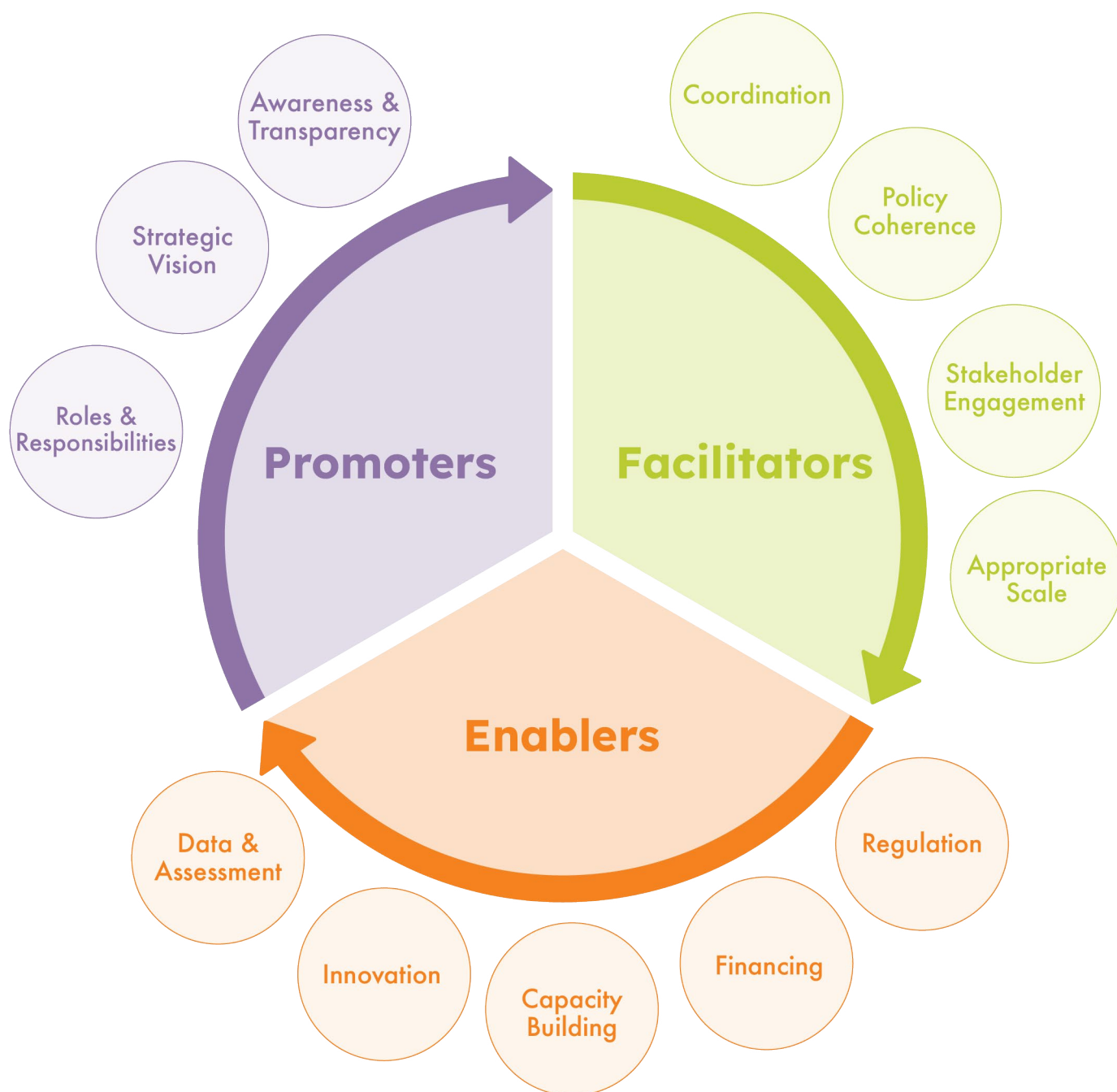
Table 1 OECD roles and dimensions

Promoter

Dimension	Roles & responsibilities	Define who does what and lead by example
	Strategic vision	Develop a circular economy strategy with clear goals and actions
	Awareness & transparency	Promote a circular economy culture and enhance trust

Facilitator

Dimension	Coordination	Implement effective multi-level governance
	Policy coherence	Foster systems thinking
	Stakeholder engagement	Facilitate collaboration among public sector, not-for-profits and business
	Appropriate scale	Adopt a functional approach

Enabler

Dimension	Regulation	Implement effective multi-level governance
	Financing	Foster systems thinking
	Capacity building	Facilitate collaboration among public sector, not-for-profits and business
	Innovation	Adopt a functional approach
	Data & assessment	Generate an information system and assess results

While the OECD report focusses on governance and policy required to transition to a circular economy, the three local authority roles (promoter, facilitator, enabler) can be applied to internal activity (to embed circular thinking into council operations) as well as external-facing activity (to support whole city / district / regional transition).

It is also important to highlight that while local authorities have a crucial role to play, they are not solely responsible for driving the necessary change. For the circular economy to be successful in Scotland, we must seek to embed circularity across our society, including all sectors, cities, regions, products and services while also embracing the principles of a just and fair transition.

3.3 Challenges and support

While local authorities have an important role to play in the delivery of the circular economy, they face many challenges.

Broad examples include:

- Budgetary pressures
- Competing priorities
- Staffing levels

Specific examples can include:

- Lack of access to technical circular economy expertise beyond the resource management elements of the concept
- Existing processes and working practises which do not support flexible, agile or disruptive approaches
- Lack of understanding of how circular economy fits into the wider net zero agenda and / or ecological emergency
- Not knowing "where to start"
- Limited access to recent learning, best practice, and project findings
- Limited powers at local level to make changes or initiate new approaches

One other important challenge to Scotland as a whole, is that our current economic framework was designed to support the linear economy rather than a circular one. For the transition to be successful, there will be a need to move from a GDP-centred approach to growth, towards one that incorporates social, environmental and economic considerations. This will support the decoupling of resource use from growth; keep extraction and consumption at sustainable levels; support wellbeing as well as a more prosperous, fair and equitable society.

Despite many of the challenges, local authorities in Scotland have been developing strategies in response to climate change and the ecological emergency. Some include or are seeking to include circular economy while others are focussed on the energy transition, energy efficiency and transport. As has been outlined, the transition to a circular economy is tied into the net zero agenda so it is important that circularity is fully integrated into climate policy and practice. Currently, where circular economy is included, it is sometimes limited to the waste and resource management aspects, and this may be due to the challenges listed. Overcoming these obstacles is important, so that the full circular economy concept and the opportunities it affords, are incorporated and given due weight.

As Scotland's circular economy expert, Zero Waste Scotland can provide advice, share knowledge and learning, and where possible, provide support to local authorities to embed the circular economy within policy, operational delivery and across their wider areas.

4 Suggested actions to support the circular transition

The tables in this section present examples of actions that local authorities could take to help embed the circular economy within their city / district / region. It is important to note that not every action listed here will be relevant or appropriate for every local authority and that these tables are intended to provide inspiration rather than a comprehensive list of opportunities.

Three separate tables have been provided, each covering a different area of action for local authorities to consider:

- Actions relating to overall **governance structures** for delivery of circular economy within a city or district,

- those relating to a local authority's **own operations**, and

- those relating to external organisations and **the wider community**.

Following the OECD's approach, each action is then aligned to one of the three roles (promoter, facilitator, enabler).

There is some cross-over for example, between governance actions and those which a local authority can take in relation to internal operations or to support and encourage wider action. Duplication has been

minimised as far as possible, so it's important that all three tables are considered together to allow the entire range of actions to be fully understood.

4.1 Getting started - foundation actions

It will not be possible for authorities to progress with all actions at once, so it's necessary to identify first steps. From our experience to date and the lessons from others' research, we have selected several key issues which should be prioritised to get the essential building blocks in place. It should be noted that there is some cross-over between this list and the tables set out later, particularly the table of governance actions. The steps recommended for initial consideration are fully set out in Appendix 1. They do appear in a suggested order however, several can be addressed concurrently, and the order of the actions can be adapted where necessary – this is an example blueprint to get started.

Figure 2 Summary of foundation actions
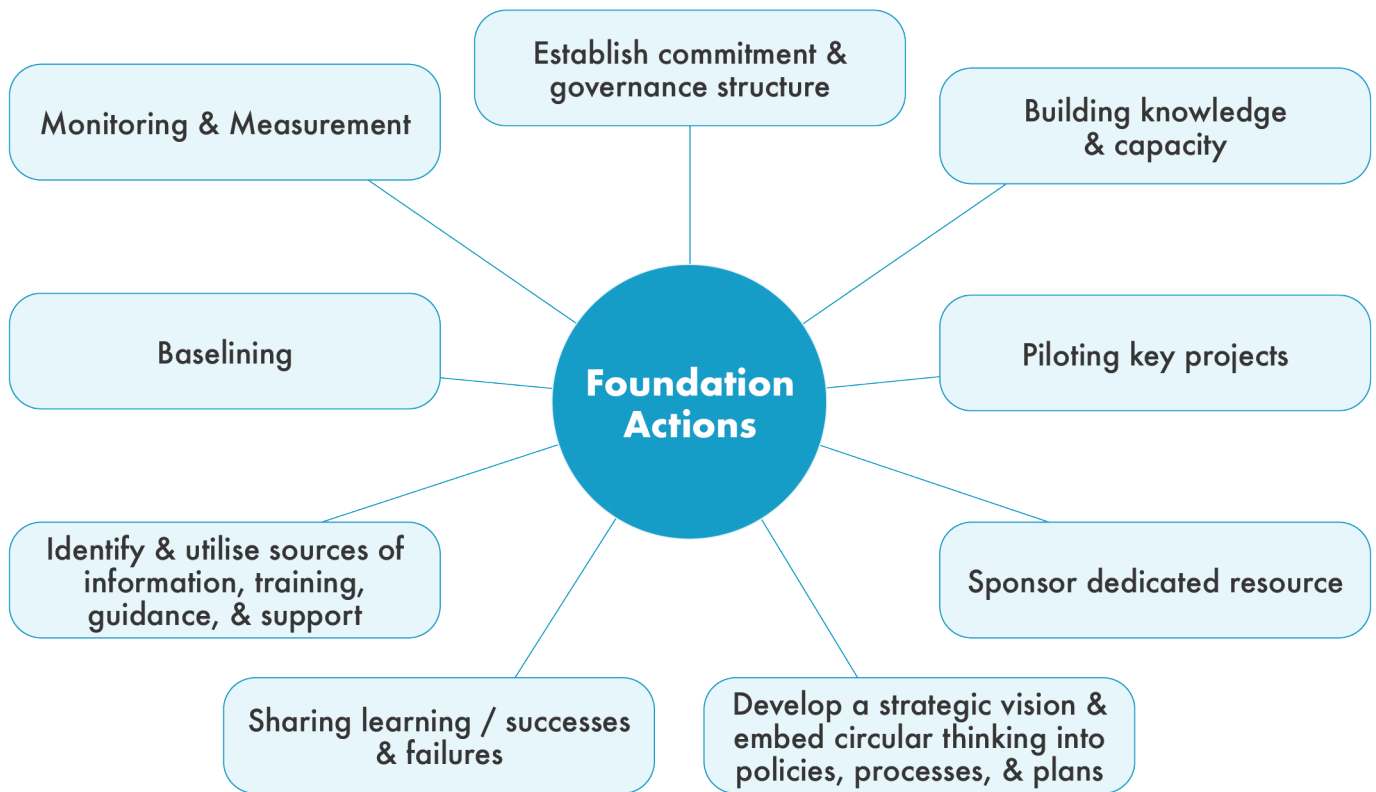
4.2 Establishing circular economy governance

Establishing appropriate and effective governance is essential to advancing the circular economy within a city or region and is fundamental to its long-term success.

The OECD's synthesis report on the circular economy in cities & regions sets out a tested Checklist for Action and an accompanying Scorecard[7] to help local authorities monitor progress towards circularity, identify areas of strength and weakness, and identify actions to take in order to strengthen governance. It is recommended that authorities work through the scorecard, preferably with partners, to baseline the status of circular economy activity and to identify priority areas for action.

The OECD does not provide a step-by-step guide to applying the checklist, it is intended to be flexible in its application rather than prescriptive. The actions in Table 2 are therefore not listed in a particular order and not all of them will necessarily be suitable for all authorities or at all stages of the transition.

Using the OECD's structure, Table 2 outlines suggested actions which authorities can take, with others where appropriate to further advance circular economy governance.

Table 2 (overleaf) Governance actions (adapted from the OECD[8] checklist for action)

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[7] OECD (2020), "Getting the governance of the circular economy right: Checklist for Action and Scoreboard", in The Circular Economy in Cities and Regions: Synthesis Report
[8] Table adapted from the report: OECD (2020) "The Circular Economy in Cities and Regions: Synthesis Report" pp140-142.

Promoter[9]

Roles & responsibilities	Appoint an internal, active, senior management sponsor
	Assign internal staff to work on embedding circular economy. Ensure they have a clear role, clear responsibilities, and authority to work across departments.[10]
	Co-create governance and decision-making structures for circular economy across the city / district / region – including key roles and responsibilities for strategic stakeholders.[11]
Strategic Vision	Co-create an approach to delivering the circular economy with strategic city / district / regional stakeholders, share learning with stakeholders to build consensus and vision
	Conduct a material flow analysis to identify priorities and inform the strategy
	Work with stakeholders to map existing circular-economy-related initiatives across the whole city / district / region (including public, private and third sector initiatives).
	Internally, develop clear and achievable goals, actions and expected outcomes
	At city / district / regional level, work with stakeholders to co-create clear and achievable goals, actions and expected outcomes
	Allocate necessary financial resources (this could include the allocation of council funding as necessary but also funding from other stakeholders or a city / district / regional-level circular economy governance group)
	Embed circular economy into strategies, policies, and operations to demonstrate leadership. This includes the council's own strategies, policies, and operations, as well as those of key stakeholders and for specific sectors in the area.
	Consider how circularity can be furthered in the city / district / region through local development plans, community planning partnerships and local planning policy.
Awareness & transparency	Develop clear channels of communication with stakeholders, staff, and the wider community

[9] "Cities and regions can promote the circular economy acting as a role model, providing clear information, and establishing goals and targets, in particular through: defining who does what and leading by example (roles and responsibilities); developing a circular economy strategy with clear goals and actions (strategic vision); promoting a circular economy culture and enhancing trust (awareness and transparency)" OECD (2020) "The Circular Economy in Cities and Regions: Synthesis Report".

[10] The long-term goal is for circular economy to be embedded across all teams and departments with responsibility at service level and a limited central coordination function. However, at the early stages, research and learnings to date have shown there is a need for dedicated resource to kick-start the transition and to coordinate and progress circular activity.

[11] A partnership approach involving many strategic stakeholders will be necessary to deliver circular economy across a whole city / district / region – it is not the sole responsibility of the local authority.

Facilitator[12]

Coordination	Strengthen co-ordination across levels of government, with and between stakeholders / partners, and between departments
	Consider: • Creating co-ordination bodies (committees, commissions, agencies or working groups) to oversee and deliver activity on specific issues or in defined sectors. • Organising meetings for city/district-regional-national co-ordination • Developing and delivering joint circular economy projects with stakeholders
Policy Coherence	Identify synergies across policies and plans (e.g., climate adaptation, food, mobility, land use, procurement)
	Strengthen co-ordination across internal policies, between council policies and those of strategic partners, and between departments
	Embrace and embed changes to processes, systems, skills, operations, etc.
Stakeholder Engagement	[see Promoter: Awareness and Transparency; and Promoter: Strategic Vision]
Appropriate Scale	Facilitate links between urban and rural areas
	Create / facilitate partnerships with local or regional service operators to apply the circular economy at the regional level
	Use Local Development Plans to reflect circular city / district / regional thinking and encourage co-location and industrial symbiosis

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12 "Cities and regions can facilitate connections and dialogue and provide soft and hard infrastructure for new circular businesses, in particular through: implementing effective multi-level governance (co-ordination); fostering system thinking (policy coherence); facilitating collaboration amongst public, not-for-profit actors and businesses (stakeholder engagement) and adopting a functional approach (appropriate scale)." OECD (2020) "The Circular Economy in Cities and Regions: Synthesis Report"

Enabler[13]

Regulation	Identify cases in which it is possible to adapt or use regulation to support the circular economy at the local level
	Establish a dialogue with government and agencies on regulatory / policy matters when the responsibility goes beyond that of the local authority
	Stimulate demand for circular products and services
Financing	Facilitate access to finance and broaden the range of financial instruments for start-ups and innovators (e.g., via Business Gateway support)
	Map existing, relevant, funding opportunities and promote / target these
	Create funding schemes for organisations following circular economy principles (in co-operation with private and semi-public financial institutions where appropriate)
Capacity Building	Review and analyse the required skills / training required to develop, implement, and monitor the circular economy.
	Identify training and upskilling opportunities to promote / provide to appropriate staff and / or partners
Innovation	Create / support the development of spaces for experimentation and circular economy incubators (in collaboration with academia and business sectors)
	Create / support the creation of stakeholder networks for material chains
Data & Assessment	Collect data and information on the circular economy
	Make relevant data publicly accessible (generate open data sources), understandable, and update it regularly
	Monitor and evaluate results, targets, and goals
	Use the OECD scoreboard to identify how "circular" the city / district / region is, areas of strength and areas to improve.

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[13] "Cities and regions create the enabling conditions for the transition to a circular economy to happen, e.g.: identify the regulatory instruments that need to be adapted to foster the transition to the circular economy (regulation); help mobilise financial resources and allocate them efficiently (financing); adapt human and technical resources to the challenges to be met (capacity building); support business development (innovation); and generate an information system and assess results (data and assessment)." OECD (2020) "The Circular Economy in Cities and Regions: Synthesis Report"

4.3 Actions to embed circular economy within the authority

In addition to governance and policy, there are specifically internal considerations and areas of action for local authorities. Table 3 provides a selection of suggested actions that can be taken to help drive the transition within operations including quick-win, low-cost, or low-resource measures. As with Table 2, these have been assigned to one of the "roles" that local authorities have in driving the transition (promoter, facilitator, enabler). These actions are not listed in a particular order and not all of them will necessarily be suitable for all authorities or at all stages of the transition.

The suggested actions have been identified through our own experience and that of local authorities we have been working with, as well as research and case studies from other organisations, both Scottish and international.

Table 3 Internal actions

Whole Authority / All Departments

Promoter

Using the strategic vision, work with each department or service to understand what the vision means for them, what is their role in delivering the vision and how they can incorporate circular thinking into operations.

Assign a circularity lead for each service or team with responsibility for engaging with the coordination / oversight team. Ensure they are bought-in and empowered.

Review best practice and case studies from other authorities. Embrace opportunities to learn from others and pilot similar projects as well as new innovative approaches.

Create case studies of your own successful pilots, projects and embedding of activities across council services. Share these internally and externally.

Promote the internal use of secondary materials and circular, sustainable products.

Where available, consider procuring service-based solutions instead of "ownership" models

Prevent waste generation at municipal events and through daily activities (consider how events/ activities are delivered, materials are procured, and what happens to any used materials).

Facilitator

Establish working groups to coordinate delivery in different services – involve people at managerial and operational delivery level.

Work collaboratively to identify the barriers to embedding circular economy into different council activities / departments and identify possible solutions.

Identify pilot projects across a range of teams / departments which can be used as demonstrators and scaled up if successful.

Identify and / or co-design new solutions to close, narrow, and slow the loops, for example digitalising information and data.

Enabler

Provide training for all staff on circular economy and how it relates to / can be embedded into the specific activities of each department / team.

Work with service managers to identify the areas where circularity could have the greatest impact and where it could be most easily integrated – start with these.

Apply a life cycle analysis approach.

Gather data and evaluate success of projects – use the learning to improve future activities.

Councillors

Promoter

Engage positively with officers, managers, stakeholders and householders on the issue of circular economy as part of everyday activities to support increased awareness and normalisation

Facilitator

Use committee, sub-committee and full council meetings to scrutinise reports, policy recommendations and strategies with circular economy in mind.

Enabler

Provide training for all elected members on circular economy and how it relates to / can be embedded into the activities of the council.

Economic Development

Promoter

Link back to the strategic vision – provide clarity on the opportunity and what the authority (and other strategic stakeholders) wants to achieve in terms of job creation, skills development, new businesses, community wealth building, etc.

Facilitator

Collaborate with key agencies and other authorities in the development and delivery of circular economy education and skills strategies

Support Developing the Young Workforce to create positive links between local businesses and learning opportunities which reflect the circular economy.

Enabler

Set targets and strategies to increase investment in circular economy businesses and activities in the area.

Link to relevant research such as the Future of Work report.

Consider setting up financial support schemes (with stakeholders / partners) to encourage and assist circular businesses.

Communications

Promoter

Use social media to provide quick updates and information on the topic and related events.

Include information on the council's intranet and internet sites to increase awareness and understanding of circular economy, what it is, why it is important and how everyone can support the transition

Procurement

Promoter

Learn from others and transfer ideas / knowledge (e.g. ProCirc and LinkedIn groups such as the Circular Procurement Learning Network or Circular Office Community of Practice).

Facilitator

Work collaboratively to identify forthcoming procurements and identify prime opportunities.

Identify where existing policies could be updated to increase opportunities for circular procurement.

Enabler

Provide training for procurement staff on circular economy and how it fits in with existing procurement law and procedures. Start with the Scottish Government's Climate Literacy e-learning module, that sets out the strategic context for change. Zero Waste Scotland also has bespoke material on Circular Procurement.

Training for service managers on availability of circular products / services and how to procure them.

Use the Scottish Government's Sustainable Procurement Toolkit and the EU Green Public Procurement Toolkit (Module 5: GPP and the Circular Economy) and Criteria to implement green and circular public procurement, establishing clear requirements in tenders to embed circular economy outcomes. Zero Waste Scotland's guide on Procuring For Repair, Reuse and Remanufacturing provides examples of criteria wording and considerations at each stage of the procurement cycle.

Consider dividing public tenders into lots that enable SMEs and local entrepreneurs to participate.

Create a monitoring and evaluation framework for embedding circular economy outcomes.

Planning & Development Control

Promoter

Adopt a circular / sustainable statement that promotes embodied carbon reduction, reused materials, retrofitting over demolition (where appropriate), bio-based materials, low carbon energy solutions, and circular construction methods (see construction section).

Enabler

Use of local planning powers to enable land and buildings to be used in support of the circular economy

Adopt and seek appropriate training for relevant staff in the Net Zero in Public Sector Buildings (NZPSB) Standard and review Zero Waste Scotland's Circular construction resource library.

Waste & Recycling

Promoter

Deliver campaigns promoting reuse and recycling services to householders and businesses

Deliver internal campaigns to maximise capture of recyclable materials from offices, schools, depots, etc.

Facilitator

Work collaboratively with stakeholders and other authorities to identify and embed innovative resource management solutions to enhance capture rates, increase participation rates, expand the range of materials collected for reuse and recycling.

Enabler

Take steps to align with the Household Recycling Charter and Code of Practice.

Enhance opportunities for reuse and repair at municipal sites.

Enhance internal waste and recycling service to increase quality and capture of recyclable materials and expand the range of materials collected.

Capital projects and City Region Deal activities

Promoter

Ensure good links and communications with city region deal teams (including all partners) to increase awareness of circular economy, the benefits and to identify opportunities for integration into design and delivery of projects.

Ensure there is clarity on roles and obligations under the new National Planning Framework

Facilitator

Identify where existing policies could reasonably be updated to increase opportunities for circular construction

Engage suppliers and contractors regarding the need to embed circular economy principles – what is currently in the market, who can supply it, etc.

Enabler

Use the Sustainable Value Management Framework and Zero Waste Scotland's Circular construction resource library.

Adopt and seek appropriate training for relevant staff in the Net Zero in Public Sector Buildings (NZPSB) Standard.

Work collaboratively to identify where there are opportunities to embed circularity in:

    a) Projects underway
    b) Projects in development
    c) Planned future projects

For each of these, consider what needs to happen for circularity to be integrated?

Schools

Promoter

Raise awareness of the circular economy with the school community and stakeholders including staff, young people and parents.

Share examples of good practice between education settings, local businesses and local authorities.

Facilitator

Identify opportunities for small scale circular economy projects at individual school level which can be scaled-up if successful.

Using curriculum for excellence, identify opportunities to embed circular economy into everyday learning activities.[14]

Include Learning for Sustainability in local authority improvement plans and support schools to have a consistent Learning for Sustainability policy which reflect the ambitions and awareness raising of local needs and circular economy.

Enabler

Enhance waste and recycling services to increase capture of recyclable materials and expand the range of materials collected.

Estate & Asset Management

Promoter

Work with tenants to increase awareness of the circular economy, its importance and how it can be integrated into daily activities.

Facilitator

Work with tenants to influence how they use space, materials, and energy. Consider how leases could be used to encourage circular economy practice.

Enabler

Identify where derelict / vacant assets could be used (regulation permitting) e.g.:
a. Reduced rent for community circular economy projects
b. Storage for reusable items from: Household Waste Recycling Centres (HWRCs) / construction / consolidated charity donation
c. In support of industrial symbiosis / co-location

Adopt and seek appropriate training for relevant staff in the Net Zero in Public Sector Buildings (NZPSB) Standard.

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[14] Many organisations have developed teaching resources for schools on circular economy, recycling and waste prevention issues including Zero Waste Scotland. Our teaching resources can be found at: https://www. zerowastescotland.org.uk/food-waste/teaching-resources

4.4 Actions to embed circular economy across the authority area

A place-based approach to developing the circular economy in Scotland encourages and enables local flexibility to respond to issues and opportunities in different areas. It helps overcome organisational and sectoral boundaries, encouraging collaboration and community involvement. A collaborative, place-based approach with a shared purpose will allow the public and private sector across Scotland to support a clear way forward for circular economy policies, developments, and investments. As such, the approach fits well with models of network governance.

Figure 3 Network goverance

Key actors
Research and educational institutions and consultancies

Research and technology development

Key actors
Government, business, research & educational institutions, NGOs and civil society

Sociocultural changes

System Orchestration

Creation of preconditions

Market creation

Key actors
Government at EU, national, provincial and city levels

Key actors
Businesses (co-stimulated by public & private commissioning parties)

In each local authority there will be different key sectors depending on the local economic make-up. Authorities, in conjunction with stakeholders, are best placed to identify those sectors and the ones which should be prioritised for any circular economy activity. While there are benefits to adopting CE across all sectors, it may be helpful to initially focus on those which are of most importance locally and/or those where the circular economy could offer the greatest benefits.

Zero Waste Scotland previously supported a circle scan for Glasgow (2017), and published circular opportunities reports for Edinburgh, the North east and Tayside (2018). These identify key sectors and circular opportunities within these cities / regions.

For example, the predicted economic benefits to Tayside in adopting a circular economy are around £404 million:

- Construction and the built environment sector – £185 million
- Energy infrastructure sector – £186 million
- Manufacturing sector – £19 million
- Food and drink sector, and the wider bioeconomy – £14 million

Many of the suggested actions below are relevant to a wide range of sectors and have been set out as such. For a small number of sectors, there are additional suggested actions listed which are very specific to those particular areas. This not intended to be comprehensive but rather to give a flavour of the types of actions which could be taken including some easier, quick-win, low-cost, or low-resource measures. It will be important for the authority to work collaboratively with key local stakeholders to identify initial areas of focus based on potential impact of action, current material use / waste generation, economic and social importance to the area, and to deliver actions identified.

As with Table 2 and Table 3, these have been assigned to one of the "roles" that local authorities have in driving the transition (promoter, facilitator, enabler). These actions are not listed in a particular order and not all of them will necessarily be suitable for all areas or at all stages of the transition.

Table 4 External actions

All Sectors

Promoter

Develop case studies and publicise local examples of good practice.

Demonstrate how the public, businesses, etc. can contribute to the transition.

Develop a dedicated webpage for circular economy information at the city / district / regional level

Use social media to provide quick updates and information on the topic and related events

Facilitator

For key sectors in the area, establish or use existing locally focussed stakeholder groups / fora / task forces to identify circular solutions to specific sectoral issues involving representatives from academia, business, public sector, etc.

Work with local stakeholders to identify opportunities for scalable, replicable pilots and / or high impact circular projects

Work with key sectors and stakeholders to identify opportunities and develop business cases for circular economy projects

Work collaboratively with other authorities to identify if similar issues / materials are identified elsewhere and if so, to co-create solutions

Engage and collaborate with enterprise agencies

Involve / connect with relevant organisations at an early point in project identification and development

Create interactive online platforms to encourage stakeholders and wider organisations to collaborate and exchange information (e.g., on needs and challenges, lessons etc.)

Create and/or support the creation of spaces for dialogue and practice exchange between actors, organise events for knowledge sharing and networking, arrange conferences and seminars with schools and universities

Work with local stakeholders to identify industrial and urban symbiosis opportunities

Enabler

Signpost to circular economy training opportunities for different sectors and organisation types.

Signpost to circular economy monitoring and measuring tools for business such as Circulytics and CTI v2

Signpost to Zero Waste Scotland's:
- Circular economy accelerator website,
- Circular manufacturing advice,
- Circular economy advice for the energy sector,
- Food waste reduction advice for food manufacturers,
- Food waste reduction advice for food service and hospitality,
- Food waste reduction advice for food retailers

Signpost to other, sector-specific source of information, such as:
- Visit Scotland's sustainability advice for events
- Ellen MacArthur Foundation

Support projects with research, funding, advice / signposting advice, publicity, identification of benefits, etc.

Support projects across the whole value chain from design to manufacture to procurement to consumer to end-of-life. Supporting all parts of the chain to consider how / if the product / process / service could be integrated.

Construction

Promoter

Engage with relevant stakeholders to ensure there is clarity on roles and obligations under the new National Planning Framework.

Facilitator

Work with planners to integrate circular principles into local construction projects through local development plans and the use of supplementary planning guidance.

Support the identification of suitable sites for material / reclamation hubs.

Enabler

Signpost to:
- Zero Waste Scotland's Circular construction resource library,
- The Sustainable Value Management Framework and
- The Net Zero in Public Sector Buildings (NZPSB) Standard

Academia, Innovation & Research

Facilitator

Engage with academia and research centres to build knowledge, experiments and carry out specific analyses on flow, stocks and material input and outputs

Establish innovation hubs and incubators based on key local sectors and specialisms – compliment rather than duplicate activity and hubs in other areas

Link organisations with research and development (R&D) or university departments, based on the needs of the area (e.g., circular activities in sector such as tourism, food, bioeconomy, construction, etc.)

Enabler

Stimulate demand for new solutions (e.g., Modular buildings) to be developed through joint actions between knowledge centres and the business sector.

Community

Promoter

Mapping and promotion of third sector CE projects / shops / services, etc.

Promote and encourage adoption of the Revolve quality standard.

Facilitator

Facilitate neighbourhood or community-based plans and initiatives

Support small scale experimental circular economy projects (e.g., A university campus, a neighbourhood, a city district)

Facilitate community involvement in practical initiatives (e.g., support for area-wide sharing platforms and repair / reuse infrastructure)

Enabler

Establish / support the establishment of community-based circular economy hubs

Signpost Circular Communities Scotland and the Share & Repair Network

Signpost suitable organisations and projects to Social Investment Scotland's social enterprise net zero transition fund

Appendix 1: Getting started – foundation actions

Establish commitment and governance structure

Demonstrable senior manager and elected member commitment to the circular economy is essential to empower employees and the wider community to take action. Establish an overall governance structure to oversee and coordinate circular economy activity in the area involving key stakeholders as well as local authority representatives.

Sponsor dedicated resource

In the long term, circular economy should be embedded into the work of all internal departments and at city / district / regional level, systems and governance should be in place to continue driving circularity. However, to make progress in the early-medium term stages and avoid a situation where only isolated action is taken, it will be necessary for authorities to ensure resource is made available to work across the organisation and externally, to support coordinated, effective action.

A lead officer or team should be identified to take this forward and empowered to work across the whole organisation and with strategic partners across the city or district. Ensure they are provided with support by the senior management sponsor, and further project staff / resources as necessary.

Key aims of this role will be:

- to positively engage internal and external partners to increase their understanding of what the circular economy is, its benefits, and what it means practically

- to work collaboratively with internal and external partners to identify opportunities, and design and implement effective, impactful projects (including "quick wins" and longer-term ambitions) to drive the transition.

CE shouldn't be "done to" operational teams / departments / stakeholders – it should be explored, designed, and delivered in partnership.

Identify and utilise sources of information, training, guidance, and support.

For example:

Construction	[Circular construction resource library](#)
	[Construction resources](#)
Procurement	[Climate Literacy e-learning module](#)
	[Circular Procurement](#)
	[Sustainable Procurement Toolkit](#)
	[EU Green Public Procurement Toolkit](#) (Module 5: GPP and the Circular Economy) and [Criteria](#)
	[Procuring For Repair, Reuse and Remanufacturing](#)
Local Government	Glasgow: [Circular Economy Route Map](#)
	Aberdeenshire: [Resources and Circular Economy Commitment](#)
	London: [London's Circular Economy Route Map](#)
	Paris: [Paris Circular Economy Plan 2017-2020](#)
	Amsterdam: [Amsterdam Circular Strategy 2020-2025](#)
Place-based advice and initiatives	[Circular Cities Declaration](#)
	OECD: [The Circular Economy in Cities & Regions – Synthesis Report](#)
	[Ellen MacArthur Foundation: cities & the circular economy](#)
	[EC: Circular Cities & Regions Initiative](#)

Baselining

- Complete OECD scoreboard and identify priority areas for action
- Establish collaborations etc. with appropriate governance and coordination structures
- With stakeholders, map existing circular economy activity in the area
    — Policies and strategies
    — Projects
    — Businesses, etc.
- Prioritise activity based on results of baselining, local priorities, stakeholders, etc.

Develop a strategic vision and embed circular thinking into policies, processes, and plans

- Link into existing policies and strategies
- Co-create with strategic partners
- SMART objectives
- Highlight the cross-over with net zero / climate action
- Cutting across themes, departments, and sectors

Work with strategic local stakeholders to co-develop a vision for circular economy across the wider area. As well as providing clarity, the vision will align with, be tailored to, and enhance local priorities. This should be used as the basis for the development of an action plan (co-owned), which identifies priority actions, lead organisation / individual for different actions, and an initial delivery timetable.

Embedding reference to the circular economy within key Council processes and operational delivery plans provides a reminder that it needs to be considered and reiterates the commitment.

Building knowledge and capacity

Developing knowledge and capacity is what moves employees from recognising the existence of a commitment to being able to identify and implement opportunities. Significant upskilling activity will be required to drive real change (see the suggested action tables for links to specific training opportunities).

Piloting key projects

It is not always easy to understand how the circular economy can be built into projects. Pilot projects, internal and external, provide a starting point for exploring this and the outcomes develop learning and understanding of what is possible. Identification of initial pilot projects, internal and external, should be carried out collaboratively and should focus on scalable, replicable opportunities. A mixture of short term "quick wins" and longer term, ambitious projects should be considered.

Sharing learning / successes and failures

As learning develops and as pilots become case studies, findings and outputs need to be communicated and shared both internally and beyond. The lessons should be carefully reviewed and used to effectively design future circular economy projects.

Monitoring and measurement

Periodic review of internal and external progress in implementing the circular economy will drive new approaches and innovation. For governance issues, the OECD scorecard, completed as part of the initial baselining activity, should be completed annually and the results used to identify areas of focus for the following period.

Appendix 2: Net zero and the circular economy

At a global level, our existing linear model has a significant negative impact on the environment and has contributed to climate change and the ecological emergency.

The Circularity Gap Report 2021 from Circle Economy clearly highlights the link between material extraction and use, and emissions and climate change. The report states:

- A business-as-usual approach will result in 65 billion tonnes of greenhouse gas emissions in 2030
- The current linear model is leading towards a 3-6 degree increase in temperature
- Globally, we are using 100 billion tonnes of materials per year

The Circularity Gap Report 2021 also identifies that changing our production and consumption to a circular model will help to address the climate emergency and keep the world "liveable and thriving". Circle Economy states that doubling global circularity from 8.6% to 17% could:

- "Reduce global emissions by 32% by 2032
- "Reduce total material footprint by 28% by 2032
- "Ensure we steer well below a 2-degree temperature rise"[15]

Furthermore, at the World Circular Economy Forum (April 2021), UN climate officials concluded that:

"accelerating the shift to a circular economy is essential to achieve the climate goals agreed by the international community and to help rebuild the world's

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[15] Circle Economy (2021) Circularity Gap Report

economies stronger, greener and better."[16]

At the Scottish level, research has shown that around four fifths of the nation's carbon footprint comes from all the goods, materials and services which we produce, use and throw away.[17] Zero Waste Scotland also published a landmark report in 2021 [The Scottish Material Flow Accounts (MFA)](#), which revealed the size of Scotland's material footprint for the first time. The study found that Scotland's raw material consumption amounted to 100 Mt of materials, around 18.4 tonnes per person. This is 38% higher than the global average (13.3 tonnes per person) and more than twice as high

as the level many experts suggest is sustainable (8 tonnes per person per year). The report also highlighted that Scotland's domestic material consumption per capita is 44% larger than the UK as a whole.

Zero Waste Scotland has worked with Circle Economy to develop a Circularity Gap Report specifically for Scotland[18].

This report was published in December 2022 and is the first-ever quantitative analysis of the state of the circular economy in Scotland. It found that only 1.3% of the resources Scotland uses are cycled back into the economy with over 98% of Scotland's material use coming from virgin resources.

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[16] https://unfccc.int/news/shifting-to-a-circular-economy-essential-to-achieving-paris-agreement-goals
[17] Scottish Government (2021) Scotland's carbon footprint: 1998-2017
[18] https://www.circularity-gap.world/scotland

The Goal - Net Zero

Carbon dioxide is released when fossil fuels are burned to create energy. It isn't the only greenhouse gas, but it is the most significant. The terms "carbon", "carbon emissions" or "carbon equivalent" are often used to talk about all greenhouse gas emissions, not just carbon dioxide.

To address the problem of greenhouse gas emissions and their impact on the climate, Scotland has passed legislation that commits the country to net zero emissions by 2045. This is a target to reduce net greenhouse gas emissions by 100%, relative to 1990 levels, before the middle of this century.

Net zero means achieving a balance between carbon released into the atmosphere and the carbon removed from the atmosphere. The balance – or net zero – will happen when the amount of carbon humans add to the atmosphere is no more than the amount removed.

Enabler 1 — Energy

Demand for energy in Scotland continues to grow. Scotland needs to establish a sustainable, affordable and reliable energy supply. To support this the Scottish Government is developing the transition towards more sustainable, greener energy systems. The transition will involve a shift from a reliance on oil and gas, to instead drawing energy from renewable sources (e.g. wind, marine, solar, bioenergy and hydrogen). The renewable sector must meet local and national heat, transport and electricity needs. By 2030 Scotland aims to generate 50% of overall energy consumption from renewable sources and by 2050 Scotland will have decarbonised the energy system almost completely.

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Enabler 2 — Circular Economy

A significant part of Scotland's carbon footprint is created from the making, use and disposal of products and materials. The circular economy challenges the way that Scotland manufactures, uses and views materials and products. It reduces waste to a minimum by recovering and reusing as many products and materials as possible.
A circular economy in Scotland will require changes to business models, supply chains, the way products and services are designed and a significant shift in consumer behaviour. These changes will allow for all materials to remain within the value chain, removing the need for newly sourced materials and reducing the volumes of waste that Scotland produces.

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Enabler 3 — Nature-Based Solutions

Nature-based solutions make use of natural systems to create positive benefits for both people and biodiversity. The solutions include a wide range of activities that create benefits though restoring, managing and creating new ecosystems. Healthy ecosystems, such as forests, peatbogs and oceans are important carbon sinks, absorbing and storing carbon from the atmosphere.
Protecting and enhancing Scotland's diverse ecosystems will ensure that existing nature-based solutions are functioning well and capturing carbon. Protecting, restoring and enhancing biodiversity will mitigate climate risks and help communities to adapt to future climate change, whilst also creating healthier places to live and work.
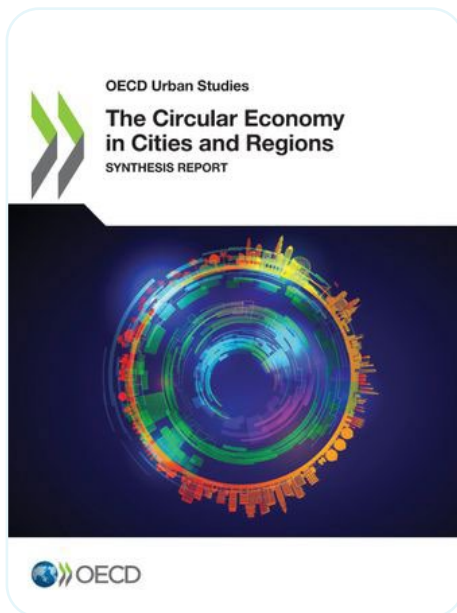
Outcome 1 — Just & Fair Transition

Outcome 2 — Green Jobs

Outcome 3 — Resilient Businesses

Outcome 4 — Biodiversity rich and resilient ecosystems

Outcome 5 — Resilient Communities

Appendix 3: Case studies: research, strategies, route maps, and projects

Organisation for Economic Cooperation and Development (OECD)

Recognising the vital role of cities & regions in delivering the circular economy, the OECD has a programme of work dedicated to supporting "subnational" governments with the transition. The programme provides in three ways:

- **Measuring:** development of a circular economy indicator framework to support decision making
- **Learning:** engaging in multi-level stakeholder dialogues
- **Sharing:** peer-to-peer learning, dissemination of best practice and lessons

At the time of the research, Glasgow was one of six case study areas and Zero Waste Scotland worked closely with OECD and other partners in the delivery and coordination of the work. The Glasgow-specific case study was officially launched at COP26 and it identifies strengths, gaps, opportunities and actions to progress the transition within the city.

The work of the overall programme has been collated, analysed and used to develop a synthesis report[19]. This presents key findings as well as a scoreboard and checklist for action to support development and improvement of circular economy governance within cities and regions.

Our work with the OECD and the reports / findings they have published have been integral to the development of this paper and have provided a framework on which we have been able to (and will continue to) build.

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[19] OECD (2020) "The Circular Economy in Cities and Regions: Synthesis Report"

Glasgow City Council Circular Economy Route Map and Action Plan

In December 2020, Glasgow City Council approved a [Circular Economy Route Map](#)[20] and associated action plan for the city. The route map is a ten-year vision which aims to drive green growth, regenerate communities, reduce carbon emissions, support job creation and skills development, develop sustainable local business, improve reuse practices, and develop a circular public procurement strategy. To deliver on these aims, the action plan is an initial set of 31 actions split into themes: policy, planning, production, people, private sector and public action.

The work being carried out by Glasgow City Council offers examples of the types of activity that local authorities can undertake and has provided valuable lessons from which other authorities can learn.

Scottish Cities Alliance Transition to Net Zero Carbon Action Plan

Recognising that local authorities are key to delivering a just transition to a circular economy and net zero, the Scottish Cities Alliance (SCA) has developed a [Transition to Net Zero Carbon Action Plan](#). The Chief Executives of the city authorities are signatories to this document and have committed to working collaboratively (as cities and with relevant national agencies) to help Scotland meet the 2045 carbon reduction target. Collaboration is key to the action plan, and there is also a focus on maximising economic benefit and wellbeing as a result of the plan's delivery.

The action plan is divided into themes, including one on waste & circular economy, with actions presented for each. For the waste & circular economy theme, the short-, medium- and long-term actions include:

[20] Glasgow City Council (2020) "Circular Economy Route Map for Glasgow 2020-2030"

Short	Identify what circular activity is currently taking place to establish a baseline
	Develop a governance model to track progress
	Set ambitious targets to attract investment in activities
	Develop a joint approach to circular innovation, establishing hubs and working collaboratively
Medium	Develop bespoke action plan for each city with common themes
	Develop business cases for circular projects
	Develop and deliver a circular economy education strategy across councils
	Establish tools, activities, and collaborations to support and encourage business towards circular operations
Long	Actively use governance model to track progress on the impact of the action plans and modify approach accordingly
	Develop provision of recycling services for a wider range of materials and consider innovative collaborative solutions

The waste and circular economy working group, involving representatives from each of the city authorities and Zero Waste Scotland, has been meeting since early 2021.

Aberdeenshire Council

In 2019 Aberdeenshire Council made a [Resources and Circular Economy Commitment](#) and during the latter half of 2020-21, Zero Waste Scotland supported the council to develop a framework to integrate circular economy practice into its day-to-day activities.

The final report set out 10 recommendations to start embedding circular economy within local authority activity:

1. Establish commitment	The circular economy needs to be explicitly mentioned within relevant policy document and commitments, such as climate emergency declarations. This demonstrates a recognition of the crucial role of circular economy in delivering net zero and will be essential to gain commitment from senior managers, elected members and officers.
2. Provide resource	Efforts to embed the circular economy are still at an early stage in most local authorities in Scotland. To make progress and avoid a situation where only isolated action is taken, it will be necessary for authorities to ensure there is senior and officer level resource made available to work across the organisation and drive circular activity.
3. Reiterate commitment	Circular economy should also be explicitly referenced within other key council documents such as business case templates, procurement documents, and other strategies. The work delivered with Aberdeenshire suggested that it is better to integrate circular economy into existing processes, rather than develop a separate framework. This helps to ensure that it is embedded directly into all operations.
4. Training and capacity building	The project report states that "integrating the circular economy into day-to-day activity is more [of] an approach and a way of thinking than a tried and tested set of principles. For this reason, integrating the circular economy into day-to-day thinking will take time and commitment". It is also recognised that staff may not be clear on what action they can take in the day-to-day delivery of their duties. Given this, training, and capacity building in relation to CE will be essential. Introductory training should be incorporated into central training provision for all staff with specialist training provided in relation to procurement, those involved in design / new build / refurbishment, and dedicated training for senior managers and elected members.

5. Procurement	Embedding circular economy into public procurement could make a real impact on progress however, to do so will involve a change of approach in defining project outcomes and ambitions, and in engaging the supply chain to identify and enable innovations. As a starting point, the report recommends that a small number of major procurements (where there is the greatest opportunity to impact CE outcomes) should be focussed on initially. These should represent a range of services / departments so that a bank of case studies and pilots can be developed and learned from.
6. New build / development and major refurbishment	Another area offering a significant opportunity to drive the transition is development and refurbishment. From the work carried out it is clear that CE is not as well understood as other areas of sustainability so capacity building and training specific to development and refurbishment would be beneficial. Zero Waste Scotland has developed resources and guidance on circular construction which should be drawn upon.[21]
7. Function specific opportunities	In addition to procurement and development opportunities, the project identified that other opportunities area available within other local authority functions. Since the ultimate aim is for circular economy to be embedded throughout council operations and more widely throughout cities, districts, and regions, identifying and progressing these opportunities is a helpful exercise even if short-term challenges prevent swift progress.
8. Share best practice	Delivery of the project demonstrated the importance of case studies as these help to develop understanding and can provide practical examples of the circular economy in action. As local authorities start to take action on CE, they should develop their own bank of case studies to help with future internal projects and to share with external partners and other authorities.
9. Understand the benefits	Understanding and communicating the benefits of CE will help to improve buy-in and commitment both internally and externally. Examples of the opportunities
10. Consider the medium to long-term	While the report largely focussed on recommendations to help local authorities get started on their journey to a circular economy, the ultimate aim is for CE to be a standard part of all decision making. To achieve this there must be commitment across all services, suitable training and case studies. It may also be helpful to establish a cross-service working group to share learning or perhaps a forum of senior leaders where particularly challenging issues can be considered by a wider group of people and decision makers. It will also be necessary to embrace innovation, and move beyond current, existing solutions and this may require a change in culture, the generally accepted ways of working and approach to risk.

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[21] Construction resource library: https://www.zerowastescotland.org.uk/content/construction-resource-library
Zero Waste Scotland (2020) Construction Resources for a Circular Economy

Beyond Scotland

There are many projects beyond Scotland from which we can also learn. For example, the C40 Cities have a number of case studies and valuable lessons which can be applied here in Scotland. Below, a selection of municipality activities have been highlighted, however there are many others available.

Amsterdam

[Amsterdam's Circular Economy Roadmap](22) evaluated 73 circular projects and found that three value chains and two instruments are of particular interest to scale-up:

- Value chains:
  - Construction
  - Biomass & food
  - Consumer goods
- Instruments:
  - Procurement
  - Research, information provision and networks

On the issue of instruments, the case study finds that:

"The instruments have been used successfully to increase the level of knowledge in the city, both within the municipality and with market parties and consumers. Especially the Living Lab approach and the public-private-people partnerships stand out as successful. Therefore, the continued deployment of these instruments is important for all value chains."

The importance of cooperation is also highlighted, both internal (across council departments) and external (incl. business and academia) and with this:

"…an open attitude, transparency and a willingness to share knowledge and experiences are essential. Learning from each other not only entails sharing successful projects, but failures as well…The philosophy of Learning by Doing could therefore be supplemented with Learning by Sharing."

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[22] C40 Cities (2018) "Amsterdam's Circular Economy Roadmap: Lessons Learned and Tools for Upscaling"

London

In 2017, ReLondon (formerly LWARB) published London's Circular Economy Route Map. The route map identifies, five focus area (built environment, food, textiles, electricals, and plastics) and a series of recommendations and policy actions have been set out. These were developed through a workshop series involving groups of stakeholders and sectoral experts.

The document also sets out eight cross-cutting themes seen as key to delivery of a circular economy in London. These themes are:

- Communications
- Collaboration
- Policy
- Procurement and market development
- Finance
- Business support
- Demonstration
- Innovation

It also sets out a series of recommendations for different stakeholders and sectors:

- Mayor of London and Greater London Authority
- ReLondon
- Private sector / trade bodies / business support organisations
- Local authorities
- Education
- Finance community
- Digital community
- Social enterprise and communities

Circular Cities Declaration

There is also a European Circular Cities Declaration (of which Glasgow is a signatory), managed by ICLEI Europe. In signing the declaration:

"local and regional governments commit to using the leavers at our disposal coherently:

- Establishing clear circular economy goals and strategies

- Raising awareness of circular practises

- Engaging local stakeholders

- Embedding circularity principles in urban planning and asset management

- Leveraging public procurement

- Applying economic incentives to encourage circular behaviour

- Fostering an enabling local regulatory framework

- Collaborating with national governments and European institutions

- Monitoring the progress made

- Reporting to ICELI on progress"[23]

Other sources of information

Other sources of information, guidance and examples include:
- EC's Circular Cities and Regions Initiative - Methodology for the implementation of a circular economy at the local and regional scale
- Circle Economy (2021) Key elements of the circular economy
- CSCP Circular Economy Handbook for Cities
- EC (2021) Incentives to boost the circular economy: a guide for public authorities
- OECD circular economy in cities case studies for Groningen, Umea, Valladolid, Granada
- C40 Knowledge Hub

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[23] https://circularcitiesdeclaration.eu/about/why-and-how-to-sign