Circular Economy policy demand: from data to policy-making

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Outline

- Need for and definition of circular economy
- Guidelines on Measuring circular economy
- From data to policy-making
- Using CE indicators for national policy-making

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Need for and definition of circular economy

- Unsustainable production and consumption patterns (*SDG Report 2025*)
  - Domestic material consumption (DMC) increased by 23% between 2015 and 2022
  - DMC per capita increased by 15% between 2015 and 2022
  - Material footprint increased by 21% between 2015 and 2022

- Increased waste generation and disposal
  - Global municipal solid waste generation is expected to increase by 26% between 2020 and 2030 (*Global Waste Management Outlook 2024*)
  - Global municipal solid waste generation per capita is expected to increase by 16% between 2020 and 2030 (*Global Waste Management Outlook 2024*)
  - E-waste generation is projected to rise from 62 billion kg in 2022 to 82 billion kg in 2030 (*SDG Report 2025*)
  - In 2022, 22% of e-waste generated was formally collected and treated (*SDG Report 2025*)

Guidelines on Measuring circular economy

- Guidelines for Measuring Circular Economy
  - Part A: Conceptual Framework, Indicators and Measurement Framework (2023)
  - Part B: provide practical guidance for producing and using statistics, required institutional collaboration and country examples (2025-2026)

A circular economy can be defined as an economy where:

- The value of materials in the economy is maximised and maintained for as long as possible;
- The input of materials and their consumption is minimised; and
- The generation of waste is prevented, and negative environmental impacts reduced throughout the life-cycle of materials".

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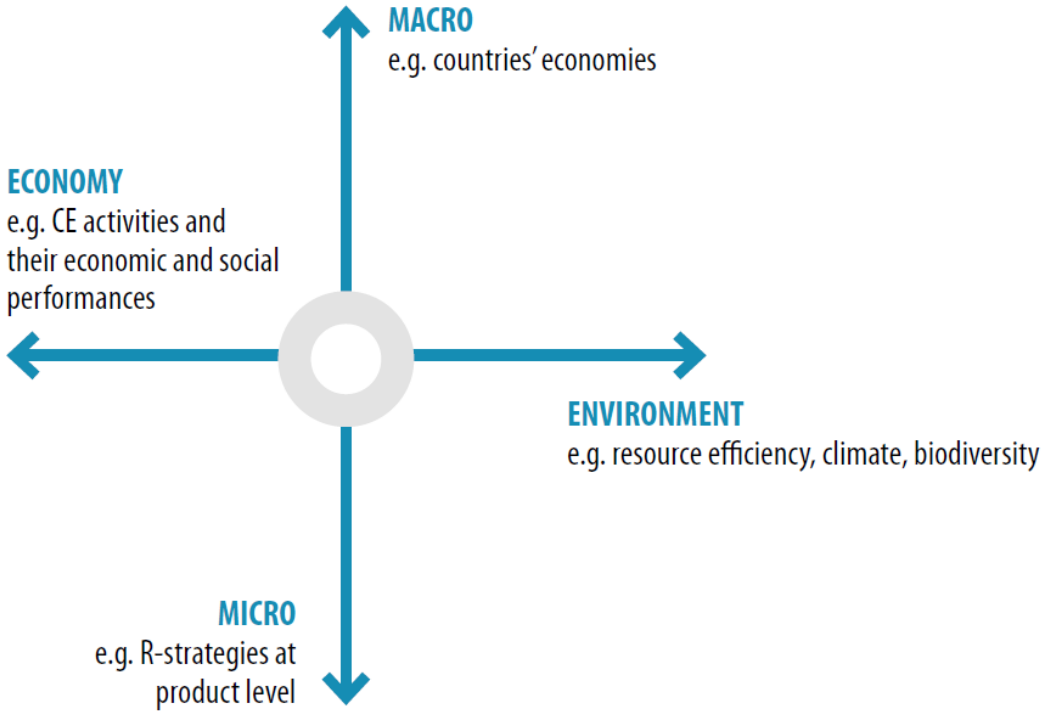
Circular Economy Conceptual Framework



From Guidelines for Measuring Circular Economy, Part A: Conceptual Framework, Indicators and Measurement Framework, UNECE

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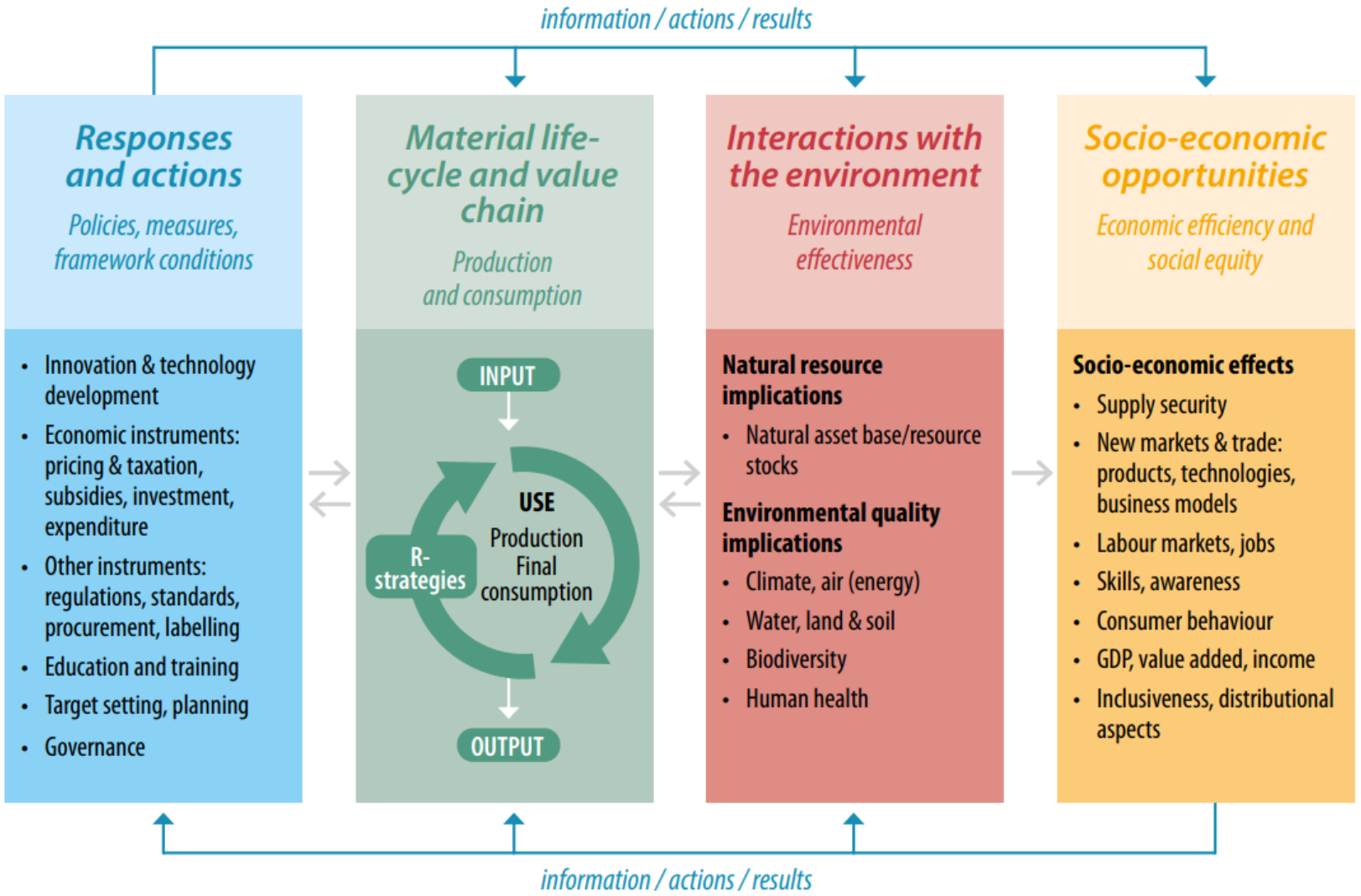
Circular Economy Conceptual Framework



From Guidelines for Measuring Circular Economy, Part A: Conceptual Framework, Indicators and Measurement Framework, UNECE

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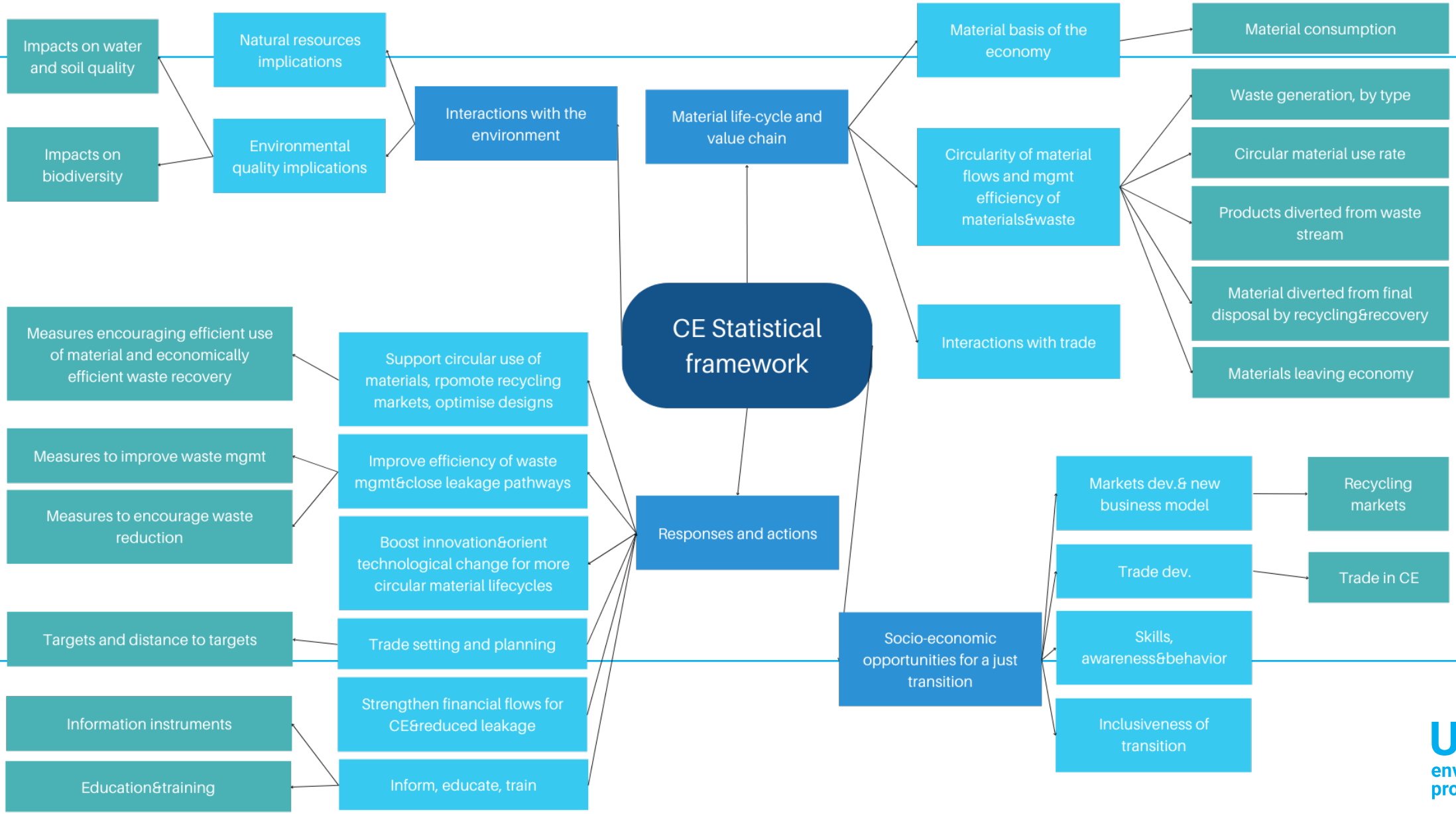
Proposed indicators/ indicators topics related to Waste



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From data to policy-making

- ✓ Provide information about the initial situation of the economy at national level,
  - ➢ Strategies, policies and plans can be formulated and/or adapted to real national conditions, and needs.
- ✓ Indicators can be used to track progress of the implementation of formulated policies against the different set objectives:
  - ➢ Progress can indicate the need for complementary policies to speed the shift or reevaluate the objectives by adjusting or reformulating existing policies.
- ✓ Indicators can be used to inform the public
  - ➢ Customers' product demand can influence the production sector decisions
- ✓ Academia's access to circular economy indicators data
  - ➢ Source of new projects, studies and proposals
- ✓ Using similar indicators may enhance comparability of policies across countries
  - ➢ Can help governments to formulate or reformulate policies based on successes of measures applied in other countries

Using CE indicators for national policy-making

- ✓ Resources decoupling
- ✓ Impact decoupling
  - ✓ Waste generation and management
  - ✓ GHG emissions from production activities
  - ✓ Pollutants discharges from production activities to water bodies
- ✓ Taxes and government support to CE business models
- ✓ Government and business R&D expenditure on CE technologies
- ✓ Business investment in CE activities
- ✓ CE sector monitoring and expansion

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Using CE indicators for national policy-making

Example of Waste generation and management

Australia, national strategy

"The National Waste Policy: Less waste, more resources (2018) embodies a circular economy, shifting away from 'take, make, use and dispose' to a more circular approach where we maintain the value of resources for as long as possible. The 2018 National Waste Policy provides a framework for collective action by businesses, governments, communities and individuals until 2030.

The National Waste Policy is developed by the National Waste Policy Action Plan – Annexure (2022), which drives implementation of seven targets:

1. Ban on export of waste plastic, paper, glass, and tyres, commencing on the second half of 2020.
2. Reduce total waste generated in Australia by 10% per person by 2030.
3. 80% average resource recovery rate from all waste streams by 2030.
4. Significantly increase the use of recycled content by governments and industry.
5. Phase out problematic and unnecessary plastic by 2050.
6. Halve the amount or organic waste sent to landfill for disposal by 2030.
7. Make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions.

National Waste Policy Action Plan-Annexure
(Australia, Department of Climate Change, Energy, the Environment and Water 2022)

Canada, city level

1. Reduce food and organic waste: Preventing food from becoming waste is a critical first step and has the greatest positive impact on the environment, the economy and society. Rescuing surplus food when it occurs further reduces food waste and ensures that edible food does not end up as waste.
2. Recover resources from food and organic waste: Increasing resource recovery, in particular from multi-unit residential buildings and the industrial, commercial and institutional (IC&I) sector will help the province reach its goals of zero waste and zero greenhouse gas emissions from the waste sector.
3. Support resource recovery infrastructure: Turning food and organic waste into valuable end-products recognizes the economic benefits of a circular economy. It is important that Ontario has sufficient infrastructure capacity and innovative technologies to process food and organic waste into valuable resources.
4. Promote beneficial uses of recovered organic resources: Supporting endproducts and sustainable markets for recovered organic resources is critical. This includes supporting beneficial uses which promote soil health, crop growth and enhance carbon storage. Promoting end-products like renewable natural gas and electricity can help replace carbon-intensive fossil fuels."

Ontario's Food and Organic Waste Framework: Part A: Action Plan
(Canada, Ontario Ministry of the Environment and Climate Change 2018)

Examples of the use of CE Core indicators for policy monitoring

Colombia SIEC

The National Administrative Department of Statistics of Colombia (DANE) has created an Information System about Circular Economy (SIEC), with 51 indicators, which aims to be used as a tool for monitoring the shift to a circular economy. The proposed indicators cover 42 per cent of the circular economy core indicators proposed in the Joint UNECE/OECD Guidelines for measuring circular economy Part A: conceptual framework, statistical framework and indicators.

1. National recycling rate
2. Waste going to landfill as a final disposal
3. Waste generation per capita and by type of waste
4. GHG emissions from production activities
5. Circular use rate
6. Share of gross value added of recycling sector
7. Share of industrial wastewater safely treated
8. Share of waste from the manufacturing sector going to landfill final disposal

Information system about circular economy (SIEC)
(Colombia, Departamento Administrativo Nacional de Estadística (DANE) 2023)

UAE CE Policy

The indicators included in the UAE Circular Economy Policy that correspond to circular economy core indicators are:

- Domestic Material Consumption per unit of GDP
- CO_2 emission per unit of GDP
- Municipal solid waste generation intensity (Kilograms/person/day)
- Percentage of recycled waste as proportion of the total waste generated (hazardous and non-hazardous).

"The policy will be developed by a detailed implementation plan for the transition to a circular economy that will identify Specific Measurable Achievable Relevant Timebound (SMART) targets. The plan will also allocate clear roles and responsibilities to key stakeholders, including responsibility for monitoring and evaluating progress using key performance indicators."

United Arab Emirates Circular Economy Policy 2021-2031
(Government of United Arab Emirates 2021)

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Thank you!

UN, 2025, The Sustainable Development Goals Report 2025: https://unstats.un.org/sdgs/report/2025/

UNEP, 2024, Circular Economy: from Indicators and data to policy-making: https://sdgs.unep.org/article/circular-economy-report

UNEP, 2024, Global Waste Management Outlook 2024: https://www.unep.org/resources/global-waste-management-outlook-2024

UNECE, 2024, Guidelines for Measuring Circular Economy (Part A: Conceptual Framework, Indicators and Measurement Framework): https://unece.org/sites/default/files/2024-02/ECECESSTAT20235_WEB.pdf