CCES 2025 Session Summary

Metrics Matter: Pioneering Standardization in Circular Economy Measurement

When it comes to accelerating circular economy efforts and action, metrics matter. It's important to be able to measure the benefits to support a variety of objectives, from economic and financial performance, to environmental and social impact. While performance measurement for circular economy-related efforts is still in its infancy with a range of approaches and methodologies in practice today, standardization and harmonized approaches to measurement and reporting are growing as a result of international initiatives and efforts by the UNECE and OECD, WBCSD's Global Circularity Protocol, the recently published ISO 59020 on Measuring and Assessing Circularity Performance, and material flow analyses. Find out about the latest efforts to support standardization in CE measurement and reporting.

Date / Location: Wednesday, April 16, 2025 / Montreal, Canada

Speakers:

- **Walter Jager**, Principal, ECD Compliance (moderator)
- **Johanna Pakarinen**, Senior Advisor, Statistics Finland & Chair, UNECE Task Force on Measuring Circular Economy
- **Bethany Edwards**, Circular Products & Materials, World Business Council for Sustainable Development (WBCSD)
- **Adriana Shu-Yin**, Project Manager, Environment & Climate Change, CSA Group
- **Etienne Angers,** Chef d'équipe, économie circulaire et réduction à la source, RECYC QUÉBEC

Summary of Speaker Presentations

Walter Jager, ECD

Circularity measurement is challenging due to a lack of global consensus on the definition of a circular economy and what it means to achieve it, including quantifying percentages of circularity. Over 100 different circular economy frameworks exist, highlighting the complexity and diversity in this area. It's also unclear whether current measurements effectively guide improvements. Consistent measurement requires robust definitions, criteria, methods, and exchange protocols to avoid misleading interpretations and greenwashing.

A key issue, exemplified by Canada's low plastic recycling rate (9%), is the absence of consistent definitions, hindering efficient processes and effective legislation. A new standard aims to address this by providing a comprehensive definition for plastics recycling in Canada.

To better understand circularity measurement, a taxonomy categorizes indicators into: circularity measurement (resource flows), circularity assessment (environmental, social, and economic impacts), and business model metrics (profitability). Additionally, enablers and barriers are considered as factors influencing the transition to a circular economy.

Johanna Pakarinen, Statistics Finland / UNECE

Johanna discussed the challenges and approaches to measuring the circular economy, primarily from a national and international statistical perspective. She began with a practical example from Finland, where the environmental institute wanted to understand the significance of circular economy businesses. Instead of conducting a potentially expensive and unreliable survey to directly measure turnover, the Finnish statistical office decided to leverage existing statistical data.

The initial hurdle was defining "circular economy business." A stakeholder survey revealed a lack of consensus, highlighting the fundamental difficulty in establishing a clear scope for measurement. Despite this, they developed a "wheel" of circular economy business activities to provide a framework for identifying relevant statistical indicators. This framework aimed to encompass the entire life cycle of products, not just recycling, which proved challenging with existing statistical classifications that often don't distinguish circular economy activities like design. Proxies, such as circular economy-related patents, had to be used.

The advantage of using existing statistical data included resource efficiency, easier updates, and the availability of historical time series data for trend analysis. While the resulting indicators for Finland, such as those for renting and leasing, repair and reuse, and recycling establishments, and material reuse, provided valuable insights, they also revealed gaps in coverage, particularly for crucial aspects like design.

Johanna then shifted to her work chairing a United Nations Economic Commission for Europe (UNECE) task force focused on developing statistical guidelines for measuring the circular economy. This ongoing international collaboration, involving countries including Canada, aims to create a common statistical language and framework. Part A of these guidelines, already published, provides a conceptual framework, indicators, measurement scope, and definitions for circular economy in a statistical context, along with national and regional examples.

The task force is currently working on Part B, which will offer more concrete guidance on using the indicators, policy applications, institutional collaboration, and metadata. The approach mirrors the Finnish

experience, starting with defining what to measure and then organizing indicators under building blocks, which in this case cover the entire circular economy, including responses and actions, material lifecycle, value chain interactions with the environment, and socioeconomic opportunities.

The UNECE guidelines include a list of 19 core indicators recommended for countries starting to measure circular economy, complemented by more detailed and context-specific indicators, as well as contextual indicators to aid in interpretation and analysis, such as economic development. Johanna emphasized the importance of a robust statistical foundation for accurately measuring and tracking progress towards a circular economy.

Bethany Edwards, WBCSD

Bethany from the World Business Council for Sustainable Development (WBCSD) introduced the Global Circularity Protocol (GCP), a voluntary initiative aimed at providing a standardized approach to measuring, managing, and disclosing circular performance through a double materiality lens. Developed in collaboration with the UN's One Planet Network and over 80 stakeholders, including ISO, the GCP builds upon WBCSD's experience with the Greenhouse Gas Protocol and its Circular Transition Indicators (CTI).

The overarching goal of the GCP is to help businesses communicate value creation, mitigate linear risks, and unlock investment opportunities by establishing a common language, creating guidelines, and fostering a unified approach to circularity. WBCSD envisions the GCP accelerating the adoption of circular business models and significantly reducing CO2 emissions.

The development of the GCP began with landscape and impact analyses. The current phase focuses on corporate performance and accountability, encompassing two key work streams: measuring and managing circularity performance (which includes the existing CTI framework) and financial disclosures. Version one of the GCP is slated for launch at COP 30, with future development focusing on policy frameworks, science-based indicators for circularity, technology, and data.

A core element of the GCP is the integration of WBCSD's Corporate Performance Accountability System (CPAAS) to ensure accountability and links to financial performance. Key areas of focus include understanding the impact of circularity on the balance sheet, moving from theoretical concepts to practical implementation.

Planned enhancements within the GCP include revisions to the CTI framework, incorporating aspects like avoided resources and enabling solutions. Governance is also a key consideration, aiming to embed circular economy principles across entire corporations. Recognizing the challenges in achieving full circularity, the GCP will also address "narrowing the loop" strategies, focusing on byproduct and waste valorization. Furthermore, the protocol will provide guidance on research, benchmarking, boundary setting, and value chain accountability, aiming to enhance the value derived from circularity assessments beyond mere compliance.

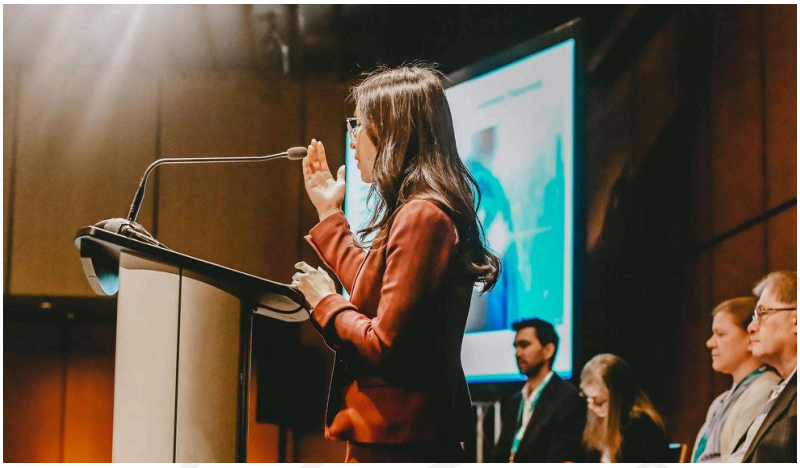
The CTI framework, now housed within the broader GCP, focuses on areas like closing the loop, optimizing the loop, valuing the loop, and decoupling linear revenues, with increasing attention on integrating financial and social impact considerations. A social impact component of CTI is expected to be released soon. Bethany encourages attendees to learn more about CTI in her workshop session later in the day.

Adriana Shu Yin, CSA Group

Adriana with CSA Group, a Canadian standards development organization, discussed their work in the circularity and measurement space. CSA Group's mission is to enhance the lives of Canadians through standards development across 13 industry sectors. Beyond standards development, they also engage in research, education, and advocacy.

In their environment and climate change program, CSA Group has adopted three ISO 59000 standards (59004, 59010, 59020) on the fundamentals of circular economy, now national standards of Canada. These standards aim to harmonize understanding, support implementation, and guide measurement. Notably, ISO 59020 provides requirements and guidance for organizations to measure and assess circularity performance using mandatory (inflows, outflows, energy, water, economic aspects) and optional indicators within defined system boundaries and timeframes. This framework emphasizes consistent, reproducible, and verifiable data processing and is applicable at regional, organizational, and product levels.

CSA Group has also developed CSA R117, the national standard for plastics recycling definitions, measurement, and recycling, addressing the previous lack of a consistent framework in Canada. Additionally, CSA's research on climate-smart circularity explores how circular pathways can be climate-friendly across textiles, construction, and agrifood sectors. CSA is also working on binational standards with the US on reusable packaging systems for food and beauty products.



Recognizing the challenge of choosing the right circularity measurement framework among the many available and the need for a consistent approach in Canada, CSA Group has launched a research project to address this. The research aims to identify relevant frameworks for Canada based on its values, targets, and data availability, explore opportunities for harmonized standards-based solutions for industry and government, and pinpoint data needs and gaps.

The research, in collaboration with CELC and its government-to-government (G2G) policy incubator initiative, is divided into two research components and reports. The first focuses on industry and value chains, aiming to outline the current state of circular economy measurement, evaluate frameworks, propose a harmonized methodology tested through Canadian case studies, and recommend harmonized economic, social, and environmental indicators. The second report focuses on the government level (national and subnational), assessing frameworks, available data, and opportunities for national and subnational frameworks, as well as identifying data and standardization gaps and solutions. Ultimately, this research seeks to clarify gaps in existing frameworks like ISO 59020, share insights from case studies, and explore opportunities for harmonized standards to support circular economy measurement in Canada and beyond.

Etienne Angers, RECYC QUÉBEC

Etienne detailed Quebec's journey in measuring circularity through two "Circularity Gap Reports" in 2021 and 2024, conducted in collaboration with Circle Economy based in the Netherlands. The initial motivation stemmed from a need to assess the progress of numerous circularity initiatives in Quebec since 2015, which included defining circularity for the province, creating a platform for exchange, funding projects, and integrating circular economy into government plans.

The first report in 2021 aimed to establish a baseline metric and identify levers for improvement, while also fostering collaboration among stakeholders. Using a material flow analysis, the report calculated Quebec's circularity rate at 3.5%, compared to a global average of 8.6%.[1] This metric, though initially concerning, served as a communication tool and was accompanied by six sector-specific scenarios and 37 strategies to potentially increase circularity to 9.8%.

Following the 2021 report, the focus shifted to linking circularity with broader environmental challenges, specifically planetary boundaries. Inspired by Circle Economy's 2023 report, Quebec again collaborated to produce a 2024 report that assessed the potential impact of circular economy strategies on regionalized planetary boundaries. This analysis demonstrated the potential for circularity to positively impact climate change and land system use.

Key takeaways from this process highlighted the challenges of navigating a "data jungle" to gather consistent and compatible data from various sources. Effectively communicating complex data to a broad audience was also a significant undertaking. However, stakeholder involvement proved crucial, not only for data collection but also for fostering a shared understanding and collaborative action. Etienne questioned the reliance on a single overarching metric, suggesting that while useful for starting discussions, a deeper dive into sector-specific data and strategies is necessary.

Looking ahead, an updated report is planned for the fall to track progress since 2021 and inform future strategies, serving as a key metric for both the speaker's organization and the governmental circular economy roadmap. The speaker concluded with an analogy, comparing data to Lego bricks: requiring a plan to assemble into something meaningful, a story to capture attention, and actionable insights to drive progress and stakeholder engagement.

Questions & Answers

Moderator's Questions:

- **Question:** Given strong natural resource industries in both Finland and Canada, what circularity measurement learnings can Canada take from Finland?
    - **Johanna:** It depends on the chosen framework and available data. Consider Finland's legislation and reporting, but focus on Canada's specific problems, legislation, and key natural resources. Look into ecosystem accounting (likely coming to Canada) for building indicators. Start with an agile approach – "done is better than perfect" – and refine indicators as needed.
- **Question:** The 3.5% circularity score might hide details. What other indicators are you looking at?
    - **Etienne:** Besides the recycled material loop (3.5%), they track additions to stocks (e.g., infrastructure, 17% locked in for long periods) and ecological cycling (biomass like food and wood, 26% with complex inclusion in metrics). Analyzing resource inflow and outflow provides a better understanding for decision-making.

Audience Questions:

- **Question:** Is the UN framework for companies or governments?
    - **Johanna:** Primarily for statistical offices and policy users, but company data is crucial, making it indirectly useful for them.
- **Question:** With many standards and organizations focused on data, what opportunities exist for consistent global circular economy measurement? Are UN indicators the guide?
    - **Johanna:** Believes in collaboration and making frameworks work together to achieve circularity. Global comparability is important but consider the local level of many decisions. Prioritize consistent time series data to monitor progress. Benefit from all frameworks and "cherry-pick" what suits your needs.
    - **Adriana:** No circularity measurement framework is perfect; achieving global consensus is challenging. The Systems Change Lab's global tracking highlighted the difficulty of rolling up data due to differing definitions and frameworks. However, similarities exist, and ISO references complementary methods. ISO 59000 series aims to find commonality as a starting point.
    - **Walter:** Conceptual inflow/outflow is well-adopted. Focus is on layering in details like climate, nature, and equity. WBCSD's Global Circularity Protocol targets businesses as strategic planning tools. Their Partnership for Carbon Transparency Pact facilitates data sharing across the value chain.
    - **Etienne:** Quebec chose the Circularity Gap Report for international comparison. Standardized metrics for value chain case studies are needed for showcasing benefits and learning.
- **Question:** Any experience helping municipalities use standards for material sourcing and measuring community circularity?
    - **Etienne:** Quebec developed a guide for municipalities to create circular economy roadmaps, including measurement indicators and stakeholder engagement. The Circular Cities and Regions Initiative in Canada shows significant local government movement.

- **Question:** How was the Canadian design industry consulted for ISO 59000 series, considering design's key role?
    - **Adriana:** Canada has a mirror committee of experts who comment on and vote on international standards. While no specific design association member was directly involved, engaging them is a good suggestion for future implementation and guidance.
- **Question:** How can SMEs get involved? Any key indicators or methodologies to prioritize?
    - **Walter:** CSR and ESR reporting can be a starting point as larger companies prioritize these.
    - **Etienne:** Focusing on the "real cost of trash" (including all steps from virgin material to disposal) can be a powerful motivator for action.
    - **Bethany:** Growing circularity requirements in regulations (e.g., recycled content) are immediate drivers.
- **Question:** Facing difficulty finding data on used utility pole management (landfill, recycling). Advice on obtaining this data to improve credibility?
    - **Bethany:** Detailed assumption pages in calculations are helpful. Try to estimate the total number of utility poles and their typical lifespan. Engage with utility companies for potential data sharing, highlighting the benefits of showcasing recycling efforts.
    - **Etienne:** Data availability and quality are a common struggle, especially for niche areas. Open to discussing potential data sources afterward.
- **Question:** What's next for the ISO 59000 series on circular economy?
    - **Adriana:** Focus on value networks (interconnected value chains). ISO is developing technical reports and a new standard proposal (led by Canada and Japan) on organizing value networks for circularity. This includes guidance on developing network-level circularity indicators, addressing how to measure and attribute circularity within complex systems.

The session concluded with thanks to the speakers and audience, emphasizing the importance and popularity of the topic. Attendees were encouraged to ask further questions afterward.