CCES 2025 Session Summary

Recipe for Advancing Canada's ICI Circular Food Economy: Building Collaborative Networks and Place-Based Solutions

Food loss and waste (FLW) in Canada has an estimated value of $58 million dollars and is a main contributor to disposal and carbon emissions. This interactive panel / workshop combination examines the challenges and opportunities in designing circular food systems within Canada's Industrial, Commercial, and Institutional (ICI) sector, key to solving food system losses. Emphasizing the power of local and collaborative networks to address barriers and unlock opportunities, an expert panel will set the stage by drawing from living case studies, sharing practical experiences and expertise focusing on four essential enablers for advancing circular food economies: financing, policy, data and governance. A 'roll up your sleeves' workshop will follow where participants go through a systems transformation challenge to pose their own solutions to redesigning a circular food system for Canada.

Date / Location: Tues Apr 15 at 1:45 - 4:00pm / Montreal, Canada

Speakers:

- **Savina Caporali (Savvy Sustainability Inc.)** – Session Introduction and Moderator
- **Maggie Bain (Circular Innovation Council)** – Accelerating Organic Waste Diversion in Canada's ICI Sector
- **Matthew Lynch (Ivey Centre for Building Sustainable Value)** – Circular Clusters for Reducing ICI Food Waste and GHG Emissions
- **Jessica Regan (Food Mesh)** – Collaborative Strategies for Maximizing Food Recovery in Supply Chains
- **Catherine Tays (CSA Group)** - Recommendations for standards frameworks for tracking and measuring municipal ICI food loss and waste

SUMMARY

Speaker Presentations

Savina Caporali, Savvy Sustainability Inc. (Moderator)

Savina Caporali, Principal Consultant at Savvy Sustainability Inc., introduced the panel discussion and workshop session by explaining the urgent need to shift from a **linear food economy**, where food and organic waste are sent to landfills, to a **circular food economy** that redistributes materials to **higher-value uses** like food recovery, compost, animal feed, and bioenergy. She highlighted that organic waste in landfills generates **methane**, a greenhouse gas **84 times more potent than CO_2** over 20 years. The industrial, commercial, and institutional (**ICI) sector** is Canada's **largest generator of organic waste**, producing **14 million tonnes annually** and food waste alone accounts for **25% of ICI waste**.

She outlined key **barriers** to circular adoption: the **low cost of disposal**, **lack of regulation or incentives**, **fragmented governance**, and **low awareness** of environmental and economic consequences. Still, solutions are emerging through **place-based, collaborative models** that can be scaled and adapted regionally. These include **cross-sector governance**, **sustainable financing**, and **data-driven policy** to inform infrastructure investment.

Savina previewed that the panel would explore how organizations are leveraging **governance, finance, policy, and data** to advance circularity. After the panel, participants would engage in a **"systems transformation challenge"**, imagining a future 50 years from now where circular ICI food systems are the norm. The workshop would task participants with identifying the **interventions and shifts** that led to this outcome, drawing from both panel insights and their own expertise.

Maggie Bain, Circular Innovation Council

Maggie Bain shared how the **Circular Innovation Council (CIC)** is using **place-based pilots** and **applied research** to advance **ICI food recovery and organic waste diversion** in Canada. CIC identifies **market failures**, enables **cross-sector collaboration**, and **de-risks circular models** by piloting them in real-world settings. Their research with **Environment and Climate Change Canada** identified four key barriers to advancing ICI organic waste diversion across Canada: **financial/infrastructure gaps**, **governance fragmentation**, **lack of coordinated policy**, and **lack of publicly-available ICI organics diversion data for benchmarking**. These reinforce one another, making it difficult for stakeholders to implement diversion strategies at scale.

Maggie highlighted thar CIC's approach is to address these barriers through **place-based pilots** that coordinate efforts between ICI establishments, municipal governments, organizations, and service providers. Pilots are currently located in **Guelph-Wellington (ON)**, **Strathcona County and Westlock (AB)**, and two new ones launching in **Regina (SK)** and **Edmonton (AB).** Each pilot **recruits a cohort of**

ICI businesses and institutions into consolidated organics service routes in their region, and the pilots' partner haulers can **lower the price of organics collection because of increased transportation efficiencies**, making it more affordable for businesses and institutions to divert organic materials. Maggie emphasized that **affordability is especially important for small-and-medium sized businesses (SMEs)**, as it is a major barrier for them. Additionally, **CIC partners with food rescue organizations**, such as Second Harvest and Leftovers Foundation, to encourage pilot program participants to also donate their edible surplus food *before* disposing of it in the green bin. The programs provide **custom advisory and workflow support, staff training, and diversion resources** to make implementation smoother for ICI establishments.

A defining feature of CIC's pilots is the integration of **collaborative, regionally-relevant data tracking systems** into every stage of implementation. Each pilot incorporates **multiple data collection methods**, tailored to the region and the types of diversion activity taking place. **Fill-level sensors, manual weighing** on organics bins, and collection data from pilot service providers are used to estimate diversion volumes over time, generating individualized participant reports on **tonnes diverted** and **GHG emissions avoided**. Maggie explained that this data is then used to create **estimates of average diversion data for each ICI sector-type** (e.g. restaurants, grocery retail, offices, hospitals, etc.), which supports businesses, municipalities, and service providers in broader policy, program, and infrastructure decision-making for their regions. In parallel, CIC's food rescue partners track participants' donations for **meals donated, equivalent dollar value recovered, and GHG emissions avoided**. Together, these methods provide a **scalable, evidence-based framework** for assessing impact and supporting ICI organics diversion policy and infrastructure development.

Across approximately 75 businesses, these pilots have diverted over **570 tonnes of food and organics**, rescued **92,000+ meals**, and generated over **300 tonnes of compost for soil amendment**, avoiding **6500 tonnes of CO_2e emissions**. Maggie emphasized that these models support not only environmental benefits but also **economic and social value** - by creating new local partnerships and informing future **infrastructure, policy, and funding decisions**.

Matthew Lynch, Centre for Building Sustainable Value at the Ivey Business School

Matthew Lynch, representing the **Centre for Building Sustainable Value** at the **Ivey Business School**, focused on the role of business in accelerating circular food systems and the importance of designing these systems to deliver **measurable climate outcomes**. While Ivey is widely recognized for its business leadership programs, Matthew highlighted that it is also ranked among the top schools globally for integrating the **UN Sustainable Development Goals** into its research. His team focuses on **translating sustainability research into practical business models**, with an emphasis on circularity in food systems.

Matthew's presentation spotlighted the emergence of **circular food networks** in Canadian cities, particularly **Montreal**, where businesses are forming local ecosystems that **exchange and repurpose**

food waste. These informal yet dynamic exchanges offer insight into how circularity works in practice and reveal the challenges involved in **scaling** such models.

He introduced the concept of **"climate-smart circularity,"** drawing on research published in the *Journal of Industrial Ecology*. The study evaluated different waste management pathways—including **upcycling**, **animal feed**, **composting**, and **anaerobic digestion**—and found that none are inherently climate-positive. The **climate outcome depends heavily on design**, including factors like **transportation distances**, **production efficiency**, and even the **electricity grid** in the province. Notably, even highly valued solutions like upcycling can increase emissions if poorly implemented. However, real-world examples from Montreal show that with careful design, circular exchanges can achieve an **average 25% reduction in emissions**.

Matthew also explored how businesses navigate the operational complexities of circular systems. Successful firms share a trait he called **"operational agility"**—the ability to manage fluctuating input volumes and qualities, store materials, and adjust production processes. This agility is supported by **strong relationships with other actors in the network**, creating a sense of **trust and flexibility**. More broadly, these businesses benefit from **place-based embeddedness**—they are deeply connected to the local context and can access support or expertise quickly, which is essential for managing uncertainty and variability.

Addressing the challenge of **scaling circular networks**, Matthew noted that many failed exchanges involved attempts to expand across geographies without replicating the **local trust and infrastructure** that made the original network work. He suggested that **replication, not linear scaling**, may be a more viable approach—adapting successful models to fit the local context of new regions. He concluded by highlighting future research focused on analyzing entire food system networks, which could help generate new **policy recommendations** and support more comprehensive **system-level transformation**.

Jessica Regan, FoodMesh

Jessica Regan, founder and CEO of **FoodMesh**, presented a data- and operations-focused model for scaling circular food systems through **surplus food rescue**. She began by grounding the conversation in the **systemic problem**: nearly **half of the food grown in Canada** is lost or wasted, while **1 in 4 Canadians now experience food insecurity**. Despite this mismatch, only **4% of surplus food** is currently rescued. The rest is either disposed of or ends up in **low-value waste streams** like animal feed or landfill.

Jessica described FoodMesh's solution as a **three-part model**: **matchmaking**, **managed service**, and **measurement**. The organization builds localized food recovery networks around each donor site, connecting them with charities, farmers, and upcyclers based on the **status, quantity, and type of surplus food**. They facilitate both **scheduled and ad hoc pickups**, handling over **70,000 pickups annually**. What sets their model apart is its **built-in financing mechanism**—FoodMesh pays participating recipients per verified pickup, creating a **performance-based funding system** that strengthens the operational capacity of circular solution providers. To date, they have redirected over **41**

million kg of food, recovered more than **62 million meals**, and distributed over **$2.5 million** in service payments to charities and food rescuers.

A core strength of FoodMesh's model lies in its **robust data systems**. Recipients use a dedicated app to track what is picked up, standardizing and harmonizing data across users. This allows FoodMesh to monitor trends in **real time**, and when anomalies occur—such as a sudden drop in pickups—a field team investigates to ensure continuity. Additionally, FoodMesh conducts annual **food loss and waste audits** to identify "leakage" to landfill, helping partners optimize diversion strategies across vendors.

Jessica emphasized that circular systems cannot succeed without **trusted logistics and clear data**, and FoodMesh plays an essential role in building that infrastructure. She also discussed a recent **data aggregation project** with the **City of Vancouver**, where they worked with all major food rescue organizations to develop a **baseline of food recovery** across the ICI sector. The study revealed that **22% of food businesses** in the city had active diversion programs above the compliance threshold. This initiative has since scaled to include **23 municipalities** across **Metro Vancouver**, offering the first jurisdiction-wide picture of ICI food recovery in Canada.

In closing, Jessica argued that to scale the circular economy, Canada must **rethink its economic models**—shifting from grant-based support to **embedded financial incentives** that fund circular operations as a core service. FoodMesh's model demonstrates how aligning data, trust, and financing can powerfully advance the **national circular food economy**.

Catherine Tays, CSA Group

Catherine Tays from **CSA Group** presented the organization's current efforts to support Canada's transition to the circular food economy through the **development of standards**, focusing specifically on **food loss and waste measurement**. CSA Group is a global organization dedicated to safety, social good, and sustainability. CSA Group is a leader in North American Standards and in Testing, Inspection and Certification around the world. Catherine shared that she represents the the **Standards organization**, which is a leader in standards research, development, education, and advocacy. The technical and management standards developed with CSA Group's more than 11,000 volunteer members help improve safety, health, the environment, and economic efficiency in Canada and beyond.

CSA Group recently launched a new **Agriculture and Agri-Food Program**, and in its early consultations with interested parties, **food loss and waste** emerged as a high-priority issue with **few existing accredited standards** to support coordinated action. As a result, CSA began pursuing and supporting both **international** and **national** standard-setting initiatives. On the international stage, CSA manages Canada's Mirror Committee to the **ISO Food Loss and Waste Technical Subcommittee**, where three new global standards are being developed: one on **food loss and waste management systems**, another on **measurement and quantification**, and a third on **auditor qualifications**. The first is well-advanced in its development process, while the others are still in early phases and likely years from completion.

Nationally, CSA is leading the creation of a National **Standard of Canada on Food Loss and Waste Terminology and Measurement**, which is expected to be published by **mid-2026**. Catherine described this as a **foundational standard** aimed at creating a **shared national language** and methodology for measuring food loss and waste. It will also provide **guidance on evaluating environmental impacts**, such as greenhouse gas emissions, to support both industry and government in designing meaningful

interventions. She emphasized that such standards help ensure that data being compared is **"apples to apples"**, rather than inconsistent metrics that limit coordination and policy development.

She also discussed a recent CSA-commissioned **research report** on municipal data practices for food loss and waste in the ICI sector. The report confirmed that while municipalities have made strong progress in **residential food waste tracking**, there remains a **"black box" of data** for the ICI sector, with inconsistent reporting, varied methodologies, and little integration across jurisdictions.

Catherine concluded by explaining the **public review process** CSA uses for all its standards. Each standard undergoes a **60-day public comment period**, during which any interested party can provide input. These comments are reviewed by a **balanced technical committee**, ensuring that **no single interest group dominates**. She underscored that **standards are not regulations**, but when developed collaboratively, they become essential tools for **enabling policy alignment, market access, and cross-sector coordination** to support the sector in meeting it's goals — including Canada's transition to a circular food system.

Audience Q&A

The question and answer session following the panel presentations covered practical and policy-relevant questions about how to measure, scale, and support circular food systems, with a focus on emissions impacts, food safety, data tracking, and standardization. Speakers shared insights on operational barriers and solutions, the role of trust and governance, and strategies for embedding circularity into business models and public infrastructure.

QUESTION 1 (for Maggie Bain) – Can CIC's pilots provide granular data at the individual business or institution level? Noting that participants often want to report their own specific impact.

Maggie confirmed that CIC tracks **individual site-level data** for each participating business. This includes data gathered from **manual organics cart weights** and **fill-level sensors**, which is then extrapolated over time to estimate **diversion volumes** and **GHG emissions avoided** for each participant. Businesses also receive personalized reports for surplus edible food rescue showing their **meals donated**, **donation dollar-value equivalent**, and **emissions reductions**, if they participate in

food rescue through their partners **Second Harvest or Leftovers Foundation**. The regional impact data shared publicly is an aggregation of these individual reports, but sector-specific data is also made available to partners and in public reports.

QUESTION 2 (for Maggie Bain) - What would it take to **scale CIC's pilots** and make them standard practice? What benefits do communities gain in the long term?

Maggie emphasized that **collaboration is essential**. Each stakeholder group—municipalities, service providers, and businesses—holds different **resources, expertise, and decision-making power**, and pilots help bring them together around **shared goals**. By collaborating during the pilot, stakeholders gain a clearer understanding of what's needed to implement broader diversion systems, such as estimating **infrastructure capacity** and understanding potential **policy requirements**. For municipalities, it helps forecast program design; for haulers and processors, it supports **investment planning**. This collaborative model does not necessarily scale linearly, but rather can be replicated across different communities in Canada, making it common practice that way. Maggie concluded that aligning on a **common vision** allows communities to build lasting circular systems that benefit **local economies, social equity, and environmental outcomes**.

QUESTION 3 (for Matthew Lynch) - **Question:** Are sectors sufficiently aware that circular solutions don't automatically equate to climate benefits, especially in relation to emissions and performance?

Matthew affirmed that this is a **commonly misunderstood issue**. He explained that while circular strategies can offer many benefits, they **do not inherently guarantee climate gains**—particularly in terms of emissions. There may be other positive outcomes, such as economic or material recovery benefits, but to truly reduce emissions, circular solutions must be **carefully designed and implemented**. He acknowledged that this nuance can get lost, especially in public or business discussions. Matthew also noted that many of the businesses they worked with lacked the capacity to conduct **full life-cycle assessments (LCAs)** to assess these outcomes properly. To address this, his team is working on developing **generalized benchmarks** that can guide businesses toward climate-smart practices without requiring full LCAs. These benchmarks are based on key variables like transport distance and processing efficiency, offering **practical decision-making tools** for smaller firms.

QUESTION 4 (for Matthew Lynch) - What causes the wide range of climate impacts across different upcycling or animal feed scenarios?

Matthew explained that the **wide range of emissions outcomes** shown in his graphs came from modeling **multiple configurations** of each circular solution type. For example, different scenarios factored in **transport distances**, **processing technologies**, and whether the surplus food **effectively displaced virgin materials**. He pointed out that **waste food often requires more volume** to match the same functional performance as virgin materials (e.g., two tonnes of surplus might equal one tonne of raw input). These variables, when combined, account for the **range of emissions results** across strategies like upcycling and animal feed.

QUESTION 5 (for Matthew Lynch) – An audience member noted the importance of **place-based knowledge** and asked whether there are successful examples of **scaling** circular businesses from one region to another? (in the context of Mathhew's presentation)

Matthew admitted that **scaling circular food exchanges across geographies is a significant challenge**. In fact, some of the **unsuccessful examples** in their research came from attempts to

transplant circular models into new regions without replicating the **local trust, relationships, and infrastructure** that made the original network work. He noted that successful models often depend on deep **local embeddedness**, which cannot easily be recreated elsewhere. As such, he proposed that rather than traditional scaling, the focus should be on **replication**—adapting models to new contexts while preserving the **principles of local adaptability** and operational flexibility. However, he acknowledged that even replication is not always straightforward.

QUESTION 6 (for Matthew Lynch) - What mindset is needed to **study and replicate** circular clusters effectively, especially to influence **policy?**

Matthew described their next phase of research as a move toward **system-level analysis**, which goes beyond tracking individual exchanges to analyzing the **entire network of food system actors**. He believes this approach can help identify **collective impacts**—including emissions reductions and economic development—which in turn can support **stronger policy development**.

Studying how these networks operate as full systems also provides a clearer picture of what **enabling conditions** are needed to scale them more broadly. He suggested that making the value of these systems visible is key to gaining **government and industry support**.

QUESTION 7 (for Jessica Regan) - What are the common **data tracking trends**, and how do you handle **inconsistent data collection** across stakeholders?

Jessica shared that FoodMesh has developed a **custom app** used by hundreds of farmers, charities, and other recipients to input consistent data on food pickups. This ensures **standardized, harmonized tracking** across a large and diverse network. Previously, most organizations used their **own systems**, such as spreadsheets or multiple unlinked platforms, leading to inconsistent records and a fragmented understanding of outcomes. Over time, FoodMesh has observed that the sector is becoming **increasingly data-literate and collaborative**. Charities and other partners are now more open to **sharing data and coordinating**, which improves visibility and reduces **duplicate reporting**. She also noted that this evolution is building **a more mature, reliable data ecosystem** around surplus food diversion.

QUESTION 8 (for Jessica Regan) - Do brand owners or retailers resist food donations due to **food safety risks**, and how does FoodMesh address that?

Jessica said **trust and training in quality and assurance and regulations** are essential. Jessica emphasized that **trust is foundational** to successful food rescue systems. FoodMesh works closely with each business's **quality assurance team** to develop **training and procedures** that align with relevant food safety laws, including the **Canadian Food Inspection Agency (CFIA)** guidelines and the **Feeds Act**. She also referenced the **Donor Encouragement Act**, which offers **legal protection** for food donors who act in good faith and without gross negligence. FoodMesh ensures that all participants follow **documented standard operating procedures** to reduce liability risk and build trust in the system. When done properly, Jessica said, food recovery can be **safe, reliable, and scalable**.

QUESTION 9 (for Catherine Tays) - Will there be a **consultation period** for the 2026 standard on food loss and waste?

Catherine confirmed that CSA will conduct a **60-day public review period** for its new food loss and waste standard. During this period, **any interested party** —whether part of the formal committee or not— can review the draft and **submit comments**. Each comment must be addressed by the **technical committee**, which includes representatives from diverse backgrounds and organizations. Whether or not a suggestion is adopted, the committee records a consensus-based rationale for that decision. This process ensures that CSA standards are **transparent, inclusive**, and grounded in the needs of those affected by them. CSA also plans to notify stakeholders about the public review through **partners like CIC**, newsletters, and direct outreach.

QUESTION 10 (for Catherine Tays) - How does CSA prevent **overlap or contradiction** between new standards and existing ones, especially given growing complexity in sustainability reporting?

Catherine explained that before developing any new standard, CSA conducts an **internal and external alignment review process** to ensure it **does not conflict with or duplicate existing standards**. When the committee begins its work, it reviews **relevant standards side-by-side** to ensure consistency and avoid unnecessary complexity. She noted that, contrary to concerns about overspecification, interested and affected parties often ask CSA to be **more specific**, not less. There is high demand for **clear, actionable guidance** to help organizations navigate the **complex sustainability landscape**. CSA only moves forward with a new standard when it has confirmed that it meets a **real and well-supported need**.

WORKSHOP SUMMARY

Following the panel, participants transitioned into an interactive **"Systems Transformation Challenge"** workshop. The facilitator framed the exercise by inviting attendees to imagine a future **50 years from now**, where **circular food systems in the ICI sector are the norm**.

The goal was to work backward from this envisioned future to identify the **key systemic changes**, **interventions**, and **enablers** that made this transformation possible. Participants were divided into breakout groups by enabler theme: **governance, policy, finance, and data use**. Each group answered **three** questions: identifying key challenges in the system, proposing one leverage point, and designing a **concrete regional pilot solution for their enabler topic**. Each group then used their answers to collaboratively discuss and present their **enabler pilot solution** to the room and what would be needed to **scale and sustain** that solution over time. The workshop emphasized systems thinking, regional coordination, and cross-sector collaboration.

Governance Enabler – Group 1 Summary

Two governance groups shared their solutions. The first governance group proposed a **federal funding competition**. One municipality per province would be selected to pilot initiatives focused on reducing ICI food waste through circular solutions, aiming for a **30% reduction over five years**. Year one would focus solely on **data collection**, with years two through five setting **progressive targets** and forming **formalized collaborations** between food waste generators and solution providers. The structure was

designed to drive measurable impact through **regional coordination**, supported by performance-based goals.

The second governance group, focused on the federal government's role in enabling circular transitions. They proposed a **national focal point** with dedicated **policy direction, funding**, and **implementation strategies**. This would cascade through different levels of government, including Indigenous and municipal, backed by **communications, enforcement, and education strategies**. The group emphasized the importance of **authentic coordination**, **replicable case studies**, and **data-driven analysis** to ensure that all stakeholders—from policy-makers to local actors—could see their contributions reflected and reinforced across the system.

Policy Enabler – Group Summary

The policy group focused on introducing **provincial landfill bans** on food and organic waste as a pivotal intervention. They emphasized that for such bans to succeed, governments must provide **clear guidance** on compliance, **phased timelines**, and **support infrastructure** for businesses.

Key success factors included building a strong **business case** for investment, leveraging **existing best practices from other provinces**, and providing **education, tools, and capacity-building**. The group also noted challenges such as **municipal enforcement limitations** and **internal government inefficiencies**, and recommended the use of **consultants** to increase implementation speed and efficiency.

Data Use Enabler – Group Summaries

Two data use groups shared their solutions. The first group focused on the lack of **accurate weight-based food waste data**, especially in retail and food service. They proposed developing **real-time measurement technology** and a **standardized national database** to enable better tracking and regional benchmarking. They emphasized the need to create **incentives** for businesses to participate, such as **consumer-facing performance ratings** (e.g., a traffic light system) and noted the role of **national organizations** in reinforcing adoption outside of government mandates.

The second data group emphasized the importance of **traceability** and understanding **why** food is lost or wasted throughout its journey in the supply chain. They proposed a **pathway data framework** to track conditions like temperature and humidity across the food lifecycle—from packing to end-use. By piloting with **technology providers, logistics partners**, and select commodities, this system would allow for earlier detection of **loss events** and improve decision-making. They proposed using **public funds to de-risk** the pilot and called for **broad data accessibility** to benefit the sector as a whole.

Finance Enabler – Group Summary

The finance group proposed introducing coordinated **landfill levies** on food and organic waste to disincentivize disposal and generate a **revenue stream for innovation**. The fees would be redistributed through a **tiered incentive model**, rewarding high-performing organizations and funding **emerging solution providers**. The group acknowledged the existence of similar models in Quebec and Manitoba, and stressed the importance of **third-party monitoring** to ensure transparency and proposed launching the pilot model in regions like **Saskatchewan**, where regulatory ambitions exist but **infrastructure is lacking**. The approach would help incubate new circular businesses and reinforce systemic behavior change through **cost recovery and accountability** mechanisms.