Characterization and Management of Food Waste in North America

The path to food waste prevention **starts here.**

Measuring, Tracking and Reporting

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complex world | CLEAR SOLUTIONS™

Source: LeanPath, 2017, Tetra Tech, 2011

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Source: Tetra Tech, 2014

FOOD PRODUCTION POST-HARVEST PROCESSING DISTRIBUTION RETAIL FOODSERVICE

Definitions – Measuring, Tracking and Reporting

- **Measuring** – Quantification of food waste

- **Tracking** – Ongoing waste quantities compared to baseline

- **Reporting** – Sharing results from measurement and tracking

YES, YOU CAN PREVENT FOOD WASTE.

LeanPath

Source: LeanPath, 2016, Tetra Tech, 2015

Building the Case for Measuring, Tracking and Reporting

- Measuring, tracking and reporting is necessary to understand how much, where and why food waste occurs

- Benefits of measuring by stakeholder type
    - **Industry** (Post-Harvest Food Production and Processors)
      Identify trends in food preparation and operational efficiencies to reduce food waste
    - **Businesses** (Distribution, Foodservice and Retail)
      Avoid spoilage and overstocking, reduce costs, improve employee performance
    - **Government**
      Inform, prioritize and tailor policy making
    - **Nongovernmental Organizations**
      Attract donors wanting a quantified tax receipt

Challenges to Measuring, Tracking and Reporting

- Variation in methodologies – terminology, scope, category definitions, waste source and measurement units

- Perceived as lower priority due to effort required and uncertainty on investment return

- Resource limitations – time, labor, space, expertise

- Brand risk – concerns regarding reporting as relates to public image and proprietary knowledge

- Few requirements to measure, track, and report food waste

Source: Tetra Tech, 2014

Challenges to Measuring, Tracking and Reporting

	Post-Harvest Food Production	Processing	Distribution	Retail	Foodservice
Variation in methodologies and definitions					
Lower priority due to effort required and uncertainty on investment return					
Resource limitations					
Brand risk					
Few requirements to measure, track and report FLW					

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4 Approaches to Measuring, Tracking and Reporting

Source: Granville Island, 2011

Approaches Across the Food Supply Chain

Approaches *Canada, Mexico & United States*[1]	Post-Harvest Food Production	Processing	Distribution	Retail	Foodservice
1. Waste Composition Studies		✓	✓	✓	✓
2. Diaries	✓	✓	✓	✓	✓
3. Surveys	✓	✓	✓	✓	✓
4. Models and Proxy Data Extrapolation	✓	✓	✓	✓	✓

1. Approach sections pertain to all three countries

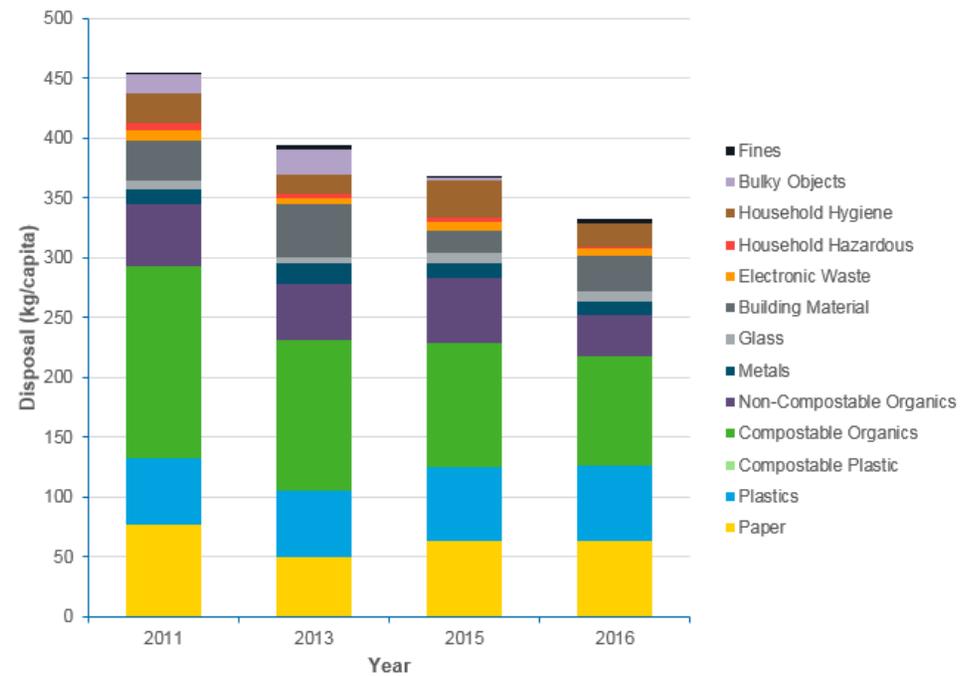# Approach 1 – Waste Composition Studies

- **Description** – Sorting waste to measure amount of food to set goals and create monitoring process

- **Trend** – Mostly conducted by larger jurisdictions

- **Challenge** – Distinguishing between categories

- Examples
  - CAN: Metro Vancouver
  - MEX: Mexico Landfill Gas Model
  - USA: CalRecycle

Source: Tetra Tech, 2014/2016

Case Study – Canada: Waste Composition Studies

- Metro Vancouver waste characterization studies

  ▪ Monitor progress towards the region's 80% diversion goal with 10% waste reduction by 2020

  ▪ Food waste is sorted into 10 categories to differentiate between unavoidable food waste and several avoidable food waste items

  ▪ By expanding food waste categories, Metro Vancouver is better positioned to evaluate not just organics waste diversion but also food waste reduction over time

**Waste Disposal per Capita by Primary Category Composition (2011-2016)
All Sectors Combined (excluding Demolition and Land Clearing)**

Source: Tetra Tech 2016

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Approach 2 – Diaries

- **Description** – Primarily used in studies for residential food waste, participants self-record food wasted over a period of time

- **Trend** – First published study was conducted in the United Kingdom; this approach is being adopted by all three countries

- **Challenge** – Accessing a representative sample group, as participation is voluntary

- **Examples**
  - CAN: Metro Vancouver
  - MEX: Mexico City
  - USA: Environmental Protection Agency

Source: Tetra Tech, 2011

Case Study – Mexico: Diaries

- People Centered Approach Towards Food Waste Management in the Urban Environment of Mexico
  - PhD dissertation to measure food waste from residential dwellings on household level using diaries
  - Survey provided insight on behaviors leading to food waste across a range of demographics
  - Diverse study groups in food waste measurement study helps government create targeted strategies

Source: Tetra Tech, 2011

Approach 3 – Surveys

- **Description** – Used to collect quantitative or qualitative data

- **Trend** – Used primarily to assess the commercial sector

- **Challenges** – Accessing a representative sample group

- Examples
  - CAN: Food and Consumer Products of Canada
  - USA: Food Waste Reduction Alliance

Source: Aramark, 2015

Case Study – US: Surveys

- **Food Waste Reduction Alliance Study** created a three-year food waste study plan
  - 2012: Baseline assessment
  - 2013: Surveys sent to Manufacturers, Retailers and Wholesalers
  - 2014: Surveys sent to Manufacturers, Retailers and Restaurants
- Demonstrated cross-industry collaboration allowing companies to compare performance to peers within their subsector.
- Within each subsector, participation was as follows
  - 16 manufacturers, representing 17% of projected sales
  - 13 retailers and wholesalers, representing 31.8% of projected sales
  - 27 restaurants, representing 15.2% projected sales

*From their subsectors

Approach 4 – Models and Proxy Data Extrapolation

- **Description** – Models consider multiple factors that influence waste generation

- **Trend** – Combination of models and proxy data extrapolation

- **Challenges** – Data uncertainty

- Examples
  - CAN: Statistics Canada
  - MEX: Sedesol
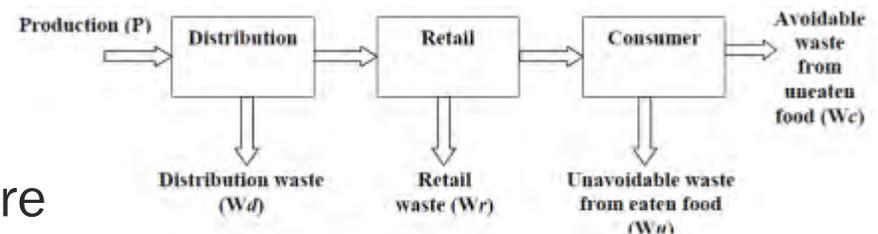 - USA: Department of Agriculture

Figure 1. Life-cycle model of material flow from production to disposal.

Source: Venkat, 2016

Case Study – Canada: Models and Proxy Data Extrapolation

Value Chain Management International estimated that in Canada C$31 billion worth of food is wasted annually

- Produced by analyzing data from Statistics Canada – this is the only study in Canada that breaks down sources by food supply chain stage

- Presenting dollar value of food waste builds business case for wasted food reduction and recovery

Case Study – Provision Coalition

- **Provision Coalition** is a public policy collaboration group that speaks on behalf of the food and beverage processors

- Launched toolkit to help quantify waste, calculate value of waste, and implement best practices

- Leverage relationships to bring education, awareness and tools to reduce food waste

Source: Provision Coalition, 2017

Policy and Education Highlights

- International – for Regional Use
  - Promoting use of Food Loss and Waste Accounting and Reporting Standard

- Canada
  - The Government of Canada is developing a national food policy that is anticipated to include food waste

- Mexico
  - Larger commercial operations are required to report the waste they generate and provide a waste management plan
  - Working to connect organizations that are working on measuring, tracking and reporting

- United States
  - EPA's Food Recovery Challenge, Call to Action and State Data Measurement Sharing Program. Call to Action identified measurement as an important area in advancing the US national goal

Thank you

Questions?

Tetra Tech Project Team

Source: Tetra Tech, 2015