Circular Economy – A Winning Strategy for Nova Scotia

Prepared by Doug Hickman
GPNS Candidate in King's North

June 2021

INTRODUCTION

The presentation will address:

- Definition: What is “circular economy” and what does it look like?
- Components of the circular economy
- Circular economy in Nova Scotia
- Reality check: Examples of the circular economy in action
- Benefits of the circular economy in Nova Scotia
    - Economy
    - Social justice
    - Environment

Discussion as desired

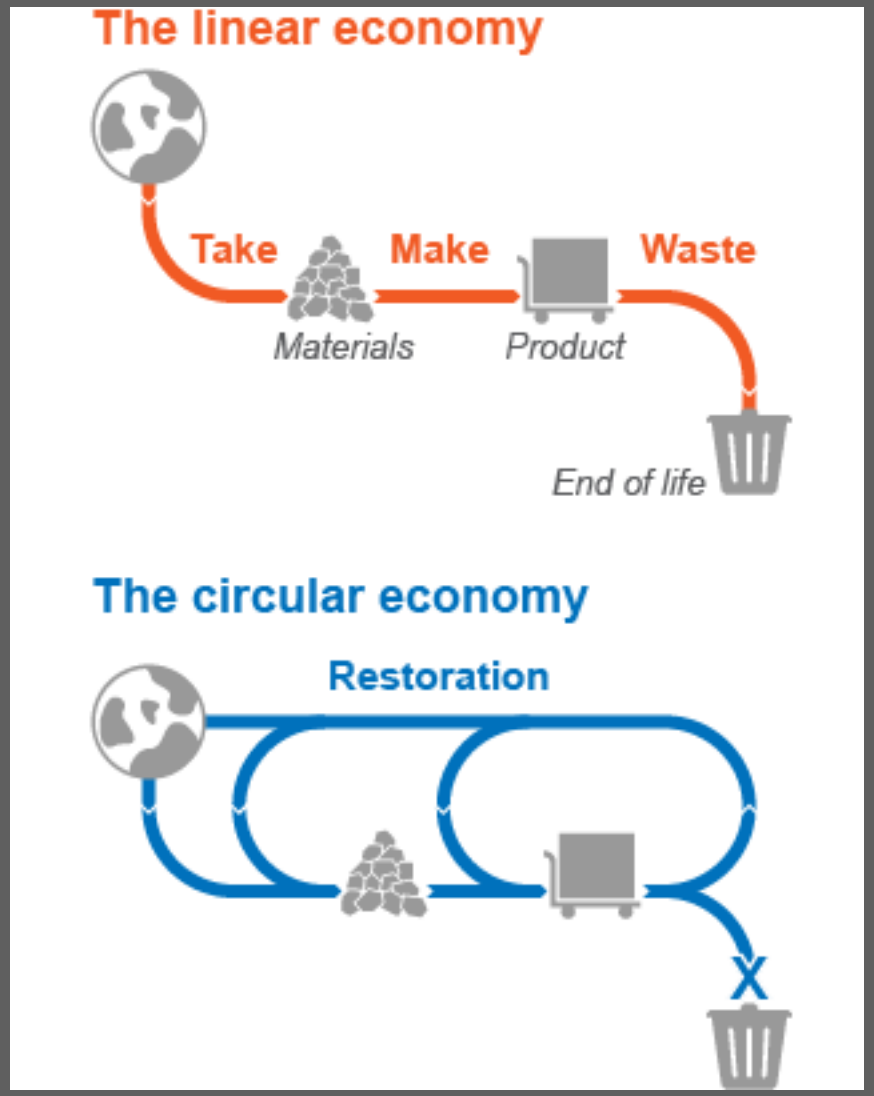
CIRCULAR ECONOMY: What is it?

A linear economy:

- Produces, uses and throws away: economic growth is accompanied by growing exploitation of natural resources and increased waste
- Degrades the environment because resources are exploited and discarded in ever-greater quantities

A circular economy:

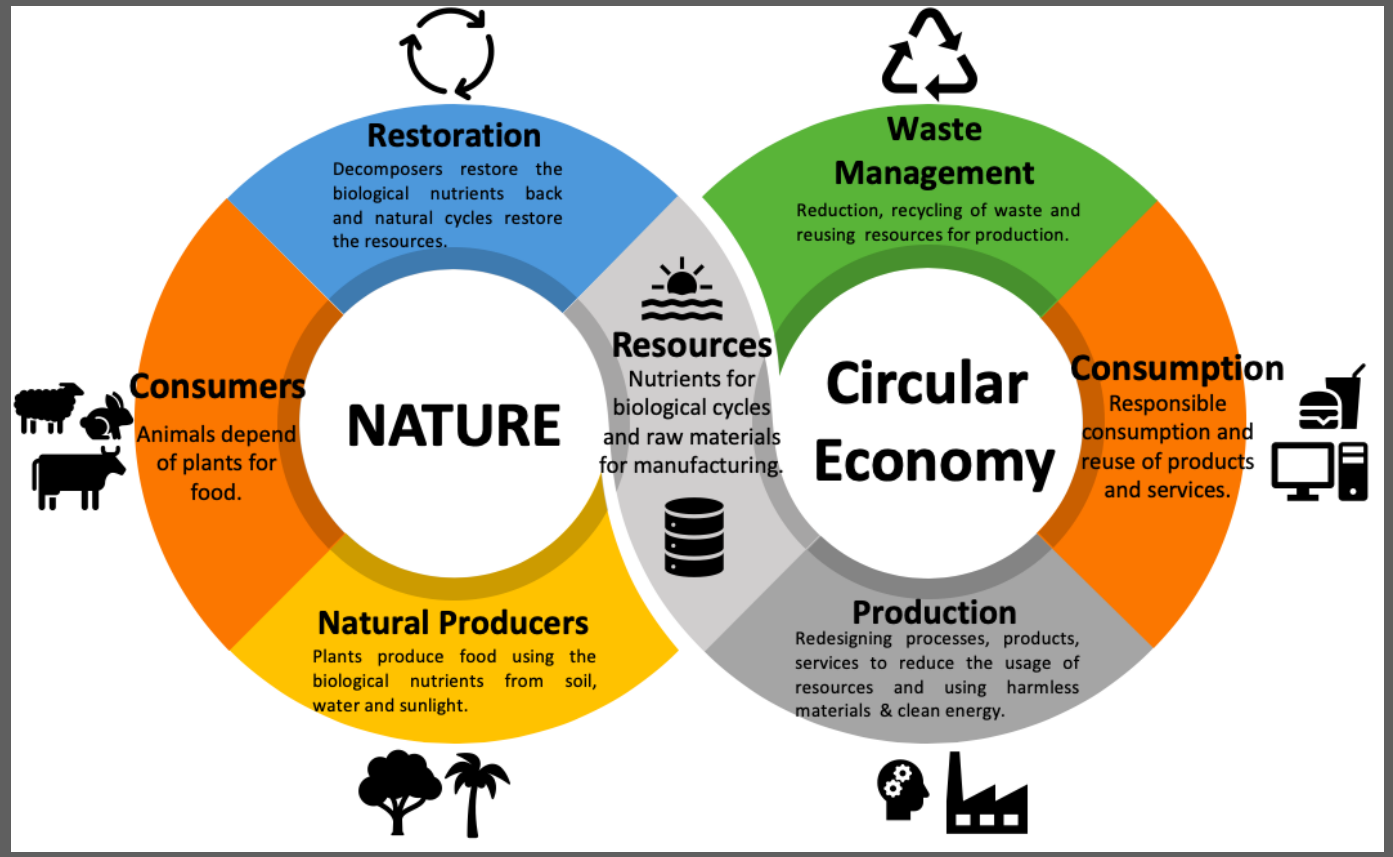
- Decouples economic growth from the consumption of finite resources
- Is restorative and regenerative by design



CIRCULAR ECONOMY: Components

Circular economy orients the "productive" human economy to the cycle of production and regeneration in nature:

- Resources are the basic "building blocks" for both nature and the human economy
- Resources are used in both nature and economy to produce items that are useful for ecosystems (nature) and people (economy)
- Useful items are consumed by animals (nature) and humans (economy)
- After consumption, discarded materials are cycled back to resource status (nature and circular economy) – but not necessarily in the "modern" economy.



CIRCULAR ECONOMY: Theory to Practice – Policy Basis

Policies that target results in the following themes will increasingly create a circular economy:

Circular Resource and Energy Supply: Promote renewable energy and use of recyclable/ biodegradable resources

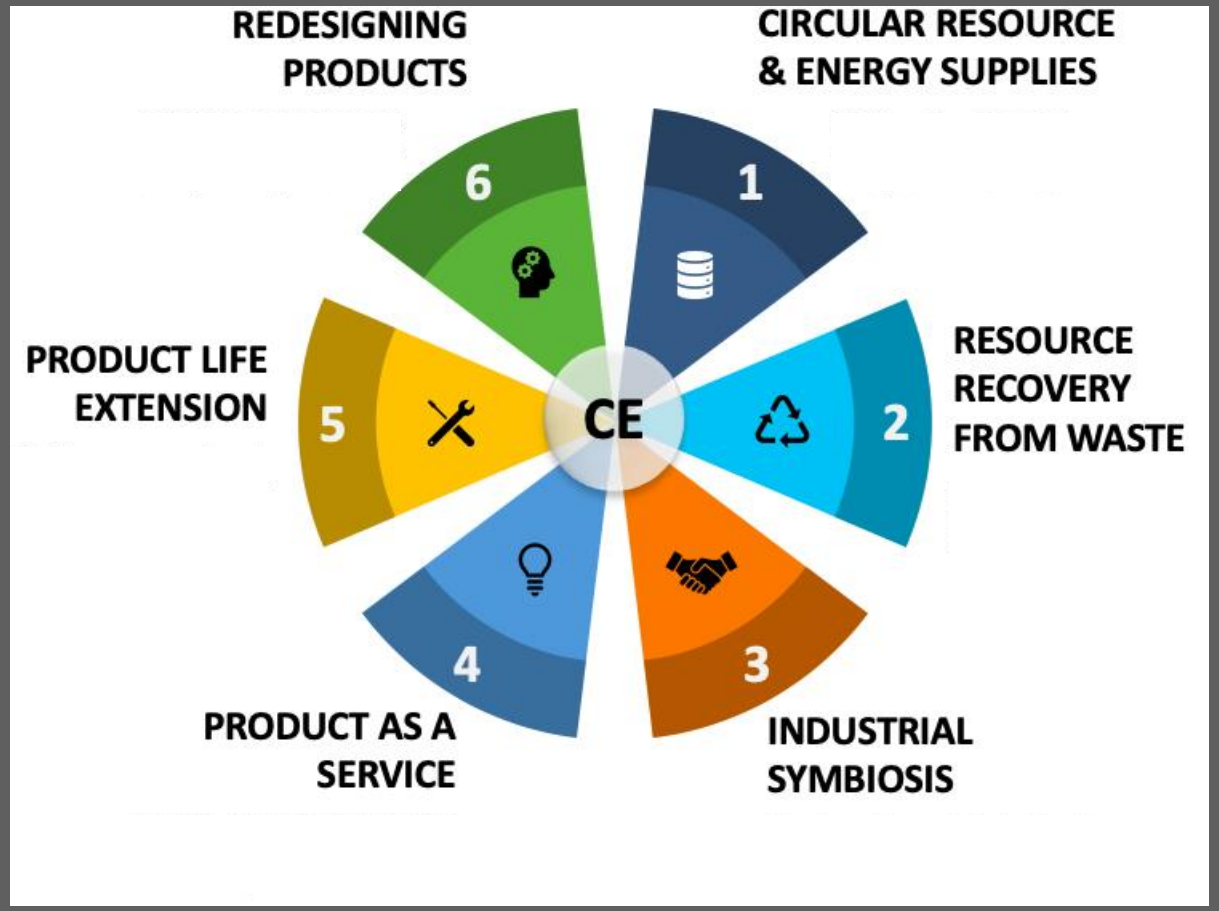
Resource Recovery from Waste: Recover, reuse and recycle materials

Industrial Symbiosis: Promote common platforms for maximum utilization of resources (e.g. energy parks, recycling parks)

Product as Service: Reduce resource use by providing a service to replace a product (e.g. improved public transit)

Product Life Extension: Promote improved longevity, maintenance, reuse, repair of products

Redesign Products: Promote product design to minimize ecological footprint



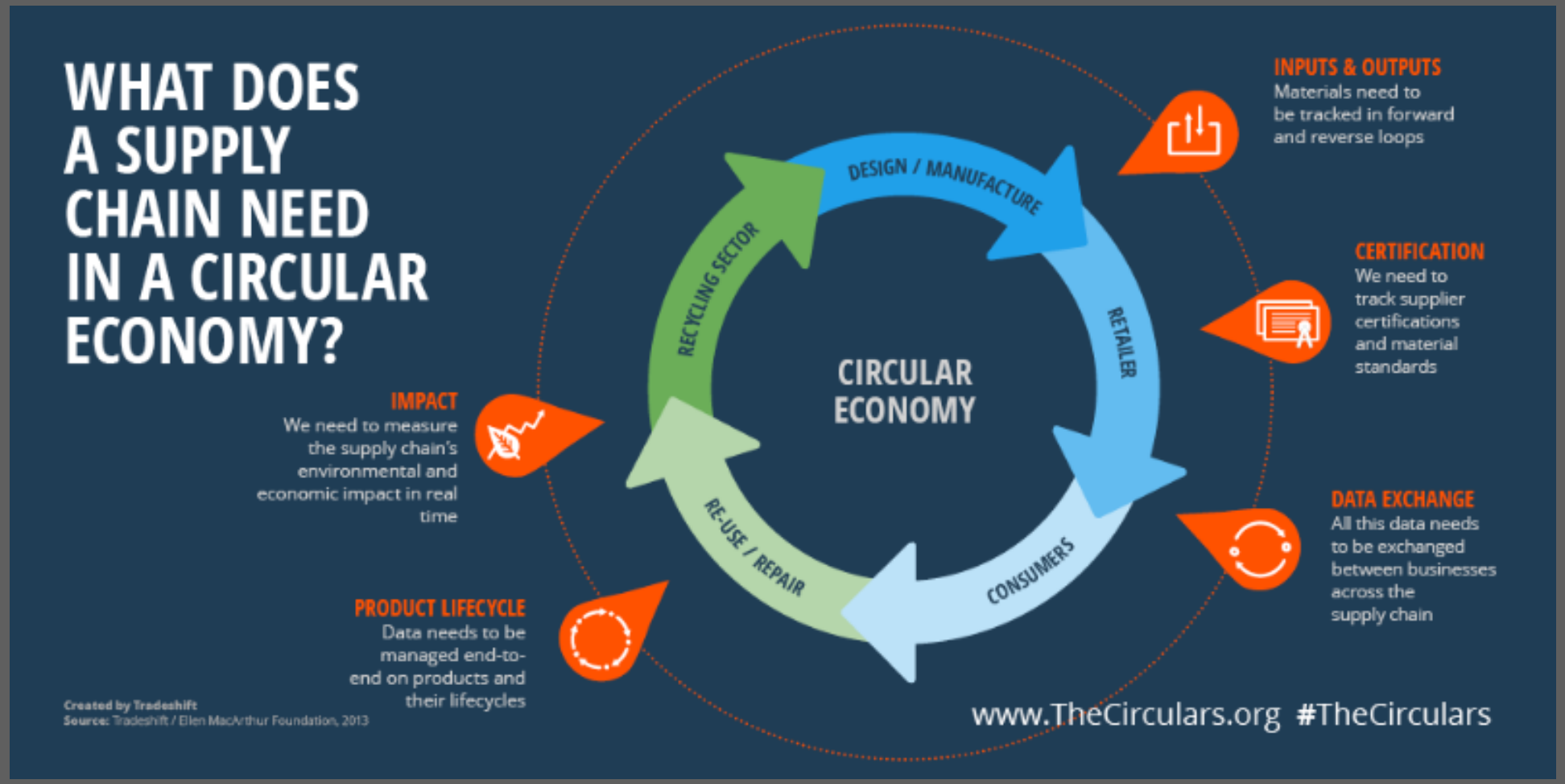
CIRCULAR ECONOMY: Theory to Practice – Implementation

Policy Basis	Policy Example	Result
Circular resource/energy supply	Introduce standards for minimum levels of secondary material in new products	Creation of markets for secondary materials
Resource recovery from waste	Create financial penalties (tax) for waste disposal; invest proceeds in resource recovery R&D/technology	Motivate improved materials separation and collection for recycling; new made-in-NS-recycling processes
Industrial symbiosis	Promote Nova Scotia as an international hub for receipt/processing of secondary materials	Creation of new industries to recycle materials (e.g. plastics, paper) sourced from other countries
Product as service	Promote/incentivize public transit and vehicle sharing	Comfortable and convenient public transit; reduced reliance on personal vehicles
Product life extension	Introduce improved warranty standards and ‘right-to-repair’ legislation	Improved product performance; new product repair and disassembly sector
Redesign products	Incentivize product design to facilitate disassembly/repair/recycling	Reduced costs for processing used products.

Implementation mechanisms include Extended Producer Responsibility

CIRCULAR ECONOMY: Theory to Practice in Supply Chains

Optimizing the circular economy requires data and monitoring at each step of the supply chain



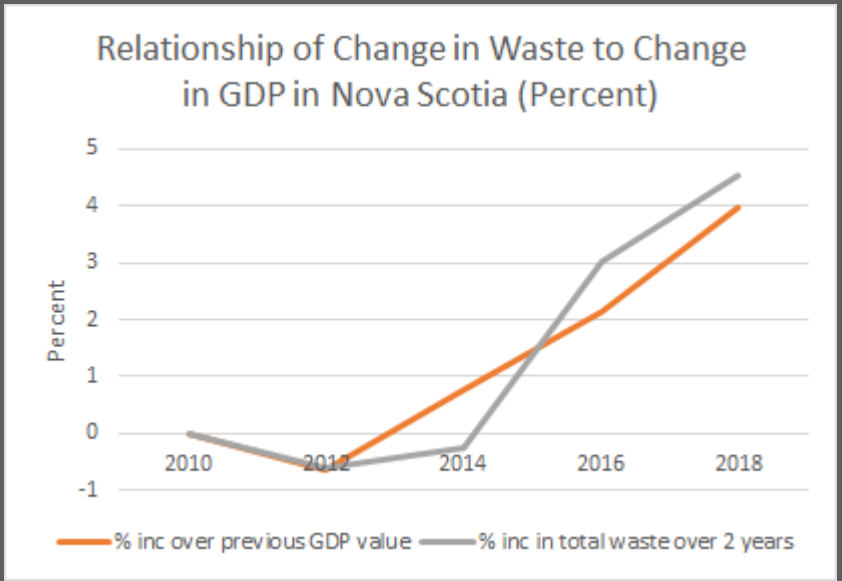
CIRCULAR ECONOMY: Status in Nova Scotia

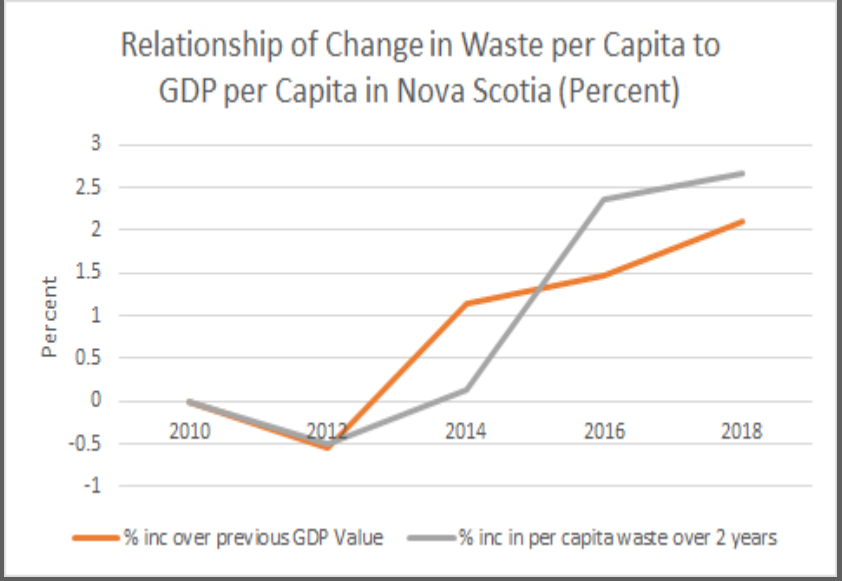
Nova Scotia was global recycling/composting leader 20 years ago but:

- Solid waste-resource strategy has been essentially unchanged for 20 years
- Is institutionally weak at provincial and municipal levels
- Lacks appropriate incentives for broad improvement
- Lacks the vision to be a basis for transitioning to a circular economy and to become a driver of economic and environmental renewal in Nova Scotia

Waste disposal has been growing faster than economic growth since 2014.

Recycling in Nova Scotia: Good story going bad





Above graphs calculated by author based on Statistics Canada data

CIRCULAR ECONOMY: Status elsewhere

Canada:

Ontario has adopted a *Resource Recovery and Circular Economy Act 2016* – application is primarily related to EPR. Several provinces and federal government reference circular economy in policy/program documents, but generally limited to EPR.

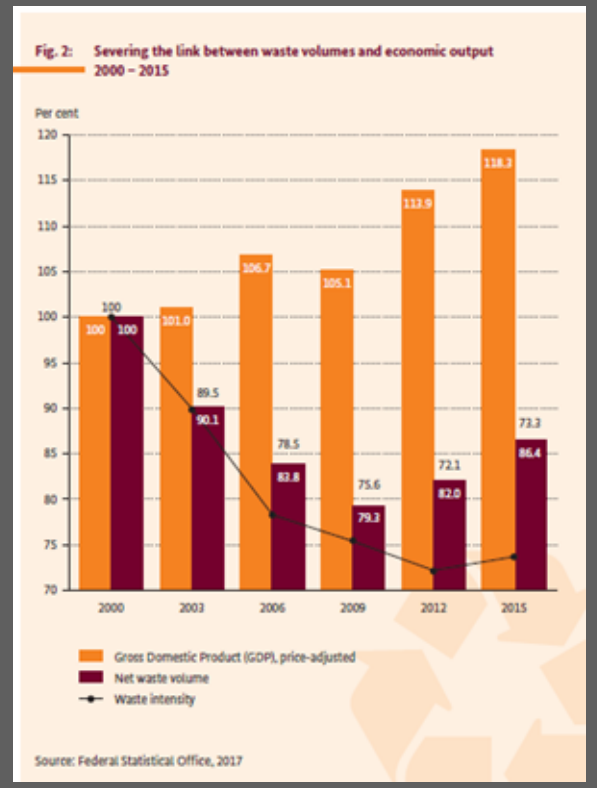
Europe

European Union adopted a Circular Economy Action Plan in 2015, updated in 2020. Circular economy is the core economic framework of the EU to meet its carbon reduction goal while maintaining global economic competitiveness and addressing social justice priorities.

European national/regional goals (examples)

Netherlands: 50 percent of all materials to be reused by 2030; 100 percent waste free economy by 2050

Flanders Region, Belgium: Waste generation: 554 kg/person in 2004, 469 kg/person in 2018 (15% decrease); waste disposal: 145 kg/person in 2018



Delinkage of waste and economic growth, Germany

CIRCULAR ECONOMY: Benefits for Nova Scotia

Economic Opportunity

Take advantage of proximity to sea routes to US and Europe to import/process secondary materials (e.g. plastics, paper) that are exported from those regions

Develop world-class clean energy technology (e.g. hydrogen) based on existing gas infrastructure

Learn from existing programs to progressively process all discarded materials and build new manufacturing capacity based on secondary resources

Social Justice Opportunity

Create new jobs, including: (i) in areas outside HRM; (ii) for traditionally job-disadvantaged groups (e.g. Saskatchewan Association of Rehabilitation Centres – SARC); and (iii) to replace jobs lost in traditional resource sectors. Government of Ontario estimates
7 jobs are created per 1000 tonnes of waste diverted from landfill.

Creation of social enterprises to process for reuse can drive local initiative reuse supply chains.

RREUSE Social Enterprise Network
105,000 participants in 31 organizations across 26 countries in Europe and North America
Focus is employment of people at risk of social exclusion
Prepared 1 million tonnes of “waste” for reuse in 2019
(https://www.rreuse.org/about-us/)

CIRCULAR ECONOMY: Benefits for Nova Scotia

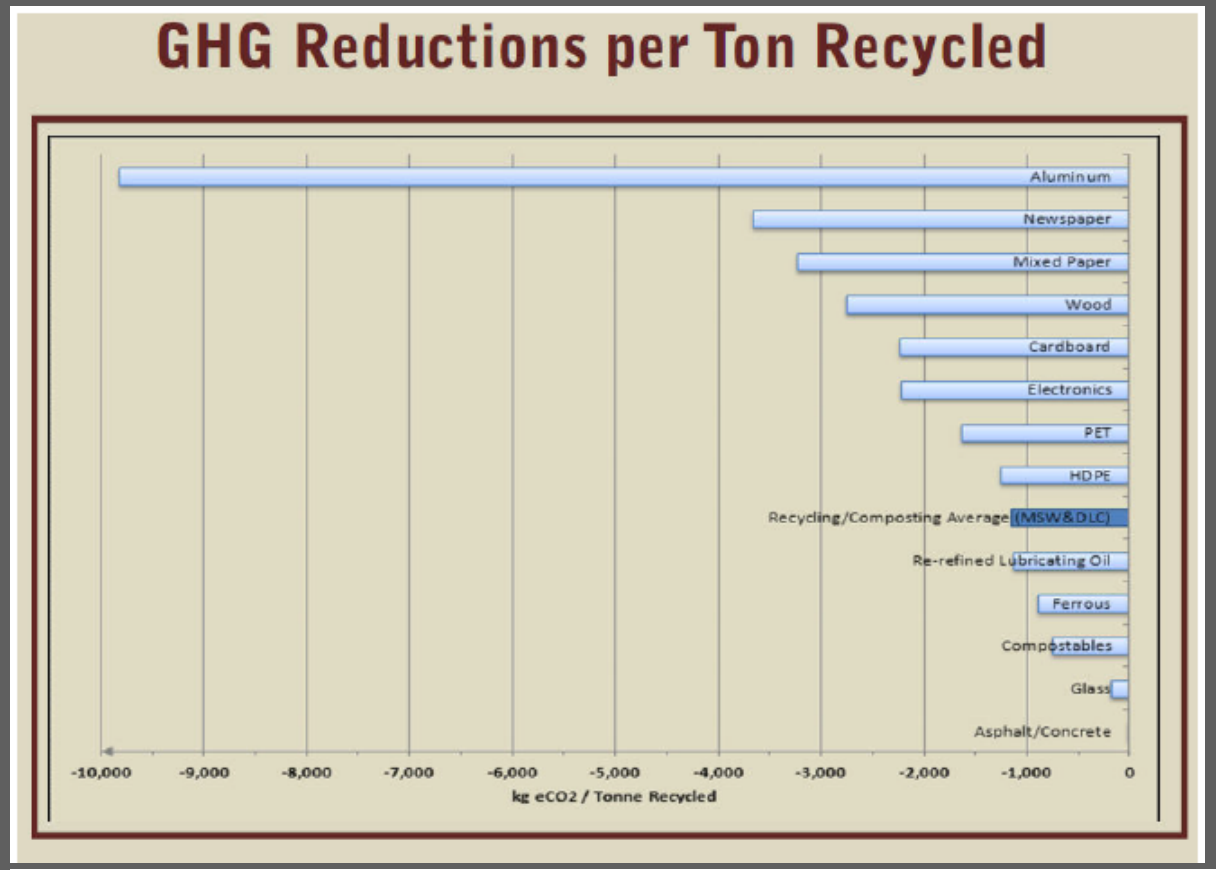
Environmental Opportunity

Circular economy for materials management results in major reductions in GHG emissions as compared to manufacture from virgin resources

Reduced non-GHG atmospheric emissions and reduced wastewater emissions

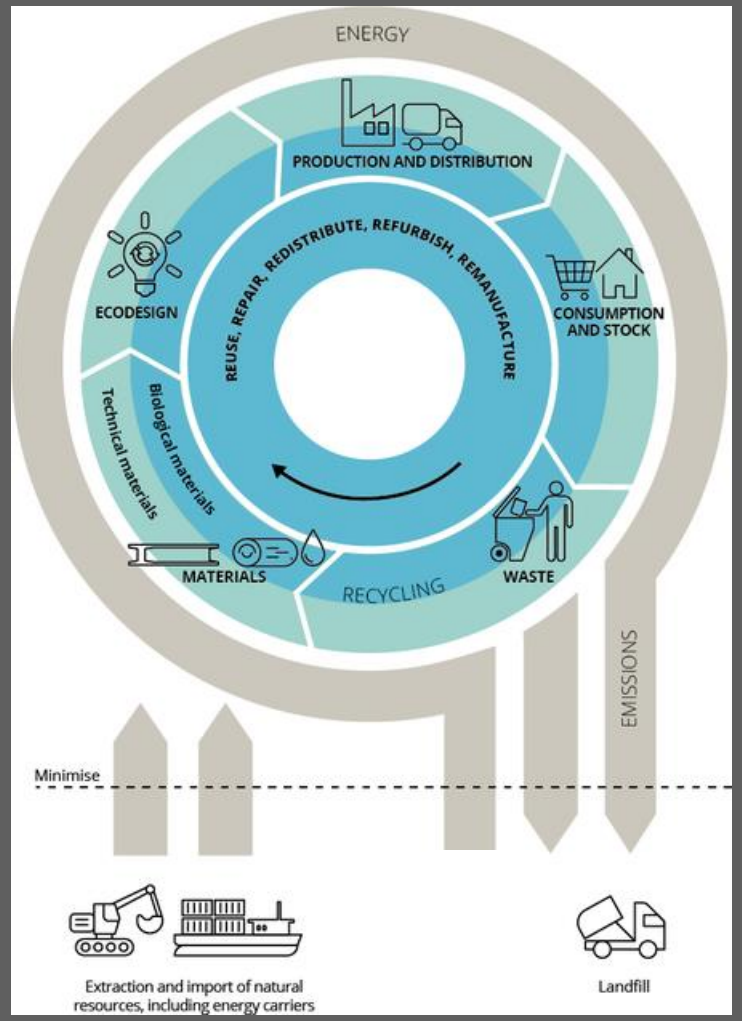
Reduced footprint from mining/resource extraction and associated conservation of natural landscapes

Reduced waste generation



Source: Environmental Life Cycle Assessment of Waste Management Strategies with a Zero Waste Objective Study of the Solid Waste Management System in Metro Vancouver, British Columbia, June 2009

CIRCULAR ECONOMY: How to Implement

Implement through a step-wise process

1. Set out the approach and benefits for NS, and consult with stakeholders. Position the initiative as a collaborative action that will benefit people and communities in all areas of the province.
2. Adopt "Circular Economy Law" that sets out circular economy as the economic development framework for Nova Scotia; establish time-based targets for each "policy basis" (see above) and the key actions to be taken to achieve the targets.
3. Revamp the mandate and structure of Divert NS to coordinate implementation of the Circular Economy; Divert NS to establish advisory committees with respect to each "policy basis" and to advise on implementation and changes to legal and institutional structures as necessary to support the Circular Economy Law.