



# EU-Canada Action on Plastic Waste

## Circular Procurement Case Studies

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### Circular procurement to reduce plastic waste - Case studies

Included within these slides are:

 Case studies which have been included in the two training modules (shown opposite):

'Using procurement to reduce plastic waste'\*.

 Other case studies which provide additional examples of how plastics waste has been addressed through procurement.



 Circular economy, procurement and plastics.



 Specifying circular outcomes – the procurement toolbox.

Case studies are grouped by primary theme, although many of the case studies address multiple themes across the procurement cycle and lifecycle of plastics.

Additional resources available include example procurement clauses to address plastics waste and a bibliography of sources of useful information\*.

TRAINING WEBSITE: <a href="https://circularprocurement.ca/plastic-resources/">https://circularprocurement.ca/plastic-resources/</a>





### **EU-Canada Action on Plastic Waste**



- Within the Plastic Action Centre website are various case studies which may also be of interest.
   These are available from: <u>https://plasticactioncentre.ca/directory/reducing-plastic-waste-in-canada/</u>
- Also follow the project's activities and news in LinkedIn: <u>https://www.linkedin.com/company/reducing-plastic-waste-in-canada/</u>



### **Case studies**

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### Case studies

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## **Policy and Strategy**



#### 1. Government of Canada – evidence-based action

The development of a strong evidence base to inform actions to reduce plastic waste and pollution is important and this included:

- Developing a Science Assessment of Plastic Pollution (<u>Canada</u> <u>Ministry of Environment and Climate Change 2020</u>);
- Commissioning an Economic Study of Canada's Plastics Industry, Markets and Waste (<u>Canada Ministry of Environment</u> <u>and Climate Change 2019</u>); and,
- Gathering data from shoreline litter clean-ups and litter audits conducted across Canada.

Science Assessment of Plastic Pollution

Government Gouvernemen of Canada du Canada

> Environment and Climate Change Canada Health Canada

> > October 2020



Canada

## The City of Toronto

#### 2. Circular procurement commitment

**Background:** In 2016, the City Council approved the Long-Term Waste Management Strategy and formed a Cross-Divisional Circular Economy Working Group to apply circular economy principles to the city's procurement processes.

**Actions:** The Circular Economy Procurement Implementation Plan and Framework is the City's tool to leverage the purchasing power to drive waste reduction, economic growth, and social prosperity through a circular economy approach.

**Impacts:** Since inception, the project has launched the pilot phase and has begun to identify existing circular procurement activities and integrate new requirements within call documents.

**Barriers overcome & Lessons:** The Framework helps the city to drive circular economy innovation and implementation while generating a broad range of societal benefits through its procurement practices.

Source: Circular economy procurement plan and framework: Toronto (ellenmacarthurfoundation.org)



#### 3. Circular procurement commitment within responsible procurement policy



#### THE GLA GROUP RESPONSIBLE PROCUREMENT POLICY

Delivering Social Value Through our Supply Chain

#### **Extract from Responsible Procurement Policy March 2021**

'Giving priority to circular procurement options and business models that maximise value from products and services for as long as possible, keep long term expenditure down, use sustainable materials, and reduce financial and asset disposal risks.

We will encourage and trial materials innovation to keep materials in circulation for longer to reduce consumption of resources and reduce the usage of disposable products, particularly single-use plastics.'

#### 4. New Zealand– *Life cycle approach*

Life-cycle thinking was used to guide policy recommendations. *Key questions asked:* 

- Are reusable products always better than single-use alternatives?
- Should we switch to bio-based plastics?
- Is recycled plastic better for the environment?
- Should we ban plastic packaging altogether?
- Should we use an alternative material to plastic?

#### Lessons:

Identified huge number of promising ideas and innovations that had already been developed and/or implemented in smaller communities across New Zealand.





A report from the panel convened by the Office of the Prime Minister's Chief Science Advisor, Kaitohutohu Mātanga Pūtaiao Matua ki te Pirimia



Source: Rethinking plastics in Aotearoa New Zealand

## Life Cycle Impacts & Costs



### 5. Circular approaches to plastics – *Life Cycle Costs*



### Hamburg GPP guidelines for whole life costing



 Contracting authorities may specify that the award criterion of 'cost' or economic efficiency must be calculated on the basis of the life cycle costs of the product or service.

"When comparing purchase prices, conventional products and services often appear to be more favourable. This first impression may change when considering the costs throughout the life cycle: the total amount required to purchase, operate and dispose of a product with a defined service life is often lower in the case of green alternatives. Life cycle assessments reveal any hidden subsequent costs, which can render uneconomical a product that at first sight appeared to be the least expensive option."

- Requirement that tenders must state:
  - The cost of purchasing the product or service.
  - Factors that influence operating costs, such as the consumption of electricity, heat, fuel or water.
  - Additional costs, such as for maintenance, disposal or insurance (e.g. plastics waste).

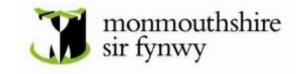
### 6. Circular approaches to plastics – Life Cycle Savings analysis

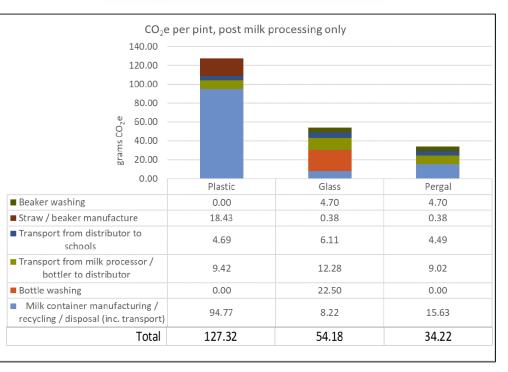
### Monmouthshire school milk

Single use plastics impacts are increasingly important in procuring school milk services and must be considered alongside the cost and other procurement criteria.

Whole life approach focussed on reuse to deliver cost and carbon savings:

- Switching from single-use plastic milk bottles to reusable glass milk bottles eliminated plastic waste and reduced milk waste.
- Less milk wasted meant less milk ordered, and costsavings of 39% for the local authority.
- Estimated 25% reduction in greenhouse gas emissions.





### 7. Circular approaches to plastics – Life Cycle Savings analysis

### EU catering & food GPP – packaging award criteria

#### Packaging (core criteria)

Additional points will be awarded for the percentage of products that:

- Are supplied in secondary and/or transport packaging with more than 45% recycled content.
- Are supplied in packaging materials based on renewable raw materials.
- Are not supplied in individual portions (single-unit packages)

#### Verification:

 The supplier must provide a signed declaration indicating which of these criteria it is able to meet. The contracting authority will verify compliance during the contract period, and appropriate penalties will be applied for non-compliance.

## **Avoid Plastics Waste**



#### 8. Circular approaches to plastics – Avoid plastics waste

### Furniture - European Commission, Belgium

Office for Infrastructure and Logistics at the EC award criteria rewarded, *inter alia*, recycled content in product and in packaging.

- Points were awarded for % of recycled materials by weight
- Half points were awarded if the packaging used to protect the chairs comprised at least 60% recycled materials (for paper or cardboard) or 40% recycled materials (for plastic). Full points were awarded if the packaging comprised at least 90% recycled materials (for paper or cardboard) or 60% (plastic).
- Points were awarded based on the percentage of synthetic materials compared to the total weight of the chair, with lower percentages receiving more points.





### 9. Circular approaches to plastics – Avoid plastics waste

### Mutualia, Basque Region, Spain

#### Challenge:

Drinking water provided by water fountains - 11 litre plastic bottles; single-use plastic cups; patients bottled water; staff bottled water.

Plastic waste problem - c147,000 cups, 4,000 large cooler bottles, and 7,000 small water bottles each year (c5,000 patients and c600 staff).

#### Intervention:

Install water fountains (public water network):

- Replace plastic cups with recyclable cardboard cups.
- Use glass jars and washable/ reusable cups for patients and staff.
- glass bottles to staff plastic bottles removed from vending machines.

#### Procurement criteria used:

- Specifications delivery of min of 600 glass bottles, machine and hand washable, including screw cap for easy refill.
- Min of 100 glass jars delivered, also washable.

#### **Results:**

- Saving c€17,000 per annum on water.
- Reduced plastics waste c147,000 plastic cups, 4,000 plastic water cooler bottles, and 7,000 plastic bottles per annum.





Source: <u>Issue\_91\_Case\_Study\_173\_Mutualia.pdf (europa.eu)</u>



### 10. Circular approaches to plastics waste – Avoid & Re-use

## Svenska Retursystem

Svenska Retursystem, SRS - the smart circular system for the Swedish food industry.

'Our mission is to make the supply chain for food and beverage more efficient and better for the environment. The basic idea is that the industry's distribution should take place with durable crates and pallets that can be used over and over again.'



#### **Outcomes:**

- Reducing 78% of the CO<sub>2</sub> emissions compared to disposable packaging. When the crates and pallets are worn out, they are recycled to make new ones.
- Saving 160 hours of labor yearly compared to disposable packaging and ensuring that fresh goods last longer and remain undamaged
- Reducing CO<sub>2</sub> emissions by 31,900 tonnes (2019).

#### Source:

https://circulareconomy.europa.eu/platform/en/good-practices/svenska-retursystems-reusable-transit-packing-system-contributes-co2-and-food-waste-reduction https://www.retursystem.se/sv

### 11. Circular approaches to plastics – Avoid plastics waste

### Ceredigion, Wales - catering plastics audit

- Segmentation of spend data
- Plastics are the dominant material type followed by paper/card and metal foil packaging.
- About 60% spend on all items is plastic to non-plastic.

**Recommendations:** 

- around 20% of current catering disposable plastic items should be targeted for elimination
- a further 25% should be targeted for avoidance through material substitution and alternatives like reuse.



Summary of plastics in common catering disposable formats

Category	% of total	Plastic %*		
Bags	3.4	32		
Boxes	14	85		
Bowls & pots	4.6	100		
Containers & bins	13	76		
Cups & tumblers	14	44		
Cutlery & utensils	7	60		
Gloves	1.1	100		
Lids & straws	15	93		
Plates etc.	3.4	92		
Wrapping products	5.7	28		
* - (				

\* of category

Source: sample of Welsh Purchasing Consortium catering disposables purchasing data 2018

Source: Public sector guidance on the procurement of plastics | WRAP (wrapcymru.org.uk)



### 12. Circular approaches to plastics – Avoid plastics waste

#### Scenario:

- 400+ lab and shared PCs that are 6 years old and complaints that they are slow.
- The College could buy new PCs at a cost of £133,200 and significant embodied carbon; from components manufacture, shipping, energy use, packaging etc.

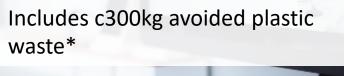


...so, the College considered alternatives and ran a pilot to upgrade PCs with Solid State Hard Drives (SSD) & upgrade memory

#### **Outcomes:**

- PCs were upgraded.
- Saved £118,000 (new SSDs and memory upgrade cost = £15,000).
- Saved significant carbon emissions from not buying new devices.
- Reduction in electricity usage by removing logoff buttons.
- Faster PCs.
- Happier students.
- Delighted Finance Director!







## Lifetime Optimization to Reduce Plastics Waste





**Electrical and electronic equipment** 

#### 13. Circular approaches to plastics waste – Lifetime optimization & extension



Refurbishing equipment for reuse by schools across Canada.

http://www.ic.gc.ca/eic/site/cfs-ope.nsf/eng/home





Equipment in working condition can be sold for reuse to the public.

https://www.gcsurplus.ca/mn-eng.cfm

#### 14. Purchase and Resale Agreement

### Durham County Council (DCC)

**Background** DCC wished to put in place a new contract to deal with redundant computer equipment. The principal objective was to ensure that it was re-used or recycled.

**Actions** They published an open procedure covering the legal waste disposal requirements, arrangements for community groups to access the refurbished equipment and stating that bidders are required to make reductions in the CO2 impact associated with the contract.

**Impacts** An income of ~£30,000 per annum, 13 charitable organisations have purchased refurbished ICT equipment, over 5,000 individual items of ICT equipment have been collected for recycling or refurbishment and over 300 full computer systems have been provided to the community.

**Barriers overcome & Lessons** Engage with the market prior to the initiation of the tender process.



Durha

County Co

### 15. Retaining value...

- Internal or contracted maintenance and repair services
- Refresh- Upgrade
- Extend replacement cycles
- Buy refurbished?
- Buy remanufactured?
- Alternative business model: Lease device as a service?



https://www.zerowastescotland.org.uk/



European Regional Development Fund EUROPEAN UNION

Referenced within Circular Procurement Training under ProCirc programme: <u>https://northsearegion.eu/procirc/</u>







https://www.edinburghremakery.org.uk/



https://circularcomputing.com/

## **Biobased Plastics**





#### 16. Circular approaches to plastics waste – *Innovative 'closing the loop'*



USABLE PACKAGING Bioplastics for the Circular Economy

The Usable Packaging project – funded under the European Union's Horizon 2020 Research and Innovation programme – aims to reduce the use of environmentally harmful fossil-fuel-based packaging by developing "high-performance" bio-alternatives derived from food industry by-products, to cover packaging and product needs for the food, drinks, pharmaceutical and clothing industries.





Recommendations (not yet EU policy) include:

- Mandating the obligatory use of biobased and compostable materials in applications where traditional plastics can only ever be contaminants.
- Promoting policies which ensure market space for innovation in materials manufacture.

#### Source:

https://www.circularonline.co.uk/news/usable-packaging-project-submits-seven-point-strategy-for-european-institutions/ Finnish Bioeconomy Strategy: https://www.bioeconomy.fi/facts-and-contacts/the-finnish-bioeconomy-strategy/

### 17. Circular approaches to plastics – Avoid plastics waste

### Early design choices – biobased materials



**Single use plastic items -** 40% of the Skåne's (Sweden) CO<sub>2</sub> emissions were generated through its healthcare sector and high proportion through single use plastic (or disposable) products, such as protective aprons. In 2014, Skåne's healthcare sector was responsible for using and disposing of 5.2 million single-use aprons (300 tonnes of CO<sub>2</sub>) emissions. Innovation procurement established a new renewable product saving 250 tonnes  $CO_2$  pa.

https://www.biobasedconsultancy.com/uploads/files/InnProBio Goodpracticecase Skane.pdf

**Bio-based materials hot drinks in cups** – Rijkswaterstaat - RWS used most economically advantageous tender (MEAT) to encourage switch to alternative more eco-friendly materials. Price and quality were split 60 %/40 % of the total score. The quality criterion included 20% for using bio-based cups (to EN13432).



REGION

SKΔNF

https://www.biobasedconsultancy.com/uploads/files/InnProBio Goodpracticecase Biobasedcups.pdf

### 18. Biobased Tree anchors - Municipality of Rotterdam



- Biodegradable: No removal of plastic anchors needed.
- Avoids use of plastic.

Piano – Dutch Public Procurement Expertise Centre: https://www.pianoo.nl/en/sustainable-public-procurement/spp-themes/circular-procurement

Image copyright: <u>https://www.naturalplastics.nl/en/products/keeper-system/naturope</u>

ANO 
PROFESSIONEEL EN INNOVATIEF AANBESTEDEN, NETWERK VOOR OVERHEIDSOPDRACHTGEVERS

## Early engagement – to reduce plastics waste



### 19. Early engagement – playground equipment

### Aalborg, Denmark

Defining the need:

 Several workshops were held with staff from schools, kindergartens and other relevant stakeholders to discuss their wishes for future outdoor play areas. Nature and the use of natural materials was a common theme.

#### Market engagement:

 Seven market dialogue meetings to determine principles of circular economy in connection with interior design solutions; number of suppliers and the total size of the market; key suppliers and their market share; typical business models; prices & pricing methods; options, alternatives and trends in green products.

#### Outcome:

- Eight applications received in the pre-qualification round (in May 2017), five were invited to submit tenders, and three were received.
- Led to setting up a register of surplus furniture for all schools and school-based leisure facilities.





Aalborg



**Circular PP** 

### 20. Reducing Single Use Plastic – Merton BC, London

### **Merton Council**

#### **Metrics:**

 Encourage partners to reduce the use of non-recyclable plastics through the procurement process by including a measure on single use plastics within the key performance indicators framework.

#### **External stakeholders:**

 Worked with collaborative external groups (Plastic Free Pledge) to gather advice to identify 'quick wins' for action based on others experiences.

#### Actions:

- Reducing Single Use Plastic in the Civic Centre
- Influencing staff behaviour





## Market development – to reduce plastics waste



### 21. Alternative innovative solutions

# **INNOVATION**?

- Is there an 'unmet need' regarding plastics waste reduction?
- Are improvements in products, materials or services possible?
- Are the conditions for innovation in place within the public body?
- 'Ask a smart question get a smart answer' let the market propose ideas.



Canadian Plastics Innovation Challenges – Environment and Climate Change Canada

Plastics Challenges:

- Find sustainable alternatives to plastic packaging
- Reduce plastic waste from textiles
- Divert end-of-life vehicles' plastic from landfills
- Reduce e-waste
- Monitor microplastics in marine environments
- Recycling plastic into ceiling tiles





#### Source:

https://plasticactioncentre.ca/directory/industry-plastics-initiatives/ https://www.canada.ca/en/environment-climatechange/news/2021/03/canadian-plastics-innovation-challenges-environment-and-climate-change-canada-phase-1-recipients.html

#### 22. Circular approaches to plastics waste – *Strengthening recyclates market*







European Regional Development Fund

Source: https://youtu.be/KF2BFpZDFpk



### 23. Circular approaches to plastics waste - Strengthening recycling

## Recycling low value plastic waste.

Loop Industries is a Québec-based company creating recycling opportunities for low-value plastic waste.

#### Actions:

Working with plastics that can be difficult to recycle, including plastic packaging, carpets, textiles, and ocean degraded plastics, Loop Industries depolymerizes this plastic waste down to its base building blocks.

These are then filtered, purified, and repolymerized to create a virgin PET resin suitable for food grade packaging.

#### **Outcomes:**

This circularization of the plastic has a lesser life cycle environmental impact compared to the creation of plastics from fossil fuels: 63% less global warming impact, 79% less impact on ozone depletion, 88% less impact on smog, and 80% lower non-renewable energy demand.

Loop Industries (n.d). Retrieved from https://www.loopindustries.com/en 33 Loop. (n.d.). How it Works. Retrieved from https://loopstore.com/how-it-works







### Packaging



#### 24. Circular approaches to plastics waste – Innovative 'closing the loop'

Seed funding under Canadian Plastics Innovation Challenges Environment and Climate Change Canada Phase 1.



#### The challenge:

c93% of plastic textile waste ends up in landfills while the remaining 7% is incinerated or otherwise converted into energy.

#### **Research:**

Low-cost textile recycling process for chemical sorting, separation and removal of dyes from waste textiles - enable value recovery from polyester and cotton blends, including the creation of high-value biochemical products that can then be used to make other plastic products made from recycled materials, such as biodegradable plastic packaging.

Source: <u>https://www.canada.ca/en/environment-climate-change/news/2021/03/canadian-plastics-innovation-challenges--environment-and-climate-change-canada-phase-1-recipients.html</u>

#### **Teusables** <u>https://plasticactioncentre.ca/news/reusables-com-seed-funding/</u>

## Collaborative approaches – to reduce plastics waste



### 25. Reducing single use plastics – Caerphilly County Council, Wales

#### Background

Caerphilly County Borough Council (CCBC) worked in partnership with WRAP Cymru to take steps towards reducing the impact of problematic and single use plastics in their food and drink supply chain.

#### Actions

Spend review and extensive engagement exercise with internal CCBC and external stakeholders to understand how products procured, used and disposed of.

#### Impacts

Avoidance, levies on disposables and the sale of re-usable containers at a profit offset the cost of more sustainable alternatives.

#### **Barriers overcome & Lessons**

Holistic approach to procurement decisions key. Main lesson is not to look at making changes in isolation; some may cost more, some less, but overall it represented value for money.

Also, examples of how manufacturers can overcome challenges to increasing the use of recycled materials - particularly plastic: https://wrapcymru.org.uk/taking-action-wales/supply-chain-projects

#### 26. Impacts from collaborative approaches

U.K.

#### Canada



Source: 2035 Strategy for a Circular **Economy for Plastics Packaging in Canada**  There has been a

10%

reduction in consumer packaging between 2018 & 2020.

There has been a

46%

reduction in problematic or unnecessary plastic items since

2018

Source : UK Plastics Pact | WRAP

We've seen the greatest reduction in PVC packaging which has fallen by

80%

since 2018

What progress have we seen under The UK Plastics Pact to eliminate problem plastics:

## Other case studies



### 27. Others – plastics case studies

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Examples of the circular economy in action

Source: WRAP Plastics case studies



#### 28. Others – plastics case studies



'Case studies share the innovations taking place in our industry in areas that span circularity, climate, sustainable use, innovation, and plastics and health'

Source: Plastics Europe Case Studies



#### 29. Others – case studies



#### **Green Public Procurement Good Practice**

(these address a range of environmental improvement, with some dealing with plastics waste, directly or indirectly)

Source: European Commission GPP Good Practice







Funded by the European Union

## EU-Canada Action on Plastic Waste

Circular Procurement Case Studies

Training materials developed by Sustainable Procurement Limited (with Sustainable Global Resources Ltd) www.sustainableprocurement.eu.com