



Scotland's journey with resources and waste

metrics: Introducing the Scottish Waste Environmental Footprint Tool (SWEFT)

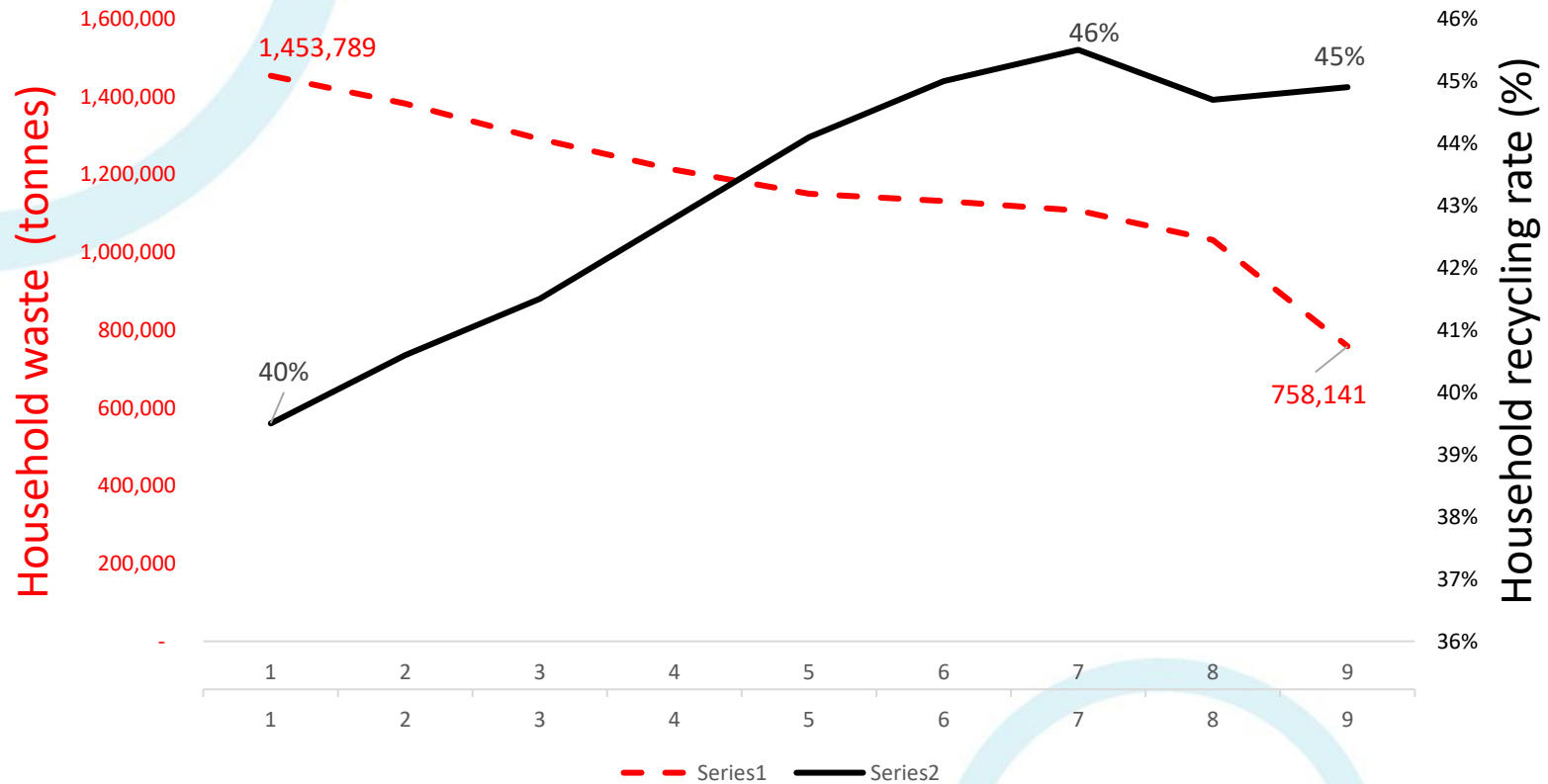
Dr Ramy Saleemdeen, Environmental Analyst

Waste Data Practitioners Meeting
10th Feb 2022

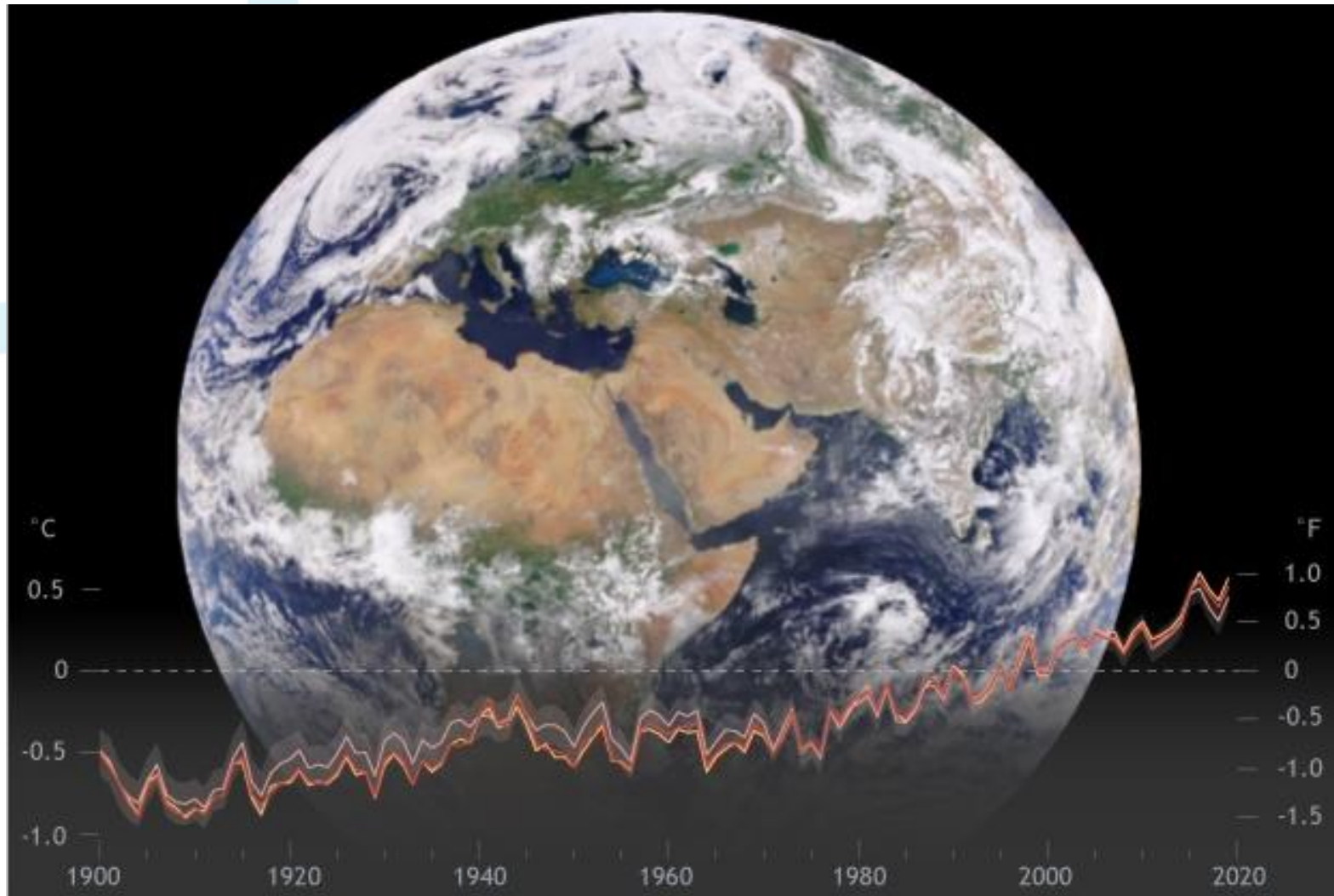


EUROPE & SCOTLAND
European Regional Development Fund
Investing in a Smart, Sustainable and Inclusive Future

Scotland's stats on waste



The climate crisis



NOAA DISCOVER/EPIC
June 24, 2019

— NOAA — Univ. East Anglia (HadCRUT4) — NASA

NOAA Climate.gov
Data: SOTC 2019

From weight-based to impact-based



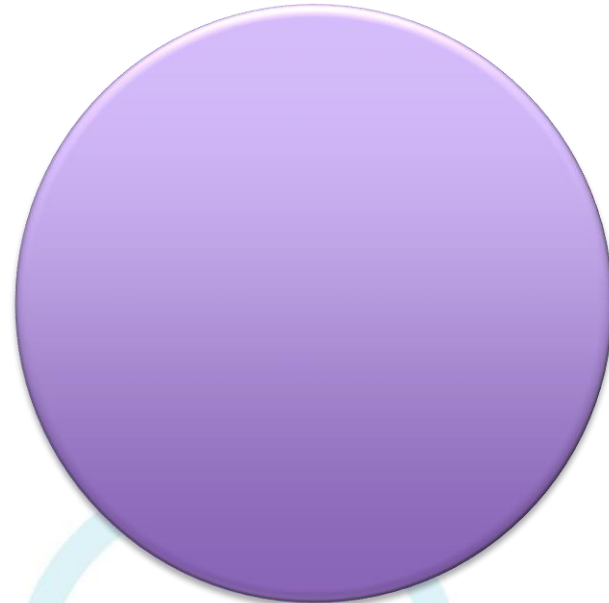
1 tonne
of glass
waste

1 tonne
of food
waste



4 kg CO₂e

Carbon impacts of landfilling
1 tonne of glass waste.



989 kg CO₂e

Carbon impacts of landfilling
1 tonne of food waste.

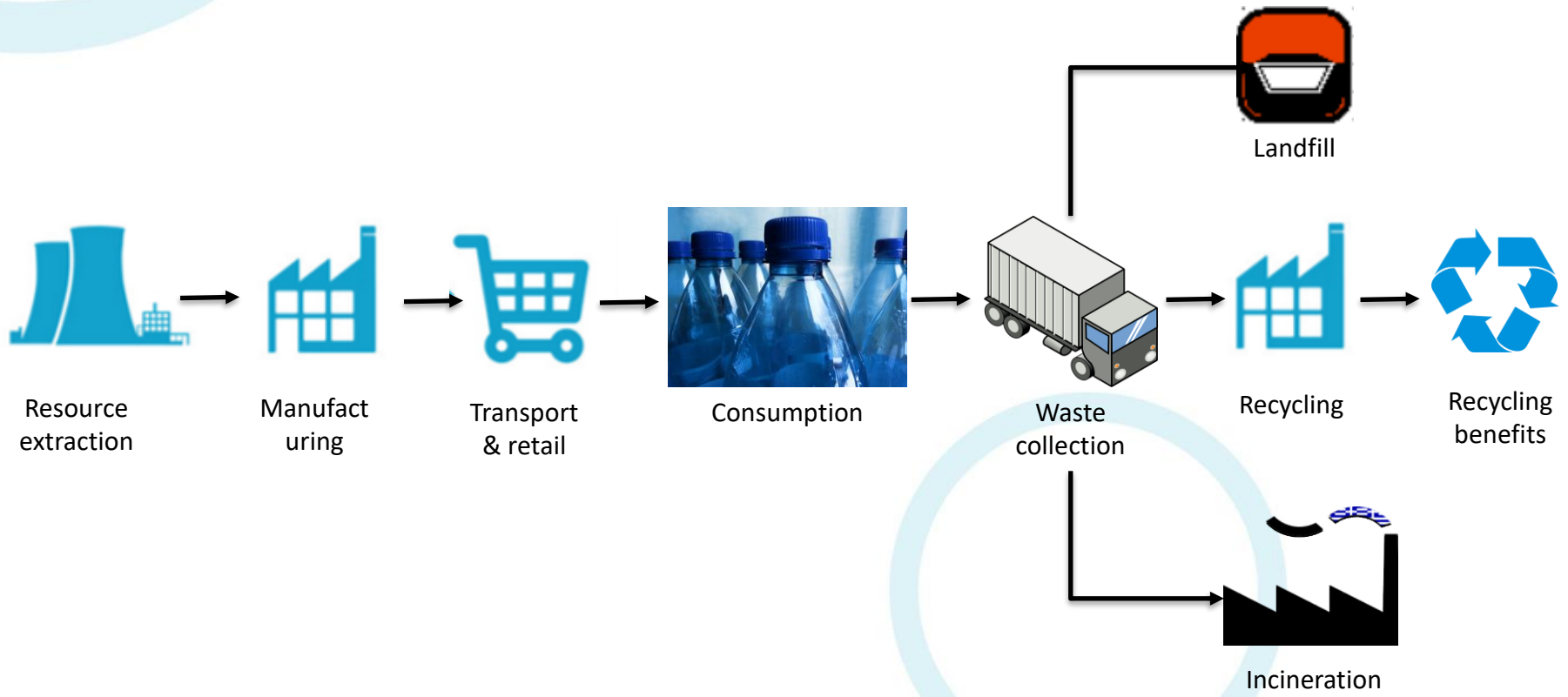
Scotland's carbon metric



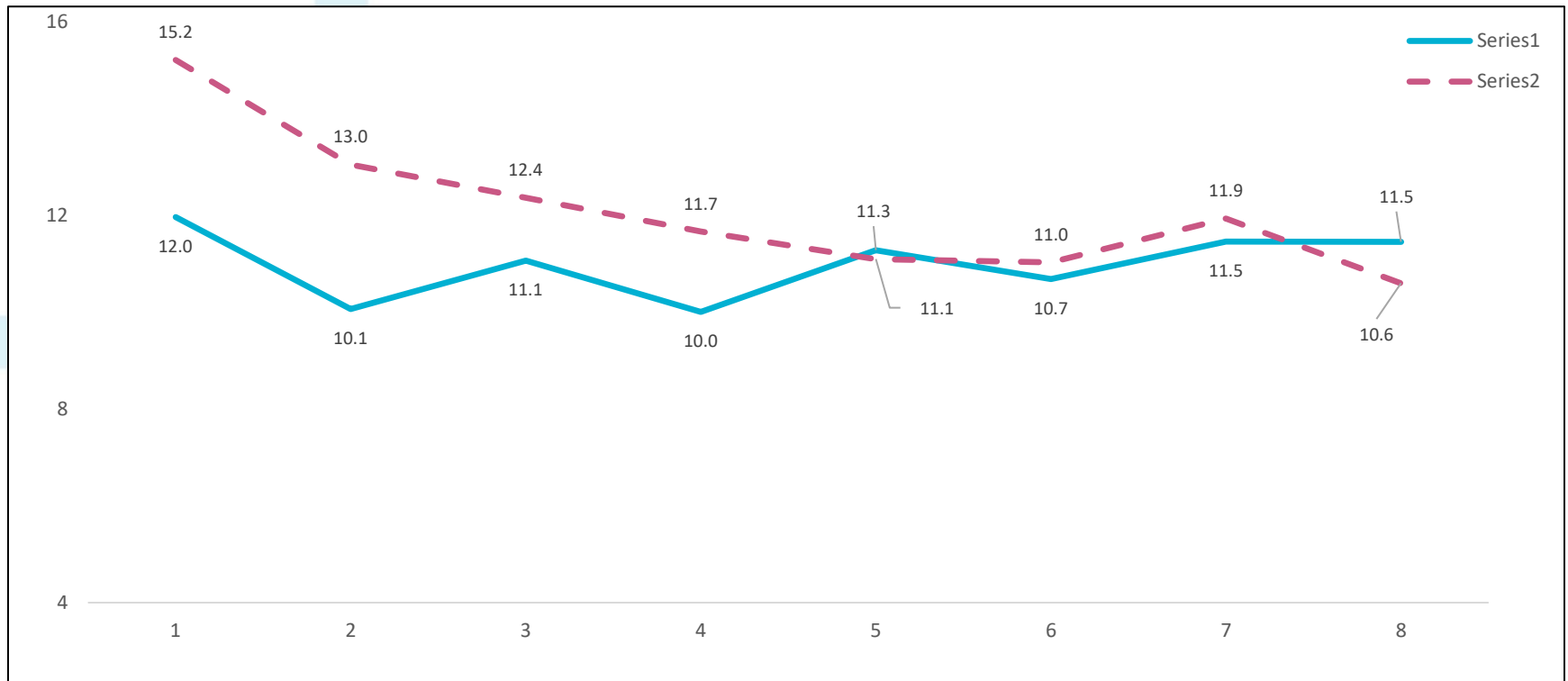
Whole life-cycle

Upstream (embodied impacts)

Downstream (end-of-life impacts)



Scotland's carbon metric: key results



Weight versus whole-life carbon impacts of waste from all sources in Scotland.



Beyond carbon ... Why now?

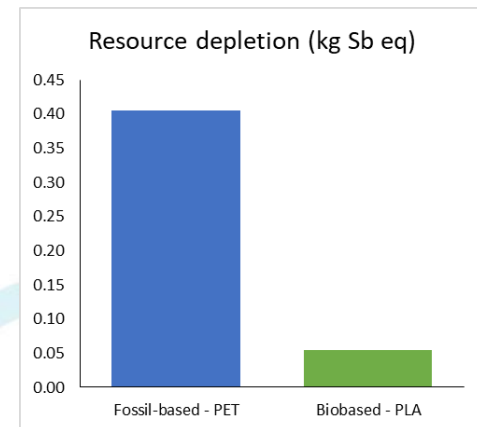
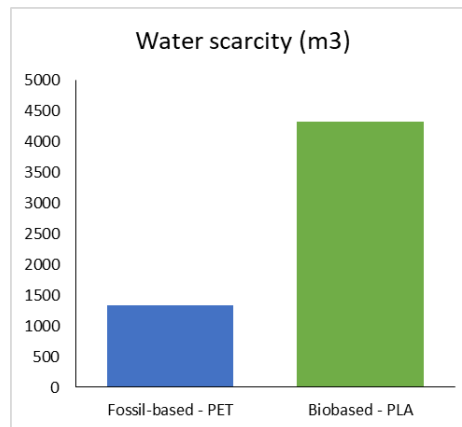
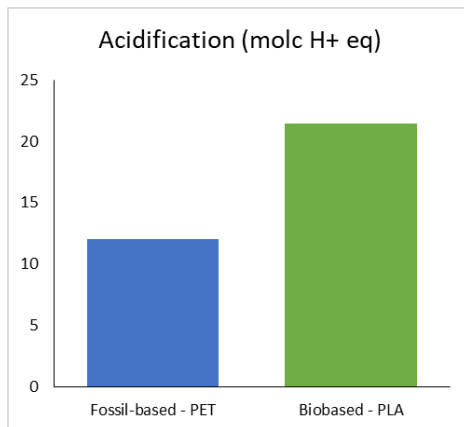
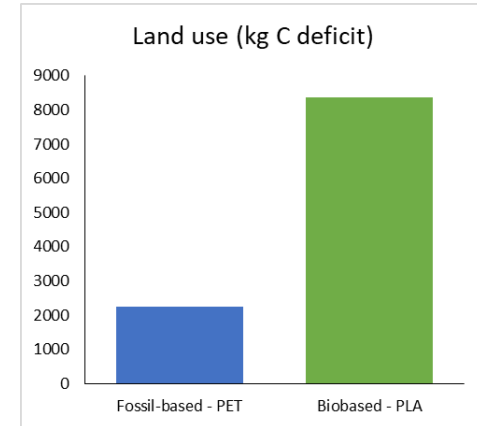
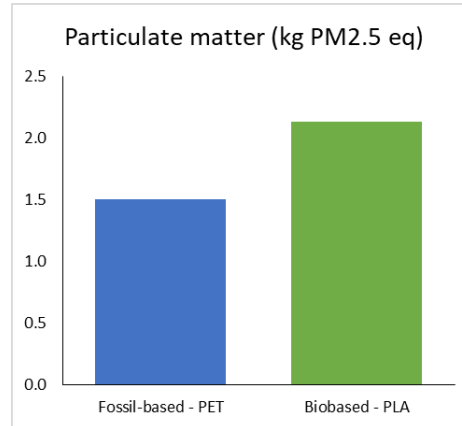
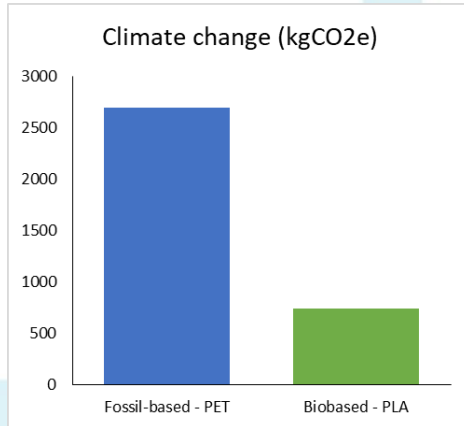


Vs



Fossil-based plastics

Bio-based plastics



[Source: Walker and Rothman, 2020. LCA of bio-based and fossil-based plastic: A review](#)

Beyond carbon ... Why now?



Making an impact

Zero Waste Scotland has developed a tool, covering new environmental indicators, that offers additional insights into the overall environmental cost of waste and materials. The organisation's **Dr Ramy Salemdieb**, and **Ruth Saint**, of Edinburgh Napier University, explain

Scan me!



[Link](#)

Beyond Carbon: the way forward



Scottish Waste
Environmental
Footprint Tool
(SWEFT)

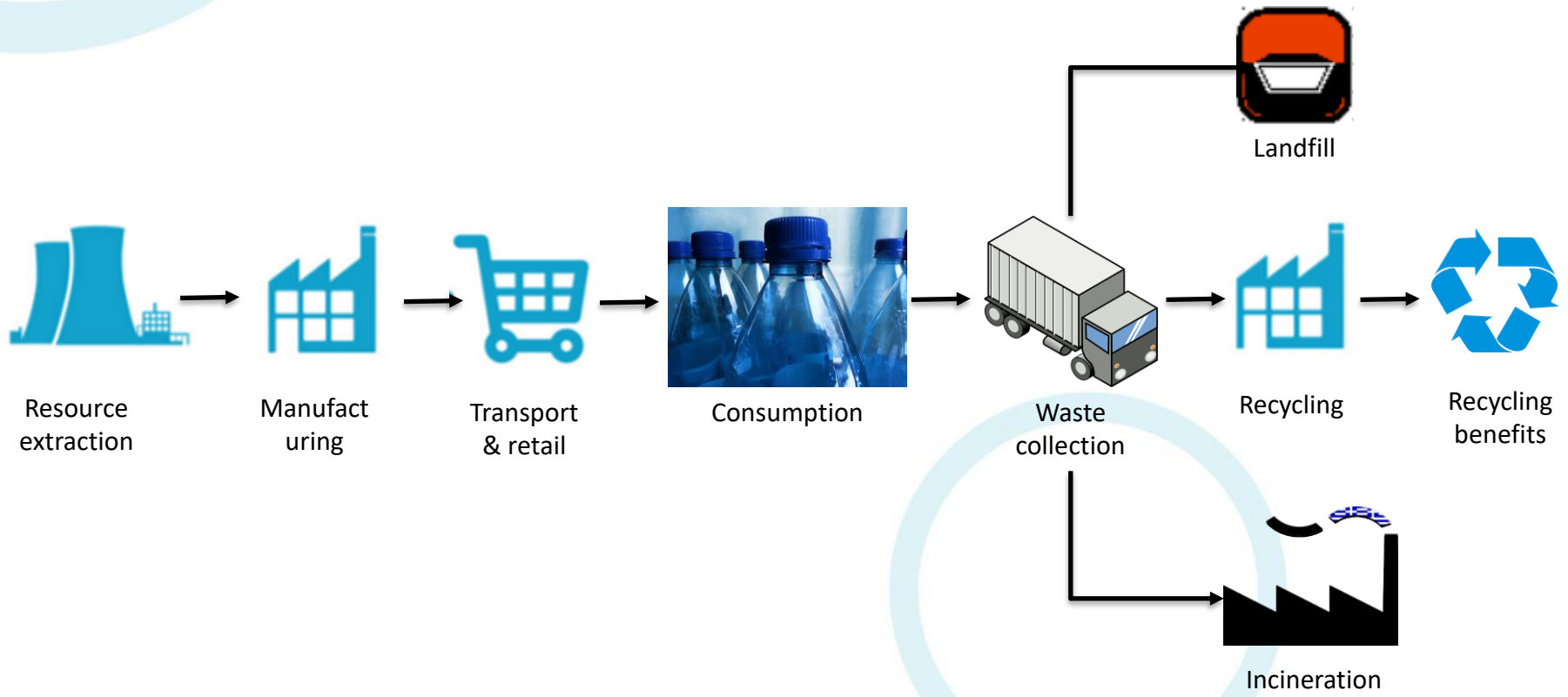
SWEFT: Introduction



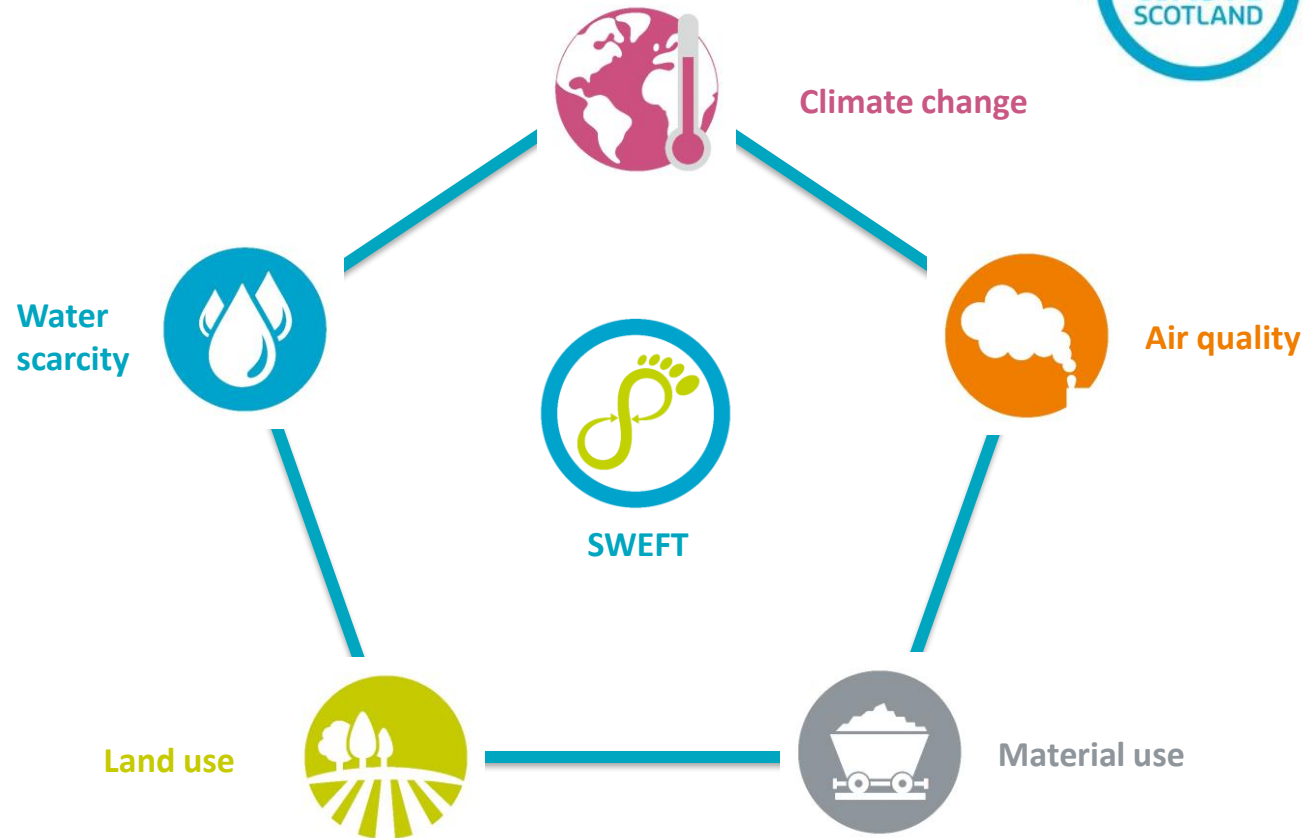
Whole life-cycle

Upstream (embodied impacts)

Downstream (end-of-life impacts)



SWEFT indicators



Key public-facing indicators

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Scottish Waste
Environmental Footprint
Tool (SWEFT):
A review of widely used LCA indicators



SWEFT in a nutshell

The SWEFT logo, which consists of a blue circle containing a stylized yellow footprint with a circular arrow around it, and the word "SWEFT" in blue capital letters below it.

A decision-support tool

Go beyond carbon

Covers whole-life environmental impacts

Built using ecoinvent database

Scotland specific

Modular structure

SWEFT: modular approach



Waste disposal (reject)

Waste recycling

Waste processing

Waste collection

Secondary manufacturing

Transport

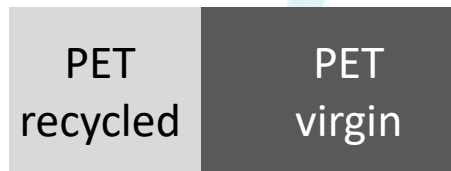
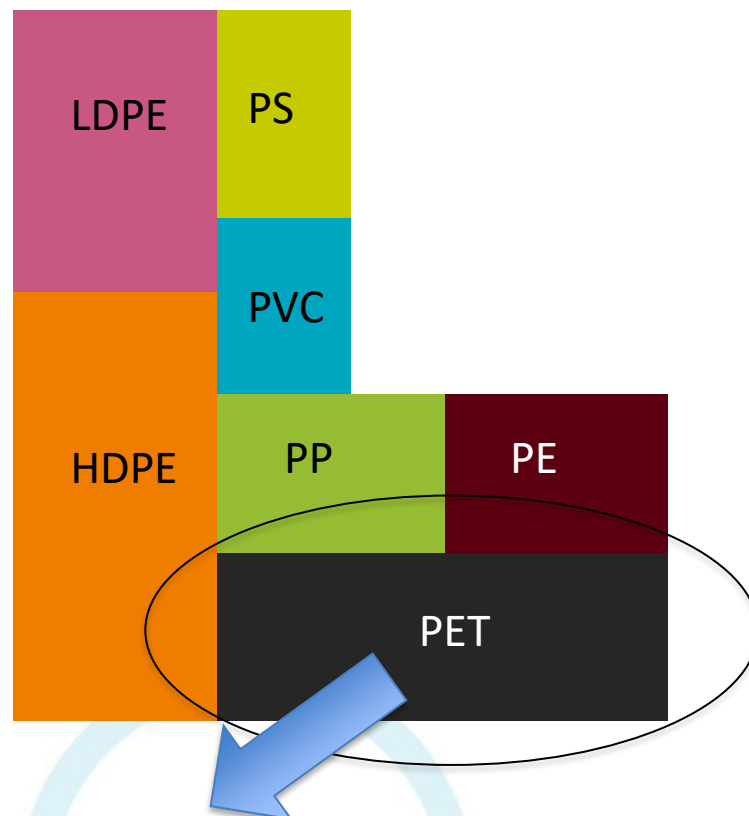
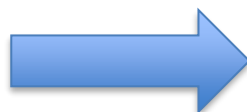
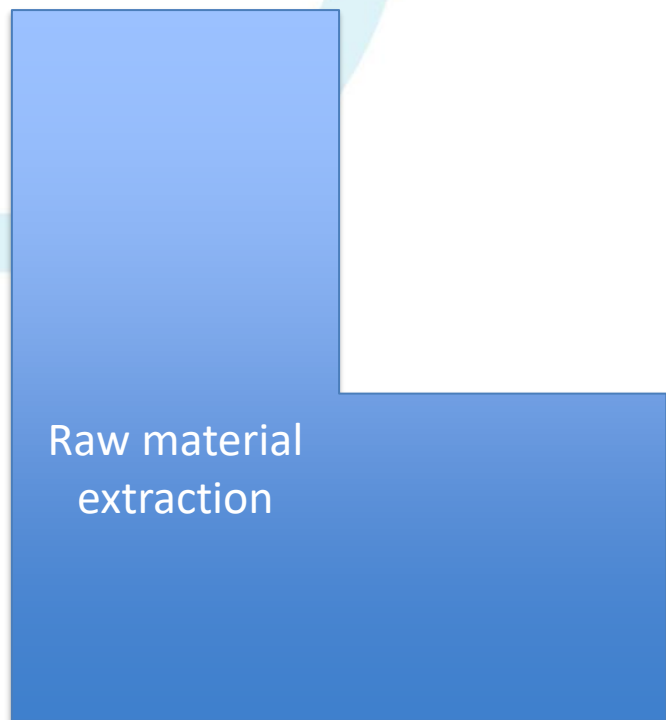
Primary manufacturing

Raw material extraction

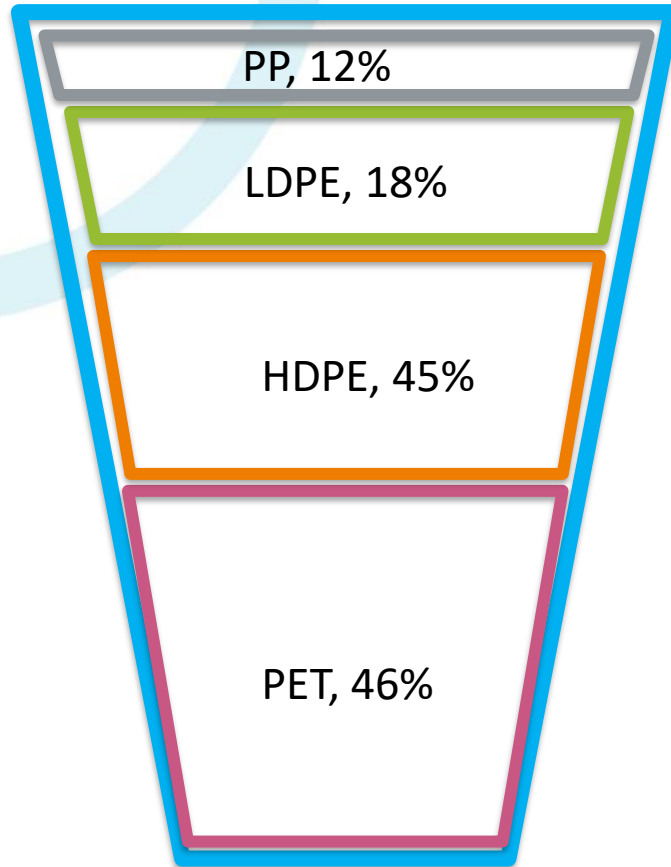
SWEFT: higher granularity



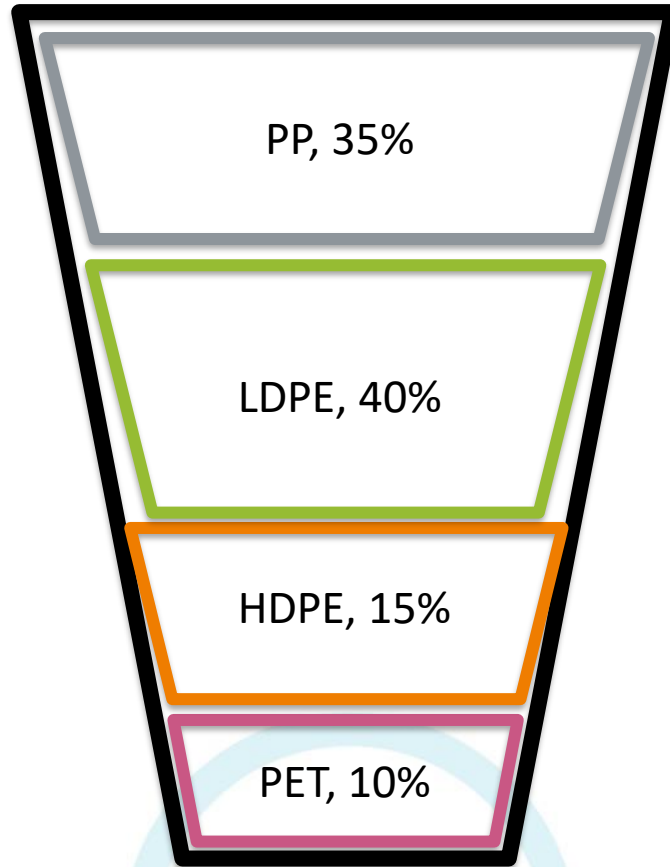
Plastics



SWEFT: higher granularity



Plastics Recycled

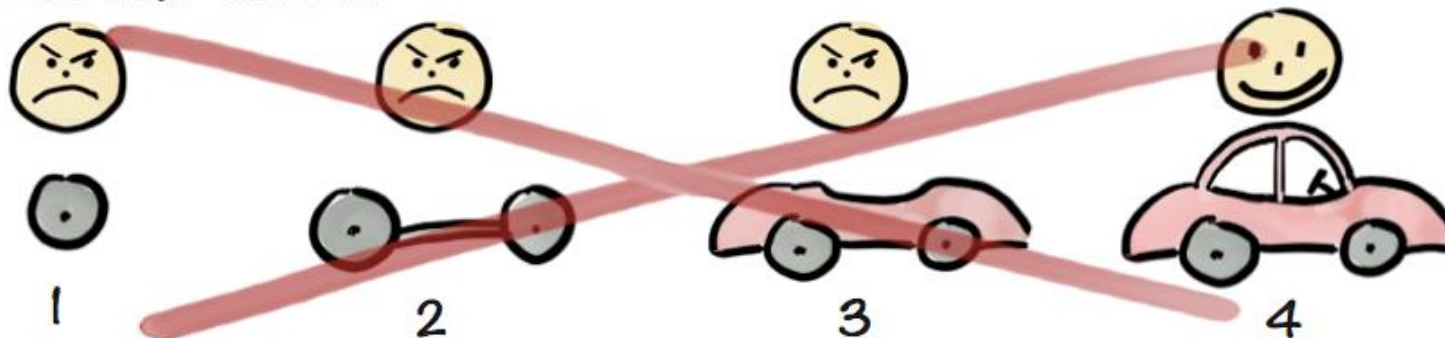


Plastics
Landfilled/Incinerated

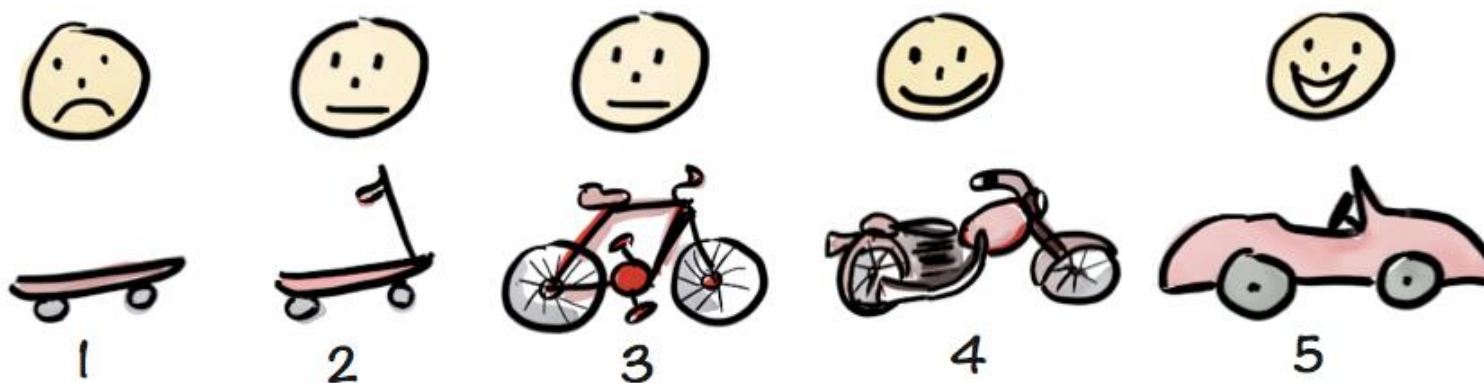
SWEFT development strategy



Not like this....









Like this!

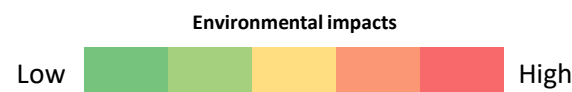


by Henrik Kniberg

Identifying hotspots – key waste categories – Scotland's 2018 HH waste



Waste category	 Weight	 Carbon footprint	 Water use	 Land use	 Material use	 Air quality
Food						
Paper & cardboard						
Plastics						
Glass						
Wood						
Mixed metals						
Textile						
WEEE						
Others						



Scan me!

• Knowledge base Impact-based indicators

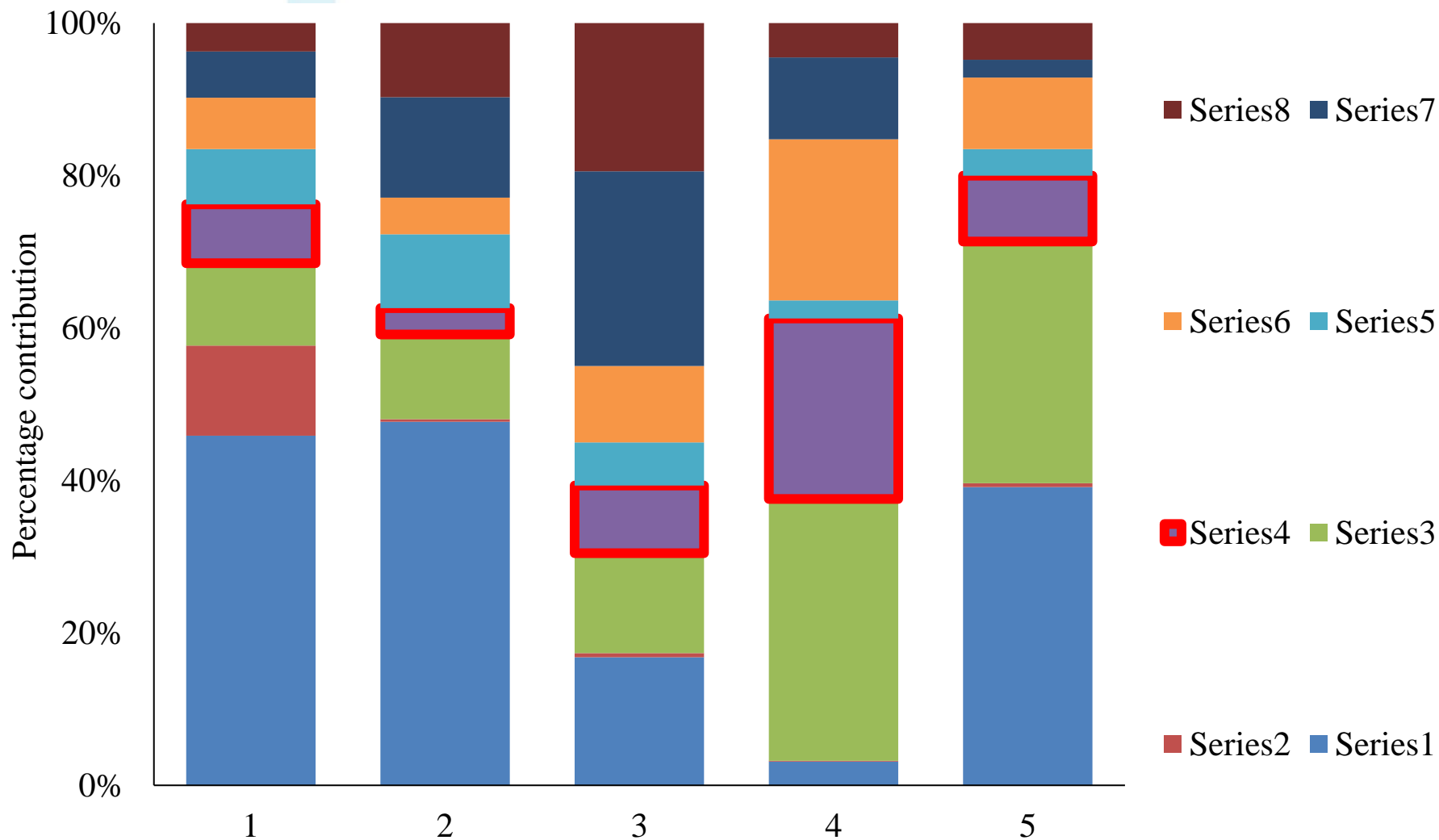


[Link](#)

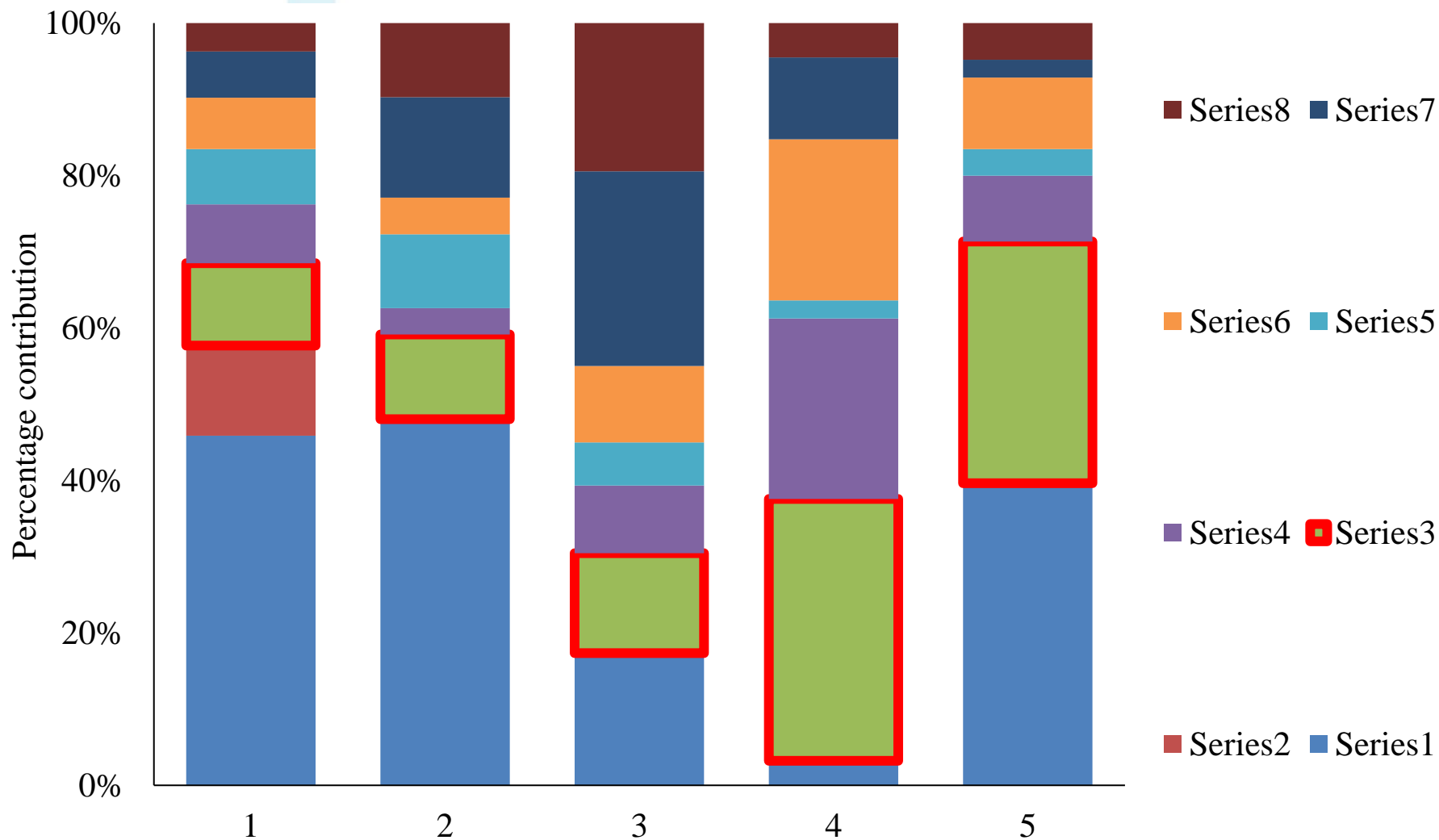
Targeted approach



Impact intensity per tonne of waste

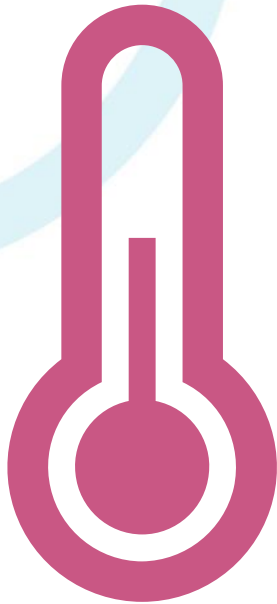


Impact intensity per tonne of waste



What's next

- Prepare for the launch of SWEFT
- Explore available options to present SWET results in a way that is accessible to policymakers.
- Expand the analysis to include non-household waste.



SWEFT aims at being a **thermometer** of the environmental impacts of waste and materials discarded in Scotland



Thank you!

Dr Ramy Salemdeeb, Environmental Analyst

Email: ramy.salemdeeb@zerowastescotland.org.uk