

How can the Circular Economy Contribute Towards the Mitigation of Climate Breakdown?

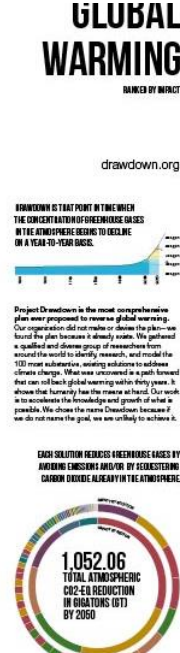
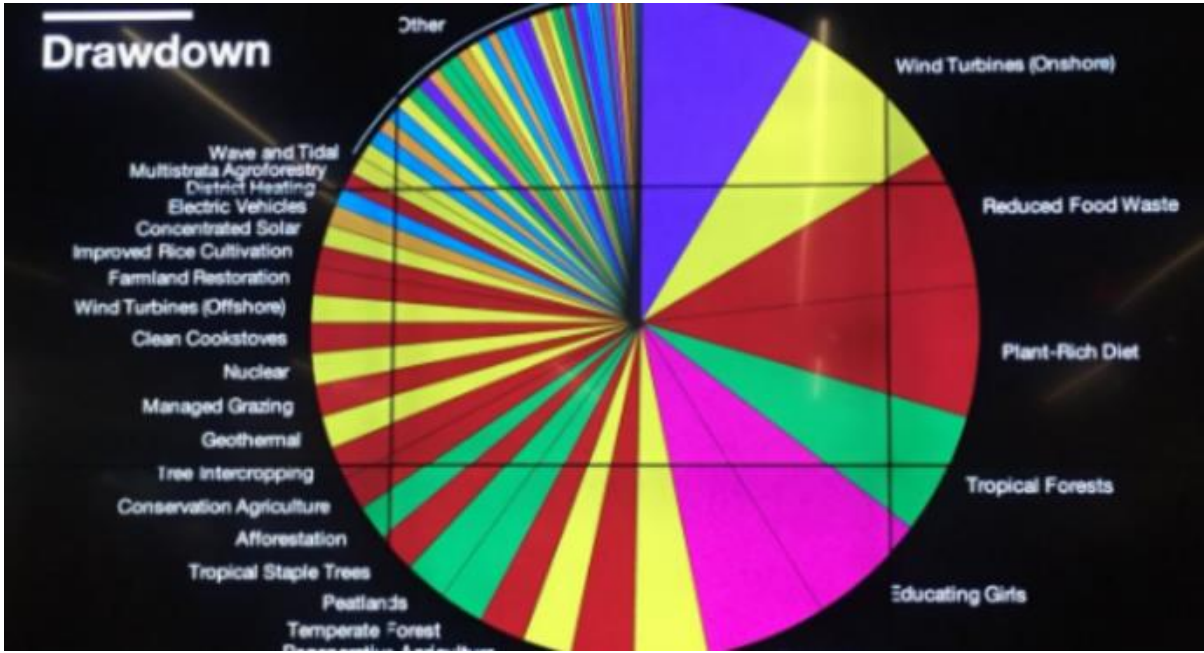


Horsham Climate Café 6th February 2021
Presentation by Peter Desmond



Source: NASA





Drawdown

<p>Women and Girls EDUCATING GIRLS</p> <p>Education lays a foundation for vibrant lives for girls and women, their families, and their communities. It also avoids emissions by curbing population growth.</p> <p>59.60 or REDUCED CO₂ #6</p>	<p>ELECTRIC VEHICLES</p> <p>Electric vehicles are the part of the transportation revolution that will help us meet our climate goals. They are the most accessible and the most widely used.</p> <p>0.96 or REDUCED CO₂ #69</p>	<p>ELECTRIC VEHICLES</p> <p>Electric vehicles are the part of the transportation revolution that will help us meet our climate goals. They are the most accessible and the most widely used.</p> <p>0.96 or REDUCED CO₂ #69</p>	<p>ENERGY STORAGE (BATTERIES)</p> <p>Batteries store energy for use when needed, making them a key technology for renewable energy systems. They are used in everything from small electronics to large-scale power storage.</p> <p>0.50 or REDUCED CO₂ #26</p>	<p>ENERGY STORAGE (BATTERIES)</p> <p>Batteries store energy for use when needed, making them a key technology for renewable energy systems. They are used in everything from small electronics to large-scale power storage.</p> <p>0.50 or REDUCED CO₂ #26</p>	<p>ENERGY STORAGE (BATTERIES)</p> <p>Batteries store energy for use when needed, making them a key technology for renewable energy systems. They are used in everything from small electronics to large-scale power storage.</p> <p>0.50 or REDUCED CO₂ #26</p>
<p>Women and Girls FAMILY PLANNING</p> <p>Securing women's right to voluntary, high-quality family planning dramatically improves the health and well-being of women and their children. It also avoids emissions.</p> <p>59.60 or REDUCED CO₂ #7</p>	<p>ENERGY STORAGE (BATTERIES)</p> <p>Batteries store energy for use when needed, making them a key technology for renewable energy systems. They are used in everything from small electronics to large-scale power storage.</p> <p>0.50 or REDUCED CO₂ #26</p>	<p>ENERGY STORAGE (BATTERIES)</p> <p>Batteries store energy for use when needed, making them a key technology for renewable energy systems. They are used in everything from small electronics to large-scale power storage.</p> <p>0.50 or REDUCED CO₂ #26</p>	<p>ENERGY STORAGE (BATTERIES)</p> <p>Batteries store energy for use when needed, making them a key technology for renewable energy systems. They are used in everything from small electronics to large-scale power storage.</p> <p>0.50 or REDUCED CO₂ #26</p>	<p>ENERGY STORAGE (BATTERIES)</p> <p>Batteries store energy for use when needed, making them a key technology for renewable energy systems. They are used in everything from small electronics to large-scale power storage.</p> <p>0.50 or REDUCED CO₂ #26</p>	<p>ENERGY STORAGE (BATTERIES)</p> <p>Batteries store energy for use when needed, making them a key technology for renewable energy systems. They are used in everything from small electronics to large-scale power storage.</p> <p>0.50 or REDUCED CO₂ #26</p>
<p>Farmland Restoration</p> <p>The world's arid and semi-arid lands are a treasure trove of biodiversity and carbon storage. Restoring these lands can help us meet our climate goals.</p> <p>14.08 or REDUCED CO₂ #23</p>	<p>Forest Protection</p> <p>Minimum conservation areas and protected areas can help us meet our climate goals. They are used in everything from small electronics to large-scale power storage.</p> <p>8.29 or REDUCED CO₂ #38</p>	<p>High-Speed Rail</p> <p>High-speed rail is a fast and efficient mode of transportation. It can help us meet our climate goals by reducing emissions from air travel.</p> <p>1.52 or REDUCED CO₂ #66</p>	<p>Household Recycling</p> <p>Household recycling can help us meet our climate goals by reducing emissions from landfills.</p> <p>3.27 or REDUCED CO₂ #55</p>	<p>Hydrogen-Driven Fusion</p> <p>Hydrogen-driven fusion is a clean and efficient source of energy. It can help us meet our climate goals by reducing emissions from fossil fuels.</p> <p>6.77 or REDUCED CO₂ #73</p>	<p>Improved Rice Cultivation</p> <p>Improved rice cultivation can help us meet our climate goals by reducing emissions from rice production.</p> <p>11.34 or REDUCED CO₂ #24</p>
<p>Heat Pumps</p> <p>Heat pumps can help us meet our climate goals by reducing emissions from heating and cooling buildings.</p> <p>5.20 or REDUCED CO₂ #42</p>	<p>Industrial Recycling</p> <p>Industrial recycling can help us meet our climate goals by reducing emissions from landfills.</p> <p>2.77 or REDUCED CO₂ #56</p>	<p>Industrial Methane</p> <p>Industrial methane can help us meet our climate goals by reducing emissions from industrial processes.</p> <p>8.27 or REDUCED CO₂ #31</p>	<p>Intercropping</p> <p>Intercropping is a farming practice that can help us meet our climate goals by reducing emissions from agriculture.</p> <p>11.54 or REDUCED CO₂ #19</p>	<p>Managed Grazing</p> <p>Managed grazing is a farming practice that can help us meet our climate goals by reducing emissions from agriculture.</p> <p>14.54 or REDUCED CO₂ #19</p>	<p>Marine Protected Areas</p> <p>Marine protected areas can help us meet our climate goals by reducing emissions from marine activities.</p> <p>0.20 or REDUCED CO₂ #78</p>
<p>Meat-Rich Diet</p> <p>Meat-centric diets come with a steep climate price tag: one-fifth of global emissions. Meat-rich diets dramatically reduce emissions and rates of chronic disease.</p> <p>66.11 or REDUCED CO₂ #4</p>	<p>Meat-Rich Diet</p> <p>Meat-centric diets come with a steep climate price tag: one-fifth of global emissions. Meat-rich diets dramatically reduce emissions and rates of chronic disease.</p> <p>66.11 or REDUCED CO₂ #4</p>	<p>Meat-Rich Diet</p> <p>Meat-centric diets come with a steep climate price tag: one-fifth of global emissions. Meat-rich diets dramatically reduce emissions and rates of chronic disease.</p> <p>66.11 or REDUCED CO₂ #4</p>	<p>Meat-Rich Diet</p> <p>Meat-centric diets come with a steep climate price tag: one-fifth of global emissions. Meat-rich diets dramatically reduce emissions and rates of chronic disease.</p> <p>66.11 or REDUCED CO₂ #4</p>	<p>Meat-Rich Diet</p> <p>Meat-centric diets come with a steep climate price tag: one-fifth of global emissions. Meat-rich diets dramatically reduce emissions and rates of chronic disease.</p> <p>66.11 or REDUCED CO₂ #4</p>	<p>Meat-Rich Diet</p> <p>Meat-centric diets come with a steep climate price tag: one-fifth of global emissions. Meat-rich diets dramatically reduce emissions and rates of chronic disease.</p> <p>66.11 or REDUCED CO₂ #4</p>
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Over the last decade, summers have been **13% wetter**, and winters have been **12% wetter***



2018 was the **3rd sunniest** year in a UK series starting 1929



Despite most significant snowfall since 2010...
...UK snow events have **declined** since the 1960's




The **top 10 warmest years** have all occurred since 2002***




6 of the 10 **wettest** years have all occurred since 1998**



8 of the 10 warmest years for **near-coast UK** temperatures have occurred this century



10 named **storms** battered the UK during 2018



In 2018, average sea-level around the UK was **equal highest** (with 2015) on record****

JAN

FEB

MAR

APR

MAY

JUN

JUL

AUG

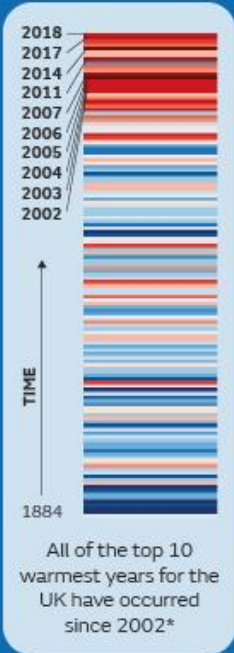
SEP

OCT

NOV

DEC

OVER THE LAST DECADE

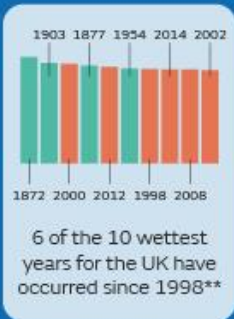


Winter and Spring have seen 13% more sunshine***

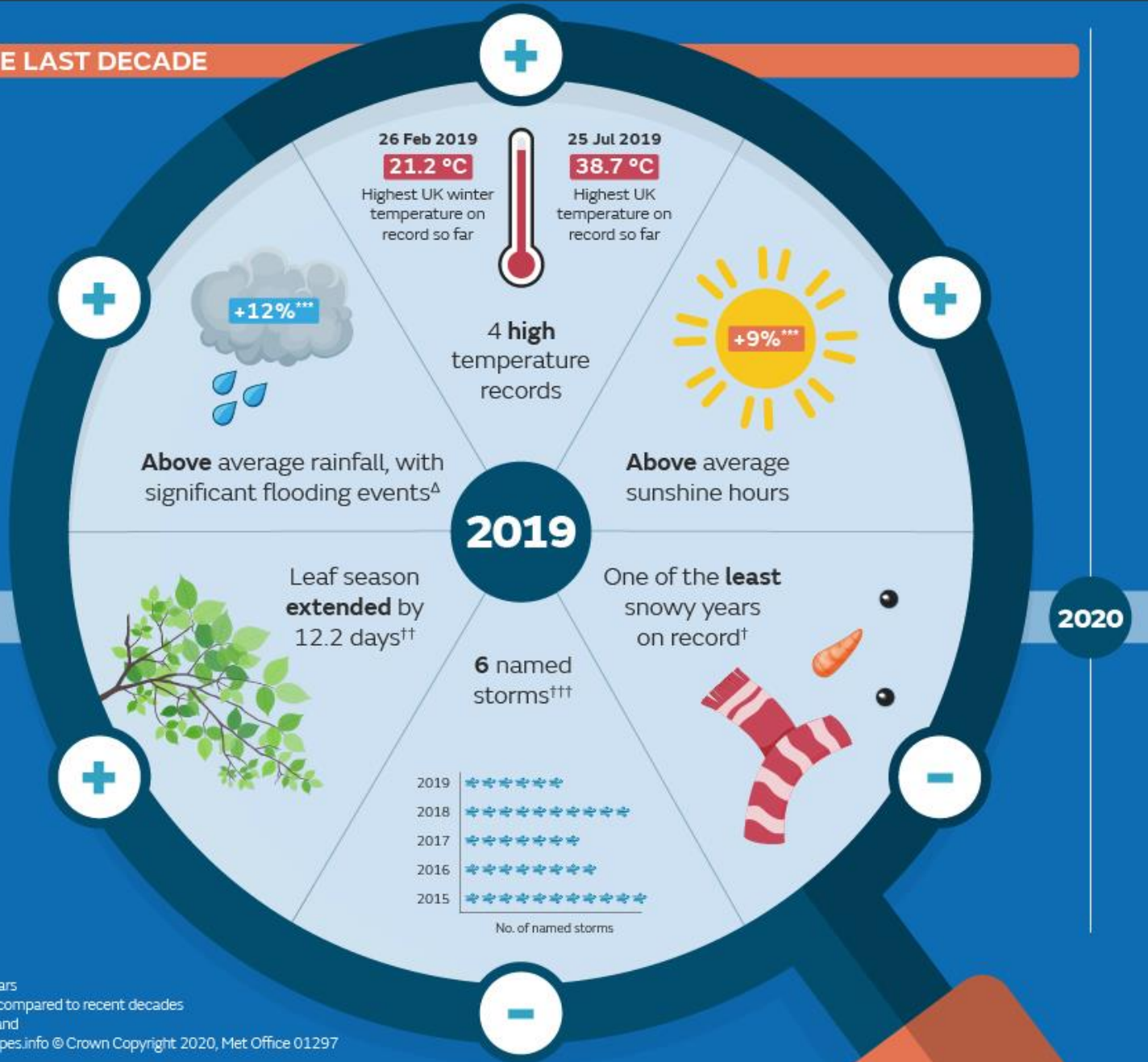


Temperatures have been warmer by 0.9 °C***

2010



Summers have been 13% wetter and Winters have been 12% wetter***

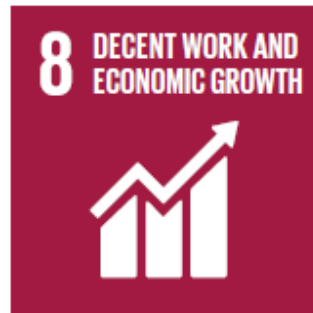


2020

* In a series starting in 1884 ** In a series starting in 1862
 *** Compared to the 1961-1990 average † Compared to the last 60 years
 †† Compared to the 1999-2018 average ††† This was not a stormy year compared to recent decades
 Δ Including severe flooding in November 2019 in parts of northern England
 #ShowYourStripes with permission of @ed_hawkins www.showyourstripes.info © Crown Copyright 2020, Met Office 01297

THE GLOBAL GOALS

For Sustainable Development



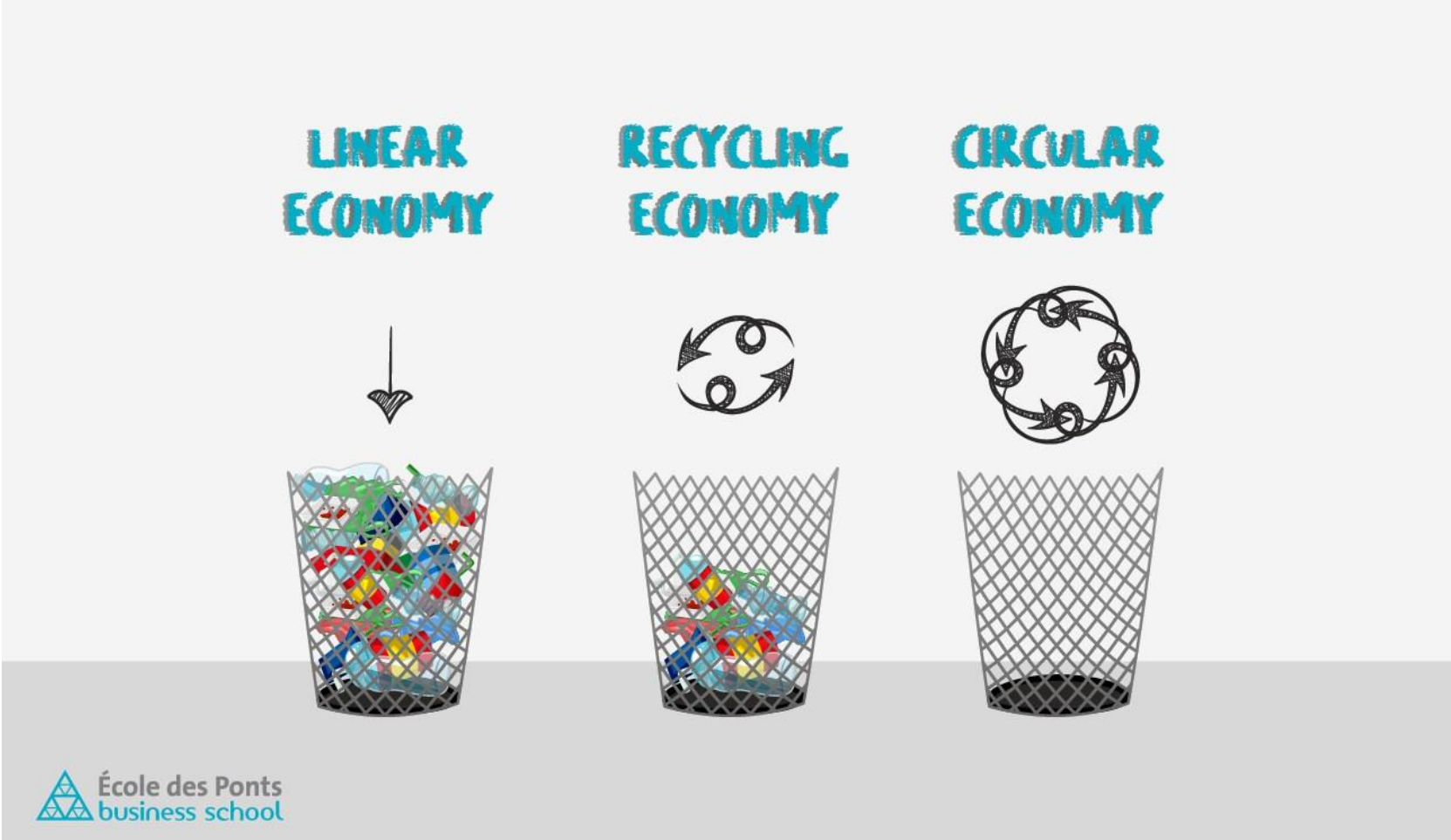
Ellen MacArthur Foundation

YouTube cartoon: “Re-thinking Progress – the Circular Economy”

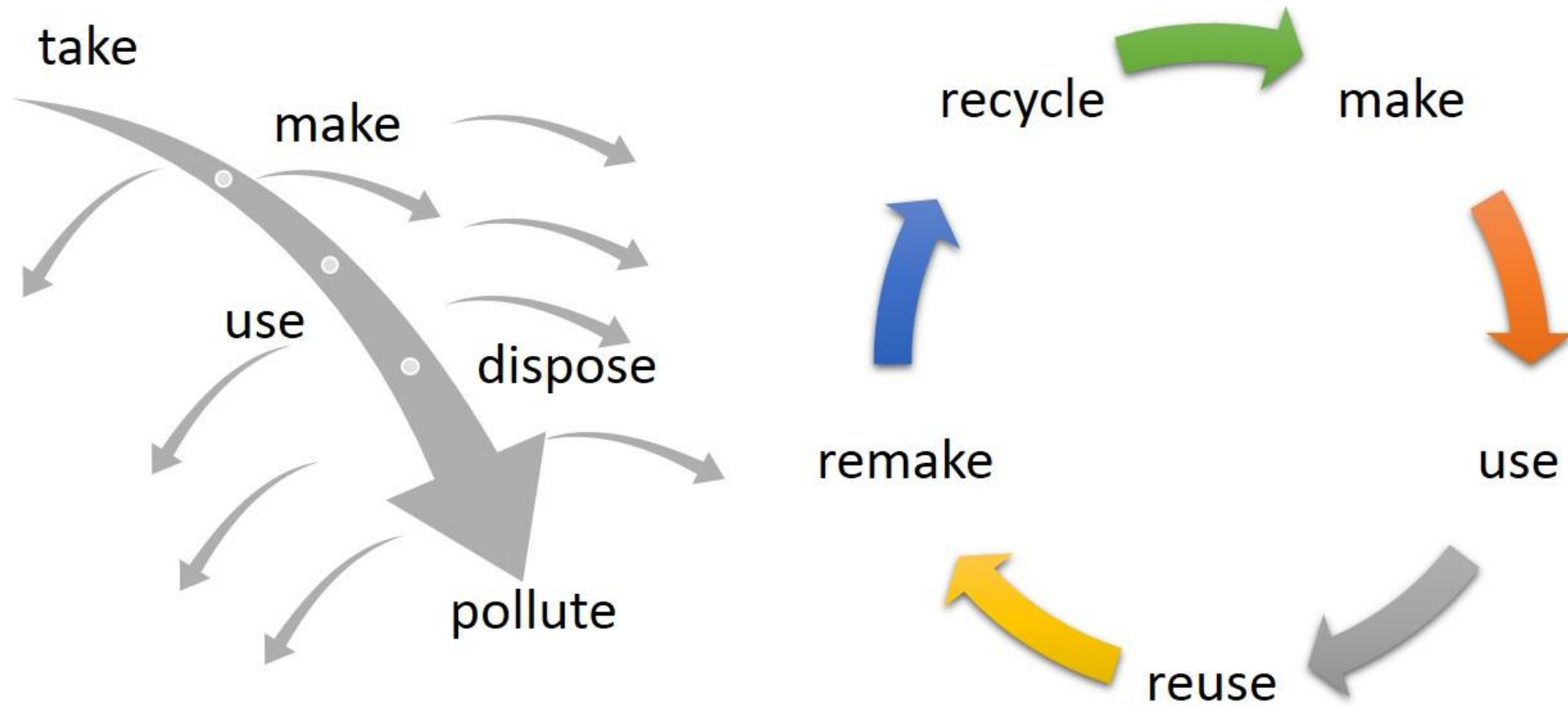
Link: <https://youtu.be/zCRKvDyyHml>

But the circular economy isn't just about waste

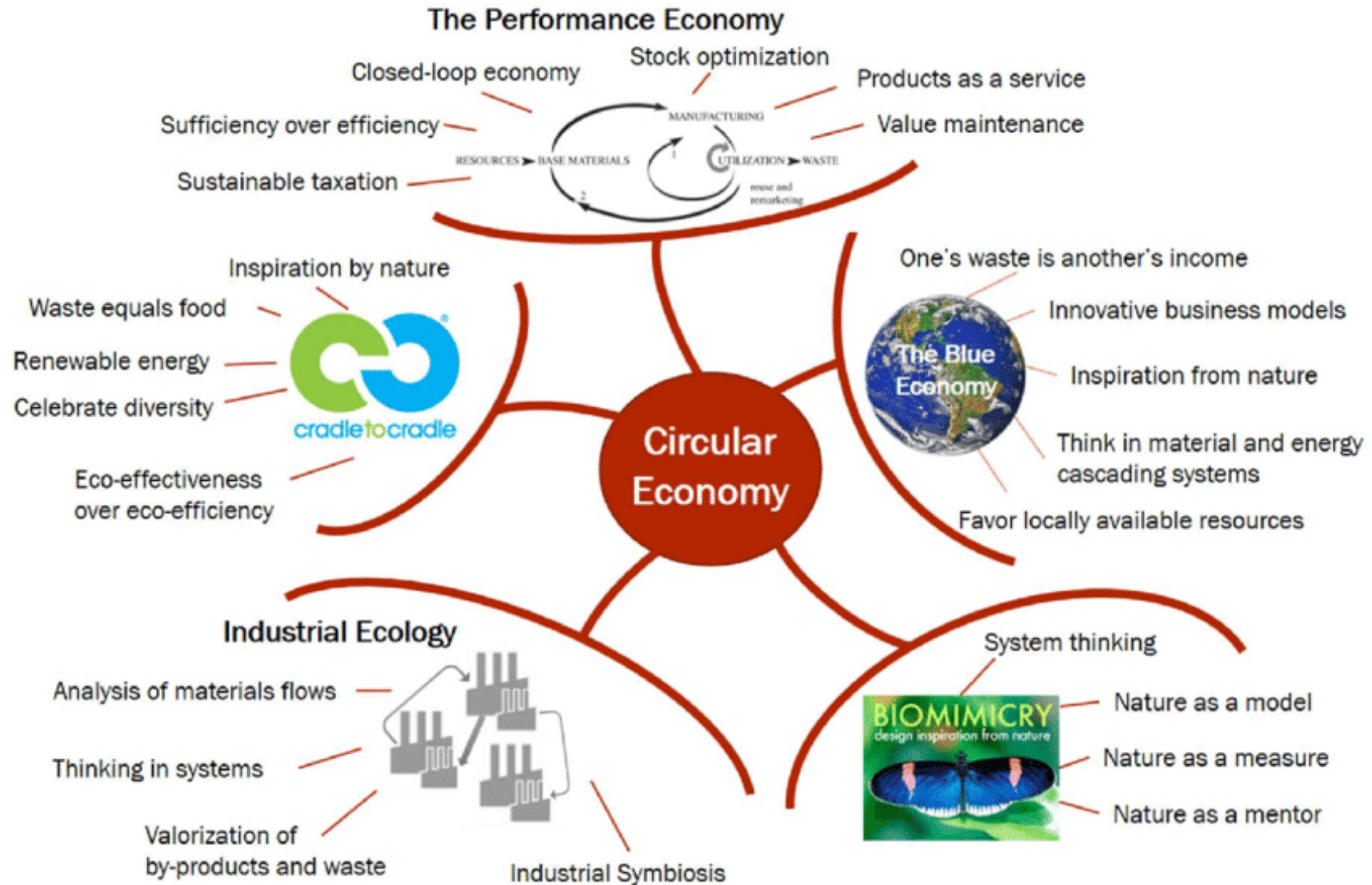
From Linear
to Circular



From Linear to Circular



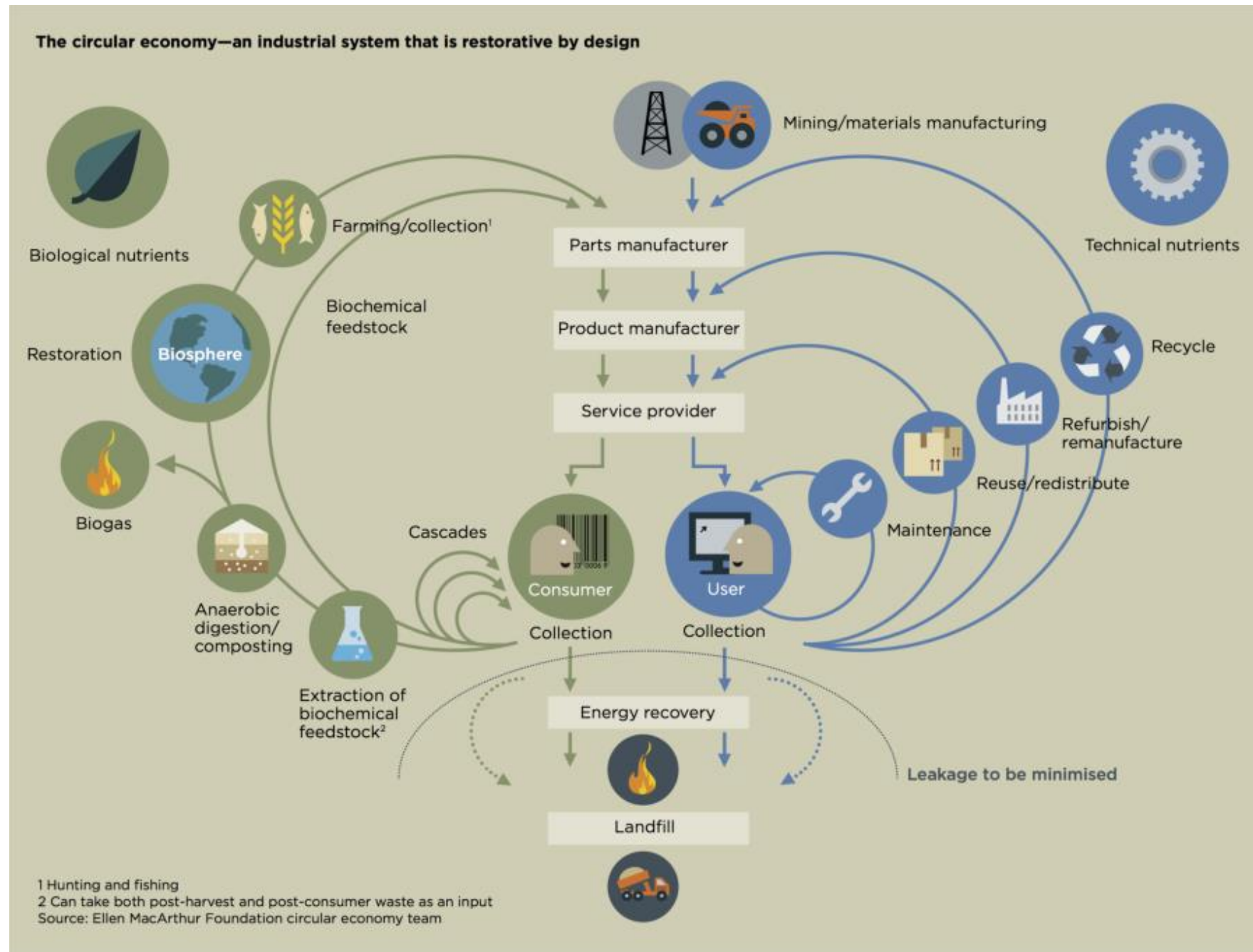
Origins of the Circular Economy concept

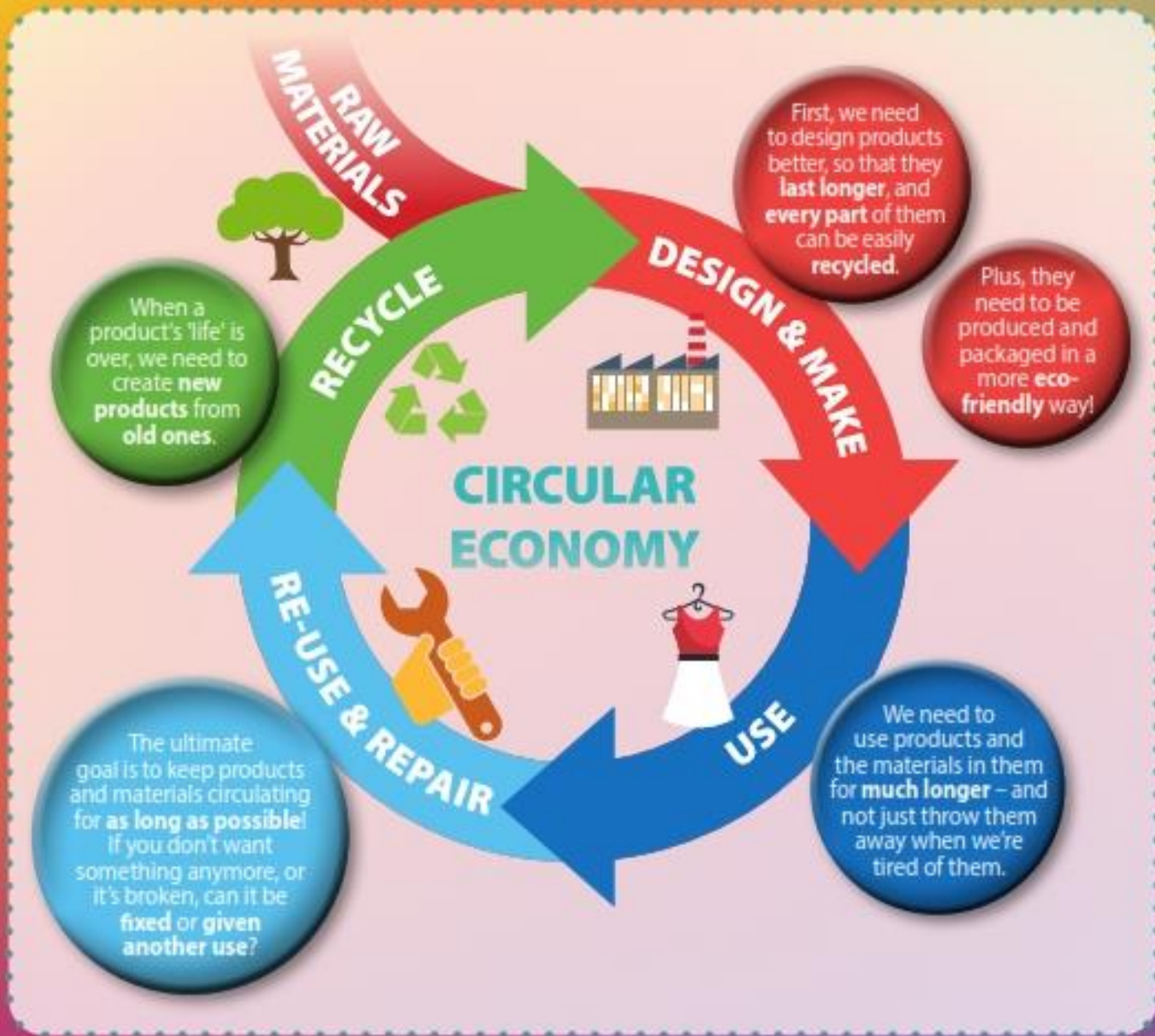


Circular Economy- what is it?

The Ellen MacArthur Foundation outlines 3 principles for a Circular Economy:

1. Design out waste and pollution
2. Keep products and materials in use
3. Regenerate natural systems.





Levels of circularity: 10 R's

Order of priority

High

Refuse: prevent raw materials use

Reduce: decrease raw materials use

Renew: redesign product in view of circularity

Re-use: use product again (second hand)

Repair: maintain and repair product

Refurbish: revive product

Remanufacture: make new product from second hand

Re-purpose: re-use product but with other function

Recycle: salvage material streams with highest possible value

Low

Recover: incinerate waste with energy recovery

The Problem



Part of the Problem

Free Upgrades



Experience the stunning iPhone 6s
And your next iPhone upgrade is on us



iPhone 6s

With love from
O₂

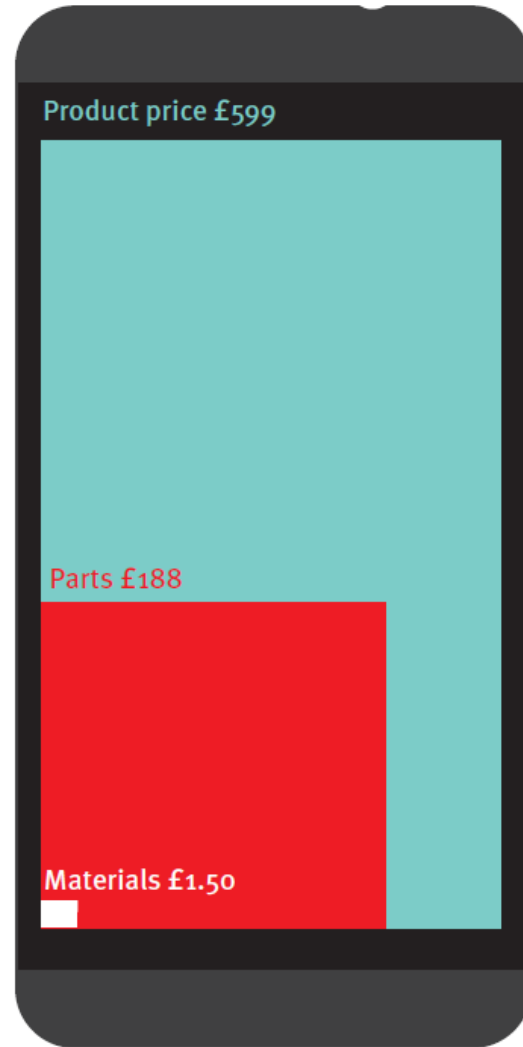
Get yours on our 30GB tariff at o2.co.uk/iphone6s or visit any O₂ shop

O₂

30GB tariff only. Trade in your existing iPhone with O2 Recycle and upgrade after 12 months with O2 Refresh. Subject to status, 18+. Upfront payment may be required. Terms, eligibility and criteria apply. See o2.co.uk

Recycling: good but not great

New phone



Finished products are worth much more than the raw materials inside them

Second-hand phone



Parts in a broken phone are worth nearly one third of the original value of the device

Some Solutions

- Design - modularity
- Reparability
- Upgradeability
- Take-back schemes
- Recycling components
- Product as a service



FAIRPHONE

Together let's change the way phones are made

- Made to last
- Conflict-free minerals
- Responsible recycling
- Modular & easy to repair

Pre-order your Fairphone 2

Minutes, unlimited texts and data from £25 per month

☎ 01608 434 040
➤ thephone.coop/bigissue



FAIRPHONE

The **co-operative** mobile

The advertisement features a blue background with white and dark blue text. On the right, a hand holds a black smartphone with its back cover removed, revealing the internal green circuit board and a grey battery labeled 'FAIRPHONE'. The phone is held against a background of faint, overlapping text. At the bottom, the 'The co-operative mobile' logo is displayed in white and blue.

FIVE BUSINESS MODELS OF CIRCULARITY

Circular Supplies



Supply fully renewable, recyclable, or biodegradable resource inputs to support circular production

Resource Recovery



Eliminate material leakage and maximize economic value of product return flows

Product Life Extension



Extend the current lifecycle of a product: repairability, upgrading, reselling

Sharing Platforms



Stimulating collaboration among product users

Products As Service



Products are used by one or many customers through lease or pay-for-use arrangements

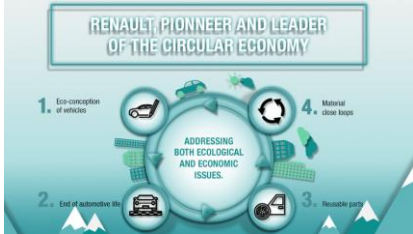


5 New Business Models – in “Waste to Wealth” by Lacy & Rutqvist

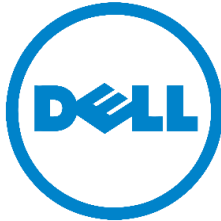
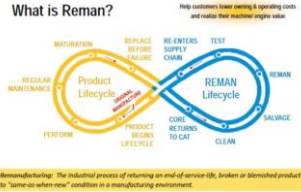
Circular Supply Chain



Recovery & Recycling



Product Life-extension



Sharing Platform



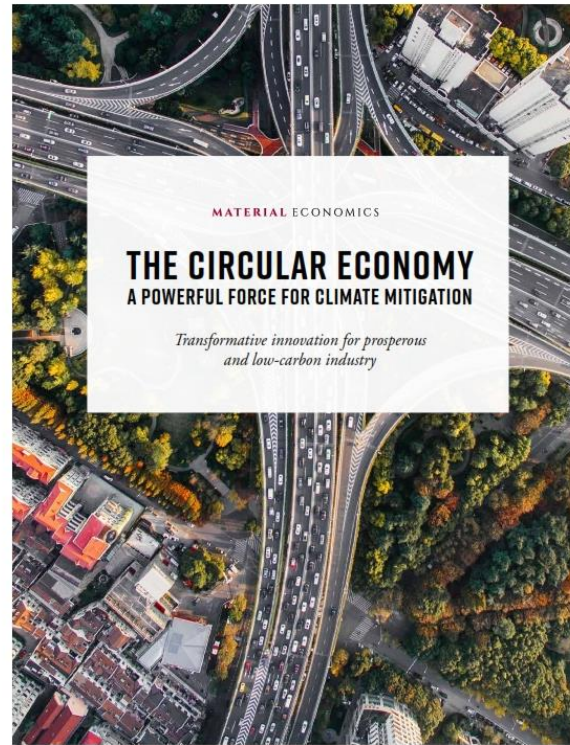
Product as Service





Quantifying the benefits of circular economy actions on the decarbonisation of EU economy

Final report



V.1 - 23 September 2019

COMPLETING THE PICTURE: HOW THE CIRCULAR ECONOMY TACKLES CLIMATE CHANGE



MATERIAL ECONOMICS

Circular Economy and Climate - Research

Towards an EU circular economy

In a circular economy, **waste and resource use** are minimised

When a product reaches the end of its life,
the materials it is made of can be **used again**

This brings major economic benefits, contributing to
innovation, growth and **job creation**



The **EU Action Plan for the circular economy**
covers the whole cycle from production and consumption,
to waste management and the market for secondary raw materials

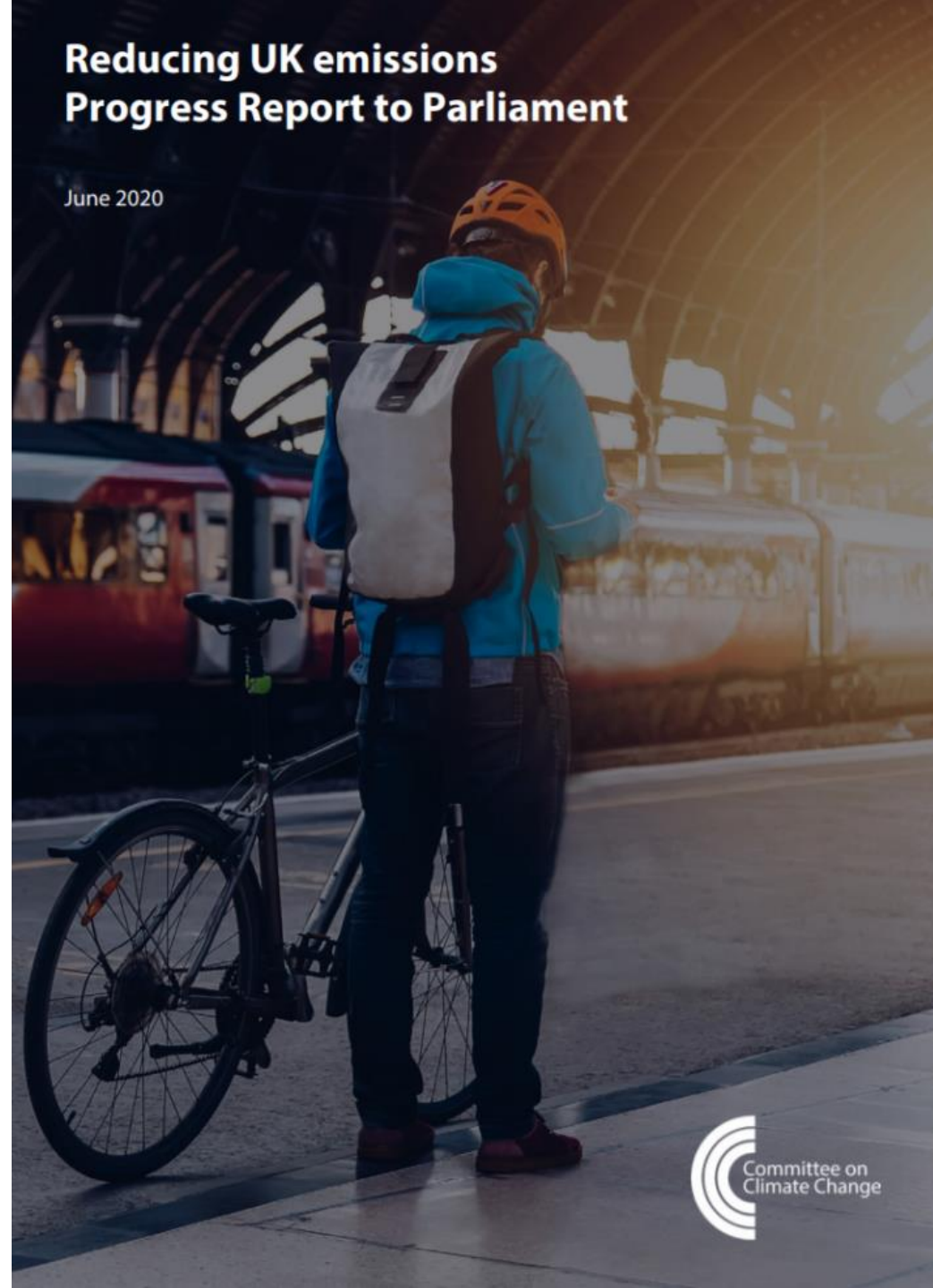
UK Climate Change Committee Report 2020

Key Priorities

- Low-carbon retrofits and buildings that are fit for the future
- Natural capital investments: tree planting, peatland restoration and green infrastructure
- Strengthening energy system networks
- Infrastructure to make it easy for people to walk, cycle, and work remotely
- **Moving towards a circular economy**

Reducing UK emissions Progress Report to Parliament

June 2020



Potential business cases



Yeast (fungi)



Buckwheat (plant)



Bee Hives (animals)



Neighbourhood Landscaping



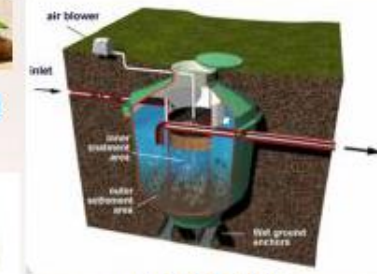
Rain Gardens



Spijker Community

Hops

Malting



Terra Preta

Bio-digester (bacteria)



District Heat System



Living Pub Hub (enzymes & people)



Nappies



Fruit Trees



Solarus PVT

Water

Ethics



Milling



Mushrooms (fungi)



Algaponics (algae)



Vermiculture (animals & bacteria)



Aquaponics (animals & plants)



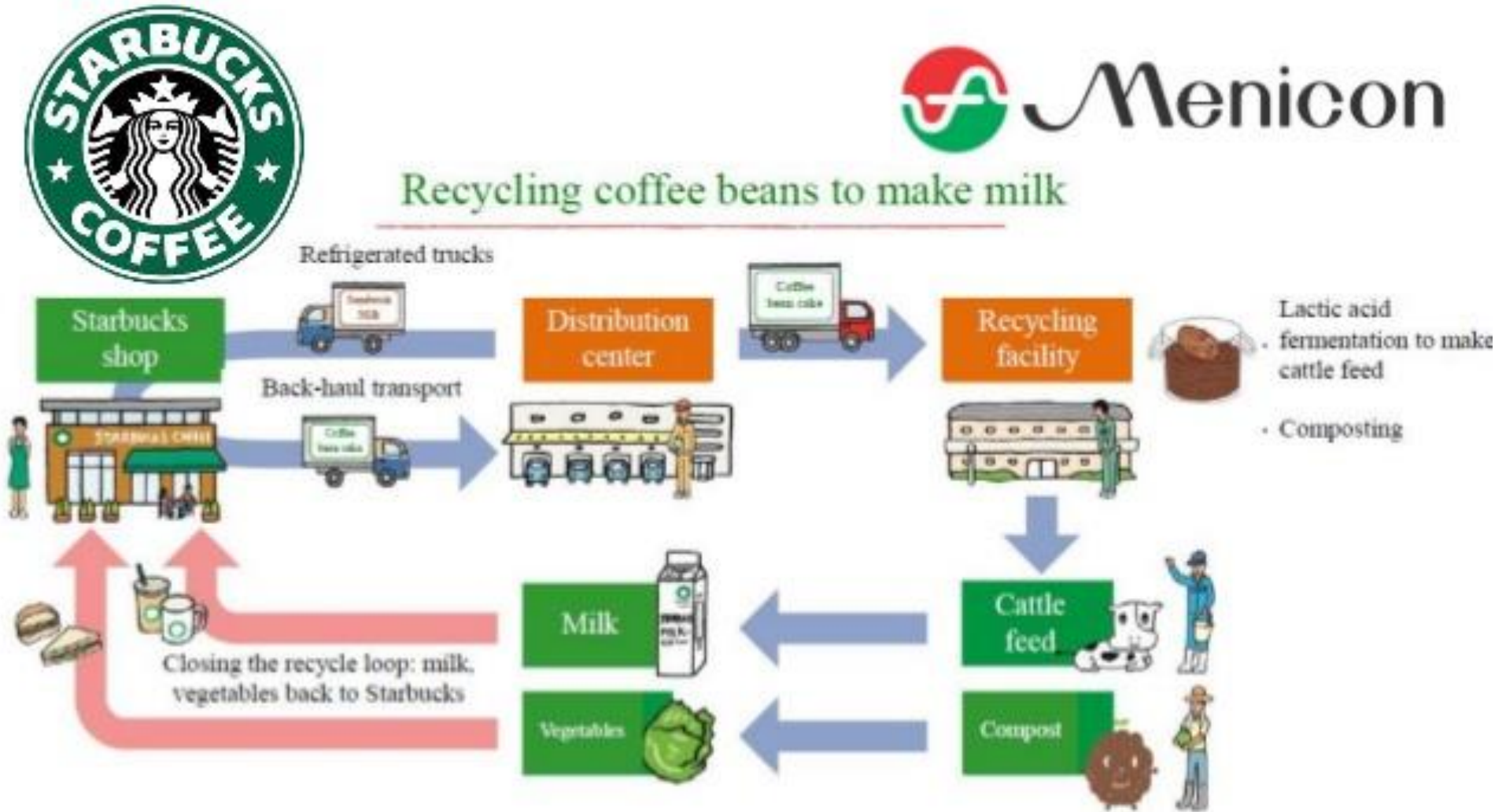
Bread (fungi)



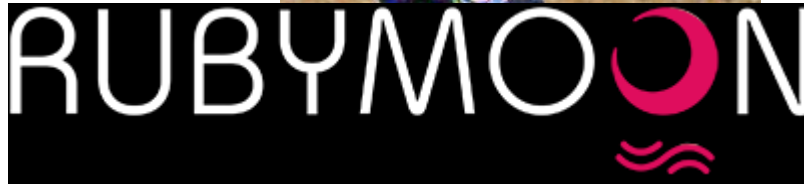
Spijker Bed&Bed Breakfast Service

3. Capability shift in Sourcing and Manufacturing

From homogenous supply chain **to heterogeneous resource flow innovation and cascading**



Circular-Related Initiatives in Sussex



ARE HAPPY BABIES

Do you love our world and want to do all you can to keep it safe, healthy and exciting for our children to thrive in? Do you think that you can make a difference by the way you shop for baby stuff???

Would you like to find out how to have a constant supply of lovely organic baby clothing for just the short time you need it - no waste, no guilt!

Come for FREE COFFEE and CAKES and find out more at our next SuperLooper focus groups:

Wednesday 28th November, 2.30pm Cafe Domenica, 5-7 Preston Road, BN1 4QE

Thursday 29th November, 11.30 am Al Campo Lounge, 84-86 London Road, BN1 4JF

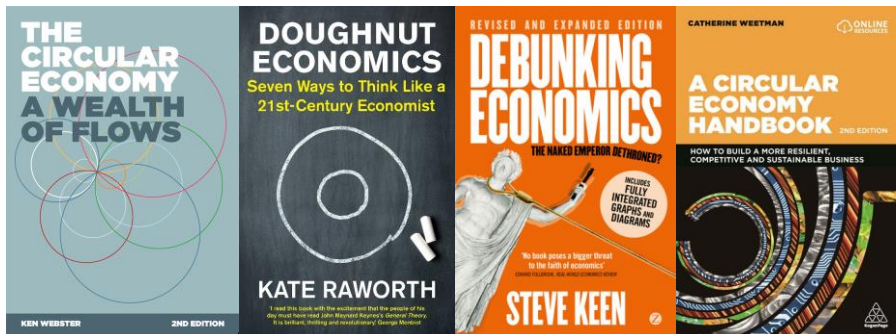
Hope to see you there

Love Jenny X

jenny@superloopercollections.com



How To Get Involved in the Circular Economy



13-21 October 2018
International Repair Café Week
We join in!

What do you do with
A CD player that no longer opens?
A toaster that no longer works?
A sweater with moth holes?

Repair Café is
repairing broken items together, professional advice, encounters and inspiration
Costs? A voluntary contribution

Join us.....
...as we celebrate our 1st birthday. We have had a fabulous year.

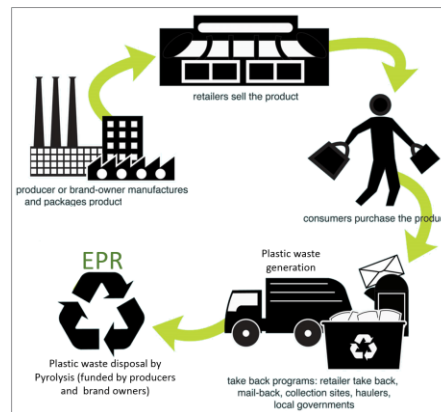
WHERE?
Repair Café Forest Row
Community Centre, Hartfield Road,
Forest Row, RH18 5DZ

WHEN?
Sat 20th October
From 10 to 1pm
Final repairs taken at 12.30.

CLOTHES • FURNITURE • ELECTRICAL APPLIANCES • TOYS • BICYCLES • ETCETERA
Repaircafe.org

Plastic Resin Identification Codes

1 PETE	2 HDPE	3 PVC	4 LDPE	5 PP	6 PS	7 OTHER
Polyethylene Terephthalate	High-Density Polyethylene	Polyvinyl Chloride	Low-Density Polyethylene	Polypropylene	Polystyrene	Other
Common products: soda & water bottles; cups, jars, trays, clamshells	Common products: milk jugs, detergent & shampoo bottles, flower pots, grocery bags	Common products: milk jugs, pool liners, twine, sheeting, automotive product bottles, sheeting	Common products: bread bags, paper towels & tissue overwrap, squeeze bottles, trash bags, six-pack rings	Common products: yogurt tubs, cups, juice bottles, straws, hangers, sand & shipping bags	Common products: flatware, hot cups, razors, CD cases, shipping cushion, cartons, trays	Common types & products: polycarbonate, nylon, ABS, acrylic, PLA; bottles, safety glasses, CDs, headlight lenses
Recycled products: clothing, carpet, clamshells, soda & water bottles	Recycled products: detergent bottles, flower pots, crates, pipe, decking	Recycled products: pipe, wall siding, binders, carpet backing, flooring	Recycled products: trash bags, plastic lumber, furniture, shipping envelopes, compost bins	Recycled products: paint cans, speed bumps, auto parts, food containers, hangers, plant pots, razor handles	Recycled products: picture frames, crown molding, rulers, flower pots, hangers, toys, tape dispensers	Recycled products: electronic housings, auto parts



ReTuna: the world's first recycling mall, Eskilstuna, Sweden

The mall, located next to the recycling center in Eskilstuna, opened in 2015

Visitors bring and sort waste materials, and drop off reusable toys, furniture, clothes, decorative items, and electronic devices in the mall's depot

Depot staff perform an initial culling of what is usable, and distribute these items to the recycling shops in the mall.

Shop staff perform a second culling, choosing what they want to repair, fix up, convert, refine – and ultimately sell.

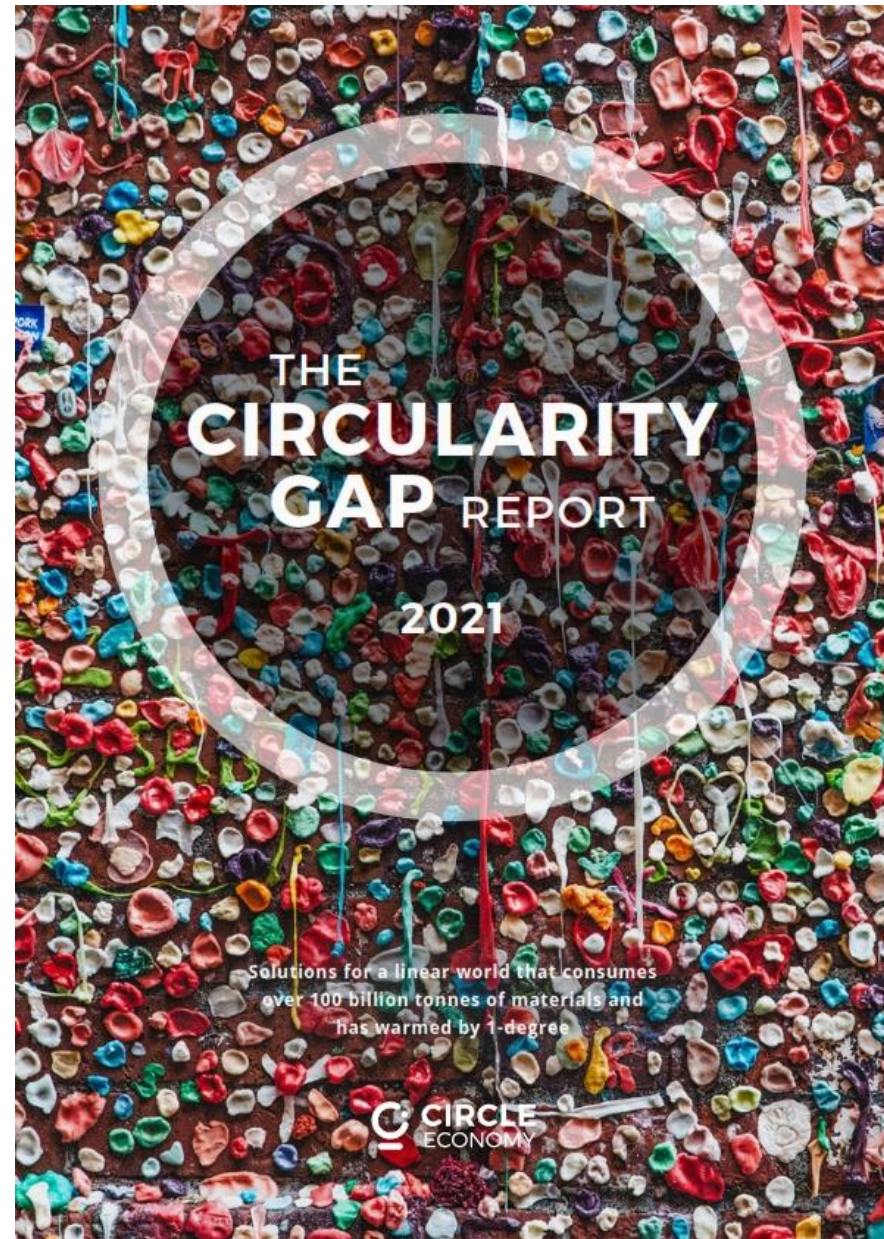
The mall offers **adult education courses** focused on design-based recycling.

Sales of 2.5 million Swedish krona in 2015 (about \$275,000) rose to 10.2 million SEK (\$1.12 million) in 2017

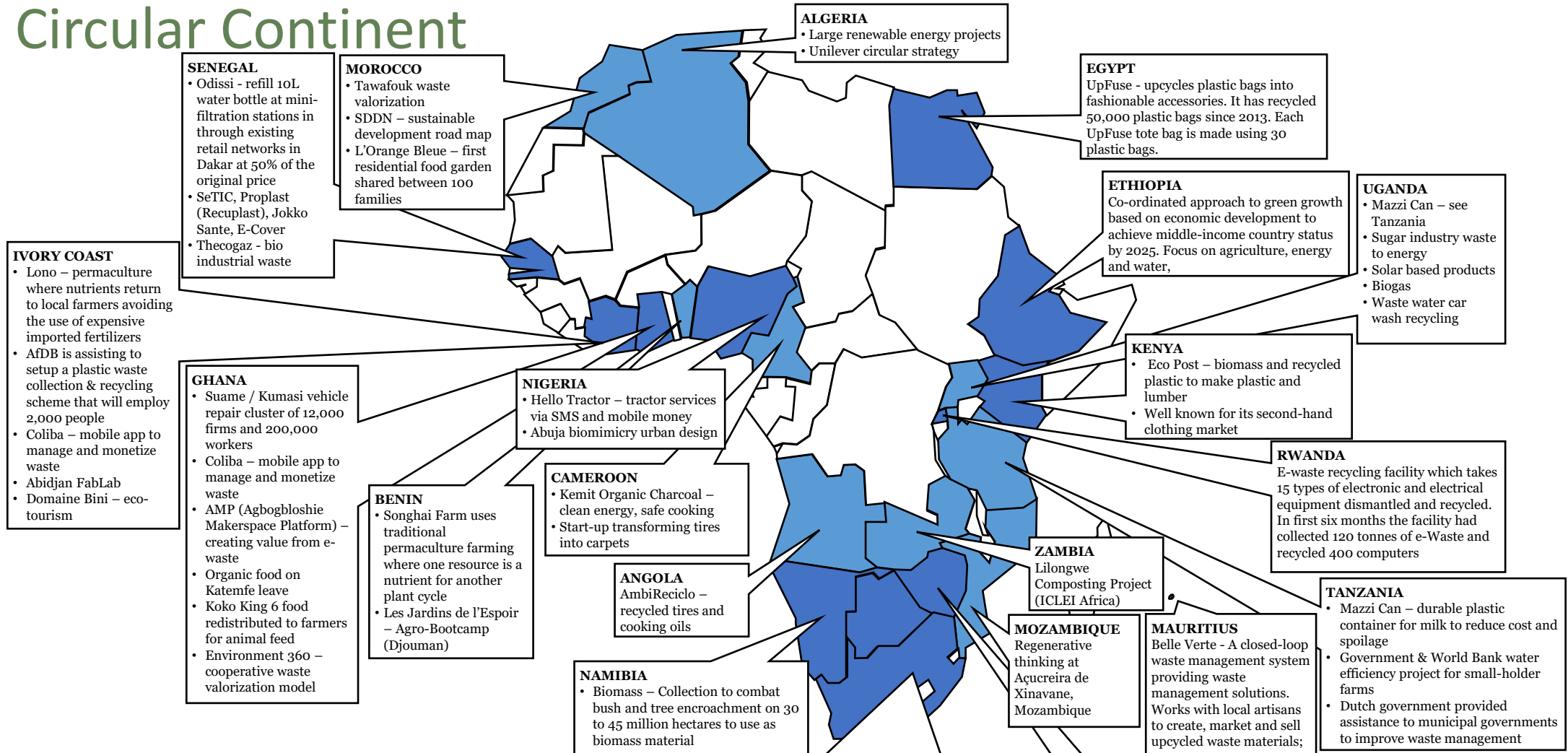


Source: www.retuna.se and Maddy Savage, [Huffington Post](https://www.huffpost.com), 28/11/2018
Image: www.retuna.se

How Circular is the World?



A Circular Continent



SEVERAL COUNTRIES:

- Sustainability and/or environmental road maps
- Single use plastic ban
- E-waste decrees
- Green economy plans

CIRCULAR ECONOMY IN PRACTICE – GLOBAL SOUTH



THE
compost
KITCHEN

SafiOrganics



M-KOPA SOLAR



Waste Management

Waste collection



Composting

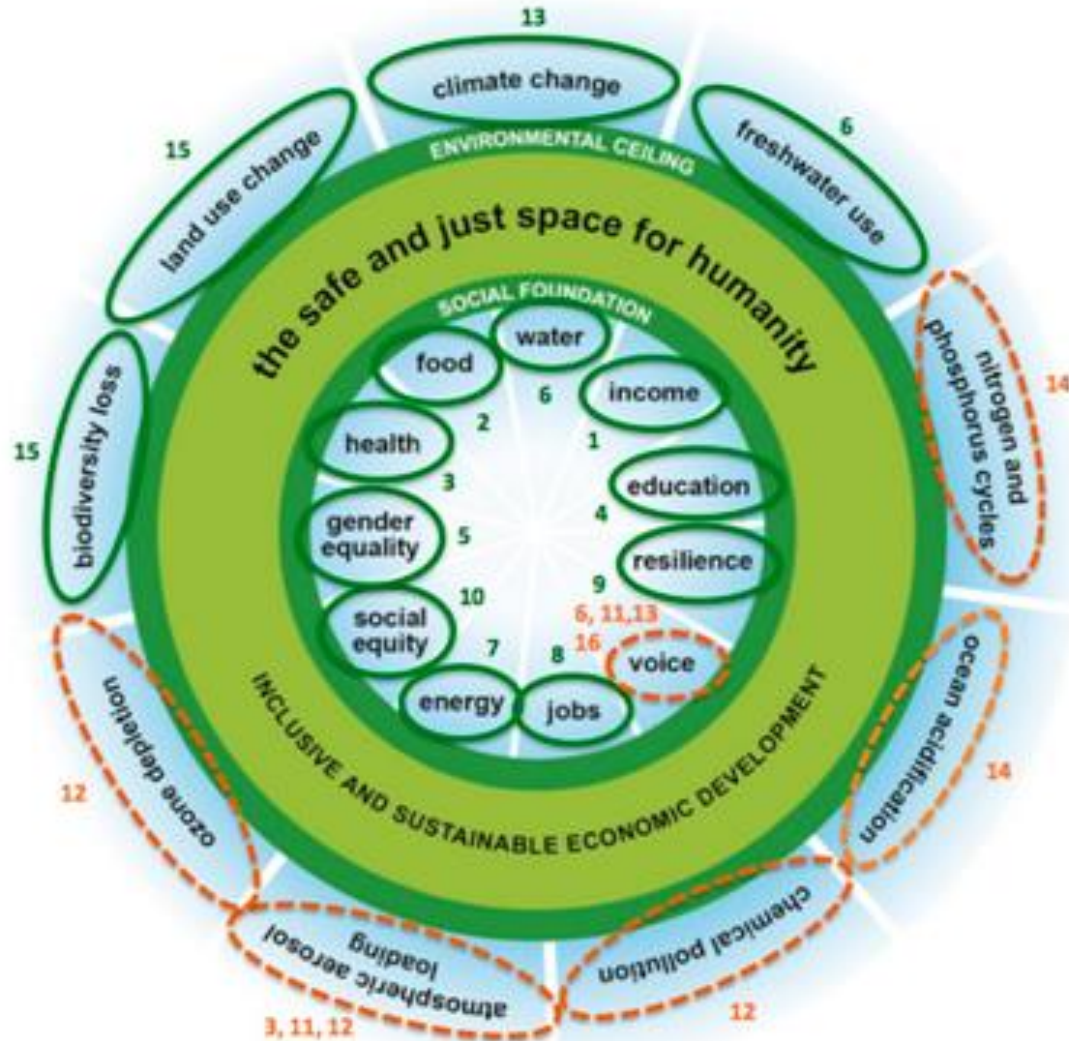
Pellet milling



Packaging fertiliser

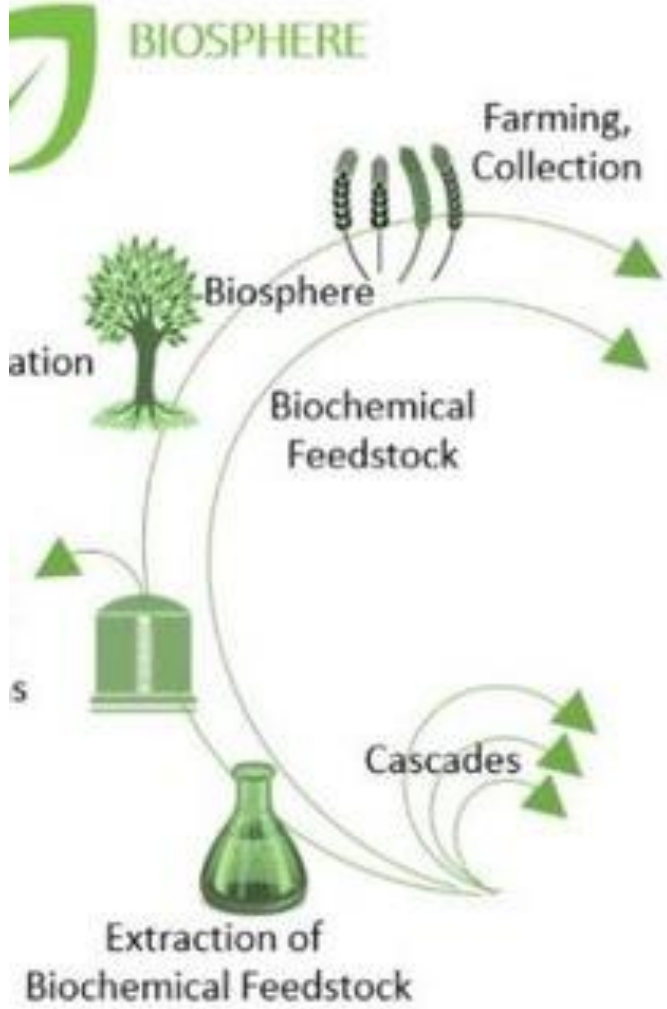
Doughnut Economics and SDGs

-  Focus of a goal
-  Included in targets



THE GLOBAL GOALS For Sustainable Development

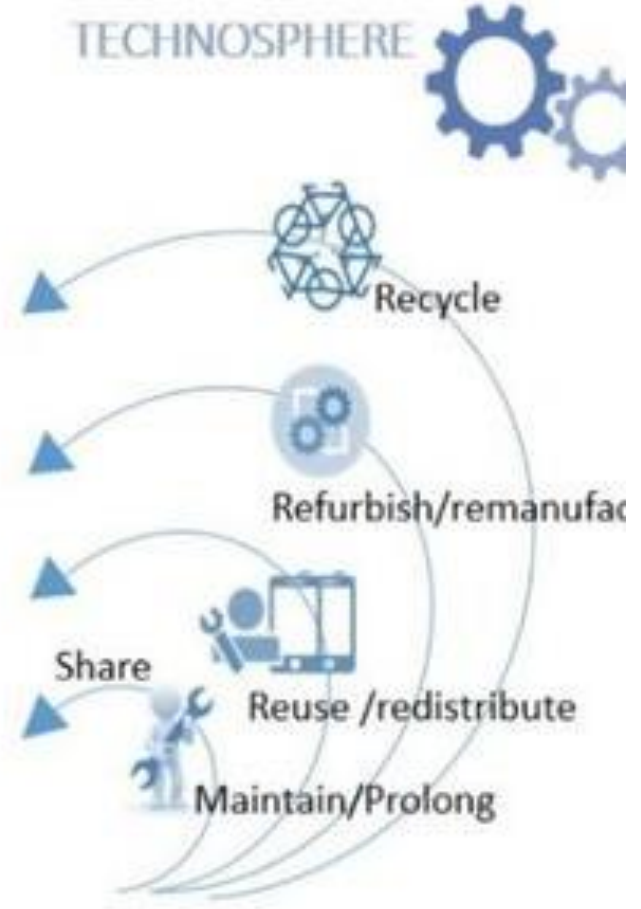


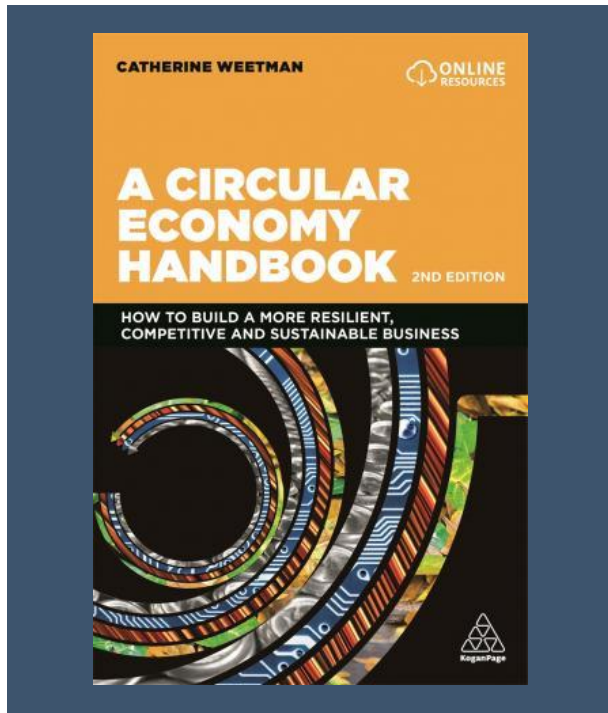


HUMANSPHERE



TECHNOSPHERE





Rethink
Succeed with circular

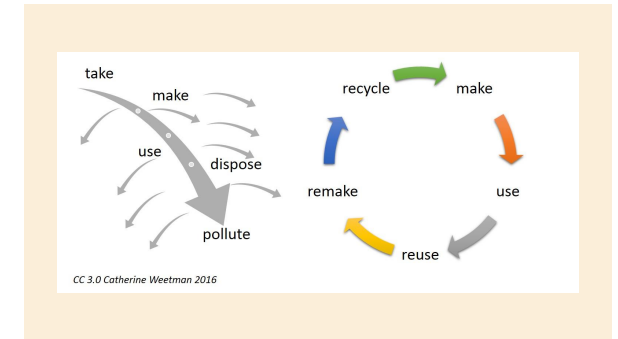
#45
PETER DESMOND
AFRICAN CIRCULAR ECONOMY NETWORK



“ ... It's about keeping the business moving, but also how to experiment with **circular business models** and commercialise those initiatives. ”

How **CIRCULAR ECONOMY COACHING** helps businesses succeed

www.CircularEconomyPodcast.com



Peter Desmond MA(Oxon) MA FCA MBA FRSA

peter@rethinkglobal.info

www.rethinkglobal.info

www.acen.africa

www.circulareconomyclub.com and www.ceinstitute.org