

Leonardo Executive Learning Journey

RESOURCE MANAGEMENT, LCA & PROCUREMENT

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Centre for Environmental Policy

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Better Futures+

Funded by

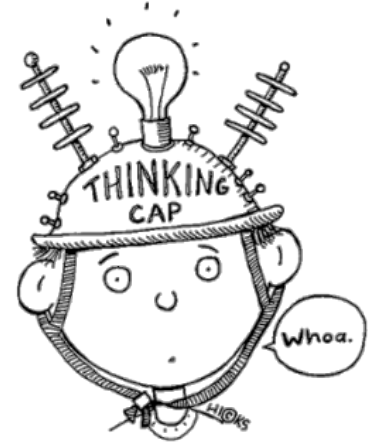
**GREATER
LONDON
AUTHORITY**

Strand delivered by

**WEST
LONDON
BUSINESS**

Last Week's Reflections:

- 1. What control systems do you have actually in place already and what do you plan to adopt?**
(environmental, social, governance related)
- 2. What works – what doesn't?**
(success stories and barriers)
- 3. How is your thinking developing on setting NET ZERO boundaries, reduction and removal pathways?**



Resource management, LCA & procurement

Today's agenda

- Resource management
- Circular economy
- Life Cycle Assessment and decision making
- Systems Thinking
- Putting into practice through procurement
- Q & A/ Reflection questions
- Suggested readings for the week
- Discussion

Background

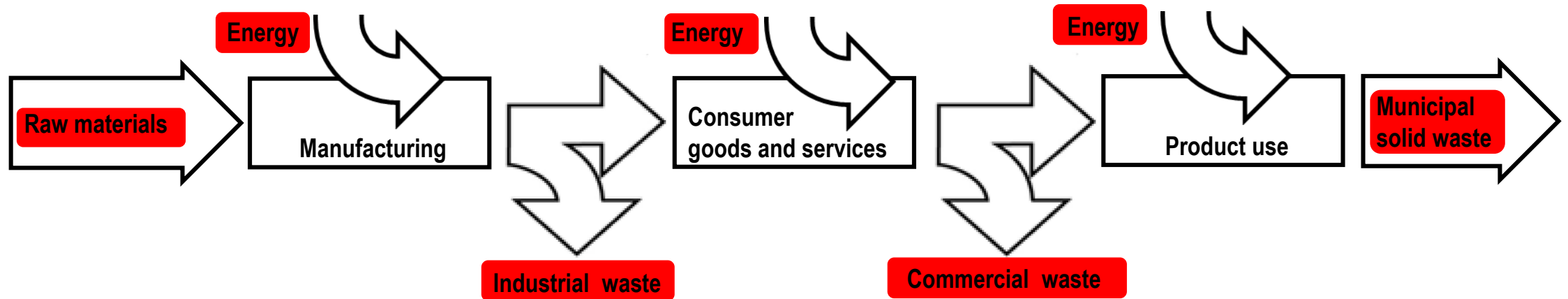
The toll on the environment was reflected in the joint **climate and environment emergency** declared by the UK parliament in May 2019, recognising the urgent need to reduce carbon emissions and address over-consumption of the planet's limited resources.



- **Primary materials extraction** rose from **22 billion tonnes in 1970** to more than **92 billion today**, and this figure is **growing at the rate of 3.2% per year**.
- Based on current consumption patterns, demand **for food, water and energy** are expected by **2030**, to increase by approximately **35%, 40% and 50% respectively compared to 2017 levels**, along with increasing environmental degradation.

Economic activity and environmental impacts

Natural capital and economic activity are highly linked. . .



THE LINEAR ECONOMY

. . . if we extract too much from nature or cause environmental damage,
we degrade our natural capital and put our economy at risk

Economic growth and consumption

- A rapidly growing and increasingly **affluent global middle class** is driving natural resource demand and waste generation, exacerbating unsustainable resource use at a global scale.
- **Consumer behaviour** is often considered an individual choice, but deeply ingrained in cultures, and institutions, and is driven and supported by corporate and government practices.
- **Material, functional, psychological and economic obsolescence** operate in conjunction and in complex ways driving overconsumption.

In fast-moving consumer goods sector alone, about **80%** of the **\$3.2 trillion** material value is lost irrecoverably each year.

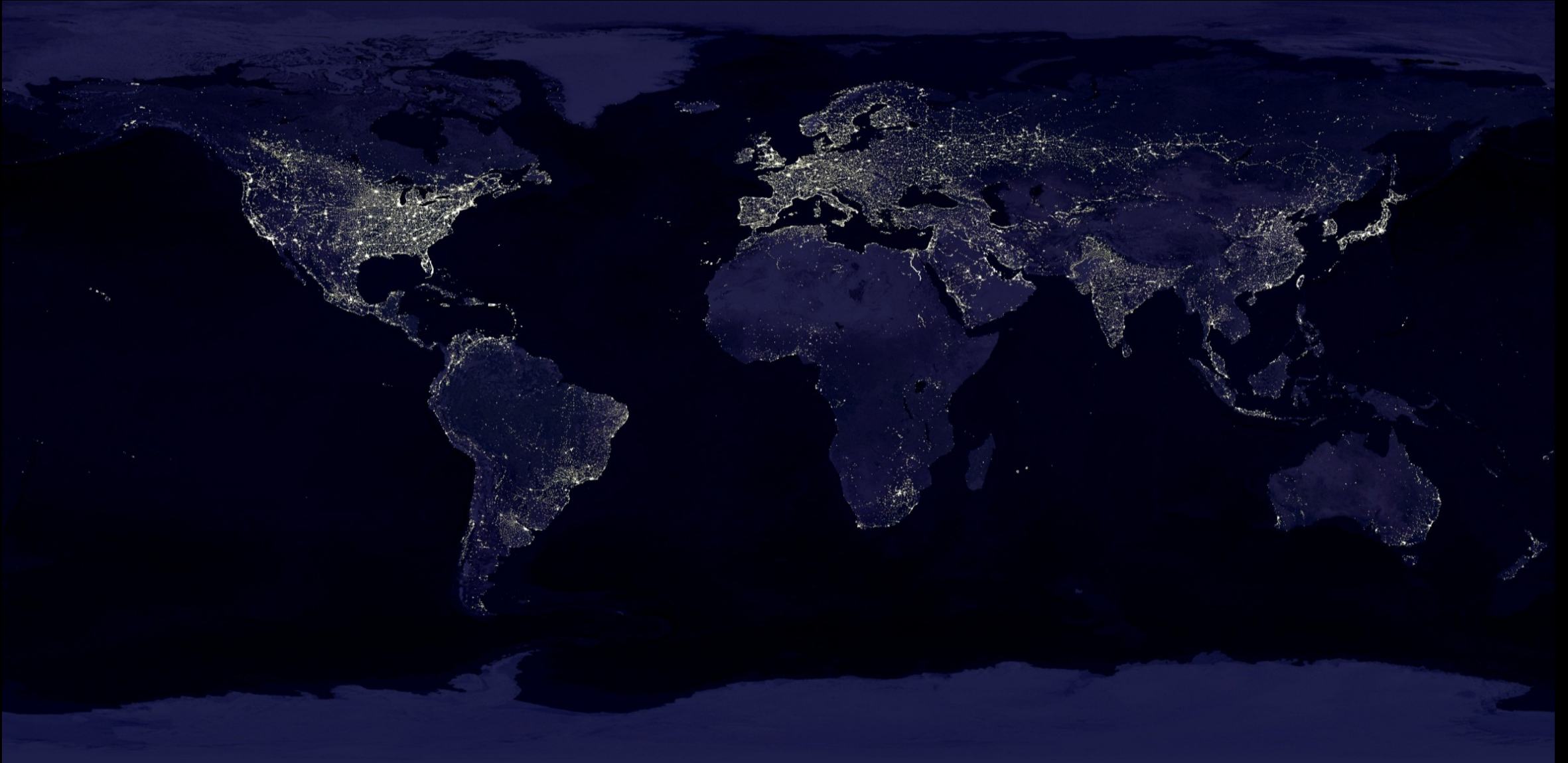


A 'throwaway' society



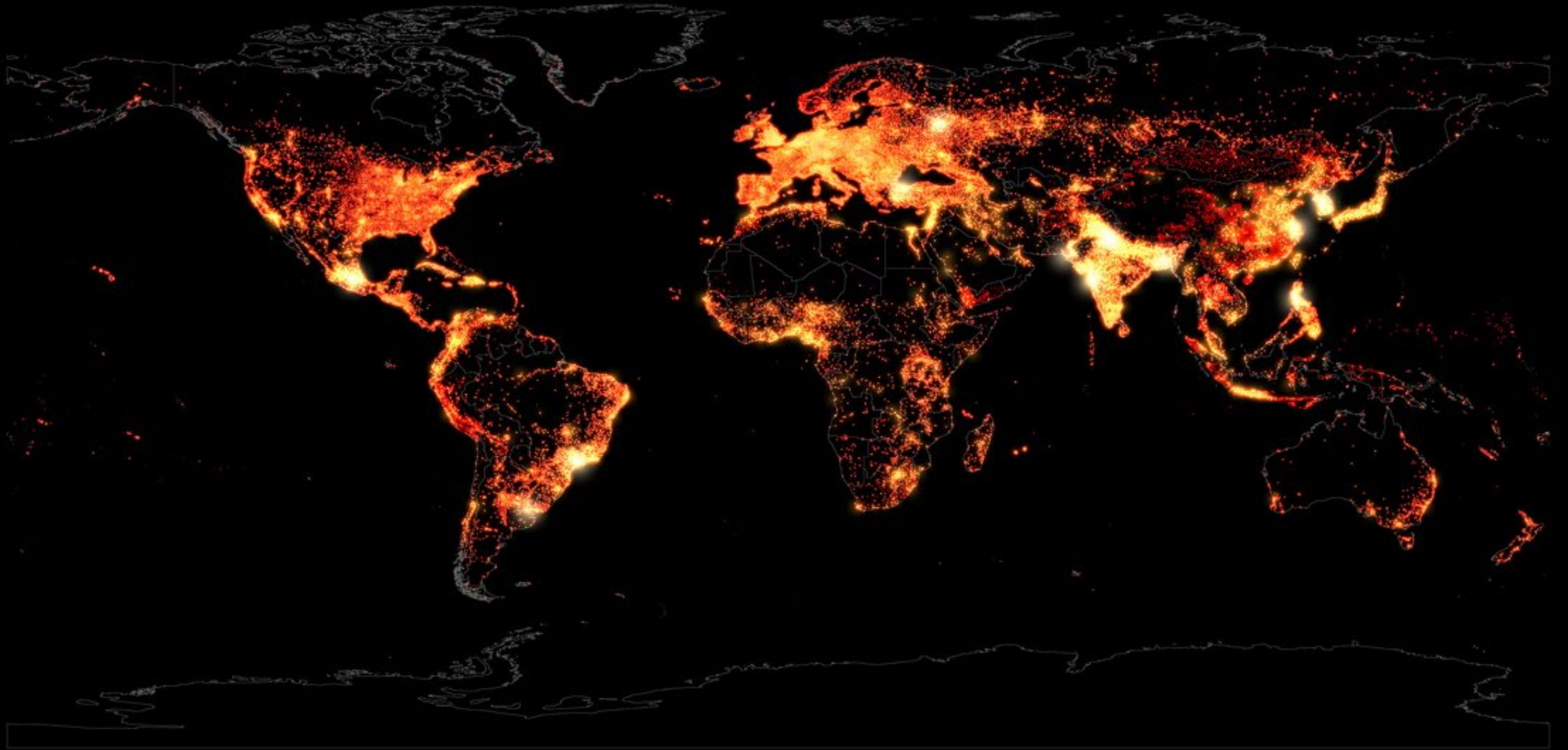
Kids help themselves; less work for you with a Dixie Cup Dispenser!
Now, your sink doesn't fill up with glasses. Instead of bothering you for every drink, the kids use Dixie Cups that can't spread colds. No broken glass, either. Refills everywhere. Get a Dixie Cup Dispenser!

Distribution of demand



This composite image, which has become a popular poster, shows a global view of Earth at night, compiled from over 400 satellite images. NASA researchers have used these images of nighttime lights to study weather around urban areas.

Distribution of demand



This map shows the major cities and urban agglomerations of the world. The brighter colour indicates the higher population concentration whereas the dull colour indicates less population. It indicates distribution of demand, if the current global population had reached the same level of development across the planet.

Resource management, LCA & procurement

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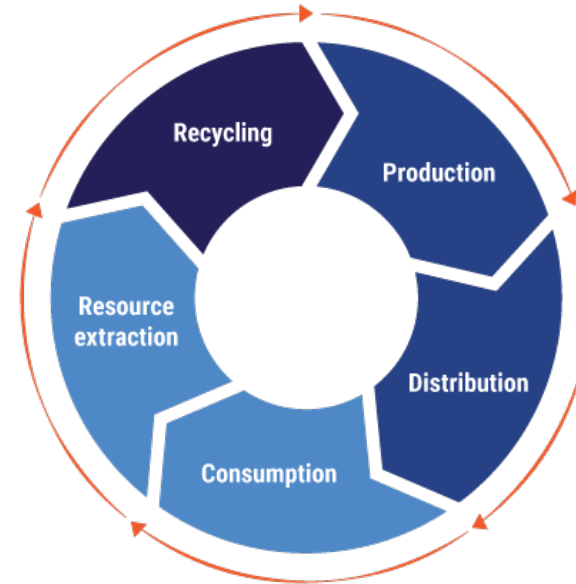
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The transition to the Circular Economy

LINEAR ECONOMY



CIRCULAR ECONOMY

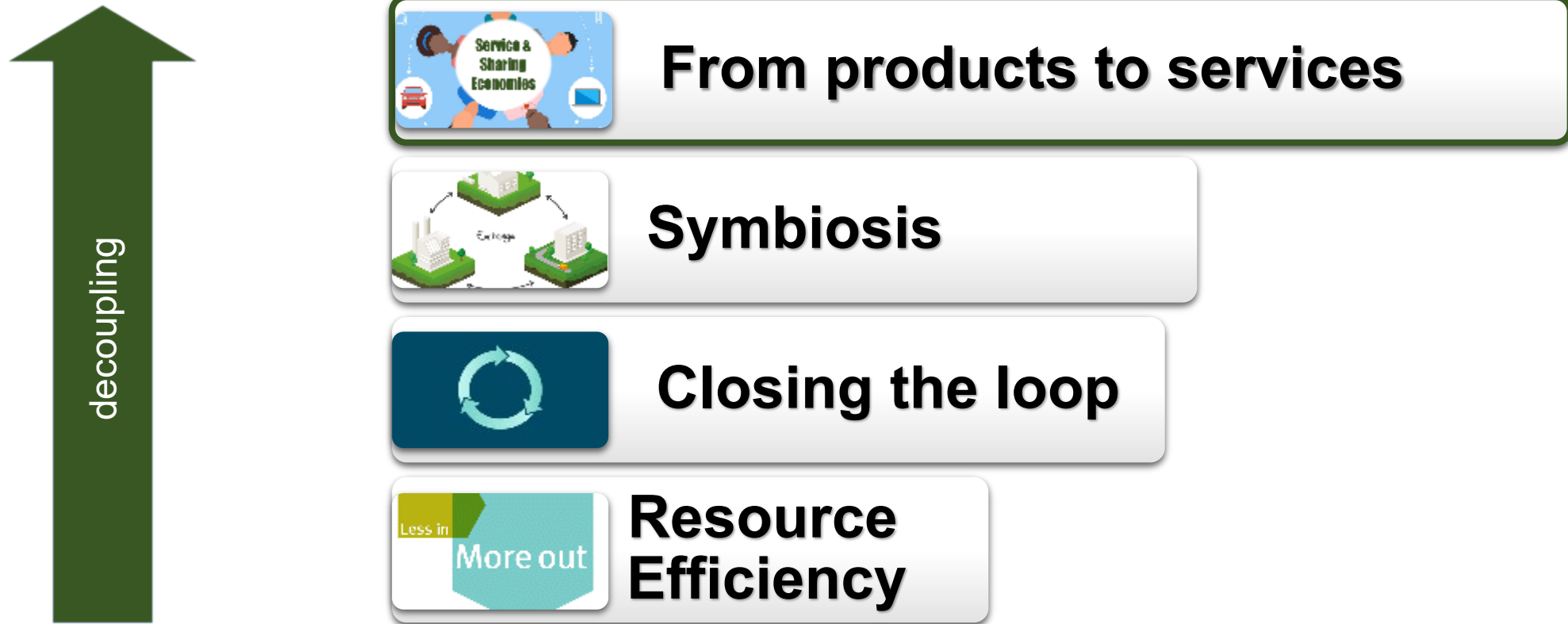


A Circular Economy's ultimate goal is to decouple economic growth from resource use, waste and carbon emissions.

The key question therefore is:

how to serve the rapidly expanding global population with its rising standards of living, through offerings that satisfy individual needs and wants that are decoupled from natural resource use.

The transition to the Circular Economy

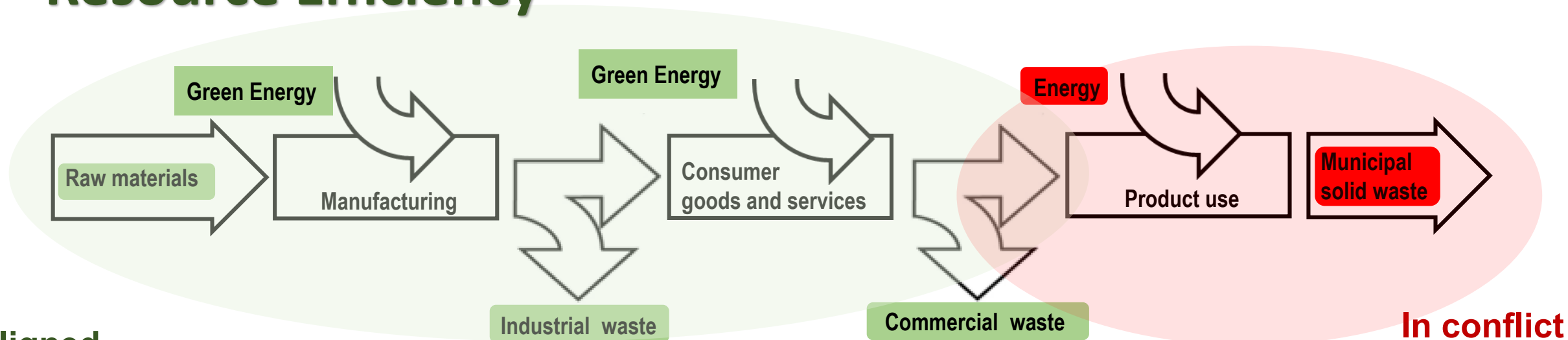


Dematerialization can achieve decoupling through digitization (sell the product electronically or virtually) or servitization (sell or share the utility of the product as a service).

Economic activity and environmental impacts

Continued economic growth and demand could eventually
cancel out any efficiency savings

Resource Efficiency



Aligned

*Business case to reduce raw materials, energy and waste
per unit of goods and services produced*

In conflict

*Business case to produce more goods and therefore
more energy consumed, and waste created*

Although **technology** helps us **use fuel and resources more efficiently**, it does not address the underlying social and economic structures that drive **unsustainable consumption** and the increasing demand for products from the expanding global population with its rising standards of living. For example, **rebound effect**: as lower-energy bulbs become more common, people leave their lights on for longer...



Green energy

Off grid energy for SMEs:

Solar PV, battery storage, wind power, EV charging, bio digesters...

A quick win for businesses is to use green energy suppliers.

In the medium term, reaching net zero can involve switching to green technologies for off grid energy.

Beond

<https://beondgroup.com/>

Beond is a technology company that can analyse your business needs and provide impartial advice on which technology to invest in or green energy provider to choose that results in energy & cost reductions and carbon offsetting.

energy saving trust

<https://energysavingtrust.org.uk/>

Support businesses with energy efficiency strategies, research, assurance and communications, enabling them to play their part in building a sustainable future

West London Zero Carbon Energy Project

<https://zerocarbonwest.london/>

For those in OPDC/Park Royal area the plan is to set up a community controlled energy company for solar panels and district heating enabling some industrial symbiosis.

Tracking companies in West London

RE100 companies have pledged to go 100% renewable energy

<http://there100.org/companies>

CE100 companies are members of the Ellen McArthur Circular Economy network

(<https://www.ellenmacarthurfoundation.org/our-work/activities/ce100/members>)

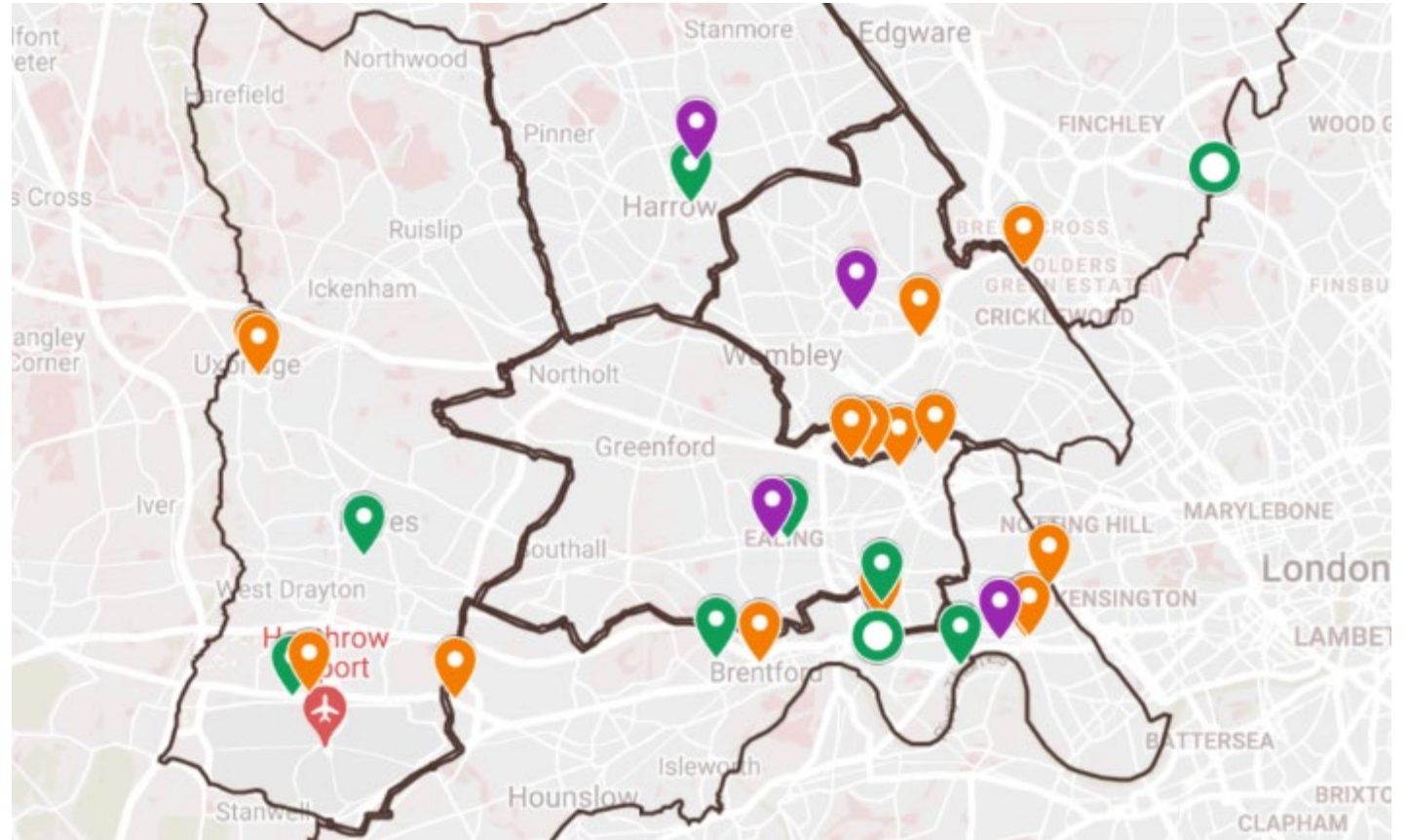
This is a map tracking companies in West London:

Green pins: companies that have switched (either RE100 or WLB members)

Green doughnuts: members of CE100

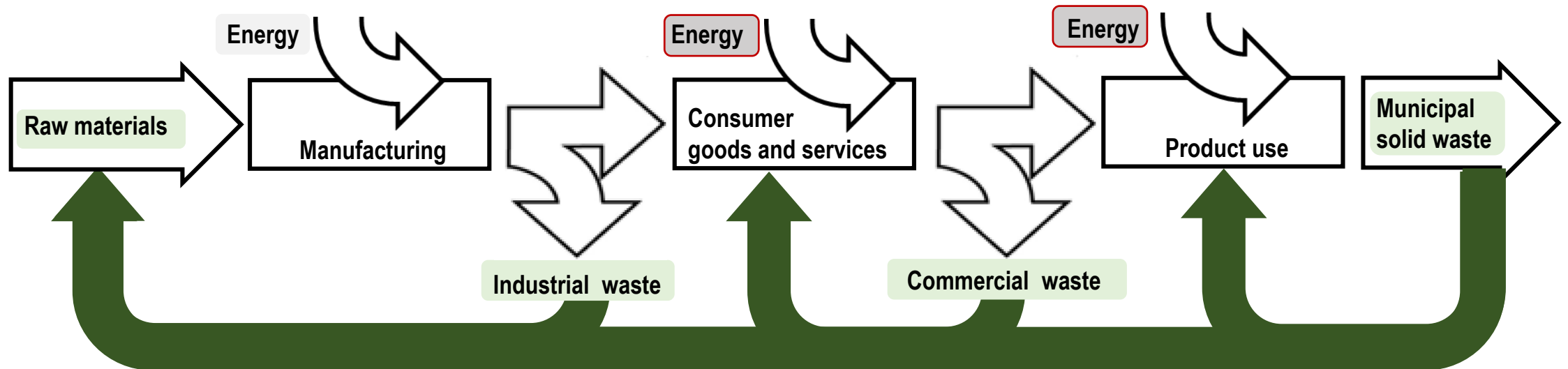
Orange pins: companies have committed and are in the progress of switching

Purple pins: local authorities have pledged to go 100% clean energy by 2050



<https://bit.ly/3yzT9D7>

Closing the loop



Designed for recycling

Designed for reuse

Designed for repair

In conflict

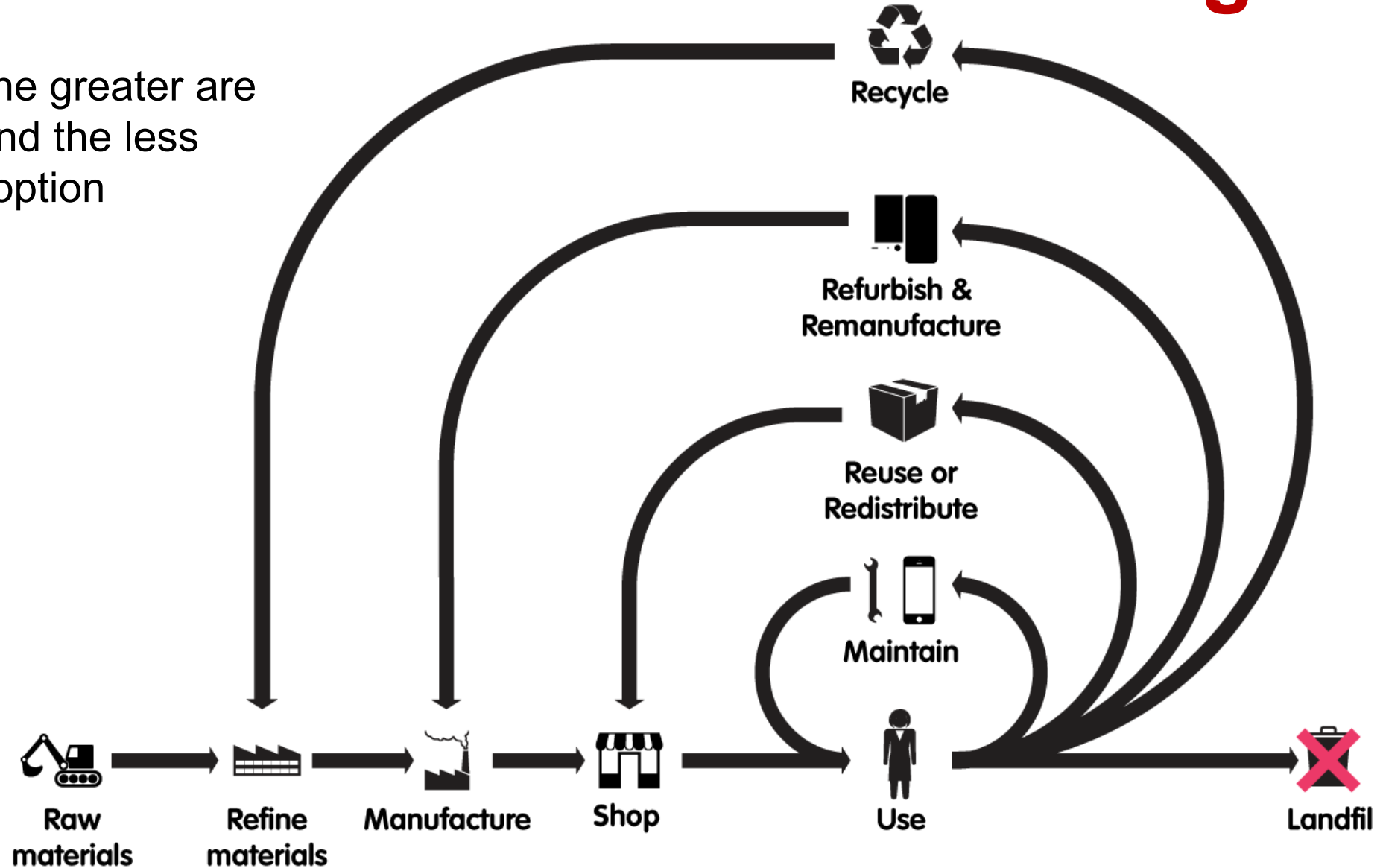
*Businesses still need to produce more goods
and therefore, limited potential for reuse or repair*

- About 80% of the damage done to the environment from waste products could be avoided if more **thoughtful decisions** about product design, the choice of materials and chemicals, and how they will be distributed and sold, were made at the **production stage**.
- Reusing and recovering products and **materials that are destined for disposal** does not break away from the **waste-based model of the current linear economy**.



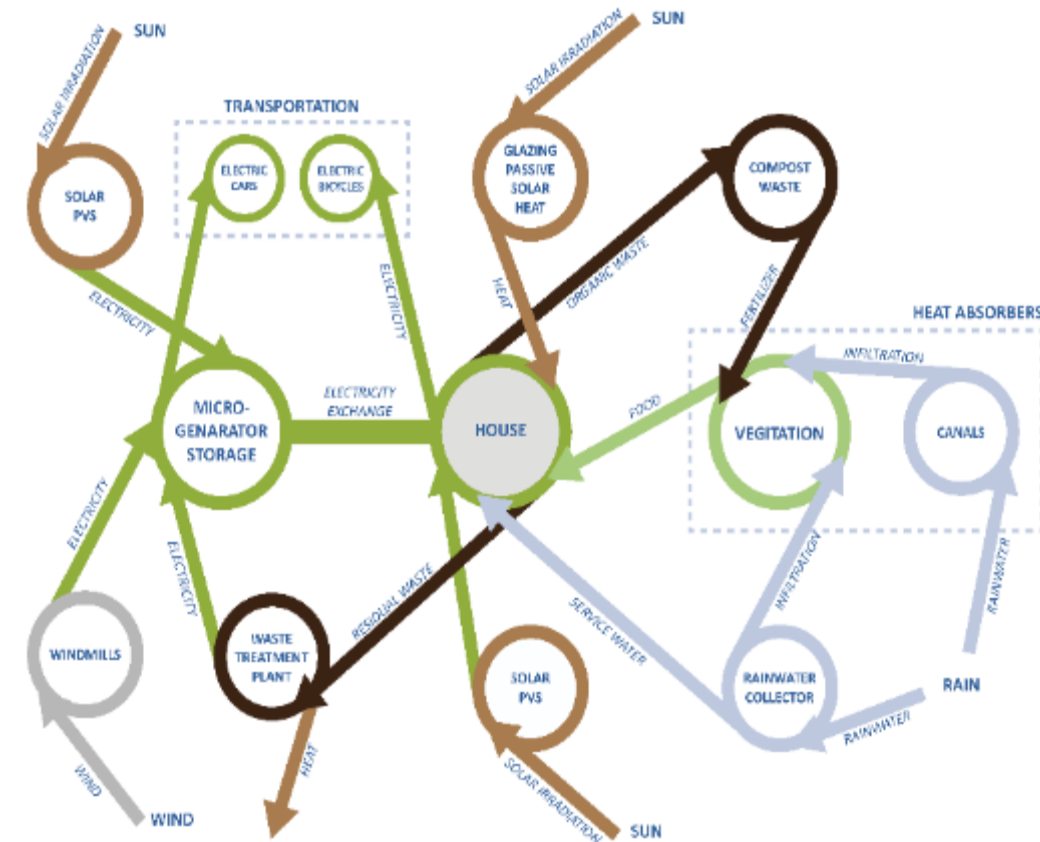
From linear to circular thinking

The larger the loop, the greater are the costs to society and the less “conservative” is the option



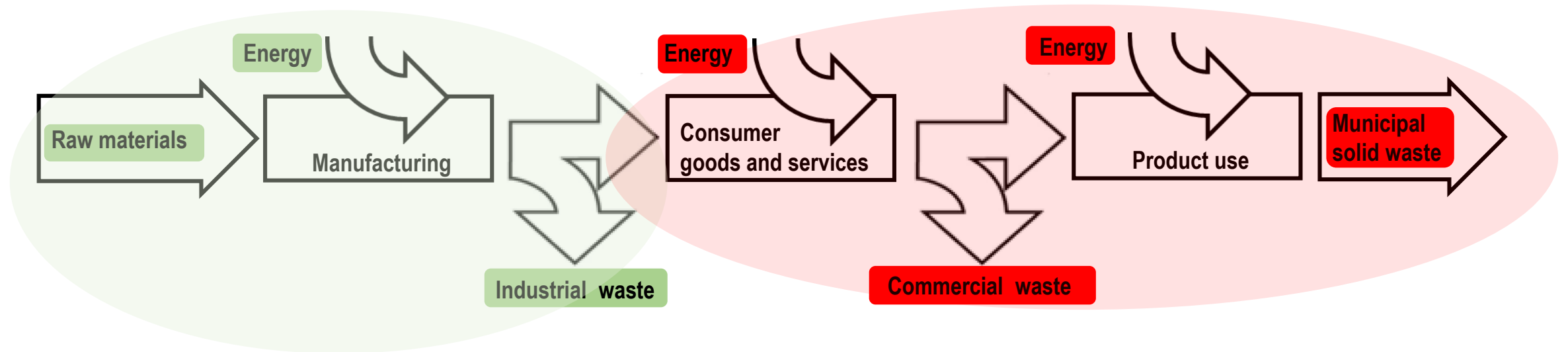
Symbiosis

System interactions that foster eco-innovation and long-term culture change, create and share mutually profitable transactions— that could allow for some decoupling, particularly in the case of industrial activities where a waste or by-product of one actor becomes a resource for another actor.



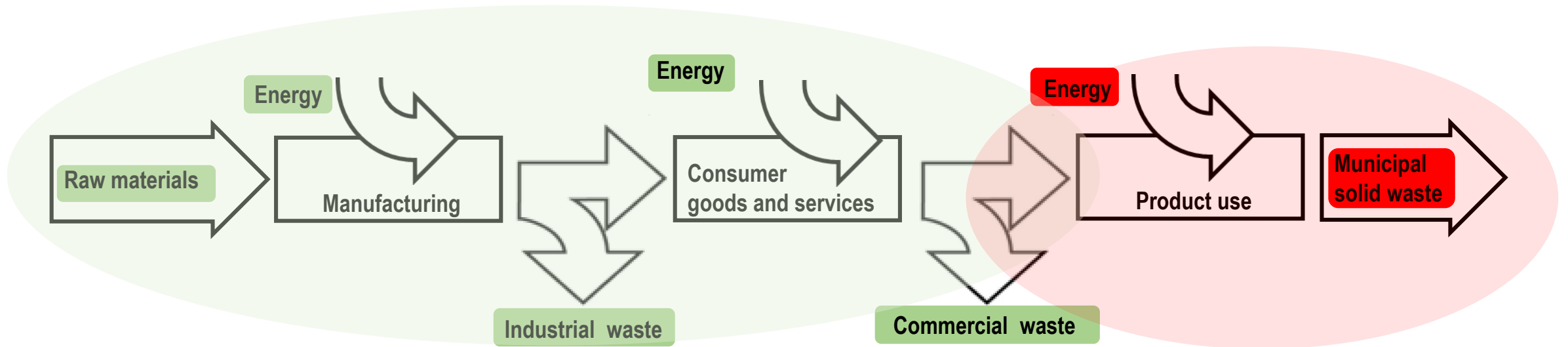
Symbiosis as a closed loop value chain, an example of a circular economy of an urban centre

RETHINK: From products to services



A 'functional service economy' in which manufacturers and retailers shift from selling products to services, products are designed for a cycle of disassembly and re-use and companies maintain ownership of products and act as a service provider.

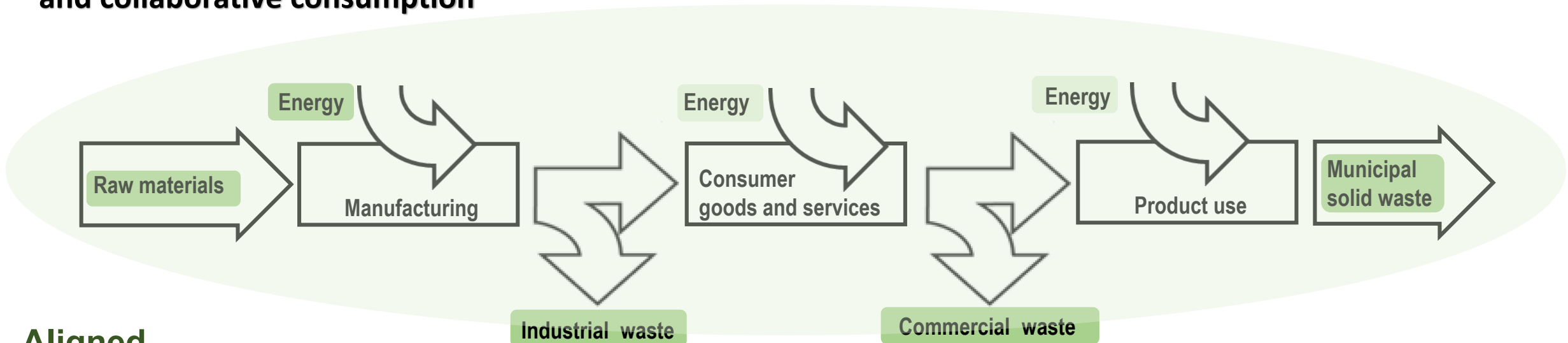
RETHINK: From products to services



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From products to services

and collaborative consumption



Aligned

Business case to reduce raw materials, energy and waste per unit of services produced, as well as to produce more services with less waste and energy and good that stay in the economy for longer

This model results in more durable products – longer life-span = lower demand for energy and materials; Disassembly and refurbishing – rather than disposal; New economic opportunities – through product and service shifts.



"People don't want to buy a
quarter-inch drill.
They want a quarter-inch hole!"

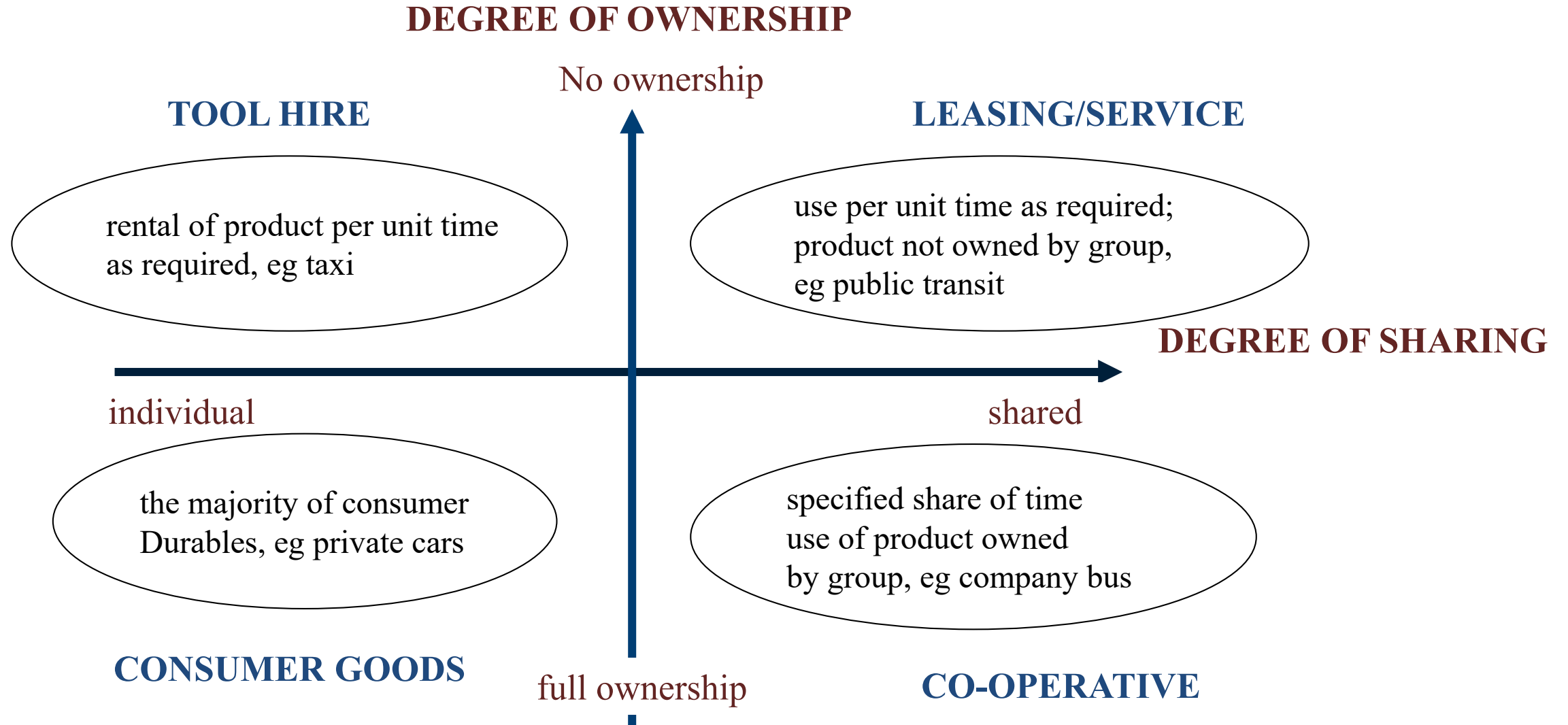
—Theodore Levitt

*'It is the toast we want,
not the toaster'*



Also, today's newer generation of customers **value experiences over possessions** and prefer to make greener choices than their older kin. Opt to spend money on experiences rather than on depreciating assets.

Towards a function-oriented lifestyle



SME examples of function-oriented lifestyle



Conflict between economy and environment



- **Sustainable economic development and environmental protection cannot be in conflict, as both are needed for improved human well-being**
- **It is now recognised that environmental degradation diminishes the capacity of the planet to sustain economic development.**

Resource management, LCA & procurement

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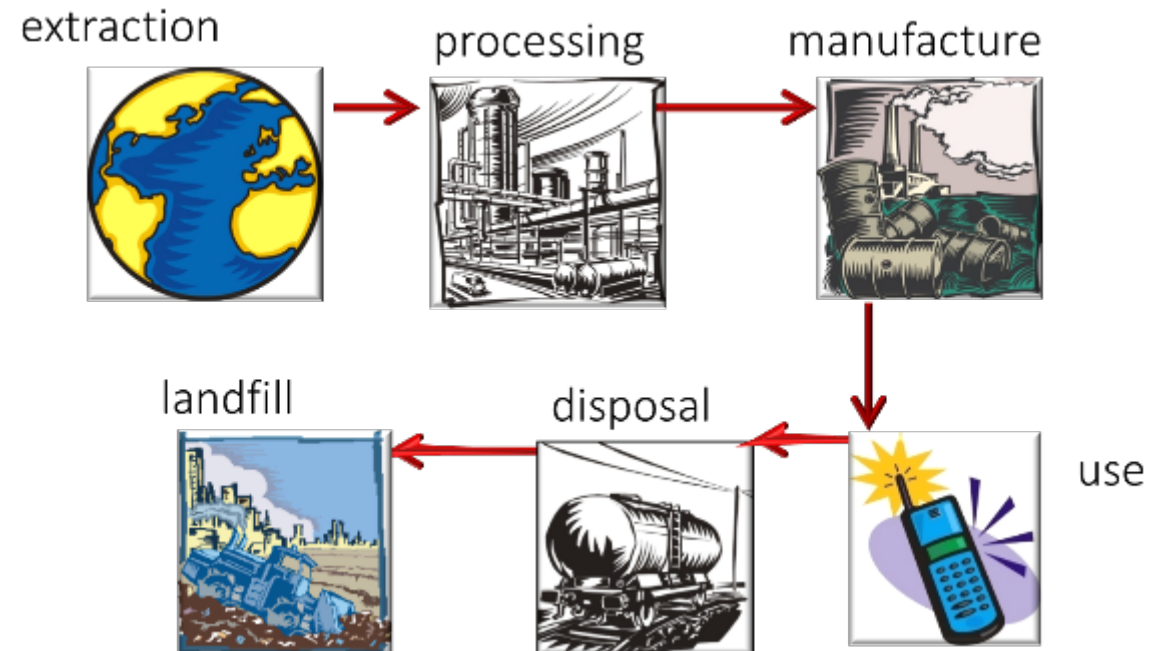
Life Cycle Assessment

- “The evaluation of the relevant environmental, economic and technological implications of a product, process or system from *cradle to grave*”.

- **LCA Stages**

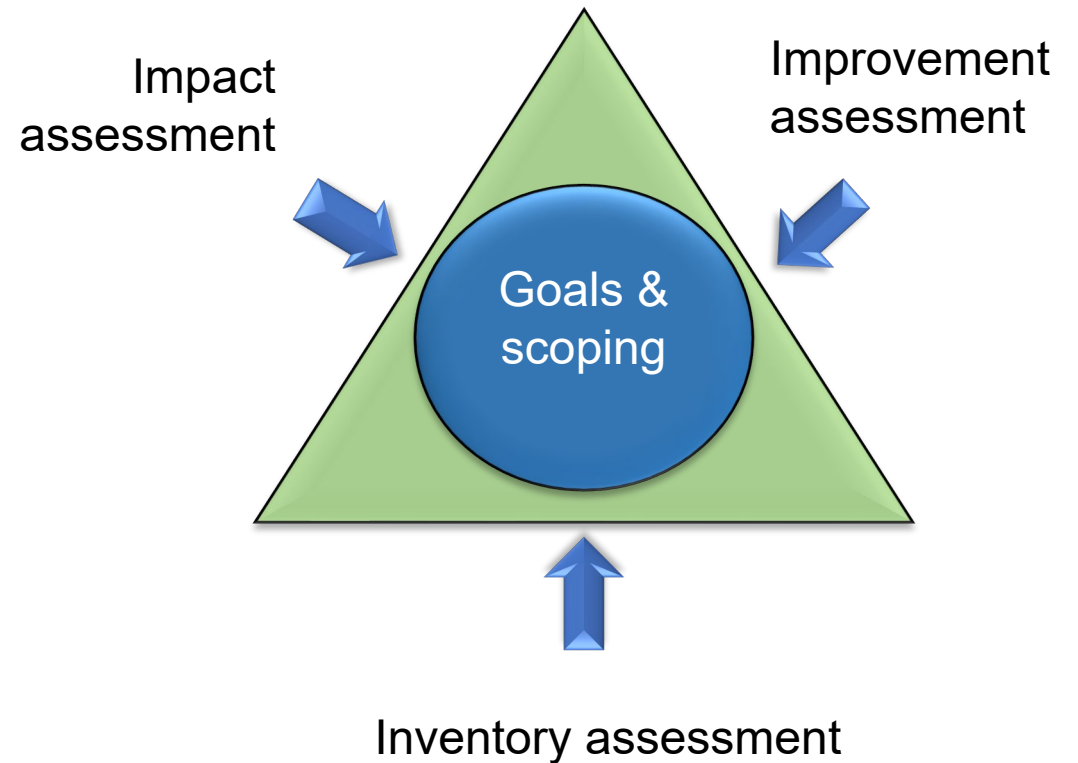
- material extraction and processing
- manufacturing
- transportation and distribution
- use
- end of life management

- LCA is an objective process to evaluate the environmental burdens associated with a product, process or activity by:
 - identifying energy, materials and benefits
 - assess the impact of the energy and materials
 - evaluate and implement improvement plans

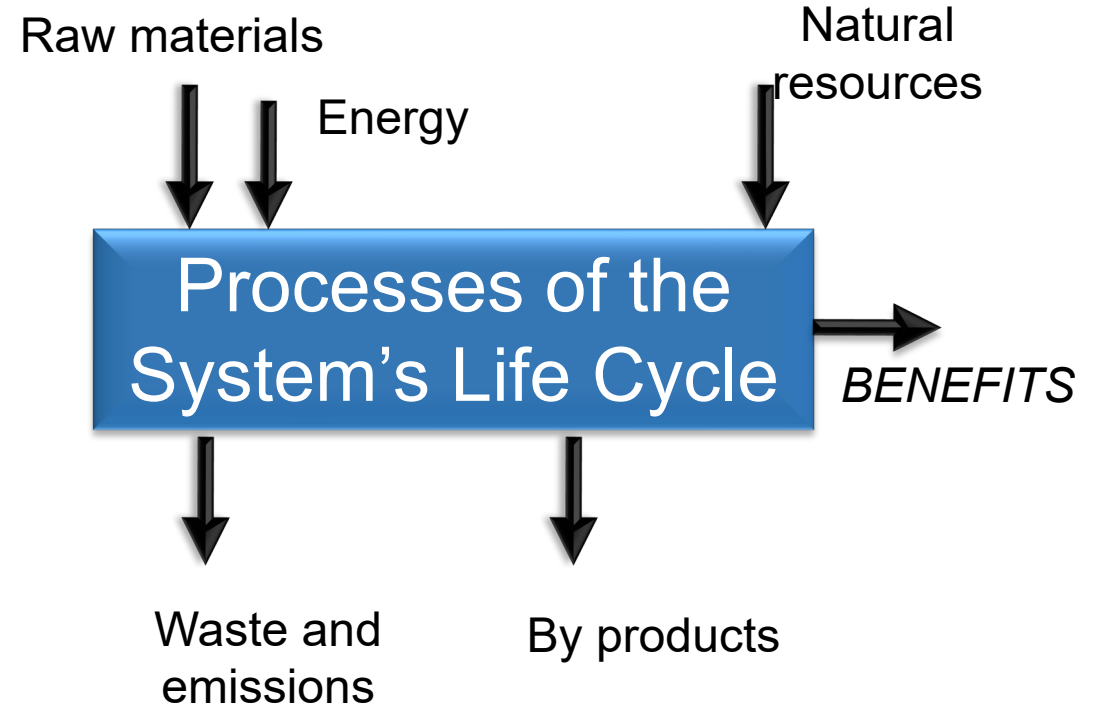
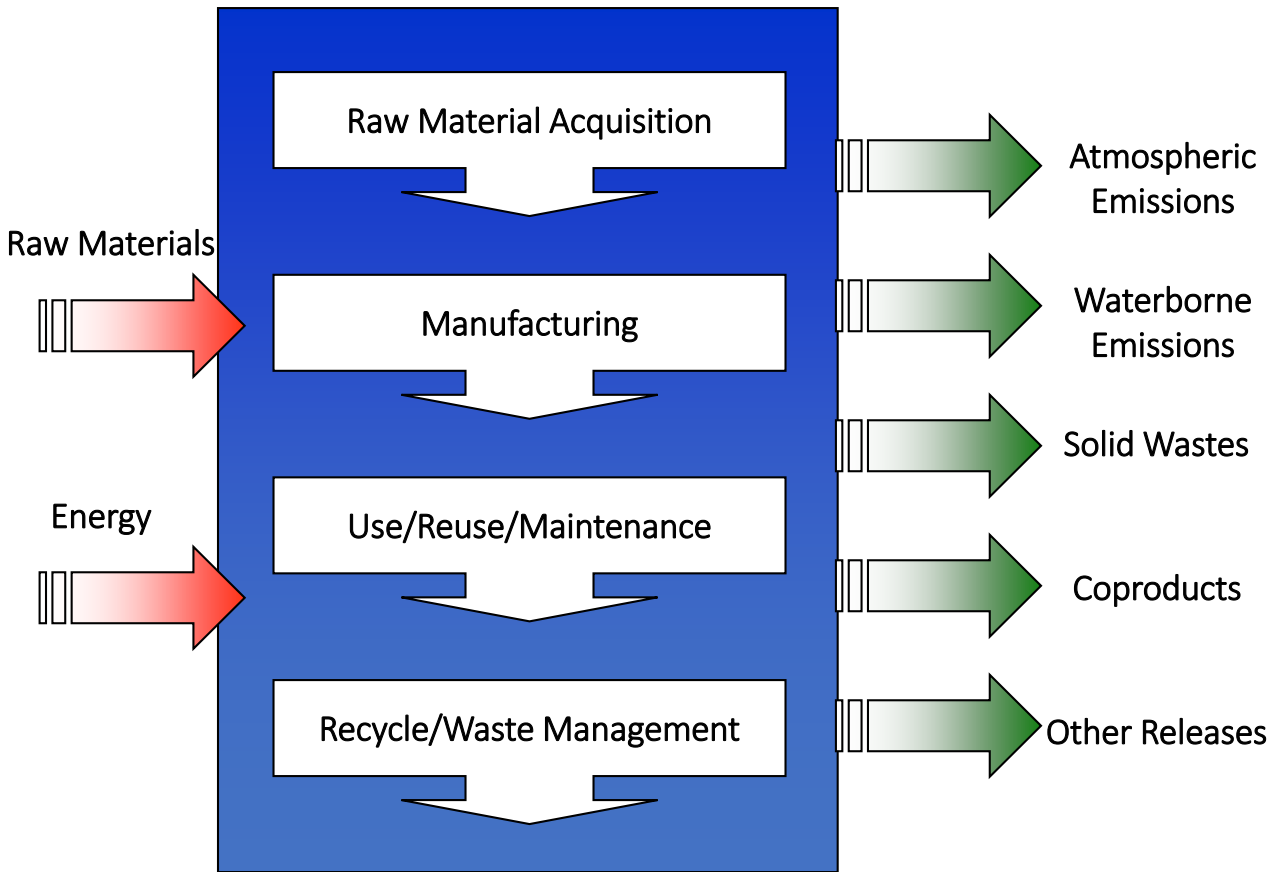


Why is LCA Important?

Allows to identify when a selection of ***one alternative over another*** or when the modifications made to any part of the system ***has the desired end result of reducing environmental impacts*** from all life-cycle stages.



Life Cycle Assessment Conceptual Model



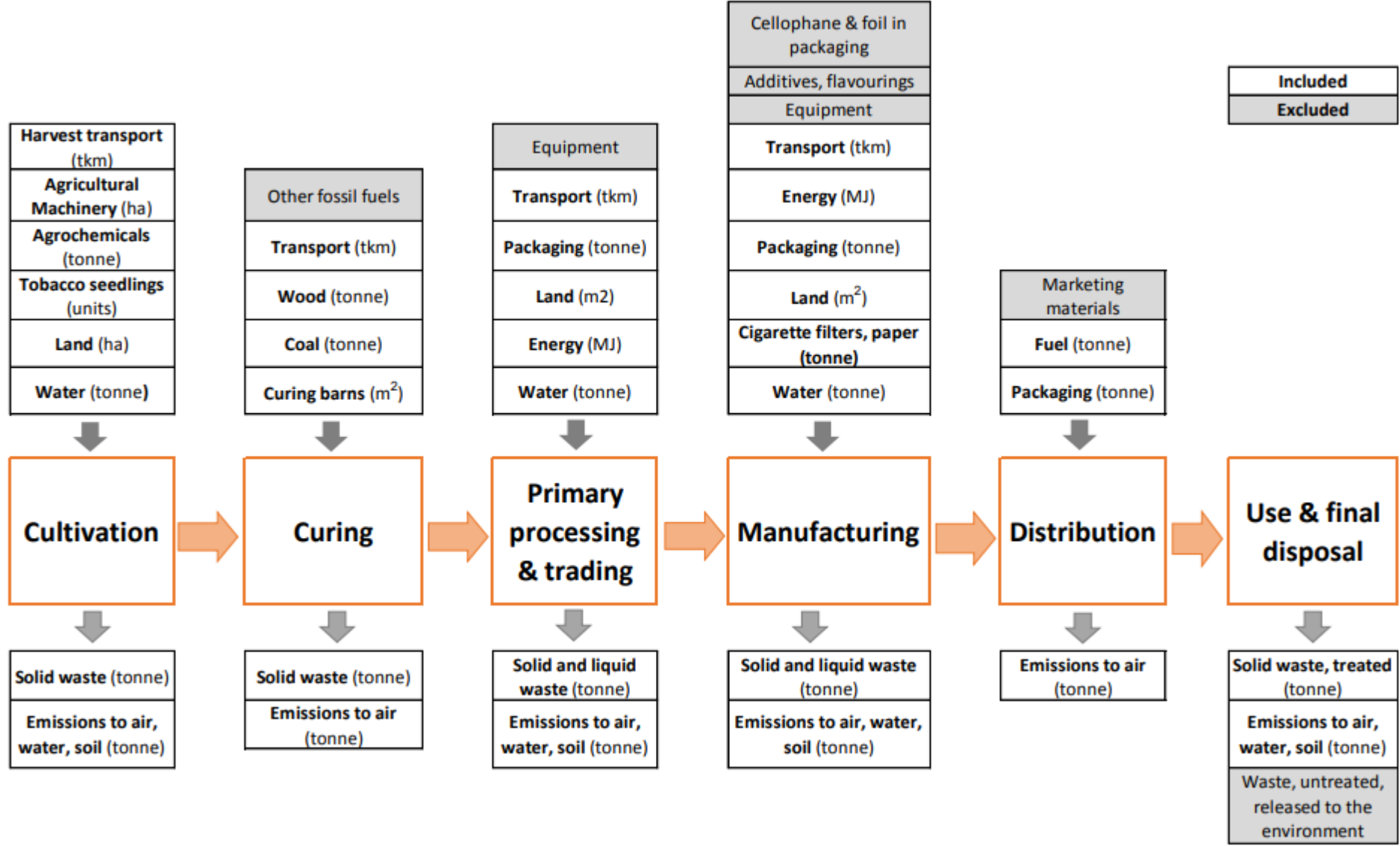


Figure 1. Conceptual framework and system boundaries of global cigarette production and consumption.

› Environ Sci Technol. 2018 Aug 7;52(15):8087-8094. doi: 10.1021/acs.est.8b01533. Epub 2018 Jul 23.

Cigarette Smoking: An Assessment of Tobacco's Global Environmental Footprint Across Its Entire Supply Chain

Maria Zafeiridou¹, Nicholas S Hopkinson², Nikolaos Voulvoulis¹

Affiliations + expand

PMID: 29968460 DOI: 10.1021/acs.est.8b01533

Free article

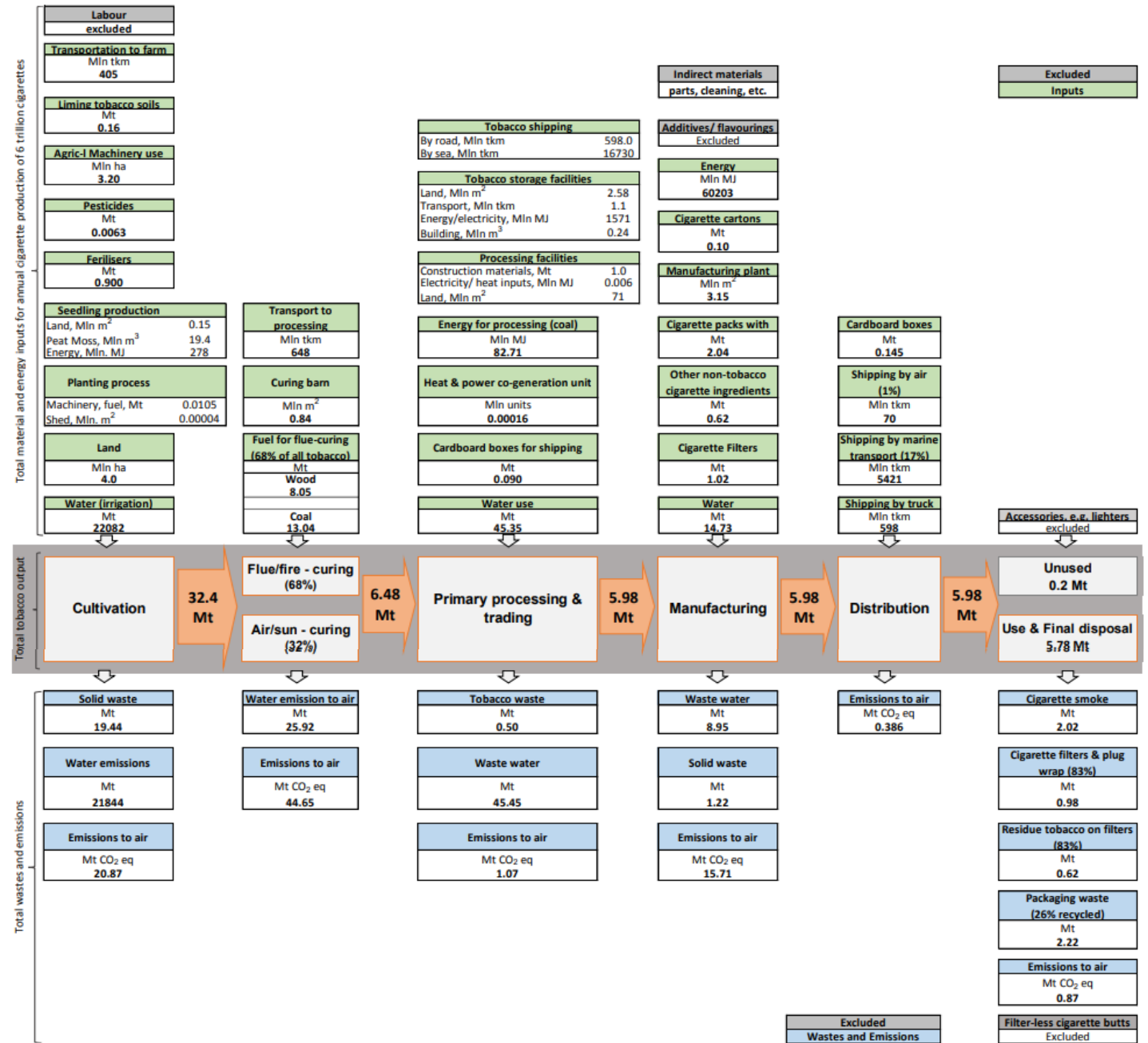


Figure 3. Total annual input, waste and emission flows across the global tobacco supply chain

Aluminum Can Production

Aluminum
Ore
extraction



Aluminum
production

70.4 kw hr/kg



7.3 kw hr/kg

Sheet
production



0.07 kw hr/kg

Sheet
transport



16.6 kw hr/kg

Can
production



0.07 kw hr/kg

Ingot
production

3.9 kw hr/kg

material
transport



Recycling

Energy Savings Recycling

- Energy D = 66.7 kw hr/kg
- Energy % = 90.4%

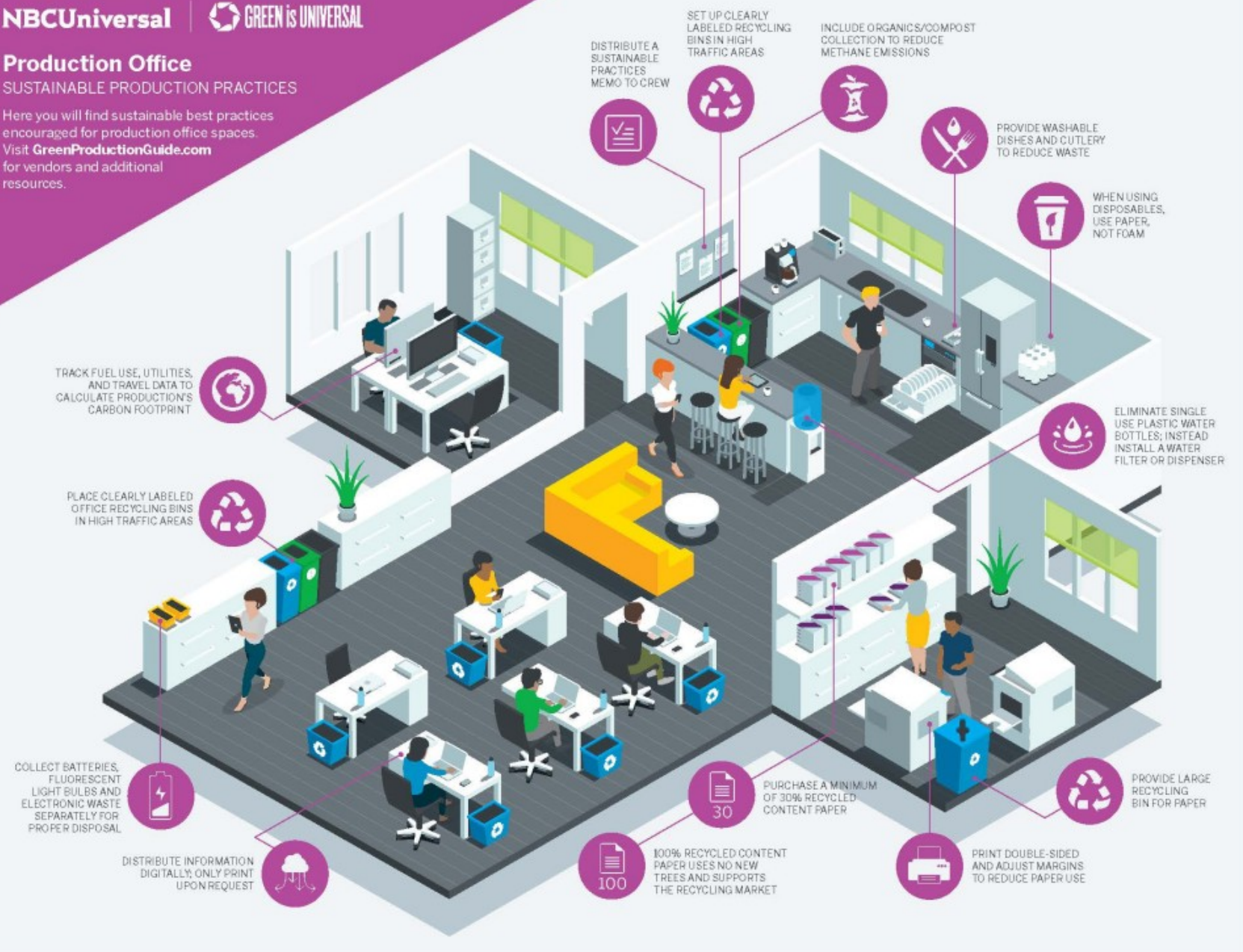
The guide to sustainable production on set

NBCUniversal



Production Office SUSTAINABLE PRODUCTION PRACTICES

Here you will find sustainable best practices encouraged for production office spaces. Visit GreenProductionGuide.com for vendors and additional resources.

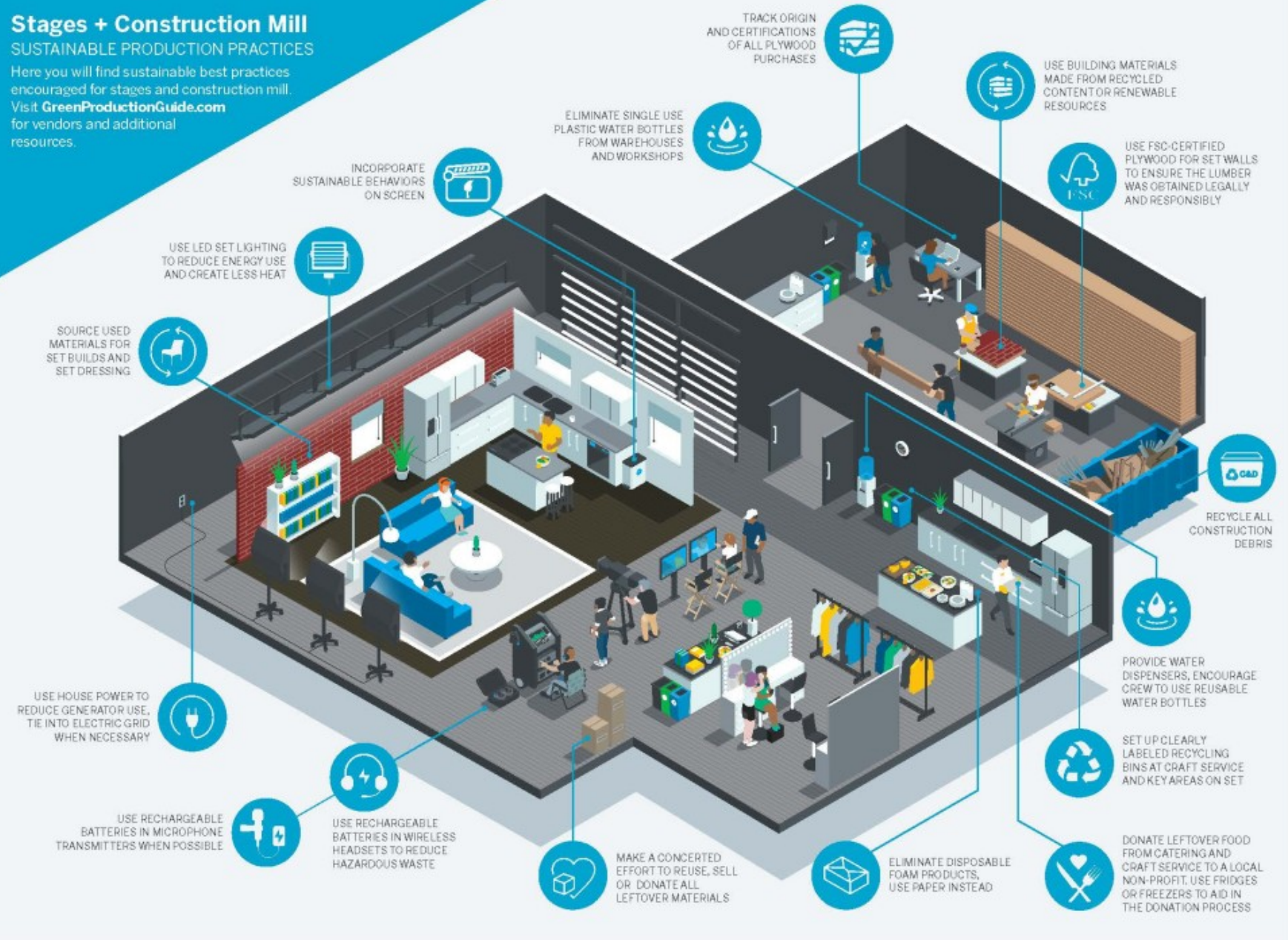




Stages + Construction Mill

SUSTAINABLE PRODUCTION PRACTICES

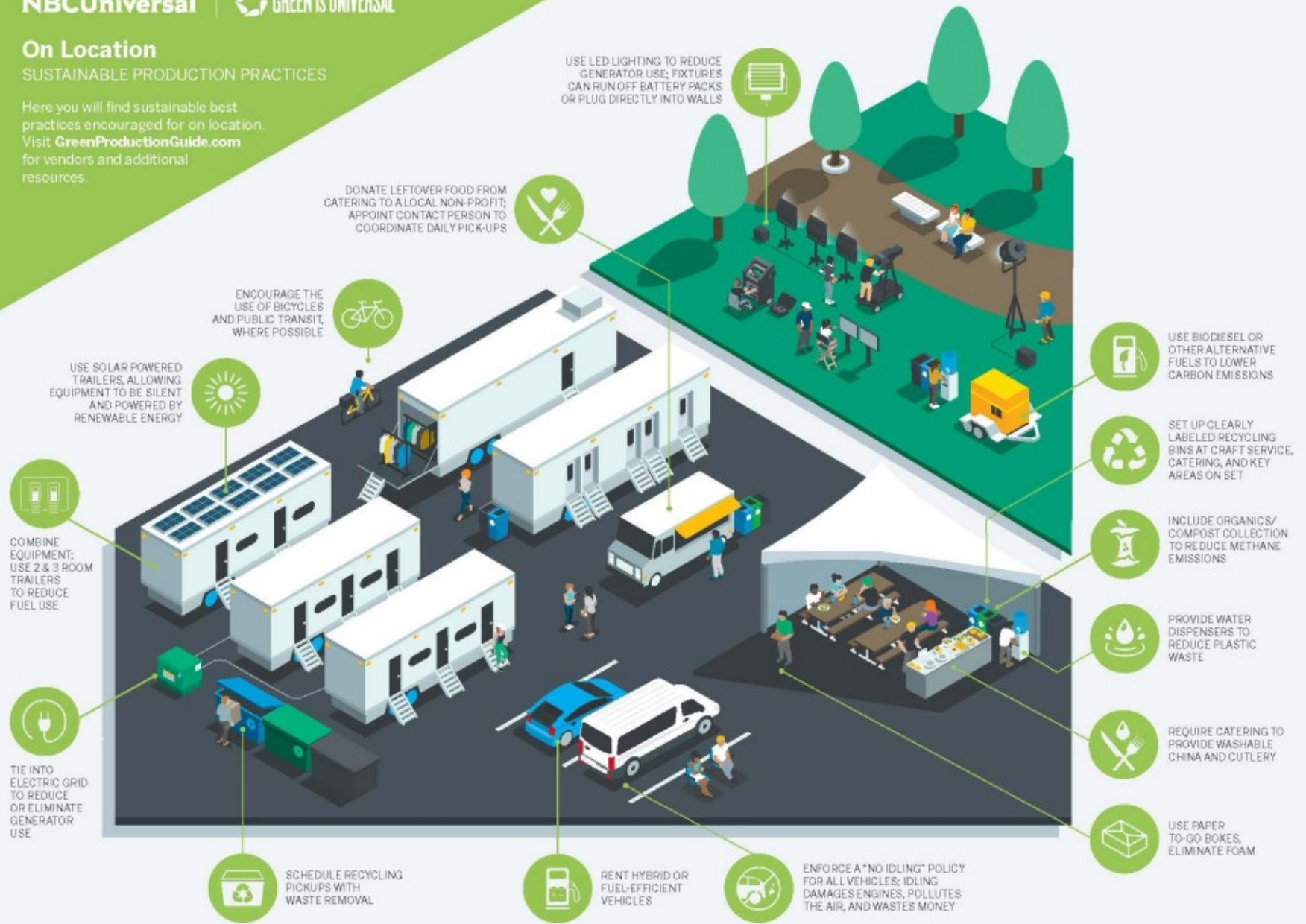
Here you will find sustainable best practices encouraged for stages and construction mill. Visit GreenProductionGuide.com for vendors and additional resources.





On Location
SUSTAINABLE PRODUCTION PRACTICES

Here you will find sustainable best practices encouraged for on location. Visit GreenProductionGuide.com for vendors and additional resources.

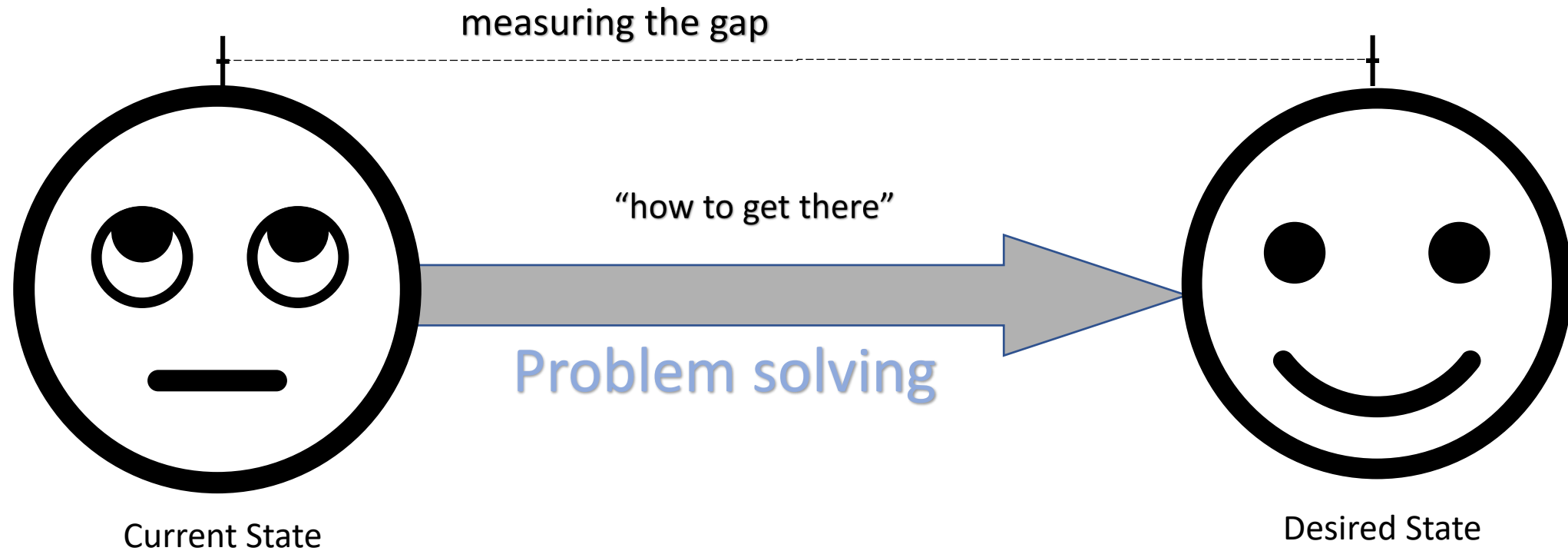


Resource management, LCA & procurement

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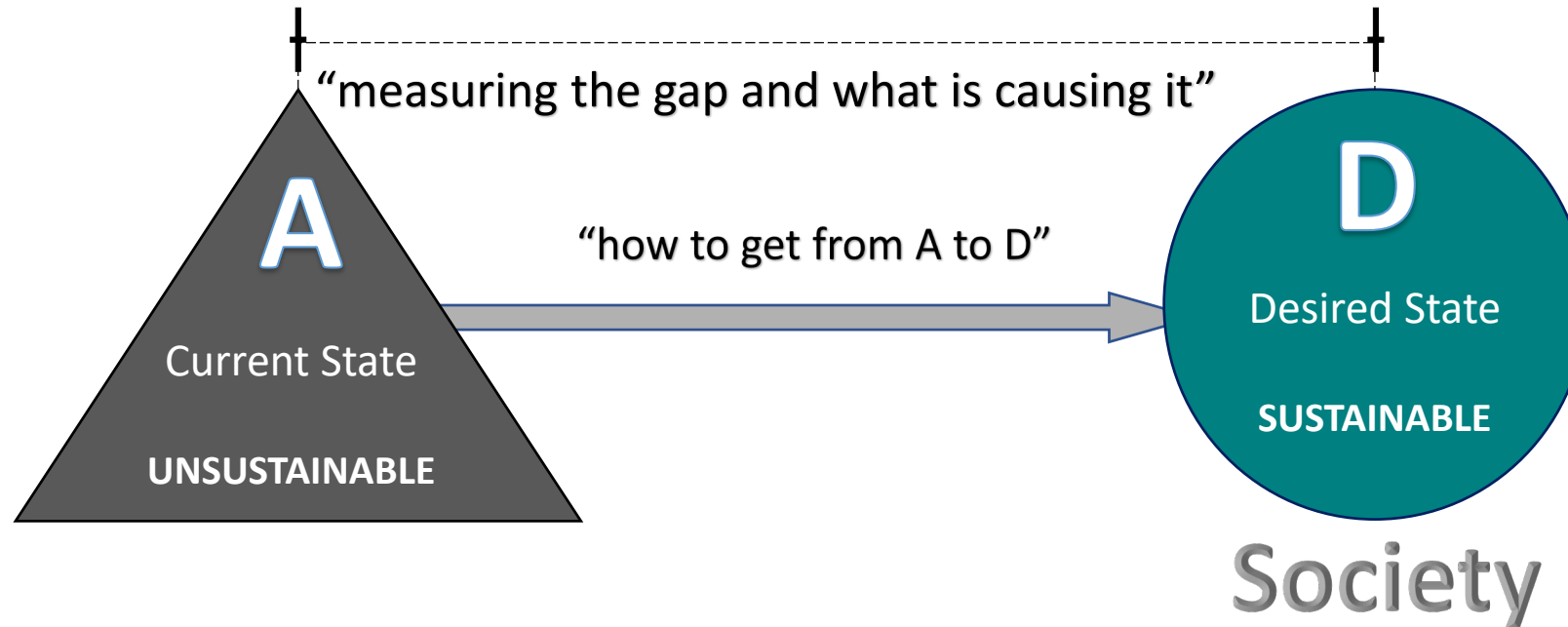
Understanding problems



The gap between these two states (extent of the problem), can also be a deviation from a norm, standard, or status quo, a desired state defined by society.



The transition to sustainability



There is a need to “take plural pathways seriously,” as no matter how specific the context, there is never only one relevant, viable path (the means to close the gap or correct the deviation).

“deciding what this is..”
Need for participatory approaches

This reveals the important role society needs to play in the process of change

Decision making

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Putting into practice through procurement

- Understand your scope 3 emissions and the wider environmental footprint of your procurement activities
- Identify which suppliers to prioritise engagement with to make the biggest impact
- Create a sustainable procurement policy. If you already have a policy is it robust enough? Does it build in circular economy and LCA principles?
- Consider whether tools such as Ecovadis support you and your clients



<https://bit.ly/3viAb1D>

Oddbox prioritise local and seasonal produce and only buy surplus, wonky and rejected produce from farms. This has led to robust partnerships with farmers and a fast growing business.

The logo for wrapology, featuring the word "wrapology" in a black, lowercase, serif font.

<https://www.wrapology.com/sustainable-packaging>

Wrapology provide a framework that reviews the entire supply chain to ensure that products are sustainable from cradle to grave.

What does this mean for you?

1. Conceptualise your business processes
2. Measure and monitor:
Inputs, Outputs, Resources, Wastes and CO2 emissions
in total or as per unit of product/service produced
3. How can you make your business processes more efficient?
Compare to benchmarks.
4. Consider impactful collaborations
5. Rethink implications for procurement and engage with
stakeholders to arrive at your vision - “future desired state”

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Any questions?

Reflection Questions

- 1. What are the key opportunities for increasing efficiencies and reducing emissions?**
- 2. What is the cost of measures and return on investment?**
- 3. Can you set targets and monitor progress?**
- 4. How can you also benefit from communicating achievements to your clients and stakeholders?**



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Suggested readings for the week:

1. Guidance on how to measure and report your greenhouse gas Emissions, Defra, 2009
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69282/pb13309-ghg-guidance-0909011.pdf
2. Adoption of green innovations by SMEs: an investigation about the influence of stakeholders (Thomas, Scandurra, & Carfora, March 2001)
<https://www.emerald.com/insight/content/doi/10.1108/EJIM-07-2020-0292/full/html>



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Discussion

Where is your organisation in it's development / maturity of a sustainable procurement policy?

How critical will the sustainable procurement policy be to reducing scope 3 emissions and your wider environmental footprint?

