

Sustainable Resource Management and its role in a Circular Economy

Hannah Lesbirel
Chair IEMA Futures
Consultant (Waste and Resource Management)
Arup

My professional journey

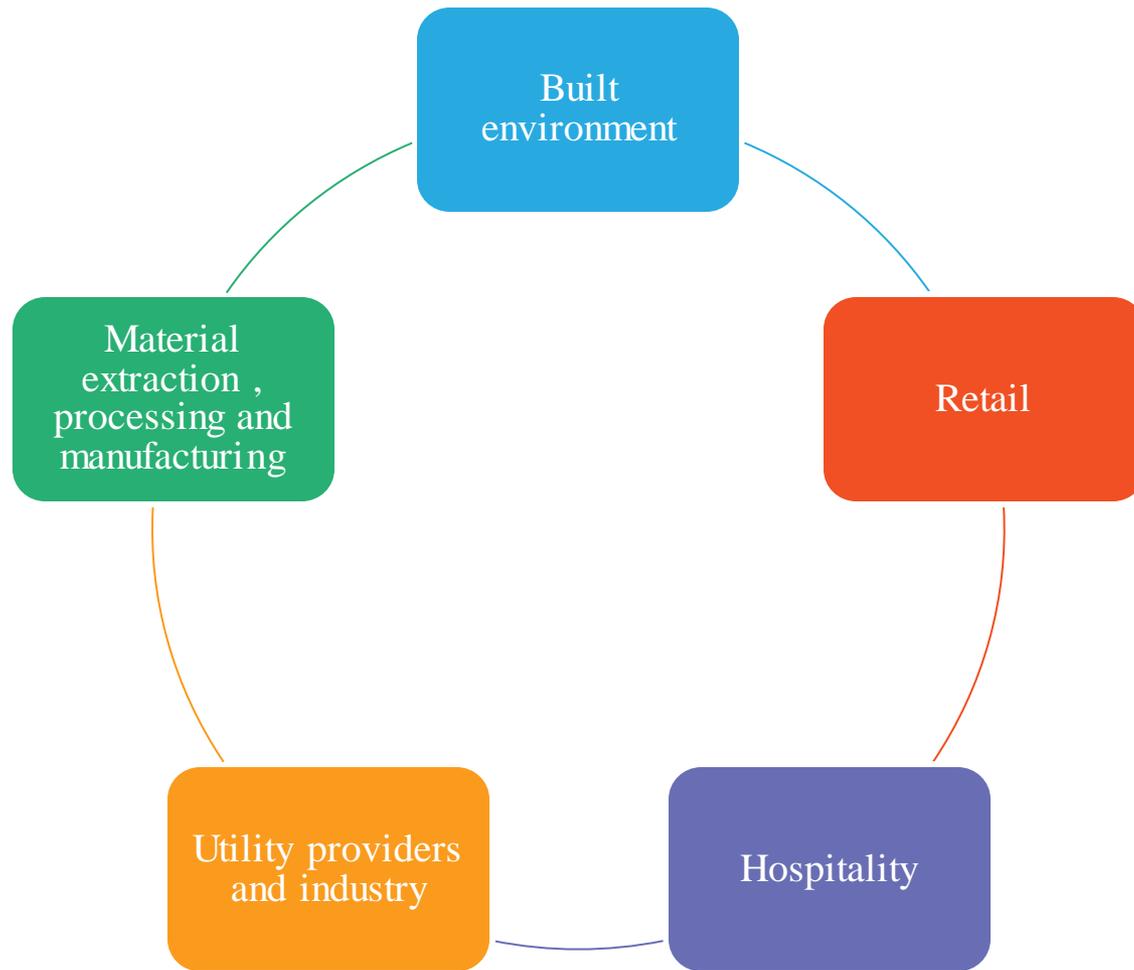


IEMA Futures

- Started with IEMA Futures in 2017
- Became Chair in January 2019
- Engage early career professionals to allow their voice to be heard
- Events
- Webinars
- Transform Articles
- Newsletter



Why is the Circular Economy important for Environment and Sustainability professionals



Why junior members of IEMA should be engaging with CE?

- Circular economy is on the agenda of clients and policy regardless of industry more and more
- Currently in a transition phase
- Our role as early career professions is to bring a new and innovate approaches to the work we do and our that teams deliver
- Apply our cutting edge knowledge of the industry and Circular Economy applications to our projects and operations
- Share our new and updated approach to the potentially dated systems

Circular Economy Principles

1. Designing out waste and pollution:

If we see waste a design flaw and if we harness these materials and new technologies we can ensure these never become waste

2. Keep products and materials in use:

Design for reuse, repair and remanufacturing.

Ensuring material is returned to the economy and not sent to landfill

1. Regenerate natural systems:

In nature there is no concept of waste

OUTLINE OF A CIRCULAR ECONOMY

PRINCIPLE

1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows
 ReSOLVE levers: regenerate, virtualise, exchange



Regenerate Substitute materials Virtualise Restore

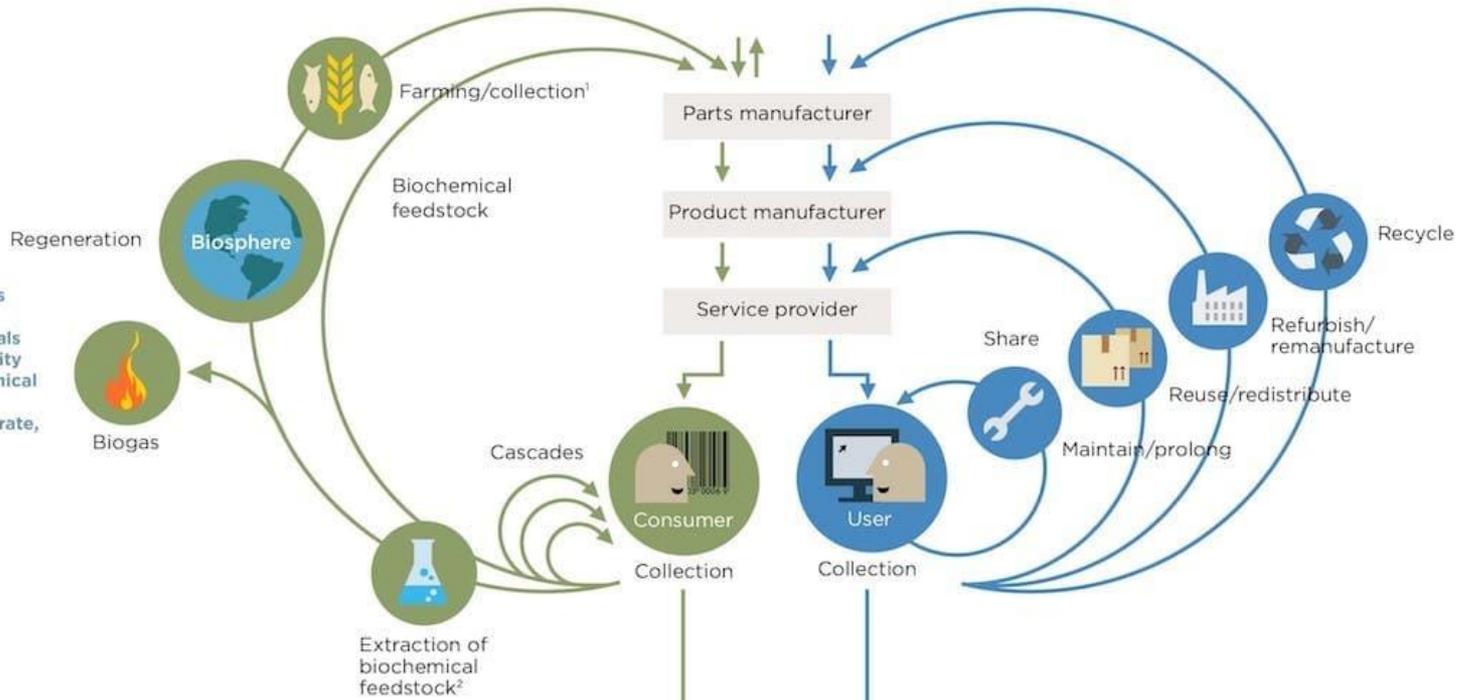
Renewables flow management

Stock management

PRINCIPLE

2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles
 ReSOLVE levers: regenerate, share, optimise, loop



PRINCIPLE

3

Foster system effectiveness by revealing and designing out negative externalities
 All ReSOLVE levers



1. Hunting and fishing
 2. Can take both post-harvest and post-consumer waste as an input

Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

Sustainable resource management and Circular Economy in policy

25 year Environment Plan

- Sustainable and more efficient use of resources
- Minimise waste

Resource and waste strategy for England

- Businesses pay for packaging disposal
- Consistent recycling strategies
- Food waste targets
- Deposit return scheme and tax on plastics
- Warranties and second hand market

End of waste criteria

- Specify when waste ceases to be waste

Circular Economy action plan green deal

Sustainable resource management and Circular Economy in policy

Draft London plan

SI7- Reducing waste and supporting the circular economy

Waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal will be achieved by:

- Improved resource efficiency and keeping products and materials at their highest use for as long as possible
- Waste minimisation and waste avoidance through the reuse of materials and using fewer resources in the production and distribution of products,
- Zero biodegradable or recyclable waste to landfill by 2026
- Meeting or exceeding the recycling targets
- Circular economy statements for large infrastructure projects

Circular Economy in practice

Masterplanning

- Circular economy principles embedded into design, site waste management plans (designing out waste principles) and operation waste management strategies

Urban Resilience

- Circular economy opportunities for cities i.e. reuse and repair hubs.
- Provide strategies for implementation

Circular Economy Statements for Planning

- Strategies to facilitate the transition towards a circular built environment;
- Report against targets that will facilitate monitoring of waste and recycling; and
- Recognise opportunities to benefit from greater efficiencies that can help to save resources, materials, and money

Site waste management plans and operational waste management strategies

- Designing out waste principles
- Operation phase for residents and commercial

EIAs

- Encourage best practice ie reuse of excavation material

Resources and waste infrastructure planning

- Deciding infrastructure need for resources and waste
- Forecasting impact of circular economy on the needs of the infrastructure

Routemapping

- Mapping out the policy context and infrastructure needs of an area.
- Options and scenarios that work towards a circular economy

Circular Economy Case Study

LWARB Circular Economy Effects on Waste Production in London

Arup developed an evidence-based impact assessment model to investigate the effect of applying circular economy initiatives to waste arisings in London

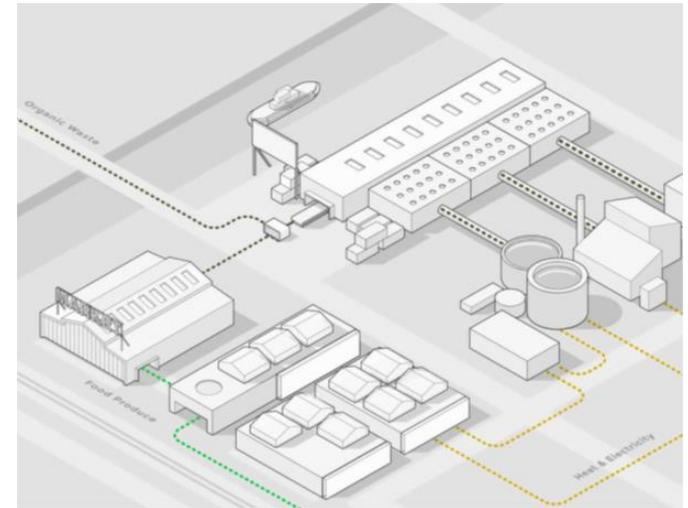
Key facts:

- The project focused entirely on achieving waste prevention, as opposed to managing waste in a more sustainable way
- A potential reduction of more than 60% in waste arisings can be achieved in less than 30 years
- A central estimate of approximately 30% waste reduction can be achieved— depending on the levels of uptake of circular economy initiatives

Circular Economy Case Study

Old Oak and Park Royal circular study, United Kingdom

Reduce costs, generate revenues, cut waste, conserve resources, safeguard the environment and help build healthy and successful business and residential communities.



Key facts

- Refurbishing buildings instead of demolishing them could save 700,000 tonnes of material over 32 years.
- Locally sourced biomass could meet 20% of the development's electricity demand.
- Up to 60% of this demand could be met from locally sourced refuse derived fuel.