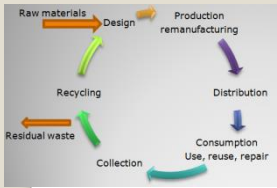


Circular Economy European Package European Commission

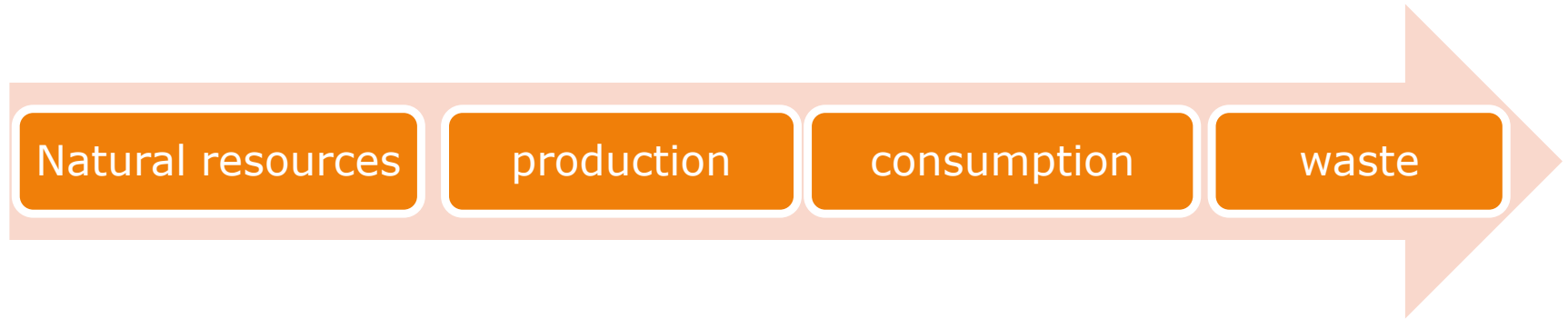
Constantina E. Marazioti
Biologist, MSc, PhD
Department of Chemical Engineering
University of Patras

«Circular economy and valorization/recycling: a potential way to reduce dependence on raw material and energy»

28/11/2016

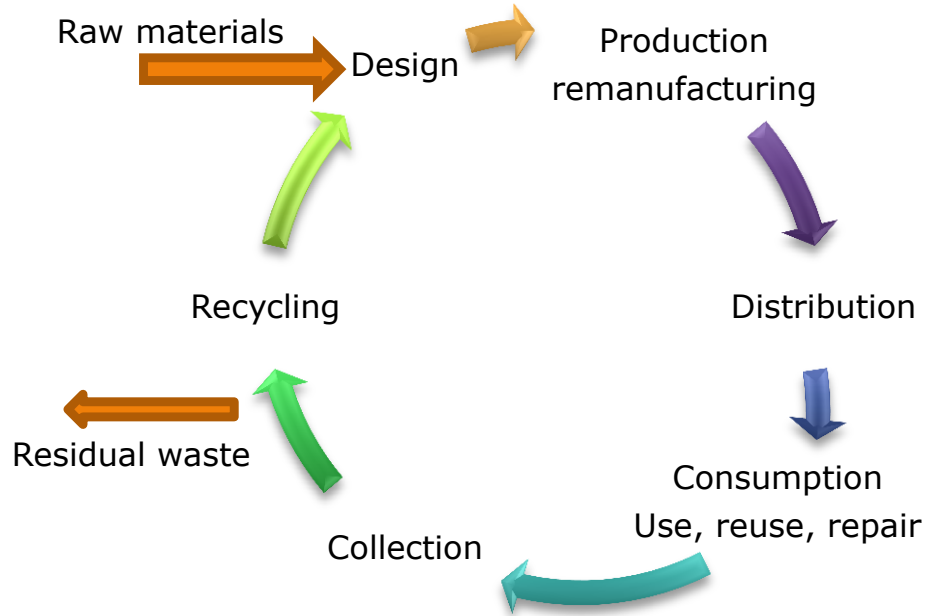


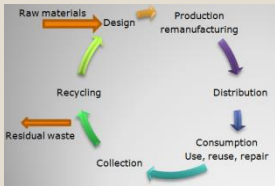
Our current economy is linear: resource, product, waste



This is not longer viable: socially, economically, ecologically

New model:
Circular Economy

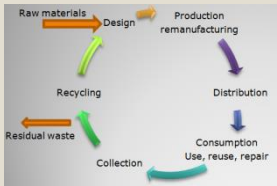




In a circular economy:

- the value of products and materials is maintained for as long as possible
- waste and resource use are minimized
- resources are kept within the economy when a product has reached the end of its life, to be used again and again to create further value

- can create secure jobs in Europe
- promote innovations that give a competitive advantage
- provide a level of protection for humans and the environment that Europe is proud of
- can also provide consumers with more durable and innovative products that provide monetary savings and an increased quality of life



In a circular economy

- Products made from **technical nutrients** are designed at the outset for advanced forms of reuse.
- Biotic nutrients** are nontoxic and so can be returned to the biosphere, preferably in a cascade of uses that tap as much value from them as possible.

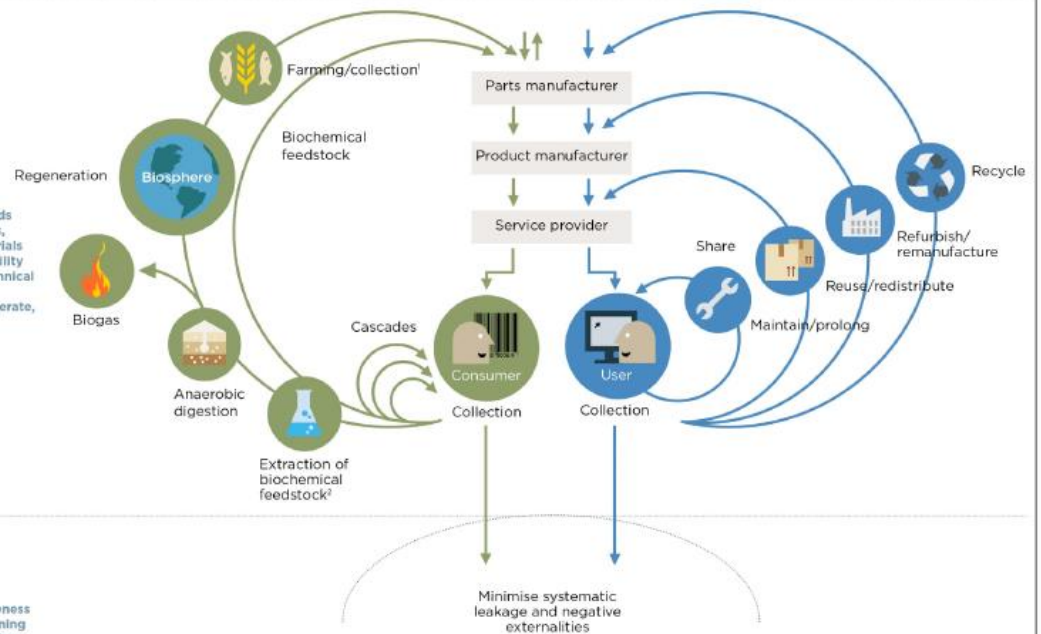
PRINCIPLE 1

1
Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows
ReSOLVE levers: regenerate, virtualise, exchange



PRINCIPLE 2

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

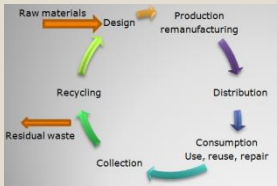


PRINCIPLE 3

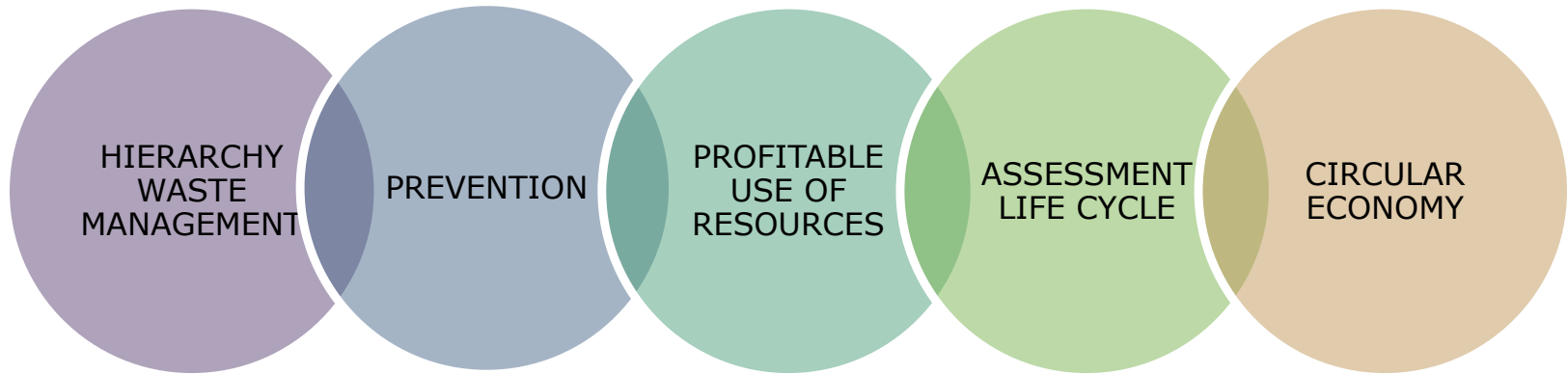
3
Foster system effectiveness by revealing and designing out negative externalities
All ReSOLVE levers

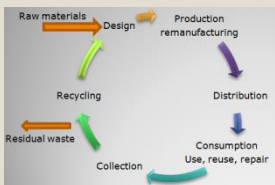
1. Hunting and fishing
2. Can take both post-harvest and post-consumer waste as an input

Source: [Ellen MacArthur Foundation](http://ellenmacarthurfoundation.org), 2015



EUROPEAN POLICY





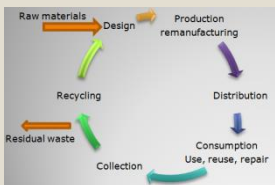
Circular Economy Package

Adopted by the Commission 2 December 2015

- Action Plan Communication
- List of Follow-up Initiatives (Annex)
- 4 Legislative proposals on waste (*waste, packaging waste, landfill, electronic and electronic waste, end-of-life vehicles, batteries and accumulators*)

*The Waste Proposals establish a vision to **increase recycling** and **reduce landfilling**, while proposing concrete measures to address obstacles on the ground in terms of **improvement of waste management** and taking into account the different situations across Member States.*

(Setting new waste management targets to be met by 2030, in particular increasing the share of municipal waste prepared for reuse and recycling to 65%, increasing the share of packaging waste prepared for reuse and recycling to 75% and gradually limiting municipal waste landfill to 10%)



Circular Economy Package

Adopted by the Commission 2 December 2015

Key actions :

Actions to reduce food waste including a common measurement methodology, improved date marking, and tools to meet the global Sustainable Development Goal to **halve food waste by 2030**;

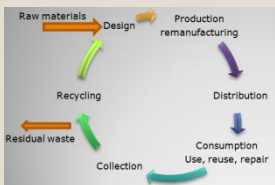
Development of **quality standards for secondary raw materials** to increase the confidence of operators in the single market;

Measures in the **Ecodesign working plan for 2015-2017** to promote reparability, durability and recyclability of products, in addition to energy efficiency;

A **revised Regulation on fertilisers**, to facilitate the recognition of organic and waste-based fertilisers in the single market and support the role of bio-nutrients;

A **strategy on plastics in the circular economy**, addressing issues of recyclability, biodegradability, the presence of hazardous substances in plastics, and the Sustainable Development Goals **target for significantly reducing marine litter**;

A series of **actions on water reuse** including a legislative proposal on minimum requirements for the reuse of wastewater.



Action Plan

The action plan highlights four broad areas for action:

- Production**
- Consumption**
- Waste Management**
- Market for secondary raw materials**

The action plan presents measures in **five priority sectors**:

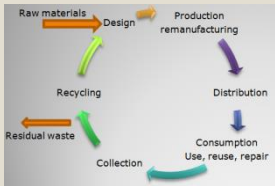
Plastics

Food waste

Critical raw materials

Construction and demolition

Biomass and bio-based products



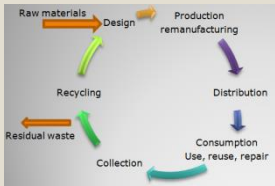
Production

Design phase and **production processes** have an impact on sourcing, resource use and waste generation.

Among others, the Commission will:

- implement the Eco-design Directive
- propose requirements making it easier to dismantle, reuse and recycle electronic displays
- Extended Producer Responsibility scheme on the basis of the end-of-life-costs of their products
- Best Available Techniques Reference documents (BREFs)
- promote best practices on mining waste to improve the recovery of raw materials



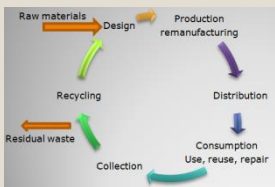


Consumption

Repair and **reuse** of products as well as **reliable information** to consumers

The Commission will:

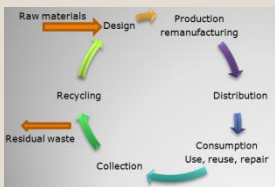
- durability and availability of repair information and spare parts in its work on Ecodesign
- durability information in future Energy Labelling measures.
- proposes new rules on the revised waste proposals which will encourage reuse activities.
- work towards better enforcement of the guarantees on tangible products, examine possible options for improvement, and tackle false green claims
- prepare an independent testing programm under Horizon 2020 to help the identification of issues related to possible planned obsolescence.
- take action on Green Public Procurement (GPP), by emphasising circular economy aspects in new or revised criteria, supporting higher uptake of GPP, and leading by example in its own procurement and in EU funding.



Waste management

The Commission will:

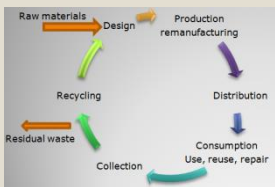
- Set a common EU target for recycling 65% of municipal waste by 2030
- Set a common EU target for recycling 75% of packaging waste by 2030
- Set a binding landfill target to reduce landfill to maximum of 10% of municipal waste by 2030
- Step up its work with Member States to improve waste management on the ground
- Simplify and improve waste definitions and harmonise calculation methods
- Ensure that structural funds are used to support the objectives of the EU waste legislation and guided by the EU waste hierarchy
- Propose minimum criteria for Extended Producer Responsibility schemes - rewarding producers who put greener products on the market and encourage their recovery and recycling at the end of their lifecycle



Market for secondary raw materials

The Commission will:

- launch work to develop quality standards for secondary raw materials & proposing improvements to the rules on 'end-of-waste'.
- propose a revised EU regulation on fertilisers - support the role of bio-nutrients in the circular economy.
- take a series of actions to facilitate water reuse; this will include a legislative proposal on minimum requirements for reused water, e.g. for irrigation and groundwater recharge.
- develop analysis and propose options on the interface between chemicals, products and waste legislation, including on how to reduce the presence and improve the tracking of chemicals of concern in products.
- further develop the recently launched Raw Materials Information System and support EU-wide research on raw materials flows



Funds

- ▶ €5.5 billion from structural funds
- ▶ €650 million from Horizon 2020

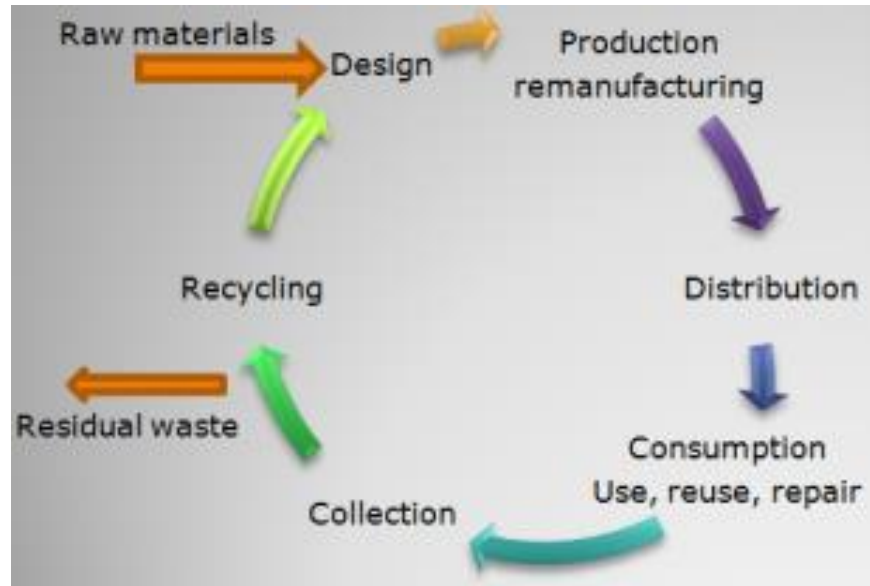
SPIRE-08-2017: Carbon dioxide utilisation to produce added value chemicals (*Deadline: 19 January 2017*)

CIRC-1-2016-2017: Systemic, eco-innovative approaches for the circular economy: large-scale demonstration projects

Waste-4b-2014: Global waste dimension (Development of a strategy for global dissemination and uptake of European best management practices)

In Greece: need for a national roadmap for the transition to circular economy

THANK YOU FOR YOUR ATTENTION!



References

<http://ec.europa.eu/environment/circular-economy/>

<https://www.ellenmacarthurfoundation.org/>