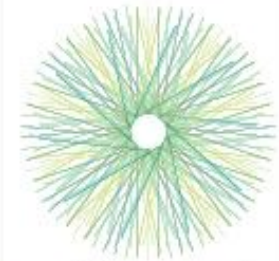


# The role of agriculture and forestry in the circular economy



eip-agri  
AGRICULTURE & INNOVATION

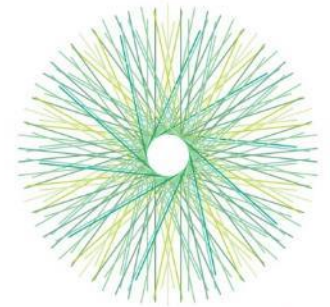


**EIP-AGRI Workshop on circular economy**  
**Ben Allen, Institute for European**  
**Environmental Policy (IEEP)**  
**Naantali-Finland, 28 October 2015**

funded by



# Outline



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- Why are we talking about a circular economy
- The circular economy concept, principles & activities
- Challenges and opportunities for agriculture and forestry
- Relationship to the bio-economy
- How we might get there.

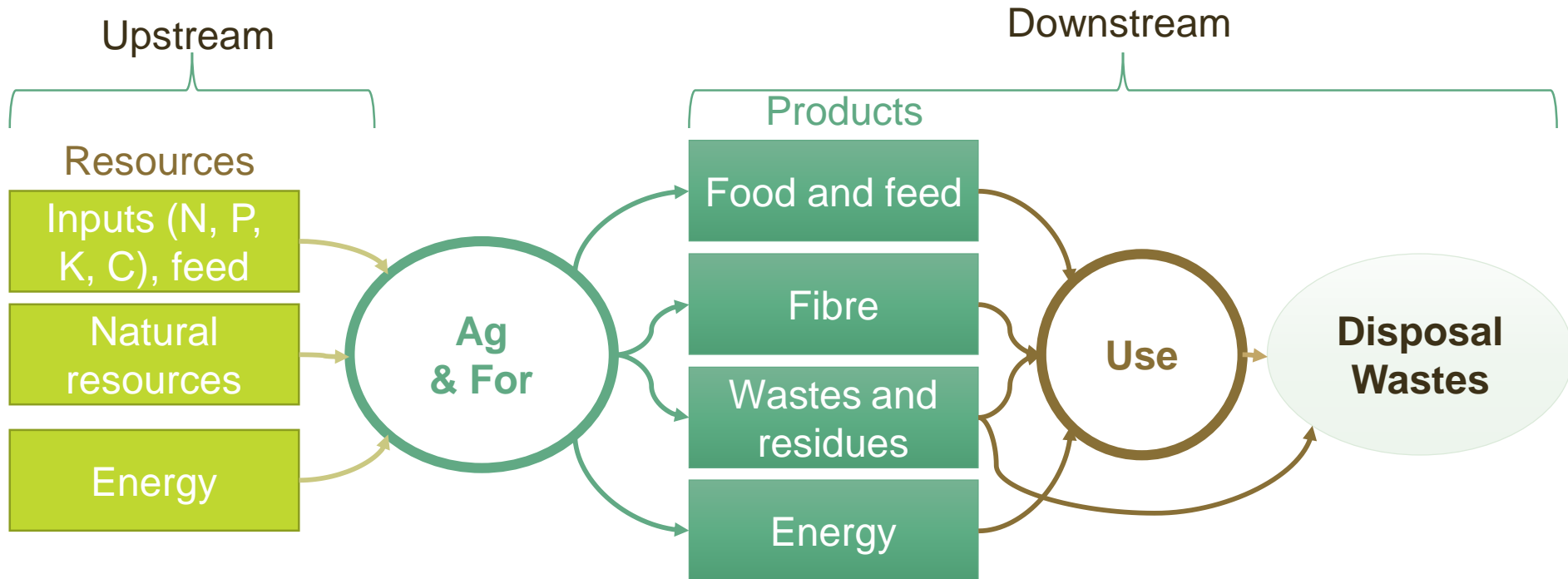


# Why a circular economy in agriculture and forestry? (1)

- Our current economy is largely linear
  - We *take, make, use and dispose*
- Resources are becoming more difficult and expensive to buy, extract, and access
- Increasing demands for resources (materials, fuels, etc.)
- It is also resulting in pressure on (natural) resources and the environment



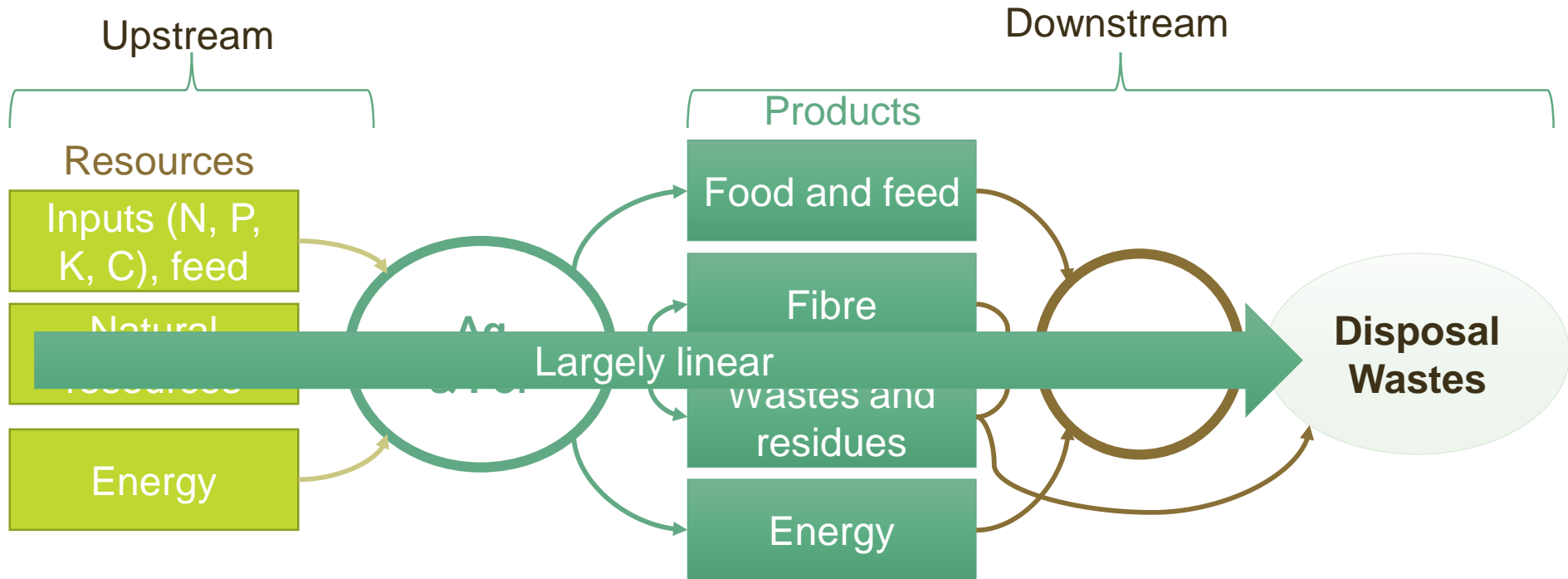
# Agriculture and forestry in the circular economy



**↑↑ Rising ↑↑**  
Pressure on resources  
Costs  
Demands

**↑↑ Increased ↑↑**  
Pressure on environment  
Pressure on climate  
Loss of resources

# Agriculture and forestry in the circular economy



**↑↑ Rising ↑↑**  
Pressure on resources  
Costs  
Demands

**↑↑ Increased ↑↑**  
Pressure on environment  
Pressure on climate  
Loss of resources

# Why a circular economy in agriculture and forestry? (2)

- The agriculture and forestry sectors are unique in that they rely on natural resources and cycles as their primary inputs.



Land



Water



Soils



Biodiversity

- Using / depleting these resources beyond sustainable limits undermines the future of these sectors and the benefits they generate for society.

# Why a circular economy in agriculture and forestry? (3)

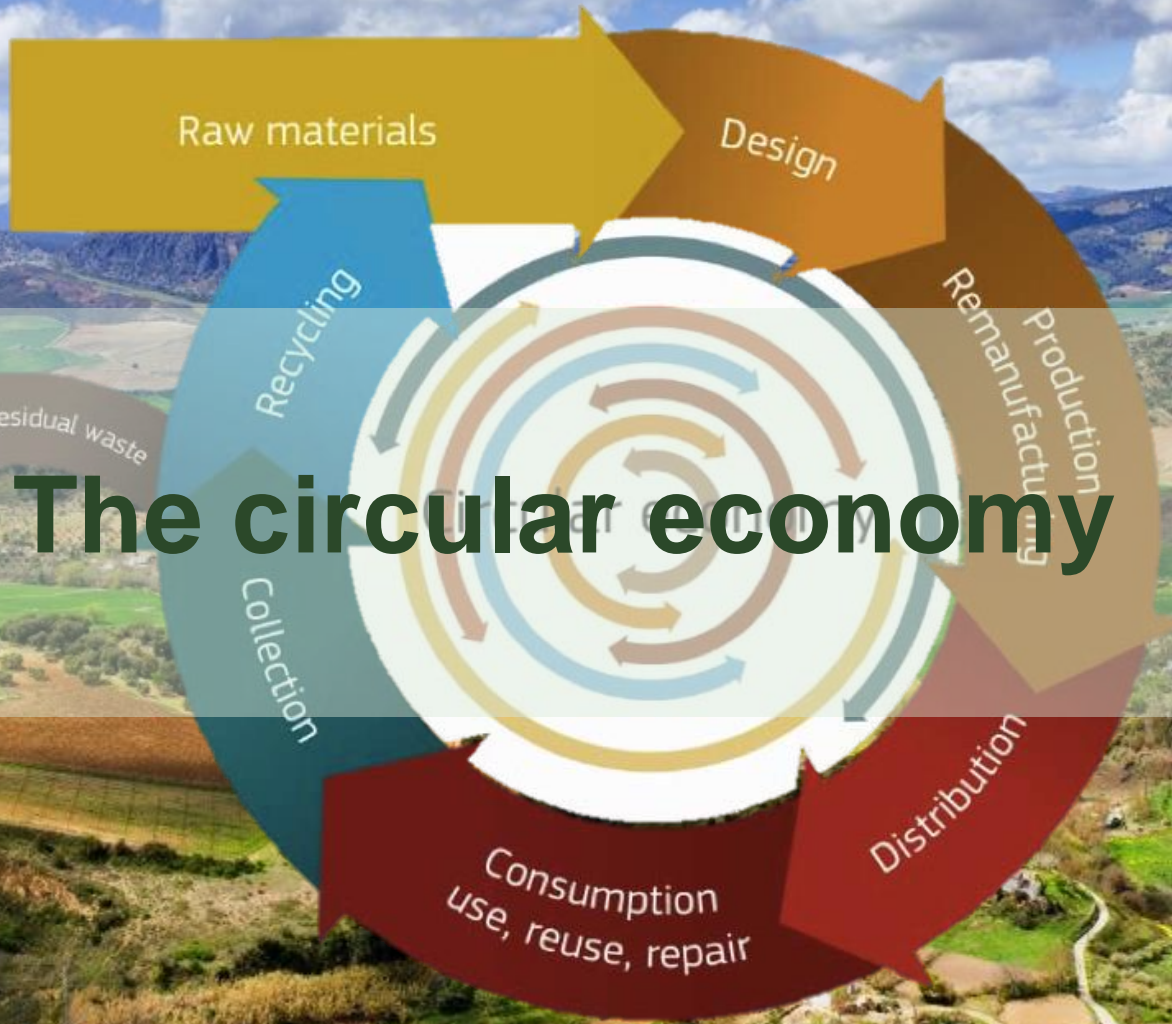
- We therefore need to be more *resource efficient* in the way we use and **re-use** our resources
- This will make our **businesses more economic** and more **sustainable** in the long term by:
  - reducing external risks linked to oil and commodity prices;
  - reducing the pressure on (natural) resources;
  - opening up new revenue streams; and
  - fostering innovation and collaboration between sectors and industry.
- Acting now in this way of thinking is important to benefit from the market.

# Why a circular economy in agriculture and forestry? (4)

- These risks and opportunities are recognised by the EU institutions.
- There is a clear resource efficiency agenda;
  - Roadmap to a resource efficient Europe;
  - The Circular Economy package;
  - The overarching objectives of the Common Agricultural Policy;
  - New priorities of the Rural Development Regulation;
  - Amendments to renewable energy policy that seek to address resource issues;



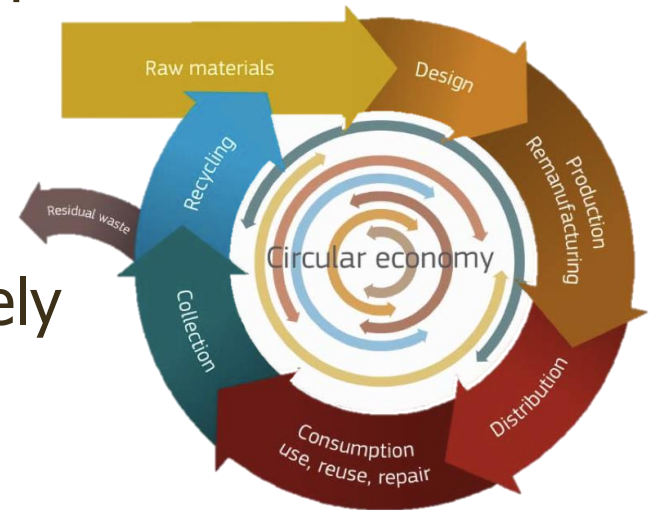


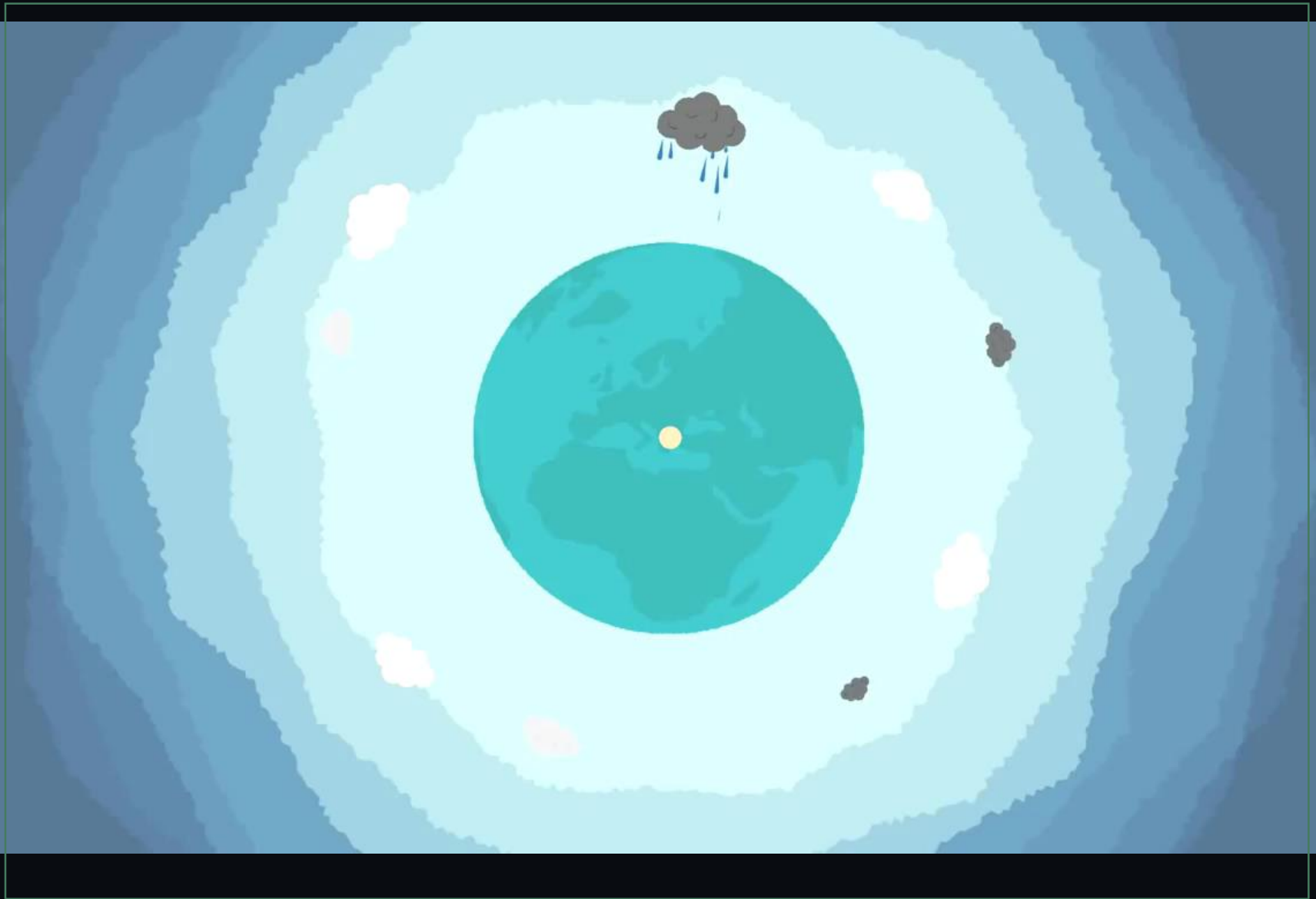


# The circular economy

# The circular economy

- Systems that keep the added value in products for as long as possible and eliminate waste;
- To ensure resources stay within the economy and can be used productively again and again;
- Reduces demands on (natural) resources, improves efficiency, and reduces costs

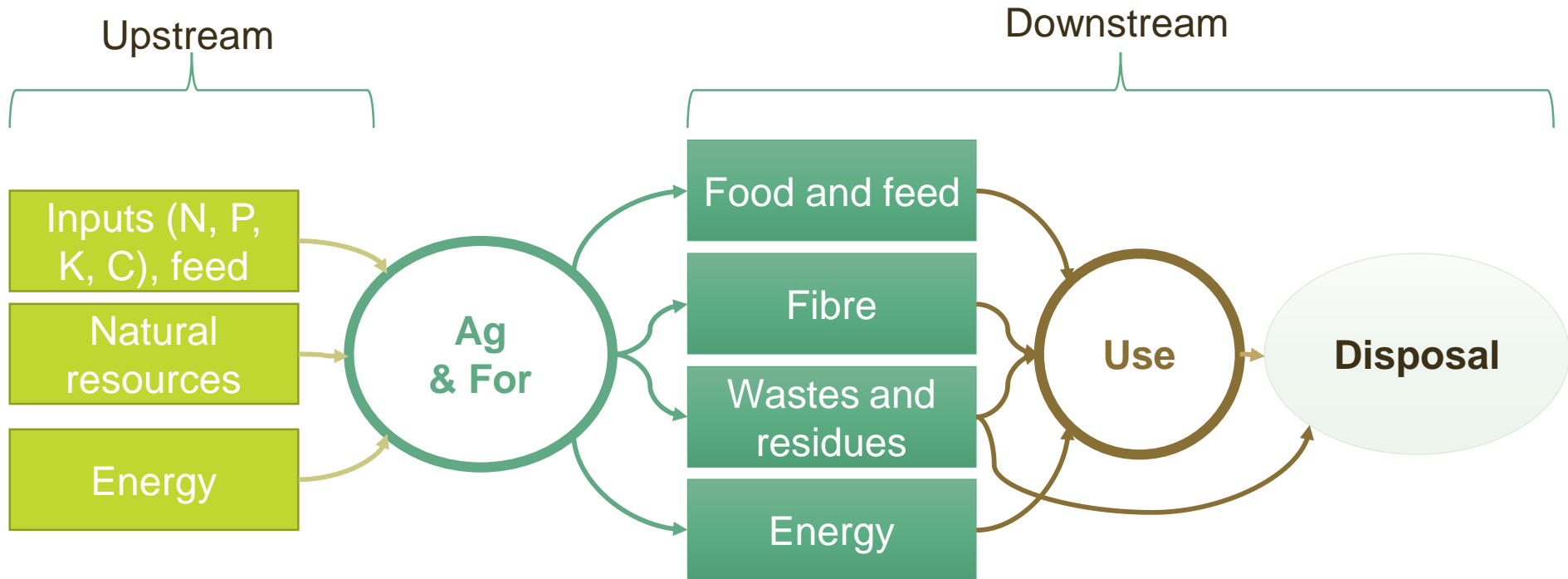




# Circular economy principles in the primary sectors

- Preserve and enhance natural capital
  - By controlling finite stocks and balancing renewable resource flows
- Optimise natural resource yields by circulating products, components and materials
  - Ensuring the highest utility at all times
- Foster effectiveness by revealing and designing out wastes and detrimental practices
  - Encourage interaction, understanding our resources and making the most of our wastes

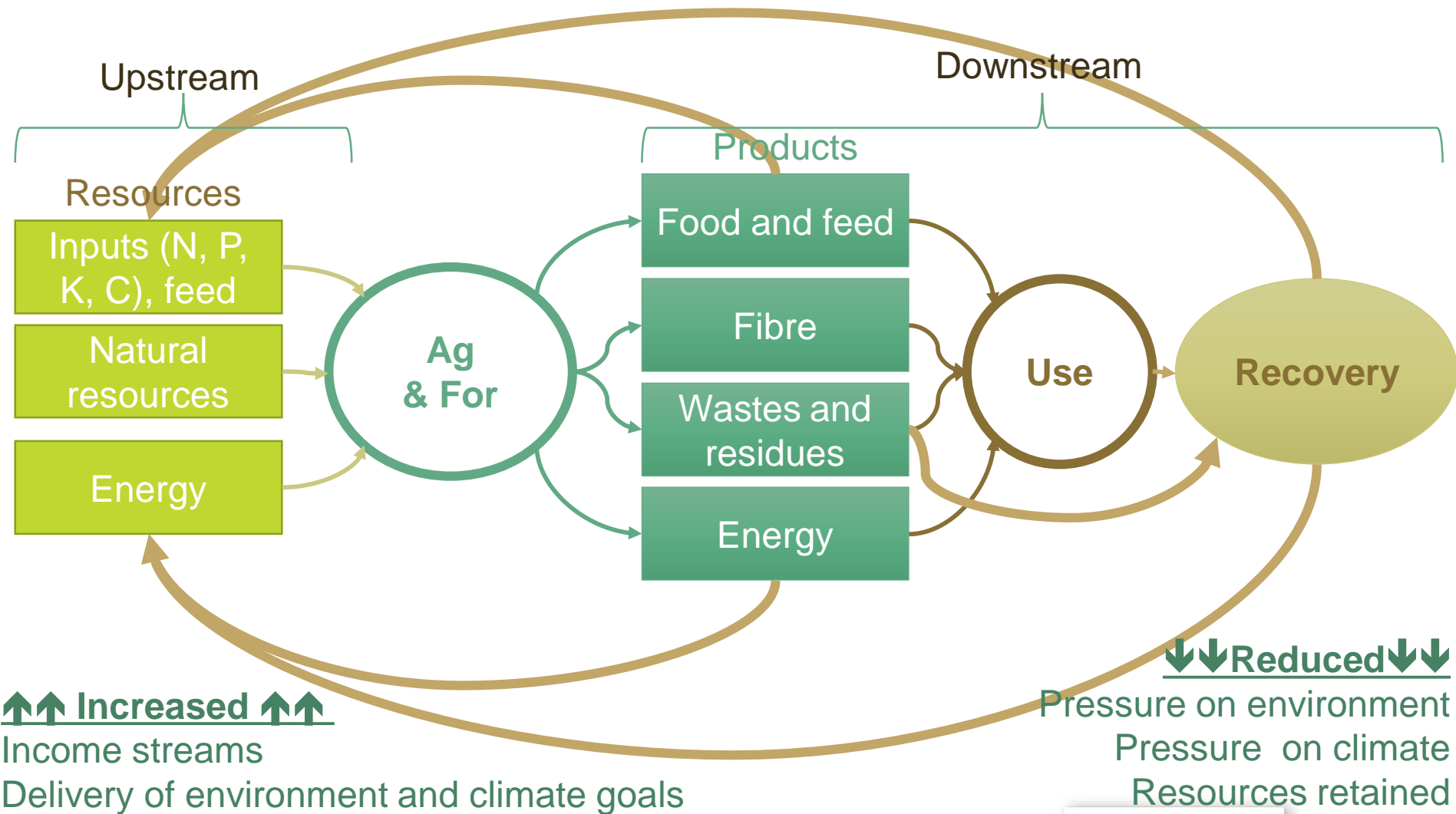
# Agriculture and forestry in the circular economy



**↑↑ Rising ↑↑**  
Pressure on resources  
Costs

**↑↑ Increased ↑↑**  
Pressure on environment  
Pressure on climate  
Loss of resources

# Agriculture and forestry in the circular economy

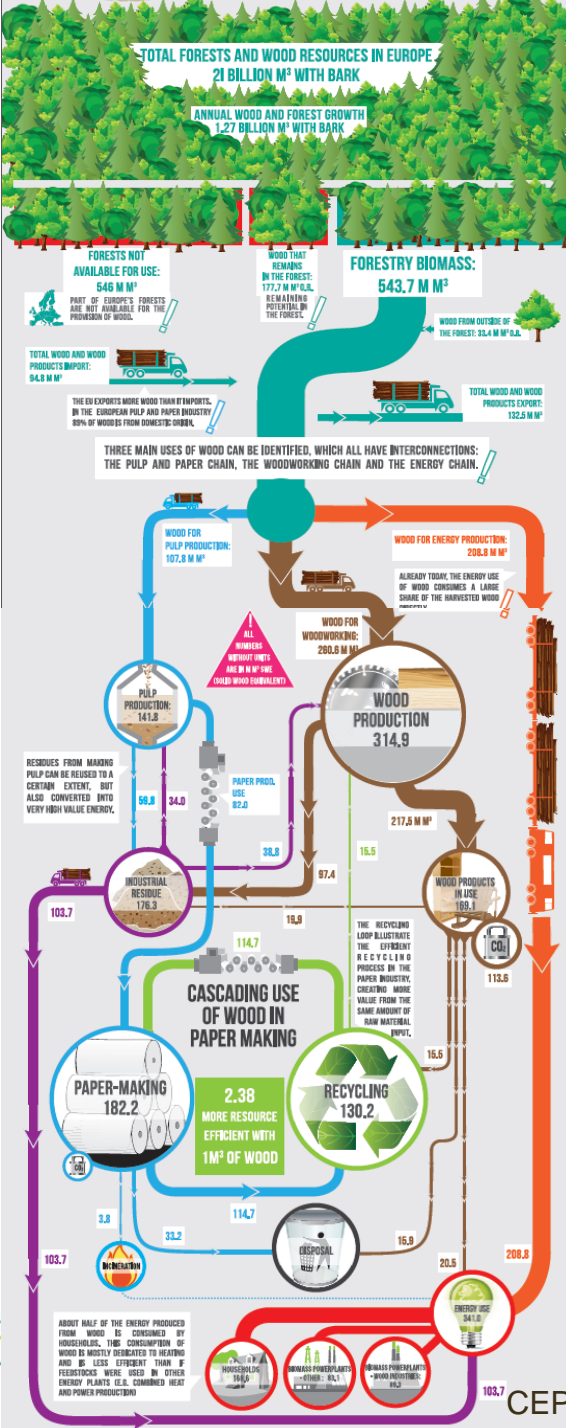


↓↓↓ **Reduced** ↓↓↓

Pressure on environment  
Pressure on climate  
Resources retained

# Circular economy actions

- Reducing the quantity of materials required in a system, in particular those that can not be recycled
- The re-use of materials without processing
- Recycling and reprocessing of materials by closing system loops
- Interaction between waste producers and users
- Technology development, R&D
- Improved consumer choice – fostering demand and new markets

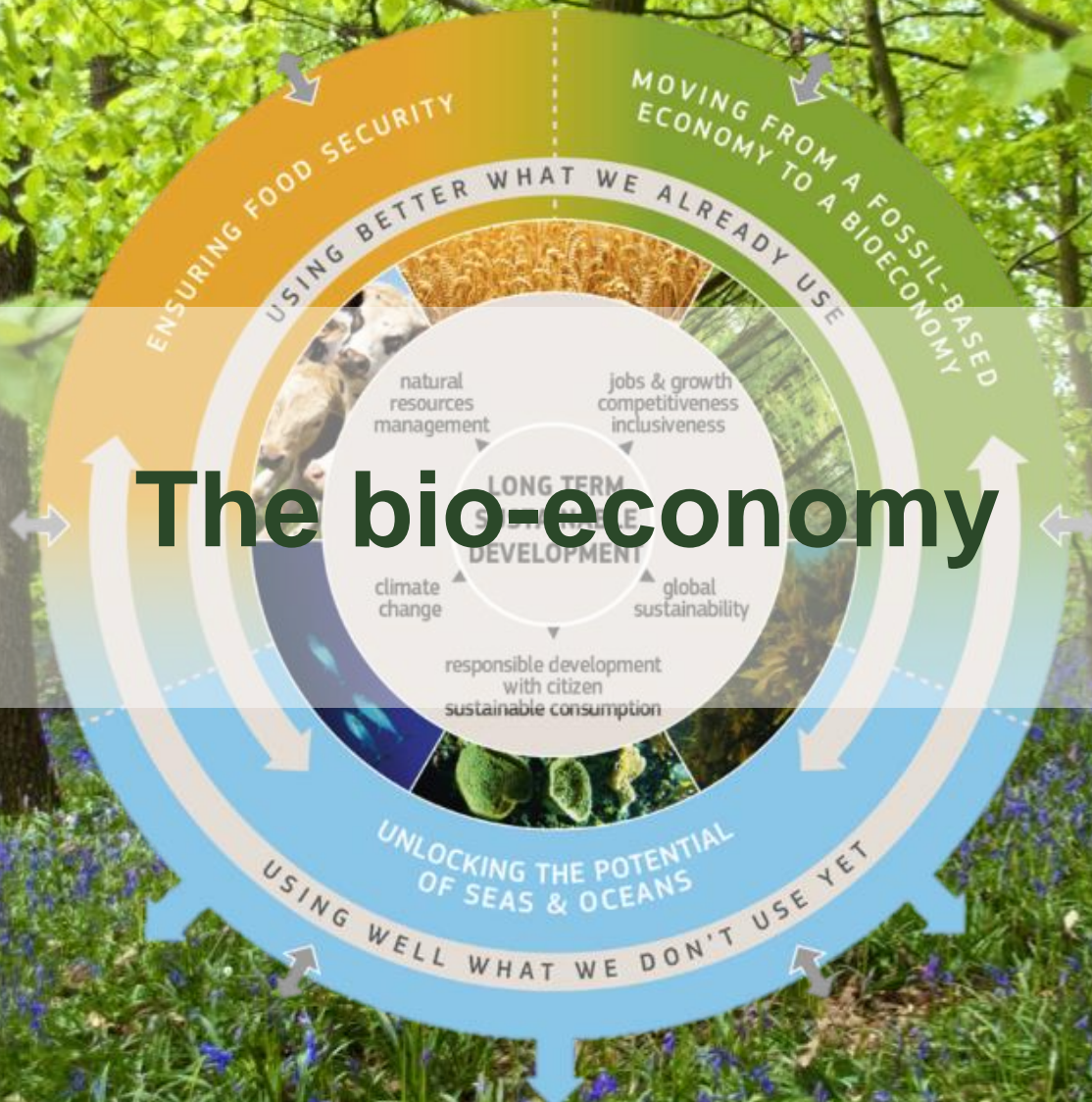


## Example – Paper recycling

- Wood as a raw material\*
  - 70% paper recycling in the sector (2012)
  - 78% maximum potential in the EU
- FAVINI - agro-industrial waste from lemons, oranges, nuts, apples, corn and olives, used to make paper (IT)
- LUCART – Used beverage cartons to make high quality fibres (IT)
- VanHoutum – Closed loop recycling agreement for hygienic tissue (NL)
- HOLMEN – Using treated municipal waste water – 100% waste water, 100% recovered paper (ES)

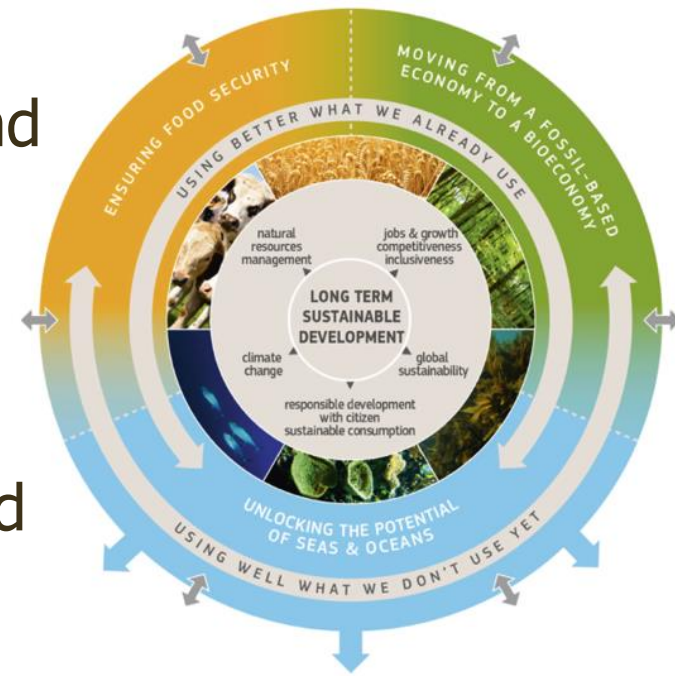


# The bio-economy



# The bio-economy

- The production of renewable biological products and resources
- The conversion of these resources and waste streams into value added products:
  - food, feed, bio-based products and bioenergy.
- Through innovation, technological development, knowledge sharing, and industrial symbiosis.
- Relying on local and tacit knowledge
- Can be both linear and circular



# Goals of the bio-economy in Europe

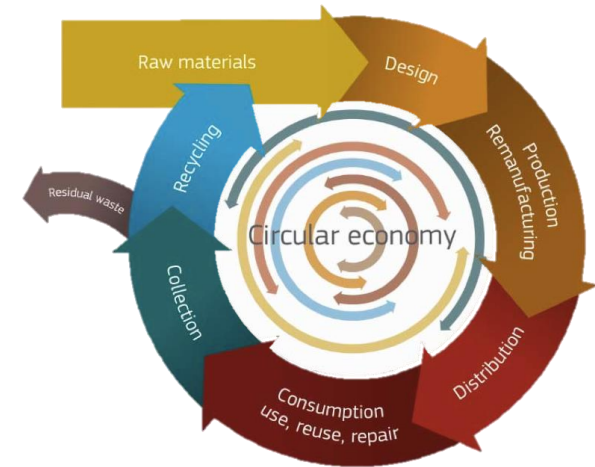
- The Bio-economy Strategy & Action plan
  - more innovative, resource efficient and low-emission economy;
  - reconciling demands for sustainable agriculture and fisheries, food security, and the sustainable use of renewable biological resources, for industrial purposes
  - ensuring biodiversity and environmental protection.



# The Circular and Bio-economy concepts

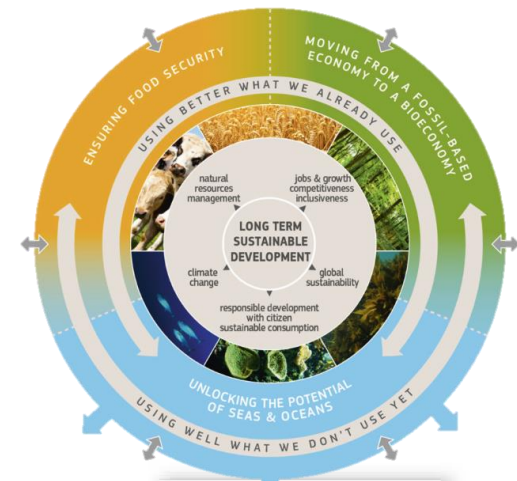
## Circular economy

- Intrinsic recycling and feedback loops;
- Applies to the whole economy;
- Adding value to waste materials



## Bio-economy

- Can be both linear and circular;
- Only bio-based products and systems;
- Reliant on the primary sectors;
- Emphasis on adding value to raw materials with strong knowledge and technical development.

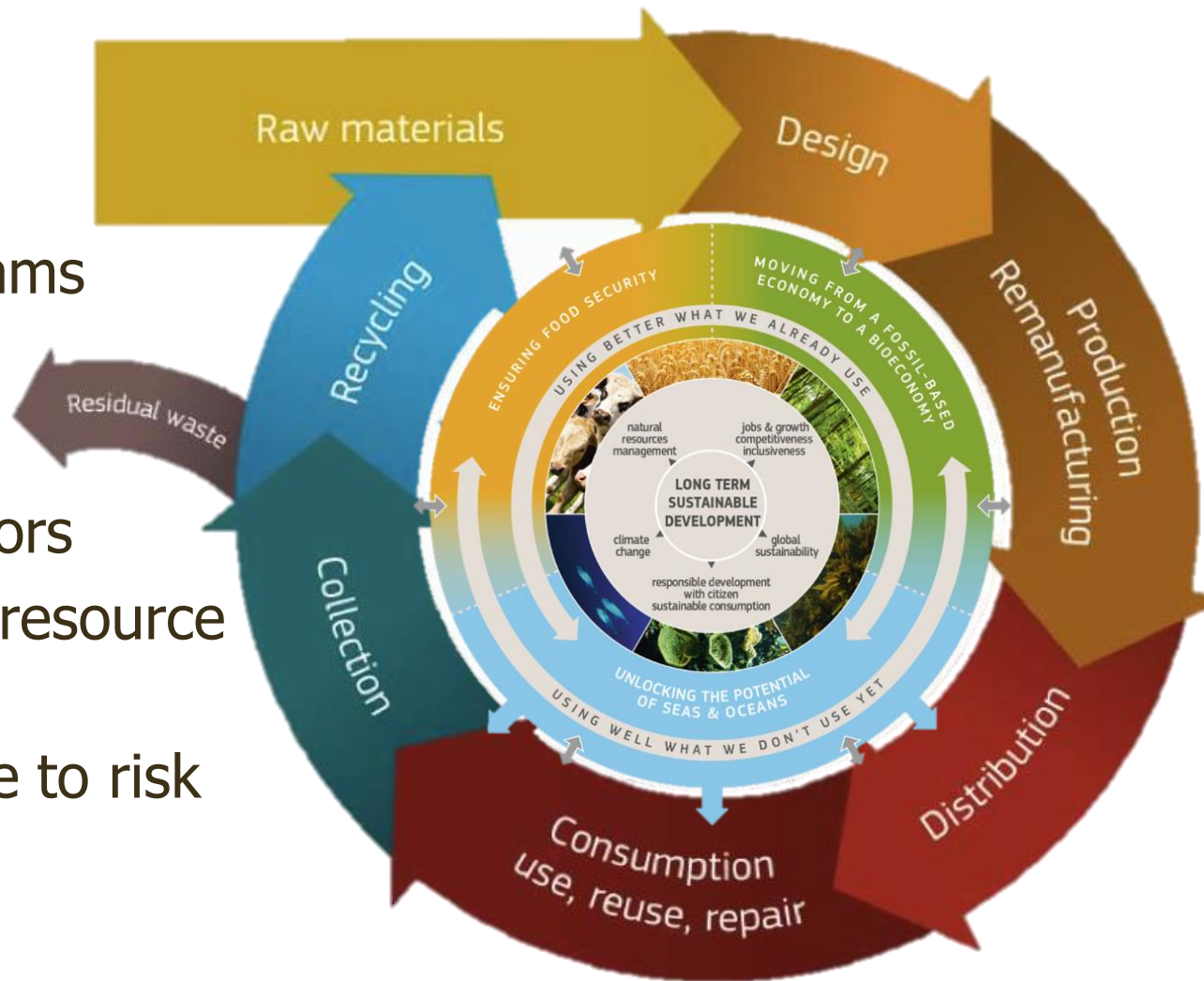


Innovation and new business models

# Agriculture and forestry – A more circular bio-economy

## Opportunities

- New income streams
- Future proofing
- Job creation
- Links to new sectors
- More sustainable resource use at lower cost
- Reduced exposure to risk



# (Some) examples in practice today



Millibeter

Organic waste processing, animal feed etc.

BE(fl)

Agro-hub

Waste and side streams for energy

FI (Lapland)

GREENWOOLF

Waste wool to fertiliser

IT

Palopuro Agroecological  
Organic integrated system

FI

Metsä Group

Bio-products, water purification, heating

FI

Tomato masters

Aquaculture + horticulture

BE(FI)

AT land and forest owners

Agriculture biogas production

CH

Wood ash recycling

AT

Nuestra Señora de los Remedios

Organic compost from olive cake

ES

COOPERL

Pigs and AD

FR

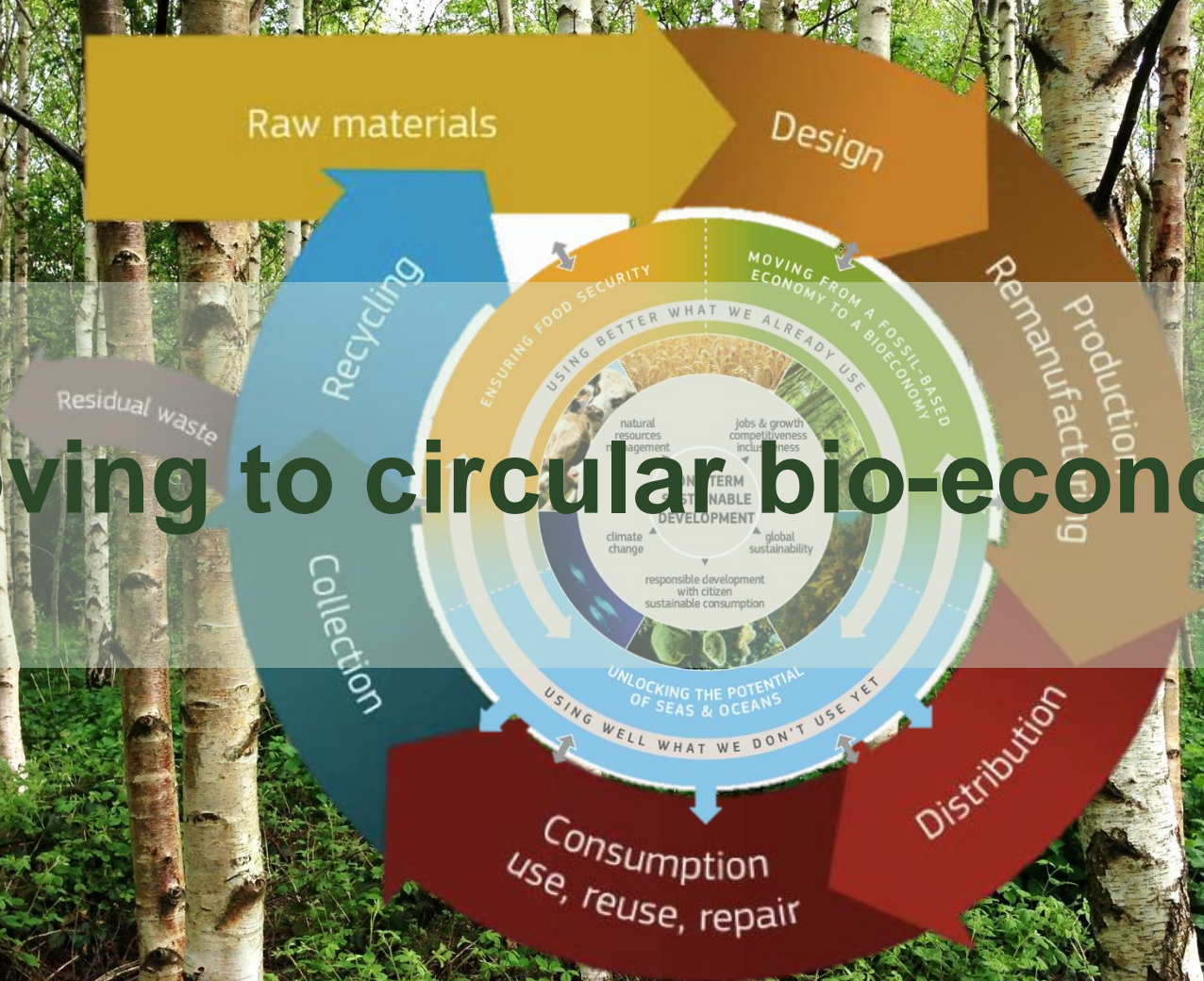
CONDENSE project

Compost from olive cake

IT



# Moving to circular bio-economy



# Activities to promote a circular bio-economy

- Investment in research, innovation and skills
- Improved stakeholder engagement and policy interaction
- Enhancement of markets in bio-economy and circular economy
- Fostering collaboration within and between sectors
- Educating and improving knowledge




# Practical support


- Through EU initiatives, such as
  - the Common Agricultural Policy
  - the European Innovation Partnership – AGRI
  - the European Network for Rural Development (TG green economy)
  - Research and funding through H2020 and others

## Dr. Ben Allen

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