

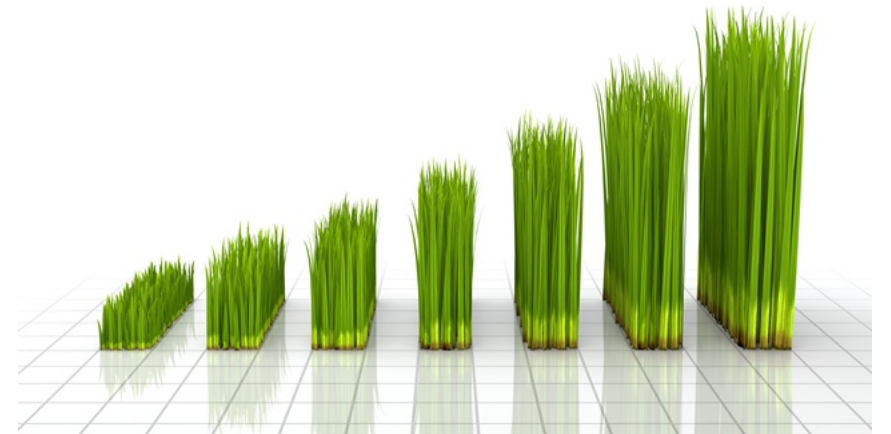
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# GREEN GROWTH

What we understand:

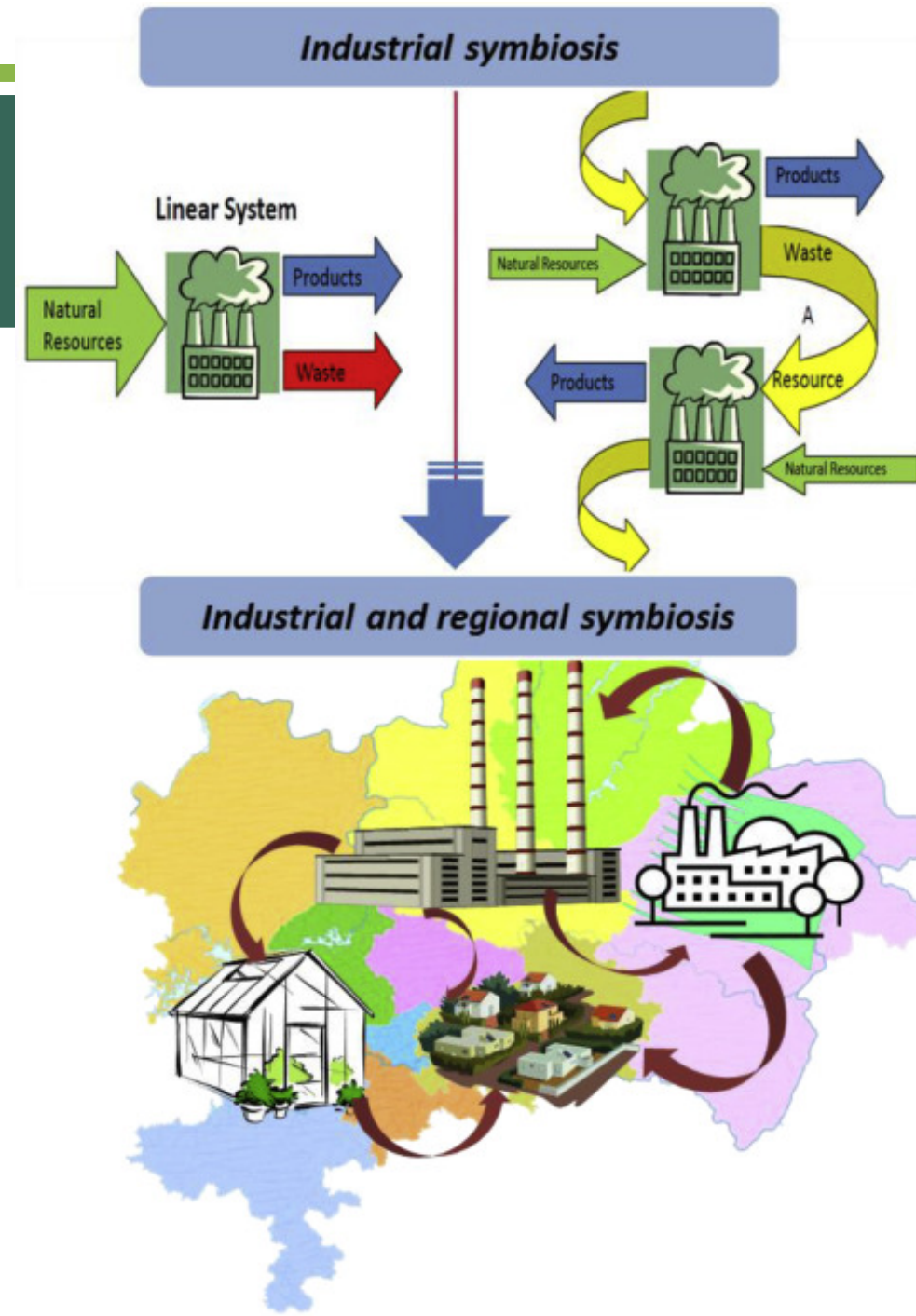
- Economic growth that uses natural resources in a sustainable way
- Low carbon economy development
- Reducing waste and energy consumption
- Scientific support to economy
- Stimulating environmental friendly goods, services and technologies

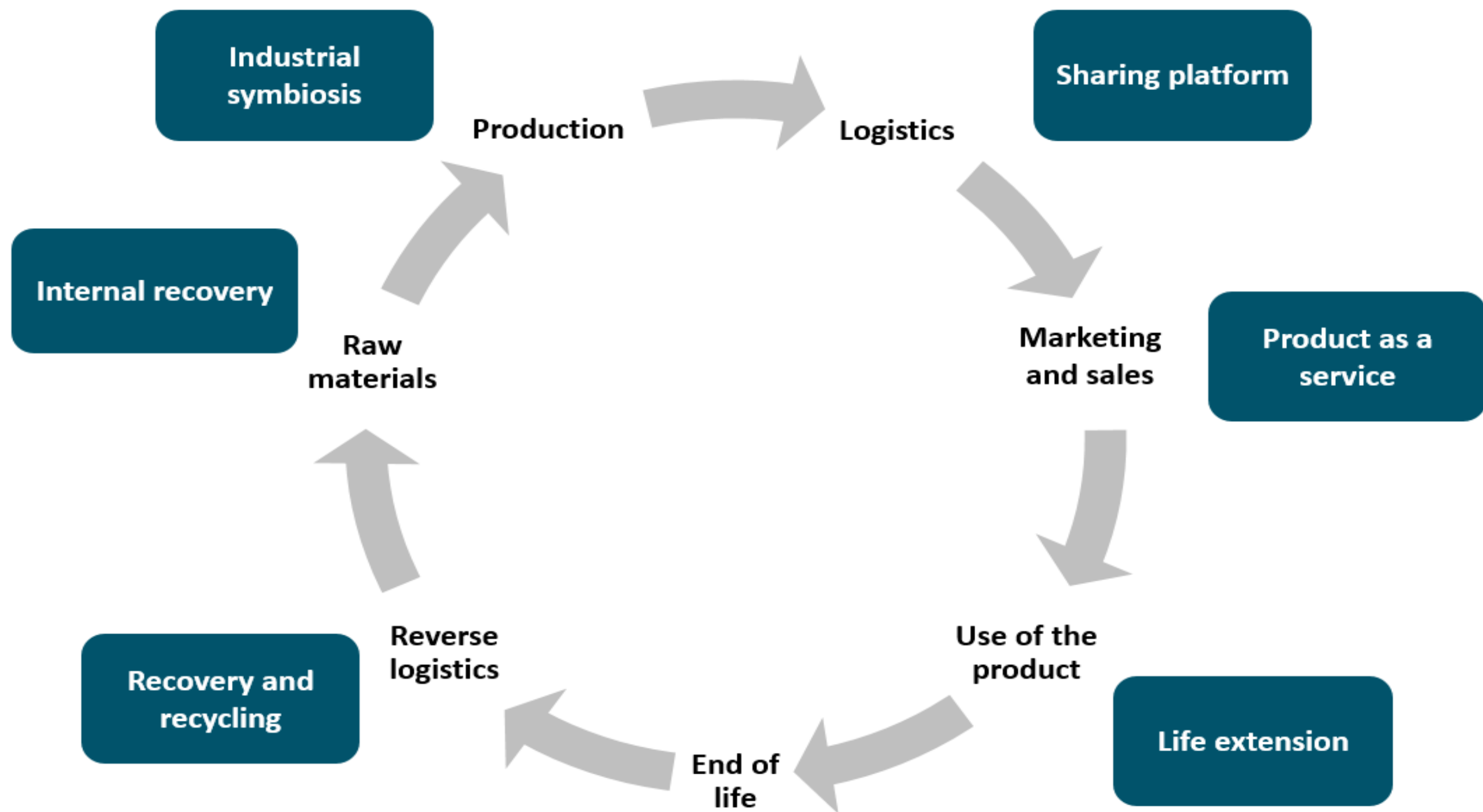


# CIRCULAR ECONOMY

## What we understand:

- Transition from linear (produce, use, dump) to circular economy
- Reduce waste
- Increase resource efficiency
- Reuse
- increasing systems' resilience
- Keep product and materials in use
- Regenerate natural systems
- Industrial symbiosis





# CIRCULAR ECONOMY

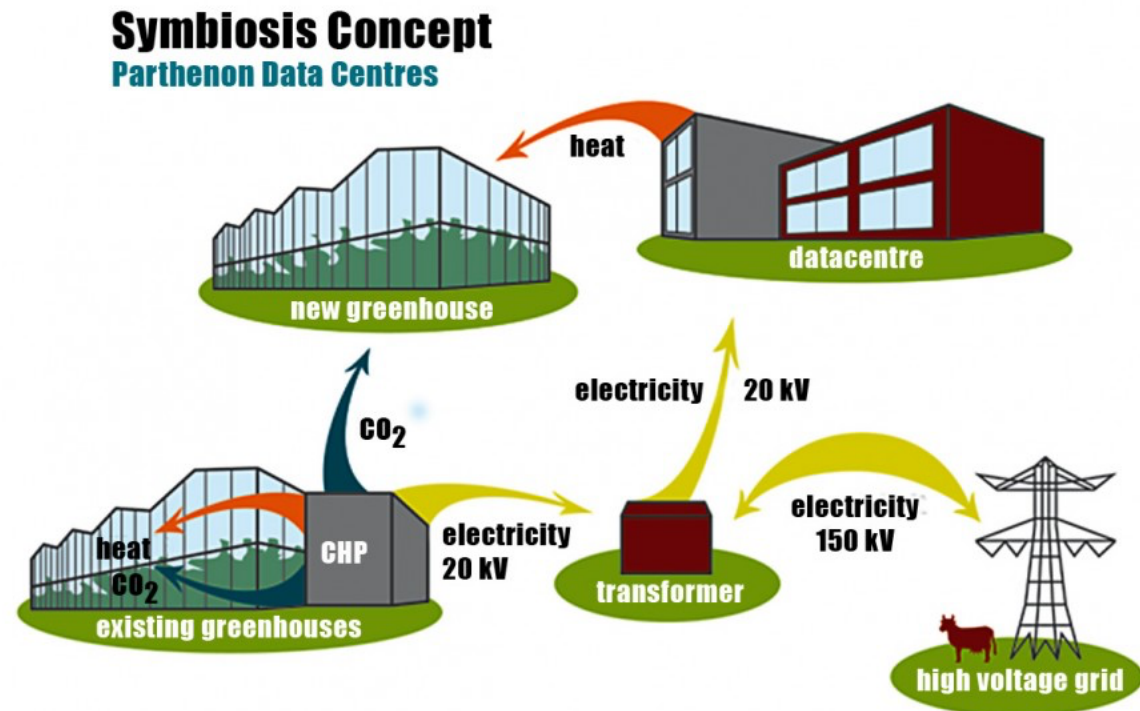
The EU priority areas for the circular economy are:

- food products and household food waste;
- fast-moving goods and wastes from industrial beverage production;
- packaging and packaging waste;
- electrical and electronic waste;
- textile products and textile waste;
- furniture and waste from furniture production;
- construction waste;
- Vehicle.



# CIRCULAR ECONOMY AND INDUSTRIAL SYMBIOSIS

Industrial symbiosis is an innovation in the circular economy that allows waste or by-products from one industry to be used for another.

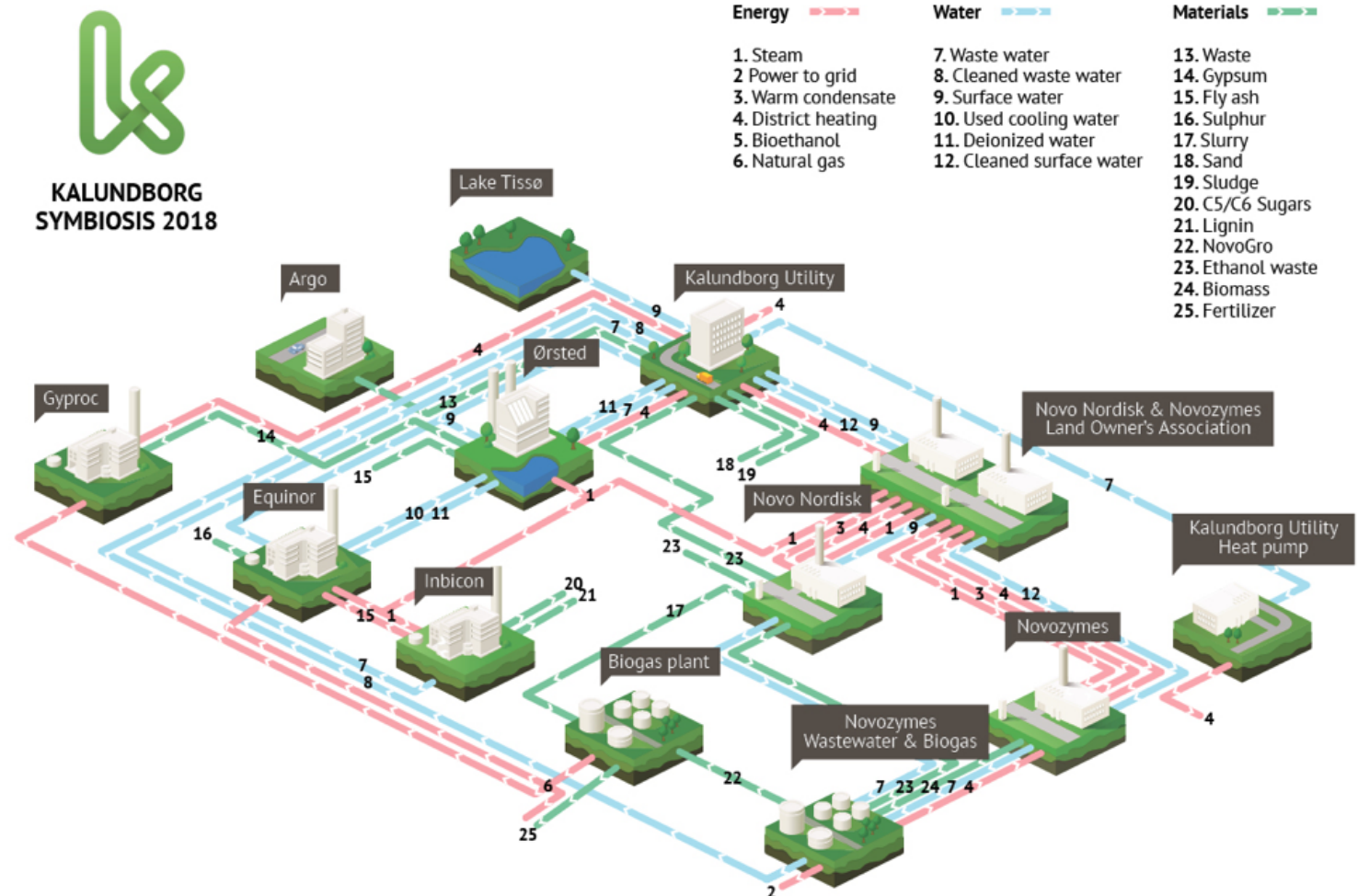


# Key benefits of industrial symbiosis

- Reduction of environmental impact of waste through recovery, reuse and recycling
- Biostabilisation reduces the environmental impacts and risks associated with wastes that are sent to landfill.
- Creation of economic value from waste material
- Reduction of GHG emissions from waste transport and raw material extraction
- Reduction of reliance on fossil fuels and decrease of emissions of NO<sub>x</sub>, SO<sub>2</sub>, CO<sub>2</sub>.
- Extension of knowledge and practical know-how of how waste management can be transformed into a sustainable and growth oriented business.

# INDUSTRIAL SYMBIOSIS – example I

- 6 private partners
- 3 public partners
- Over 5000 employees
- 25 different resource streams exchanged
- Collaboration dating back to 1961





# INDUSTRIAL SYMBIOSIS –example 2

## The Life M3P project

- co-funded by the European Commission under the Life 2014-2020 Programme
- Partners – Italy, Belgium, Greece, Spain
- on-line platform to promote exchanging of industrial waste among the companies of manufacturing districts
- demonstrate and apply experimentally a model of territorial management of industrial waste in order to promote the Industrial Symbiosis

## The results:

- create awareness of locally available resources (waste or by-products), in order to reduce the need for handling, as well as the treatment and final disposal;
- strengthen the synergies with the other European industrial areas in order to get a better overall waste recovery.

# INDUSTRIAL SYMBIOSIS – BG examples

## Industries, included in symbiosis:

### **Sugar production**

molasses waste – soils conditioner

### **Brewing**

brewing mash - fodder production

### **Wine production**

Marc - fodder production

### **Oil production**

sunflower meal and other waste - fodder production, briquettes, energy

# INDUSTRIAL SYMBIOSIS – BG examples

## Industries, included in symbiosis:

### **Wood processing**

Wood waste – energy, pellets, steam,

### **Metallurgy**

Metallurgical waste (slag) – additional metals extraction

### **Fuel production**

Sulphur – pesticides

### **TPP**

Bottom ash - concrete

### **Textile production**

Wool waste – spinning products

# Key factors affect the industrial symbioses

Financing

Regulatory base

Scientific basis

Cooperation



## What we need to stress on:

- Industrial symbiosis as a novel part of circular economy have great potential for green growth and environmental friendly entrepreneurship.
- the reuse and utilization of by-products in net of collaborating companies is a precondition for practical implementation of industrial symbiosis.
- The overall participation of business, science and government will boost industrial symbiosis
- Key element in promoting the cross-border industrial symbiosis in the Blakans is adequate and consistent regulatory base

## What we need to stress on:

- The process has to be supported by national and international legislation in the field of environmental protection and it should motivate businesses to behave more environmentally friendly.
- Even, in most of the cases, it is hard to cooperate, the cooperation has a lots of benefits for all partners.
- Balkan countries has common environmental challenges concerning green growth and the circular economy
- Broad partnership in the regional level could bring a lot of benefits for all countries in context to develop industrial symbiosis, circular economy and ensure green growth for the region.

## What we need to stress on:

- Circular economy could be better implemented and far more effective on large scale projects, beyond boundaries and industrial sectors.
- Cross-border, transnational and interregional programs on Balkans are a good practice to spread knowledge among border countries and help them to establish foundation of circular economy and green growth
- Encouraging the participation of science in circular economy projects is a good basis for their successful implementation
- Interreg is an effective and result oriented program, that helps bordering countries to work together on common environmental challenges

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# THANK YOU FOR YOUR ATTENTION

