



# Socioeconomic indicators and policy coherence

**Bioeconomy in the forefront of national policies**

**BIOEAST conference**

**Budapest, 8.11.2018**

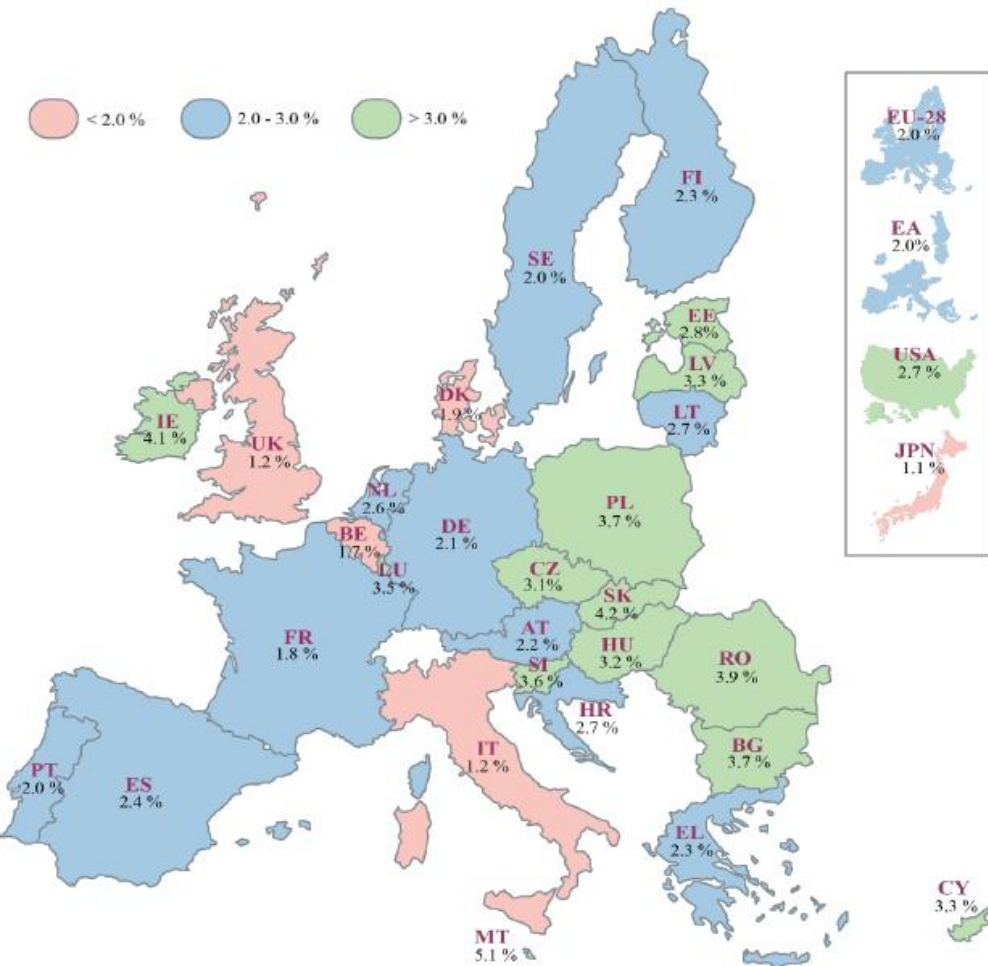
EC Joint Research Centre, Directorate for Sustainable Resources,  
Economics of Agriculture

Robert M'barek,, based on joint work with

Tévécia Ronzon, Claudia Parisi, George Philippidis, Patricia Gurría

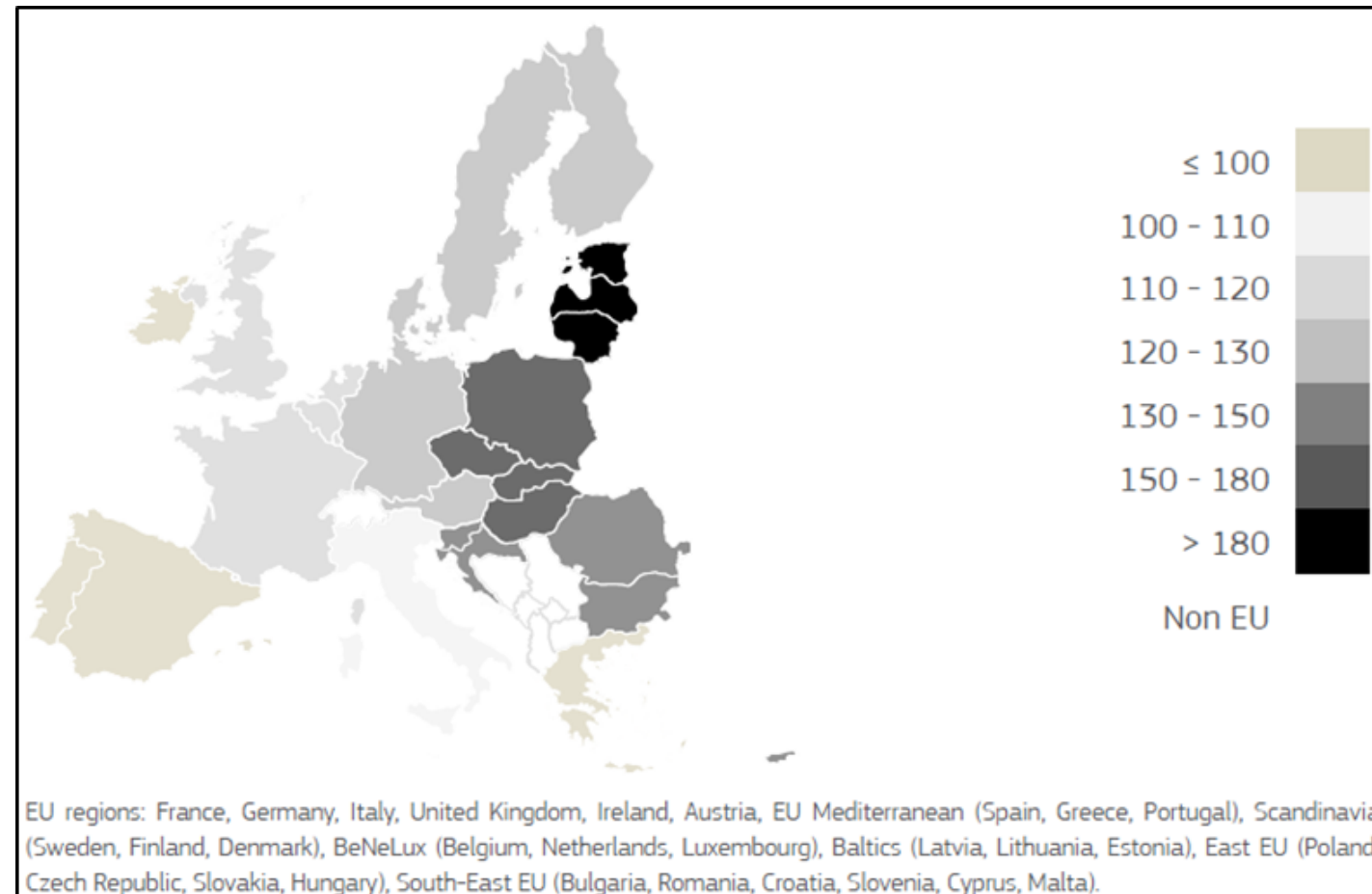
# The broader socio-economic context: Europe's booming East – today and tomorrow

## Expected real GDP growth for 2019



Source: : European Commission's [spring 2018 forecast](#) available on the European Commission's [homepage](#)

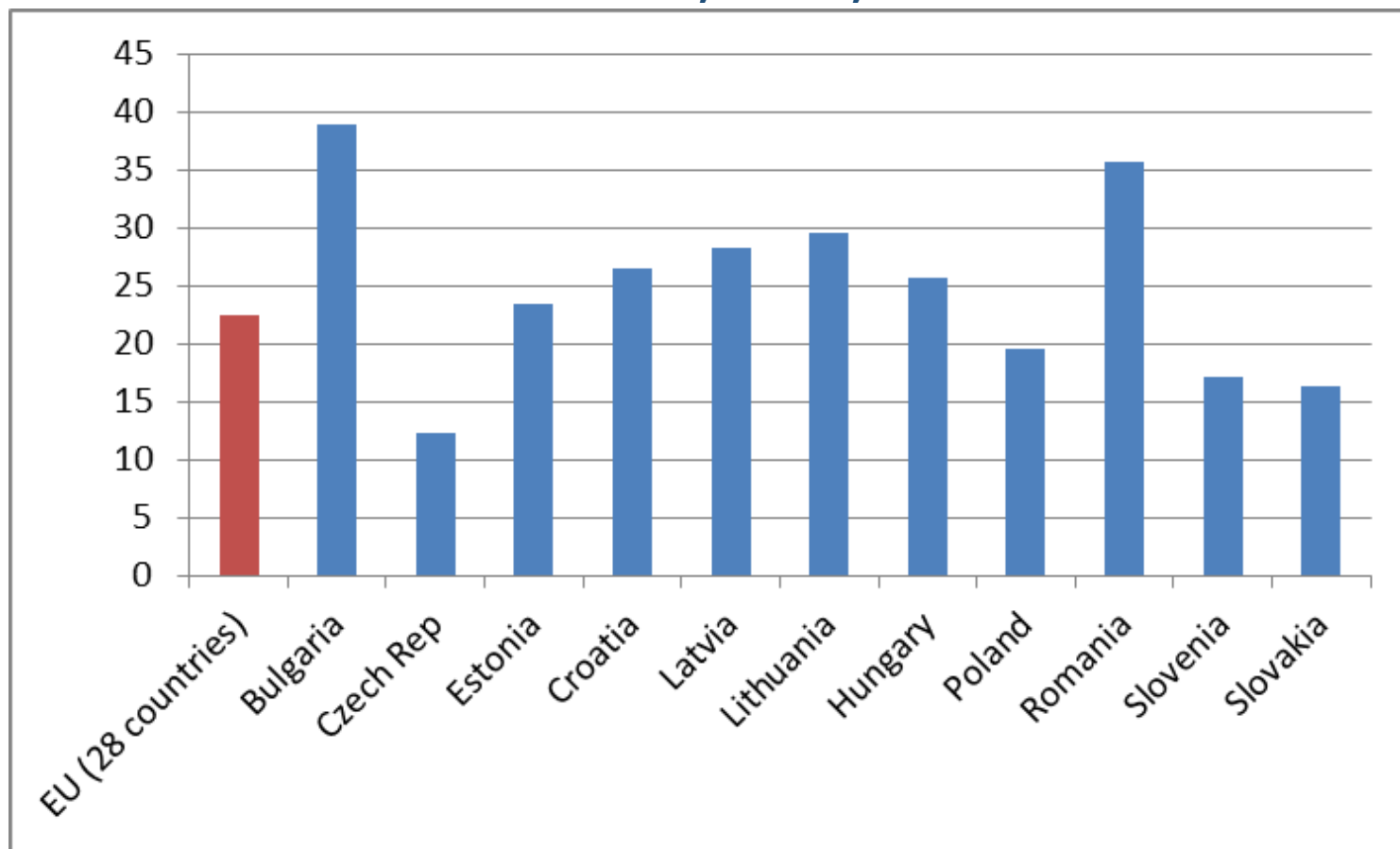
## Per capita utility index in 2030 (2011 = base 100)



Source: Philippidis et al, 2018

# The broader socio-economic context: Inclusiveness still a challenge

## People at risk of poverty or social exclusion in BIOEAST countries, in %, 2017.



Source: EUROSTAT

- Overall growth perspective in BIOEAST countries positive; over EU average
- However, social aspects partly below EU average
- Particular vulnerable population in rural areas

# Bioeconomy as a missing link to these challenges?

## Updated Bioeconomy strategy

- Includes as action the "Set up an EU Bioeconomy policy support facility and a European Bioeconomy Forum for Member States" (3.2.3) with a focus on Central and Eastern Europe through the BIOEAST initiative.
- Should help unlocking potential and investments in rural areas - important for the inclusiveness
- A striving economy can support this development

## Common Agricultural Policy as important partner:

"The Commission's proposal for the future CAP will be helpful in this context. Each Member State will be tasked with drawing up a CAP Strategic Plan to outline their targets and expected results according to 9 key objectives, and the bioeconomy is one of these."

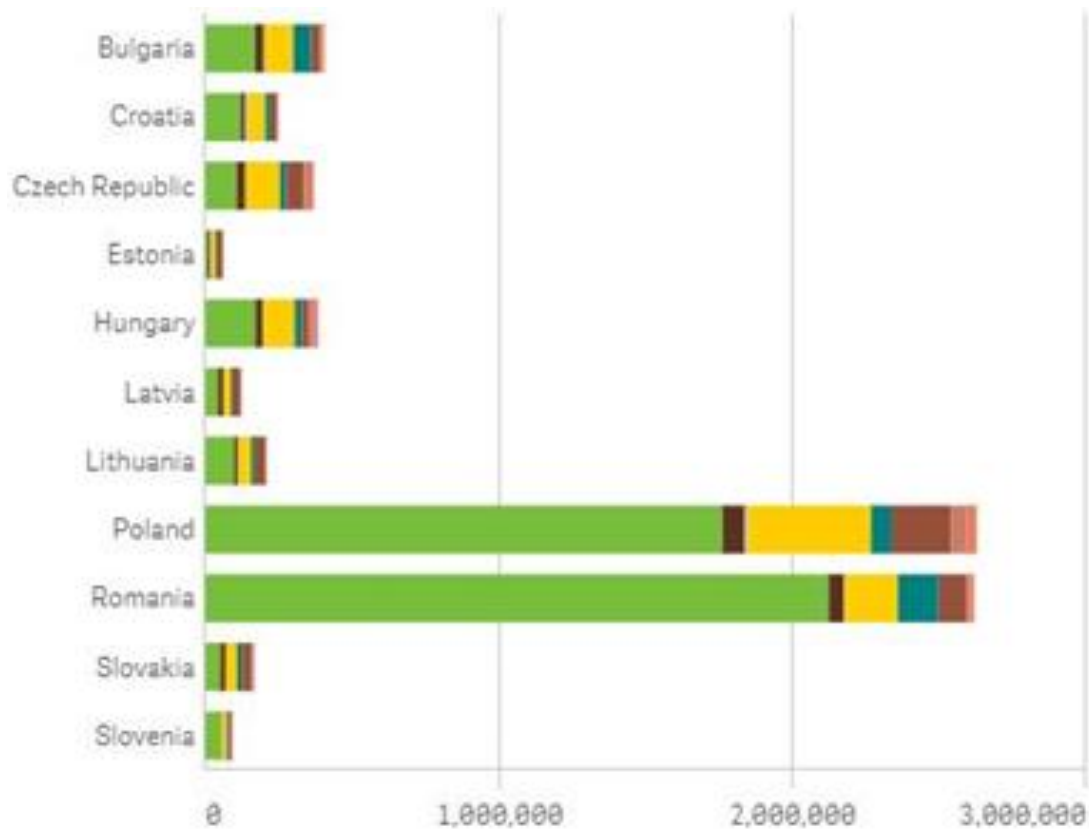
*(Commissioner Hogan in his speech at the high-level Conference on the Revised EU Bioeconomy Strategy on the 22 October 2018)*



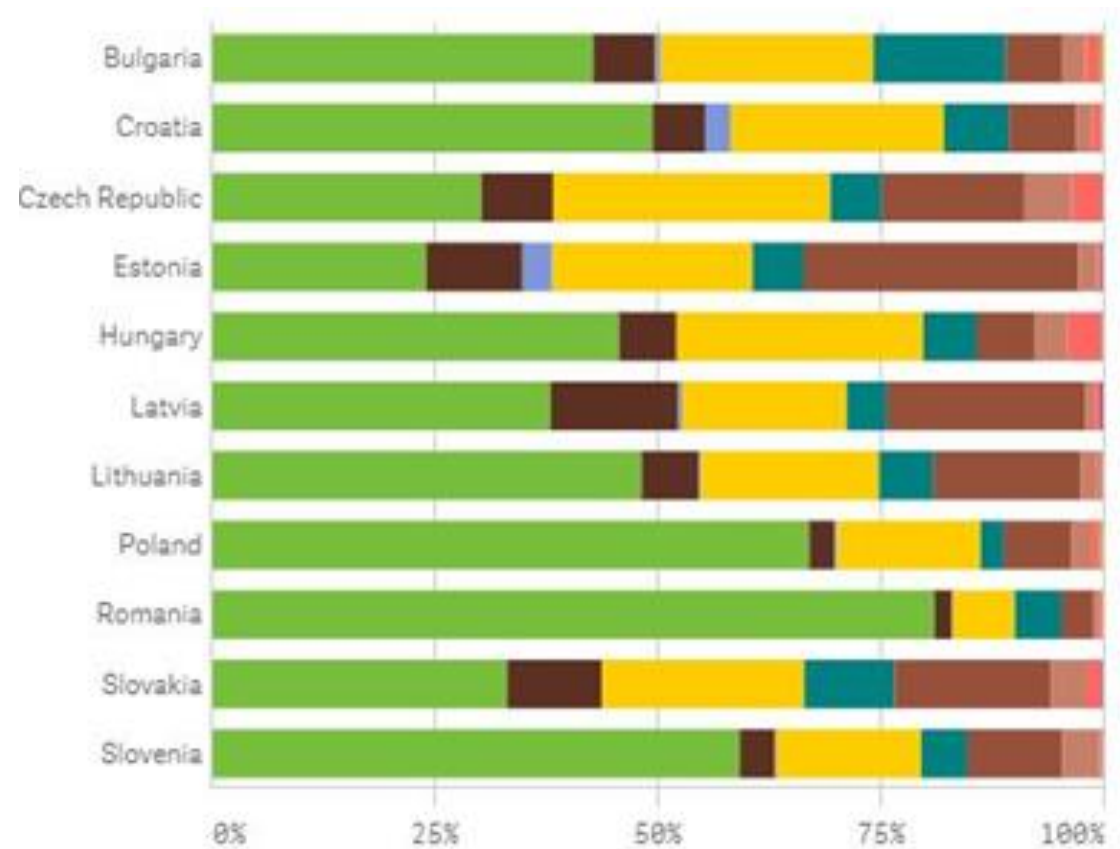
# Bioeconomy today

## Key socio-economic indicators: jobs

### People employed in 2015



### Share of people employed in 2015



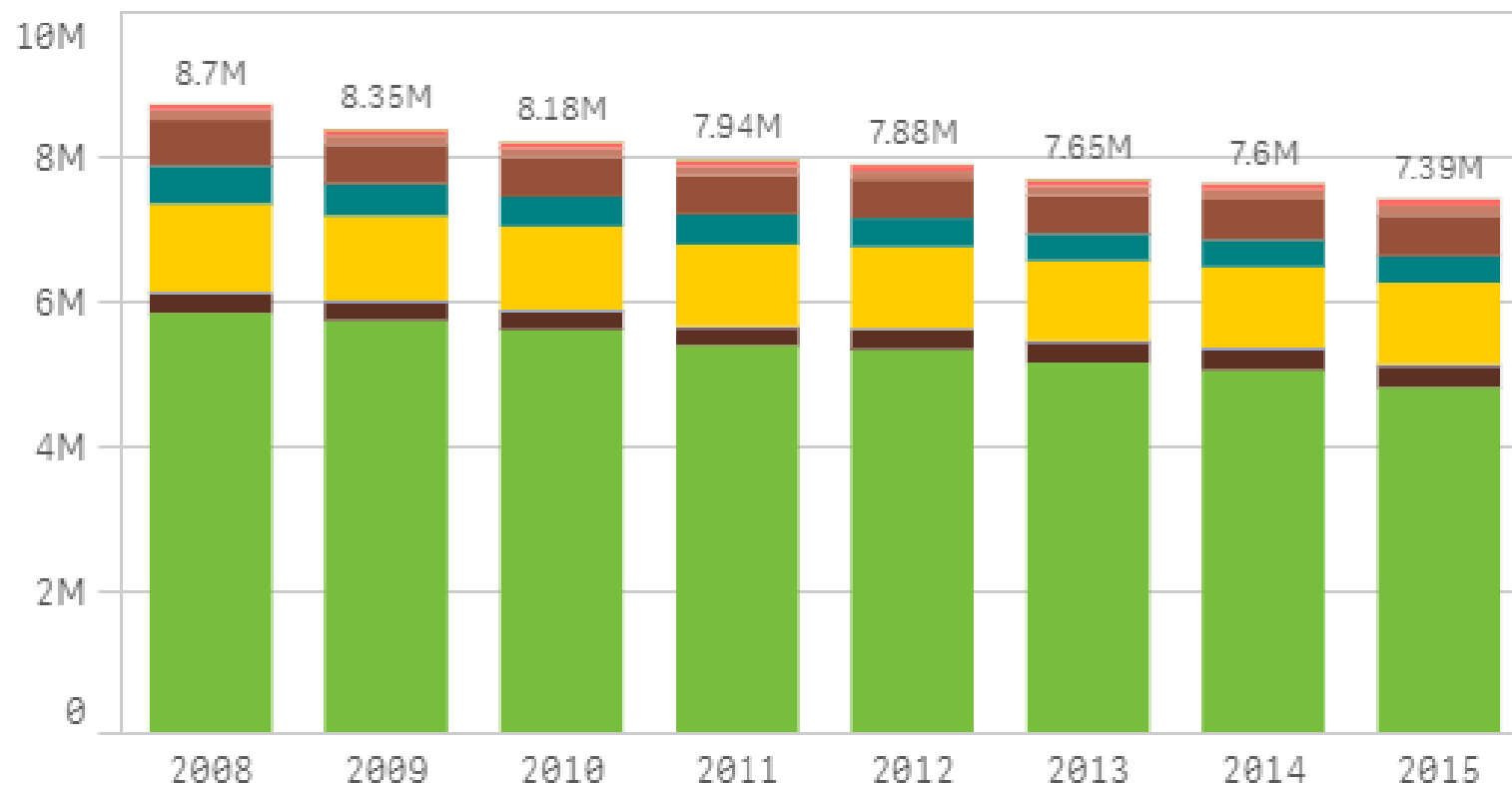
- Bioeconomy employs 7.4 million people in the BIOEAST countries, over 40% of the total bioeconomy employment in the EU.
- Agriculture is the main sector, making up 65% of BIOEAST bioeconomy jobs

Source: JRC DataM, 2018

# Jobs in the bioeconomy today

## Persistent, but declining in primary production

**Number of people employed in BIOEAST, 2015**



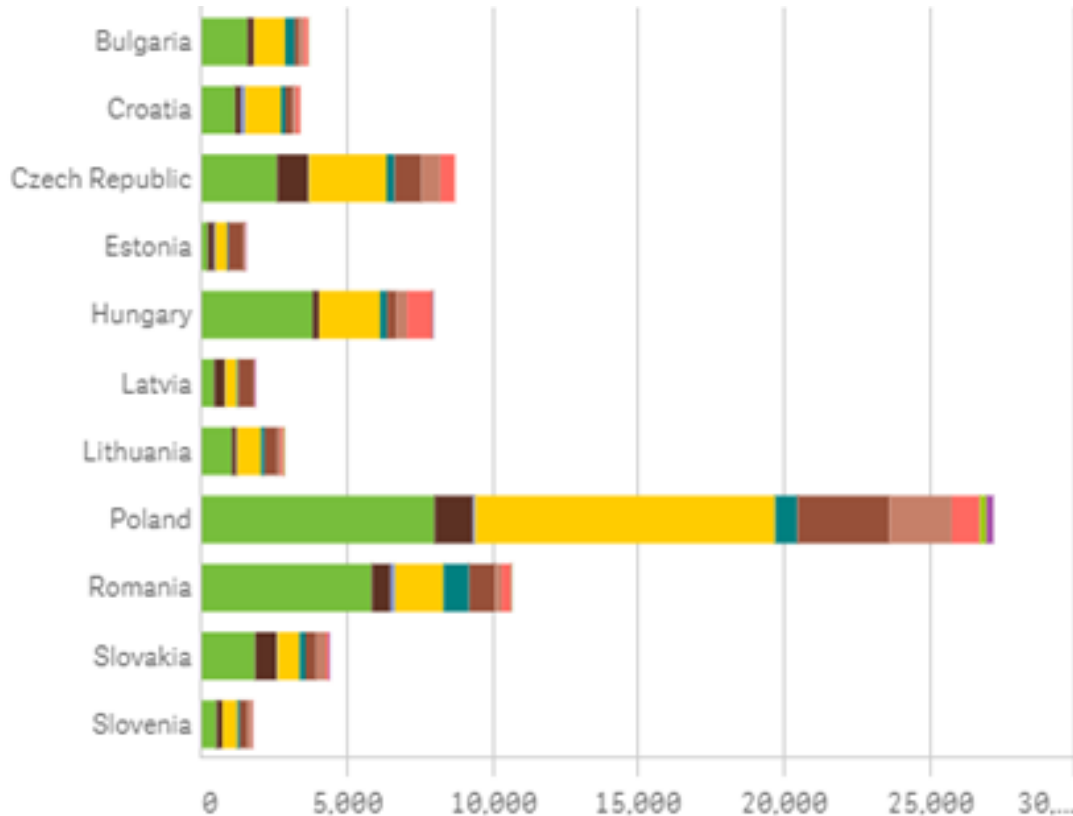
Source: JRC DataM, 2018

<https://datam.jrc.ec.europa.eu/datam/mashup/BIOECONOMIC/S/index.html>

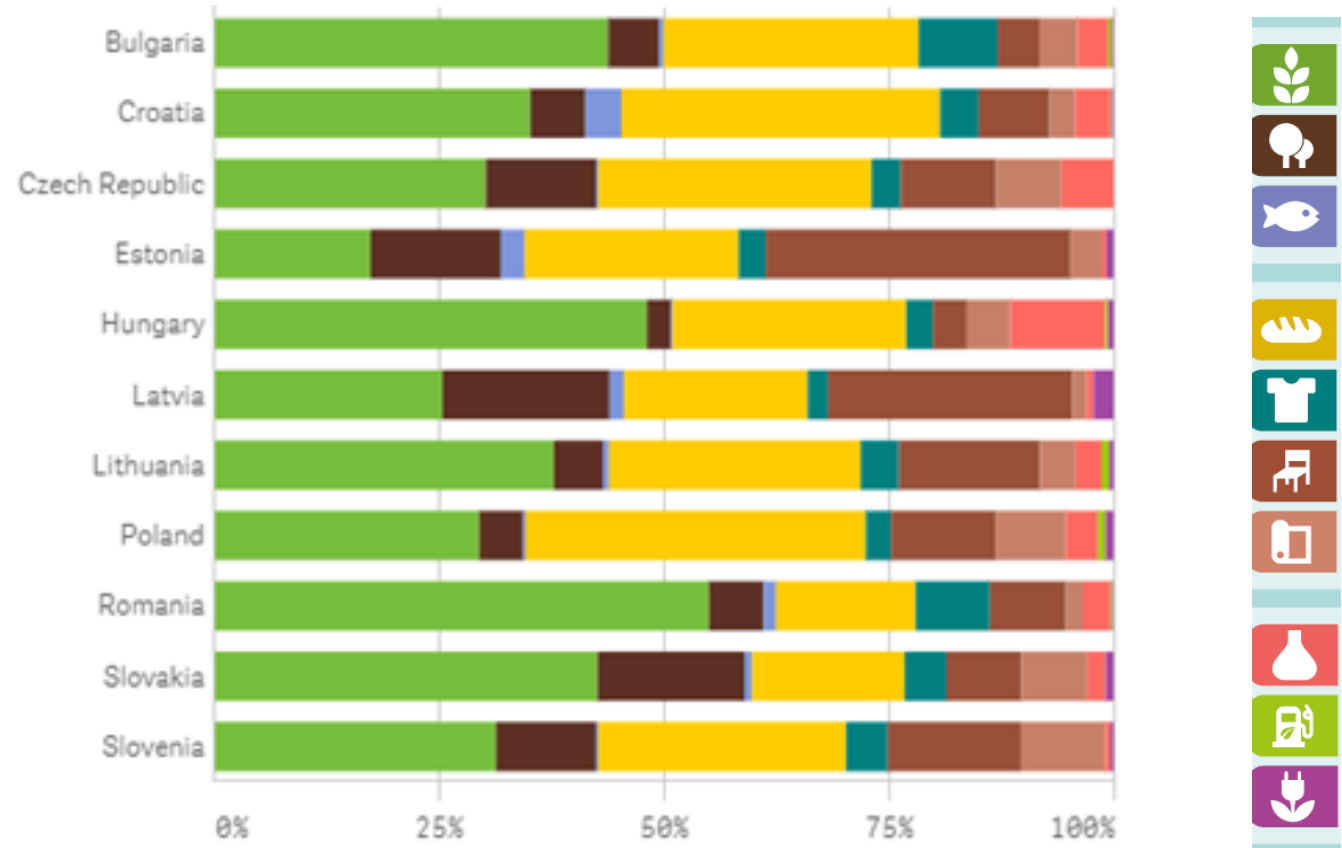
# Bioeconomy today

## Key socio-economic indicators: value added

Value added in 2015 (million €)



Share of value added generated by sector



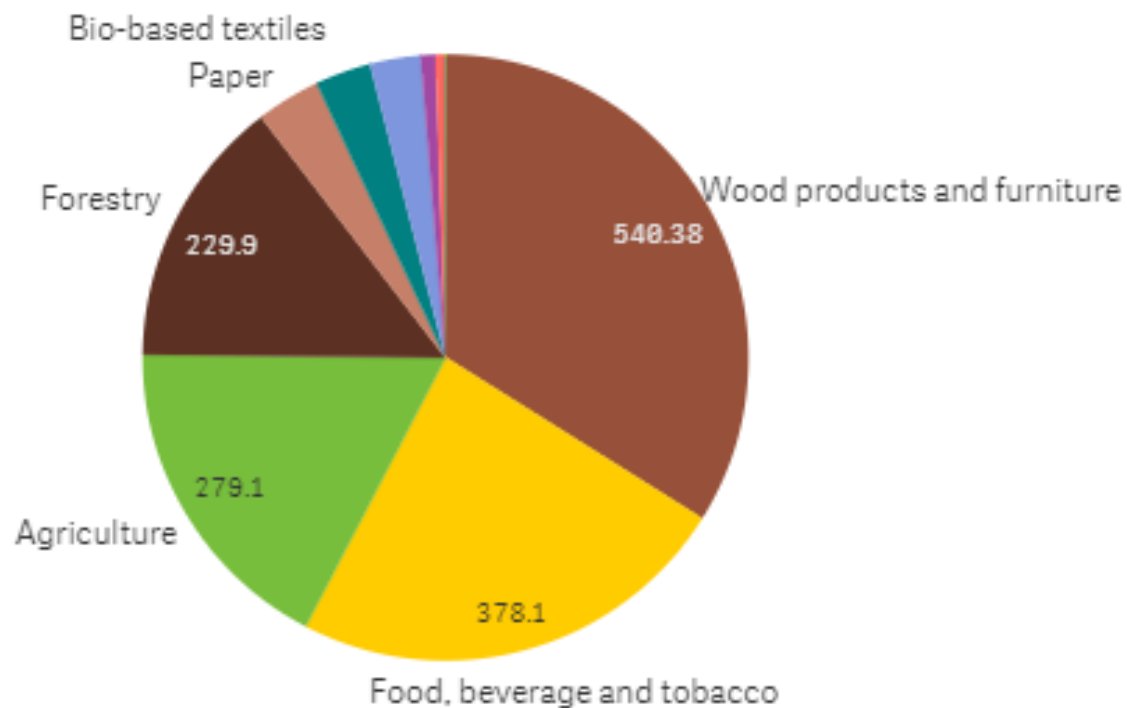
- 9.5% of the value added in the EU's bioeconomy correspond to BIOEAST countries.
- Poland main contributor with 45% of the share.

Source: JRC DataM, 2018

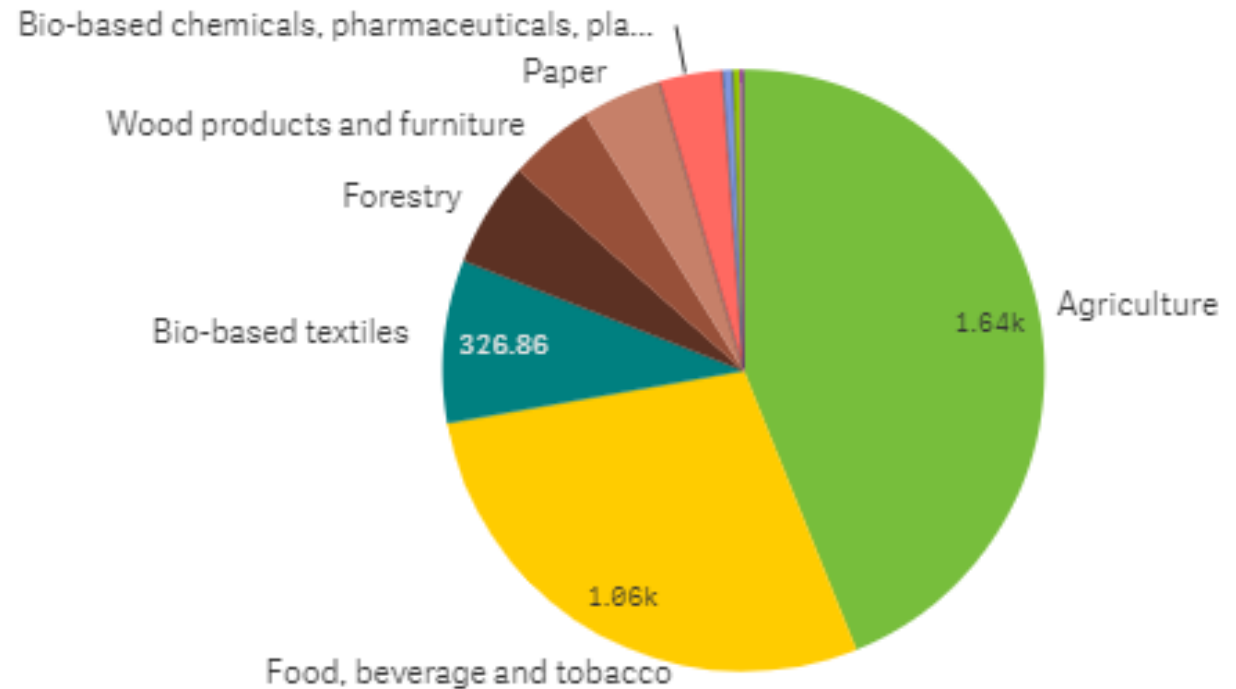
# EU bioeconomy diversity

## Value added in the bioeconomy by sector, 2015 (million €)

### Estonia



### Bulgaria





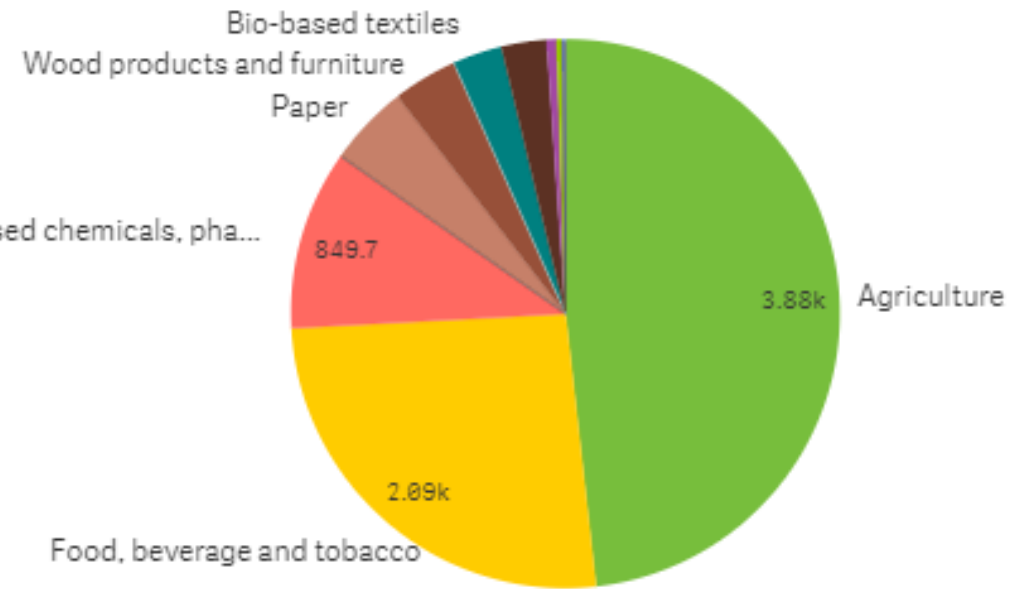
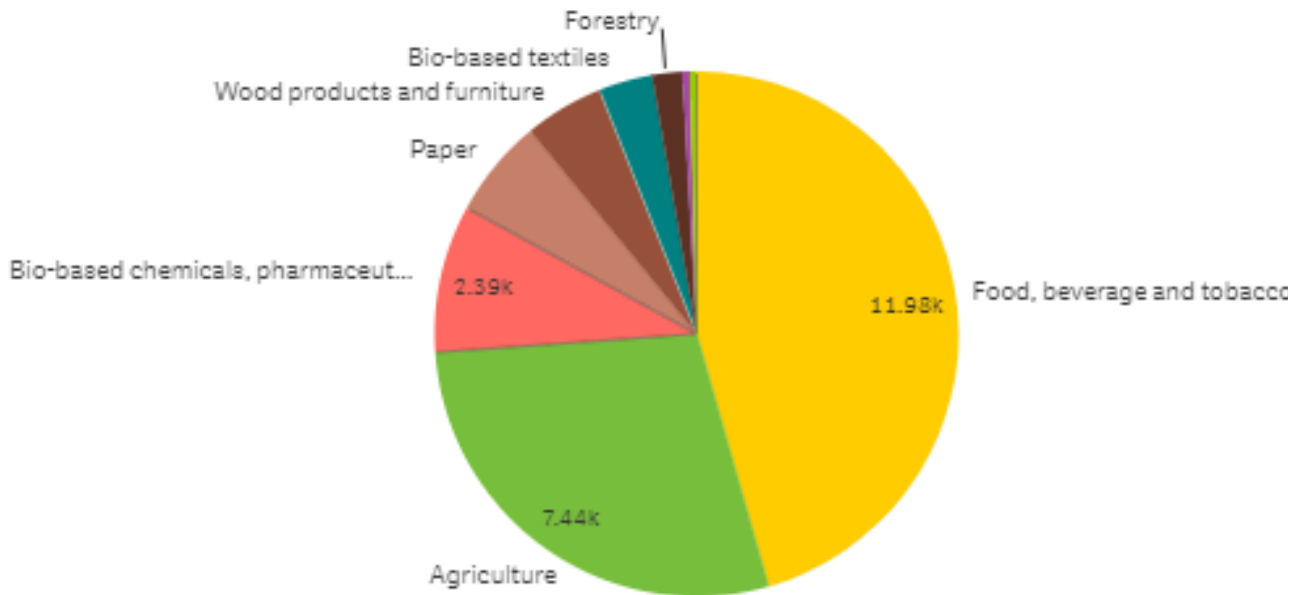
# From turnover to value added

## Turnover

in the bioeconomy in Hungary, 2015 (million €)

## Value added

in the bioeconomy in Hungary, 2015 (million €)



\* The data set contains negative or zero values that cannot be shown in this chart.

# Analysing the potential Biomass production

## **Agricultural land abandonment:**

- EU is expected to continue at a rate of 0.2% in utilised agricultural area (UAA) per year until 2030
- Literature not clear about situation in BIOEAST countries

## **Yield development :**

- Production of major crops is expected to increase significantly in BIOEAST countries, almost entirely through increased yields (e.g., for wheat and maize, increases of 15% and 50% respectively are projected for 2026).
- For instance Global yield gap atlas explains the difference between actual yields and agro-climatically achievable yields in the same region. For the BIOEAST countries, several examples underpin the existing gap from the northwestern EU countries.

## **Residues:**

- Potential from forestry and agroforestry residues could be further exploited (see also JRC research brief on forest-based bioeconomy).

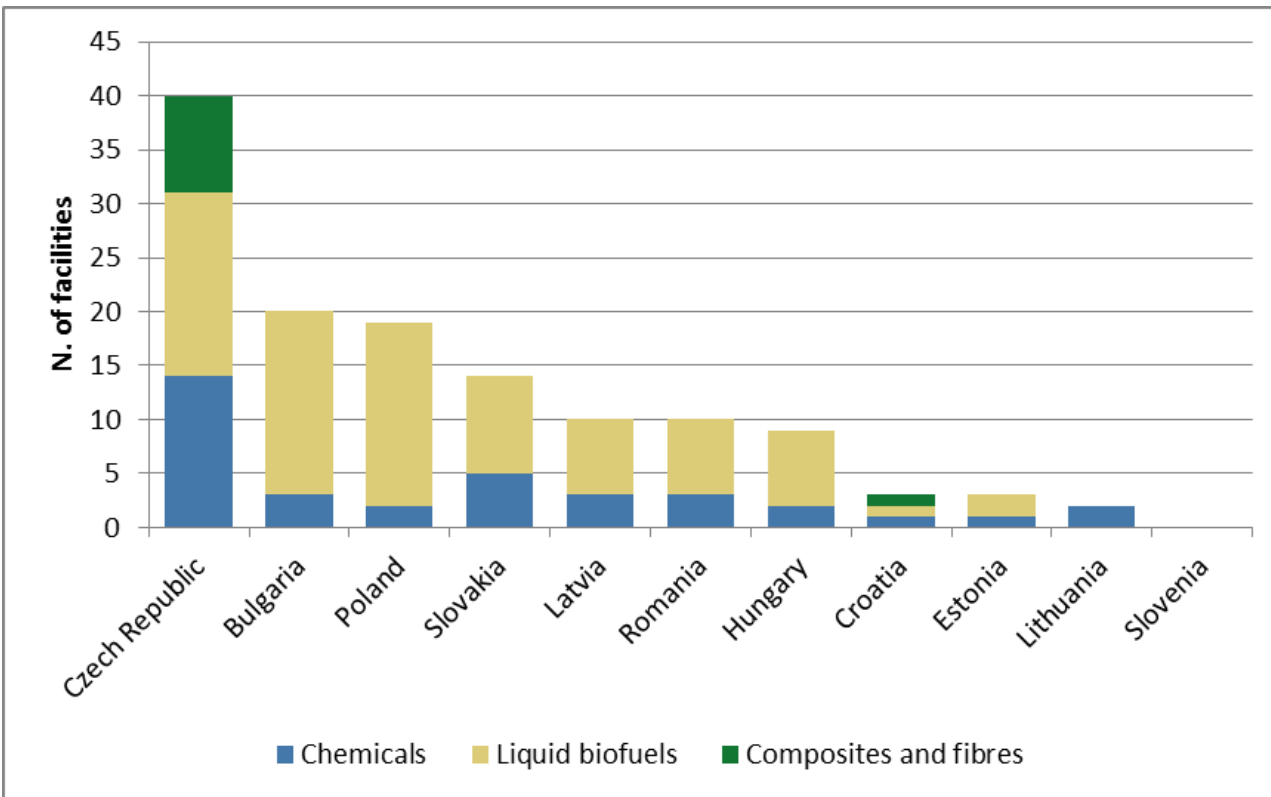
## **Animal production:**

- Higher productivity through an improved input/output ratio would therefore require less feedstock (available for other uses)

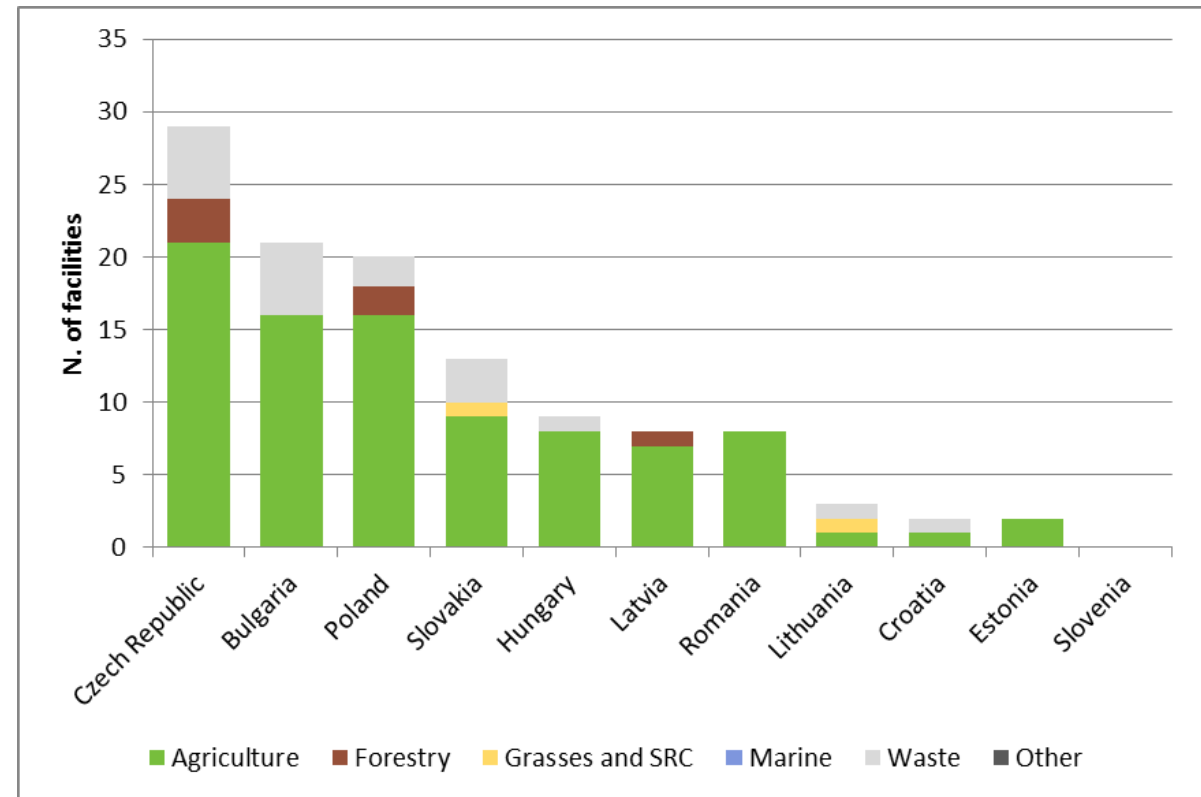
# Analysing the potential

## Industrial perspective - biorefineries

**Geographical distribution of biorefineries per type of bio-based production**



**Geographical distribution per type of biomass feedstock used**

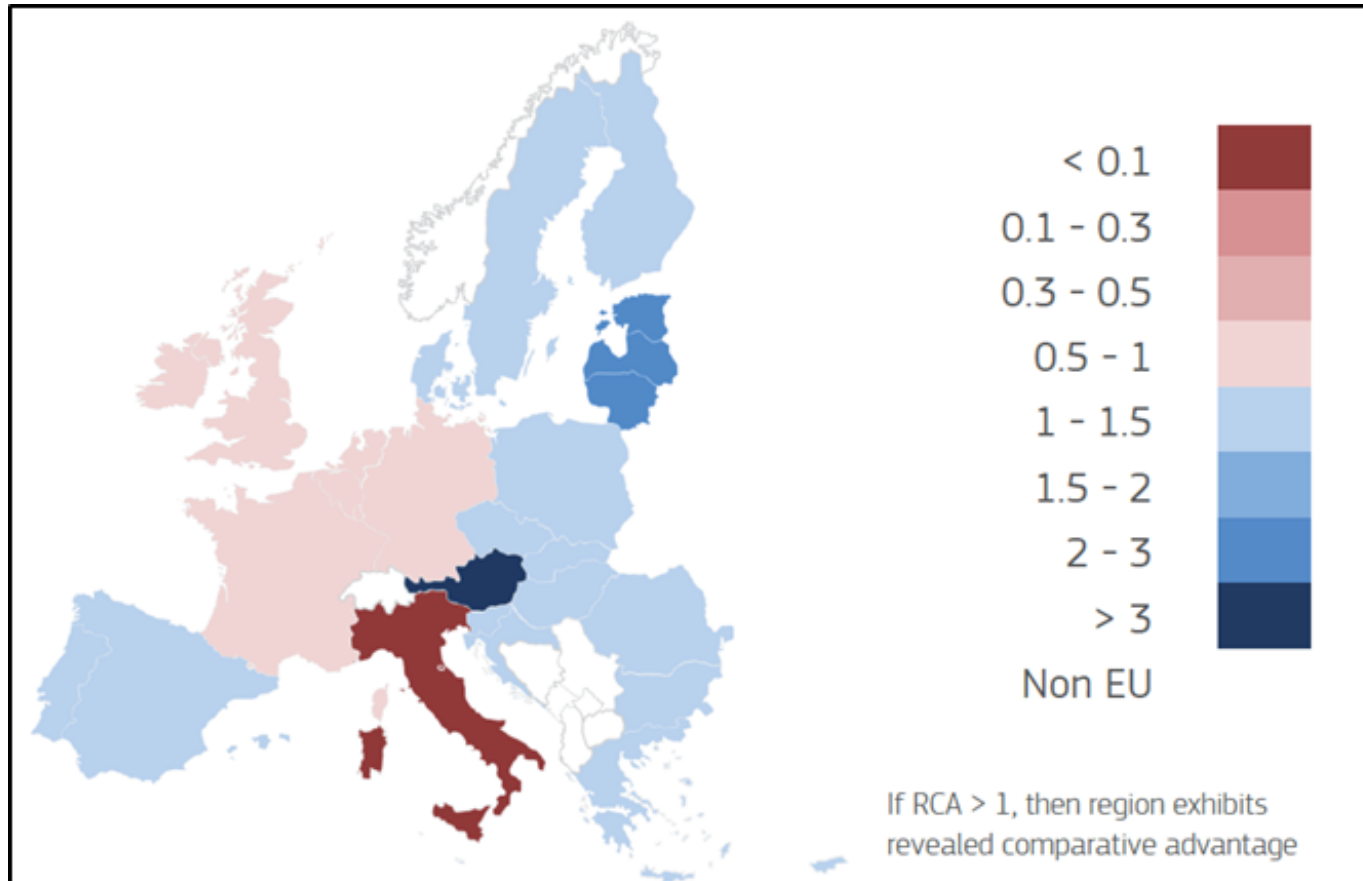


Source: Parisi, 2018

# Analysing the potential

## Trade competitiveness

### Trade competitiveness of renewable energies, 2030, Balassa index of Revealed Comparative Advantage (RCA)

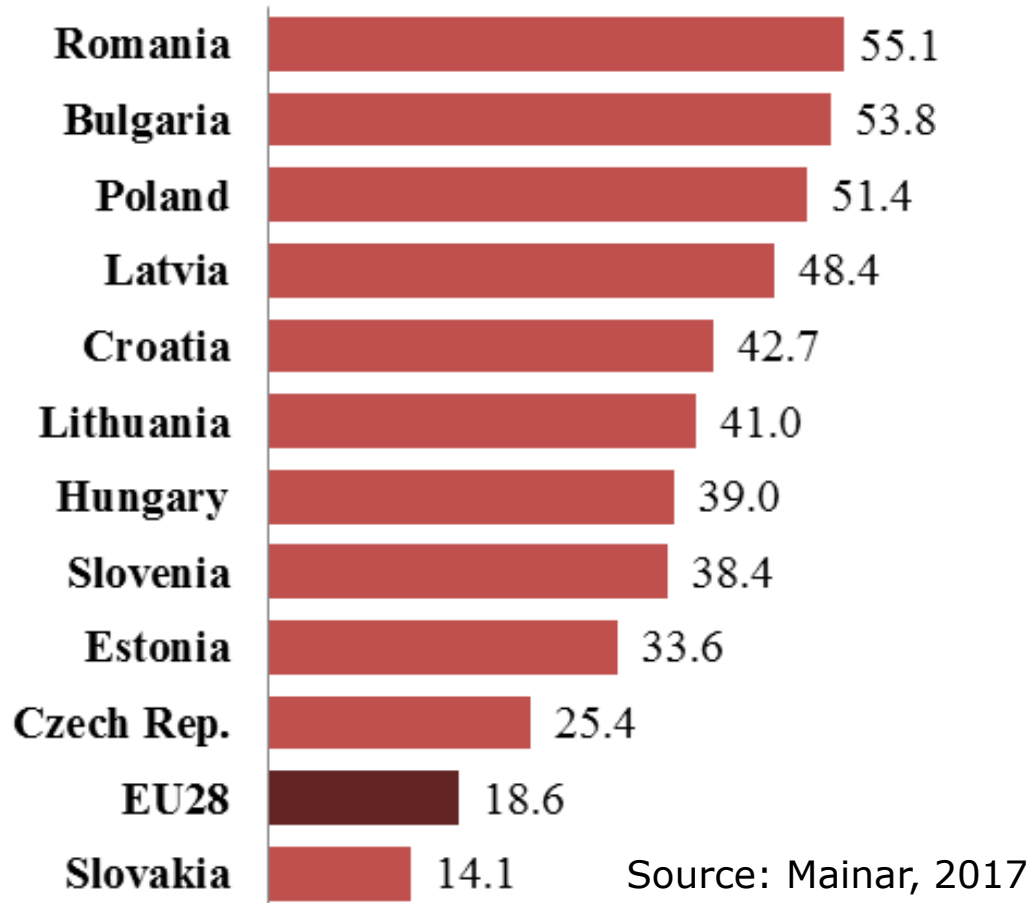


12 EU regions considered: France, Germany, Italy, United Kingdom, Ireland, Austria, EU Mediterranean (Spain, Greece, Portugal), Scandinavia (Sweden, Finland, Denmark), BeNeLux (Belgium, Netherlands, Luxembourg), Baltics (Latvia, Lithuania, Estonia), EU East (Poland, Czech Republic, Slovakia, Hungary, South-East EU (Bulgaria, Romania, Croatia, Slovenia, Cyprus, Malta).

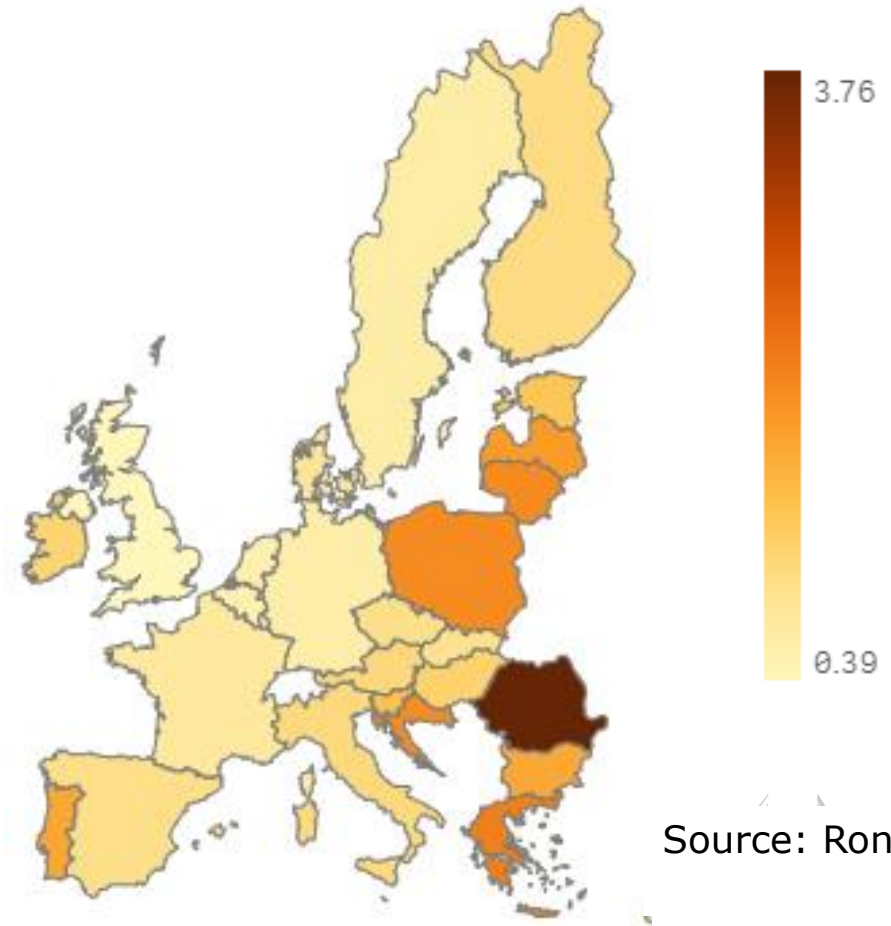
Source: Philippidis et al, 2018

# Analysing the potential: Jobs in an economic context

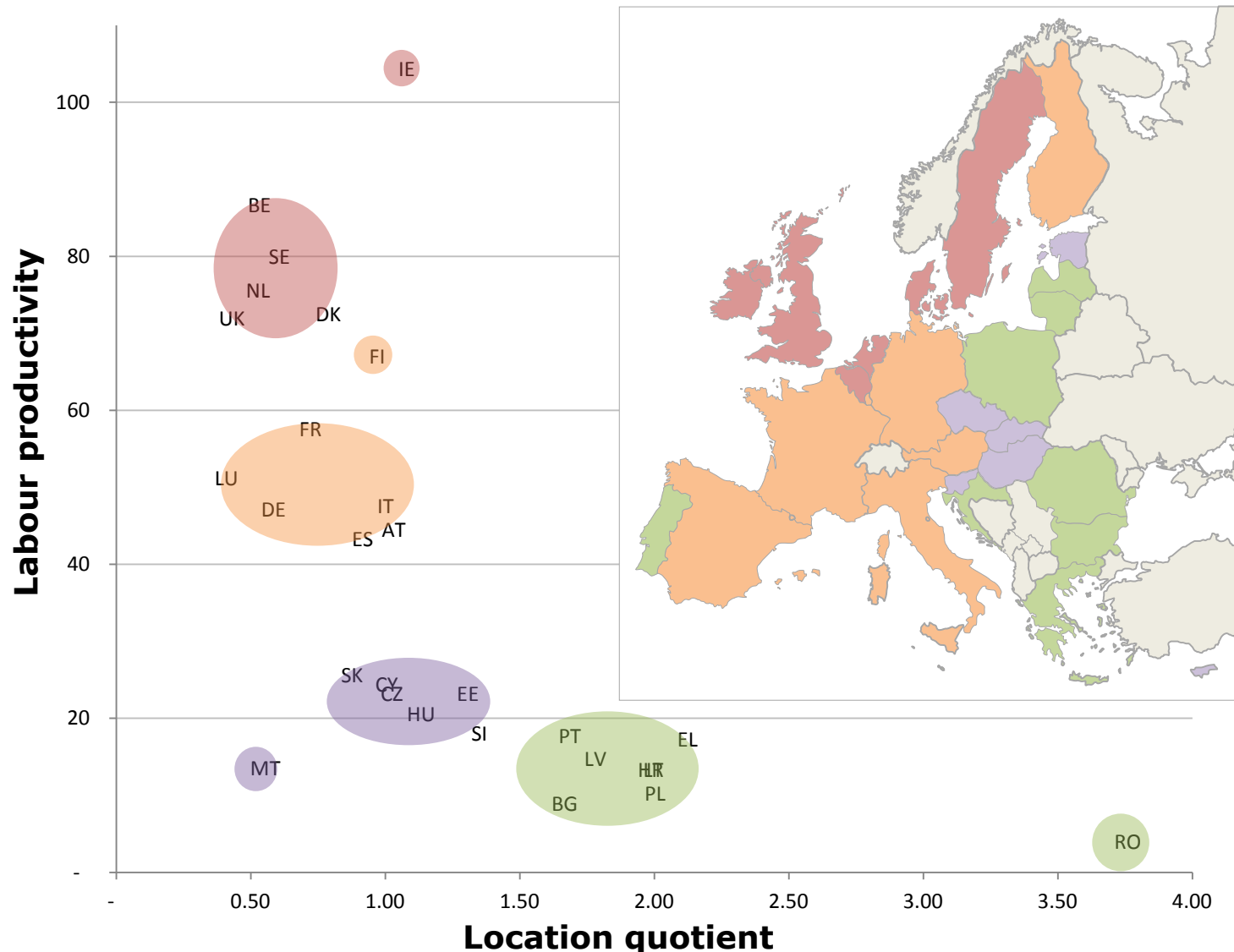
**Bioeconomy employment multipliers  
(persons per million €)**



**Location quotients (job concentration)  
for the bioeconomy**

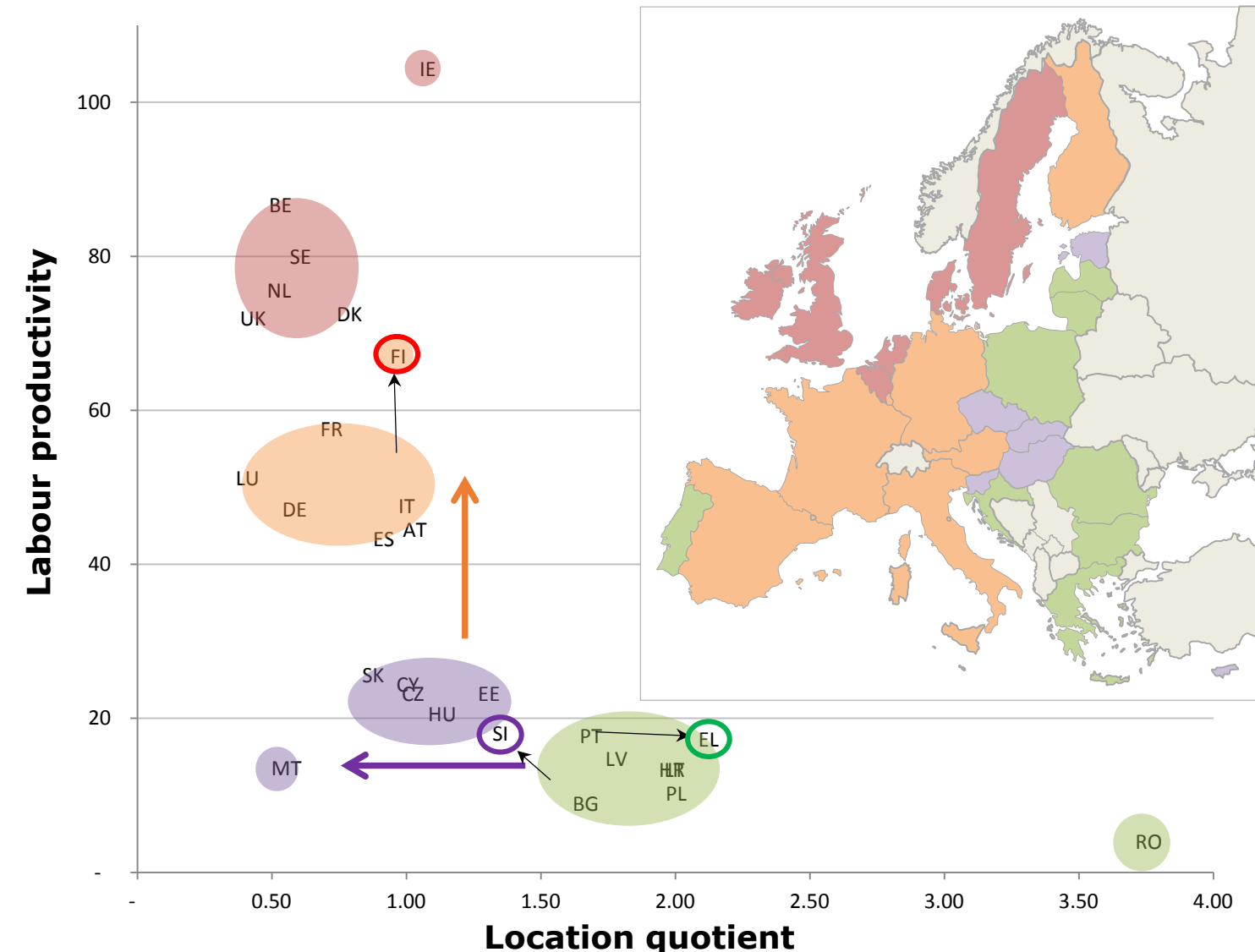


# Schematic view on EU MS Bioeconomies: Jobs and productivity



- **Location quotient** illustrates the concentration of jobs in specific sectors (compared with EU28 average)
- **Apparent labour productivity** of the bioeconomy, reflecting the economic growth potential by a worker (= value added per person employed, 1000 Euro)
- Clustering of countries

# Schematic view on EU MS Bioeconomies: Jobs and productivity



## Bioeconomy transition process? (2008-15)

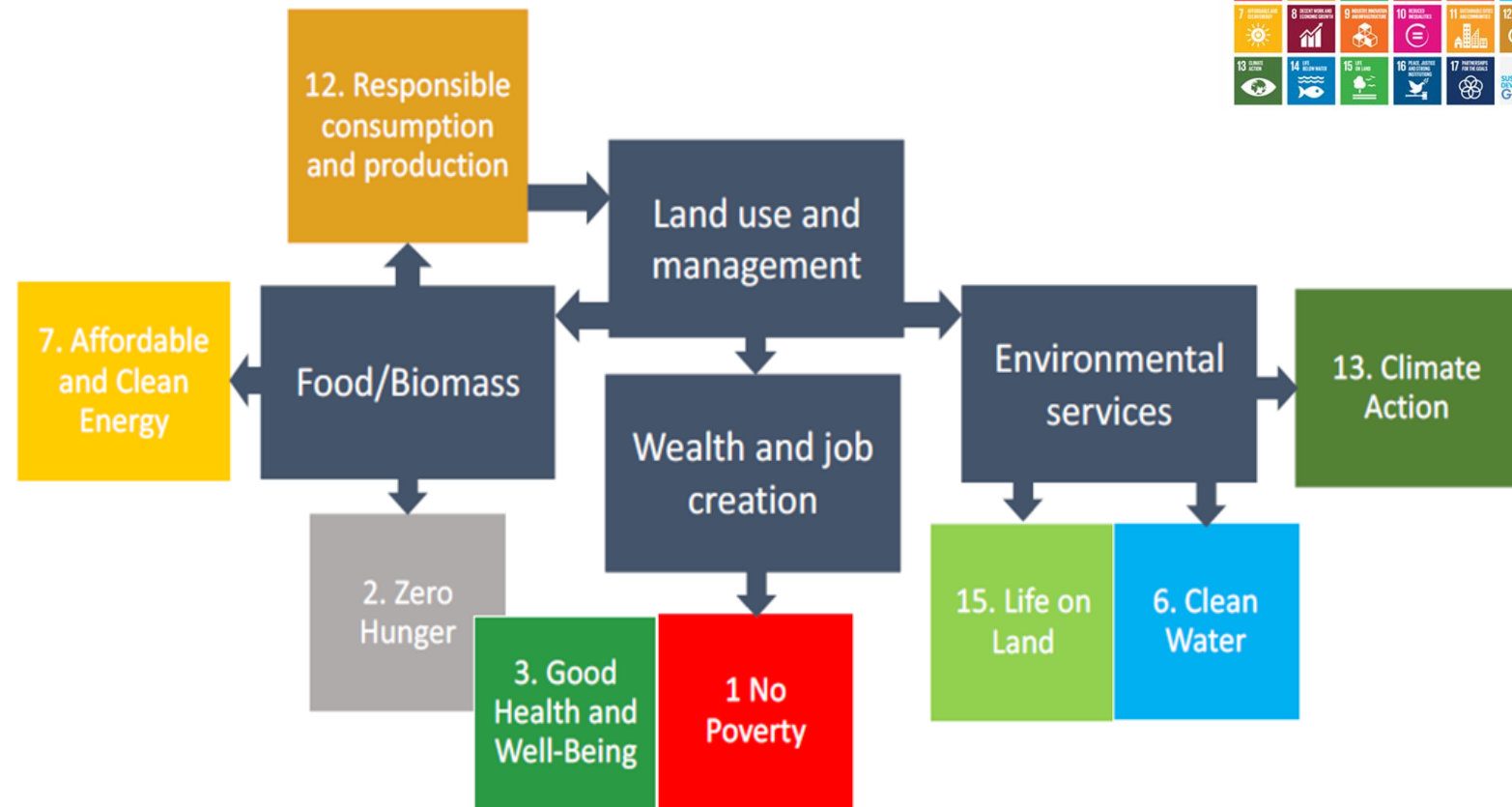
- Finland
- Slovenia
- most BIOEAST countries stable

**Resilience of the bioeconomy?** Economic crisis) in Greece - 10% bioeconomy jobs vs. -21% in total jobs

# Bioeconomy strategy's ambitious agenda, linkages and the SDGs

## SUSTAINABLE AND CIRCULAR, THE EU BIOECONOMY CAN:

- **Preserve nature**, and restore **healthy ecosystems**
- Create **1 million new green jobs** by 2030, in particular in rural and coastal areas
- **Turn waste** from farming, cities, food & forests into **new added values products**
- Provide **additional income for farmers, foresters and fishermen**
- **Replace fossil** material with **renewable alternatives**
- **Increase the carbon sink capacity** of soil, forest and ocean
- Develop new **biodegradable products**, including bio-based **plastic substitutes**



Source: Bioeconomy infographic 2018

Source: based on C. Bowyer and B. Allen at ENRD Bioeconomy workshop, Brussels 9 Oct 2018



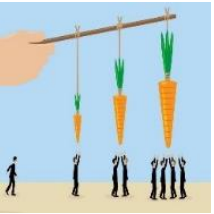
# ... but how? **Simulation models** are one possibility



**Closed economic system** - no "manna from heaven" solutions  
*e.g. all mandates come with economic costs; "leakage" effects*



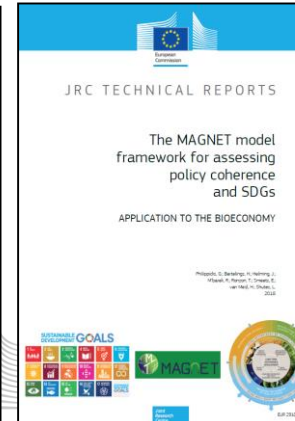
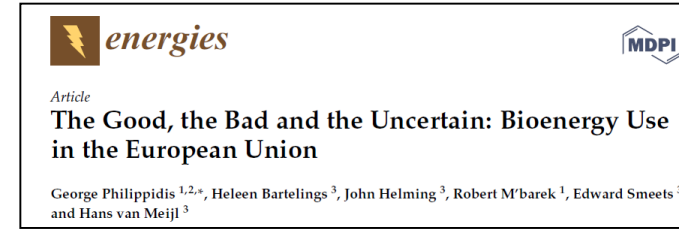
Address **multiple objectives** in a single consistent framework  
*e.g. to comply with Sustainable Development Goal targets*



**Behaviour is key** - producer & consumer choices drive results  
*e.g. assumed (or real) uptake is crucial; diets*



Opportunity to **experiment** with different incentives and drivers  
*Many ways to realise the bioeconomy*



# Conclusions

- Overall growth perspective in BIOEAST countries positive
- Bioeconomy important for jobs and wealth generation in BIOEAST
- Potential for biomass production (e.g. yield gap) and usage (e.g. biorefineries) not fully exploited.
- Bioeconomy can create over-proportional number of jobs. However, by now, jobs are creating less value compared with EU average.
- There seems to be a kind of transition: reduction of bioeconomy jobs (mainly agriculture) while increasing productivity.
- Socially acceptable modernisation of economy needed with accompanying measures to improve opportunities for rural population
- Bioeconomy with its untapped potential can contribute, also because of its higher job creation potential compared to other sectors in most of the countries
- Environmental sustainability is fundamental



# Thank you for your attention!

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For the Bioeconomy team at JRC D.4

Visit also the EC Knowledge Centre for Bioeconomy

<https://biobs.jrc.ec.europa.eu/>

# References

EC Knowledge Centre for Bioeconomy <https://biobs.jrc.ec.europa.eu/>

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