

Central European Leaders of Bioeconomy Network



CELEBio

FOSTERING BIOECONOMY IN CENTRAL, EAST AND SOUTH-EAST EUROPE

THE EXPERIENCE OF CELEBIO PROJECT IN THE CZECH REPUBLIC

(SLOVAKIA, HUNGARY, SLOVENIA, CROATIA AND BULGARIA)

6/2019 – 12/2020

GoDanuBio - Workshop

24 May 2022





Current state

The value added from the bioeconomy in CELEBio countries was thirty-two billion Euros and in the same year there were 2.11 million people employed.

Number of people employed in the bioeconomy

2.11M

Value added of the bioeconomy
(Billion €)

€32

Value added per person employed
in the bioeconomy

15 k€ ▾ 35 k
EU27

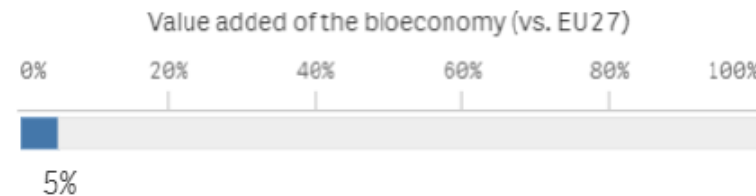
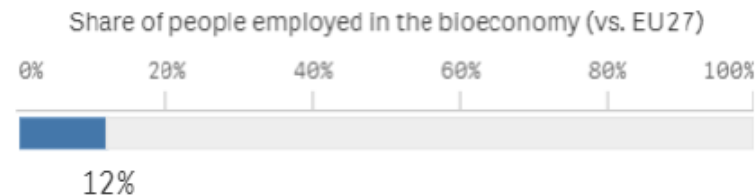


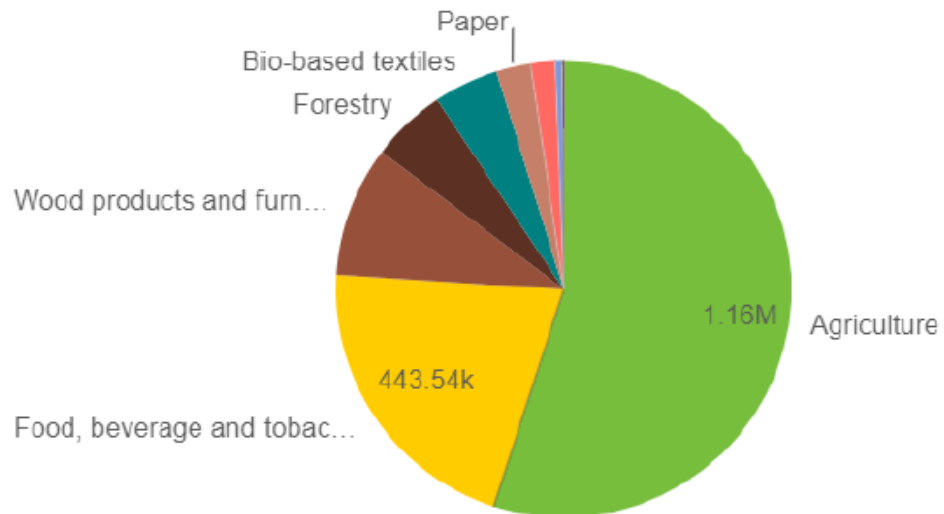
Figure 2 Jobs and wealth in the bioeconomy of CELEBio countries in 2017 (source: datam.jrc.ec.europa.eu)

Employment and Turnover in CELEBio countries by sectors



The annual turnover was a hundred and one billion Euros in 2017 which translates to 51,000 Euros per person employed in the sector with the EU27 average figure being 127,000 Euros.

Employment in the bioeconomy by sectors in selected countries (2017)
(number of people employed)



Turnover in the bioeconomy by sectors in selected countries (2017)
(million €)

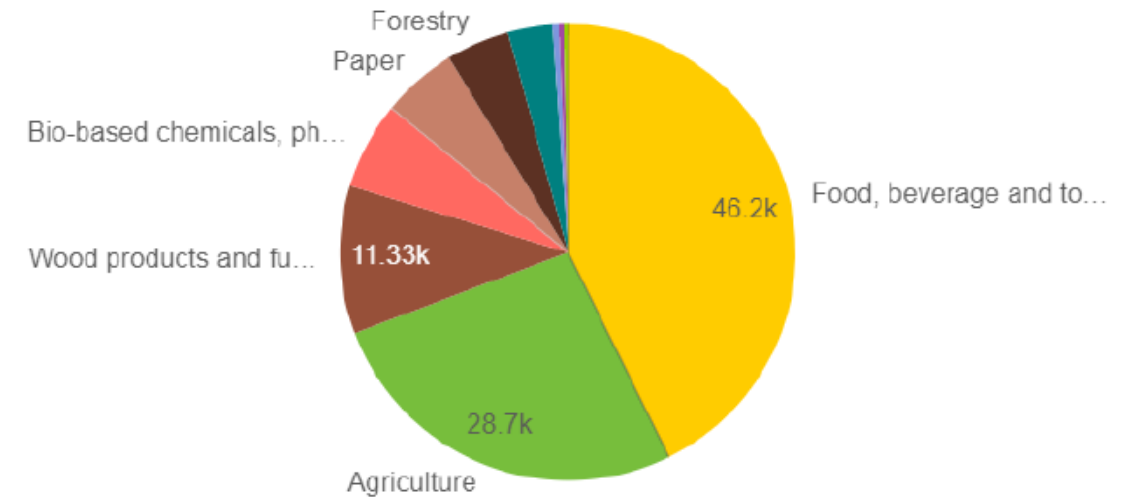


Figure 3 Employment and turnover in the bioeconomy by sectors in the CELEBio countries (2017)

- ✓ *Ensuring food security*
- ✓ *Managing natural resources sustainably*
- ✓ *Reducing dependence on non-renewable resources*
- ✓ *Mitigating and adapting to climate change*
- ✓ *Creating jobs and maintaining European competitiveness*

Bioeconomy Vision

- Strengthen and scale-up the bio-based sectors, unlock investments and markets
- Deploy local bioeconomies rapidly across Czech Republic
- Understand the ecological boundaries of the bioeconomy

Czech Republic

National Bioeconomy Action Plan for the Country

(CEITEC; M. Dettenhofer, P. Zedníček, D. Milerová Prášková, G. Sakelleris)

Scientific Coordination

Wageningen University & Research (B. Elbersen)

Imperial College London (P. Panoutsou)

Agriculture, Forestry, Waste, Biobased Products and Industries, Infrastructure logistic and Energy sector, Skills Education Research and innovation potential, Policy Framework, Financing

Overall Outcome

Guidlines for National Bioeconomy Action Plans

- map the potential of sustainable biomass and its possible use
- Bioeconomy Stakeholders in the Czech Republic
- to support a change of mindset towards long-term environmental and social sustainability
- encourage investor interest
- a large part of the underused biomass remains in the forestry sector
- Two key challenges for forests are groundwater depletion and bark beetle infestation
- concerted effort across the various ministries in the government to mitigate existing threats
- support the creation of new and existing opportunities (innovative packaging materials)

| | | | |
|-----------------------|--|---|--|
| Czech Republic | SMEs should be supported, preferably from private money. | Establish a better setting for subsidies to support the concept of bioeconomy. An economically viable solution should be proposed to enable sustainable forestry and high-quality wood products. Incentivize new business ideas to bring wood products to the market | Research centres should directly contribute via supported innovation hubs (eg. ALT in Austria), in effect solving waste challenges through new projects. |
|-----------------------|--|---|--|

Potential environmental impacts of the Czech Republic Bioeconomy Action Plan



Reduce emissions in agriculture by 30%
Restore 50% of marginal land.



Contribute to the sustainable management of natural resources and foster efficient water use.
Support a circular and sustainable bioeconomy in Czech Republic



Biodiversity



Local resources for products, energy and fuels

Potential socio-economic impacts of the Czech Bioeconomy Action Plan



Create 3,000 new jobs in agriculture, forestry and food processing industry



Leverage 100 million € private investments within ten years



Cluster creation
At least five new collaborations between raw material providers and industrial actors



Five new biobased value chains embedded in agriculture, forest industries and biowastes.
Produce five new patents and IP rights,
Support the creation of ten spin-offs and start ups



Cereals
(wheat/barley)

7 Mton economic yield

7,4 Mton residues



Animal bedding & fertilizer

Corn (cob and stalk)



Biogas



Rapeseed

3,5 Mton residues



Animal feed & glycerine

0,6 Mton seed



Biofuel



Sugar crops

0,6 Mton potatoes



Human consumption

3,7 Mton sugar beets



0,6 Mton bioethanol &
sugar process



| Czech Republic | Final fellings | Thinnings | Logging residues from final fellings | Logging residues from thinnings | Total |
|----------------|----------------|-----------|--------------------------------------|---------------------------------|------------|
| Total | 5,788,000 | 3,596,000 | 1,418,000 | 499,000 | 11,301,000 |

Primary biomass potential from forests ton d.m.

| Czech Republic | Sawdust, current capacity | Sawdust, potential capacity | Potential increase (%) |
|----------------|---------------------------|-----------------------------|------------------------|
| Total | 7 000 000 | 11 598 400 | 65,7 |

Secondary biomass reported and estimated potential from forests in the form of sawdust (m³)

11 M m3 Raw uncut timber exported/yr
Challenge: Too few saw mills and technical equipment

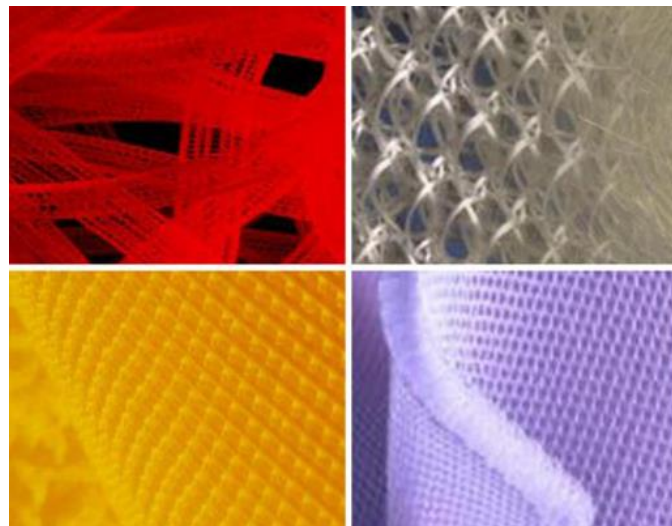


Beer sector

76,000 jobs

Market size in Cz 2,4 B € (1% GDP)

Breweries prod. 20,5 M hectolitres/yr



Industrial Textile sector

33,000 jobs

Market size 2,0 B € (0,84% GDP)



Biogas sector

>550 biogas plants all over Cz

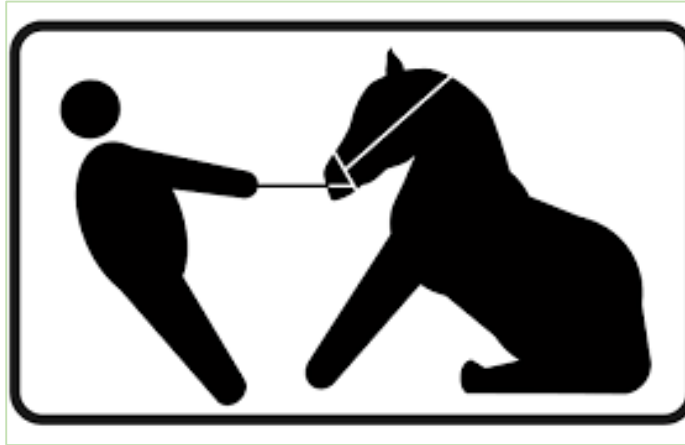
Electricity produced 2 637 GWH/yr

Primary feed stock is corn silage



Climate Change

Ground water levels low
Large scale agriculture
Bark beetle



Resistance to Change

Strong local culture
Change is economic driven



Lock-out competition

Biofuel
Agri-food
Nuclear energy

Over 100 Czech Stakeholders Identified

Sectors – Agriculture, Forestry, Waste, Energy, Education

Classification – Academic, Industry, Clusters, Media, Government

Key ministries: (Agriculture*, Environment, Industry and Trade) have been involved from the beginning of the CELEBio Biomass Assessment Report

Networks for Bioeconomy:

Czech bioeconomy Platform (academic)
BioHub cz, part of BioEast (policy)
National Cluster Association (businesses)

* Lead on Bioeconomy national strategy

Strong value chains in Czech Republic

Energy – Long-term strategy, dominated by nuclear and natural gas

Food supply – Mostly self-sustaining, with exceptions in beef and pork

Transport – Developed road and rail network

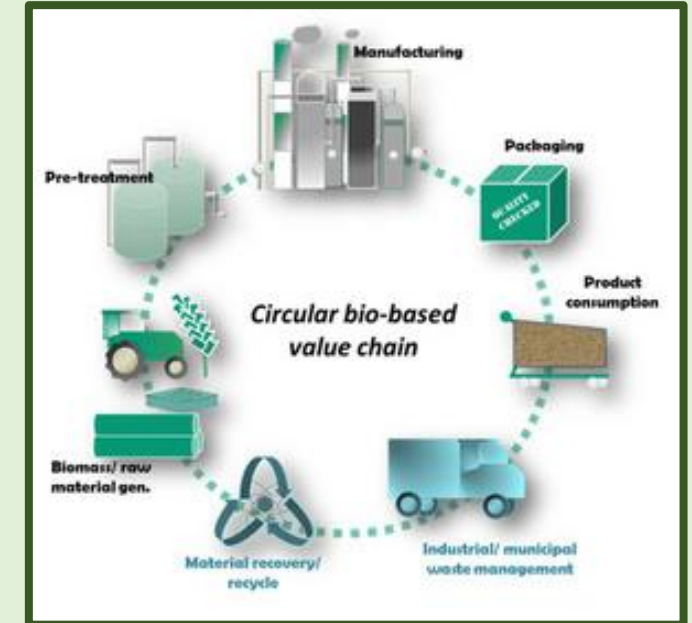
Value chain gaps:

Forestry – Opportunities due to low timber processing capacity

Waste (food and sludge) – Food waste not recycled, tendency to incinerate and land-fill

Novel Engineering (Infrastructure) – World class engineering looking for problems to address

- **Country bioeconomy strategy – None, but under discussion. CELEBio playing a role.**



CELEBIOECONOMY CELEBRATION

National Event organized to present, discuss and support the bioeconomy of Czech Republic

- ✓ **Further development of the Action Plan to support bioeconomy value-chains**
- ✓ **Presentations from innovative companies from different countries**
- ✓ **Highly interactive discussion addressing the priority actions for Czech Republic**

BIOECONOMY UNDERGROUND COMPETITION OF THE CZECH REPUBLIC

- new ideas to solve a problem using biobased materials or products

Supported were the ideas which identify current challenges to society, related to agriculture, forestry, waste, energy or other bio-industries, and present a new bio-based solution to address such challenges.



Thank you

Website: www.celebio.eu

Country site: <https://cz.celebio.eu/>

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CELEBio

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