



Faculty of Forestry
and Wood Sciences

Circularity and forest bioeconomy in the Czech Republic

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16th WoodEMA 2023 conference

*Current Trends and Challenges for Forest-Based Sector: Carbon
Neutrality and Bioeconomy*

Prague, June 14th, 2023





Circularity

- Reduction of use of primary sources, ensuring the utilization of already used materials
- Inspiration in ecosystems
- Quality
- Value chain perception change (waste as a source)
- Public interest (replacing linear value chains by circular value chains)
- One of the transformation policies of the EGD (CE should help fulfilling the goal of climate neutrality)

Bioeconomy and forest bioeconomy

- the production of renewable biological resources and the conversion of these resources and waste streams into value added products, such as food, feed, bio-based products and bioenergy“
 - Innovating for Sustainable Growth - A Bioeconomy for Europe (2012)
- „An economic concept based on the increased use of renewable resources in new value chains, made possible in particular by the deployment of innovative biotechnologies. Due to its multidisciplinary nature, the bioeconomy combines the work of several ministries into one agenda - the Ministry of Agriculture, which is responsible for sustainable production of renewable natural resources, the Ministry of Industry and Trade, which is responsible for the use of these resources in the Czech economy in the creation of value, the Ministry of Regional Development, which is responsible for the cohesion of regions, and the Ministry of Environment, which is responsible for the protection and improvement of the environment, its individual components, the improvement of biodiversity, etc.“
 - ČZU, 2020
- „an economy based on the sustainable use and processing of biomass, leading to increased use of biomass products in different sectors of society, based on innovation and knowledge for economic growth and job creation in rural areas“
 - MoA, 2019

Forest bioeconomy (forest, forestry, forest-based BE)

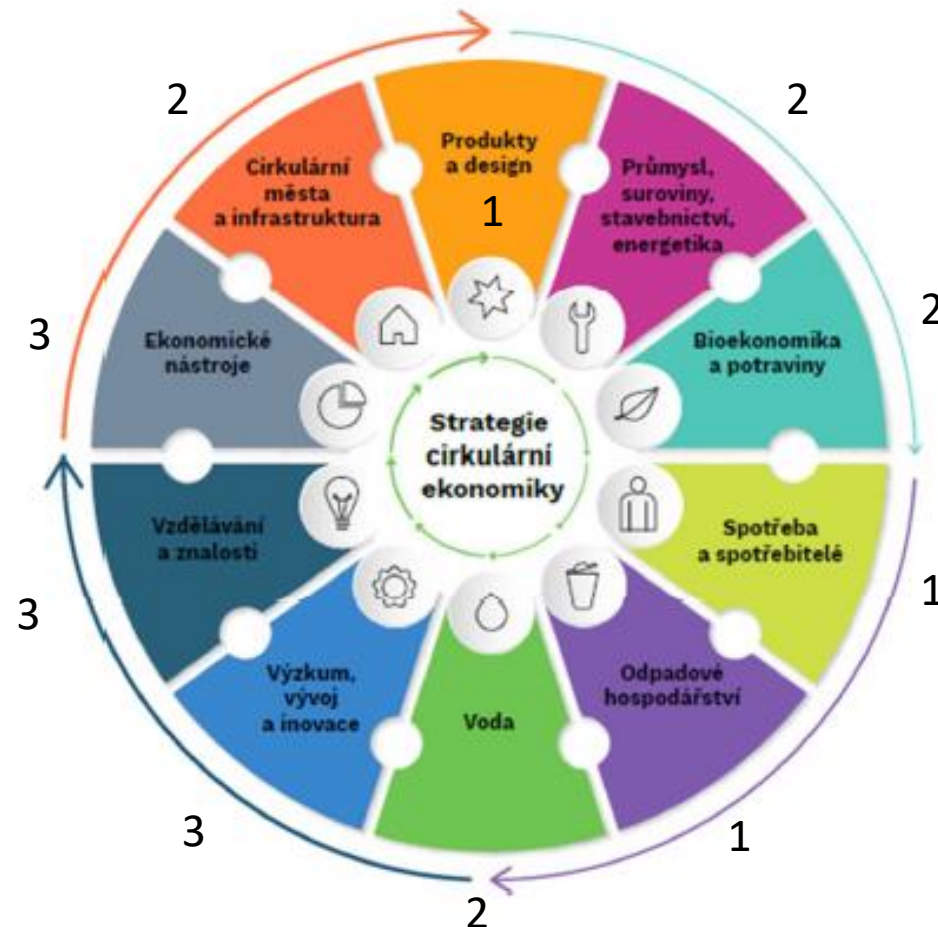
- Bioeconomy is “the use of renewable biomass of forests or forest (biome) for materials, products and services” (Hetemäki, 2017).
- Forest-based bioeconomy: forest systems, forest biomass and raw materials, primary processing (such as pulp, bioenergy, and wood processing) and secondary processing (biorefinery, biopolymers etc.) - (Lovrić et al., 2020)
- Key terms used with forest BE: biomass, renewable resources, wood, ecosystem services, sustainability, climate change, biodiversity, value added (economy + Innovation incl. Job creation)
- Forestry sector – FAO:
 - ISIC Division 02 (forestry, logging and related service activities);
 - ISIC Division 20 (manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials); and
 - ISIC Division 21 (manufacture of paper and paper products).
- Forest based-sector – EC:
 - Sustainable forest management
 - Woodworking
 - Furniture industry
 - Pulp and paper industry
 - Printing industry

Circular economy – Czechia

- Strategic framework approved by the Government
- Prepared 2018-2021
- Implementation responsibility: Ministry of Environment; Ministry of Industry and Trade; Ministry of Finance; Ministry of Education, Youth and Sports; Ministry of Regional Development
- Validity: 2021 -2040
- *Priority area 2: Bioeconomy and food*

Priority areas:

- 1) Life cycle/value chains
- 2) Sectors/systems
- 3) Horizontal initiatives



Circular economy – Czechia

Strategic Framework
Czech Republic 2030



**State
Environmental
Policy
of the Czech
Republic
2030**
with outlook
to 2050

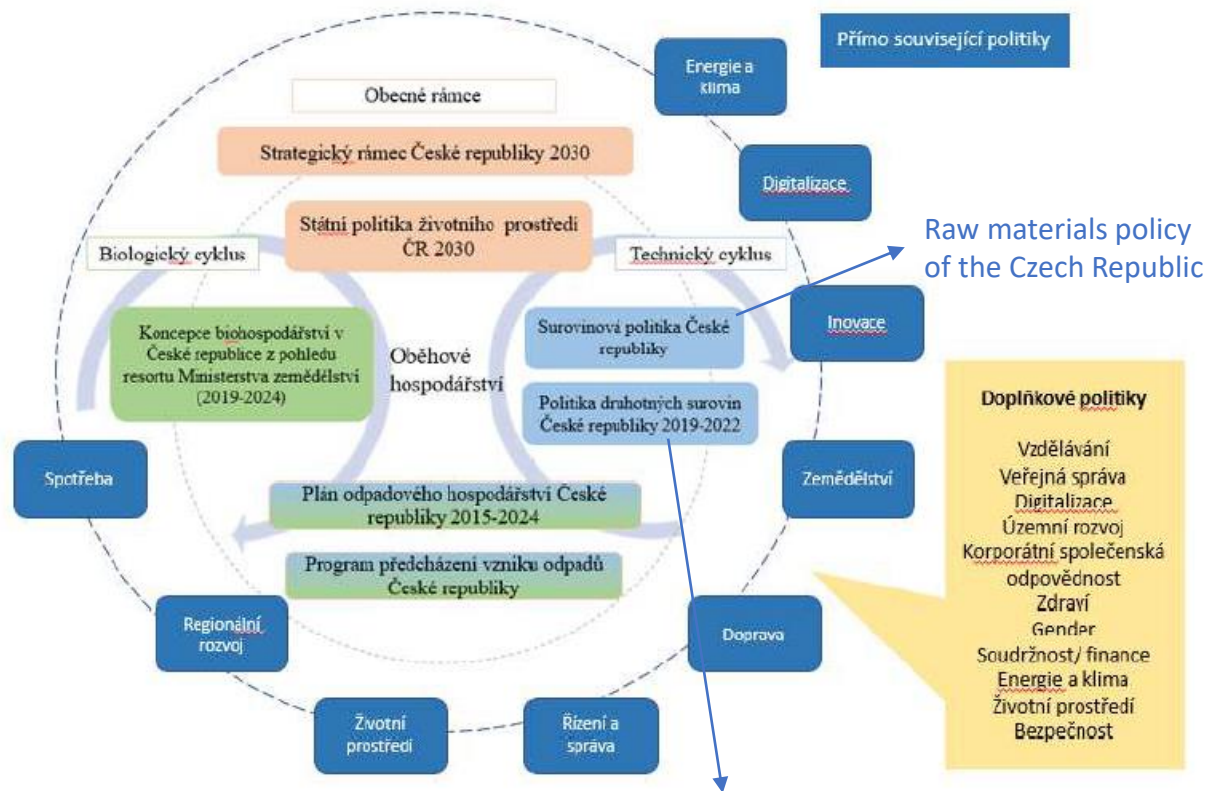
Ministerstvo životního prostředí



BIOECONOMY CONCEPT IN THE CZECH REPUBLIC
FROM THE PERSPECTIVE OF THE MINISTRY
OF AGRICULTURE (2019-2024)



**Waste Management Plan
of the Czech Republic
for
the period 2015 - 2024**

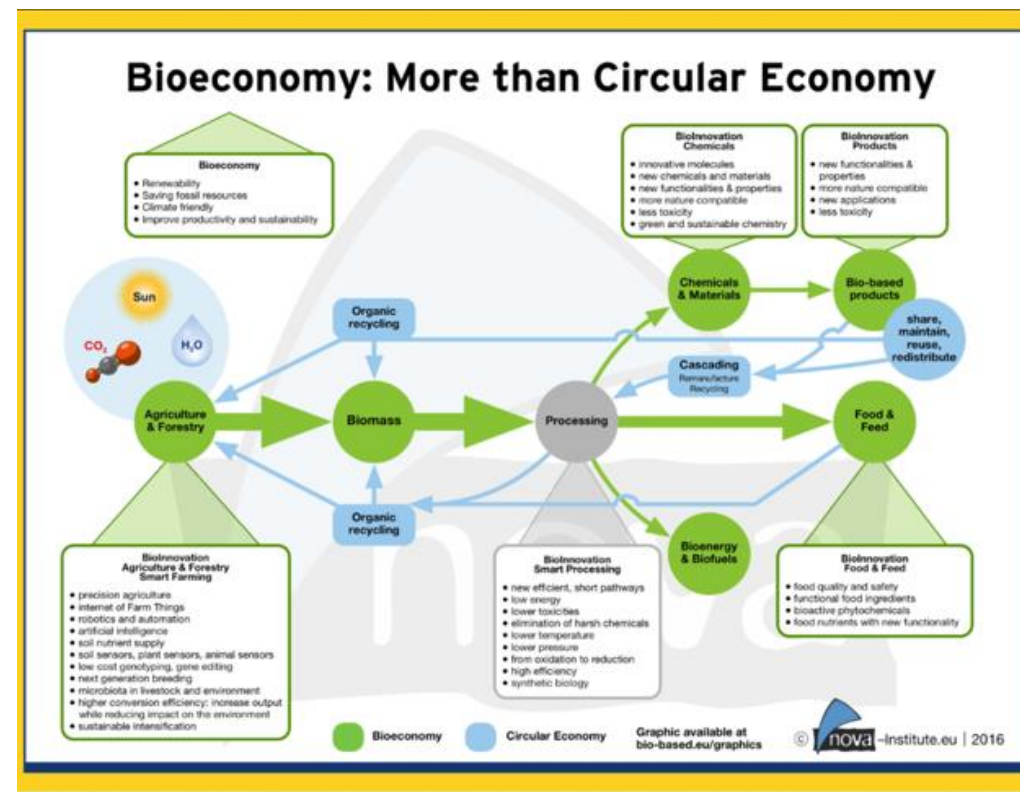


Raw materials policy
of the Czech Republic

Secondary raw materials policy
of the Czech Republic 2019-2022

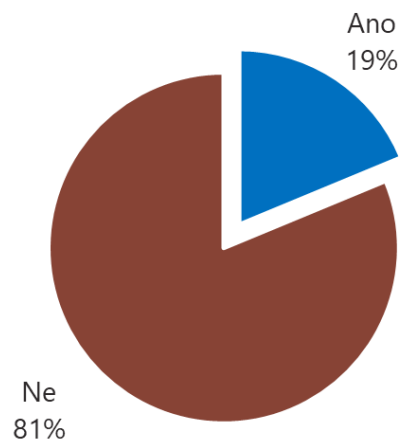
Bioeconomy and/or circular economy?

- BE is a part of CE
- BE = circular + green (low-carbon) economy
- BE is a superstructure of circular economy
- Circular BE



Bioeconomy awareness

Have you heard about bioeconomy?
Yes – 19 % (from 1509 respondents)



Public

Q24. Setkali jste se již s pojmem „bioekonomika“?
Všichni respondenti, N=1509 [údaje v %]

Forestry students

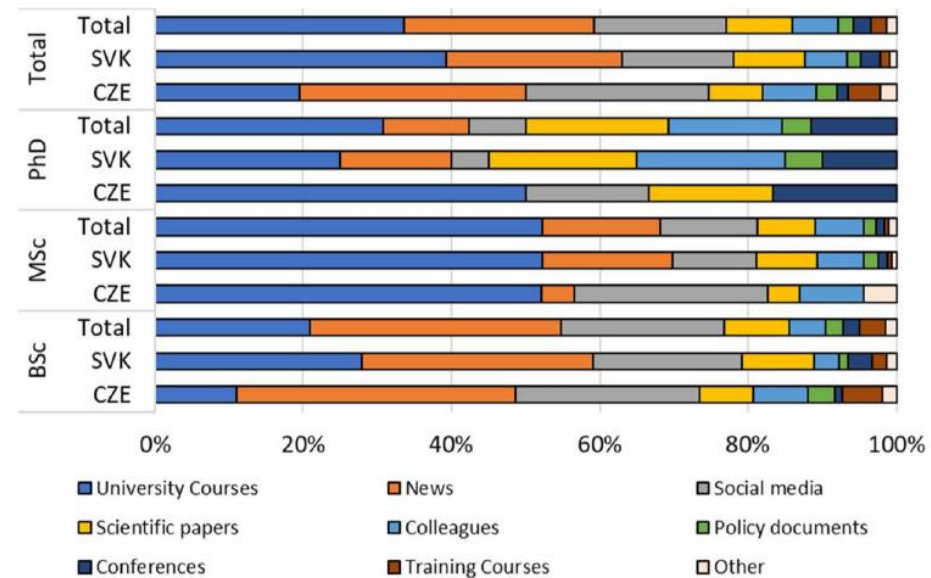


Figure 3. Bioeconomy information sources.

Source: Marcineková, L., Palátová, P., Výbošťok, J., Jarský, V., Riedl, M., Gierťliová, B., Dudík, R., Šálka, J., 2023. Students' perception of bioeconomy as an important factor in communicating and further development of the bioeconomy in Slovakia and the Czech Republic, *Scandinavian Journal of Forest Research*, DOI: 10.1080/02827581.2023.2211806.

Bioeconomy - Czechia



BIOECONOMY CONCEPT IN THE CZECH REPUBLIC
FROM THE PERSPECTIVE OF THE MINISTRY
OF AGRICULTURE (2019-2024)



Aims:

Stability and vitality of
forest ecosystems
Ecosystem services
Innovations
Use of wood
Good practices

- Bioeconomy concept in the Czech Republic from the perspective of the Ministry of Agriculture
- Strategic Framework Czech Republic 2030
- Strategy of the Ministry of Agriculture with a view to 2030
- National Energy and Climate Plan of the Czech Republic
- Concept of the state forest policy

Source: Palátová, P., Purwestri, R.C., Marcinek, L. 2022. Forest bioeconomy in three European countries: Finland, the Czech Republic and the Slovak Republic. *International Forestry Review* Vol.24(4).

Bioeconomy and forestry

Headlines

The new EU forest strategy will support the socio-economic functions of forests for thriving rural areas and boosting forest-based bio-economy within sustainability boundaries. It will also protect, restore and enlarge the EU's forests to combat climate change, reverse biodiversity loss and ensure resilient and multifunctional forest ecosystems by

- promoting the sustainable forest bioeconomy for long-lived wood products
- ensuring sustainable use of wood-based resources for bioenergy
- promoting non-wood forest-based bioeconomy, including ecotourism
- developing skills and empowering people for sustainable forest-based bioeconomy
- protecting EU's last remaining primary and old-growth forests
- ensuring forest restoration and reinforced sustainable forest management for climate adaptation and forest resilience
- re- and afforestation of biodiverse forests, including by [planting 3 billion additional trees by 2030](#)
- providing financial incentives for forest owners and managers for improving the quantity and quality of EU forests

Cascades

"resource efficient and circular use of biomass" (EU, 2019)

Use in industries that depend on forestry (wood-processing, pulp and paper, biorefinery); chemical industry

Studies dealing with cascading uses:

- European Wood (2010) - wood flows
- Indufor (2014) - biomass availability and competitiveness of forest-based industries
- Cascades (2016) Principles of cascade utilization: Sustainability (link to SDGs), resource efficiency, circularity (incl. markets), new products and new markets, subsidiarity (respecting availability, processing capacity - biomass allocation)
- Cascading principle: sustainability, resource efficiency, circularity, new markets + new products, subsidiarity

Specific examples of cascades (by product type) - see Guidelines for biomass cascades with selected examples of best practices in the context of woody biomass (textiles, wood fuels with higher energy efficiency, ...)

Forest bioeconomy related projects at FLD CZU

- CEE2ACT (<https://www.cee2act.eu/>)
 - is empowering countries in Central Eastern Europe and beyond (Bulgaria, Croatia, Czech Republic, Greece, Hungary, Poland, Romania, Serbia, Slovakia and Slovenia) to develop circular bioeconomy strategies and action plans through innovative governance models
- EVA4.0 - Advanced research supporting the forestry and wood processing sector's adaptation to global change and the 4th industrial revolution (<https://eva.fld.czu.cz/en>)
- Diversification of the Impact of the Bioeconomy on Strategic Documents of the Forestry-Wood Sector as a Basis for State Administration and the Design of Strategic Goals by 2030



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**Thank you for your
attention**



Any questions?

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