BIOECONOMY DEVELOPMENT IN LITHUANIA: STRATEGIES, POLICIES AND CASES FOR SUSTAINABLE CHANGE

Vilija Aleknevičienė

Vytautas Magnus University Agriculture Academy, Lithuania

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Presentation outline

➢ Bioeconomy strategies and policies in Lithuania
- ✓ Smart specialization strategy
- ✓ Progress strategy "Lithuania 2030"
- ✓ National energy and climate action plan for 2021-2030

➢ Cases for sustainable change
- ✓ Bioeconomy pillars
- ✓ Cases for replacement
- ✓ Cases for upgrading
- ✓ Cases for circulating
- ✓ Cases for collaboration

➢ Key takeaways

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Smart Specialization Strategy

Priority	Description
Agricultural innovations and food technologies	**sustainable agri-biological resources and safer food; functional food; innovative development, improvement and processing of biological raw materials (biorefinery)**
Energy and sustainable environment	smart systems for energy efficiency, diagnostic, monitoring, metering and management of generators, grids and customers; **energy and fuel production using biomass/waste and waste treatment, storage and disposal**; technology for the development and use of smart low-energy buildings - digital construction; solar energy equipment and technologies for its use to produce electricity, heat and cooling
New production processes, materials and technologies	photonic and laser technologies; functional materials and coatings; structural and composite materials; flexible technological systems for product development and fabrication
Health technologies and biotechnologies	molecular technologies for medicine and **biopharmaceutics**; advanced applied technologies for individual and public health; advanced medical engineering for early diagnostics and treatment
Transport, logistics and ICT	smart transport systems and information and communication technologies; technologies/models for the management of international transport corridors and integration of modes of transport; advanced electronic contents, content development technologies and information interoperability; information and communications technology infrastructure, cloud computing solutions and services
Inclusive and creative society	modern self-development and education technologies and processes; technologies and processes for the development and implementation of breakthrough innovations

Progress strategy "Lithuania 2030" (1)

Changes will take place in the following areas:

➢ **Smart society:** happy society that is open [**openness**] to the ideas of each citizen [**creativity**], to innovations and challenges, demonstrating solidarity, self-governance and political maturity [**responsibility**].

➢ **Smart economy:** economy that is flexible and able to compete globally [**openness**], generating high added value, based on knowledge, innovations entrepreneurship [**creativity**] and social responsibility as well as "green" growth [**responsibility**].

➢ **Smart governance:** governance that is open and participatory [**openness**], delivering, meeting public demands and ensuring high quality services [**responsibility**], as well as competent government, able to take targeted strategic decisions [**creativity**].

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Progress strategy "Lithuania 2030" (2)

Implementation of the vision would allow Lithuania to become **one of the 10 most advanced** EU Member States by year 2030 as measured by these indicators:

- ✓ Quality of Life Index (now 23rd in the EU)
- ✓ Happiness Index (now 20th in the EU)
- ✓ Democracy Index (now 22nd in the EU)
- ✓ <u>Sustainable Society Index (now 13th in the EU)</u>
- ✓ Global Competitiveness Index (now 17th in the EU)
- ✓ Globalization Index (now 25th in the EU)

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National energy and climate action plan for 2021-2030 (1)

Lithuania's strategic objective in climate change mitigation is **to ensure sustainable development with a view to neutralising the impact of GHG by 2050**.

Strong focus on social responsibility and <u>green growth through:</u>
- ✓ green technologies
- ✓ green procurement
- ✓ green markets
- ✓ green jobs

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National energy and climate action plan for 2021-2030 (2)

Among planned policy measures:

- ✓ Afforestation and restoration of damaged forests
- ✓ Promotion of the use of biomass for energy production
- ✓ Restoration of wetlands in arable peatlands
- ✓ Promotion of perennial and intermediate crops
- ✓ Protection of organic soils
- ✓ Promoting of green public procurement
- ✓ Determination of the national indicators of GHG emission / carbon stock changes
- ✓ …

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Bioeconomy pillars (1)

Bioeconomy is based on four main pillars:

➤ Replacement

➤ Upgrading

➤ Circulating

➤ Collaboration

Each country has a different pathway of bioeconomy development, so the question is how Lithuania's bioeconomy stands on the mentioned pillars.

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Bioeconomy pillars (2)

The pillars were taken from "Nordic Bioeconomy 25 Cases for Sustainable Change".

Then the research was based on case study and content analysis.

Information was taken from websites of companies, associations, and clusters as well as from events (forums, conferences, workshops, etc.)

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Cases for replacement

Replacement is the most important pillar for mitigating climate change. There are some companies standing on the replacement pillar:

UAB "Bio Energy LT"

UAB "Kurana"

AB "Modus Energy"

UAB "Euromediena"

UAB "Lignineko"

UAB "Robmona"

UAB "Klasmann-Deilmann Bioenergy"

UAB "Lignineko"

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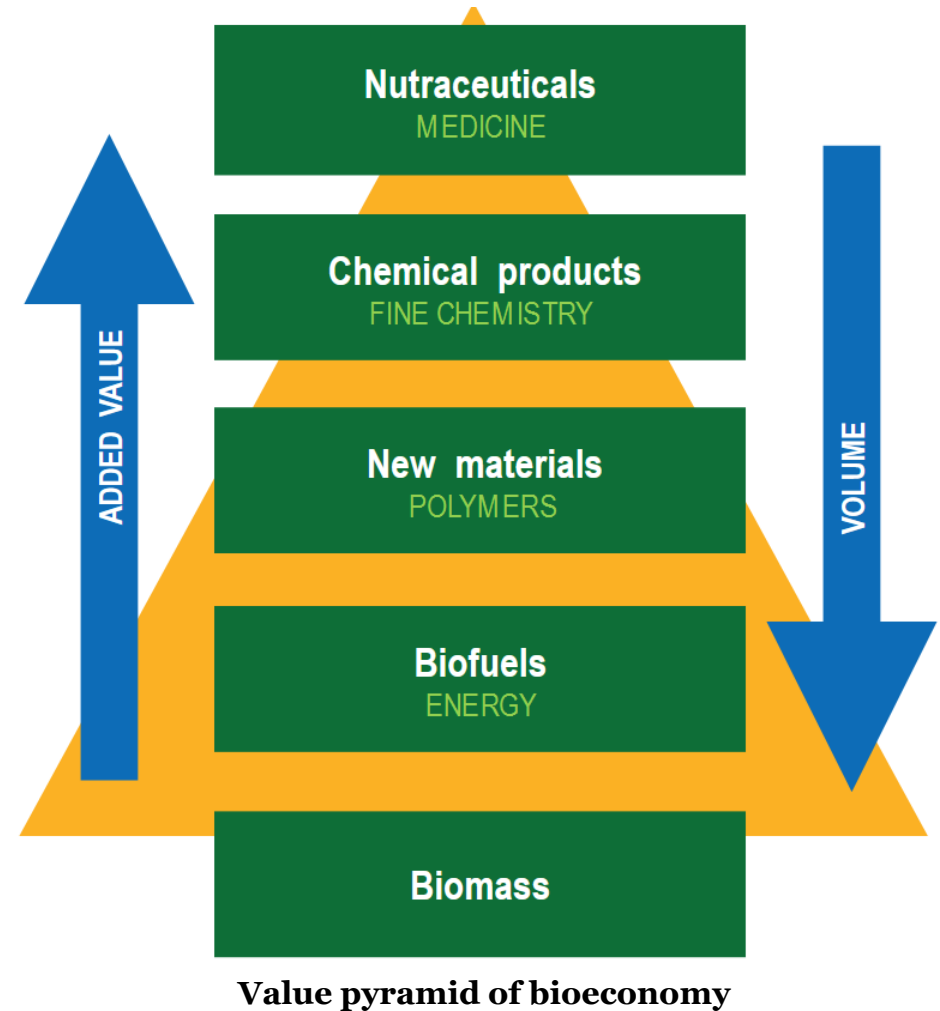**Fossil-based resources replacement by 1st generation and 2nd generation bio-resources**

Source: New production techniques for biomethane.

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Cases for upgrading

Upgrading is identified as production of higher value-added products from bio-resources and valuable products from previous waste streams. There are some companies standing on the upgrading pillar:

✓ AB "Roquette Amilina"
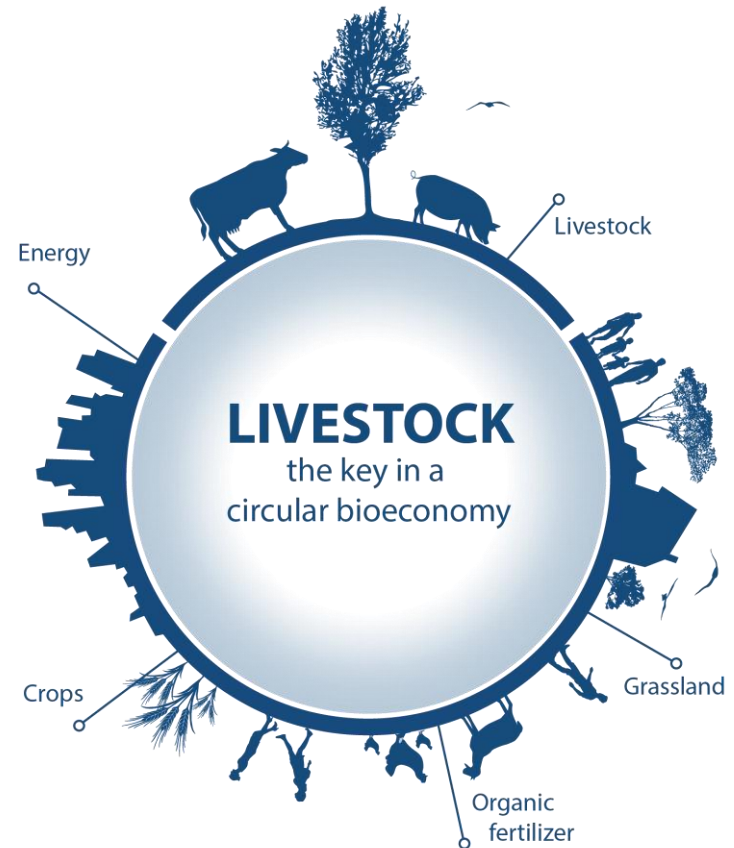
✓ Co-operative "Pienas LT"

✓ UAB "Satimed"

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Value pyramid of bioeconomy

Source: Performance agreement to support innovation in higher education.

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Cases for circulating

The best example of **circulating** is AB "**Auga Group**" owning over 38 thousands ha of ecologically certified arable land with a sustainable, technology-based agricultural model covering crop, livestock, poultry and mushroom growing.

UAB "Natural Fiber" cultivates no-waste production: ecologically grown hemp straw is processed to obtain high quality fiber for textile; the residual materials – shives and small fiber particles – are used in agricultural and industrial sectors; the pellets are suitable for energy production.

Energy
Livestock
LIVESTOCK
the key in a
circular bioeconomy
Crops
Grassland
Organic fertilizer

Source: Livestock, the key in a circular bioeconomy.

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Cases for collaboration (1)

Collaboration is observed through implementation of international and national research projects, launching and adopting bioeconomy related strategies and policies, foundation of business clusters and associations.

➢ Horizon 2020 "Advancing Sustainable Circular Bioeconomy in Central and Eastern European countries" (2019 – 2022): https://bioeast.eu/

➢ Interreg "Unlocking the Potential of Bio-based Value Chains in the Baltic Sea Region" (BalticBiomass4Value)" (2019 – 2021): https://balticbiomass4value.eu/

➢ ERASMUS+ New Master's Degree Curricula for Sustainable Bioeconomy in Uzbekistan (BioEcUz) (2021–2024).

Source: International project on Advancing Sustainable Circular Bioeconomy in Central and Eastern European Countries

Source: Project start of BalticBiomass4Value

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Cases for collaboration (2)

✓ Lithuanian Biomass Energy Association LITBIOMA (2003)
✓ Lithuanian Biotechnology Association (LBTA, 2003)
✓ Lithuanian Biogas Association (2008)

Companies, operating in bioeconomy sector, are members of international associations.

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Cases for collaboration (3)

In Lithuania, 8 clusters are already operating in bioeconomy sector:

➢ Biopower plant development cluster (Adecco)

➢ Smart Food Cluster

➢ National Food Cluster (NaMŪK)

➢ Lithuanian Prefabricated Wooden Houses Cluster (PrefabLT)

➢ Baltic Furniture Cluster

➢ Cleantech Cluster of Lithuania

➢ Food Technologies Digitalization LT

➢ Agrifood Lithuania DIH

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Key takeaways

Bioeconomy development in Lithuania is standing on all four pillars and it is in the right pathway for sustainable change.

However, strategies and policies related to bioeconomy have not yet been launched and adopted in Lithuania.

Open question: can bioeconomy be developed without bioeconomy strategy?

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