About prospects and challenges of a bio-based industry
The Danube region

9 EU countries + 5 non-EU countries; 1/5 of EU’s territory
114 million people

Project co-funded by European Union funds (ERDF, IPA)
DanuBioValNet

15 Project Partners + 2 Associated Partners
10 Countries

Germany
- BIOPRO Baden-Württemberg GmbH
- ClusterAgentur Baden-Württemberg
- Ministry of Economic Affairs, Labour & Housing Baden-Württemberg

Czech Republic
- National Cluster Association

Austria
- Foodcluster OÖ
- Cleantechcluster OÖ

Slovenia
- Ministry of Science
- Anteja ECG

Croatia
- Ministry of Economy, Entrepreneurship and Crafts
- Croatian Wood Cluster

Slovakia
- Prounion

Romania
- Ministry of Economy
- Clustero
- Institute of Economical Forecasting

Bulgaria
- Association of Bulgarian Clusters

Serbia
- Institute of Mechanical Engineering

Montenegro
- Vinecluster of Montenegro

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Bioeconomy: More than Circular Economy

Bioeconomy
- Renewability
- Saving fossil resources
- Climate friendly
- Improve productivity and sustainability

Sun

CO₂

H₂O

Agriculture & Forestry

Bioinnovation Agriculture & Forestry Smart Farming
- precision agriculture
- internet of Farm Things
- robotics and automation
- artificial intelligence
- soil nutrient supply
- soil sensors, plant sensors, animal sensors
- low cost genotyping, gene editing
- next generation breeding
- microbiota in livestock and environment
- higher conversion efficiency: increase output while reducing impact on the environment
- sustainable intensification

Biomass

Processing

Bioenergy & Biofuels
- new efficient, short pathways
- low energy
- lower toxicities
- elimination of harsh chemicals
- lower temperature
- lower pressure
- from oxidation to reduction
- high efficiency
- synthetic biology

Biocculting Chemicals
- innovative molecules
- new chemicals and materials
- new functionalities & properties
- more nature compatible
- less toxicity
- green and sustainable chemistry

Bioinoculation Products
- new functionalities & properties
- more nature compatible
- new applications
- less toxicity

Cascading Biomass Recycling
- share, maintain, reuse, redistribute

Organic recycling

Food & Feed

Biocculting Food & Feed
- food quality and safety
- functional food ingredients
- bioactive phytochemicals
- food nutrients with new functionality

Graphic available at bio-based.eu/graphics

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Connecting different industry sectors

Stage 1. Reinforce innovation and extend current infrastructure across the economy

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Connecting different industry sectors

Stage 2. Build and strengthen value chains across industry sectors

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Connecting different industry sectors

Stage 3. Realise a connected biobased economy from research to end consumer

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Example for a marketable added value chain: **BIOPLASTIC**

- **RAW MATERIAL**
- **MONOMER**
- **RAW POLYMER**
- **BLEND/COMPOUND**
- **SEMIFINISHED PARTS**
- **INTERMEDIATES**
- **PRODUCT**

- Fermentation
- Co-/Polymerization
- Blending/Compounding
- Shaping
- Refinement
- Assembly
- Purification

**Example for a marketable added value chain: BIOPLASTIC**

- **ibvt**
- **BASF**
- **BOSCH**
- **DAIMLER**
- **fischer**
Suggested value added chain 1 for DanuBioValNet: **ADVANCED-PACKAGING**

- **Bio-Plastic**
- Biodegradable & Bio-based nondegradable
- Est. increase from now 1.4 to 7.7 Mio t (2020)
- Reaches in Every Market
- Drop-in or new material properties
- Paper & Pulp

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Suggested value added chain 2 for DanuBioValNet: **ECO-CONSTRUCTION**

- Indoor Environmental Quality
- Durable and Maintainable Design
- Eco Friendly Material Use
- Water Efficiency
- Energy Efficiency
- Waste Reduction

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Suggested value added chain 3 for DanuBioValNet: **PHYTO-PHARMACEUTICAL**

1 or more active substances

- Plant based
- Complex cultivation
- Rational, scientific data, Clinical trial
- High Value

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Matching industry and consumer

Integration of all stakeholders within the value added chain

Feedback process within the R&D phase

Markets
- Automotive
- Construction
- Packaging

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raw materials
intermediate products
finished products
Final product manufacturing
customer
public

Suppliers of raw materials
Researchers
Developers
Producers
Designers
Buyer / User
Public opinion / awareness

Students

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Workflow of the DanuBioValNet project

Phase 1 - Data Survey

Phase 2 – Establishing bio-based networks

WP1 - PROJECT MANAGEMENT - LEAD BIOPRO
WP2 - COMMUNICATION - LEAD NCA
WP3 - VALUE CHAIN MAPPING - LEAD ANTEJA
WP4 - STRATEGY/POLICY ACTION - LEAD MIZS
WP5 - TOOL DEVELOPMENT - LEAD CLUSTERO
WP6 - PILOT ACTIONS - LEAD BIOPRO

Month
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

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DanuBioValNet is **groundbreaking** for further projects. Further projects based on DanuBioValNet’s activities will strengthen and secure dissemination of the **bio-based industry**; Funding schemes (Cosme, Horizon2020/FP9, regional development funds,...)
DanuBioValNet is **groundbreaking** for further projects
We believe in a shared value development

Because innovative product scenarios in Bioeconomy offer the chance to develop new business models on a regional, state-wide, country-wide and pan-European level

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But there are also big threads!!!

Illegal forest clearance

Exaggerated intensification of monoculture crop growing

Destroying biodiversity by massive wild harvesting

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We need to develop **sustainable bioeconomic structures**

**DanuBioValNet**

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THANK YOU FOR YOUR ATTENTION