Forest modelling in support of the EU Bioeconomy Strategy

Adrian Leip, European Commission, DG RTD

1st Forest Policy Modelling Forum, Brussels, 18/09/2024

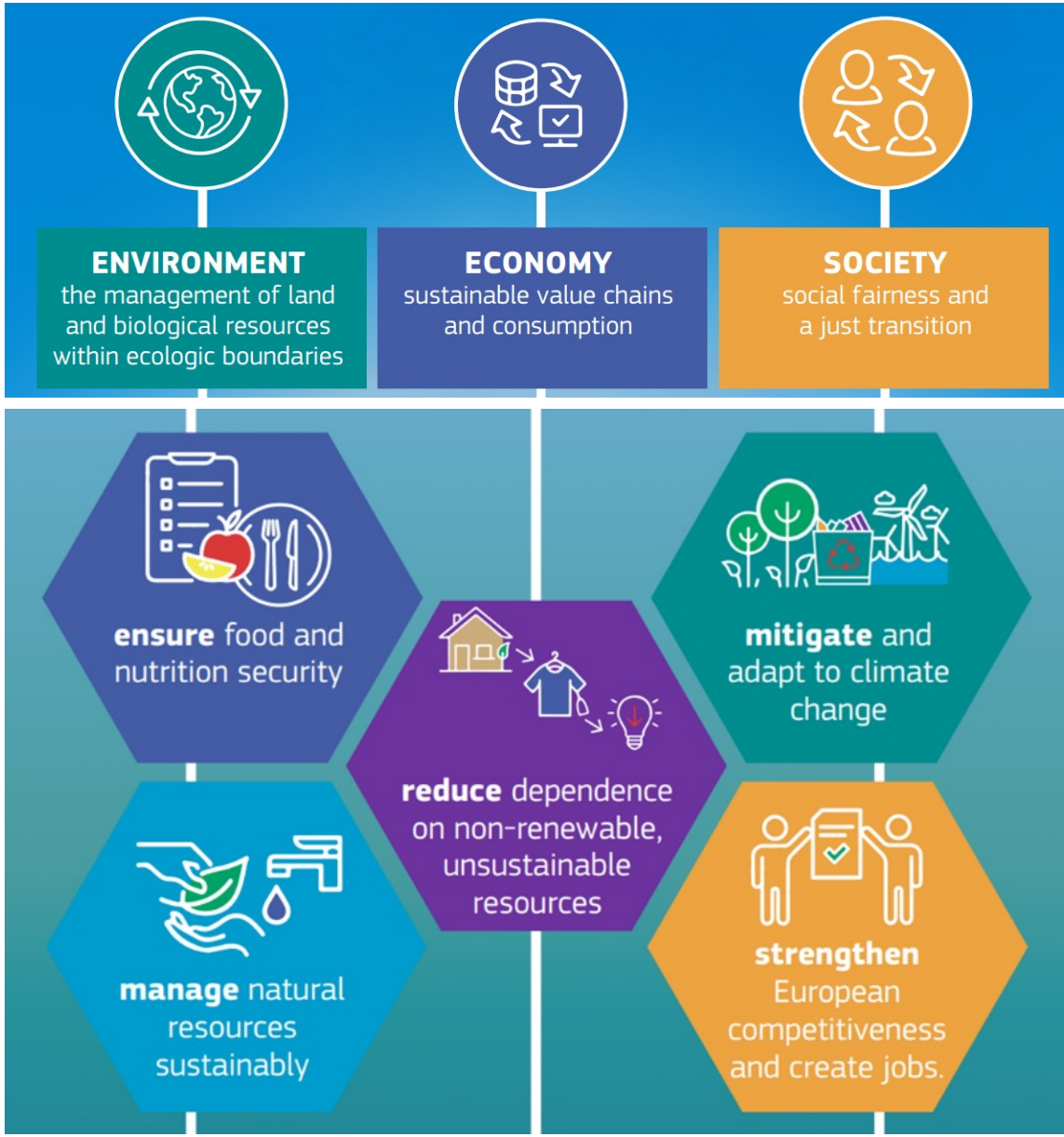
The EU's understanding of the Bioeconomy

All sectors and associated services and investments that ***produce, use, process, distribute or consume*** biological resources (animals, plants, micro-organisms, including organic waste), including ecosystem services.

The EU Bioeconomy Strategy takes a **holistic approach** focusing on all three dimensions of sustainability.

Cross-sectoral policy framework.
It addresses **five different objectives.**

Strategic view on **trade-offs** (e.g. scarce biomass), co-benefits (e.g. for biodiversity)



European Commission

EU Bioeconomy Strategy **timeline**

2012

- Efficient use of renewable resources
- Focus on R&I

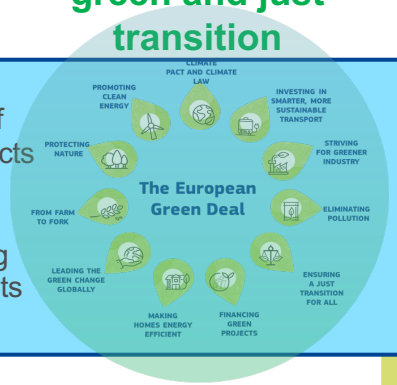
[First Bioeconomy Strategy]

2018

+ Substitution of harmful products
+ Regional development
+ Understanding ecological limits

[Updated Bioeconomy Strategy]

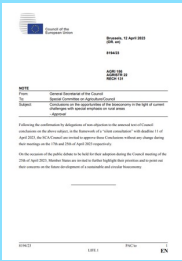
Towards a green and just transition



2022

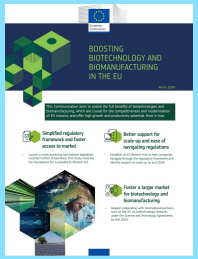
[Bioeconomy Progress Report]

2023



[Council Conclusion]

2024



[Communication on Biotechnology and Biomanufacturing]

End 2025

Update of the EU Bioeconomy Strategy

- Bioeconomy **contributes to the European Green Deal** which enables sustainable and just transition pathways
- **Mainstreaming and up-scaling** of sustainable bioeconomy ever more important in view of the current food and energy price crisis

"On the opportunities of the bioeconomy in the light of current challenges with special emphasis on rural areas"
(AgriFish Council 25/4/2023)

- EMPHASISES the **central role of a sustainable and circular bioeconomy** for climate, environment + achieving the objectives of the EGD and its strategies.
- Calls on the EC to **better integrate bioeconomy in all EU policies**
- Calls on the EC to present before the next strategic period […] an **updated EU Bioeconomy Strategy and Action Plan**

Building the future with nature: Boosting Biotechnology and Biomanufacturing in the EU

Action 8. The Commission **will review the EU Bioeconomy Strategy by end 2025**. The review will take into account

- the current societal, demographic and environmental challenges,
- reinforcing the bioeconomy's industrial dimension
- its links to biotechnology and biomanufacturing to contribute to a stronger EU economy

Bioeconomy modelling frameworks at the JRC

- Economic Modelling Framework (Bioeconomy-SIMS)
  - Building on BIOMONITOR
  - Models: MAGNET, AGMEMOD, BIOMAT, link to forestry model: EU-CBM-Hat
- Integrated Bioeconomy Land Use Assessment (IBLUA)
  - Building on: Multi-Scale Integrated Analysis of Societal and Ecosystem Metabolism (MuSIASEM) accounting framework
  - Holistic 'whole-of-bioeconomy' model to assess direct and indirect implications of policy decisions on land and biomass
- EU Bioeconomy Footprint model
  - LCA – based modelling framework using the Environmental Footprint method
  - Identification of 'game-changer' bioeconomy innovations

Expected results: forests multiple functions / supply & use

- System-wide & holistic quantitative assessments
- Range of supply and demand of bio-energy and bio-materials
  - Under various assumptions on (environmental) ambitions, technological development, demand changes
  - Differentiated by energy/material type
  - Processes/value ‘webs’/cascading
- Identification of win-win / no-regret (policy) options
  - [Generally,] assessment of trade-offs and co-benefits
  - Representation of (non-provisional) ecosystem services

Possible questions to forest models

- Level-playing field between bio-energy and bio-materials
  - Sustainability criteria
  - Incentives
- Level-playing field between EU and non-EU
- Bio-material demand
  - Taking into consideration fast R&I development of bio-based materials with superior characteristics (e.g. resource- and energy efficiency, substitution effect, …)
  - Implication of possible targets for bio-based materials (e.g. for packaging, plastics, chemicals, construction, …)
- Principle of cascading use of biomass
  - Context-specific implementation – ‘what is the best that can be done with [this] biomass’?
  - Consideration of demand-side elements: prevention, extending life-time, re-use.

Important features

- Robust results
- Transparent / open source
- Collaborative

Thank you

2018 EU Bioeconomy Strategy
https://research-and-innovation.ec.europa.eu/research-area/environment/bioeconomy/bioeconomy-strategy_en

EU Bioeconomy Youth Ambassadors
https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/meet-our-bioeconomy-youth-ambassadors-2022-08-04_en

EU Bioeconomy Progress Report 2022
https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/adoption-bioeconomy-strategy-progress-report-2022-06-09_en

EU Bioeconomy Conference 6-7/10/2022
https://eu-bioeconomy-conference-2022.b2match.io/

Launch of the Concept of RIVs for Bioeconomy and Food systems 13/10/2023
Factsheet

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