THE ECOLOGICAL LIMITS OF THE BIOECONOMY

Workshop zum Thema
Bioökonomie 4th April, 2019
Salzburg

EEB
European
Environmental
Bureau

CONTENTS

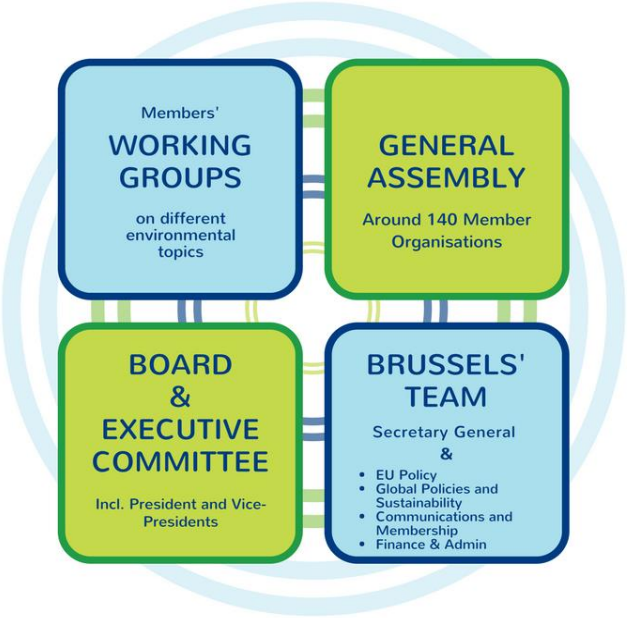
The ecological limits of the bioeconomy

EEB: WHO WE ARE

Europe's largest network of environmental citizens' organisations

- **140 civil society organisations**, from
- **30 European countries, all 28 EU MS**
- **Representing 30m EU citizens**

Over 40 years of env. policy expertise



EEB tackles Europe's most pressing environmental problems

Overarching issues: sustainable development, good governance, participatory democracy & the rule of law & thematic issues:

- Climate and Energy
- **Nature, Water and Sustainable Agriculture**
- Industry, Chemicals and Health
- **Circular Economy, Product Policy, Waste & Resource Efficiency**
- Sustainability and Governance
- Global and Regional Policies (inc. global env justice)

THE REVISED EUROPEAN BIOECONOMY STRATEGY

Overview of five **objectives** and three **actions**

- Ensuring food and nutrition security
- Managing natural resources sustainably
- Reducing dependence on non-renewable, unsustainable resources whether sourced domestically or from abroad
- Mitigating and adapting to climate change
- Strengthening European competitiveness and creating jobs

1. Strengthen and scale-up the bio-based sectors, unlock investments and markets
2. Deploy local bioeconomies rapidly across Europe;
3. **Understand the ecological boundaries of the bioeconomy**

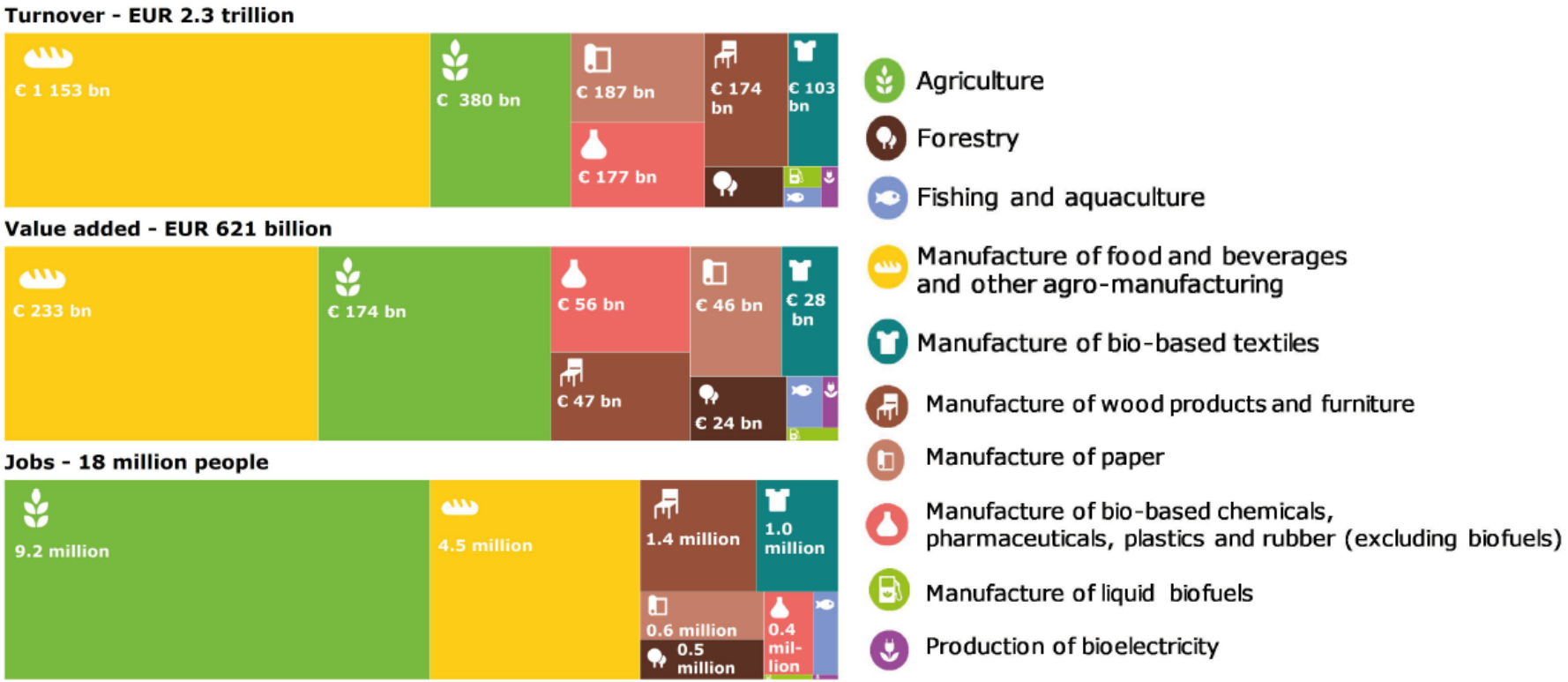
1. THE ECONOMY TODAY - THE OIL AGE

What can be substituted and what are the risks?

Key message today – we need to reduce the overall consumption of resources in the economy, simply substituting fossil inputs with biomass cannot be done sustainably.

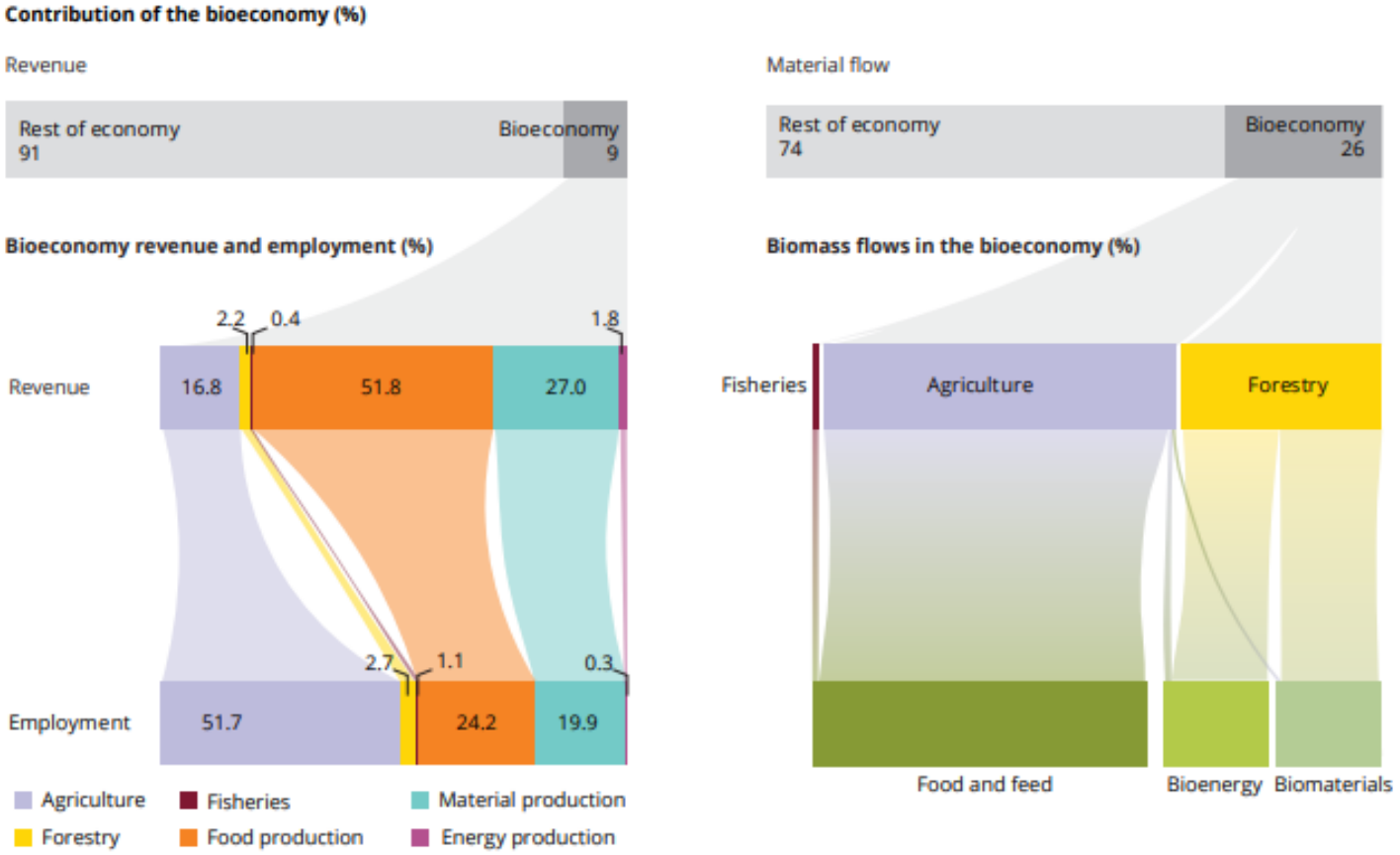
1. THE ECONOMY TODAY - THE EU'S BIOECONOMY

We already have one!



1. THE ECONOMY TODAY – BIOECONOMY'S CONTRIBUTION

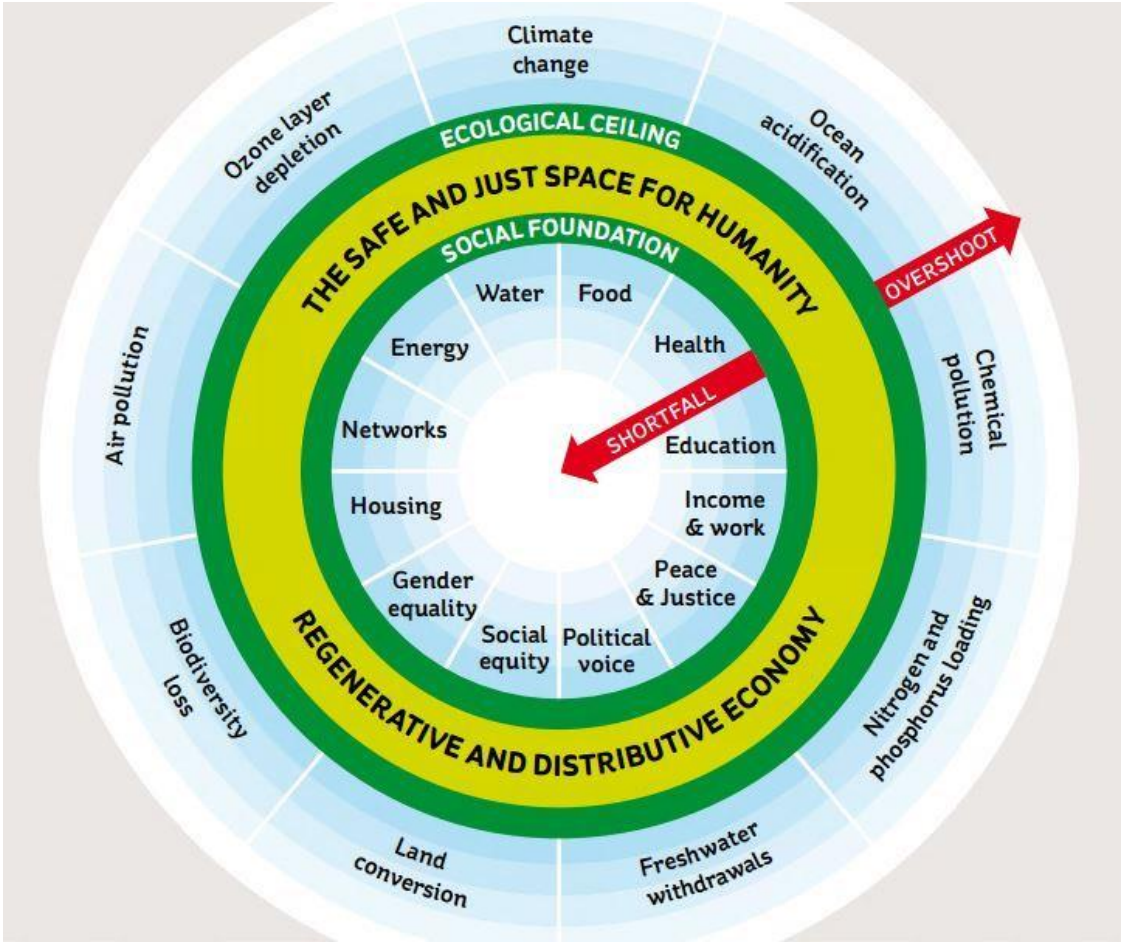
Contributions to revenue, jobs and resource use



Sources: JRC Biomass project; 2016 Bioeconomy report (Ronzon, et al., 2017); Eurostat MFA.

2. ECOLOGICAL LIMITS - DOUGHNUT ECONOMICS

What we are trying to achieve?

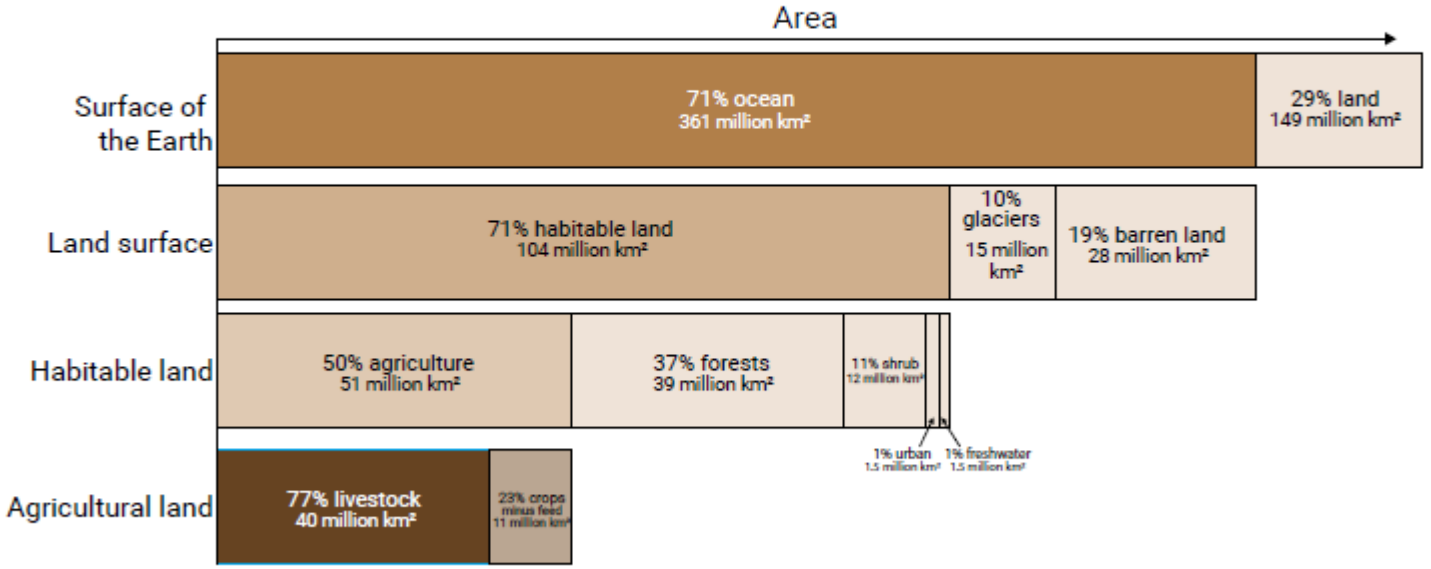


2. ECOLOGICAL LIMITS - GLOBAL LAND AREA

How much land is actually available?

Figure 8.6: Global area allocation for food production

The breakdown of the surface of the Earth by functional and allocated uses, down to agricultural land allocation for livestock and food crop production, measured in millions of square kilometres. The area for livestock farming includes land for animals, and arable land used for animal feed production.

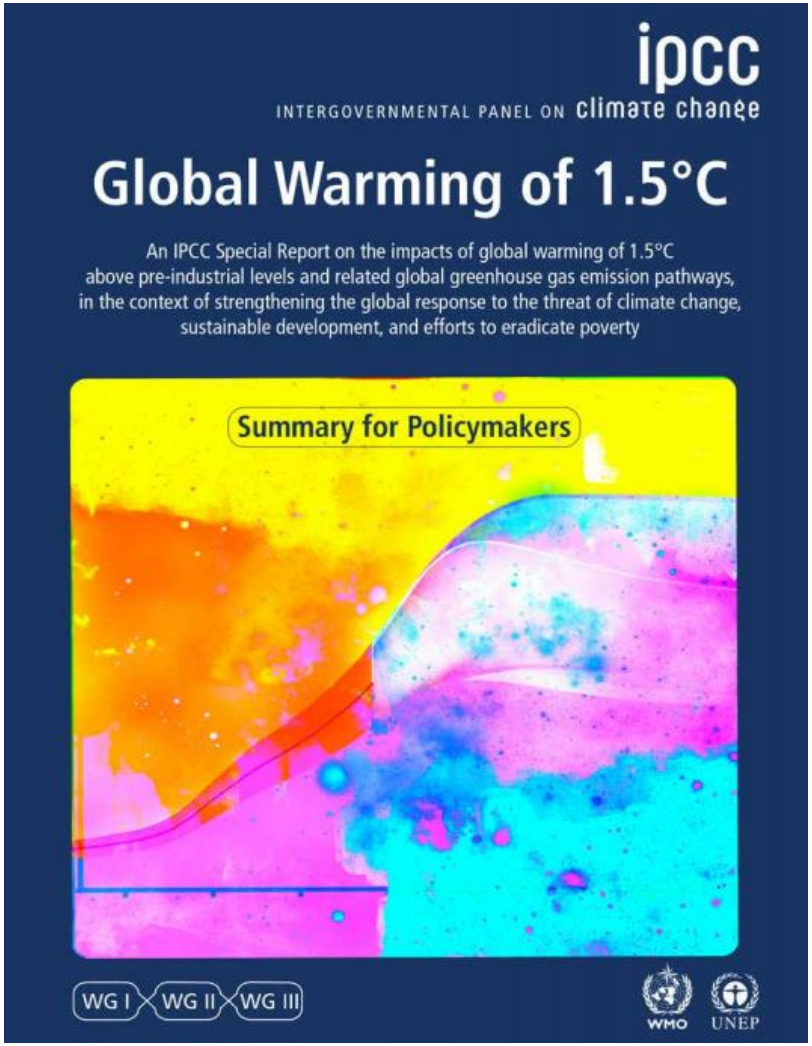


Source: FAO (2017b); Roser and Ritchie (2018).

2. ECOLOGICAL LIMITS - CLIMATE CHANGE

Carbon Sequestration

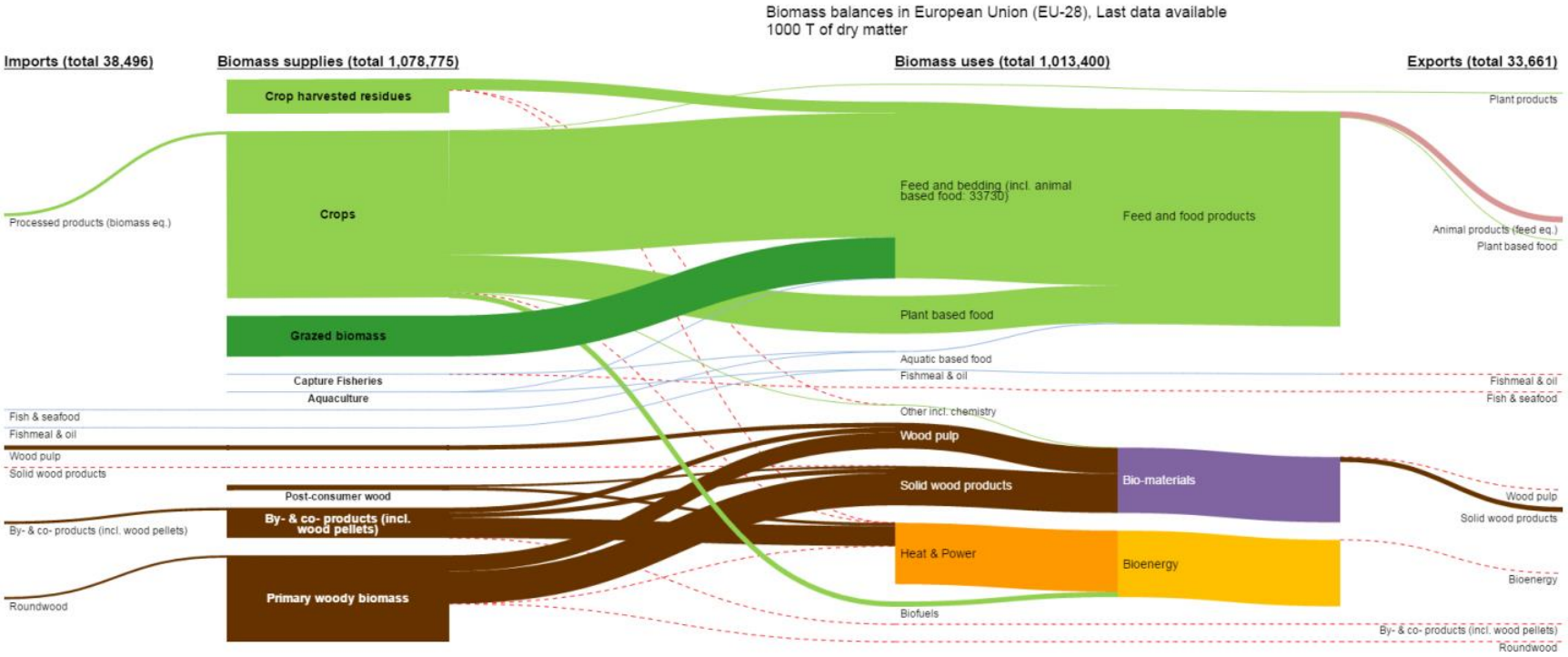
All pathways that limit global warming to 1.5°C with limited or no overshoot project the use of ***carbon dioxide removal (CDR) on the order of 100–1000 GtCO2 over the 21st century.***



2. ECOLOGICAL LIMITS – BIOMASS IMPORTS

Growing EU defecit… imports of feed and pellets…

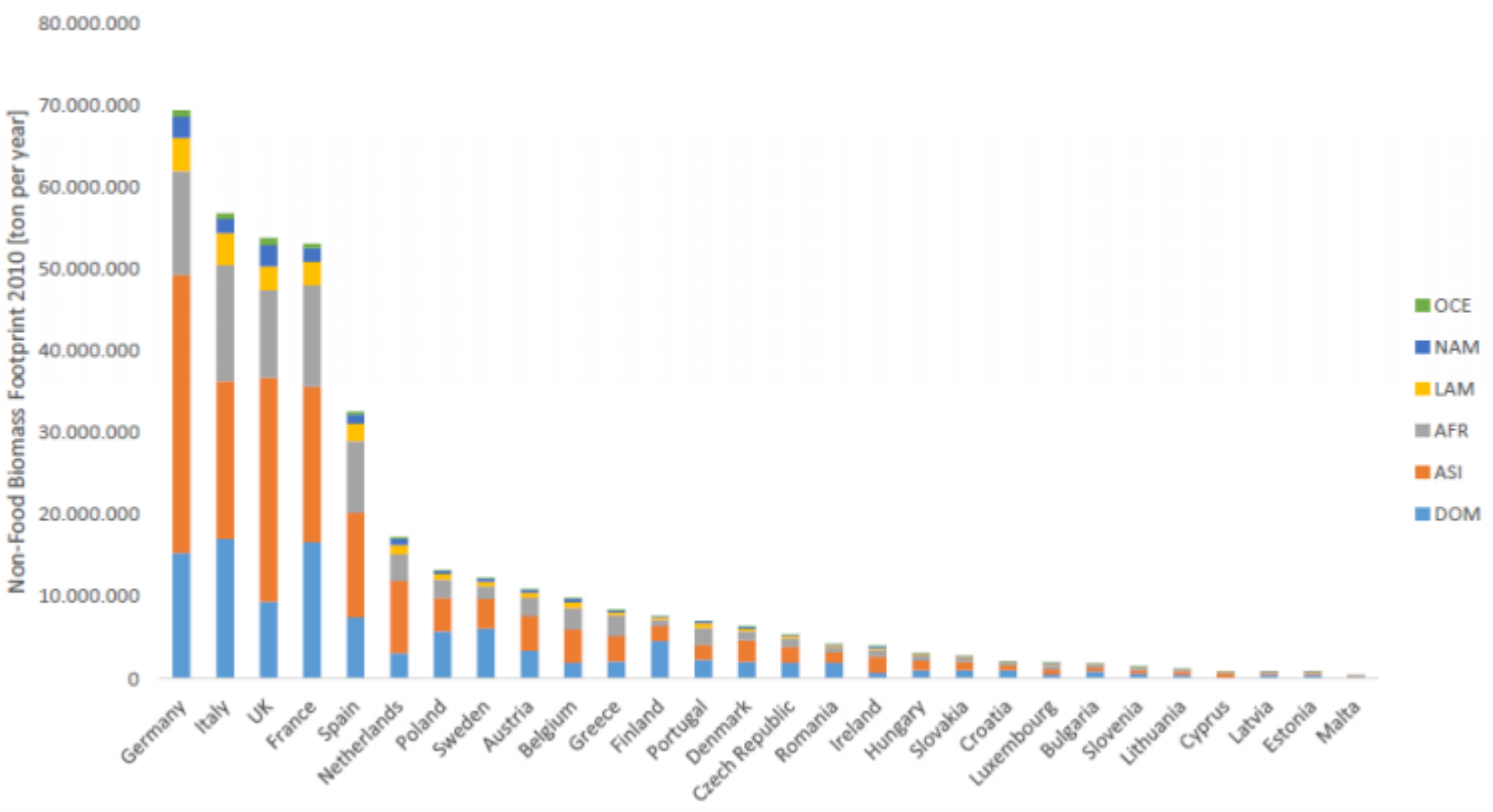
EU-28, Net trade



Source: data from the BIOMASS project, European Commission – Joint Research Center
Please note: Supply and use figures might not match due to estimation errors, stock changes, waste and/or loss of biomass or differences in the data sources used

2. ECOLOGICAL LIMITS - BIOMASS FOOTPRINT (NON-FOOD)

Biomass footprints related to non-food demands for EU countries



3. OPPORTUNITIES – FOOD AND AGRICULTURE

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A call for agroecological innovation

- Support an agro-ecological transition of our farming system
- Shift of CAP funding from untargeted, inefficient supports towards public moneys for public goods
- Reconnect producers and consumers through a circular and solidarity economy
- Prioritise local markets and support local economic development by creating virtuous cycles.
- Example: reconnecting livestock and crop production on the farm
    - diversify crop production + better resilience – economic risk
    - diversify income source – economic risk
    - use of manure as an input (fertilizing) + soil organic matter – fertilizer costs

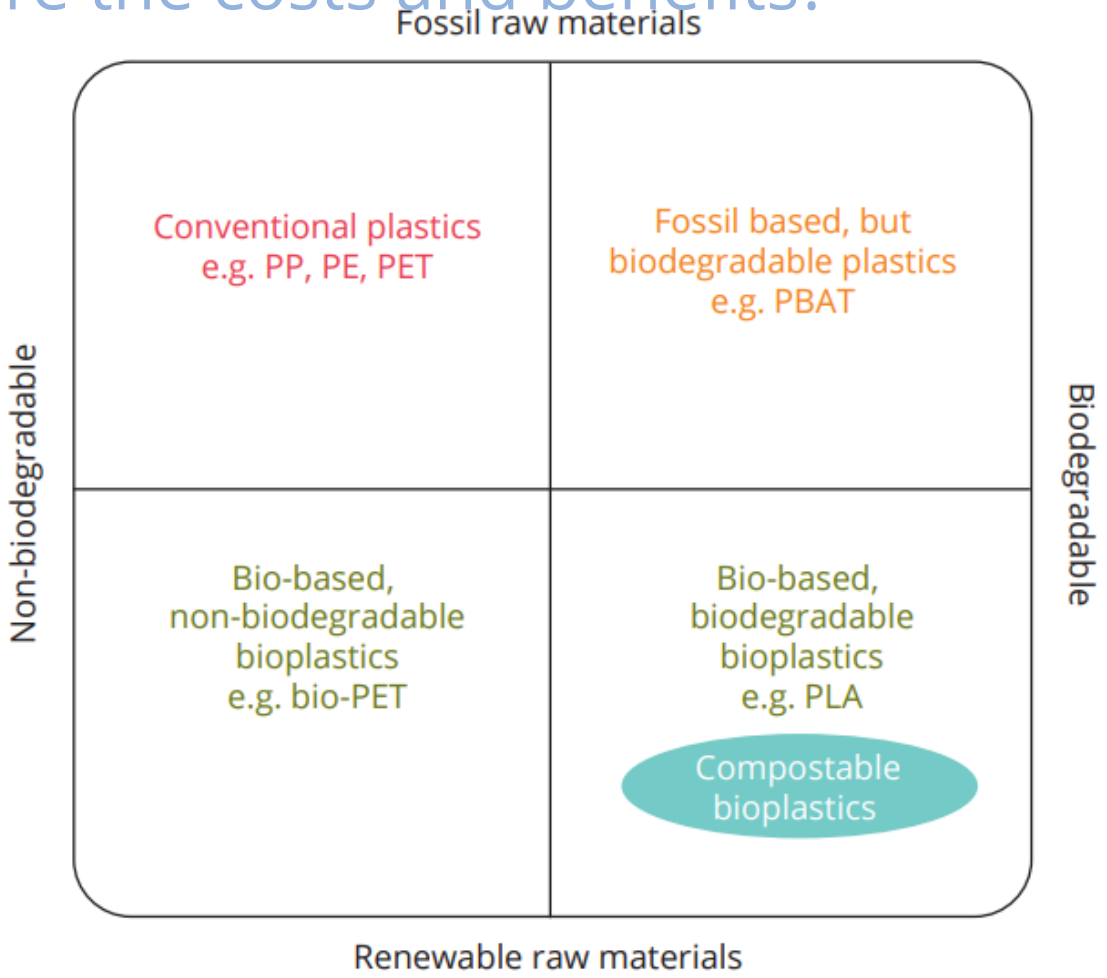
3. OPPORTUNITIES - BIOBASED PRODUCTS

Some common misconceptions

- Depends on the context and feedstock – some negative impacts might be higher than fossil based products
- **Two thirds of the cropland** required to satisfy EU **non-food** and **non-feed** bioresource demands are located in other world regions
- **Biomaterials are not always biodegradable and are not inherently circular** (especially when processed)
- Mixing biomaterials and technical materials can hamper recycling
- **Exploitation** of biomaterials is often associated with the use of **non-biological materials** (e.g. agrichemicals)
- As soon as a **biobased product is combusted any sequestration is lost** – extending the life of biobased products maintains this effect.

3. OPPORTUNITIES – THE EXAMPLE OF BIOPLASTICS

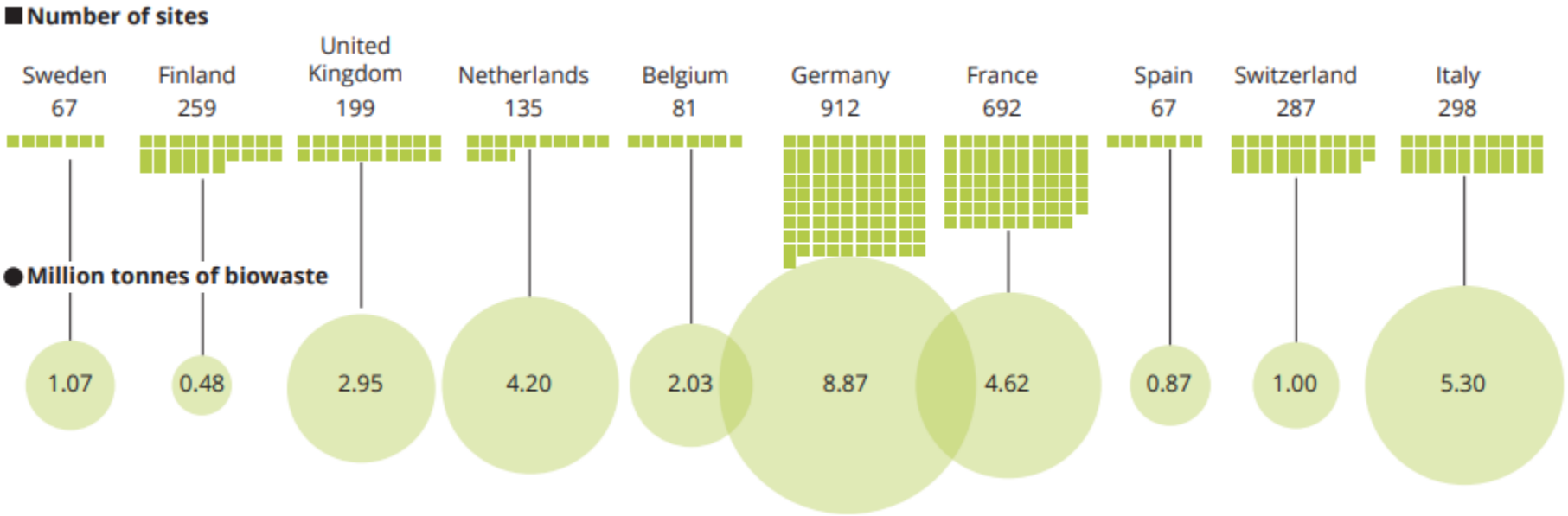
What are the costs and benefits?



3. OPPORTUNITIES – UNDEREXPLOITED WASTE STREAMS

Exploiting waste streams

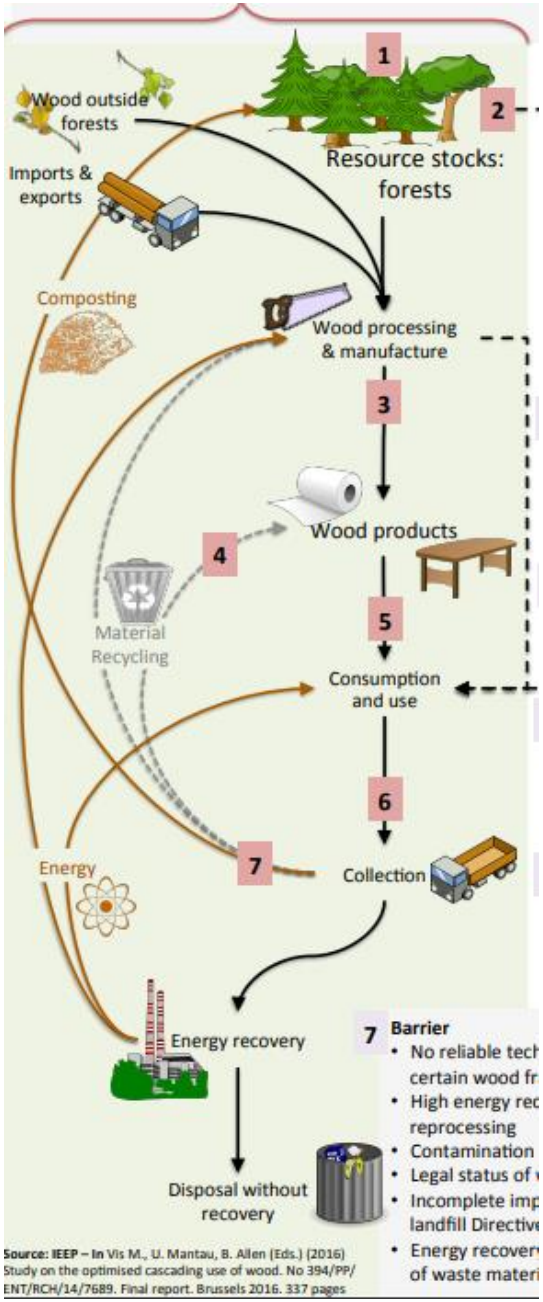
- Many waste streams are underutilized in the EU
- E.g. Separate collection of biowaste in Europe



3. OPPORTUNITIES – CASCADING USE OF WOOD

Energy is the last very last step…

- Durability ensures carbon is sequestered for as long as possible. 48% of woody biomass is currently used for energy (58% for materials)
- Use of waste streams should maximized e.g. wood residues from saw mills can go to the particle board industry, or the separate collection of post-consumer waste paper.
- Cascading wood — especially when many steps are involved — is more advantageous than direct energy use for the economy (jobs and value added) (UBA, 2013) and for the environment (Fehrenbach et al., 2017)
- **But bioenergy is heavily subsidized…**



CONCLUSIONS

- The bioeconomy is not a new concept – it already key to the EU economy
- The bioeconomy is not inherently resource efficient, circular nor sustainable by default – pursuing the exploitation of biological resources brings risks
- Existing activities in the bioeconomy already exacerbate our planets biocapacity (especially in the EU)
- While self-sufficiency is not an end in itself, the impacts of the EU's growing imports in the corresponding exporting regions need to be carefully assessed
- New initiatives should result in a reduction in the consumption of biomass, and reduce the overall pressure on the biosphere – thus utilizing existing resources or waste streams more efficiently
- **New policies are needed to manage the bio-economy sustainably and should be informed by the real ecological limits facing the economy**

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THANK YOU! ANY QUESTIONS?

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