



EUROPEAN FOREST  
INSTITUTE

# European forest bioeconomy: key sectors and principles

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# Outline

1. Forest-based bioeconomy: definitions & facts
2. Why it matters how we define the bioeconomy?
3. Outlook for forest-based Bioeconomy in Europe

# Insights based on EFI Publication

FROM SCIENCE TO POLICY 5

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## Leading the way to a European circular bioeconomy strategy



Lauri Hetemäki, Marc Hanewinkel, Bart Muys,  
Markku Ollikainen, Marc Palahí and Antoni Trasobares

*Foreword*

Esko Aho, Cristina Narbona Ruiz, Göran Persson and Janez Potočnik

## 欧盟循环生物经济战略 发展之路



Lauri Hetemäki, Marc Hanewinkel, Bart Muys,  
Markku Ollikainen, Marc Palahí and Antoni Trasobares

序言

Esko Aho, Cristina Narbona Ruiz, Göran Persson and Janez Potočnik

## На пути к европейской стратегии по созданию биоэкономики замкнутого цикла



Лаури Хетемяки, Марк Ханевинкель, Барт Муйс,  
Маркку Олликайнен, Марк Палаи и Антони Трасобарес

*Предисловие*

Эско Ахо, Кристина Нарбона Руис, Горан Перссон и Янез Поточник

Summary also in *French, German, Italian and Spanish*. Download here:

<https://www.efi.int/publications-bank/leading-way-european-circular-bioeconomy-strategy>

# Some terminology and concepts

- **Traditional Forest Sector**

forestry and forest industry (*wood products, pulp and paper*)



- **Forest-Based Sector**

*forest sector* + textiles, biofuels, engineered wood products, biochemicals, etc. + services



- **Forest-Based Bioeconomy**

forest-based sector, *but especially emphasizes the role of new and innovative biomass-based products and services in transforming societies to low-carbon and SDGs*



LOWER CARBON FOOTPRINT



# European Union Bioeconomy in 2015



Of which traditional forest sector represents:

- **2.5 mil. jobs**
- **411 € billion turnover**

(EU annual budget 2015 = 145 € billion)

Including other forest-based products, such as, *bio-based textiles, biochemicals, biofuels*, etc. increases significantly these numbers

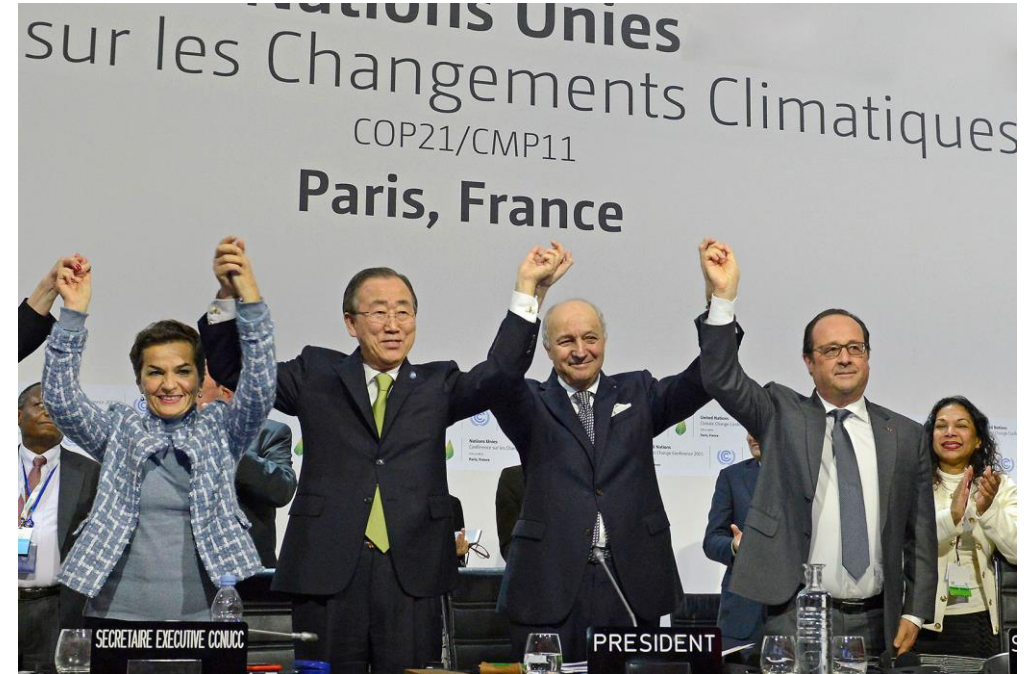


# Bioeconomy is not an end itself, but a necessary tool to achieve the global targets

## SDGs



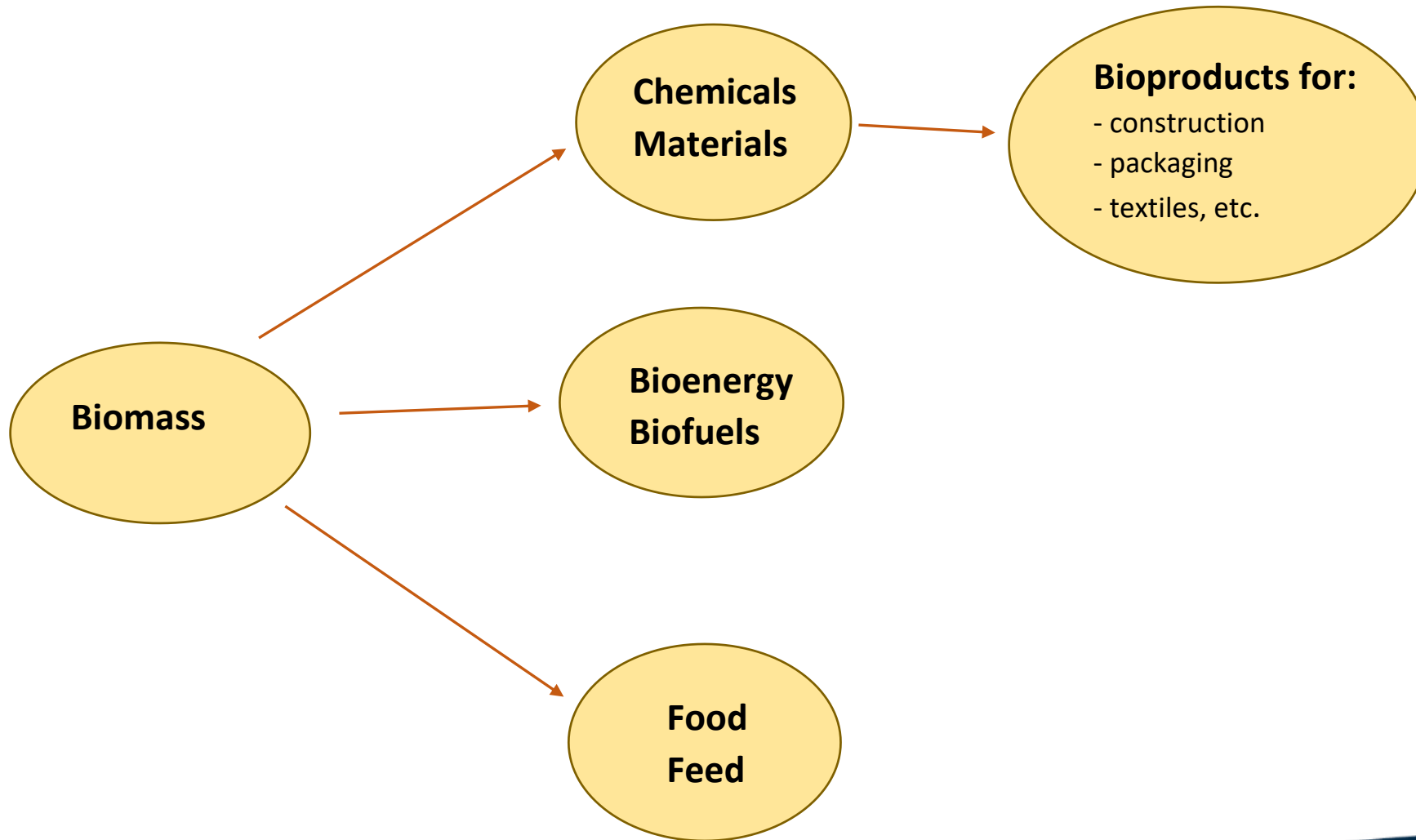
Keeping global temperature rise  
this century well below 2°C



# How we define and understand bioeconomy matters

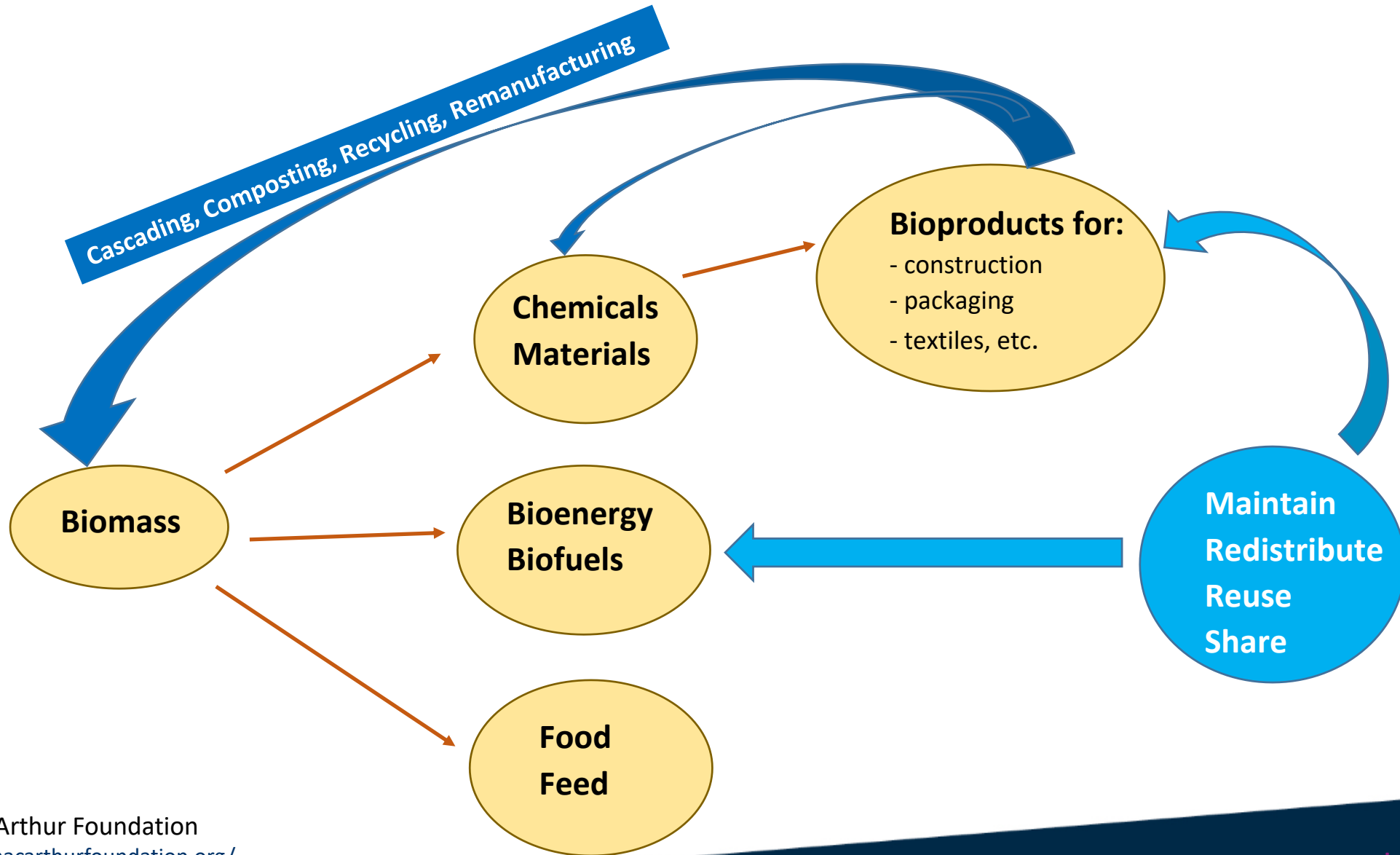


# Bioeconomy: Conventional and EU strategy (2012) view





# Bioeconomy: Conventional with Circular Economy (EMF)



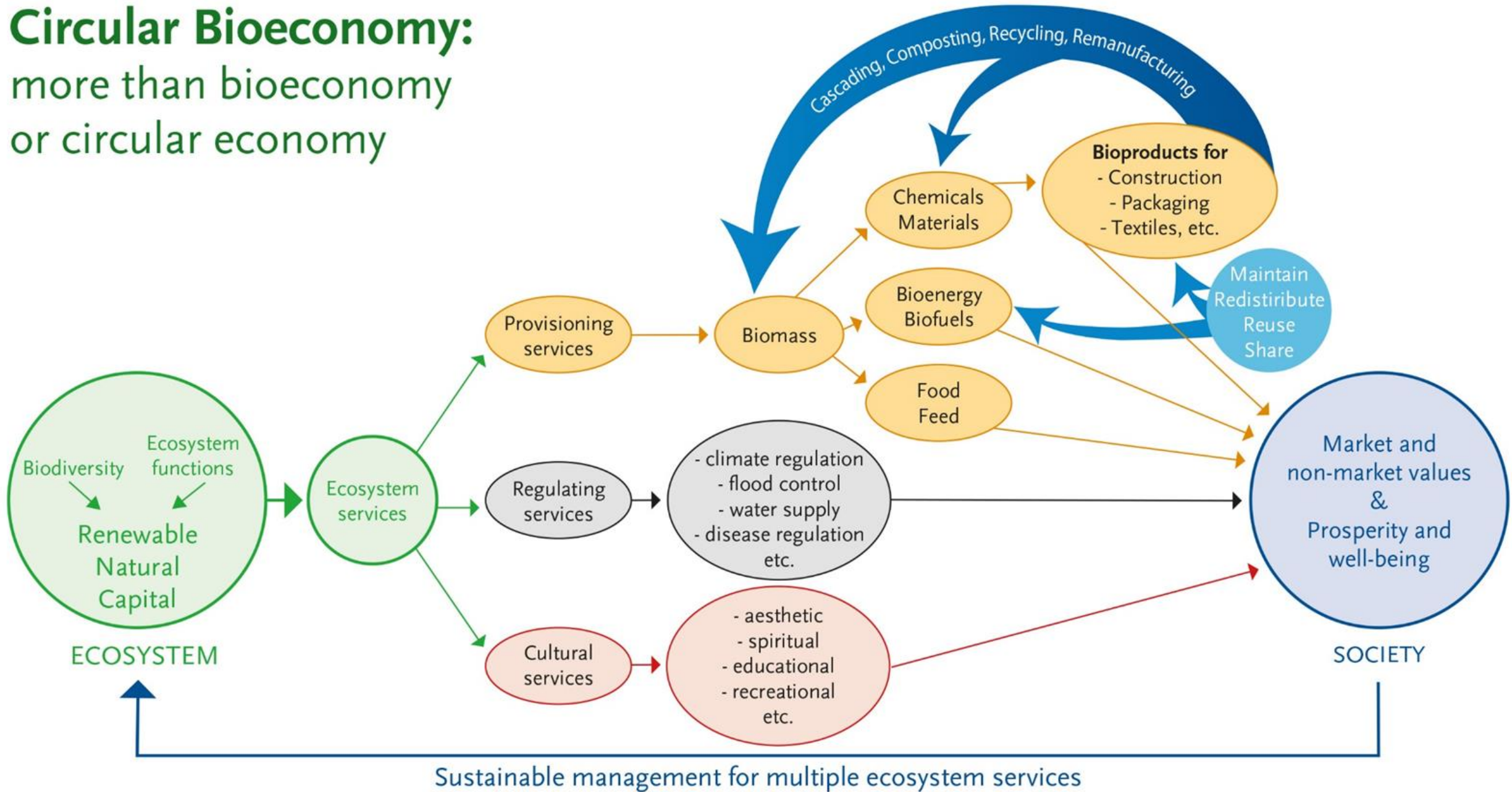
# But these are still too restrictive definitions....

- It is necessary also to include the *natural capital*\* concept and all the *ecosystem services*\*\* under circular bioeconomy
- Also, traditional circularity aspect (~EMF) needs to be complemented with the circularity of the society managing the nature (*e.g. forests*)

\* [https://en.wikipedia.org/wiki/Natural\\_capital](https://en.wikipedia.org/wiki/Natural_capital)

\*\* [https://en.wikipedia.org/wiki/Ecosystem\\_services](https://en.wikipedia.org/wiki/Ecosystem_services)

# Circular Bioeconomy: more than bioeconomy or circular economy

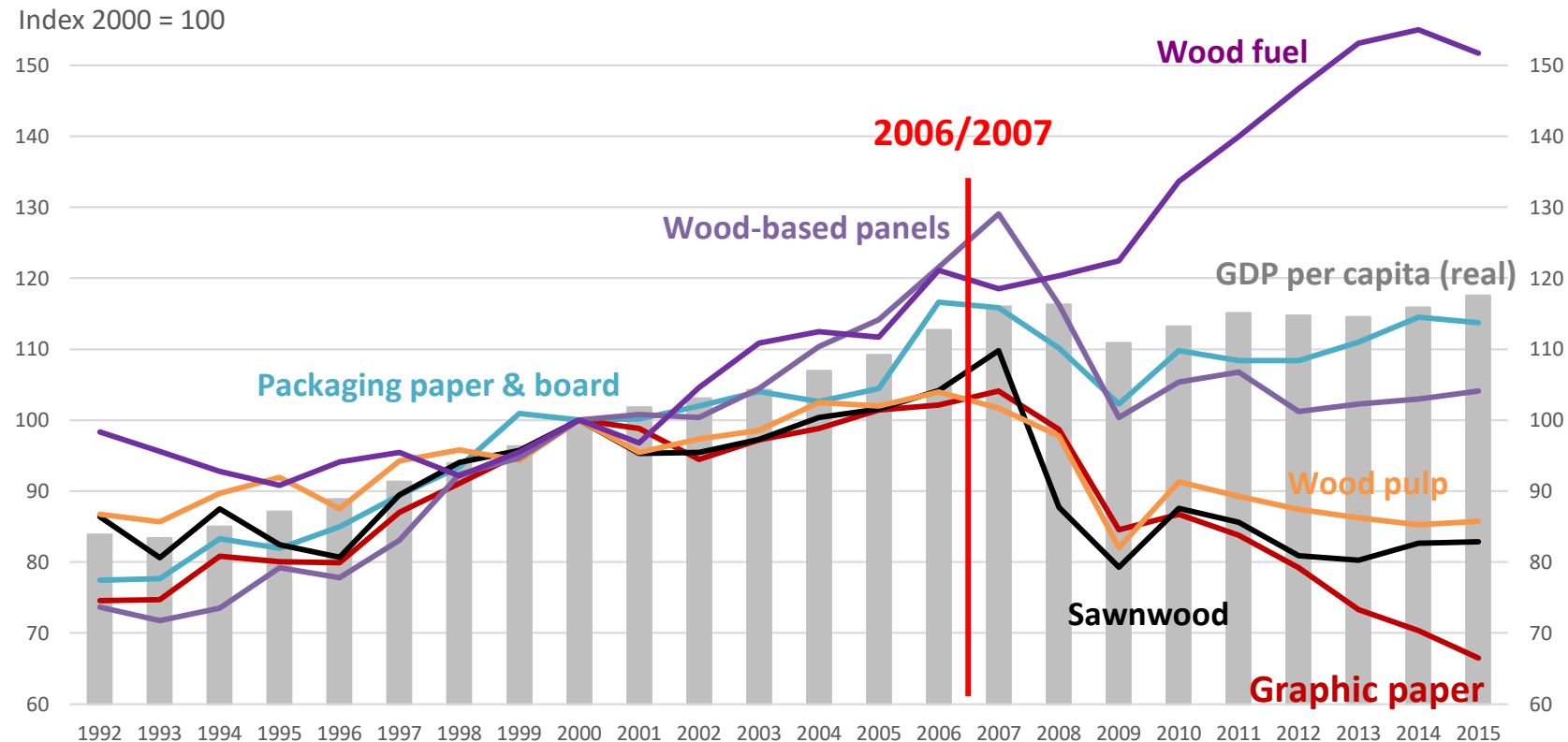


# **How does the outlook for European forest bioeconomy look**



# Traditional forest bioeconomy products consumption in Europe has been slow, stagnating or declining since 2006/2007

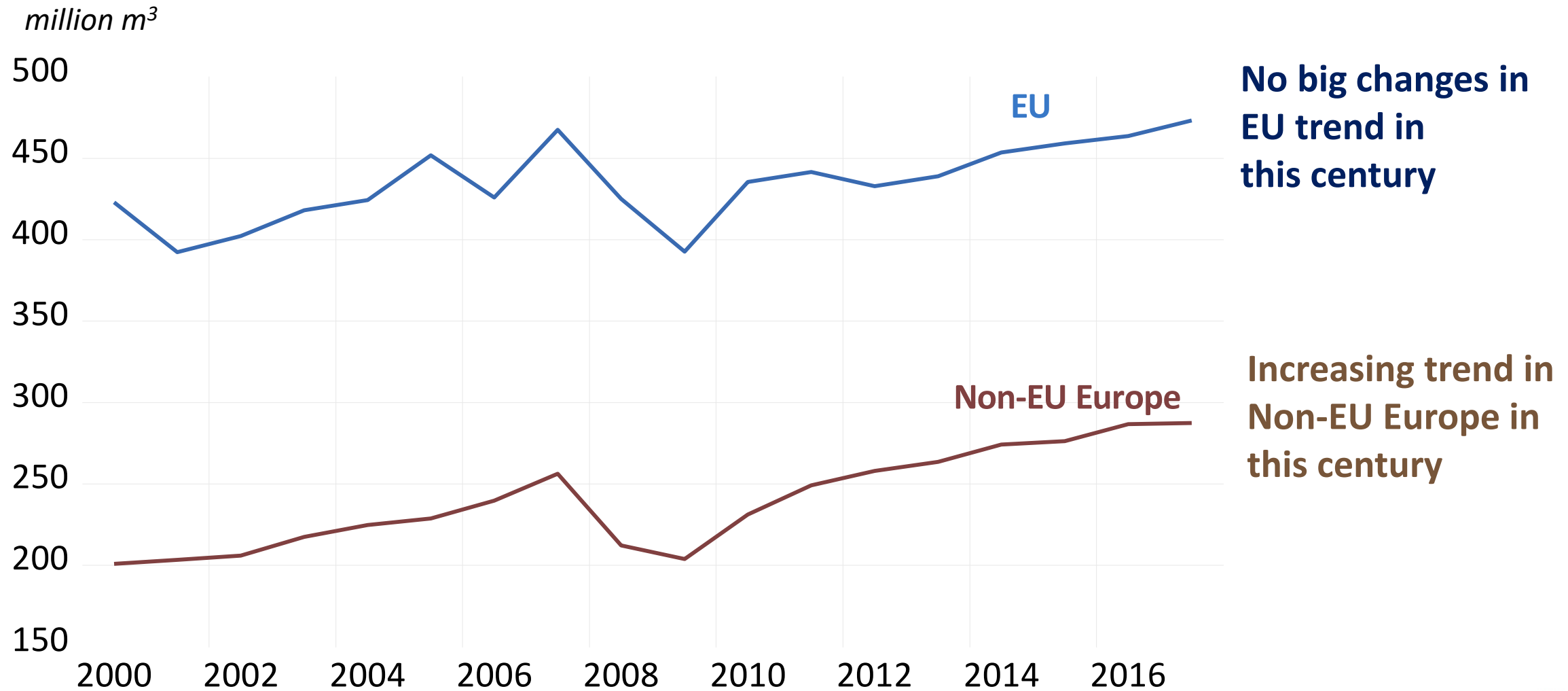
Consumption per capita in Europe (excl. Russia) in 1992-2015



Source: Jonsson, R., Hurmekoski, E., Hetemäki, L. & Prestemon, J. 2017. What is the current state of forest product markets and how will they develop in the future? In Winkel, G. (ed.) What Science Can Tell Us, no. 8, European Forest Institute.

<https://www.efi.int/publications-bank/towards-sustainable-european-forest-based-bioeconomy-assessment-and-way-forward>

# Roundwood Production 2000-2017

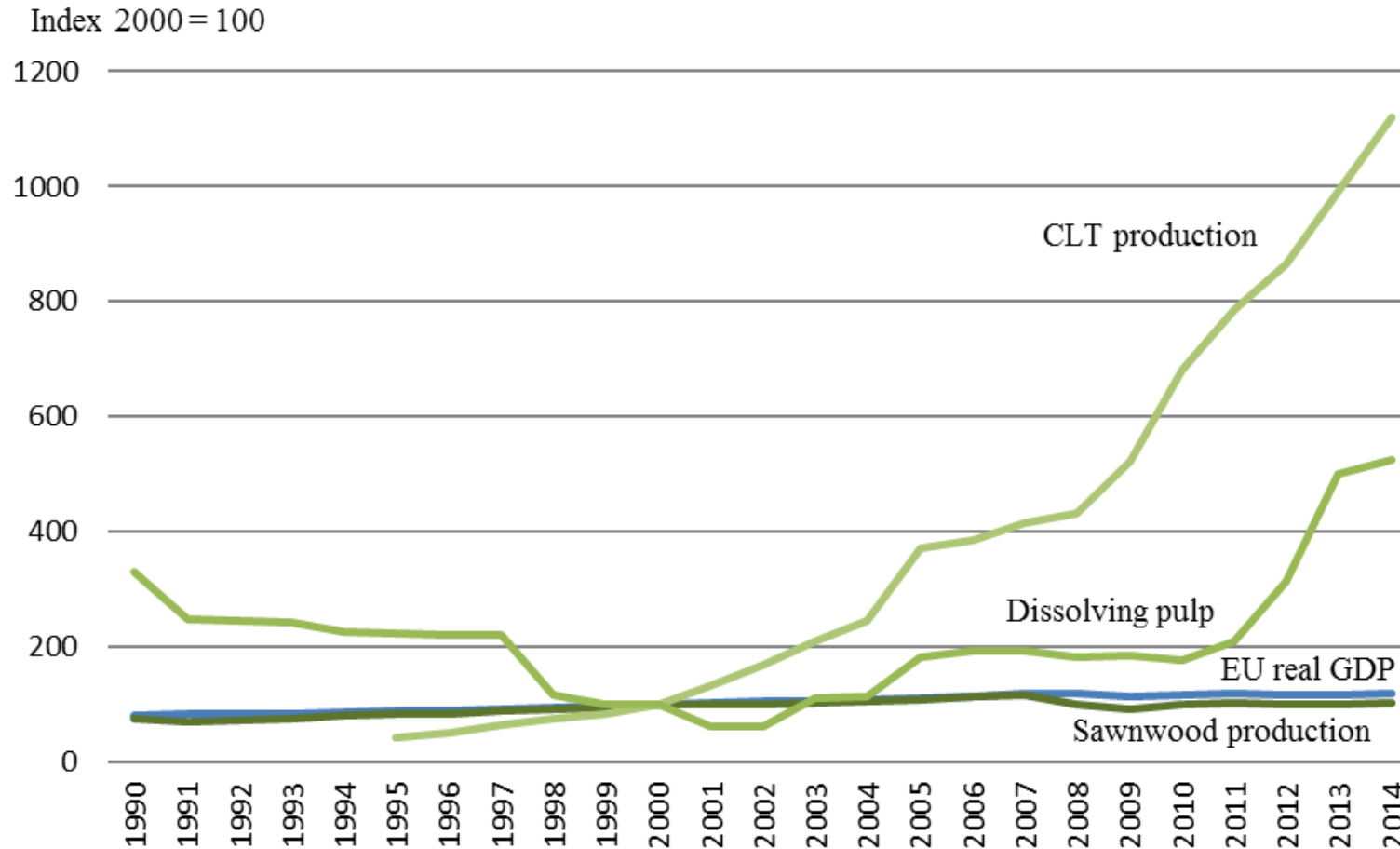


Data: FAOSTAT



# Growth determined also by other factors than GDP

## EU production 1990-2014



### Cross Laminated Timber (CLT)

> 15 % average annual growth rate since 2007, despite the economic downturn!

### Dissolving pulp

> Pöyry (2015) expects the global demand to double by 2030

# All ecosystem services need to be advanced under circular bioeconomy, because:

- To succeed as an tool, and to gain political support
- We will not be able to engage urban population - 75% EU citizens - without advancing also regulating and cultural services (*recreation, water supply, public health, etc.*)
- To find *synergies* and address *trade-offs* between different ecosystem services and biodiversity
- In the end, it will be the role of political process to find acceptable balance between the different needs

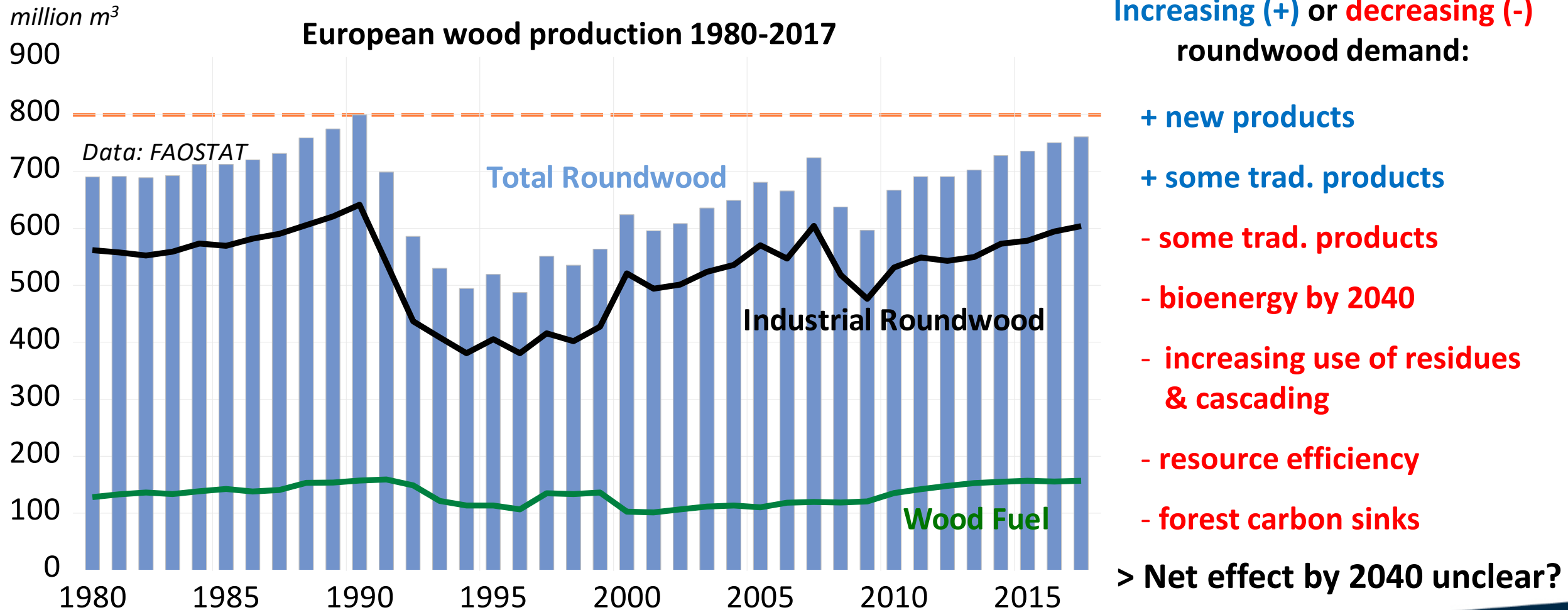


# Forest Bioeconomy Outlook in Europe

PRODUCT / SERVICE	TREND	TURNOVER	EMPLOYMENT	MARKET STAGE
Communication paper	declining	big	big	in market
Packaging paper & board	steadily increasing	big	big	in market + new emerging
Sawnwood & plywood	slowly increasing	big	big	in market
Heat & Power (bioenergy)	slightly increasing	moderate	moderate	in market
Engineered wood products	rapidly increasing	still low	still low	in market + new emerging
Biofules	increasing	still low	still low	in market + new emerging
Biochemicals	increasing	still low	still low	in market + new emerging
Textiles raw material	rapidly increasing	still low	still low	in market + new emerging
Recreation & tourism	increasing	moderate	moderate	in market
Hunting, berries, mushrooms,...	increasing	still low	still low	in market
Biodiversity	increasing	still low	still low	in market
Carbon sequestration in forests	increasing	not yet	not yet	not yet in Europe

*Turnover and employment refer to the current situation*

# Bioeconomy development does not necessarily mean significant increase in wood harvests in Europe



# Key messages



- Bioeconomy is not an end itself, but a *tool*
- How bioeconomy is defined and understood, makes a difference
- Circular bioeconomy needs to include all ecosystem services + management of natural resource (forest)
- Outlook for European Bioeconomy: diversification + growth
- Bioeconomy growth does not necessarily mean significant increase in wood harvests in Europe

***Thank you!***

