



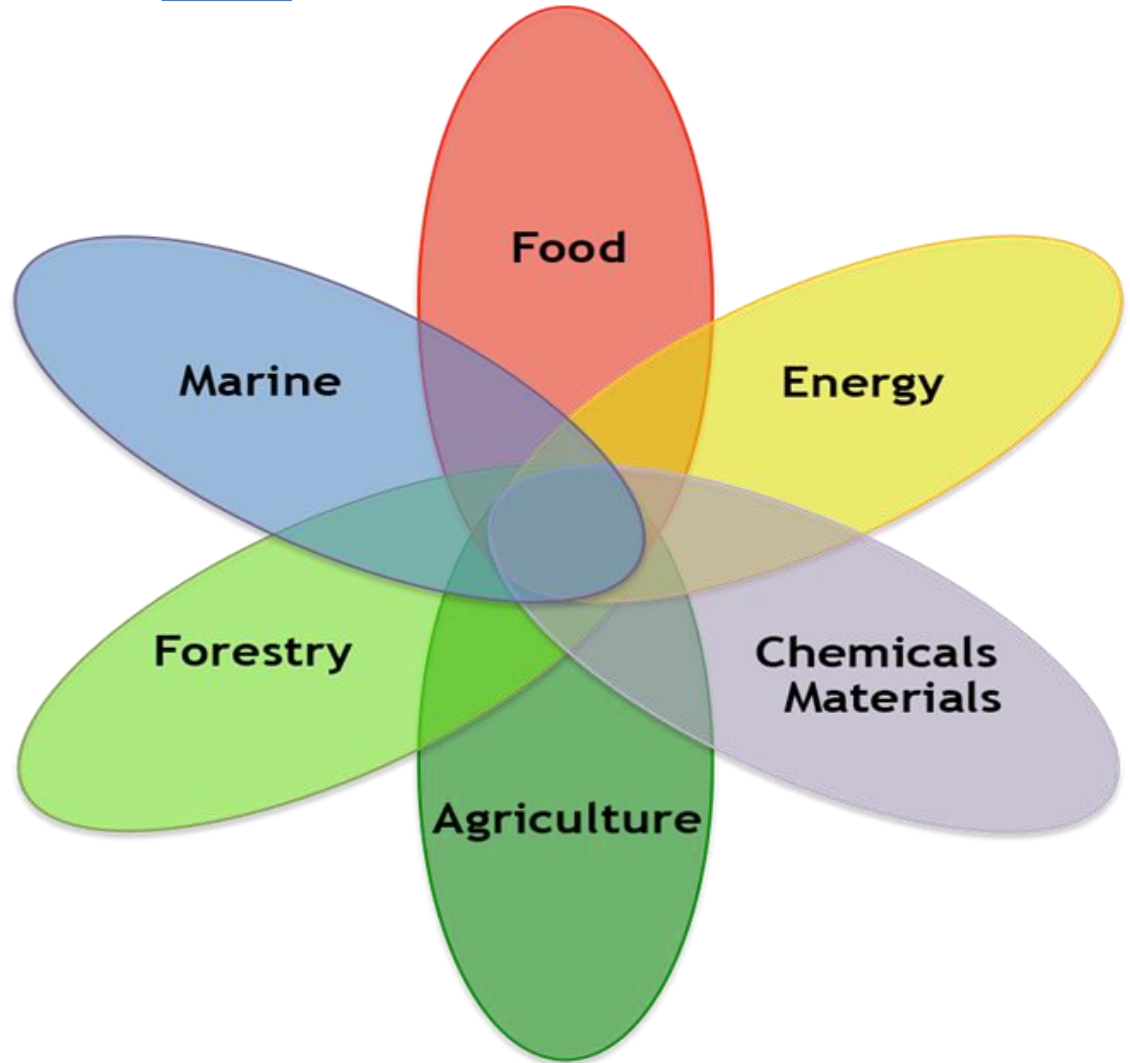
# A Bioeconomy for Europe

Using resources from land and sea  
for a post-petroleum economy

**Lino Paula**  
**Policy Officer**  
**DG RTD, Bioeconomy Directorate**

" The Bioeconomy encompasses those parts of the economy that use **renewable biological resources** from land and sea to produce food, bio-materials, bio-energy and bio-products."

*EU bioeconomy strategy, 2012*



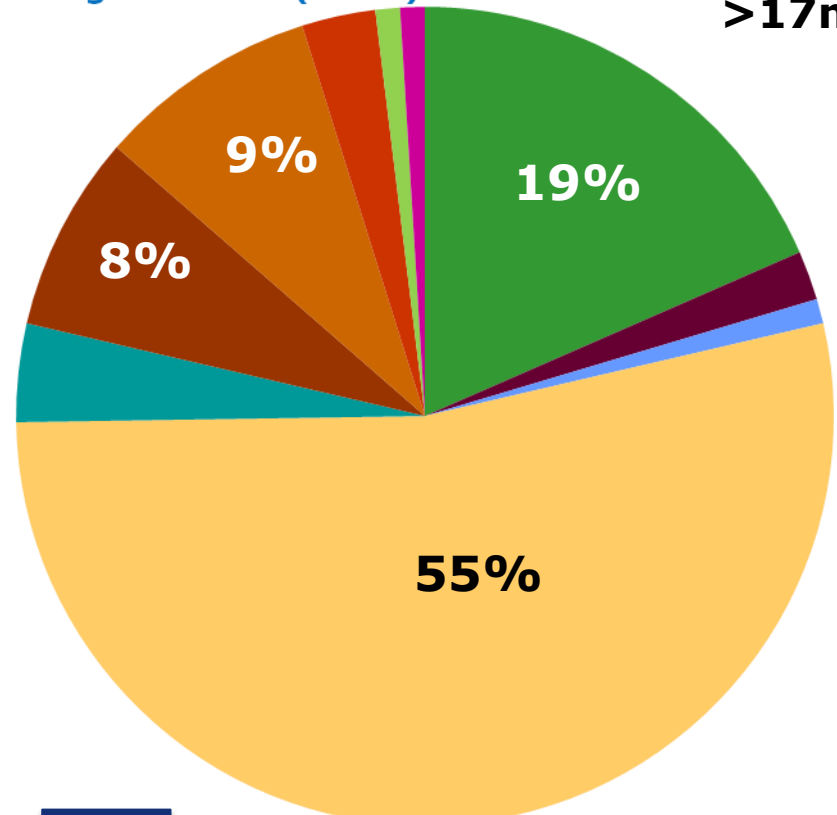


## Bioeconomy is key for Europe

**2 trillion euro turnover**  
**Employs >17m people**

- 19%** ■ Agriculture
- 2% ■ Forestry
- >1% ■ Fisheries & aquaculture
- 55%** ■ Food, beverage & tobacco industry
- 4% ■ Bio-based textiles
- 8%** ■ Manufacturing of wood & wood furniture
- 9%** ■ Manufacturing of paper & paper products
- 3% ■ Bio-based chemicals, pharmaceuticals and plastics
- >1% ■ Biofuels
- >1% ■ Bio-based electricity

**Turnover in the EU-28 by the bioeconomy sector  
In percentage of value (2013)**





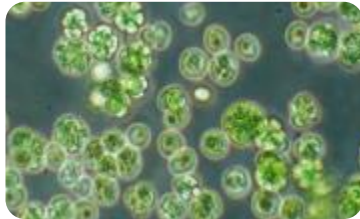
# The innovation opportunity - new value chains, new sources of biomass

## Primary production

## Waste / CO<sub>2</sub>



Sugar beets



Algae



Wood residues



Biological waste



Fish waste

INTO



Cosmetics



Plastic bottles  
Natural colourants  
for candy



Dashboards



Bio-based plastics



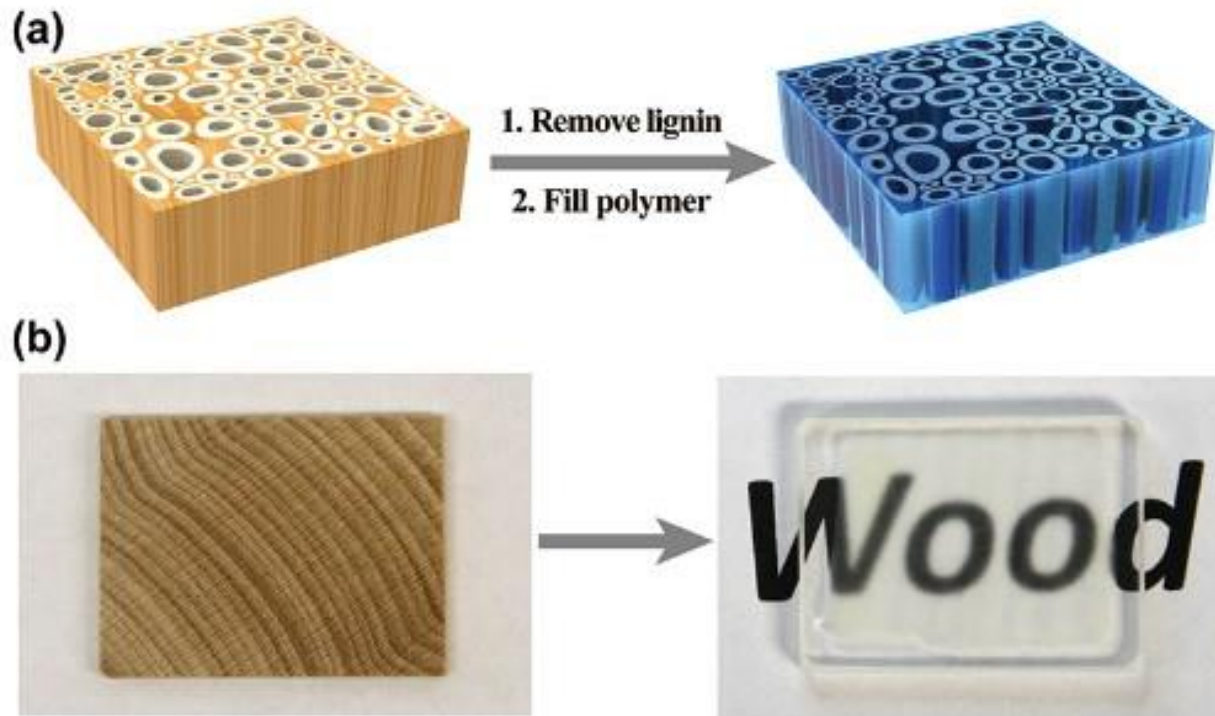
Pharmaceuticals

# ***CNN 27-4-16: 'Why wooden skyscrapers are springing up across the world'***



<http://edition.cnn.com/2016/04/26/design/wooden-skyscrapers-timber-trend-catching-fire/>

# ***CNN 23-5-16: The incredible possibilities of 'invisible' wood***





# Biobased home



# EU Bioeconomy Strategy & Action Plan

## Investment in R&I



- **Horizon 2020 (€3,8b SC2)**
- Increase multi-disciplinary & cross-sectoral R&I
- ESIF - Smart Specialisation
- EFSI

## Policy interaction & stakeholder engagement



- EU Policy coherence
- Development of regional and national bioeconomy strategies
- Bioeconomy Panel
- Bioeconomy Observatory
- International cooperation

## Enhancement of markets & competitiveness in bioeconomy



- Sustainable intensification of primary production
- Expansion of new markets
- Increase EU competitiveness
- **BBI JU**



# Bioeconomy – looking ahead

# The political opportunity

## Juncker Priorities

### 10 priorities

- |    |   |  |    |   |  |
|----|---|--|----|---|--|
| 01 |  | A new boost for jobs, growth and investment.                             | 06 |  | A reasonable and balanced free trade agreement with the United States. |
| 02 |  | A connected digital single market.                                       | 07 |  | An area of Justice and Fundamental Rights based on mutual trust.       |
| 03 |  | A resilient Energy Union with a forward-looking climate change policy.   | 08 |  | Towards a new policy on migration.                                     |
| 04 |  | A deeper and fairer internal market with a strengthened industrial base. | 09 |  | Europe as a stronger global actor.                                     |
| 05 |  | A deeper and fairer Economic and Monetary Union (EMU).                   | 10 |  | A Union of democratic change.  |

Sources: European Parliament, European Commission

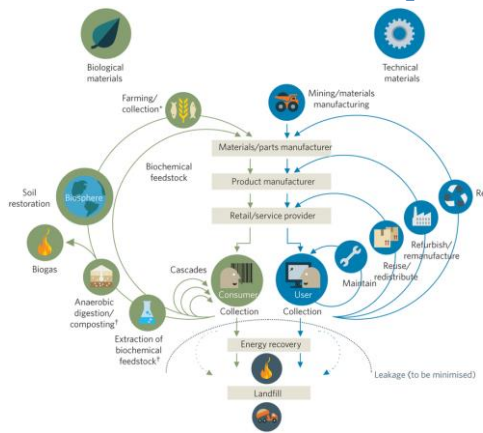
## SDGs Post-2015



## COP21



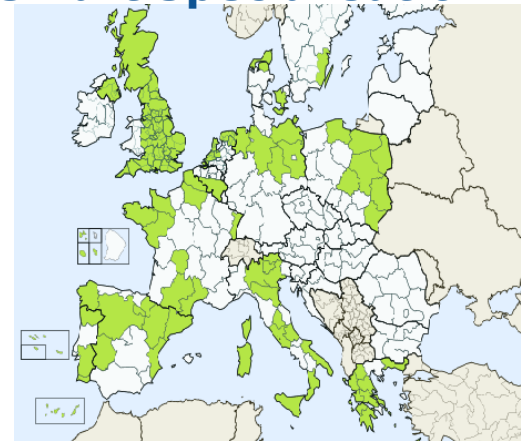
## Circular economy



## Energy Union



## Smart Specialisation



## Several EU MS have adopted **national Bioeconomy Strategies**.



**More than 10 Regions  
are investing in  
Research on  
Bioeconomy (ESIF)**

**Finland and Poland**  
the most involved countries  
(Source: eye@RIS3)



# Bioeconomy and Circular Economy

The Bioeconomy Strategy is of high relevance to the CE package:

- The package includes sectorial chapters on "biomass and bio-based products" and on "food waste";
  - The package includes as an action **"the assessment of the contribution of the 2012 Bioeconomy Strategy to the circular economy and to update the Strategy if necessary"**;
  - Proposal to make the separate collection of bio-waste mandatory under conditions, and to ban the landfilling of separately collected waste.
- *Other relevant bioeconomy aspects for the circular economy are sustainable production, biodegradability, use of bio-waste, new circular value chains, etc.*

PRINCIPLE

1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows  
ReSOLVE levers: regenerate, virtualise, exchange

# Bioeconomy



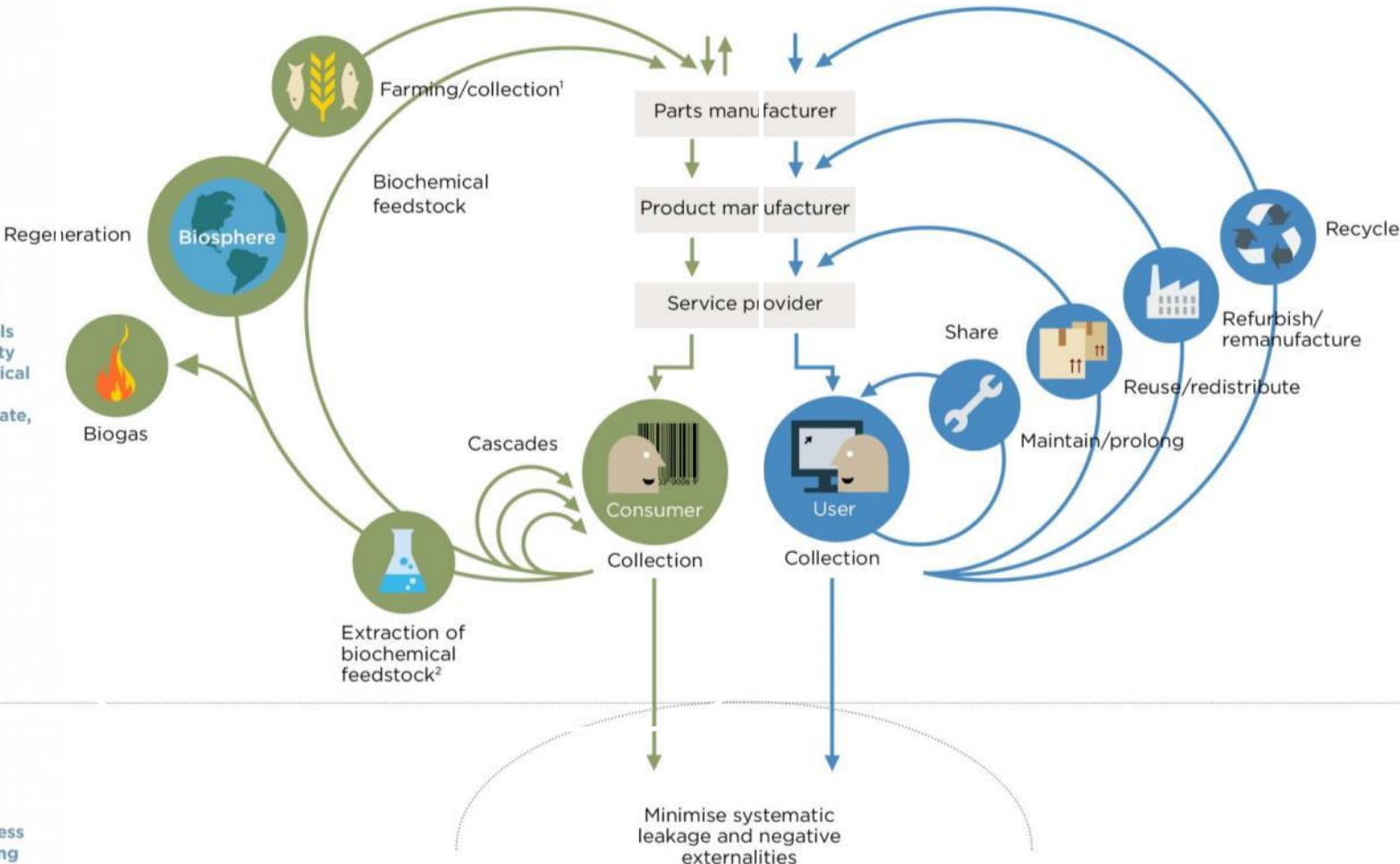
Regenerate      Substitute materials      Virtualise      Restore

Renewables flow management      Stock management

PRINCIPLE

2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles  
ReSOLVE levers: regenerate, share, optimise, loop



PRINCIPLE

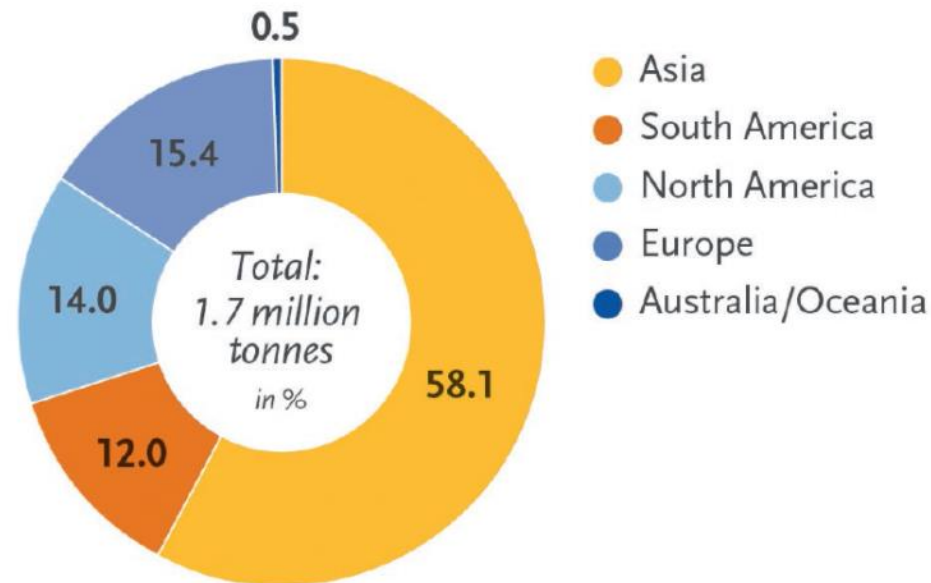
3

Foster system effectiveness by revealing and designing out negative externalities  
All ReSOLVE levers

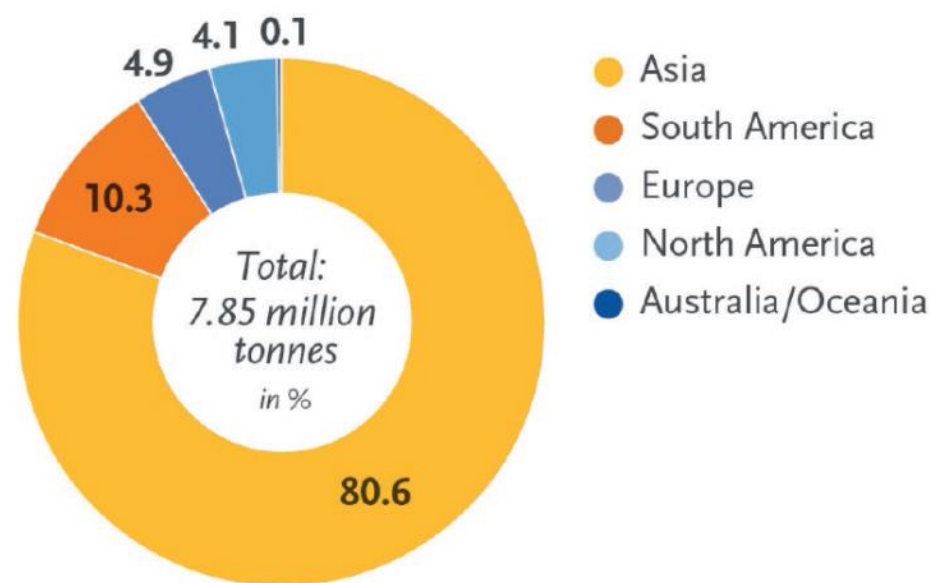
1. Hunting and fishing  
2. Can take both post-harvest and post-consumer waste as an input  
  
Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

# Bioeconomy challenges

*Global production capacities  
of bioplastics in 2014 (by region)*



*Global production capacities  
of bioplastics in 2019 (by region)*

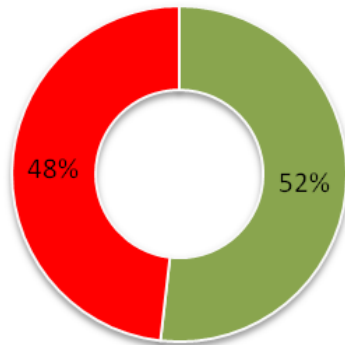


**Europe needs to **act** to remain competitive  
for industrial production and attract  
**investment** in the bioeconomy**

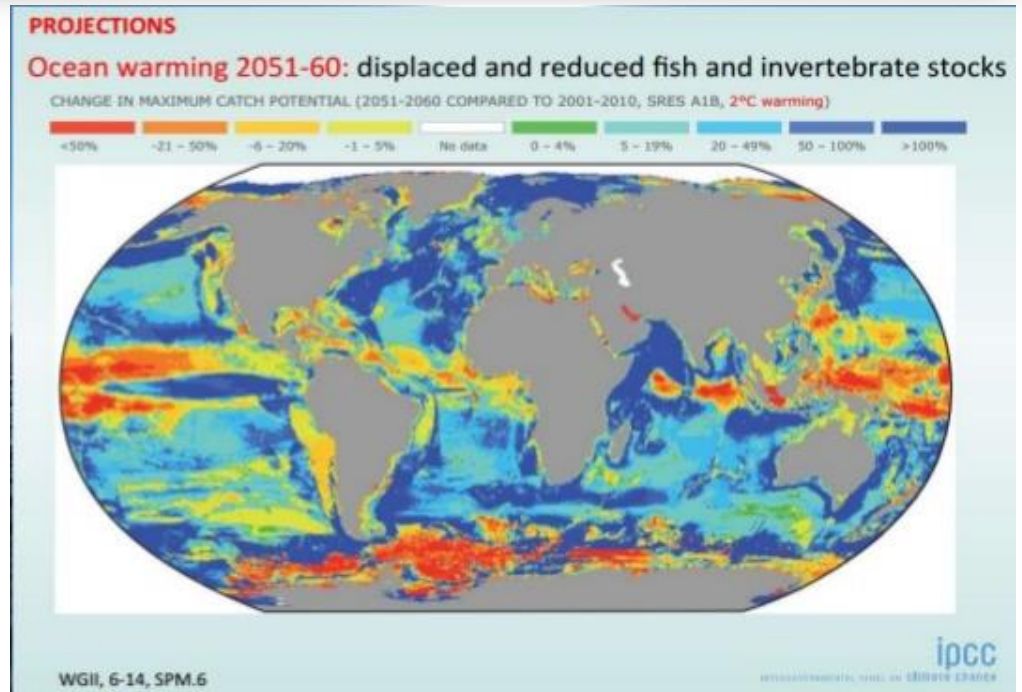
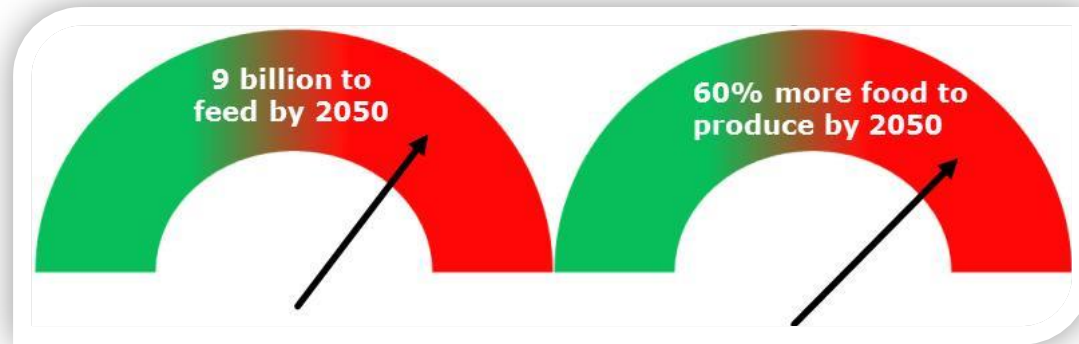
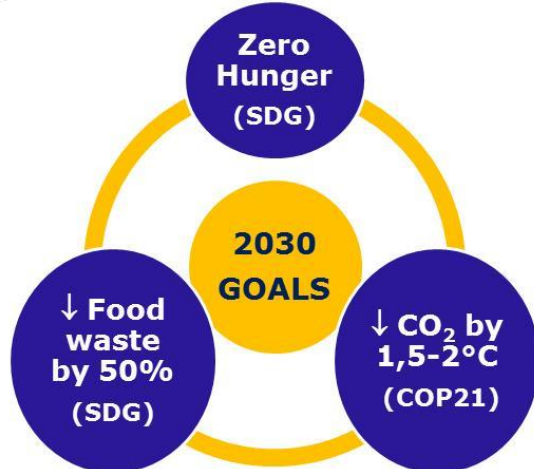


# Bioeconomy challenges

Biomass supply needs ↑



■ EU biomass production ■ Unmet EU demand



# REVIEW BIOECONOMY STRATEGY

*In 2016, a **review** process is foreseen to assess the achievements of the Bioeconomy Strategy*

*The review will build on a variety of inputs:*

- **Expert review**
- **Engagement stakeholders**
- **Engagement citizens**
- **Engagement Member States (SCAR, PC)**

# Engagement stakeholders: 4th Bioeconomy Stakeholders Conference

- *To foster buy-in from **all** stakeholders*
- *As outcome a concept **Bioeconomy Stakeholders' Manifesto** that lists key:*
  - **Challenges and opportunities, Guiding Principles, Actions**
- *Actions focusing on contributions stakeholders themselves can make, but also listing desired actions of MS and the EC*



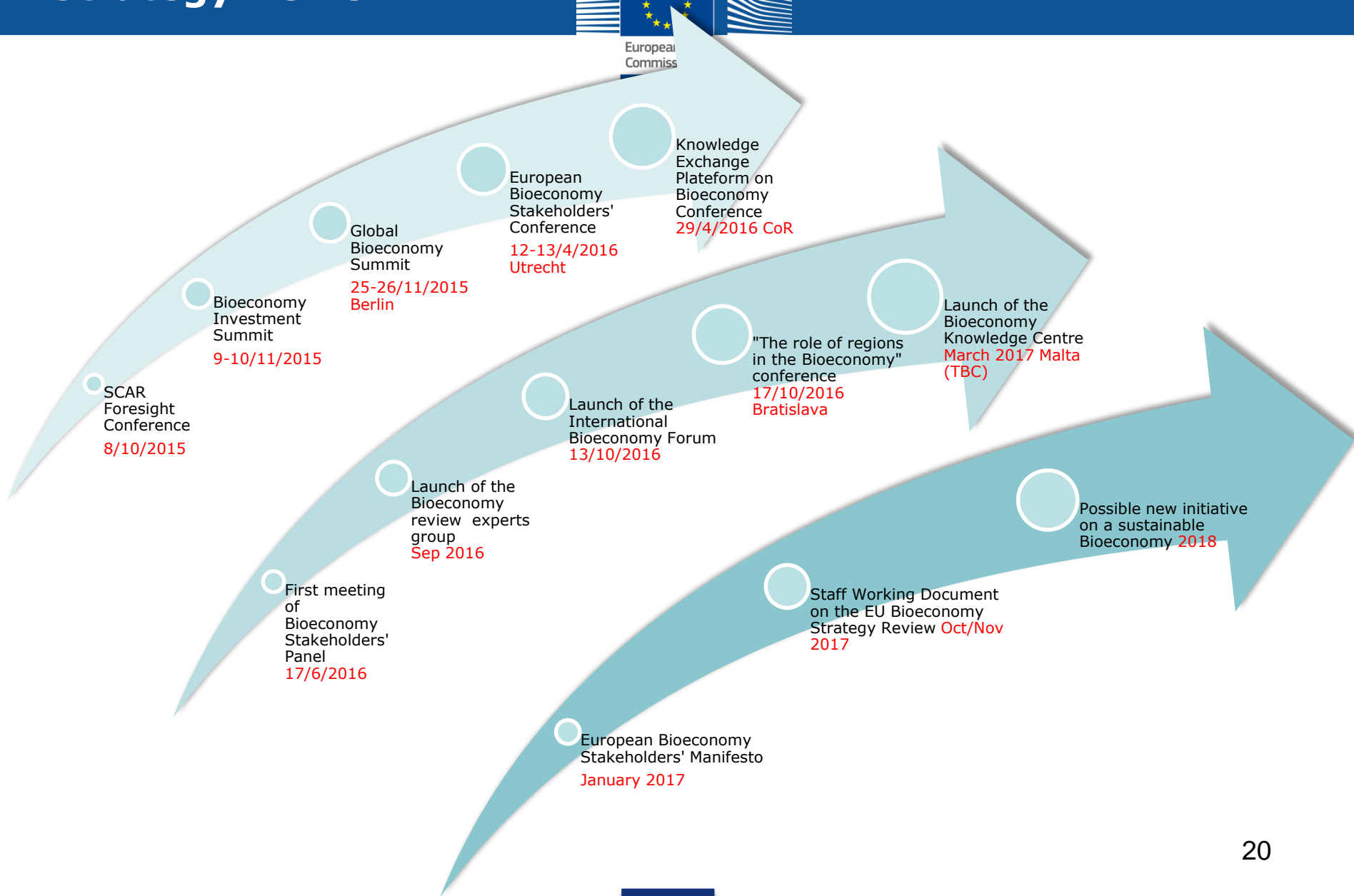
# Manifesto–Actions for stakeholders

- *PPPs*
- *Education*
- *Open innovation*
- *Contribute to circular economy*
- *Regional development, mutual learning*
- *Public awareness, dialogue*
- *Develop sustainability criteria*

## Manifesto – Actions for MS, EC

- *Biobased public procurement*
- *CAP reform*
- *Access to finance / more investment*
- *Innovation deals*
- *Level playing field*
- *More coherence in policy and commitment  
(shared responsibility of multiple DGs at the  
EC)*

# The EU Bioeconomy Strategy Review





# Thank you!

