



# A new **bioeconomy** strategy for a sustainable Europe



The European bioeconomy is one of the EU's largest and most important sectors encompassing agriculture, forestry, fisheries, food, bio-energy and bio-based products with an annual turnover of around 2 trillion euro and employing around 18 million people.

## WHY DO WE NEED THE BIOECONOMY?

We live in a world of limited resources. Global challenges like climate change, land and ecosystem degradation, coupled with a growing demand for food, feed and energy, force us to seek new ways of producing and consuming. A sustainable and circular bioeconomy contributes to addressing these challenges.

## THE BIOECONOMY HAS A HUGE POTENTIAL FOR ...



### Job creation

The bioeconomy already accounts for 8% of the EU's workforce. Bio-based industries could **create up to 1 million green jobs by 2030** especially in rural and coastal areas.

**Example:** the local deployment of one biorefinery can create up to 4000 jobs in four years and better recycling of high value organic waste in cities could create 1200 new jobs in the long run.



### Climate mitigation and a carbon-neutral future

The bioeconomy **reduces emissions and our dependence on fossil resources**.

**Example:** the use of 1 ton of wood instead of 1 ton of concrete in construction can lead to 2.1 ton carbon dioxide reduction. Algae farming can be a new source of renewable biomass for food, materials and energy use.



### A renewed and strengthened EU industrial base and modernised primary production

Deploying the bioeconomy across Europe with **bio-based innovation will modernise agriculture, aquaculture, fisheries and forestry, and will renew industries**.

**Example:** Avoiding food waste can save up to €143 billion annually. Agri-food waste can be turned into biodegradable plastic for food packaging.



### Restoring healthy ecosystems and enhancing biodiversity

The bioeconomy contributes to **the UN Sustainable Development Goals** and to the **EU target of restoring at least 15% of degraded ecosystems by 2020**.

**Example:** up to 12 million tons of plastic are dumped in our oceans every year, but with the help of bioeconomy this amount can be reduced by 90% by 2025.

## WHAT NEEDS TO BE DONE?

With the new bioeconomy strategy the Commission supports initiatives at national and regional level to develop an efficient and sustainable bioeconomy. The three-tiered plan:

- ▶▶ **1 Strengthen and scale-up the bio-based sector for example by:**
  - launching a €100 million Circular Bioeconomy Thematic Investment Platform to bring bio-based innovations closer to the market and de-risk private investments
  - facilitating the development of new sustainable biorefineries across Europe
  - promoting and developing standards, labels and market uptake of bio-based products, such as the EU Ecolabel or green public procurement.
  
- ▶▶ **2 Rapidly spread bioeconomies across the whole of Europe via:**
  - a strategic deployment agenda for sustainable food and farming systems, forestry and bio-based products
  - bioeconomy innovations with pilot actions in rural, coastal and urban areas
  - a policy support facility to help Member States and regions develop and implement their own bioeconomy strategies.
  
- ▶▶ **3 Understand the ecological limitations of the bioeconomy by:**
  - implementing an EU-wide monitoring system to track progress towards a sustainable and circular bioeconomy
  - enhancing our knowledge base and understanding of specific – and today still young – bioeconomy sectors
  - providing guidance on how best to operate the bioeconomy within safe ecological limits.

## HOW DOES THE EU SUPPORT THE BIOECONOMY?

The EU supports the bioeconomy with research and innovation funding. It has already invested **€3.85 billion** under Horizon 2020 (2014-2020) and proposed **€10 billion** for food and natural resources, including the bioeconomy, under Horizon Europe (2021-2027).

Examples of EU-funded projects include:

### AGRICHEMWHEY

... develops the world's first integrated biorefinery for converting by-products of the dairy industry into products such as bio-based fertilisers and mineral supplements for human nutrition. AGRICHEMWHEY makes milk production more sustainable.

<https://www.agrichemwhey.com>

### RES URBIS

... designs facilities to turn bio-waste generated in our cities – by homes, restaurants and shops – into bio-plastic and a number of related products. RES URBIS uses not only food and kitchen waste but also sludge from the treatment of waste-water, residue from gardens and parks, as well as nappies.

<http://www.resurbis.eu>

### MIRACLES

... bio-refines microalgae with the use of carbon dioxide and light energy to create high value products for applications in food, aquaculture and non-food products such as fertilisers.

<http://miraclesproject.eu>

### METSÄ FIBRE MILL

... is a fully energy self-sufficient (240%) bio-mill which provides enough bioenergy to increase Finland's share in renewable energies by 2 percentage points. A €1.2 billion investment, for which the project received a €75 million loan under the Juncker Plan.


<https://europa.eu/Vh96gn>

# EU BIOECONOMY

  
**EMPLOYMENT**  
(MILLION JOBS)  
**18**

  
**TURNOVER**  
(TRILLION EUR)  
**2.3**

  
**VALUE ADDED**  
(BILLION EUR)  
**621**

		EMPLOYMENT (MILLION JOBS)	TURNOVER (BILLION EUR)	VALUE ADDED (BILLION EUR)
	<b>AGRICULTURE</b>	9.2	380	174
	<b>FORESTRY</b>	0.5	50	24
	<b>FISHING AND AQUACULTURE</b>	0.2	12	7
	<b>FOOD, BEVERAGES AND OTHER AGRO-MANUFACTURING</b>	4.5	1 153	233
	<b>BIO-BASED TEXTILES</b>	1.0	103	28
	<b>WOOD PRODUCTS AND FURNITURE</b>	1.4	174	47
	<b>PAPER</b>	0.6	187	46
	<b>BIO-BASED CHEMICALS AND PHARMA- CEUTICALS, PLASTICS AND RUBBER</b>	0.4	177	56
	<b>LIQUID BIOFUELS</b>	0.03	12	3
	<b>BIOELECTRICITY</b>	0.01	11	3