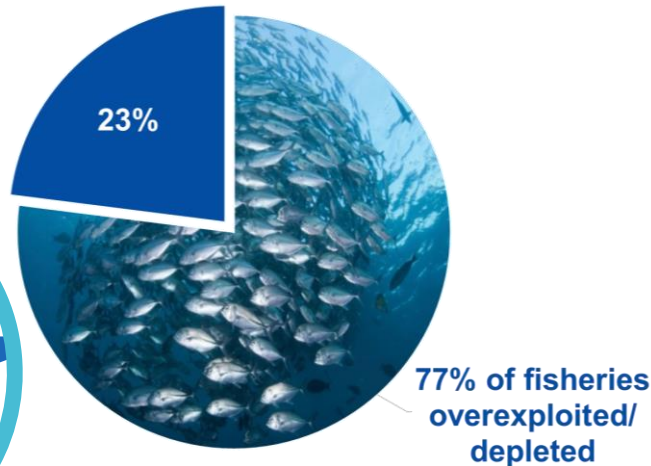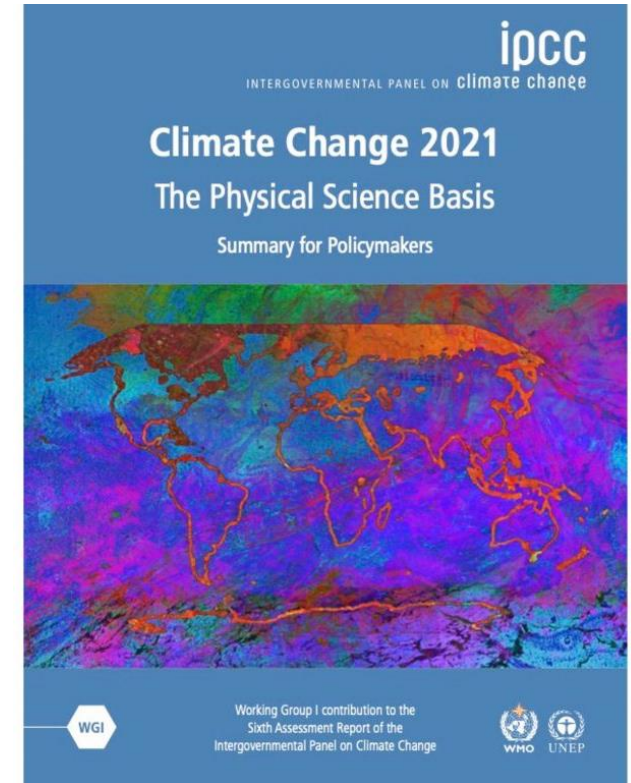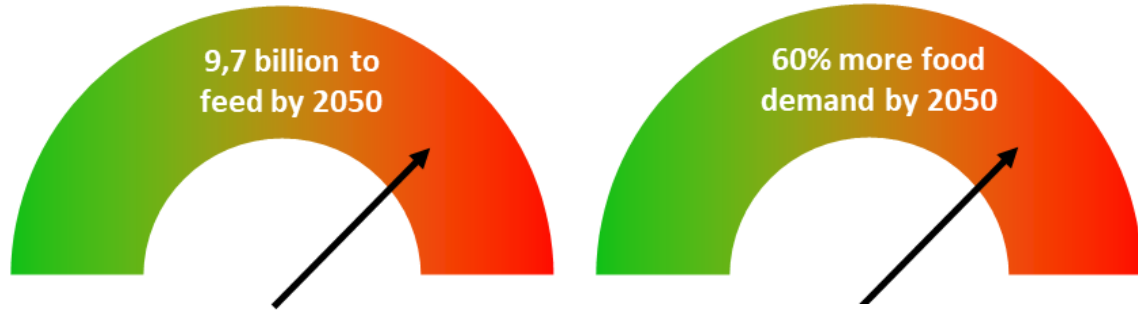# R&I action on food systems and bioeconomy under Horizon Europe Cluster 6

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Bioeconomy & Food Systems Unit

Horizon Europe and innovation for Societal Grand Challenges: Agri-food, Health, and Water
8 September, 2021

Food Systems face the "perfect storm"

9,7 billion to feed by 2050

60% more food demand by 2050

2 billion overweight & obese

462 million under-weight

Yet 1/3 food wasted

23%

77% of fisheries overexploited/depleted

PRODUCING FOOD

Uses 70% H2O

Uses 30% Energy

Delivers 25% GHG

Zero Hunger (SDG)

2030 GOALS

↓ Food waste by 50% (SDG)

↓ CO_2 by 1,5-2°C (COP21)

ipcc
INTERGOVERNMENTAL PANEL ON climate change

Climate Change 2021
The Physical Science Basis
Summary for Policymakers

WGI

Working Group I contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

WMO UNEP

European Commission

> *With its potential to connect and implement transformative policies holistically, the bioeconomy will contribute to all dimensions and objectives of the European Green Deal. Research and innovation will enable Europe to lead the green and digital transition.*

Mariya Gabriel, EU Commissioner for Innovation, Research, Culture, Education and Youth

Research and Innovation

Bioeconomy – a blueprint for green growth which:

- ➢ Holistically addresses the economic, social and environmental aspects

- ➢ Contributes to a climate-neutral future

- ➢ Promotes resource efficiency and circularity

- ➢ Reduces dependence on non-renewable resources

- ➢ Safeguards biodiversity and ecosystems

- ➢ Provides opportunities for fair and just transition

- ➢ Green business opportunities for SMEs

See Factsheet on **How the bioeconomy contributes to the Green Deal** (https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/66722c8d-2e03-11eb-b27b-01aa75ed71a1)

European Commission

Farm to Fork at the heart of the European Green Deal

Farm to Fork
- Sustainable Food Production
- Sustainable Food Processing & Distribution
- Sustainable food consumption
- Food Loss & Waste Prevention

2030 Targets for sustainable food production

PESTICIDES
50%
Reduce the overall use and risk of chemical and hazardous pesticides

NUTRIENT LOSSES
50%
Reduce nutrient losses by 50% whilst retaining soil fertility, resulting in 20% less fertilisers

ANTIMICROBIALS
50%
Reduce sales of antimicrobials for farmed animals and aquaculture
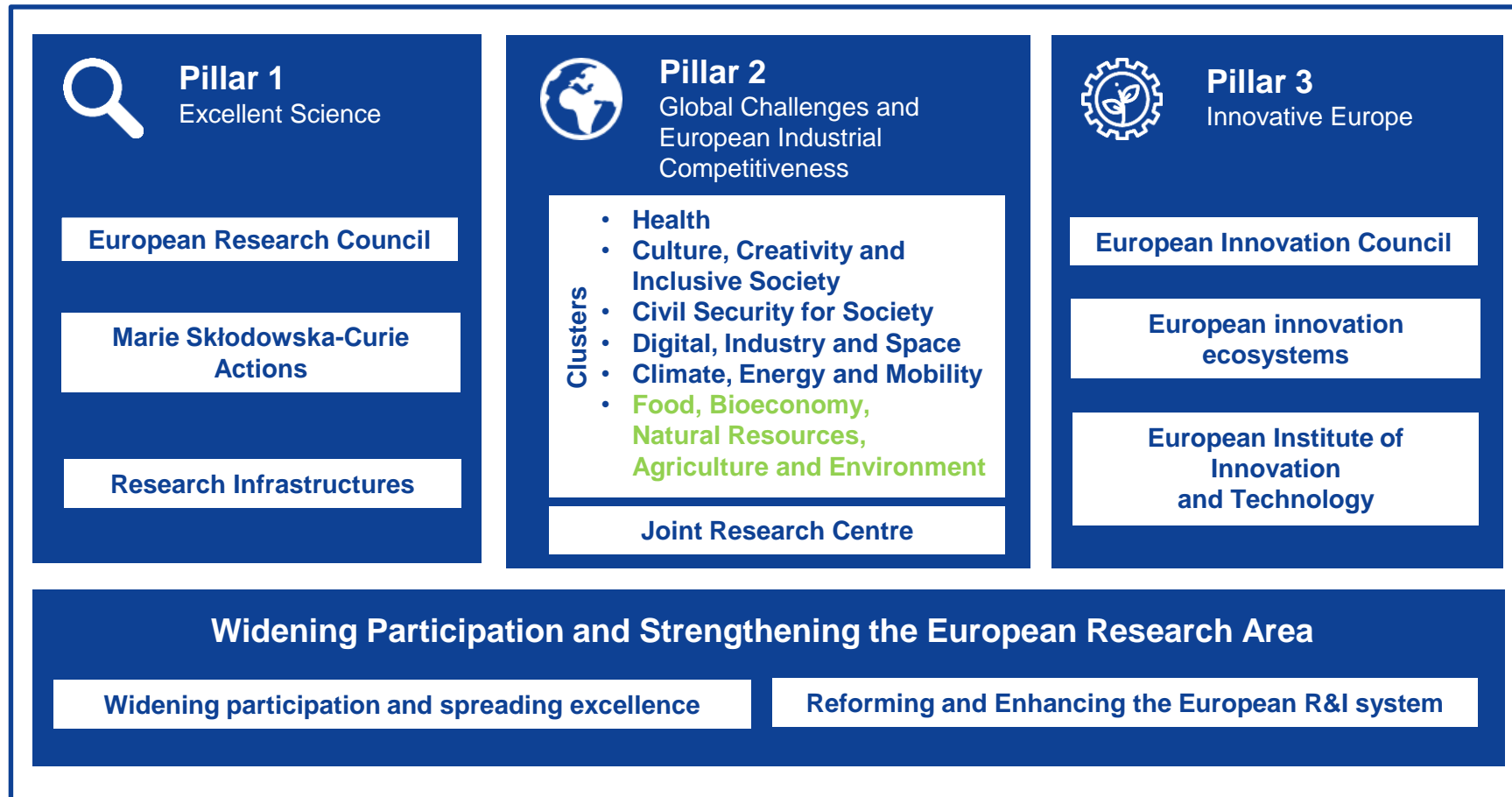
ORGANIC FARMING
25%
Increase the percentage of organically farmed land in the EU

European Commission

The EU Bioeconomy Strategy and Action Plan

- **SUSTAINABILITY and CIRCULARITY at its core**

- **SYSTEM-wide approach - policies across sectors**

- **addressing trade-offs, co-benefits**

- **A set of 14 well-defined actions including a monitoring system with clear indicators**

Horizon Europe: structure & resources

Pillar 1
Excellent Science

- European Research Council
- Marie Skłodowska-Curie Actions
- Research Infrastructures

Pillar 2
Global Challenges and European Industrial Competitiveness

Clusters
- Health
- Culture, Creativity and Inclusive Society
- Civil Security for Society
- Digital, Industry and Space
- Climate, Energy and Mobility
- Food, Bioeconomy, Natural Resources, Agriculture and Environment

Joint Research Centre

Pillar 3
Innovative Europe

- European Innovation Council
- European innovation ecosystems
- European Institute of Innovation and Technology

Widening Participation and Strengthening the European Research Area

- Widening participation and spreading excellence
- Reforming and Enhancing the European R&I system

EUR 8,952 billion under Horizon Europe
for Cluster 6 "Food, Bioeconomy, Natural Resources, Agriculture and Environment"

European Commission

Strategic Plan 2021-2024 and Cluster 6

- Four **Key Strategic Orientations** defined on the basis of political priorities (EGD) and the post-COVID recovery plan – will guide the Horizon Europe programmes until 2024.

- **Cluster 6 expected impacts contribute mainly to** the Key Strategic Orientation of *"Restoring Europe's ecosystems and biodiversity, and managing sustainably natural resources to ensure food security and a clean and healthy environment"*

- Cluster 6 will support these Impact Areas:

  - **Enhancing ecosystems and biodiversity on land and in waters**

  - **Clean and healthy air, water and soil**

  - **Sustainable food systems from farm to fork on land and sea**

  - **Circular and clean economy**

Cluster 6 - FOOD, BIOECONOMY, NATURAL RESOURCES, AGRICULTURE & ENVIRONMENT: From expected impacts to destinations

Strategic Plan

Work Programme

Impact 1 Climate neutrality and adaptation to climate change

- Destination 5: Land, oceans and water for climate action

Impact 2 Preservation and restoration of biodiversity and ecosystems

- Destination 1: Biodiversity and ecosystem services

Impact 3 Sustainable and circular management of natural resources; tackling pollution; bioeconomy

- Destination 3: Circular economy and bioeconomy sectors
- Destination 4: Clean environment and zero pollution

Impact 4 Food and nutrition security for all from sustainable food systems from farm to fork

- Destination 2: Fair, healthy and environmentally-friendly food systems from primary production to consumption

Impact 5 Balanced development of rural, coastal and urban areas

- Destination 6: Resilient, inclusive, healthy and green rural, coastal and urban communities

Impact 6 Innovative governance models enabling sustainability, environmental observation

- Destination 7: Innovative governance, environmental observations and digital solutions in support of the Green Deal

Cluster 6 – Food Systems

Destination 2 (*Fair, healthy and environmentally-friendly food systems from primary production to consumption*)

- **Work Programme 2021-22:** 416,5 EUR million, 38 topics

- Examples of **topics on food systems** and their expected outcomes:

  - Improving knowledge on alternative proteins and the environmental and health impact of possible dietary shifts;

  - Support to decision-makers in food waste prevention and research into social norms responsible for food waste;

  - Mapping of microorganisms and their benefits and potential in food processing;

  - Understanding of factors influencing dietary behaviour and effective means to foster behavioural changes

Cluster 6 – Bioeconomy

Addressed across all Destinations due to the horizontal nature of the policy

- Examples of **bioeconomy topics** and **their expected impacts** in WP 2021-22:

  - Identification and development of non-plant biomass feedstock for industrial applications;

  - Marginal lands and climate-resilient and biodiversity-friendly crops for sustainable industrial feedstocks

  - Deployment of small-scale innovative bio-based solutions in EU rural areas

European Commission

Cluster 6 WP 2021-2022: 2021 calls

Name of the destination	Call identifier	Opening date	Deadline	Number of topics
1. Biodiversity and Ecosystem Services	HORIZON-CL6-2021-BIODIV-01	22/06/2021	6/10/2021	21
	HORIZON-CL6-2021-BIODIV-02	22/06/2021	22/07/2021	1
2. Fair, healthy and environmentally-friendly food systems from primary production to consumption	HORIZON-CL6-2021-FARM2FORK-01	22/06/2021	6/10/2021	19
3. Circular economy and bioeconomy sectors	HORIZON-CL6-2021-CircBio-01	22/06/2021	6/10/2021	9
4. Clean environment and zero pollution	HORIZON-CL6-2021-ZEROPOLLUTION-01	22/06/2021	6/10/2021	10
5. Land, oceans and water for climate action	HORIZON-CL6-2021-CLIMATE-01	22/06/2021	6/10/2021	10
6. Resilient, inclusive, healthy and green rural, coastal and urban communities	HORIZON-CL6-2021-COMMUNITIES-01	22/06/2021	6/10/2021	6
7. Innovative governance, environmental observations and digital solutions in support of the Green Deal	HORIZON-CL6-2021-GOVERNANCE-01	22/06/2021	6/10/2021	28
TOTAL				104

European Commission

Horizon Europe Partnerships

HORIZON EUROPE PILLAR II - Global challenges & European industrial competitiveness

CLUSTER 1: Health	CLUSTER 4: Digital, Industry & Space	CLUSTER 5: Climate, Energy & Mobility	CLUSTER 6: Food, Bioeconomy, Agriculture, …
Innovative Health Initiative	Key Digital Technologies	Clean Hydrogen	Circular Bio-based Europe
Global Health Partnership	Smart Networks & Services	Clean Aviation	Rescuing Biodiversity to Safeguard Life on Earth
Transformation of health systems	High Performance Computing	Single European Sky ATM Research 3	Climate Neutral, Sustainable & Productive Blue Economy
Chemicals risk assessment	European Metrology (Art. 185)	Europe's Rail	Water4All
ERA for Health	AI-Data-Robotics	Connected and Automated Mobility (CCAM)	Animal Health & Welfare*
Rare diseases*	Photonics	Batteries	Accelerating Farming Systems Transitions*
One-Health Anti Microbial Resistance*	Made in Europe	Zero-emission waterborne transport	Agriculture of Data*
Personalised Medicine*	Clean steel – low-carbon steelmaking	Zero-emission road transport	Safe & Sustainable Food System*
Pandemic Preparedness* Co-funded or co-programmed	Processes4Planet	Built4People	
	Global competitive space systems**	Clean Energy Transition	
		Driving Urban Transitions	

PILLAR III - Innovative Europe

EIT (KNOWLEDGE & INNOVATION COMMUNITIES)	SUPPORT TO INNOVATION ECOSYSTEMS
InnoEnergy	Innovative SMEs
Climate	
Digital	
Food	
Health	
Raw Materials	
Manufacturing	
Urban Mobility	
Cultural and Creative Industries	

CROSS-PILLARS II & III

European Open Science Cloud

Legend:
- Institutionalised Partnerships (Art 185/7)
- Institutionalised Partnerships / EIT KICs
- Co-Programmed
- Co-Funded

* Calls with opening dates in 2023-24
** Calls with opening dates not before 2022

European Commission

Horizon Europe Missions

Adaptation to climate change, including societal transformation
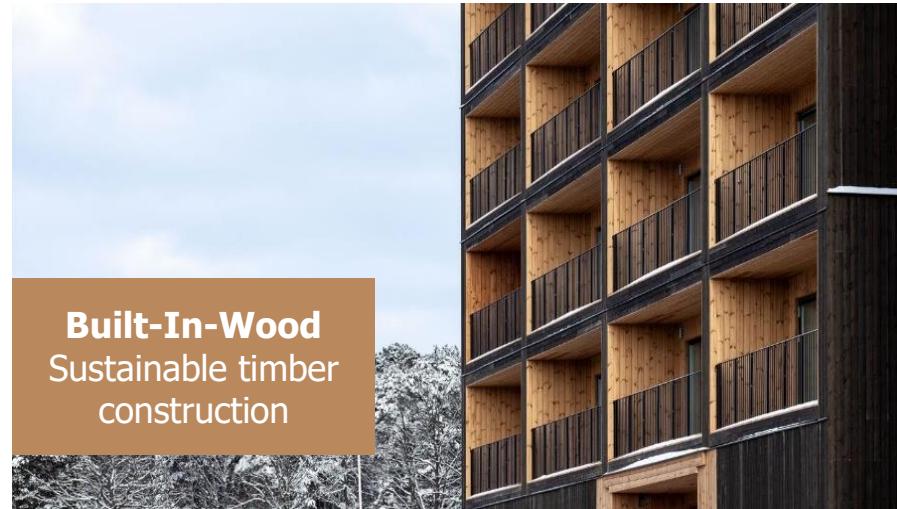
Cancer

Healthy oceans, seas, coastal & inland waters

Climate-neutral & smart cities

Soil health & food

Examples of innovation in action

MULTI-STR3AM project
Multi-product algae biorefinery

Built-In-Wood
Sustainable timber construction

GLOPACK
Novel packaging

B4EST
Adaptive forest breeding for climate change

European Commission

Thank you

European Commission