



INTRODUCTION TO THE EUROPEAN BIOECONOMY STRATEGY AND SCAR

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This presentation shall neither be binding nor construed as constituting commitment by the European Commission

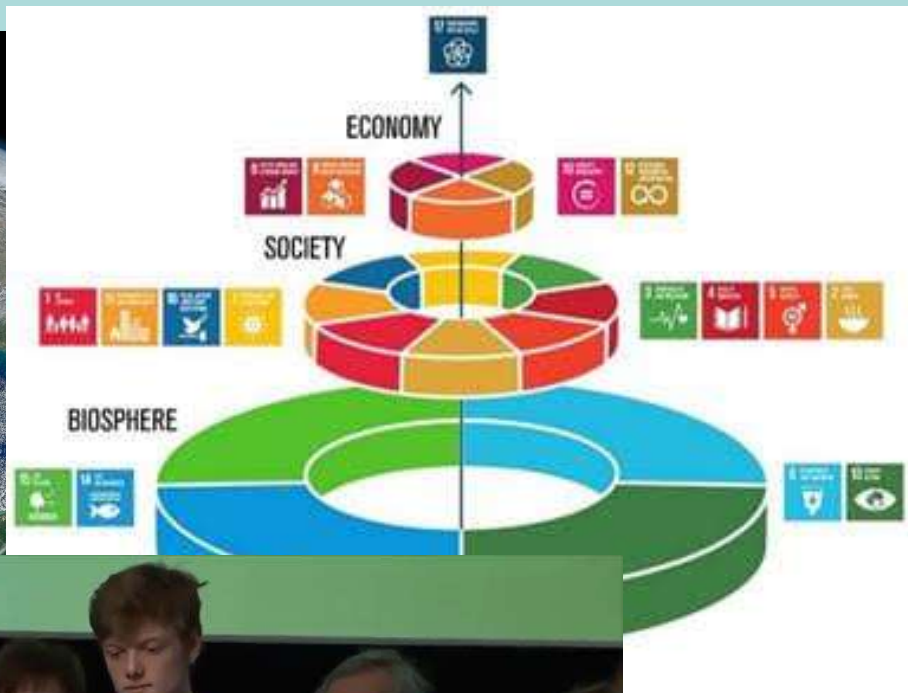
ipcc
 INTERGOVERNMENTAL PANEL ON climate change

Global Warming of 1.5°C

An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty



Summary for Policymakers



#GretaThunberg #schoolstrike4climate #Brussels
 Greta Thunberg to EU's Juncker: "We started to clean up your mess, stop sweeping mess under carpet"
 ProductiehuisEU

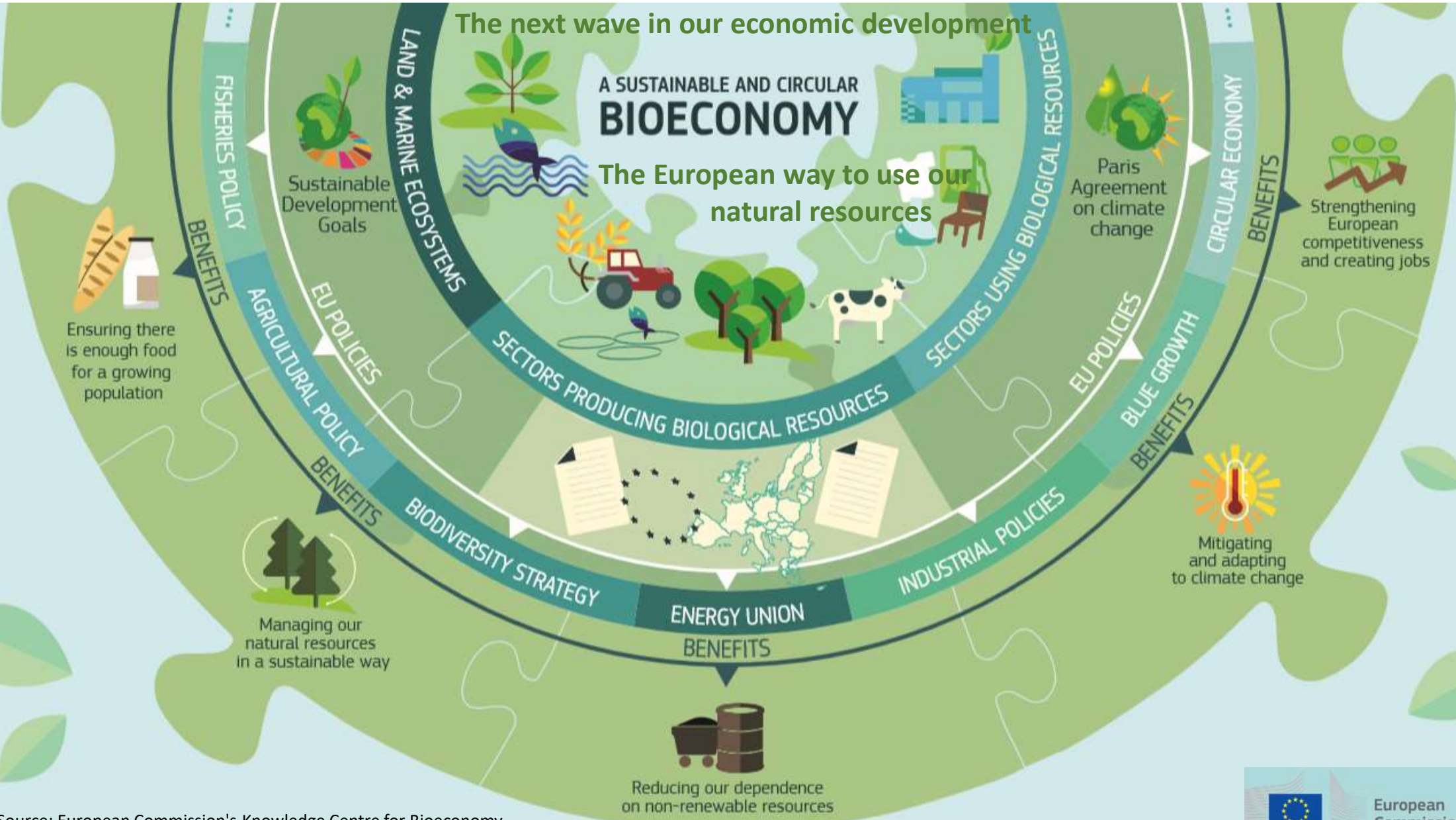


Thousands of people take part in a demonstration on climate change, in Brussels, Belgium, on Dec 2, 2018. PHOTO: EPA-EFE

The next wave in our economic development

A SUSTAINABLE AND CIRCULAR BIOECONOMY

The European way to use our natural resources



Source: European Commission's Knowledge Centre for Bioeconomy



2012 EU Bioeconomy Strategy

COM/2012/060 Final; SWD/2012/011 Final

Europe's
bioeconomy
weaving it all together

The Bioeconomy Concept

Definition of the Bioeconomy Concept (EU BioE Strategy, 2012):

- The Bioeconomy encompasses the *production of renewable biological resources and the conversion of these resources and waste streams into value-added products, such as food, feed, bio-based products and bio-energy.*

Addressing cross-cutting societal and environmental challenges:

- increasing global *population*;
- rapid depletion of many *resources*;
- increasing *environmental* pressures;
- *climate* change.

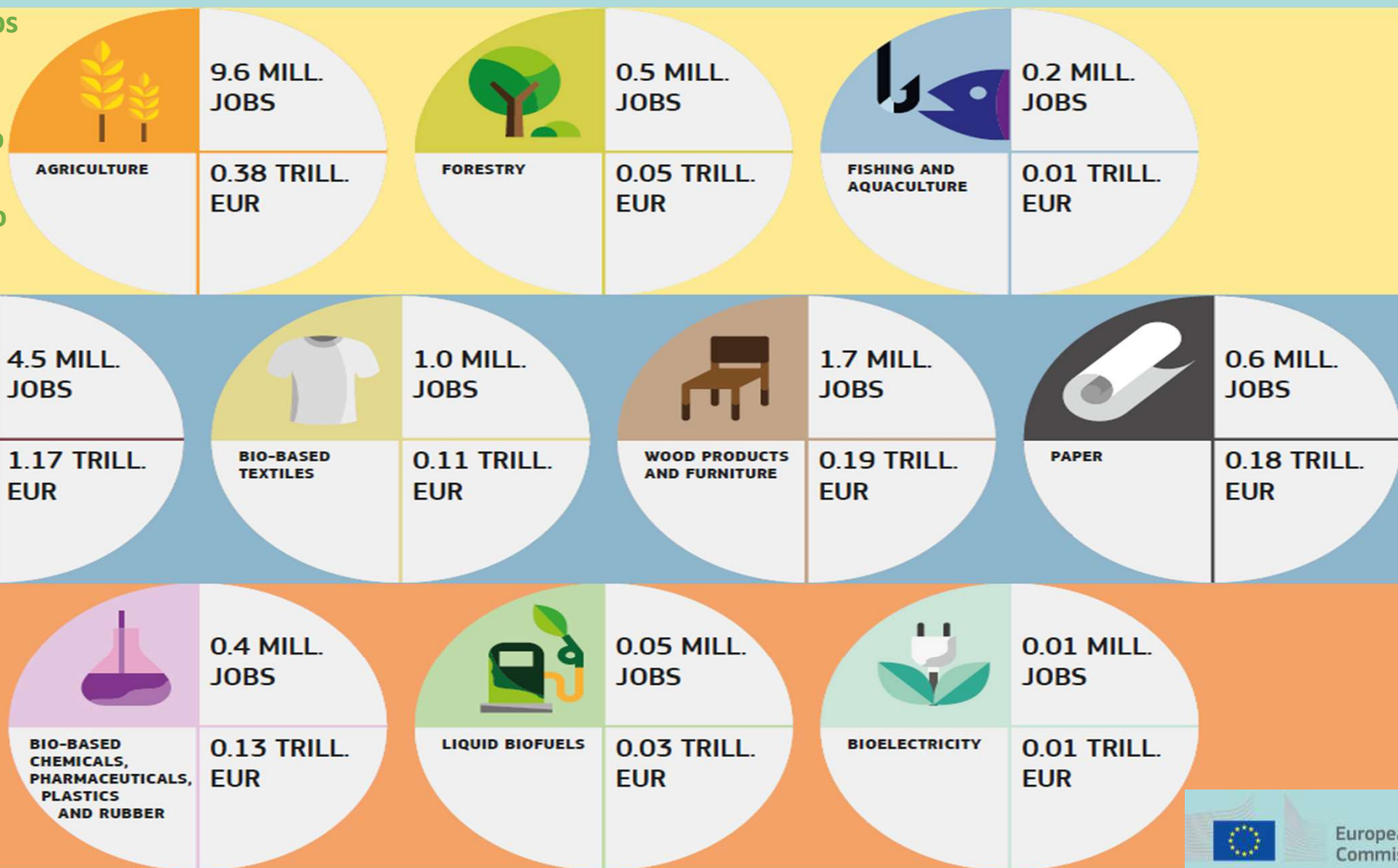
Aim:

- To pave the way to a more *innovative, resource efficient and competitive society that reconciles food security with the sustainable use of renewable resources for industrial purposes, while ensuring environmental protection.*

The Bioeconomy in the European Union

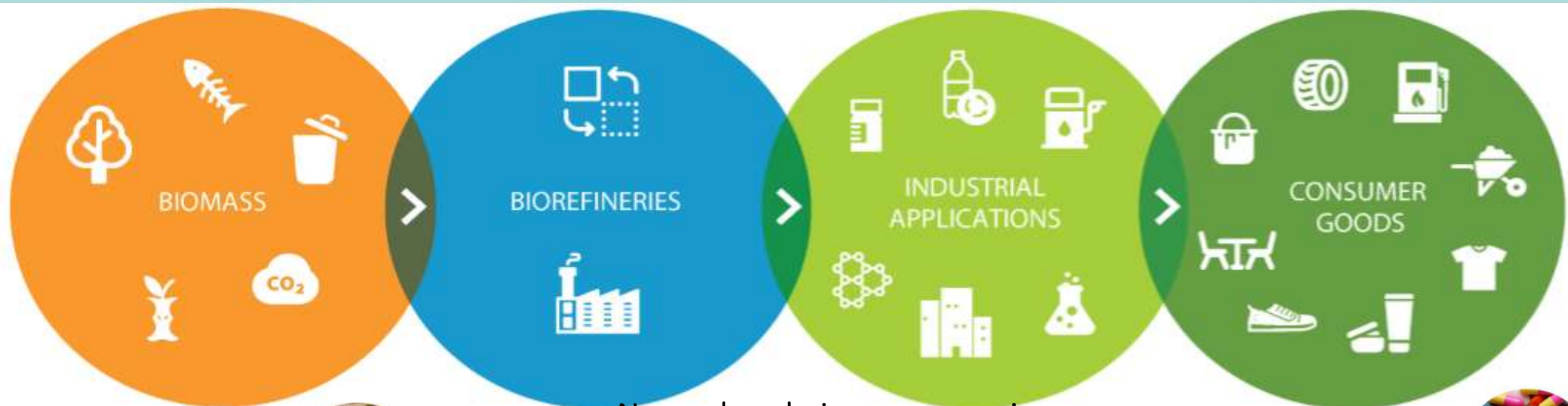
In 2015:

- 18,5 million jobs (~8% of EU's workforce)
- 2,3 trillion Euro turnover
- 621 billion Euro value added





Circular Bioeconomy: bio-based industries value chains



New value chains are emerging

- Waste streams
- Multiple organic waste
- By-products & side-streams
- Forestry side-streams
- Dedicated agricultural crops and residues
- Aquatic biomass
- Food processing residues
- Process and waste water
- Bio-based CO₂

- (Pre-) treatment
- Transformation

- Bioplastics
- Building blocks
- Biopolymers
- Surfactants
- Active ingredients
- Biomaterials
- Biolubricants

- Biofuels
- Textiles
- Packaging
- Solvents
- Furniture
- Personal care
- Construction materials
- Pharmaceuticals
- Clothing
- Car components

Circular economy cuts waste and reduces the need for new resources

Next generation bio-product Mill in Finland

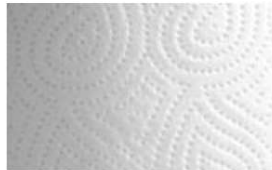


METSÄ GROUP | Sales EUR **5.0** billion | Personnel **10,500**

METSÄLIITTO COOPERATIVE | Group's parent company | Owned by 122,000 Finnish forest owners



Source photo: metsaboard.com



METSÄ TISSUE
Tissue and cooking papers

Sales:
EUR 1.0 billion
Personnel:
2,800



METSÄ BOARD
Paperboard

Sales:
EUR 2.0 billion
Personnel:
3,100



METSÄ FIBRE
Pulp

Sales:
EUR 1.3 billion
Personnel:
850



METSÄ WOOD
Wood products

Sales:
EUR 0.9 billion
Personnel:
2,300



METSÄ FOREST
Wood supply and forest services

Sales:
EUR 1.6 billion
Personnel:
900

Bioeconomy in everyday life - The Innovation Opportunity

The product ...



... is environmentally friendly



... is cost-efficient



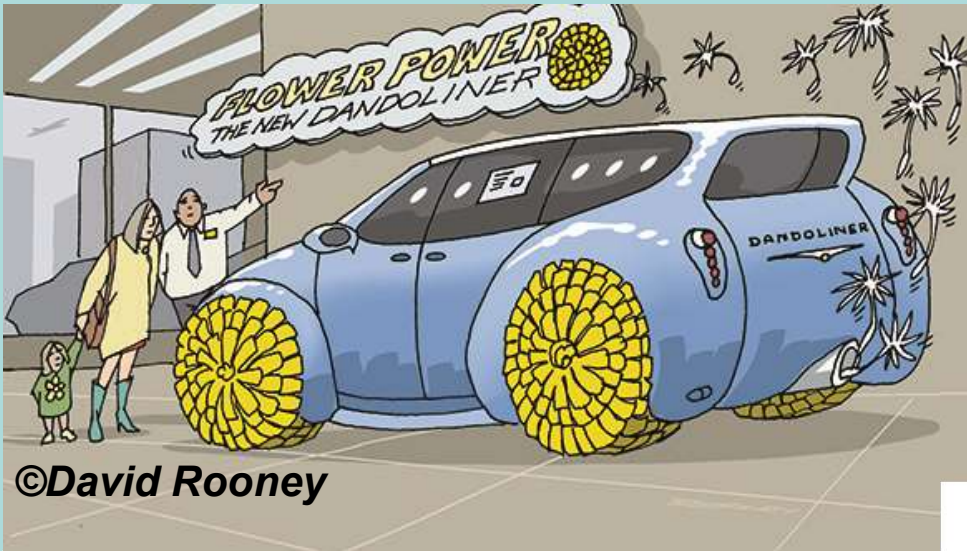
... is energy-saving



... is innovative



... reduces the use of fossil resources



©David Rooney

T-SHIRT



Dutch company Avantium has developed a 100% bio-based polyester by turning carbohydrates into chemical building blocks. The bio-polyester can be melted down and turned into thin fibers for spinning and weaving using the same technology used to make polyester clothing. T-shirts are one of the most versatile products.

PAINTS



Until now, most additives in exterior paints were based on synthetic polymers, sourced, primarily, from oil. Within the BBI-funded project Exilva, Norwegian biorefinery specialist Borregaard has developed Microfibrillated Cellulose (MFC) as a natural paint additive. In doing so, it not only improves the CO₂ footprint of the product, but also strengthens the anti-cracking properties of paints.

CAR TYRE



What can you do with a dandelion? They are weeds for most people. In the right sort of quantity, dandelions are an alternative source for a raw material in high demand: natural rubber, the fundamental ingredient in products, such as car tyres. Up until now, the European rubber industry has been dependent on fluctuating Asian supplies or synthetic rubber. Today, producers have developed the first prototypes of dandelion tyres.

Deliver the EU Bioeconomy

Horizon 2020 EU Research and Innovation Programme:
SC 2 (3.8 billion € 2014-2020) "Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy"

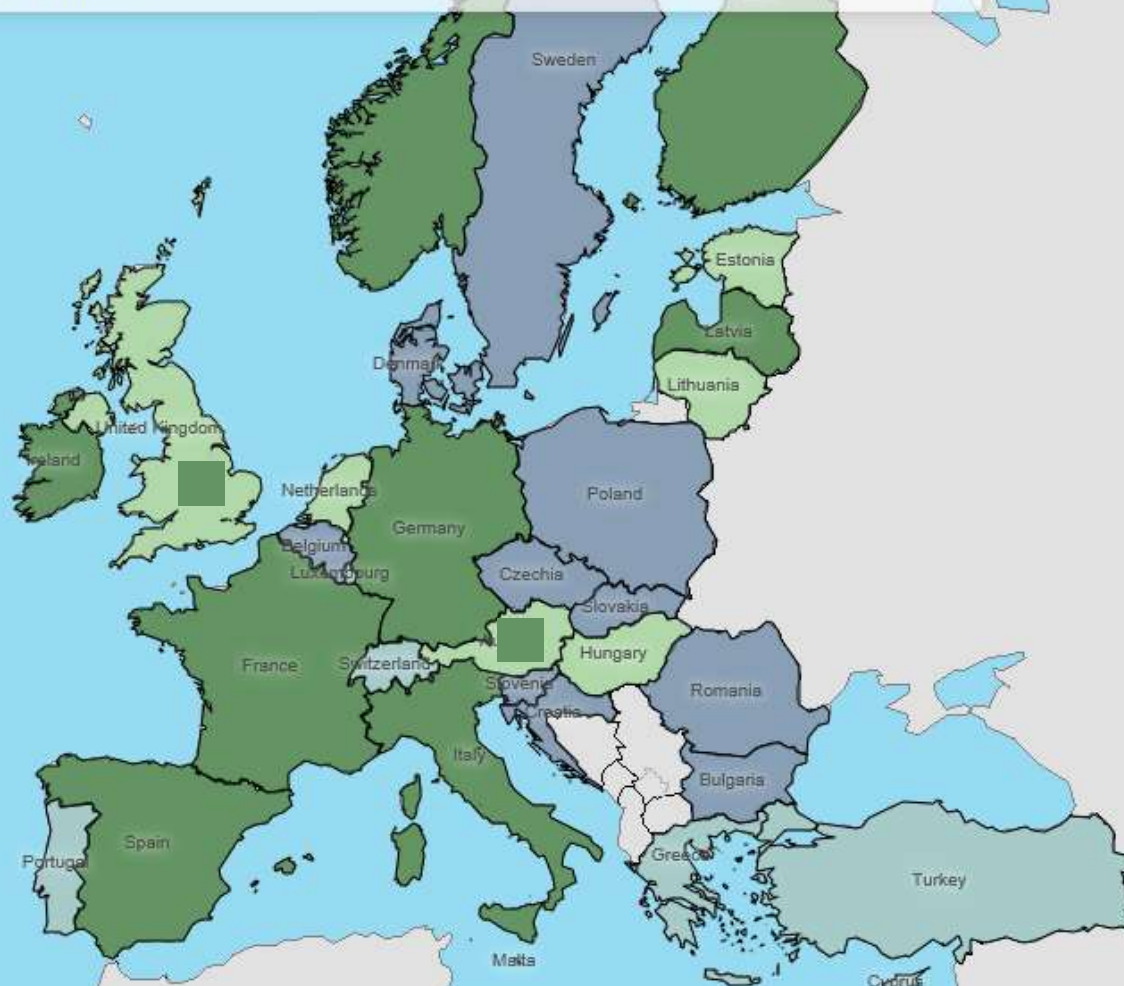


In 2018 the European Commission has proposed to allocate **10 billion €** in the future Horizon Europe EU Research and Innovation Programme (2021-2027) within the cluster on food and natural resources, including the bioeconomy.

Strategies and other policy initiatives dedicated to the bioeconomy

Status as of March 2018 Source: European Commission's Knowledge Centre for Bioeconomy

- Dedicated Bioeconomy Strategy at national level under development
- Other policy initiatives dedicated to the bioeconomy
- Other related strategies at national level
- Dedicated Bioeconomy Strategy at national level



European Union

- **9 MS** have a dedicated bioeconomy strategy (*Finland, Latvia, Germany, Italy, France, Spain, Ireland, UK, Austria*)
- **4 MS** in the process (*Hungary, Estonia, Lithuania, the Netherlands*)
- **10 MS** from CEE plan to develop such a strategy under the **BIOEAST initiative** (*Bulgaria, Croatia, Czechia, Poland, Romania, Slovakia, Slovenia, Hungary, Estonia, Lithuania*)
- **>50 regions** have a bioeconomy-related strategy
- **Only a few cities** have bioeconomy-related priorities in their policies ...

EU context

- **Communication on Bioeconomy – 2012**
 - Food security, sustainable management of natural resources, climate change mitigation, reduced fossil-dependence, jobs creation and EU competitiveness
- **Review of Bioeconomy Strategy – 2017**
 - Good delivery, objectives still relevant, increasing importance, more focussed actions for evolved context (SDGs, renewed industrial policy, circular economy, ...)
- **Communication on updated Bioeconomy – 2018**
 - Major initiative under the Commission’s 2018 workplan
 - Coordination by the Secretariat General and DG Research and Innovation together with the departments for agriculture, environment, marine, industry, energy and others (DGs AGRI, ENV, MARE, GROW, JRC, ENER...)
 - Adopted on 10/10/2018



Adoption of the 2018 Bioeconomy Communication



State of the Union 2018
Annual State of the EU address by President Juncker at the European Parliament



The EU aims to lead the way in turning waste, residue and discards into high value products, green chemicals, feed and textiles. Research and innovation plays a key role in accelerating the green transition of the European economy and in meeting the United Nations Sustainable Development Goals.

Commissioner for Research, Science and Innovation, Carlos Moedas



"There is also great potential here for new green jobs, particularly in rural and coastal areas."
Vice-President for Jobs, Growth, Investment and Competitiveness, Jyrki Katainen



Commission européenne

#BioEconomy



Key initiatives

Priority 1: A new boost for jobs, growth and investment

New initiatives

- Communication on the Investment Plan for Europe: stock-taking and next steps.
- Communication updating the 2012 Bio-economy Strategy.



"We estimate that bio-based industries can generate up to one million new jobs by 2030". "The Bioeconomy (...) will boost the rural economy (...) contribute to the climate challenge (...), boost rural economic cohesion". "It is imperative that all MS develop a clear bioeconomy strategy". "Each Member State will be tasked with drawing up a CAP Strategic Plan to outline their targets and expected results according to 9 key objectives, and the bioeconomy is one of these".

Commissioner for Agriculture and Rural Development, Phil Hogan

WHAT does the initiative aim to achieve?

- Link the sustainable use of renewable biological resources for food, feed, bio-based products and bioenergy, with the protection and restoration of biodiversity, ecosystems and natural capital across land and water.
- Step up action to ensure that the Bioeconomy provides a long-term balance of social, environmental and economic gains.

Europe's
bioeconomy
weaving it all together



... and HOW?

- A **SYSTEM**-wide approach,
- expanding beyond research and innovation,
- delivering on policies across sectors, addressing trade-offs
- strengthening **CIRCULARITY** and **SUSTAINABILITY**
- delivering for the citizens - on jobs, sustainable growth, well being - and on planetary health
- in **LOCAL** contexts, valorising local resources and adapted to local needs

DRIVING EU POLICY PRIORITIES

- **Job creation** – e.g. Bio-based industries could create up to 1 million jobs by 2030 (industry estimate), in particular in rural and coastal areas
- **Climate mitigation** – through use of bio-energy/ bio-based materials/ecosystems services; e.g. the use of 1 ton of wood instead of 1 ton of concrete in construction can lead to 2.1 ton CO₂ reduction
- **A renewed and strengthened EU industrial base** – Global leadership position in bio-chemicals and substitutes for fossil raw materials (plastics, packaging, cosmetics, consumer goods) based on research and innovation
- **Circular economy** – e.g. cutting food waste, recycling of high value organic waste
- **Healthy ecosystems and biodiversity** – e.g. through restoring degraded soils



Actions

“ The EU is committed to fostering the further development and deployment of sustainable and circular bio-based solutions and will take a series of concrete steps to speed up this process. ”

1

STRENGTHEN AND SCALE-UP THE BIO-BASED SECTORS, UNLOCK INVESTMENTS AND MARKETS



Mobilise stakeholders in **development** and **deployment** of **sustainable bio-based solutions**



Launch the **EUR 100 million** Circular Bioeconomy Thematic **Investment Platform**



Analyse **enablers** and **bottlenecks** for the deployment of **bio-based innovations**



Promote and develop **standards, labels** and **market uptake** of **bio-based products**



Facilitate the **development** of **new sustainable biorefineries**



Develop substitutes to fossil based materials that are **bio-based, recyclable** and **marine biodegradable**



Actions

2

DEPLOY LOCAL BIOECONOMIES RAPIDLY ACROSS EUROPE



Launch a Strategic Deployment Agenda for sustainable food and farming systems, forestry and bio-based products



Launch pilot actions for the development of **bioeconomies** in rural, coastal and urban areas



Support regions and Member States to develop Bioeconomy Strategies



Promote education, training and skills across the bioeconomy

“ The EU is taking targeted action to ensure that all areas have the opportunity to fully tap into their local bioeconomy potential and reap the rewards ”

Actions

3

UNDERSTAND THE ECOLOGICAL BOUNDARIES OF THE BIOECONOMY



Enhance **knowledge** on biodiversity and ecosystems



Monitor **progress** towards a sustainable bioeconomy



Promote **good practices** to operate the bioeconomy within **safe ecological limits**



Enhance the **benefits** of biodiversity in **primary production**

“ The bioeconomy is Europe's response to key environmental challenges facing our planet. ”



STANDING COMMITTEE ON AGRICULTURAL RESEARCH

- **1974:** SCAR established (Regulation (EEC) No 1728/74 of the Council of 27 June 1974 on the coordination of agricultural research)
- **2005:** Revised mandate by the Council
- **2012:** Widening of SCAR (Bioeconomy)

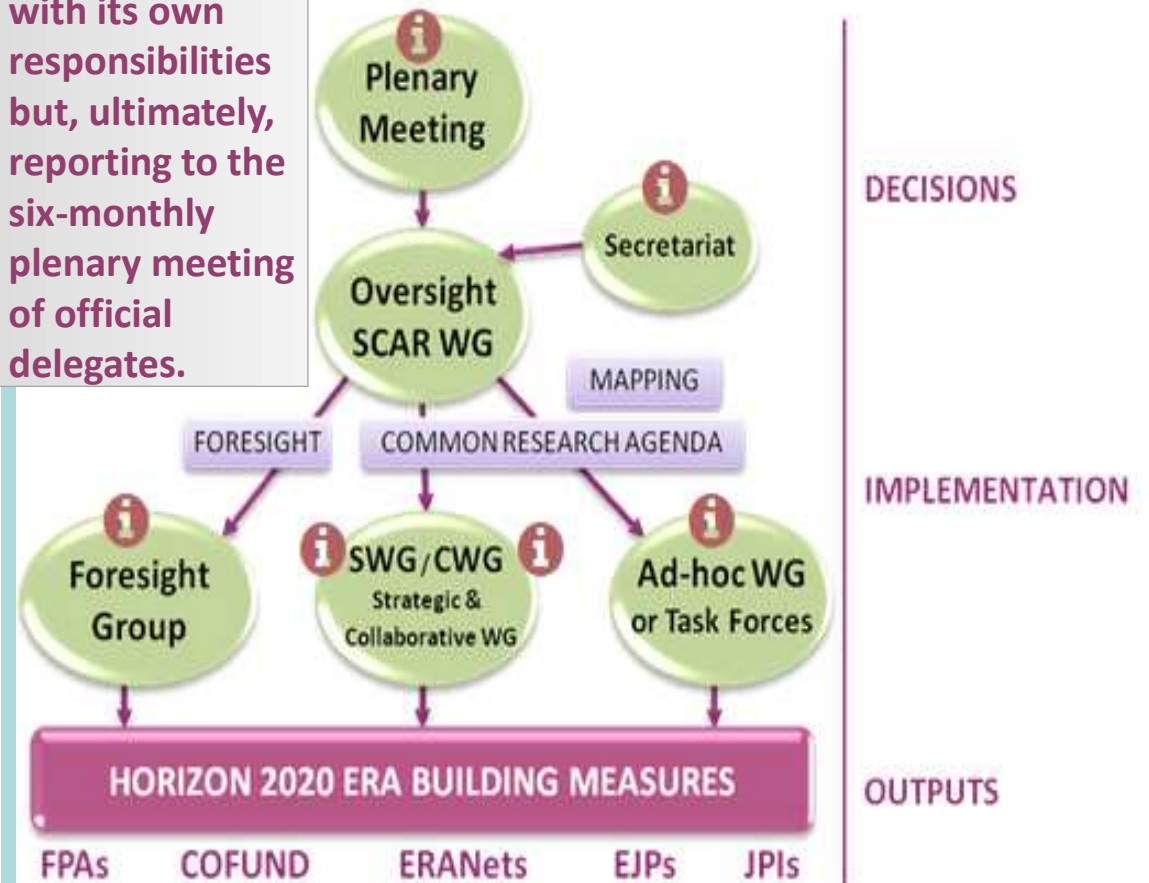
Represents 37 different countries

- EU Member States
 - Ministries (mainly of Agriculture)
 - Organisations such as research councils
- Observers: Candidate and Associated Countries
- European Commission (DG RTD & DG AGRI; DG RTD secretariat and chair)

Main Activities and Structure

SCAR delivers through various groups, each with its own responsibilities but, ultimately, reporting to the six-monthly plenary meeting of official delegates.

SCAR ORGANISATION





Plenary Meeting

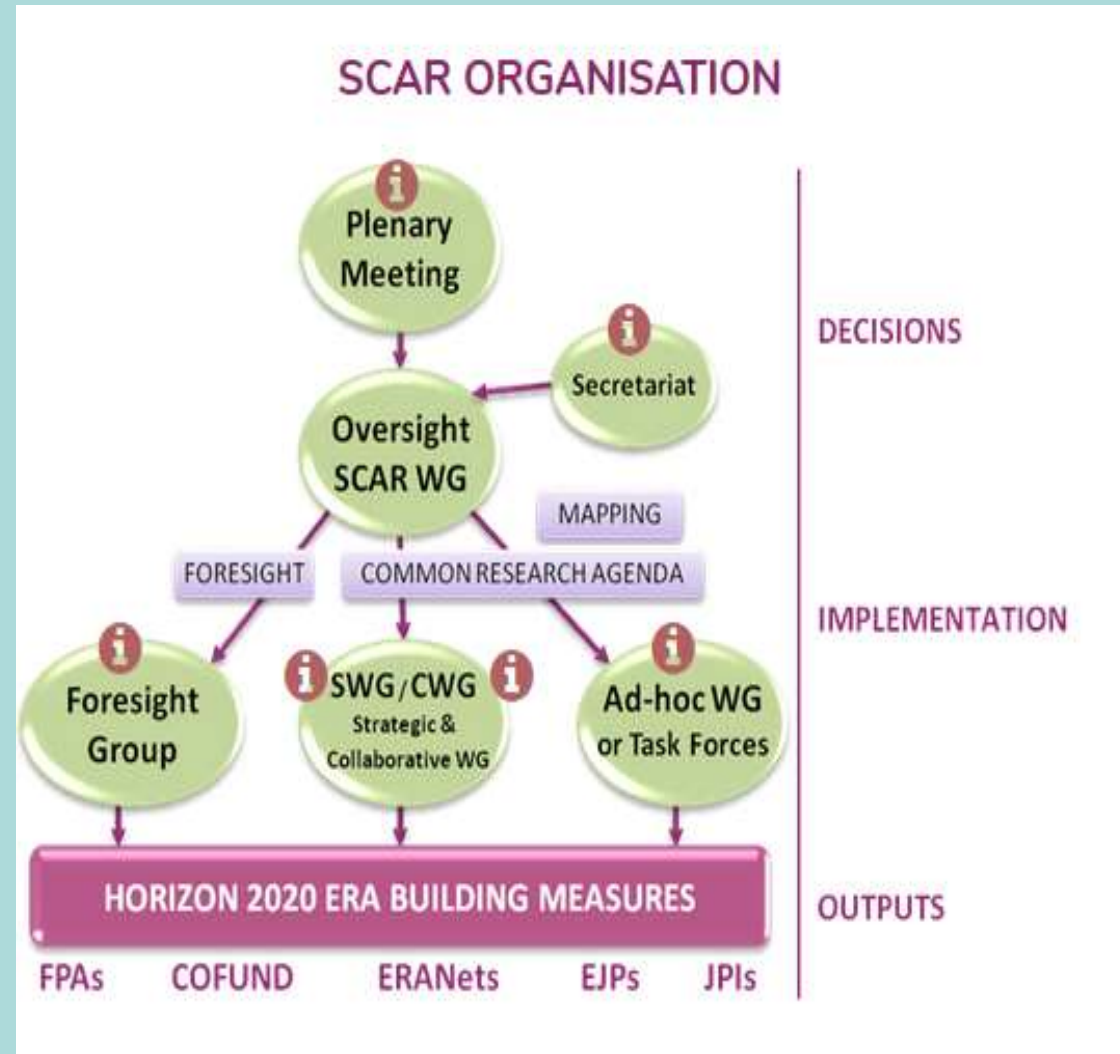
Meetings: 2/year

Participants:

- SCAR delegates from all EU MS
- Candidate States
- Associated States

Main tasks:

- Creation of Working Groups
- Other initiatives proposed by the EC or SCAR SG
- Policy papers
- Actions





Steering Group

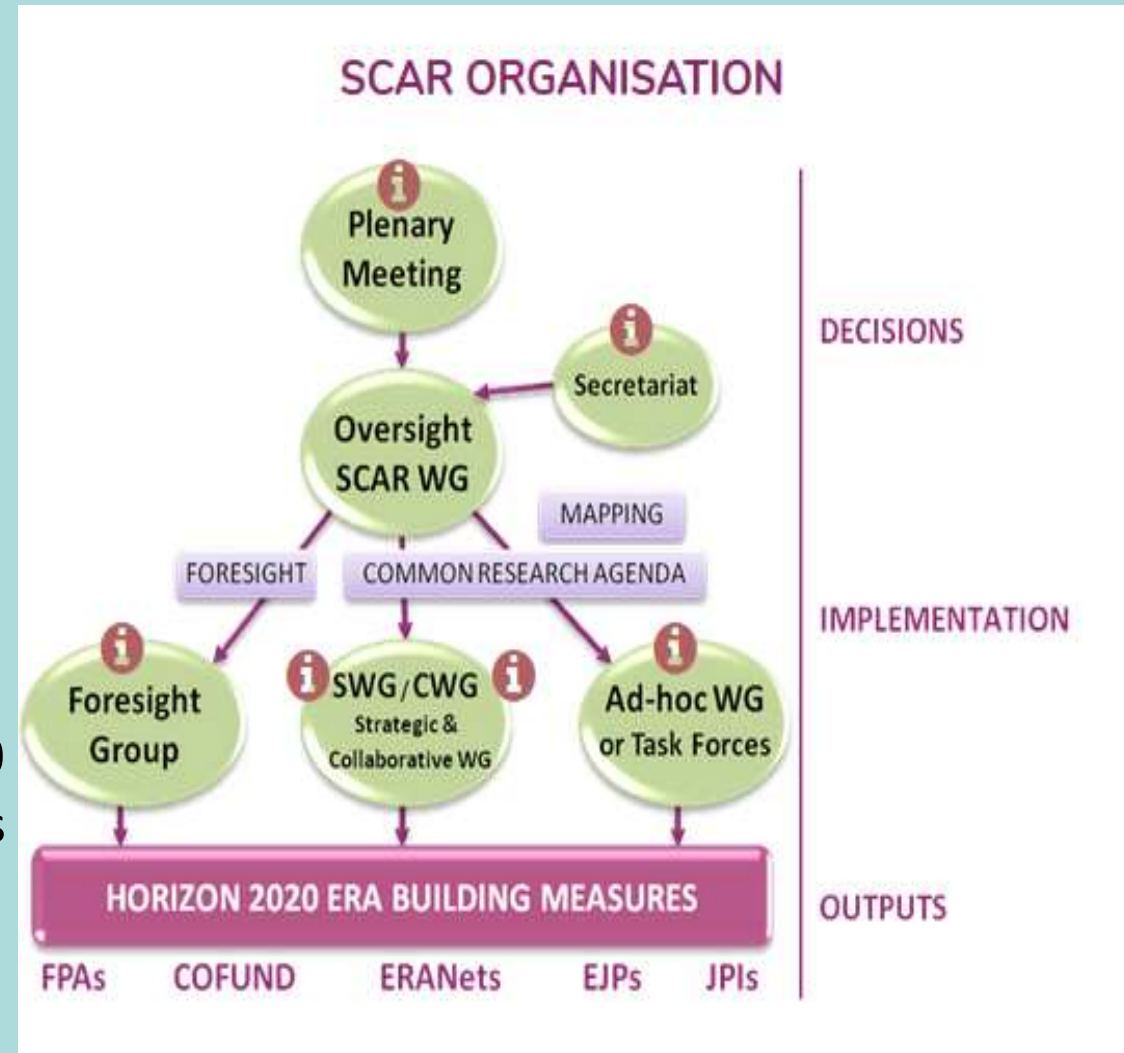
Meetings: 5-6/year

Participants:

- SCAR delegates from all countries represented in the plenary
- EC staff

Main tasks:

- Plan and prepare plenary meetings
- Coordination mechanisms in Horizon 2020
- Prioritisation of ERA-Net Co-fund activities
- Organising the establishment of new WG
- Providing support to WG





Foresight Group

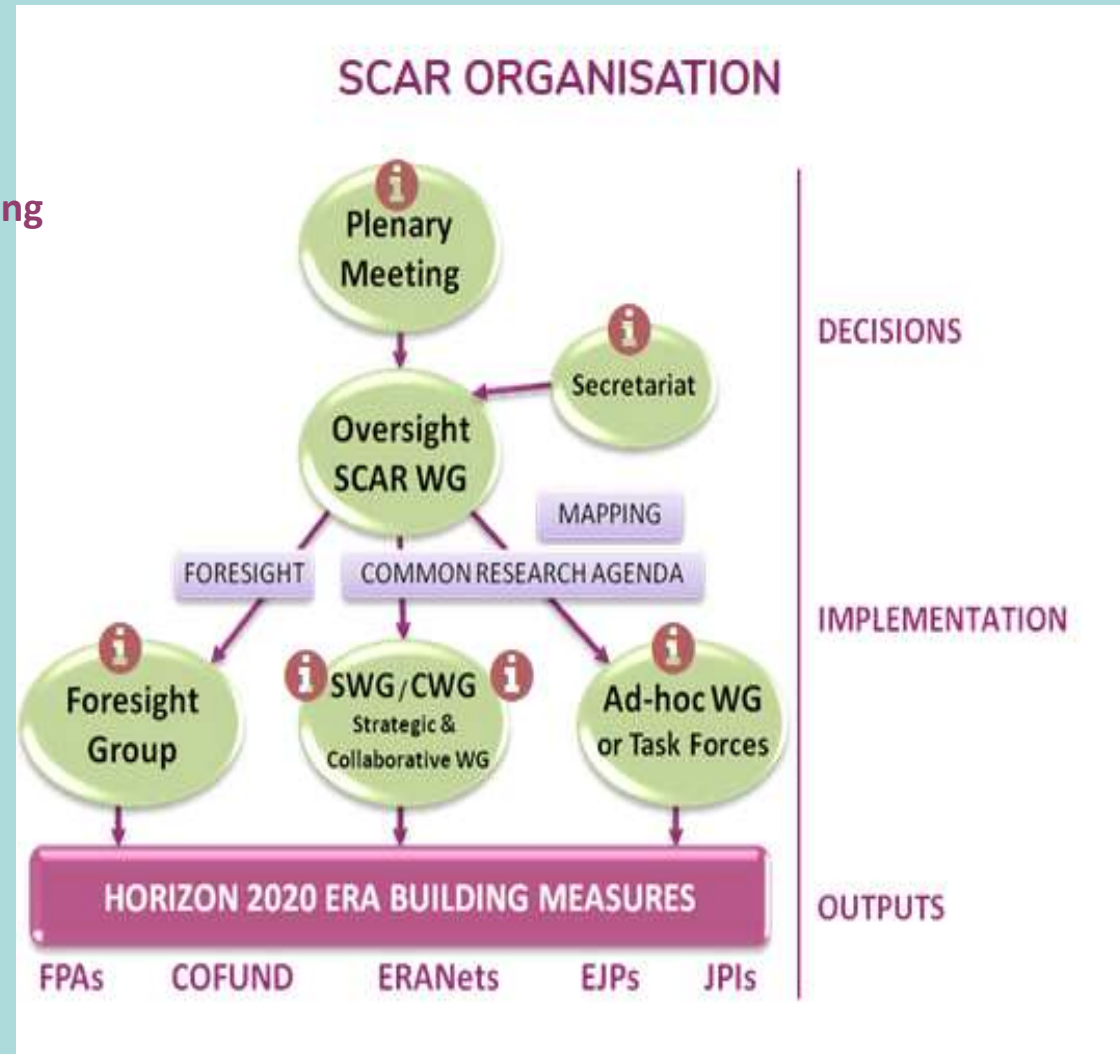
Instrument for public research planning and public policy building

Main tasks:

- Foresight activity
- Execution of relevant studies & Review ongoing studies
- Research prioritisation

SCAR Foresight Exercises Participants:

- Long-term experts (approx. 6)
- Short-term experts (approx. 6)
- SCAR Foresight Group
- Advisors from SCAR
- European Commission





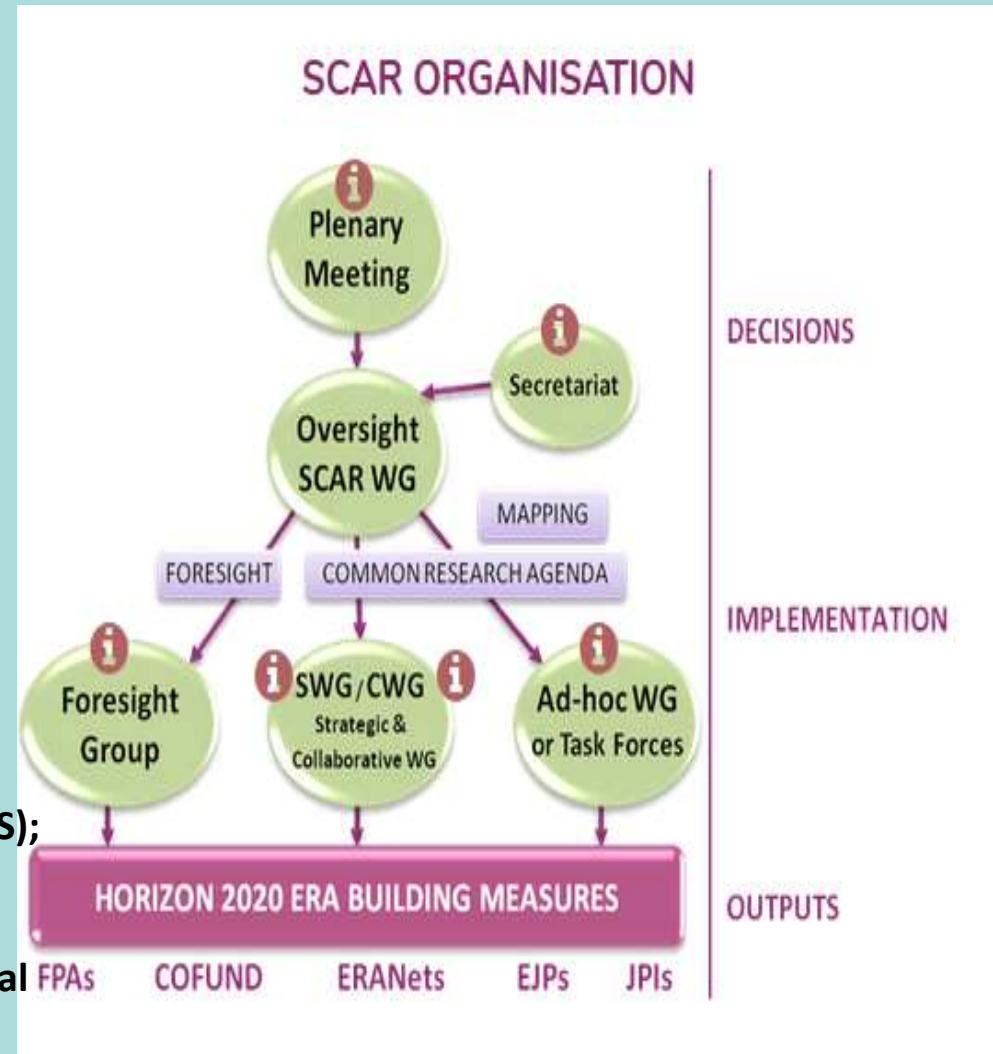
Strategic Working Groups (SWG)

Participants:

- SCAR members and EC Staff

Main tasks:

- Discuss strategic matters on broad issues.
- Contribute to medium long-term research and innovation policy.
- Formulating research policy advice on:
 - Food Systems (SCAR SWG FOOD SYSTEMS)
 - Fisheries and aquaculture research (SCAR SWG FISH);
 - Agricultural knowledge and innovation systems (SCAR SWG AKIS);
 - Sustainable bioresources production (SCAR SWG Bioeconomy);
 - Forestry research and innovation (SCAR SWG Forest);
 - European Agricultural Research towards greater impact on global challenges (SCAR SWG ARCH).





Collaborative Working Groups (CWG)

Participants:

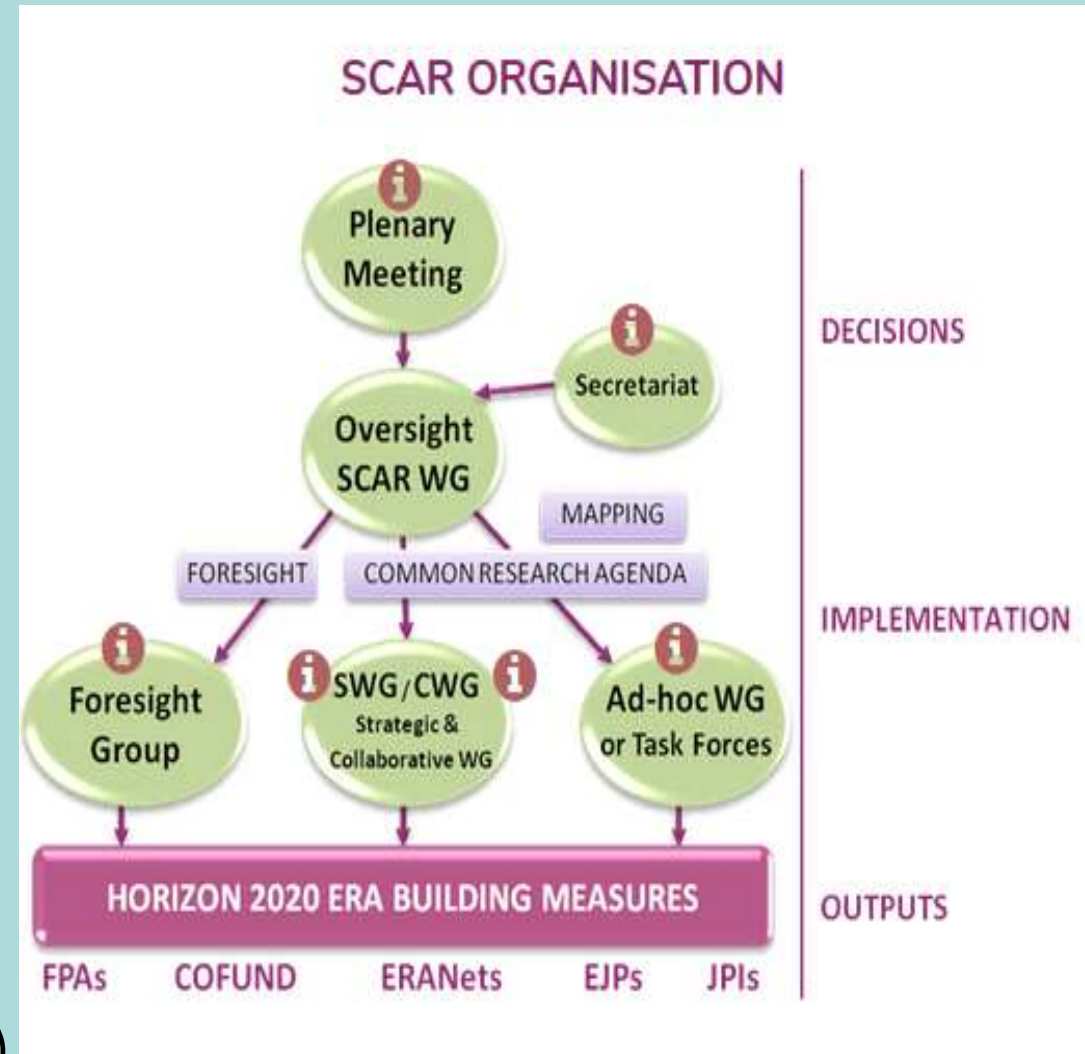
- SCAR members
- EC Staff

Main tasks:

- Develop Strategic Research Agendas, highlighting priority research topics through mapping activities and gap analyses, all of which potentially lay the groundwork for future partnerships

Existing CWG:

- Sustainable animal production (SCAR CWG SAP)
- Animal health and welfare (SCAR CWG AHW)





Benefits of being a SCAR member

Extend your network:

- Meet with experts from other countries.
- Create partnerships on common research priorities.

Exchange of knowledge:

- Acquire mutual knowledge of activities, institutions and facilities in Member States and Associated Countries.
- Help align national research programmes, avoid duplication of activities and ensure efficient use of resources.

Participate to the Strategic Programming

- Provide advice and support for the development of European initiatives such as the Joint Programming Initiative, the Commission Research Framework Programmes, development and the national programme coordination mechanism ERA-Net Co-fund.
- Bring in the debate your national/regional specificity and priorities.





The Bioeconomy - building the next economy now

GDP and well-being

"It has become evident that we need to make a systemic change in the way we produce, consume and discard goods. By developing our bioeconomy – the renewable segment of the circular economy – we can find new and innovative ways of providing food, products and energy, without exhausting our planet's limited biological resources.

Jyrki Katainen, EC Vice-President for Jobs, Growth, Investment and Competitiveness, 2018

"The Bioeconomy: a solution for complex and interconnected challenges". 2015

"Faced with the current challenges of food security, climate change and industrial transformation, we have the responsibility to figure out how to best deal with the biological resources we have and how to put them to the best use." 2017

"The bioeconomy is a huge opportunity for rural Europe." 2018

Carlos Moedas, Commissioner for Research, Science and Innovation, European Commission

"Greater use of renewable resources is no longer just an option, it is a necessity. We must drive the transition from a fossil-based to a bio-based society with research and innovation as the motor." Máire Geoghegan-Quinn

Bioeconomy

"We're at the beginning of a green rush where entirely new value chains are being created." 2017

"Bioeconomy – our next EU economy." 2018

"Welcome to the future." 2018

John Bell, Director, Bioeconomy Directorate, European Commission

"We are seeing a bioeconomy revolution sweeping the globe"

UK Government paper on bioeconomy and waste, 2015

"The bioeconomy has emerged as an Obama Administration priority because of its tremendous potential for growth as well as the many other societal benefits it offers."

US National Bioeconomy Blueprint, 2012

Research and innovation plays a key role in accelerating the green transition of the European economy and in meeting the United Nations Sustainable Development Goals."

Carlos Moedas, Commissioner for Research, Science and Innovation, European Commission, 2018

"The 21st century will be the century of biology, and the bioeconomy"

Goran Persson, ex-Prime Minister of Sweden, 2015

Natural resource economy

Fossil economy

1900

2012

2030

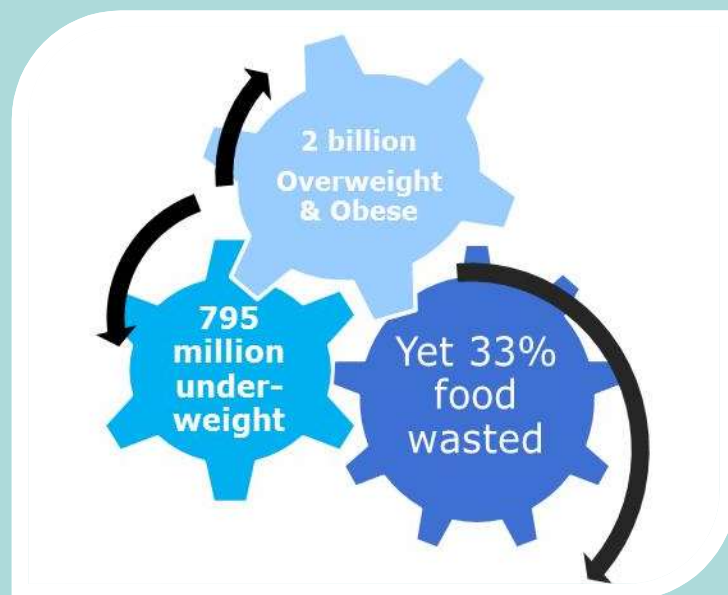
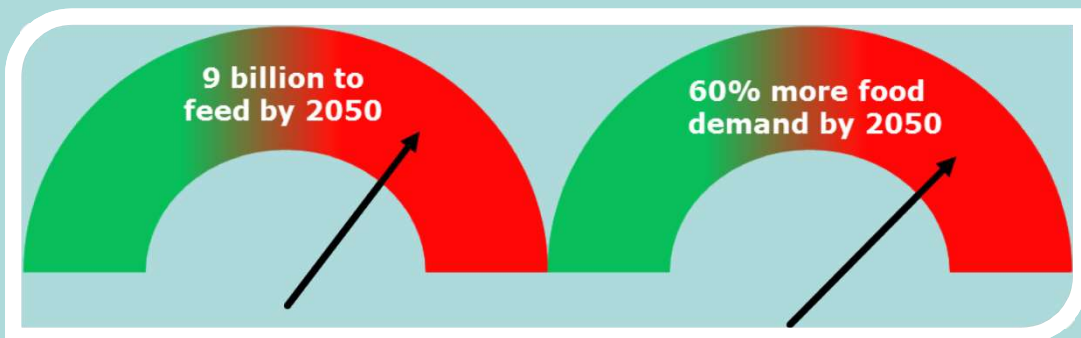
Thank you for your attention



For more information: www.ec.europa.eu/research/bioeconomy

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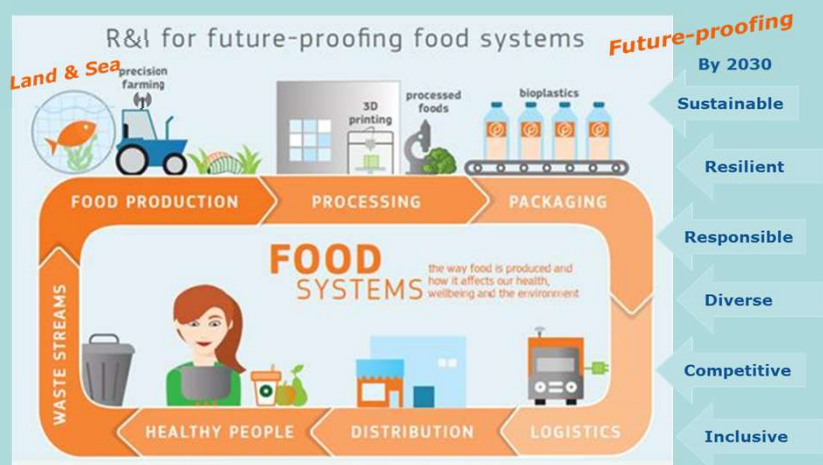
A "Perfect Storm"





FOOD 2030

R&I for tomorrow's nutrition & food systems



- Perfect Storm: climate change, population growth, resource scarcity, malnutrition, obesity & NCDs
- Political opportunity: response to SDGs, COP21+, Juncker priorities
- Investment opportunity: EU underinvesting in food & agri R&I despite high returns on investment
- Need for a systemic approach to future-proofing food systems via more impactful R&I

Priorities

- NUTRITION** for sustainable and healthy diets
- CLIMATE** smart and environmentally sustainable food systems
- CIRCULARITY** and resource efficiency of food systems
- INNOVATION** and empowerment of communities

Drivers

- Research breakthroughs**
- Innovation and Investment**
- Open Science**
- International collaboration**

#FOOD2030EU

FOOD 2030 - NEW LEVEL OF AMBITION, IMPACT AND FOCUS



- Food system approach
- New partnerships with Member States, business, society and other stakeholders
- Map & close R&I investment gap
- Connect R&I, from 'farm-to-fork-to-gut-and back' including primary production
- Game changing technologies, approaches, business models
- New global platform



Examples of possible R&I

 Nutrition	 Circularity	 Climate	 Innovation
<p>Alternative Proteins</p>  <p>Personalised Nutrition</p>	<p>Fighting Food Waste</p> 	<p>Bio-fertilisers for Plants</p> 	<p>Printing Healthy Meals for Elderly patients</p> 
<p>Fighting obesity - pre- and post-natal nutrition</p> 	<p>Sustainable Use of Land</p> 	<p>Farmers as Natural Resource Managers</p>  <p>Boosting Photosynthesis</p> 	<p>Cities - Urban Farming</p> 

32