



A Bioeconomy for Europe

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

Piero Venturi

Sao Paulo, 23 October 2014

OUTLINE

- 1. THE BIOECONOMY STRATEGY IN EUROPE*
- 2. BIOECONOMY IN HORIZON 2020*
- 3. INTERNATIONAL COOPERATION FOR THE
BIOECONOMY IN HORIZON 2020*
- 4. NEXT STEPS*

The bioeconomy: what are we talking about?

"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 bioenergy"

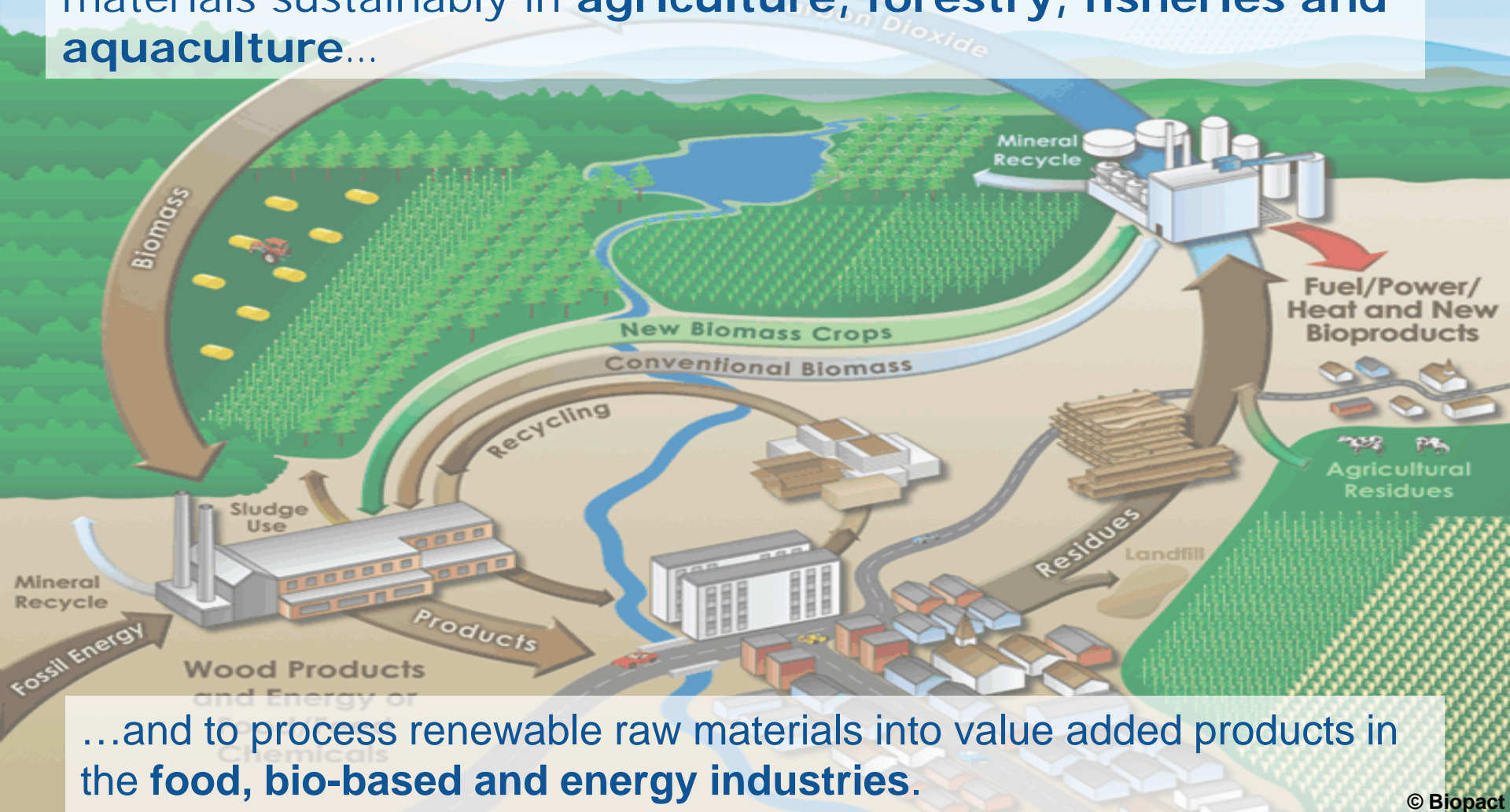
Sectors:

- agriculture, forestry, fisheries, food, pulp & paper
- parts of chemical, biotechnological and energy industries



The Bioeconomy as an **integrated system**

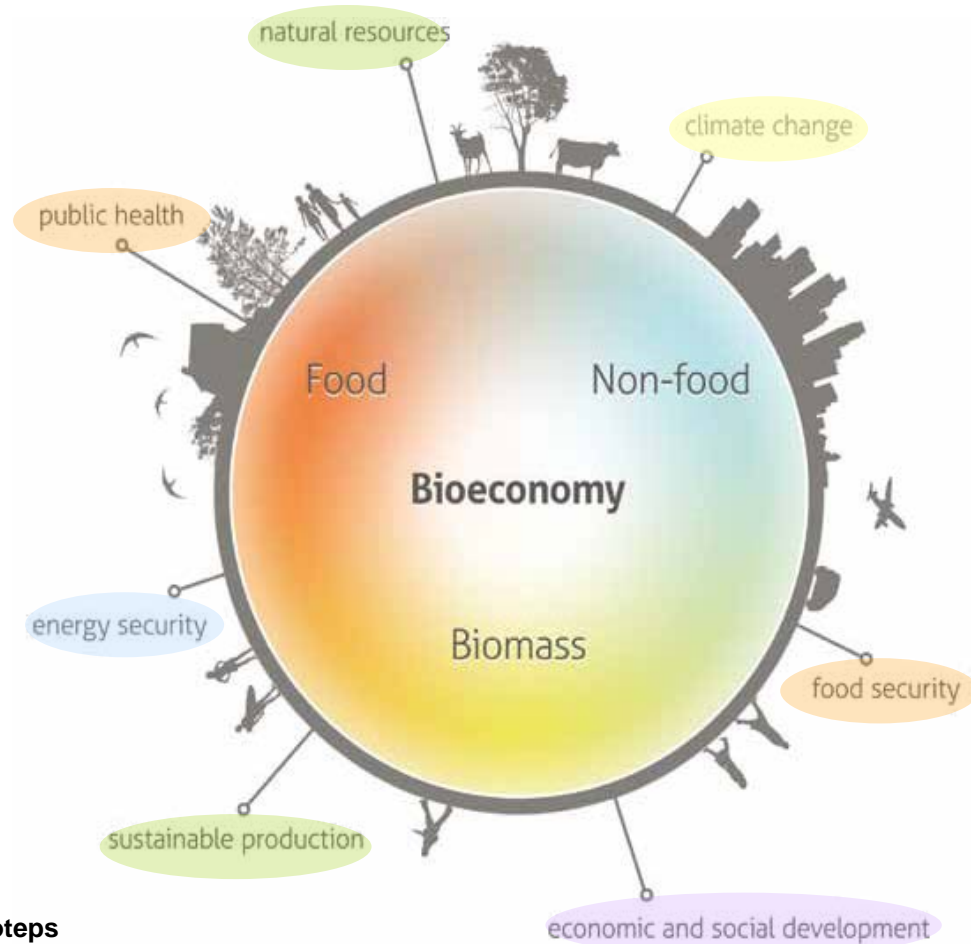
Using research and innovation to produce renewable raw materials sustainably in **agriculture, forestry, fisheries and aquaculture...**



...and to process renewable raw materials into value added products in the **food, bio-based and energy industries.**

The Bioeconomy and Societal Challenges

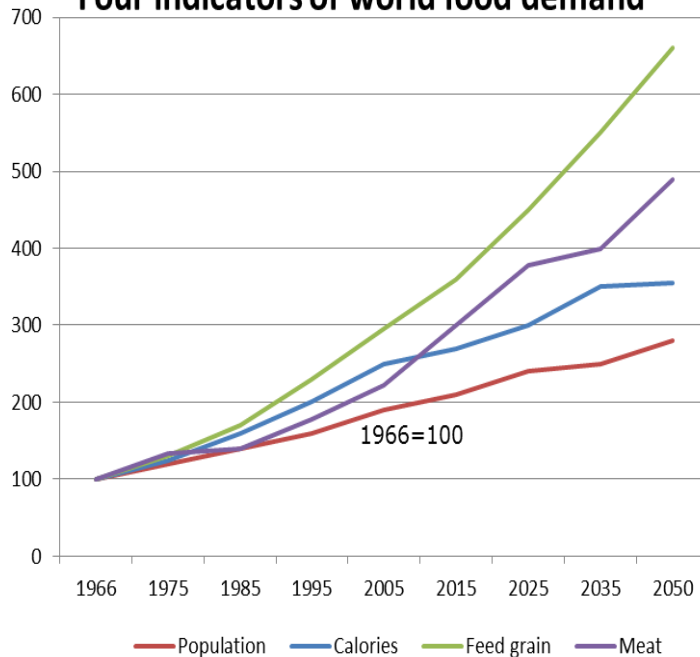
- Ensuring food security
- Managing natural resources sustainably
- Reducing dependence on non-renewable resources
- Mitigating and adapting to climate change
- Creating jobs and maintaining European competitiveness



© Becoteps

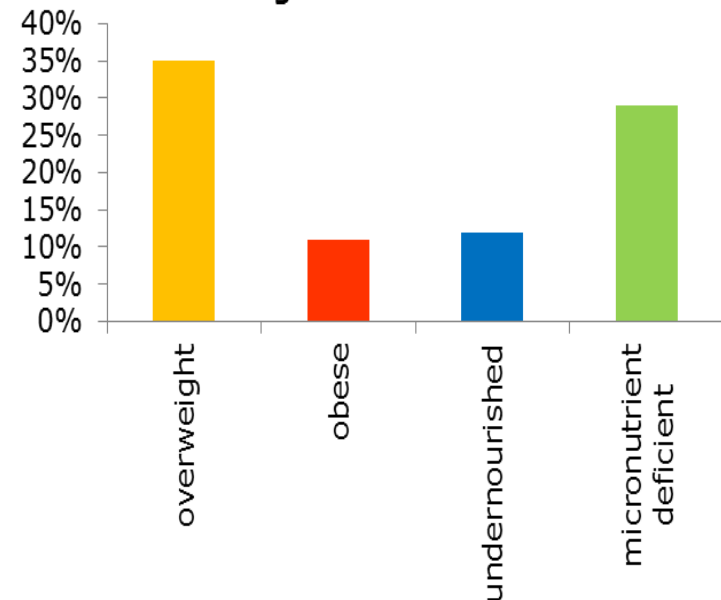
Ensuring food security

Four indicators of world food demand



Source: Iowa Ag. Review Online, Vol. 14 No.3, Babcock, Bruce A., 2008 and FAO

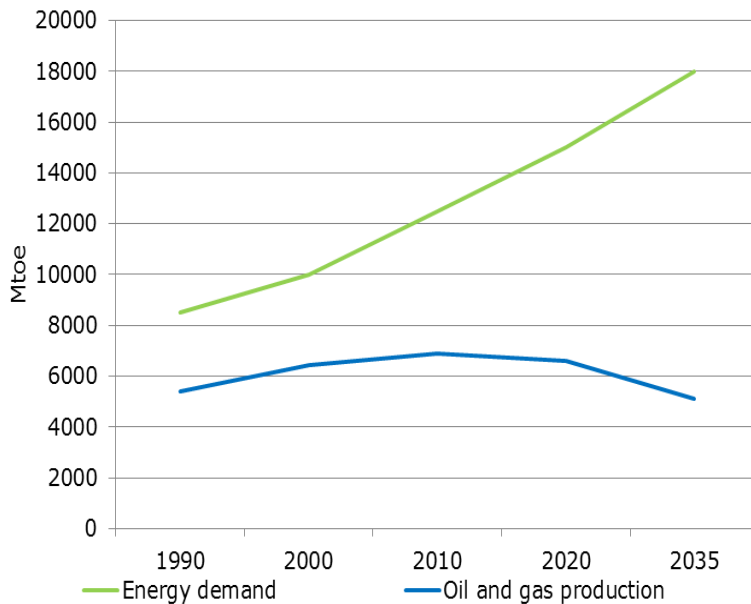
Percentage of world population overweight vs undernourished



Source: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

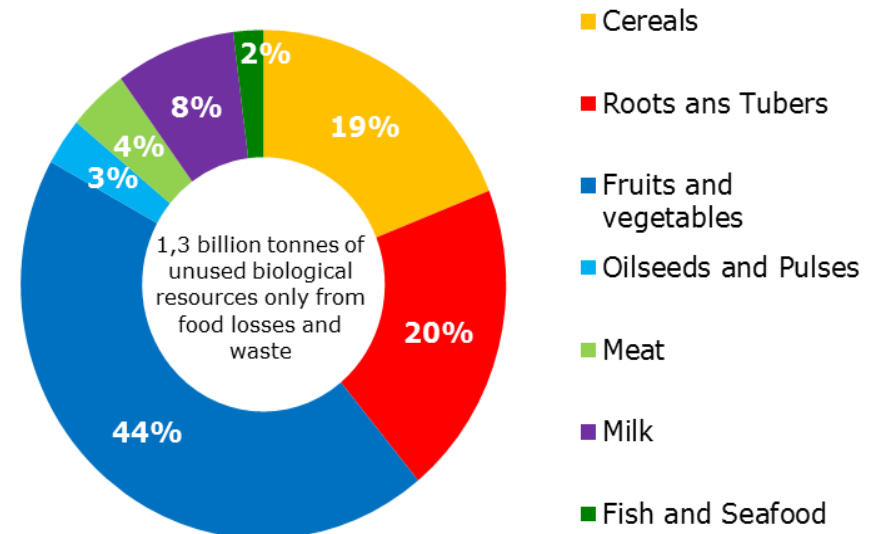
Moving from a fossil-based economy to a bioeconomy

Energy demand and supply



Source: Campbell's Atlas of Oil and Gas Depletion, 2nd ed., C.J. Campbell (ed), 2013 and World Energy Outlook, International Energy Agency (IEA), 2010

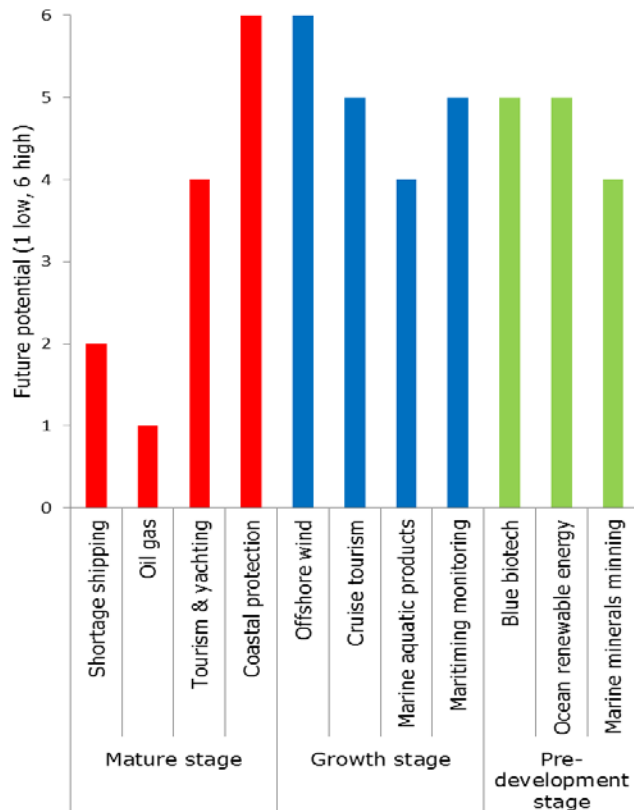
Global food loss and waste by commodity



Source: World Resource Institute, Working Paper based on FAO's report "Global food losses and food waste", May, 2013.

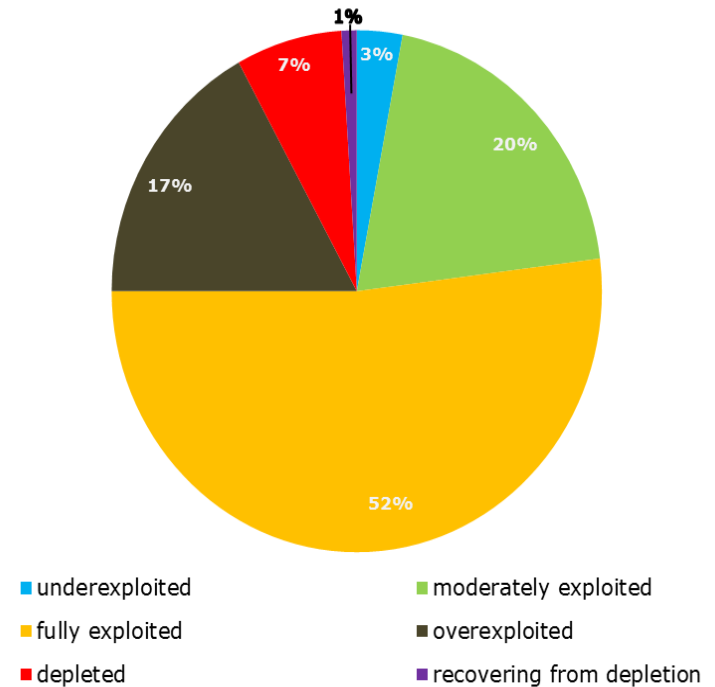
Unlocking the potential of seas and oceans

Potential of maritime economic activities



Source: "Blue Growth: Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coasts. Third Interim Report", ECORYS, March 2012. Report commissioned by DG MARE.

Overexploitation of fish species



Source: "Review of the State of World Marine Fisheries Resources", FAO Fisheries and Aquaculture Department, Rome 2011.



The Bioeconomy's growth potential

In 2010, the Bioeconomy represented about:

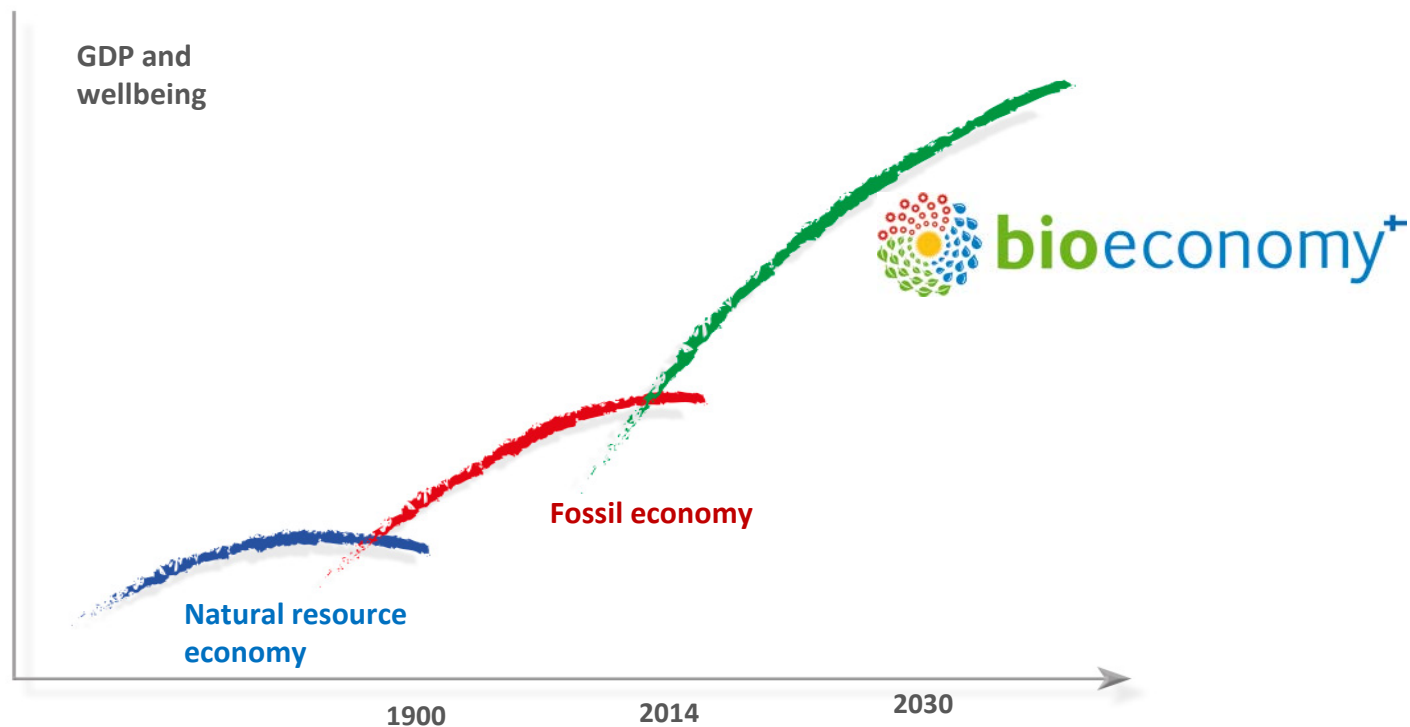
- ***2 trillion € annual turnover***
- ***1 trillion € value added, ± 9 % GDP***
- ***22 million jobs, ± 9 % of the EU's workforce***

By 2025, € 4.7 billion of direct research funding associated to the Bioeconomy Strategy under Horizon 2020 could generate about:

- ***130 000 new jobs***
- ***45 billion in value added in bioeconomy sectors***

Further growth is expected from other – direct and indirect – public and private investments in all parts of the bioeconomy.

The importance of the bioeconomy



The Bioeconomy Strategy and Action Plan

STRATEGY

TACKLING SOCIETAL CHALLENGES

- Ensuring food security
- Managing natural resources sustainably
- Reducing dependence on non-renewable resources
- Mitigating and adapting to climate change
- Creating jobs and maintaining European competitiveness

DEVELOPING A BIOECONOMY

- Coherent policy
- Investment in knowledge, innovation and skills
- Participative governance and informed dialogue with society
- New infrastructures and instruments

ACTION PLAN

INVESTMENTS IN
RESEARCH,
INNOVATION
AND SKILLS



REINFORCED POLICY
INTERACTION AND
STAKEHOLDER
ENGAGEMENT



ENHANCEMENT OF
MARKETS AND
COMPETITIVENESS
IN BIOECONOMY
SECTORS



INVESTMENTS IN RESEARCH, INNOVATION AND SKILLS

- Ensure substantial EU and national **public funding** and **private investment for bioeconomy and innovation**;
- Increase the share of **multi-disciplinary and cross-sectoral research and innovation**;
- Promote the **uptake and diffusion of innovation** in bioeconomy sectors; create feedback mechanisms on regulation and policy;
- Build the **human capacity** required to support growth and integration of bioeconomy sectors;

REINFORCED POLICY INTERACTION AND STAKEHOLDER ENGAGEMENT

- Create a **Bioeconomy Panel** to **enhancing synergies and coherence between policies**; foster participation of researchers, end-users, policy-makers and civil society;
- Establish a **Bioeconomy Observatory** and develop forward-looking and modelling tools;
- Support the **development of regional and national bioeconomy strategies**;
- Develop **international cooperation** to jointly address global challenges (e.g. food security, climate change);



ENHANCEMENT OF MARKETS AND COMPETITIVENESS IN BIOECONOMY SECTORS

- Provide knowledge-base for sustainable intensification of primary production; **improve understanding of biomass/biowaste availability and demand;**
- Promote the setting up of networks for integrated and diversified biorefineries; establish a **PPP for bio-based industries;**
- **Support expansion of new markets;** market instruments for uptake of bio-based products - facilitate green procurement for bio-based products;
- Develop science-based approaches to **inform consumers** about product properties.



Objectives: Integrated value chains

Feedstock

Fostering a sustainable biomass supply and building new value chains

Biorefineries

Optimising efficient processing through R&D and upscaling in large-scale demo/flagship biorefineries

Markets, products and policies

Developing markets for biobased products and optimising policy frameworks

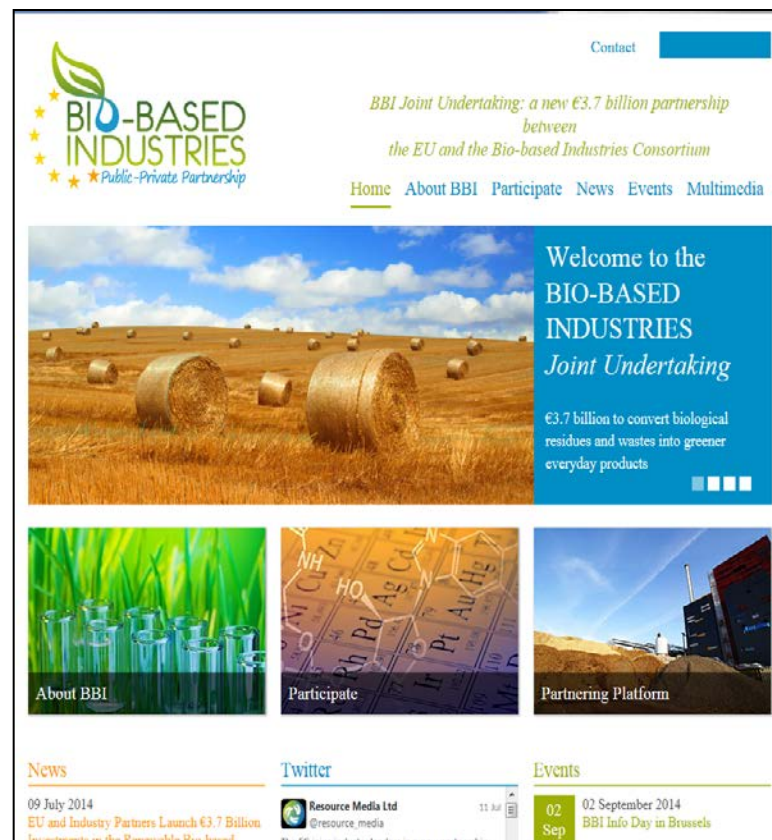
EU focuses on **advanced biorefineries** that use agricultural and forestry residues and biowaste fractions, while respecting sustainability criteria and creating growth and jobs at regional level.

Bio-based Industries Joint Undertaking

European
Commission

Public Private Partnership supporting R&I for bio-based industries:

- **Partners:** European Commission and Biobased Industries Consortium (BIC)
- **Budget:** € 3.705 billion (about 75% from industry)
- **Implementation:**
 - Principles of openness, transparency and excellence
 - Horizon 2020 rules for participation
- **Objectives:** New bio-based value chains for Europe, based on 2nd generation/advanced biorefineries.



www.bbi-europe.eu



A New Start for Europe: My Agenda for Jobs, Growth, Fairness and Democratic Change

Strasbourg, 15 July 2014



"As candidate for President of the European Commission, I see it as my key task to rebuild bridges in Europe after the crisis. To restore European citizens' confidence."

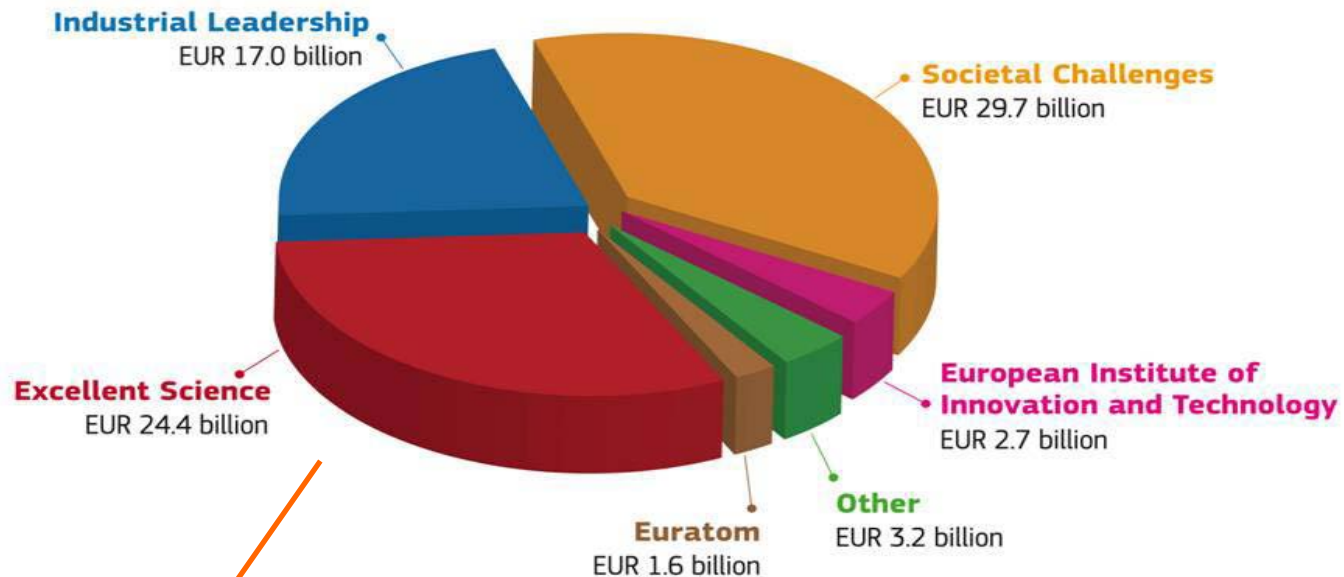
*"My agenda will focus on **ten policy areas**. My emphasis will be on concrete results in these ten areas. Beyond that, I will leave other policy areas to the Member States where they are more legitimate and better equipped to give effective policy responses at national, regional or local level, in line with the principles of subsidiarity and proportionality."*

"I want a European Union that is bigger and more ambitious on big things, and smaller and more modest on small things."

THE EU FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

HORIZON 2020

HORIZON 2020 BUDGET (EUR 78.6 billion, current prices)



Biggest EU investment in Research and Innovation

Budget for SC2:
> €3,8 billion
more than double
of FP7 budget

Research and
Innovation

Societal challenges

- *Why:*
- Concerns of citizens and society/EU policy objectives (climate, environment, energy, transport, etc) cannot be achieved without innovation
- Breakthrough solutions come from multi-disciplinary collaborations, including social sciences & humanities
- Promising solutions need to be tested, demonstrated and scaled up

Societal challenges in Horizon 2020



**Tackling
societal
challenges
for a better
society**



1. Health, demographic change and wellbeing

2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy

3. Secure, clean and efficient energy

4. Smart, green and integrated transport

5. Climate action, resource efficiency and raw materials

6. Inclusive, innovative and reflective societies

7. Secure societies

Activities:



**Agriculture
and
forestry**

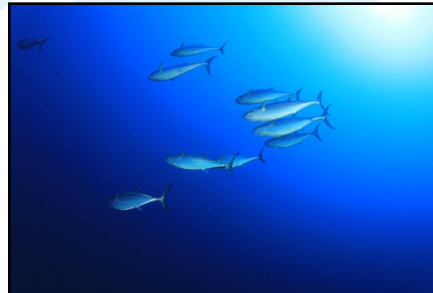
**Agri-food
sector for a
safe and
healthy diet**



**Aquatic
living
resources**

**Bio-based
industries
and
bioeconomy**

**Marine and
maritime
research**



Activity 2.1. Sustainable Agriculture and Forestry

- 2.1.1. Increasing **production** efficiency, coping with **climate change**, while ensuring **sustainability and resilience**

*2.1.2. Providing **ecosystem services** and public goods*

*2.1.3. Empowerment of **rural areas**, support to policies and rural innovation*

*2.1.4. Sustainable **Forestry***



Activity 2.2 Sustainable and competitive agri-food sector for a safe and healthy diet

2.2.1. *Informed **consumer** choices*

2.2.2. *Healthy and safe **foods** and diets for all*

2.2.3. *A sustainable and competitive **agri-food industry***

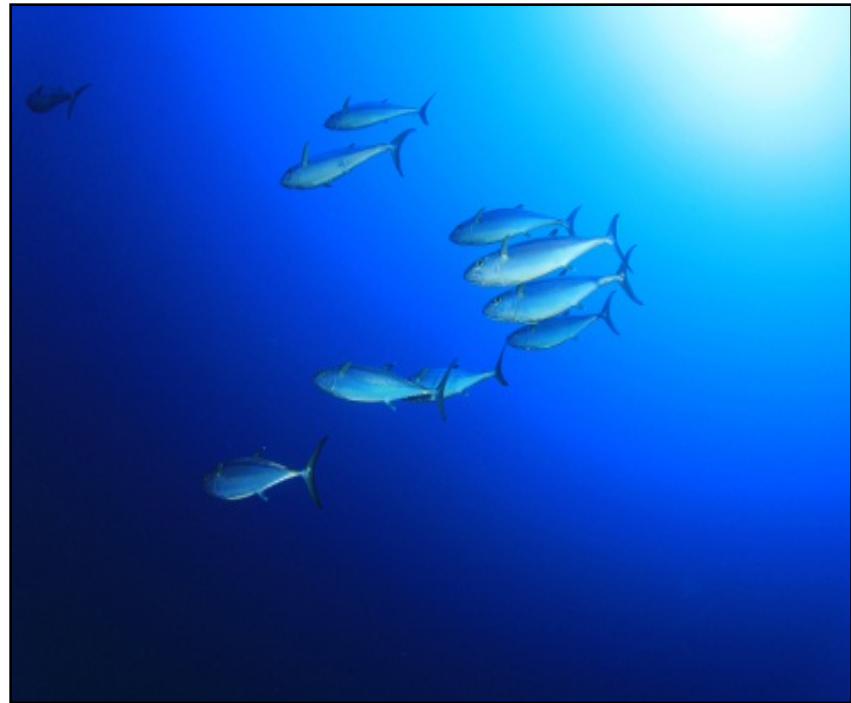


Activity 2.3. Unlocking the potential of aquatic living resources

2.3.1. *Developing sustainable and environmentally-friendly fisheries*

2.3.2. *Developing competitive and environmentally-friendly European aquaculture*

2.3.3. *Boosting marine and maritime innovation through biotechnology*



Activity 2.4. Sustainable and competitive bio-based industries and bioeconomy

2.4.1. Fostering the **bioeconomy** for **bio-based industries**

2.4.2. Developing integrated **biorefineries**

2.4.3. Supporting **market development** for bio-based products and processes



** Most activities related to sustainable and competitive bio-based industries as defined in the Horizon 2020 Specific Programme will be implemented through the Joint Technology Initiative (JTI) on Bio-based Industries.*

Activity 2.5. Cross-cutting marine and maritime research

2.5.1. Climate change impact on marine ecosystems and maritime economy

2.5.2. Developing the potential of marine resources through an integrated approach

2.5.3. Cross-cutting concepts and technologies **enabling maritime growth**



Implementing H2020 SC2

From Specific Programme to Work Programme 2014-2015

European
Commission

SPECIFIC PROGRAMME

WORK PROGRAMME Calls 2014-2015

Sustainable Agriculture and Forestry

Sustainable and Competitive agri-food sector for a safe and healthy diet

Unlocking the potential of aquatic living resources

Sustainable and competitive bio-based industries and supporting the development of a European bio-economy

Cross-cutting marine and maritime research

Strategic
Programming

**Sustainable
Food Security**

Blue Growth

**Innovative,
Sustainable and
Inclusive
Bioeconomy**

**Personalising Health and Care
(SC1)**

Waste (SC5)

Water Innovation (SC5)

Three main calls of SDG2



Sustainable Food Security

- Sustainable food production systems
- *Safe food and healthy* diets and sustainable consumption
- Global drivers of food security

Blue Growth

- Sustainably exploiting the diversity of marine life
- New offshore challenges
- Ocean observation technologies/systems
- Socio-economic dimension - engagement with society

Innovative, Sustainable and Inclusive Bioeconomy

- Sustainable agriculture and forestry
- Sustainable and competitive bio-based industries
- Cross-cutting actions covering all the activities

International cooperation actions in WP2014-2015

General openness to third countries

Actions related to major initiatives or actions relevant for certain regions/countries

International cooperation relevant topics in the calls

Openness of SC2 ERANET actions to international cooperation

Openness of SC2 NCP promotion topic to third country

NCPs (based on previous success of Biocircle 1&2) –

specific importance of third country NCPs as interlocutors

Ensuring continuity through working groups and task forces of FP7 KBBE

- **EC-US Task Force on Biotechnology Research** (since 1990) working groups on bio-based products and bioenergy, environmental biotechnology, marine genomics, plant biotechnology, animal biotechnology, synthetic biology
- **International KBBE Forum** with Australia, Canada and New Zealand (since 2010), working groups on Bio-based Industrial Products, Food & Health , Fisheries & Aquaculture and Sustainable Agriculture
- **EU-China Task Force on Agriculture, Food and Biotechnology** (since 2011)
- **EC-Russia Working Group on Agro-Bio-Food** (since 2005)

First major initiatives of Horizon 2020 in Societal Challenge 2

Transatlantic Research Alliance with USA and Canada – Galway Statement → Blue Growth call

EU-China Flagship Initiative on Food, Agriculture and Biotechnology → topics in related calls

Experience with these first initiatives and possible follow up or preparing other actions on multilateral level in the future



Rules for funding

Open to participation from across the world

Automatic funding:

- - *Member States (including overseas departments and overseas territories)*
- - *Associated Countries*
- - *exhaustive list of countries in annex to work programme (but: no longer BRIC + Mexico in this list!) – Annex A: List of countries and applicable rules for funding*

Participants from other countries only funded in exceptional cases – Rules for Funding, Article 10 on Eligibility for funding:

- - *when provision is made in the call text*
- - *based on bilateral agreement (e.g. Health challenge – NIH)*
- - *when the Commission deems it essential for carrying out the action (case by case assessment) – needs to be mentioned and justified in the proposal and assessed at the evaluation stage*

Future actions/ Next steps

Strategic Programming process under way

Dialogue with international partner countries in existing fora and in new initiatives and groupings (e.g. creation of ad-hoc working groups where necessary)

Priority setting and actions based on mutual interest

Consideration to work on a multilateral basis in a specific international forum on the Bioeconomy

Better alignment of research agendas (European and Member States) → openness of ERANETs and JPI activities, allowing the promotion of more programme based cooperation

Pós Doutorado no Joint Research Centre (JRC) da UE



Inscrições de 07
a 30 de outubro

01



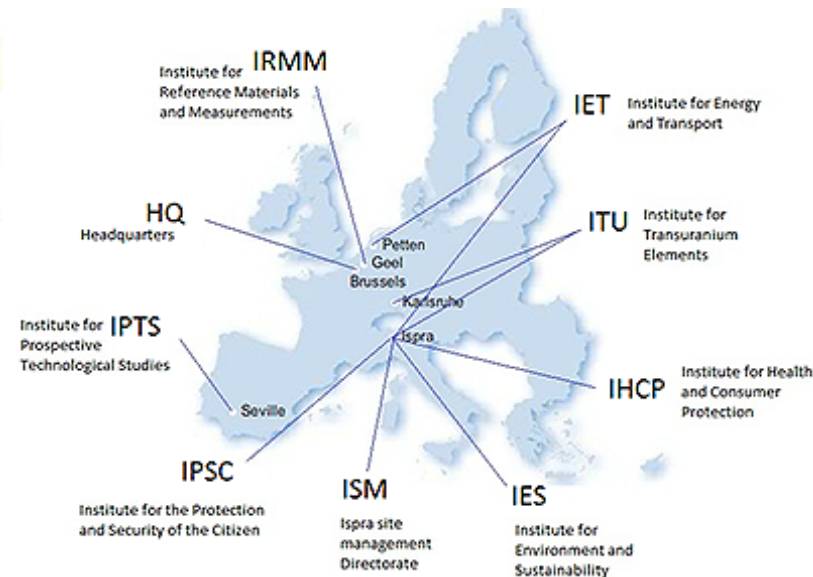
12 vagas

02



Áreas: Ciências Agrárias,
Energia, Meio Ambiente,
Biotecnologia,
Nanotecnologia e Segurança
da Informação.

03



<http://www.cienciasemfronteiras.gov.br/web/csf/uniao-europeia>



HORIZON 2020

**Thank you
for your attention!**

Useful links:

Horizon 2020: www.ec.europa.eu/research/horizon2020

Participant Portal and WPs: <https://ec.europa.eu/research/participants/portal>

Bioeconomy Portal : <http://ec.europa.eu/research/bioeconomy/>