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# Food, Agriculture and Fisheries, and Biotechnology

Knowledge - Based Bio - Economy ( K B B E )

## EU perspective of green growth and potential contributions of agricultural science

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Food,  
Agriculture and Fisheries,  
and Biotechnology

Knowledge-Based Bio-Economy (KBBE)



# A new political context for Research and Innovation The EU 2020 Strategy

**Europe 2020: a European strategy for smart, sustainable and inclusive growth - COM (2010) 2020**

**Smart growth: developing an economy based on knowledge and innovation**

**Sustainable growth: promoting a more resource efficient, greener and more competitive economy**

**Inclusive growth: fostering a high employment economy delivering social and territorial cohesion**

The Commission has proposed seven flagship initiatives within the "Europe 2020" among which 2 are directly relevant to the bio-economy:

"**Innovation Union**" to improve framework conditions and access to finance for research and innovation so as to ensure that innovative ideas can be turned into products and services that create growth and jobs. **(e.g. building the bio-economy by 2020)**

"**Resource efficient Europe**" (including biodiversity objectives and sustainable use of resources) to help decouple economic growth from the use of resources, support the shift towards a low carbon economy, increase the use of renewable energy sources, modernise our transport sector and promote energy efficiency.

# A new Context for Innovation at EU level

- **Appointment of new Commissioner for Research and Innovation: Mrs Maire Geoghegan-Quinn**
- **Following a review of the Community Innovation Policy (COM(2009) 442 final) and a public consultation in 2009, the Commission is currently preparing a **European Research and Innovation Strategy** which should be adopted in September 2010.**
- **The Plan will include the creation of **European Research & Innovation Partnerships** between the EU and national levels to speed up the development and deployment of technologies. A proposal on a **Research and Innovation Partnership in the Bio-economy** is being considered among others.**



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# Policy actions: A strategic agenda for the sustainable bio-economy

- DG RTD will prepare a **Communication on Sustainable Bio-Economy** (expected mid-2011).
- The Communication will provide a vision and action plan for a sustainable and **innovative** European bio-economy by 2020. Some of the main elements will be:
  - Completion of the European Research Area in the bio-economy sectors;
  - Improving framework conditions for **innovation in the bio-economy sectors**; inc. promotion of knowledge transfer and public procurement and development of standards
  - Integrating the **bio-economy approach** into the forthcoming reform of the Common Agricultural Policy and **Common Fisheries Policy** as well as in waste treatment legislation;
  - Encouraging the reforms of the Member States' R&D and innovation systems to enable the development of the bio-economy at national level



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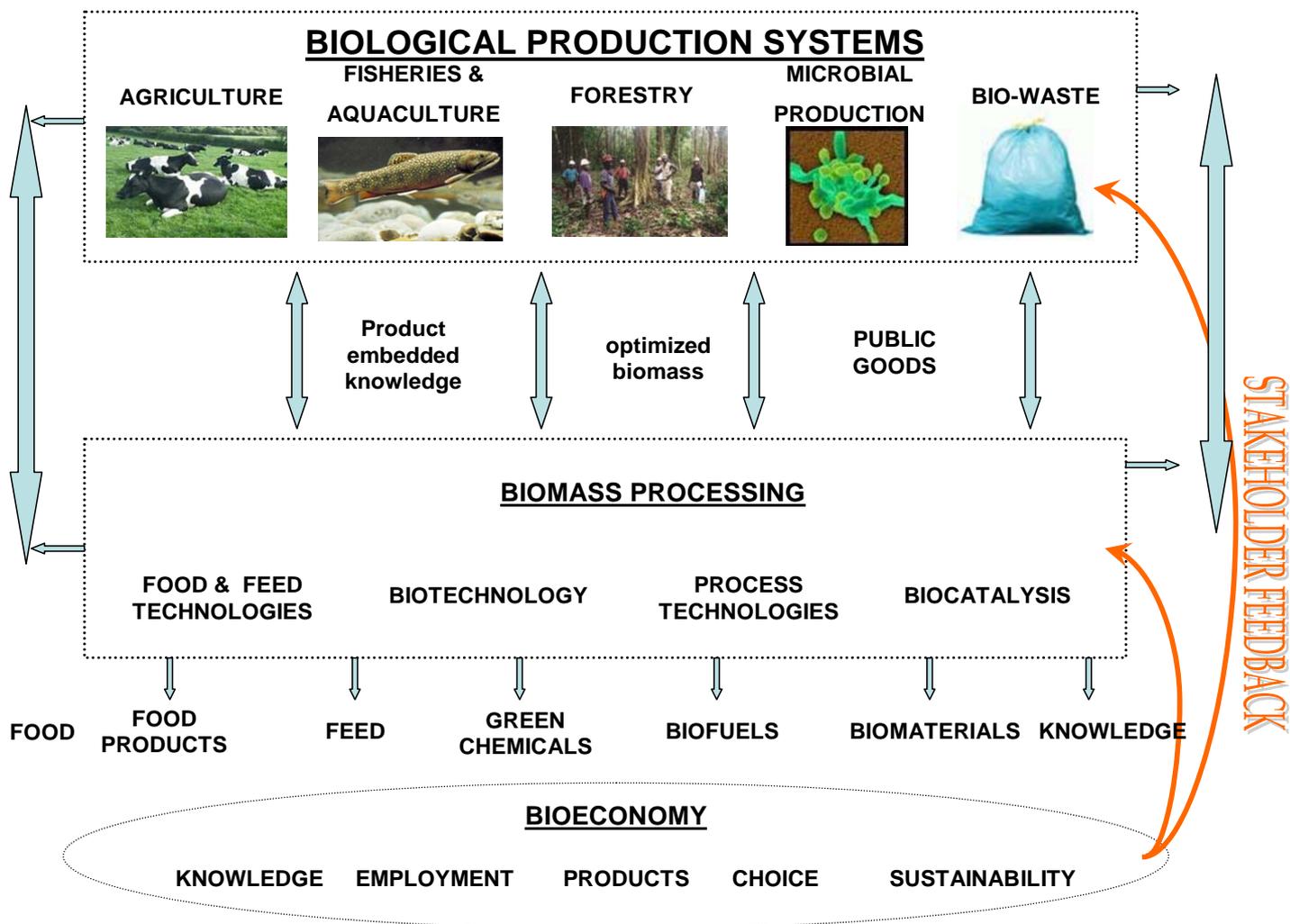
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# The concept of the BIO-ECONOMY



- **The bio-economy is...**  
a sustainable economy that uses biological renewable resources from land and sea either for direct consumption or as inputs to the food, feed, fibre, construction, pharmaceutical and chemical industries and to the energy sector  
...and bio-based processes to green industries and to recycle waste streams.
- **Based on knowledge and innovation** in biosciences, in convergence with other technologies, e.g. engineering, chemistry, computer science and nanotechnologies.
- **Includes all industries and economic sectors that produce, manage and otherwise make use of biological resources (incl. bio-waste) such as agriculture, forestry, fisheries, food, chemicals and energy.**
- **The European bio-economy has an approximate market size of over €1.5 trillion, employing more than 22 million people.**

# The Bio economy



# BIOECONOMY

## What is at stake?

- **Providing sustainable food security to Europe and globally while adapting to a changing climate and increase in demand from non-food crops**
  - Population growth to around 9 billion => Increase of demand for food by 50%
  - Reducing pre- and post-harvest losses
  - Retention of fish stocks => 30% fish population outside safe biological limits
  
- **Providing healthy food**

Sustainable and safe food production chains  
...While increasing dietary and nutrition standards and understanding dietary related disease.
  
- **Reducing the environmental impact of agriculture and fisheries**
  - 9% CO<sub>2</sub> emissions in Europe and 14% globally
  - Deforestation
  - Biodiversity
  - Soil quality
  - Sustainable aquaculture
  - Reducing nutrient losses
  - Pest and disease control

# BIOECONOMY

## What is at stake? (contd)

- **Delivering public goods through improved farming practices**
- **Coping with resource depletion**
  - **Water**
  - **Phosphate**
- **Closing the waste loop** - reducing and/or creating added value from food production and consumption waste, and its optimisation in biorefinery and new bioprocess development
- **Supporting coastal and rural development**
- **Making industry “greener” and more bio-based**
  - **Replacing petrochemical inputs with renewable biological raw materials and bio-processes**
  - **New markets for farmers and forest owners**
- **Generate sustainable growth and jobs**
- **Retaining the European lead in bio-sciences and technologies**



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# European Research Area

- **Standing Committee on Agricultural Research (incl. its Collaborative Working Groups)**
- **Increasing role of ERA-NETs and ERA-NET +s**
- **Building on collaborative research activities (incl. COST)**
- **Joint Programming Initiatives**
- **Technology Platforms and Joint Technology Initiatives or other P.P.P.s**
- **Other initiatives, eg. Infrastructures, international cooperation**
- **Learned societies**

# The Bioeconomy interfaces with a number of relevant policies

- **EU2020 strategy**
- **New Commissioner's main priorities** (Finalisation of ERA; Simplification of the FP; Focus on innovation and knowledge transfer, Increasing the involvement of SMEs in research projects)
- **CAP**, Reform of CAP, Organic Farming Action Plan; Forestry Action Plan
- **The Maritime policy** e.g. Communication on A European Strategy for Marine and Maritime Research; Aquaculture Strategy
- **Public health** e.g. "A strategy for Europe on nutrition, overweight and obesity related health issues"; Food safety legislation, health claims and food labelling

# The Bioeconomy interfaces with a number of relevant policies (cont'd)

- **Energy policy** e.g. Strategic Energy Technology Plan
- **Environment policies** e.g. Green paper on adaptation to climate change; ETAP; Water Initiative; Industrial Emissions Directive; EU Biodiversity Strategy
- **Industrial competitiveness** e.g. Mid-term review of the EU Biotechnology Strategy; Lead Market in Bio-based products
- Community Animal Health Policy and Animal Welfare Plan
- **Development policy** e.g. Renewed Sustainable Development Strategy; EU-Africa Strategic Partnership
- **Recovery plan**

# A Way Forward



- Building a European Bio-economy is now an intrinsic part of the Europe 2020 strategy
- Bio-economy should become a priority in EU Member States
  - ⇒ Building wide political support
  - ⇒ Mobilising all stakeholders and the civil society
  - ⇒ Creating an “Innovation Union” (Innovation Partnerships)
  - ⇒ Linking education, research and innovation in the Bio-economy
  - ⇒ Building stronger links to CAP, CFP, Climate change, Public Health, Industrial competitiveness, etc.
  - ⇒ Make innovation a concern for all government departments not just research policy



# Elements of linking the bio-economy to CAP

## CAP First Pillar – Single Farm Payment

- The CAP reform builds on market incentives
- When prices are attractive and infrastructure available, farmers supply quality food, feed and/or biomass
- Cross-Compliance keeps European agricultural practice sustainable
- Supply from other world regions might need certification first (Trade Policy)

## CAP Second Pillar – Rural Development

- Regional co-funded investments for example by:
  - a) improving the competitiveness through the support of restructuring, development and innovation; or
  - b) improving the environment and the countryside by supporting land management;
  - c) improving the quality of life in rural areas and encouraging diversification of economic activity;
  - d) LEADER approach

# What European society expects from farming and rural areas

- **Ensure food security through a competitive agricultural sector**
- **Provide management for natural resources**
- **Develop viable rural areas**
- **Respond to climate change**
- **Produce more with less input**