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Food, Agriculture and Fisheries, and Biotechnology

Knowledge-Based Bio-Economy (KBBE)

Bio-economy 2020

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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 process 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.**

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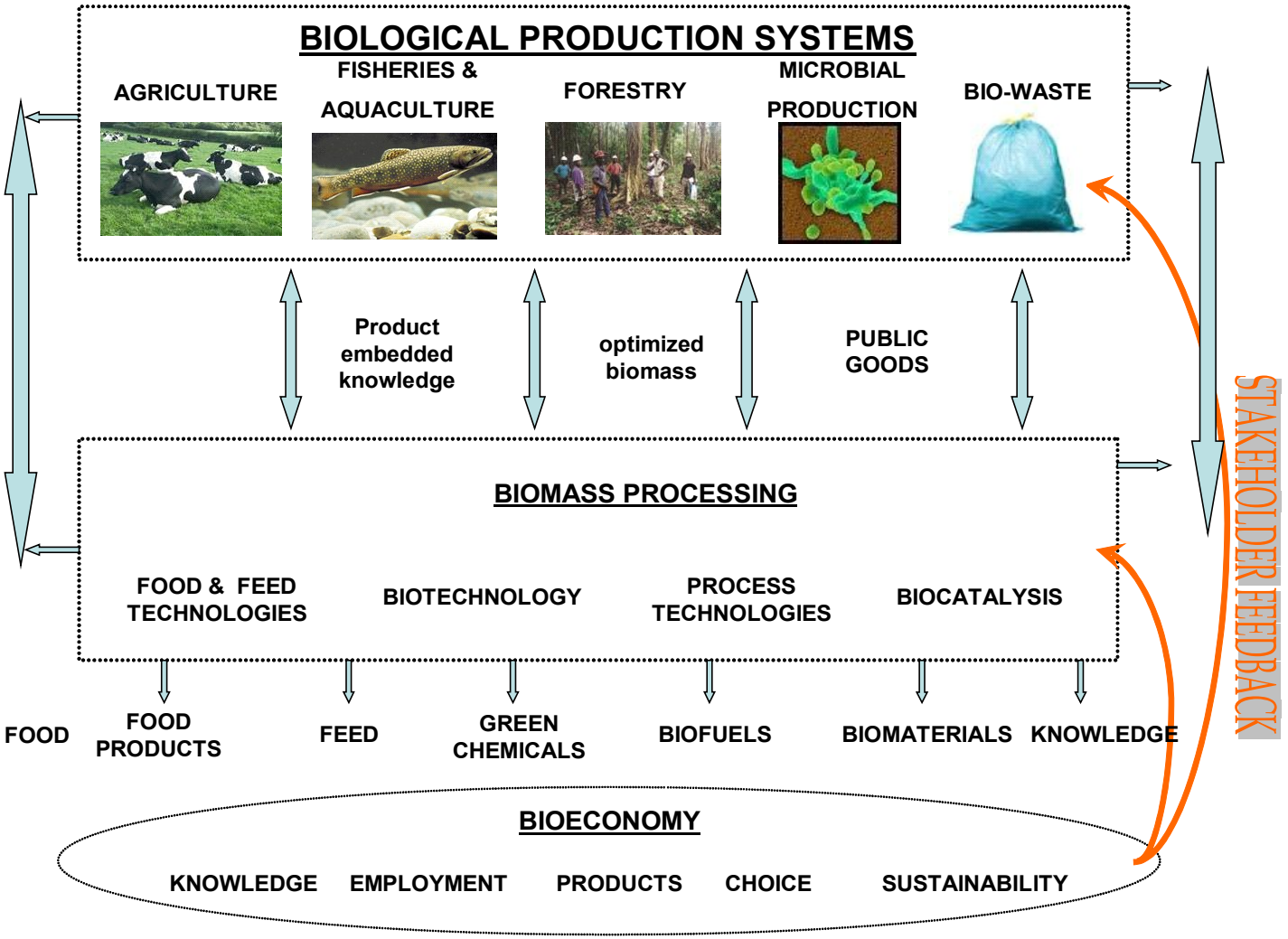
The Bio economy



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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

EU 2020 Strategy

The Commission is putting forward 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 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 analysed 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 standars**

  - **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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Some of the main interlinked challenges for Agriculture & Forestry

- **Impacts of climate change**
  - increasing drought periods, unpredictability
  - heat tolerance
  - changing diseases
  - soil degradation
- **Increasing global population and urbanisation**
- **Changing food consumption patterns**
  - meat
  - safety
  - welfare
- **Growing scarcity of resources**
  - land
  - water
  - phosphate
- **Increasing demand for non-food crops**
- **Increasing environmental concerns**
  - Biodiversity
  - habitat preservation
  - amenity use
- **Reducing greenhouse gas emissions**
- **Stimulating rural development**

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BIOECONOMY
What is at stake?

- **Providing food security to Europe and globally while adapting to a changing climate**
  - Population growth to around 9 billion => Increase of demand for food by 50%
  - Retention of fish stocks => 30% fish population outside safe biological limits
  - Sustainable fisheries and aquaculture

- **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_2 emissions in Europe and 14% globally
  - Deforestation
  - Soil quality
  - Sustainable aquaculture
  - Reducing nutrient losses

- **Delivering public goods through improved farming practices**

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BIOECONOMY What is at stake? (contd)

- **Coping with resource depletion**

- **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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- 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

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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, Increase the involvement of SMEs in research projects)
- **CAP**, health check 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

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

- **Energy policy** e.g. Strategic Energy Technology Plan
- **Environment policy** 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**

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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

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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

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What does the European society expect from farming and rural ares

- 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

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