

Rural development in a Knowledge-based bio- economy

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eRural (Brussels, November 2005)

The role of the Rural Development in KBBE

Three core objectives of the rural development set in the Rural Development Policy 2007-2013 :

- Improving the competitiveness of the **farm** and **forestry** sector through support for restructuring, modernisation/innovation and quality production
- Enhancing the environment and the countryside through support for land management
- Improving the quality of life in rural areas and promoting diversification of economic activity

FOOD QUALITY AND SAFETY

The role of the Rural Development in KBBE

Some identified axes in Rural development	KBBE
<ul style="list-style-type: none"> ● restructuring physical potential ● improving the quality of agricultural production and products ● the sustainable use of agricultural land 	<ul style="list-style-type: none"> ● Improve production, processing and marketing structures ● Food quality and safety ● agri-environment, animal welfare.

The term “**bio-economy**” includes all industries and economic sectors that produce, manage and otherwise exploit biological resources (i.g. agriculture, food, forestry, fisheries and other bio-based industries) which have a total annual turn-over of €1.5 trillion in Europe.

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Knowledge-Based Bio-Economy (KBBE)

The **KBBE** address major challenges beyond growth and employment:

- The growing demand for safer, healthier and higher quality food;
- The increasing risk of epizootic and zoonotic diseases like avian flu, and food related disorders, such as obesity, and the need for successfully preventing these;
- Threats to the sustainability and security of agricultural and fisheries production resulting in particular from climate change.
- The growing demand for sustainable production and use of renewable bio-resources for eco-efficient products;



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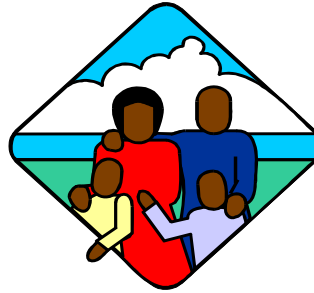
Community research

THE EUROPEAN KNOWLEDGE-BASED BIOECONOMY

QUALITY ASSURANCE STRATEGIES
TRACEABILITY, CONSUMER SCIENCE

SOCIETAL NEEDS

STABILITY - BIODEGRADABILITY
FUNCTIONALITY (Chirality)



ADVANCED FOOD TECHNOLOGIES, FOOD QUALITY DETERMINANTS, NUTRITION

PROCESSING

INDUSTRIAL/ENVIRONMENTAL BIOTECH
CLEAN BIOPROCESSES
RAW MATERIALS/WASTE

LOW INPUT FARMING - BIODIVERSITY
ANIMAL HEALTH - RURAL DEVT.

PRODUCTION

AGRI/MARINE BIOTECH
OPTIMISED RAW MATERIALS



Sustainable production and management of biological resources (plants, animals and micro-organisms) from land, forest, and aquatic environments

The Future

Fossil resources

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Product short-term

Biomass

Bio-catalysis

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Product medium term

*Optimised
Biomass*

Bio-catalysis

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Product long-term

→ Advances in Life Sciences and Biotechnology will transform the European Bioeconomy and lead to new, sustainable, eco-efficient and competitive products

Cooperation: 9 Thematic Priorities

- Health
- **Food, agriculture and Biotechnology**
- Information and Communication Technologies
- Nanosciences, Nanotechnologies, Materials and new Production Technologies
- Energy
- Environment and climate change
- Transport
- Socio-Economic Sciences and the Humanities
- Space and Security research

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Theme 2. Food, Agriculture and Biotechnology Building the Knowledge- Based Bio-Economy

**Sustainable production and management of biological resources
from land, forest, and aquatic environments**

« Fork to Farm ». Food, health and well-being

**Life sciences and biotechnology for sustainable
non-food products and processes**

FOOD QUALITY AND SAFETY

Food, agriculture and biotechnology research: Objectives

- **Build a European Knowledge-Based Bio-Economy (KBBE)**
- **Respond to social and economic challenges:**
 - High quality food and sustainable food production
 - Food-related disorders (cardiovascular, obesity ...)
 - Infectious animal diseases and zoonoses
 - Sustainable agriculture/fishery and climate change
 - Clean biomaterials from renewable bio-resources
- **Involve all stakeholders (incl. industry) in research**
- **Support CAP and CFP**
- **Respond quickly to emerging research needs**

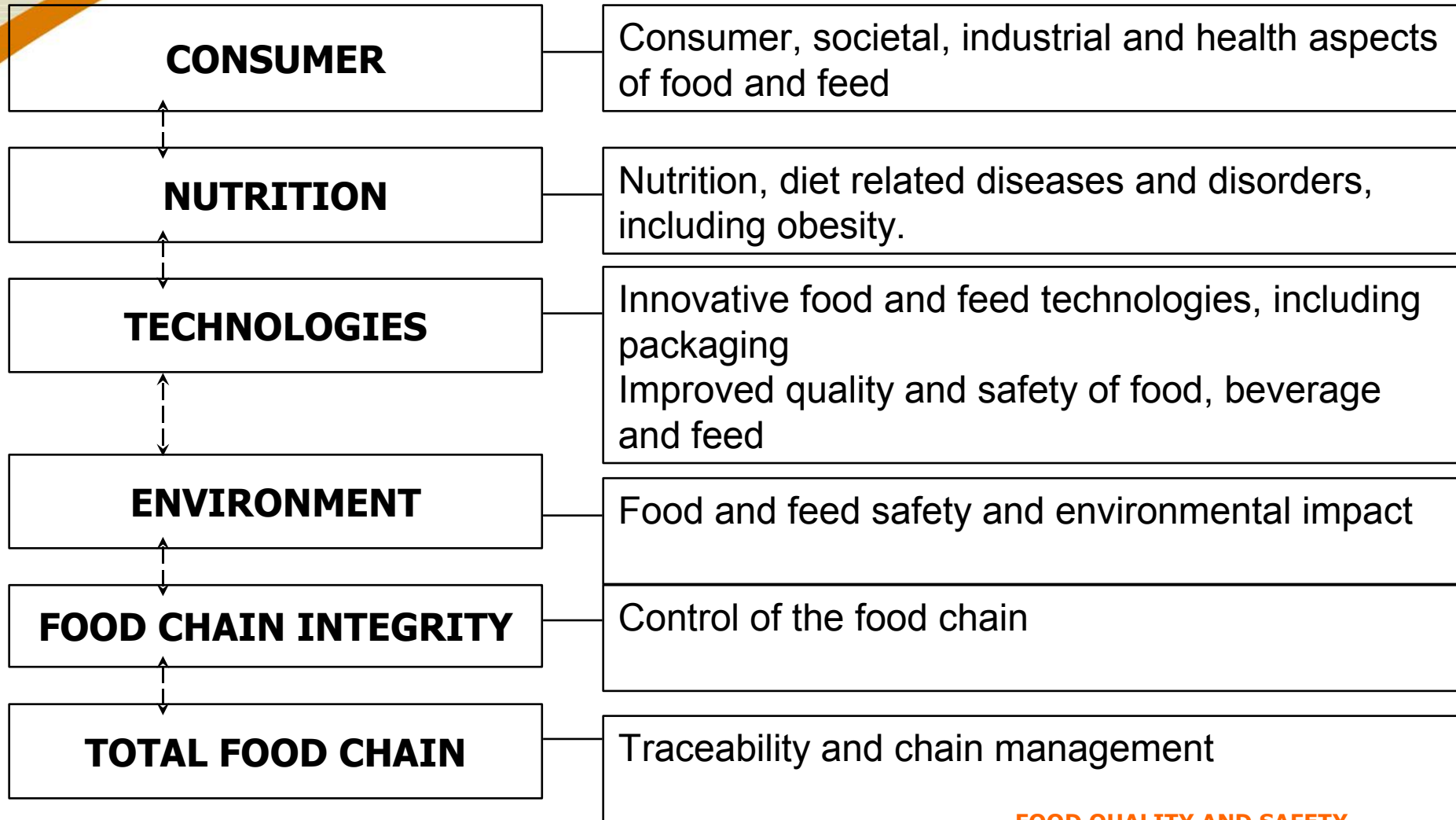
Sustainable production and management of biological resources from land, forest, and aquatic environment

Activities:

- Enabling research on sustainable production systems and the management of biological resources: ('omics', converging technologies, biodiversity) for micro-organism, plants and animals
- Low input, organic and novel production systems
- Sustainable, competitive and multifunctional agriculture, forestry and rural development
- Animal welfare, fisheries and aquaculture.
- Policy tools for agriculture and Rural development

FOOD QUALITY AND SAFETY

« Fork to Farm ». Food, health and well-being



Life sciences and Biotechnology for sustainable non-food products and processes - Activities

- **Improved crops, feed-stocks, marine products and biomass for energy, environment, and high added value industrial products; novel farming systems:**
- Strengthen the knowledge base and develop advanced technology for terrestrial or marine biomass application in energy and industry
- Exploitation of natural or enhanced terrestrial and marine organisms as novel sources of new valuable products (speciality chemicals, pharmaceuticals etc.)
- Improve chemical and biochemical productivity of biomass for production of high added value products etc.

Life sciences and Biotechnology for sustainable non-food products and processes – Activities

- **Bio-catalysis; new bio-refinery concepts:**
- Investigate and apply industrial biotechnologies and improve whole crop chain for realising the full potential of the bio-refinery concept (including socioeconomic, agronomic, ecological and consumer aspects)
- Increase understanding and control of plant and microbial metabolism for the production of renewable high value products (fibres, polymers, pharmaceuticals etc.)
- Improved biomass input and bio-processes for increased yield, quality and purity of conversion products including biocatalytic process design and innovative down stream processing etc.

Life sciences and Biotechnology for sustainable non-food products and processes - Activities

- **Forestry and forest based products and processes:**
- Biotechnologies for new and improved high quality and renewable wood/fibre-based products and processes
- Development of novel and improved high added value products from forest raw material
- Support to underpinning sciences of forest physiology and pathology etc.

Life sciences and Biotechnology for sustainable non-food products and processes - Activities

- **Environmental remediation and cleaner processing:**
- Exploit the potential of biotechnology to detect, monitor, prevent and remove pollution
- Treating, upgrading and/or recycling wastes and industrial by-products
- Bioassays and Biosensors
- Biogradation of chemicals
- Analysis of bottlenecks for the introduction of bioprocesses etc.

Food, agriculture and biotechnology research: What's new!

- New: Pillar 1 “Sustainable production and management of biological resources” and pillar 3 “Life sciences and biotech for sustainable non-food products and processes”
- Some topics under pillar 1&3 partly financed in FP4 and FP5 (BIOTECH, FAIR, QoL, etc.), but FP6 efforts scattered and not of sufficient critical mass (some activities under materials, energy and environment) providing no synergies
- Technology platforms in the area of plant biotechnology, animal breeding, global animal health, forestry, food and industrial biotechnology

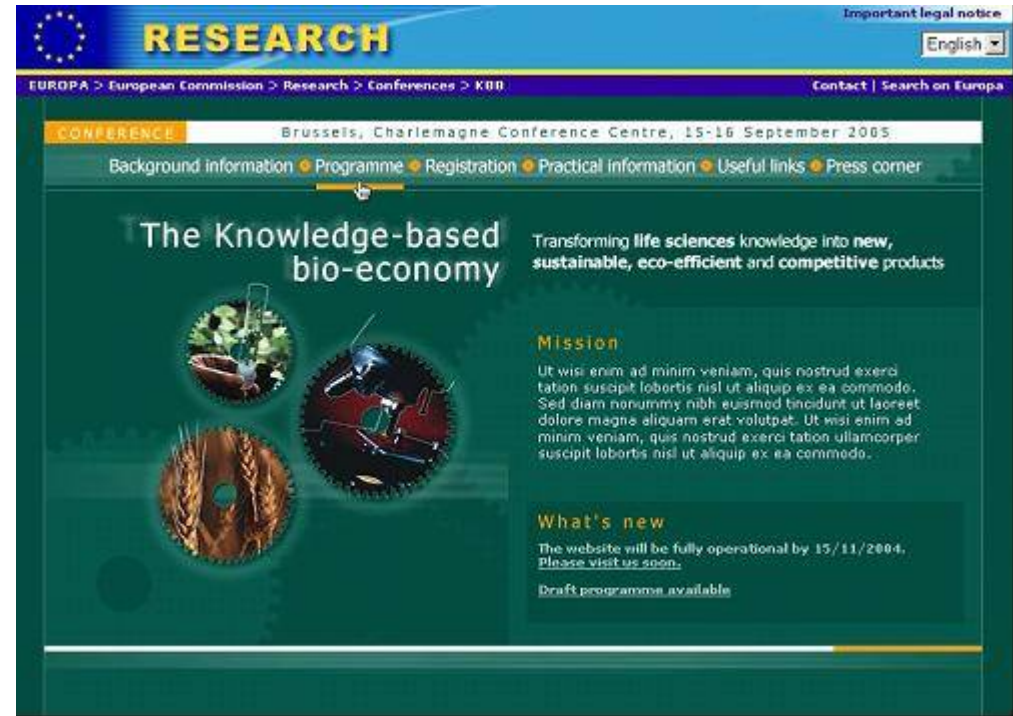
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Further info on the Knowledge-based bio-economy

The Knowledge-based bio-economy

Brussels, Charlemagne
Conference Centre 15-16
September 2005

In recognition of the growing importance of the life sciences and biotechnology sector of the bio-economy, the European Commission organised a high-profile conference in Brussels (Belgium) on 15 to 16 September 2005 to chart a course towards a modern knowledge-based bio-economy. The conclusions of this Conference are now available at:



http://www.europa.eu.int/comm/research/conferences/2005/kbb/index_en.html

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FURTHER INFORMATION

- **KBBE:**

http://www.europa.eu.int/comm/research/conferences/2005/kbb/index_en.html

- **FP7 on Europa:**

http://europa.eu.int/comm/research/future/index_en.cfm

- **FP7 on Cordis:**

<http://www.cordis.lu/fp7>