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Industrial Biotechnology and the KBBE

European Commission

DG Research

Directorate Food, Agriculture and Biotechnology

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Outreach Workshop
Brno, 15+16 May 2008





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What is the Knowledge-Based BioEconomy?

The knowledge base: Advances in Life Sciences and Biotechnologies in convergence with other technologies such as nanotechnologies, chemistry, information technologies..,

The Bio- Economy: Includes all industries and economic sectors that produce, manage or otherwise make use of biological resources including bio-waste.

The European bio-economy has an approximate market size of over €1.5 trillion, employing more than 22 million people

Europe has strength:

Excellent life sciences and biotechnology research base; strong chemical and enzyme industries; availability of biological resources...



The European Knowledge-Based Bio-Economy and globalisation

But our old and new competitors are moving forward:

US invest 3 times more than Europe in Biotech R&D

China invested between 2001-2005 12 billion Yuan (1.1 billion Euro) in biotech R&D- and is expected to double the investment during the next 5 year period.

The Brazilian government announced in 2006 a R\$7b11 (2.6billion Euro) Investment programme to foster over the next 10 years the development of biotechnology.

India tripled its research budget for biotech from the period 1997-2002 to 2002-2007.



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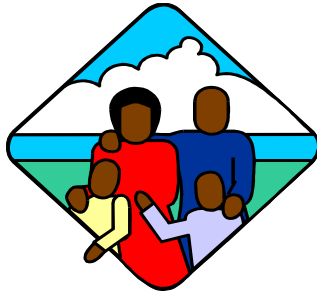
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THE EUROPEAN KNOWLEDGE-BASED BIOECONOMY

QUALITY ASSURANCE STRATEGIES TRACEABILITY, CONSUMER SCIENCE

STABILITY - BIODEGRADABILITY FUNCTIONALITY

SOCIETAL NEEDS



**“Fork to Farm”
Food, health and well-being**

Life sciences & biotechnology for sustainable non-food products + processes

ADVANCED FOOD TECHNOLOGIES, FOOD QUALITY DETERMINANTS, NUTRITION
LOW INPUT FARMING - BIODIVERSITY ANIMAL HEALTH - RURAL DEVT.

PROCESSING
PRODUCTION

**WHITE BIOTECH
CLEAN BIOPROCESSES
RAW MATERIALS/WASTE**
**GREEN/BLUE BIOTECH
OPTIMISED RAW MATERIALS**

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





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Life Sciences and Biotechnology A Strategy for Europe

COM(2002)27
2002-2012

Life sciences and biotechnology

A strategy for Europe



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How can Europe best attract the human, industrial and financial resources to develop and apply these technologies to meet society's needs and increase its competitiveness ?

How can Europe deliver effective, credible and responsible policies, which deliver the confidence and support of its citizens ?

How can Europe best respond to the global challenges, develop its domestic policies with a clear international perspective and act internationally to pursue its interests ?





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Mid term review of the European Strategy on Life Sciences and Biotechnology (2007):

Actions promoting research and market development for a Knowledge-Based Bio-Economy

- **Generating knowledge** under the 7th Framework Programme (2007-2013) from basic research to applied research, research infrastructures, training and specific support to SMEs.
- **Mobilise public and private research funding** and reinforce coordination
- **Launching of Joint Technology Initiatives** among others on Innovative Medicines
- **Promote pilot plants** to demonstrate the potential of bio-based applications
- **Stimulate lead markets initiatives** for eco-efficient bio-based products





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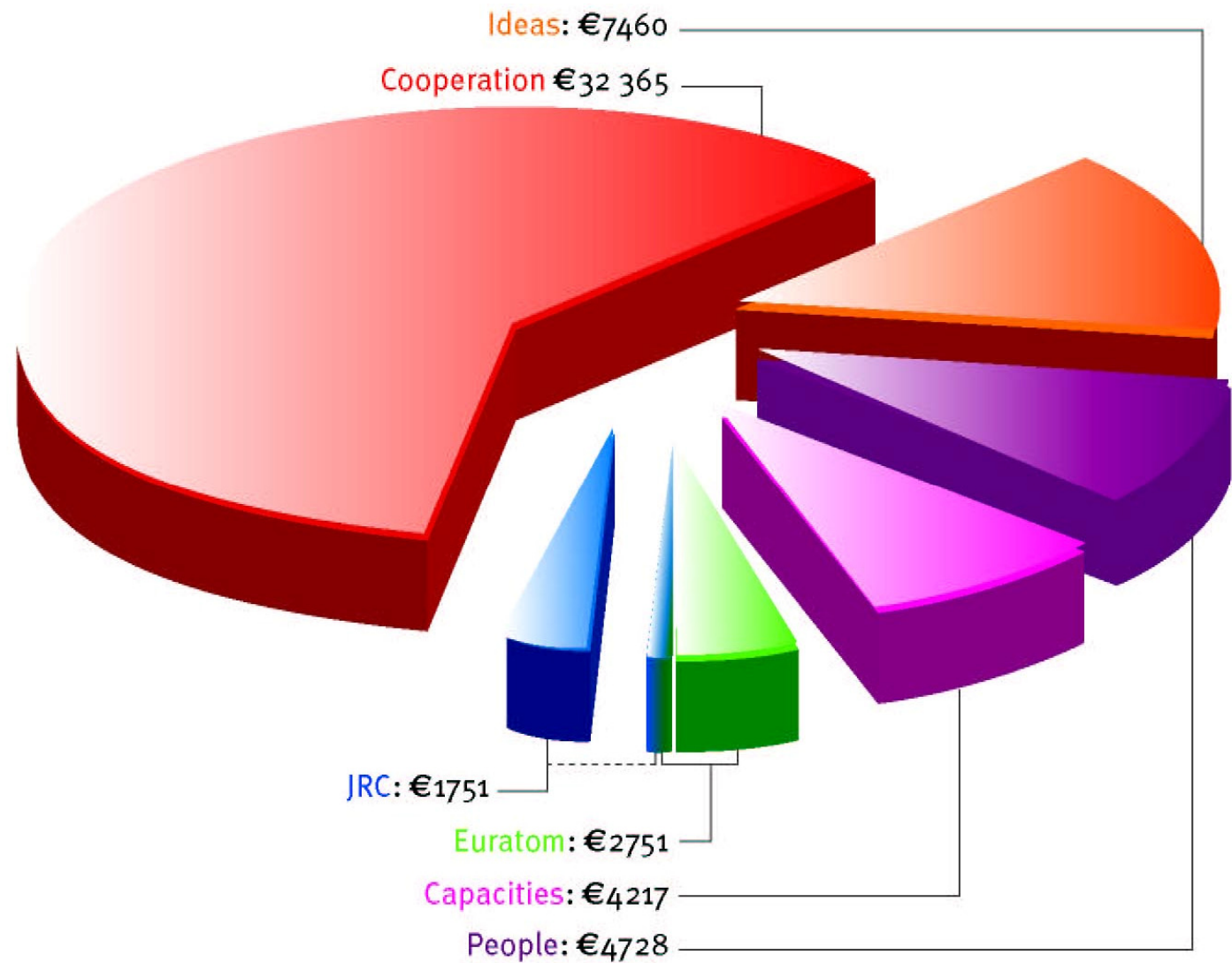
The EU's 7th Research Framework Programme (FP7, 2007-2013)

- FP7 is short for:
Seventh Framework Programme for Research and Technological Development
- It is the European Union's main instrument for funding research in Europe between 2007 and 2013
- FP7 supports research in selected priority areas
- It represents a 41% budget increase from FP6 at 2004 prices





FP7 – Indicative breakdown (€ million)

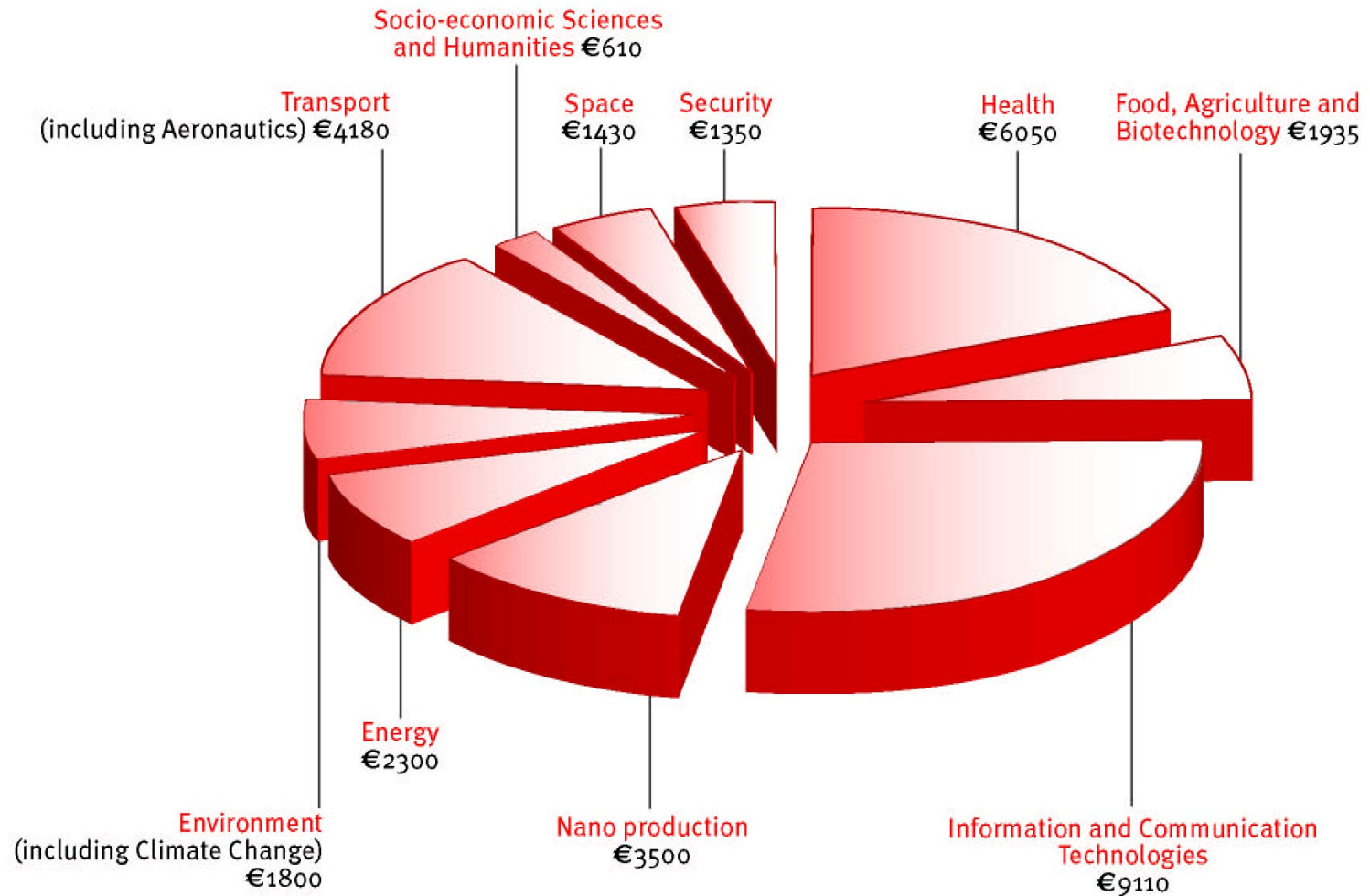




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Cooperation programme - thematic areas (€ million)





Objectives

- Build an 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 (Common Agriculture Policy) and CFP (Common Fisheries Policy)
- Respond quickly to emerging research needs



Rationale

Research (particularly in Life sciences and biotechnology) will...

- Develop production, management und processing of biological raw materials from plants, animals and micro-organisms, i.e. in relationship to quality, efficiency, sustainability, etc.
- Create competitive advantages for all EU industries in the area of biological Resources (agriculture, nutrition, forestry, paper, new bio industries)
- Fulfil the societal demand for safe and more wholesome food
- Create new eco-efficient and sustainable manufactured products (bio fuels, biomaterials) and decrease dependence on fossil oil



Theme 2: Food, Agriculture and Fisheries, and Biotechnology

Activity 2.1.

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

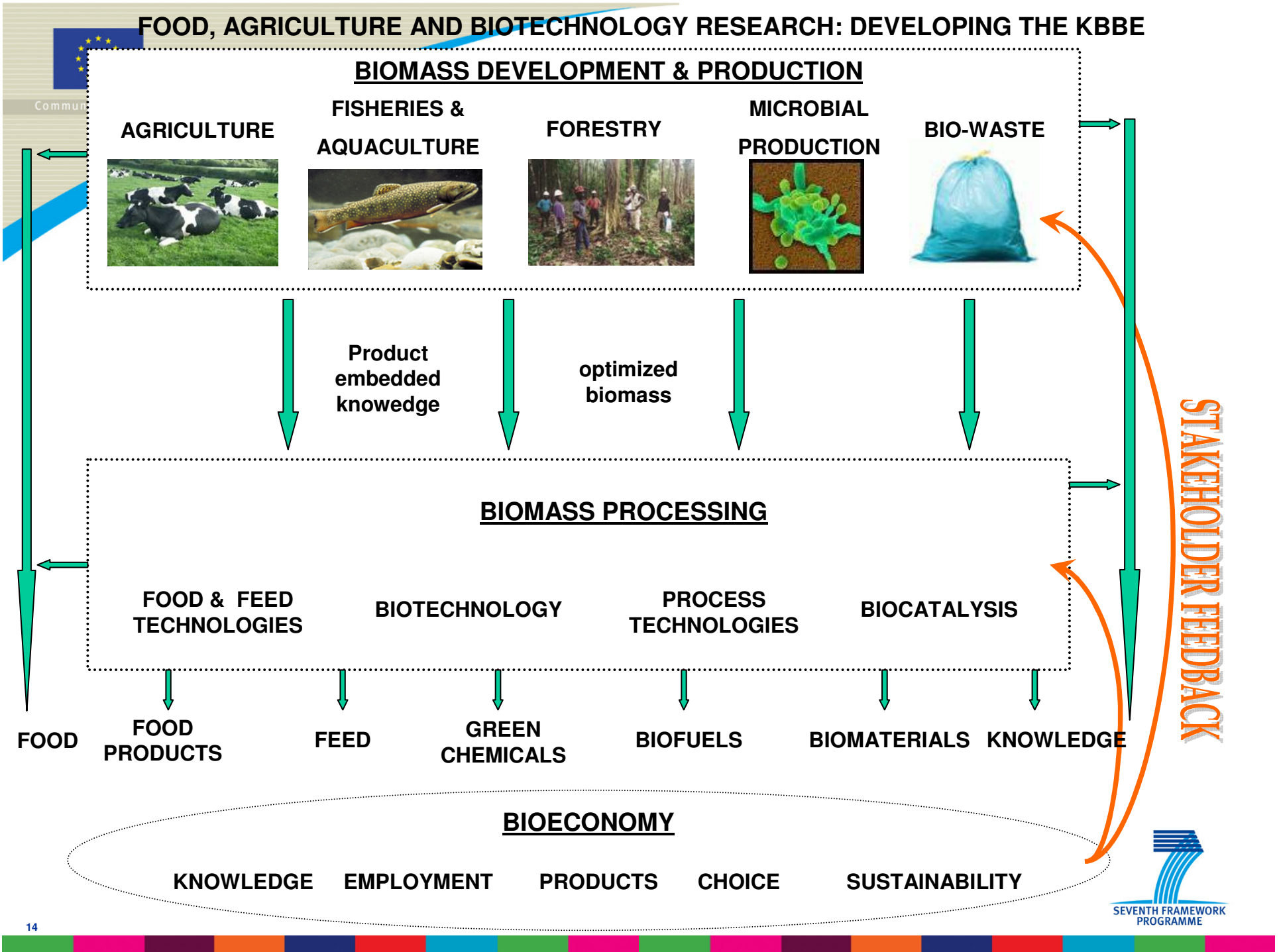
Activity 2.2.

“Fork to farm”: Food, health and well being

Activity 2.3.

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

FOOD, AGRICULTURE AND BIOTECHNOLOGY RESEARCH: DEVELOPING THE KBBE





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Food, **A**griculture and **F**isheries, and **B**iot**e**chnology
K n o w l e d g e - B a s e d B i o - E c o n o m y (K B B E)

Theme 2: response to the calls

Call FP7-KBBE-2007-1

All Three Activities (2.1, 2.2., 2.3)

Published: **22.12.2006**

Deadline: **02.05.2007**

Budget: **192.09 M€**

Requests for funding: **414 proposals, total EU contribution requested for 1.104 M€**

17 ineligible, 176 below threshold, 157 reserve list, 14 topics not covered

Accepted for funding: **64 (success rate: 16%)**

Partners in proposals accepted for funding **TOTAL: 902**

Of which Partners from EU15 + international partners : **817 (90.6%)**

And of which Partners from EU12: **85 (9.4%)**

And of Which:

Hungary 17; Czech Republic: 14 (4 as co-ordinator); Poland: 10; Romania 10; Bulgaria: 8; Estonia: 5; Slovenia: 5; Latvia: 5; Malta: 4; Slovakia: 4; Lithuania: 3; Cyprus: 2



Not legally binding

Theme 2: response to the calls

Call FP7-KBBE-2007-1

Activity 2.3: Life Sciences Biotechnology and Biochemistry for Sustainable Non-Food Products and Processes

Published: 22.12.2006

Deadline: 02.05.2007

Budget: 45.5 M€

Requests for funding: 67

Accepted for funding: 14 (success rate: 21%) ↑

2 topics not covered

Partners in proposals accepted for funding TOTAL: 205

Of which Partners from EU15: 161 (78.5%)

Of which international partners: 27 (13%)

And of which Partners from EU12: 17 (8.3%). ↓

Industrial penetration: In requests: 90%, in proposals accepted for funding: 100%

Average number of partners per proposal: in requests 11, in proposals accepted for funding: 15



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Food, **A**griculture and **F**isheries, and **B**iot**e**chnology
K n o w l e d g e - B a s e d B i o - E c o n o m y (K B B E)

Theme 2: response to the calls

Call FP7-KBBE-2008-2A /Two-stage evaluation/

Published: 15.06.2007

Deadline: 1st stage: 11.09.2007, 2nd stage: 19.02.2008

Budget: 110 M€

Estimated approximate success rate: 1st stage: 50%, 2nd stage: 25%

Call FP7-KBBE-2008-2B

Published: 30.11.2007

Deadline: 26.02.2008

Budget: 98.85 M€

Estimated approximate success rate: 11%

Evaluation of both calls completed in April 2008, but official results will be published only after the end of redress procedure and Programme Committee notification



Not legally binding

Theme 2: next calls

Three phases of Work Programme Preparation

1. **Consultation** (Internal: compliance with Specific Programme, Budget profile of FP7, outcome of calls from previous years & External: Advisory Groups, European Technology Platforms, Programme Committee, Expert groups, Workshops, Conferences, Spontaneous input)
2. **Preparation of Draft WP** (from EC Project Officer – Head of Unit – Director – DG – Cabinet to Interservice Consultation: Research DGs, Policy DGs, Budget DG, Legal Service, Secretary General)
3. **Adoption** (opinion of the Programme Committee, adoption by the Commission, publication)

Call FP7-KBBE-2009-3 /tentative schedule/:

Publication: July 2008

Deadline: January 2009



Biorefinery related calls and projects

FP6 running projects

- > 30

Topics in FP7, thematic areas

- ENV: 4
- Nano: 4
- FAB: 7
- Energy: 1
- => 2009 joint call on Sustainable Biorefineries

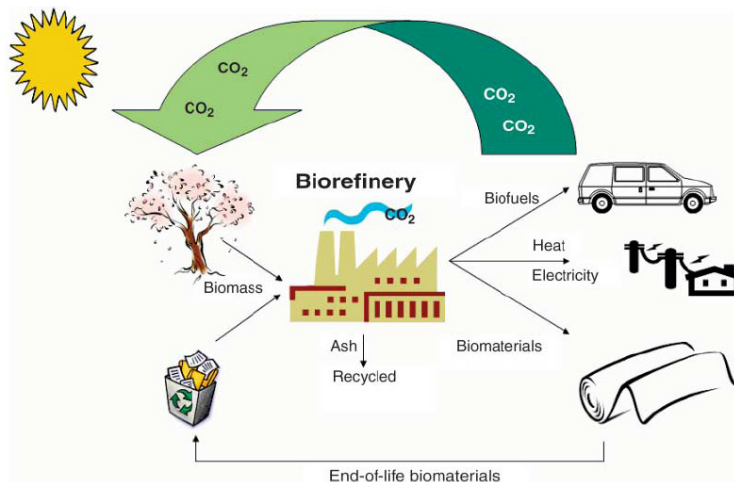


Fig. 1. The fully integrated agro-biofuel-biomaterial-biopower cycle for sustainable technologies.



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KBBE-Net

A network of EU Member States/Associated Countries to help coordinate the development and implementation of a European research policy for a knowledge-based bio-economy in co-ordination with the Standing Committee on Agricultural Research.

Objectives

- Contribution to a European Research Agenda for a European Knowledge Based Bio-Economy.
- Contribution to the update of the European Strategy on Life Sciences and Biotechnology in 2007.
- Exchange of information and coordination
 - Policies, mapping of activities, CWG
 - Questionnaire on Biorefinery pilot and demonstration plants
 - Life cycle assessment on biofuels





Lead Market Initiative

- “Lead Market” initiative proposed by Aho Report
 - ➔ markets **driven by innovation**, requiring stronger mobilisation of public and private research efforts (i.e. of ETPs)
 - ➔ markets **nurturing future world-leading products and companies**
 - ➔ markets **with a high growth potential**, in Europe and globally
 - ➔ markets where **public authorities have a critical role** as regulator, customer, and/or facilitator
- Commission Communication on Lead Market Initiative adopted 21 Dec 2008
- Proposed action Plan on lead market for bio-based products to be implemented by EC, MS, industry and other stakeholders



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Policy measures to stimulate uptake and demand for bio-based products

- **STANDARDS; LABELS**
- **PUBLIC PROCUREMENT**
- **LEGISLATION**
- **ACCESS TO FINANCE**
- **COMMUNICATION**
- **R&D incl. INTERNATIONAL COOPERATION**



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Technology Platforms in the KBBE sector



European Technology Platform
Food for Life

<http://etp.ciaa.be>

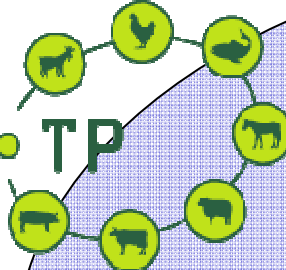
www.suschem.org



SusChem

Industrial biotechnology

FABRE • TP



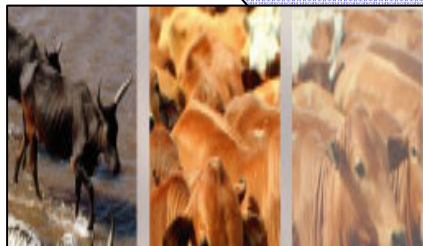
Farm Animal Breeding

www.fabretp.org

Knowledge Based Bio-Economy

European Biofuels TP

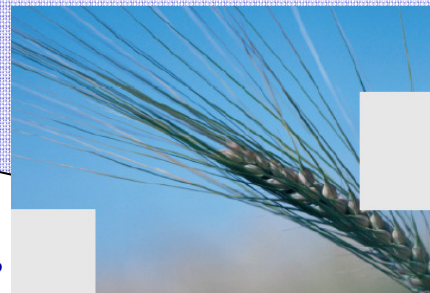
www.biofuelstp.eu



ETP

Global Animal Health

www.ifah.be/Europe/EUPlatform/Platform.htm



ETP

Plants for the Future

www.epsoweb.org

Forest-Based Sector
Technology Platform



www.forestplatform.org





ERA-NETs related to Activity 3/FP7

Acronym	Research field	start - end	Call budget
ERA-PG www.erapg.org	Plant genomics	01/04 - 12/09	38 15
ERA-IB www.era-ib.net	Industrial biotechnology	06/06 – 05/10	11
ACENET www.sysmo.net	Applied catalysis	09/04 – 08/08	5
WOODWISDOM-NET www.woodwisdom.net	Wood material science	01/04 – 12/07	20
EuroTrans-Bio www.eurotransbio.net	SME funding in biotechnology	10/04 – 09/08	45 33 30
ERASysBio (SysMo) www.sysmo.net	Systems biology (micro-organisms)	02/06 – 09/09	28
BIOENERGY www.eranetbioenergy.net	Bioenergy from renewable bio-resources	10/04 - 11/08	?
BiodivERsA www.eurobiodiversa.org	Biodiversity research	05/05 - 04/09	20
ERA ARD www.era-ard.org	Agriculture research for development	04/05 - 03/09	0
NanoSci-ERA www.nanoscience-europe.org	Nanosciences	03/05 - 02/08	12 24

Total ca. M€ 281+? (2006 – 2008)



KBBE activities in Member States

Denmark
SD project

Sweden
IB Forum

Finland
IB Forum

UK
Pro-Bio Faraday
CoEBio3

Baltic region
Inst. for Sust. Ind.

Netherlands
Kluyver Centre
B-BASIC
→ NIIB

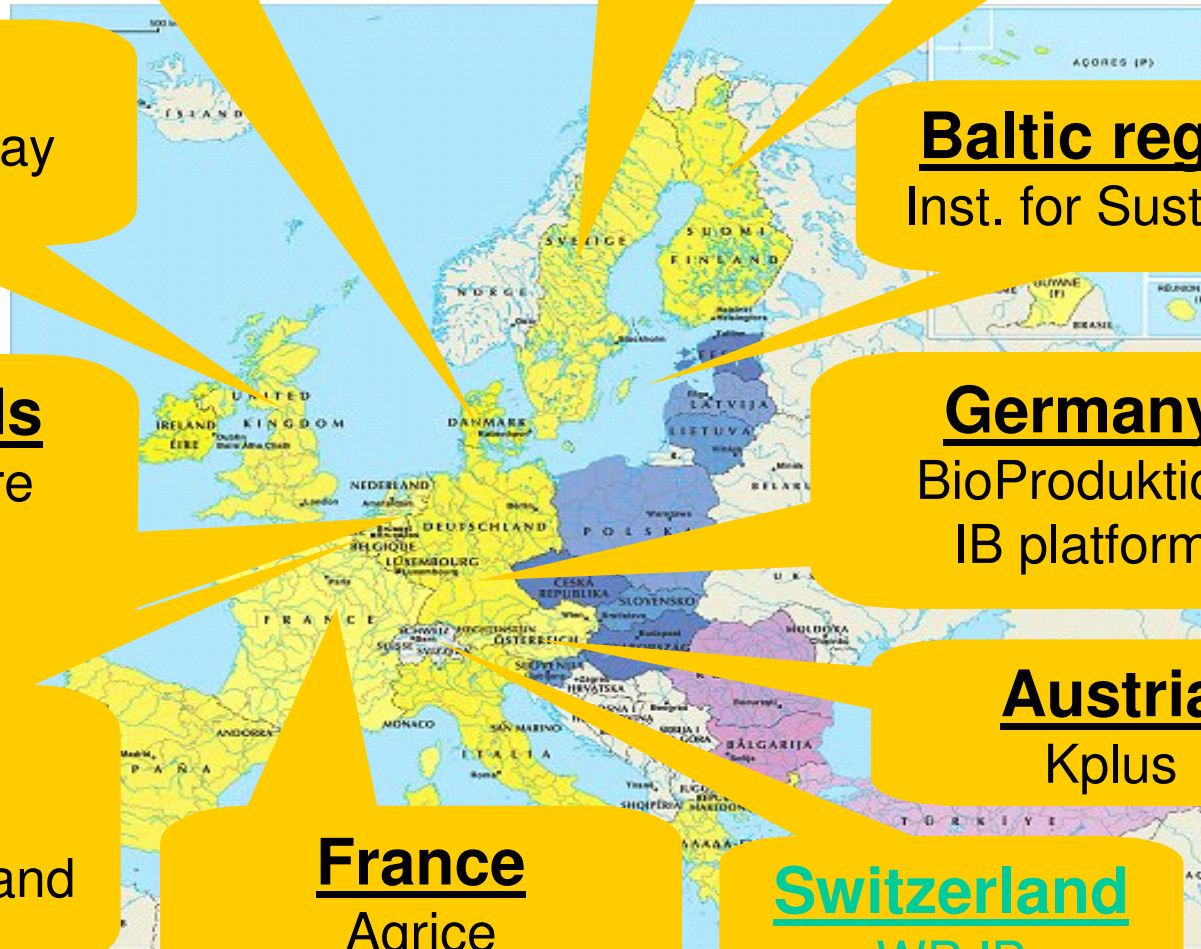
Germany
BioProduktion
IB platform

Belgium
BIPIB
RT Chemistry and
Biotech

France
Agrice
Pôle Comp.

Austria
Kplus

Switzerland
WP IB

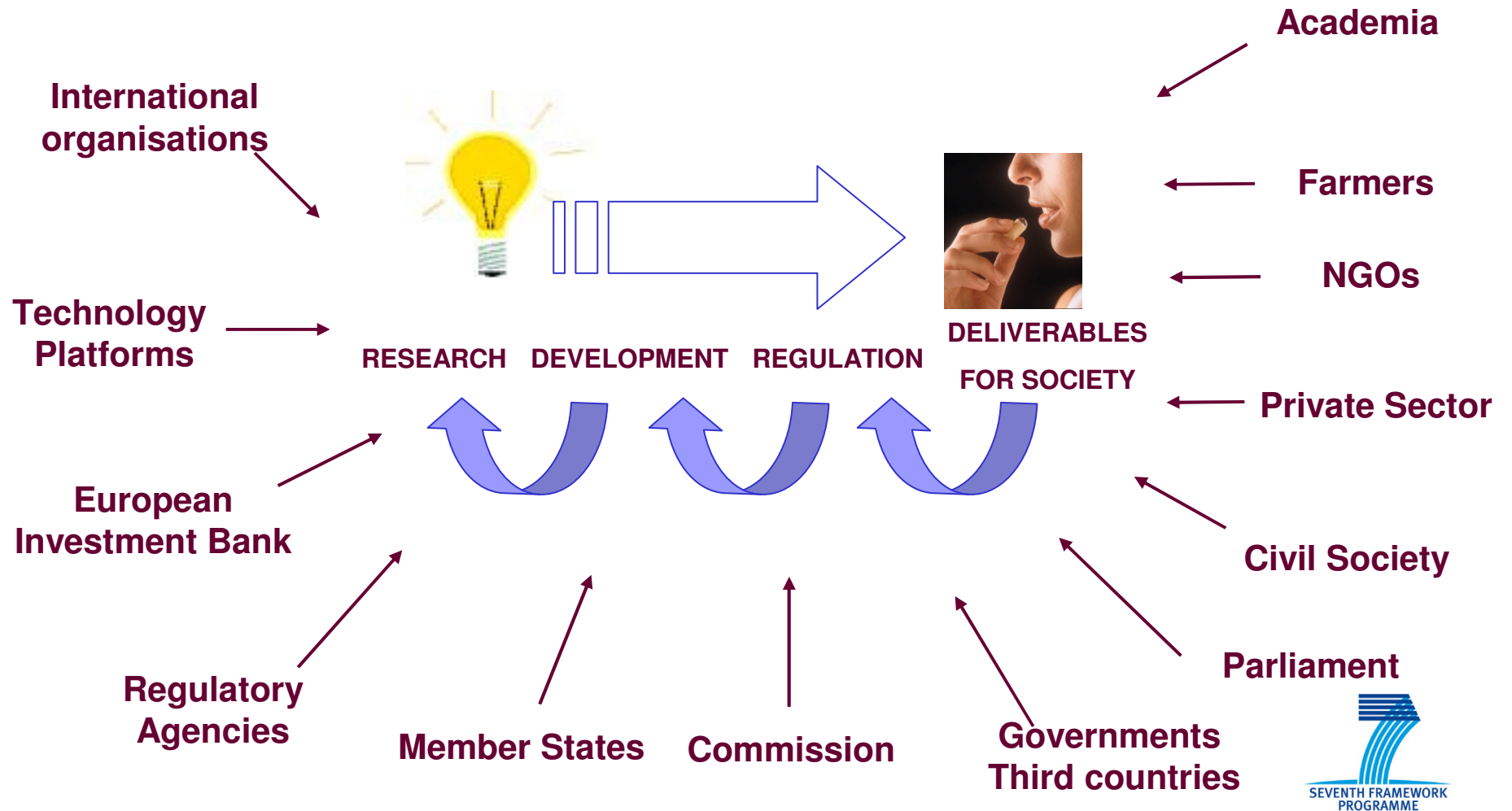




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Success will depend on mobilisation of all actors





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Further information

- EU research: <http://europa.eu.int/comm/research>
- Seventh Framework Programme:
<http://cordis.europa.eu/fp7/home.html>
http://cordis.europa.eu/fp7/kbbe/home_en.html
- RTD info magazine:
<http://europa.eu.int/comm/research/rtdinfo/>
- Information requests, Europe Direct
<http://ec.europa.eu/research/index.cfm?pg=enquiries>
- *Midterm review, Bio4EU study*
 - www.ec.europa.eu/biotechnology
 - www.jrc.ec.europa.eu/bio4eu

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