



# Biofuels and Biomaterials in FP7: a European perspective

Dr Piero Venturi

Unit Biotechnologies  
Directorate Food, Agriculture and Biotechnology  
Directorate-General for Research  
European Commission

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**4F CROPS – Future Crops for Food, Feed, Fiber and Fuel**

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- Biofuels policy
- Lead Market initiative on biomaterials
- Biorefinery Joint Call
- KBBE Call



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# An energy policy for Europe

COM(2007) 1 final, 10/1/2007

## Europe's climate change opportunity

COM(2008) 30 final, 23/01/2008

- **EU Energy policy aims for sustainable, secure and affordable energy supply**
  - 20% reduction primary energy consumption by 2020
  - 20% reduction of greenhouse gases by 2020 compared to 1990.
  - 20% renewable energy in the EU's overall mix by 2020.
  - Minimum target for biofuels of 10% of vehicle fuel by 2020
  - European Strategic Energy Technology Plan



# Renewable Energy: current use and targets

	2006	2010 target	2020 target
All renewables	7%	12 %	20%
Biofuels	1.4%	5.75%	10%
Electricity	15%	21%	No sectorial target
Heating/cooling	9%	none	No sectorial target



# Renewable energy directive

COM(2008) final, 23/1/2008

## Biofuels sustainability criteria

- **Minimum GHG savings: 35%**
  - Possibility to use default and actual values
  - Calculation method included in the directive
- **Do not come from raw material obtained from land with recognised high bio-diversity value in January 2008**
  - Nature protection areas
  - High biodiversity grassland
  - Forest undisturbed by human activity
- **Do not come from raw materials obtained from high carbon stock land as per January 2008**
  - Wetland
  - Continuously forested areas
- **2<sup>nd</sup> generation biofuels count double**



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# Food, Agriculture and Fisheries, and Biotechnology

Knowledge-Based Bio-Economy (KBBE)

## KBBE – R A T I O N A L E



Contribute on economic growth, employment, sustainable development?

### Knowledge-Based Bio-Economy (KBBE)

Food and feed, and industrial goods such as fuels, plastics, chemicals, lubricants, pharmaceuticals, are produced in a more sophisticated and environmental friendly manner by life sciences and biotechnology.

These new products as bio-fuels, green chemicals, bio-plastic industrial enzymes, biopharmaceuticals etc. are also referred to as eco-efficient bio-products



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# A lead market initiative for Europe

## COM(2007)860 (21/12/2007)

**Aims at fostering the emergence of lead markets by notably improving legislation, encouraging public procurement and developing interoperable standards**

**Identifies the first batch of six important markets: eHealth, protective textiles, sustainable construction, recycling, **bio-based products** and renewable energies.**

**Bio-based products: non-food products derived from biomass (plants, algae, crops, trees, marine organisms and biological waste)**





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# Lead markets: our working definition

## Markets ...

- **for** research and innovation intensive **goods, services or technological solutions**
- **with a** high growth potential, **in Europe and globally**
- **where** EU industry **can develop competitive advantage in global markets**
- **where action by the** public sector (as regulator, customer or facilitator; public private partnerships) **can have a significant impact on their development**

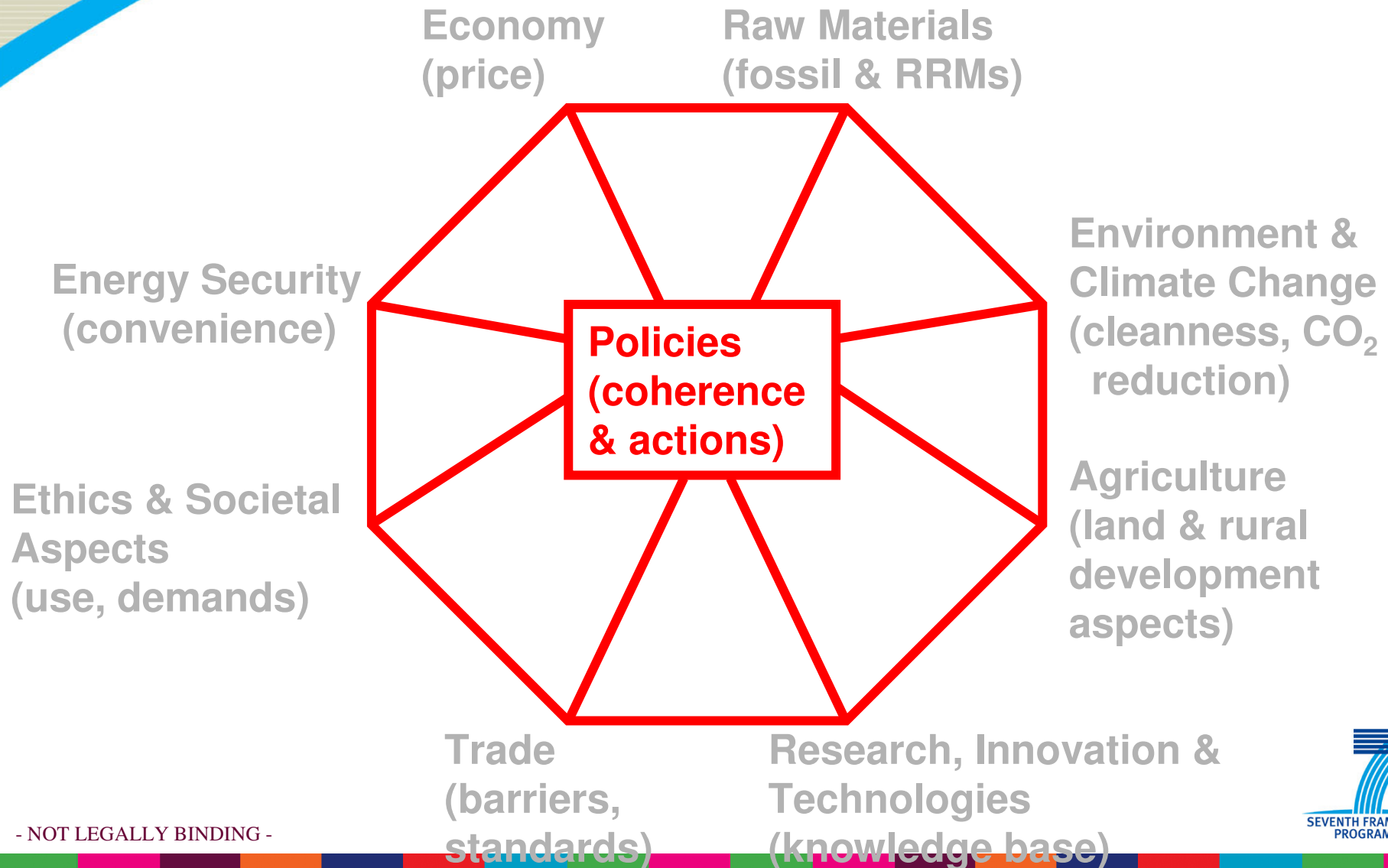




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# The '*Bio-Based Products Octagon*' Showing the Complexity & Interlinkages of Aspects



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# Action Plan Bio-based products

## COM(2007)860 (21/12/2007)

Policy Instruments	Actions	Timetable	Actors
<b>Legislation</b>	Establish a high-level advisory group, including MS and industry to assist EC to follow up of the present action plan	2008	EC Stakeholders
<b>Public procurement</b>	Establish a network between public purchasers of biobased products to apply the EC guide on public procurement for innovation, to identify good practices in the field of Biobased products and promote their application across the EU	2008-2010	EC Member States Industry
	MS to consider developing milestones and roadmaps for increasing the use of bio-based products within National Action on Green Public Procurement	2008-2009	Member States
<b>Standardisation Labelling, Certification</b>	Establish standards/labels for specific bio-based products involving all relevant actors.		
	– analysing potential for bio-based products standards/labels,	2008	EC CEN Industry
	– launching a mandate to CEN, in co-operation with Commission services	2008	Other Stakeholders
	– developing standards/labels, including cost-effective assessment criteria and procedures	2008-2011	
<b>Complementary actions</b>	– proposing a first set of standard.	by 2010	
	Conduct an information campaign via different media with focus on SMEs.	2008-2012	EC EC
	Promote the establishment of bio-refinery pilot plants and demonstrators involving all actors and investments at EU, national and regional level.	2008-2010	Member States Stakeholders



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# Markets for bio-based products

	Current markets	Growth
<b>Biofuels</b>	EU: 3,2 Mtoe (biodiesel); 0,7 Mtoe ethanol	Average annual growth 28,2 % biodiesel; 12,8% ethanol
<b>Fibre-based/composite materials (Construction; car industry, ..)</b>	50 Ktoe automobile industry; 3,5 Ktoe construction;	100 Ktoe in auto ind. by 2010; bio-based could reach total share of 5-30% in 2020
<b>Paper (wood fibres/starch) and paperboard</b>	EU paper/cardboard: 40 Mtoe	
<b>Bioplastics; Biopolymers</b>	EU: 50 Ktoe out of total of 73 Mtoe	30% production increase in recent years; 5% market share of packaging plastics by 2010
<b>Surfactants</b>	EU: 30% of total of 2,5 Mtoe	new markets: Plant health products; 60-65 of of detergents could be of vegetal origin
<b>Biosolvents</b>	Currently 1.5% of total (60.000 tons out of 4 Mtoe)	Could grow to 12%-40%
<b>Biolubricants</b>	2 % of total (100 Ktoe out of 5 Mtoe); mainly in hydraulic sector; low use in automotive sector	30% market share by 2010; max potential could be up to 90%
<b>Pharmaceutical products incl. vaccines</b>	Currently high value/low volume niche markets. Plant derived pharmaceuticals market is €30billion, 10-25% of prescription medicines sales	New product opportunities with high market/growth potential such as plant based vaccines
<b>Enzymes</b>	53Ktoe in 2001 (3/4 in EU)	5% annual growth rate





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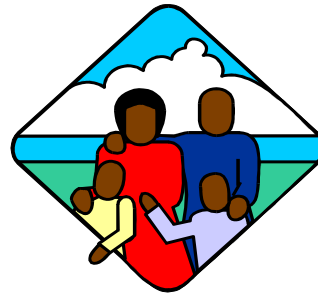
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# THE EUROPEAN KNOWLEDGE-BASED BIOECONOMY

**QUALITY ASSURANCE STRATEGIES TRACEABILITY, CONSUMER SCIENCE**

**SOCIETAL NEEDS**

**STABILITY - BIODEGRADABILITY FUNCTIONALITY (Chirality)**



**"Fork to Farm"**  
Food, health and well-being

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

**ADVANCED FOOD TECHNOLOGIES, FOOD QUALITY DETERMINANTS, NUTRITION**

**PROCESSING**

**WHITE BIOTECH CLEAN BIOPROCESSES RAW MATERIALS/WASTE**

**LOW INPUT FARMING - BIODIVERSITY ANIMAL HEALTH - RURAL DEVT.**

**PRODUCTION**

**GREEN/BLUE BIOTECH OPTIMISED RAW MATERIALS**

Sustainable production and management of biological resources from



land, forest, and aquatic environments





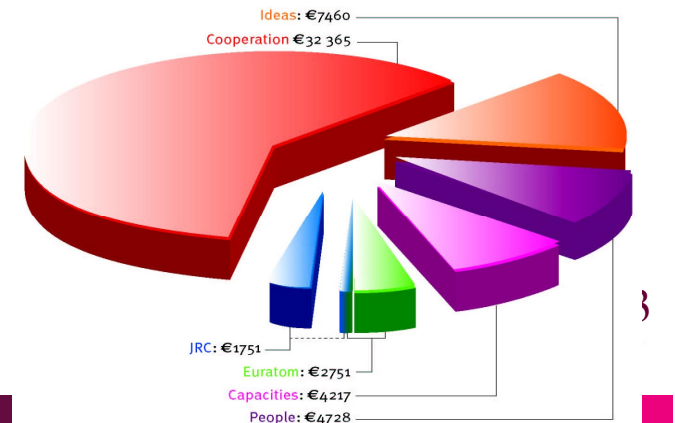
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# The 7<sup>th</sup> EU Framework Programme and International Cooperation

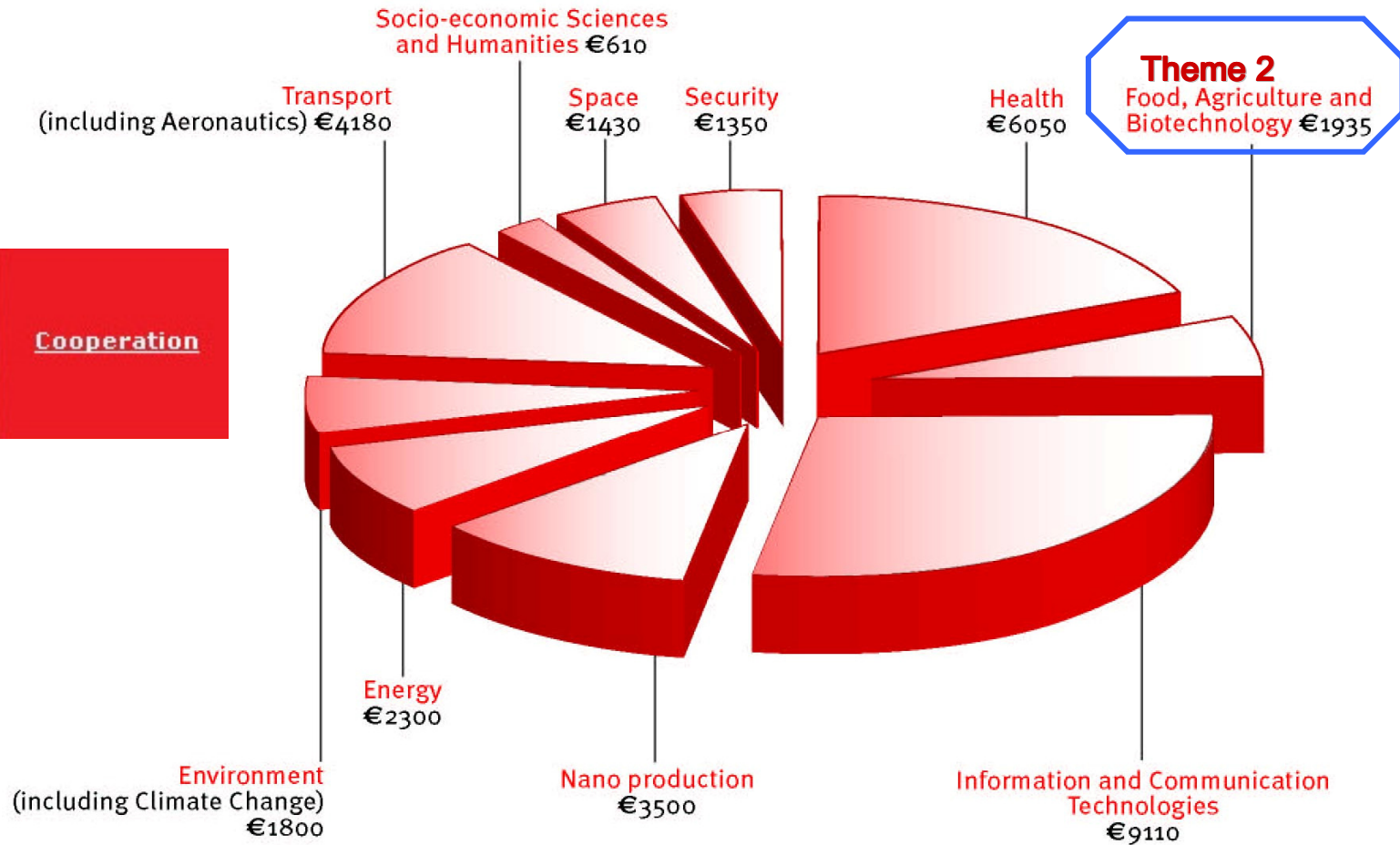


<b>Cooperation – Collaborative Research</b>	<b>€ 32.365 m</b>
<b>Ideas – Frontier Research</b>	<b>€ 7.460 m</b>
<b>People – Human Potential</b>	<b>€ 4.728 m</b>
<b>Capacities – Research Capacity</b>	<b>€ 4.217 m</b>
<b>JRC, non nuclear</b>	<b>€ 1.751 b</b>
<b>JCR, nuclear</b>	<b>€ 0.517 b</b>
<b>EURATOM</b>	<b>€ 2.234 b</b>





# FP7- Cooperation : 10 thematic areas







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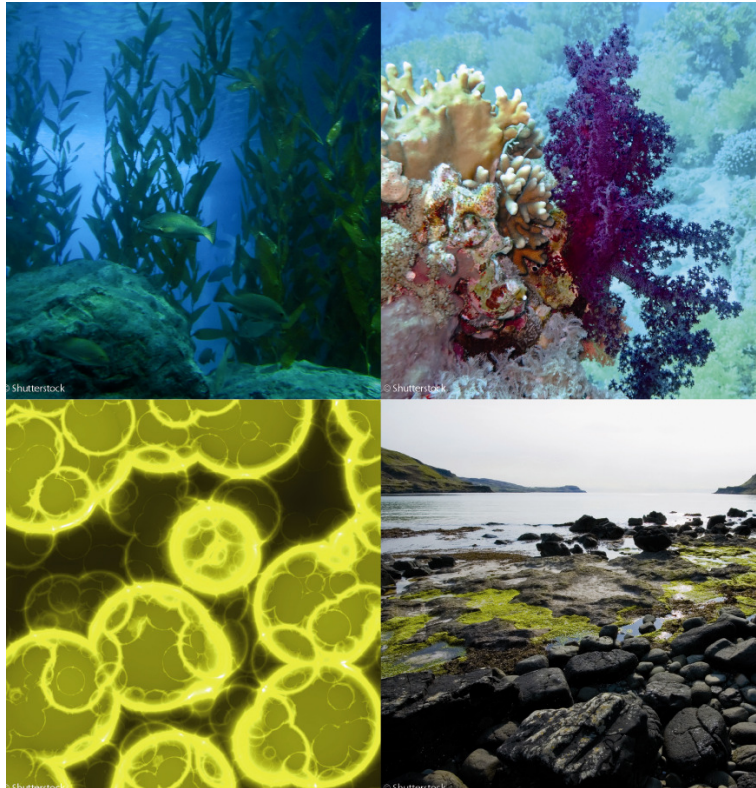
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## Theme 2:

### Food, Agriculture and Fisheries, and Biotechnology

Knowledge-Based Bio-Economy (KBBE)

#### KBBE - OBJECTIVES



- **Build a European Knowledge-Based Bio-Economy (KBBE)**  
by bringing together all stakeholders to develop the basis for new eco-efficient and competitive bio-based products
- **Respond to social and economic challenges:**
  - High quality food and sustainable food production
  - Food-related disorders
  - Infectious animal diseases and zoonoses
  - Sustainable agriculture/fishery and climate change
  - Clean biomaterials from renewable bio-resources
- Support other EU policies
- Respond quickly to **emerging research needs**
- Support the **coordination of National Research Programmes - ERA-NETS**

➔ **4 Fs: Food, Fiber, Fuel and Feed**





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**F**ood, **A**griculture and **F**isheries, and **B**iotechnology  
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: 3 KBBE Activities



### **KBBE - Activity 2.1**

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



### **KBBE - Activity 2.2**

**“Fork to farm”**: Food (including sea-food), health and well being



### **KBBE - Activity 2.3**

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



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Food, Agriculture and Fisheries, and Biotechnology  
Knowledge-Based Bio-Economy (KBBE)

# FP7 KBBE - Activity 2.3

## Life sciences, biotechnology and biochemistry for sustainable non-food products and processes



Food, Agriculture and Fisheries, and Biotechnology  
Knowledge-Based Bio-Economy (KBBE)

### EU biotechnology facts and figures

- More than 2 200 companies
- 44% of employees involved in R&D activities
- Over EUR 21.5 billion in revenue
- EUR 7.6 billion in R&D

By 2030, the products of industrial biotechnology and bio-energy will have an estimated worth of EUR 300 billion of industrial production.

- **Novel sources of biomass and bioproducts**
- **Marine and fresh-water biotechnology**
- **Industrial biotechnology**
- **Biorefinery**
- **Environmental biotechnology**
- **Emerging trends in biotechnology**



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**F**ood, **A**griculture and **F**isheries, and **B**iotechnology

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

## FP7 Cooperation Theme 2: calls for proposals

### Closed calls:

Call FP7-KBBE-2007-1 (**192,09 M€**) (projects starting)

Call FP7-KBBE-2007-2A (**110 M€**) (two stage) (projects under negotiation)

Call FP7-KBBE-2008-2B (**96,85 M€**) (projects under negotiation)

### Calls open NOW (published 3<sup>rd</sup> September, 2008):

Call FP7-KBBE-2009-3 (**188,85 M€**) (deadline: 15 January, 2009)

Call FP7-BIOREFINERY-2009 (**57 M€**) (deadline: 2 December, 2008)

[http://cordis.europa.eu/fp7/kbbe/home\\_en.html](http://cordis.europa.eu/fp7/kbbe/home_en.html)



# Biorefineries and Biofuels

**Wood, Crops, Grasses  
Forestry or Agricultural Residues  
Animal or Municipal Waste**

**Heat, Electricity, Fuels  
Chemicals  
Materials  
Food, Feed, Fibre**

**Biochemical  
and/or Thermo-chemical  
Conversion**





# Biorefinery Joint Call : Overall Aim and Topics

- **Aims at** the research, development and integration of innovative technologies to prove the viability of advanced biorefineries taking into account the entire value chain and sustainability issues
- **Two topics / Two Instruments / Two Budgets**
  - *Collaborative Project (CP) « Sustainable Biorefineries » - € 55 M*
  - *Co-ordination and Support Action (CSA) « Enhancing exchange of information, synergies and cross-fertilization between projects in the field of Biorefineries » - € 2 M*



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# Work Programme 2009 Biorefineries Joint Call Budget

- **Common budget from Themes**
- **Budget foreseen: Total 57 million €**
  - **Theme 2 - Food, Agriculture and Fisheries, and Biotechnology - 10 million €**
  - **Theme 4 - Nano-sciences, Nano-technologies, Materials and new Production Technologies - 7 million €**
  - **Theme 5 - Energy – 30 million €**
  - **Theme 6 - Environment (Including Climate Change) – 10 million €**



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# Work Programme 2009

## Biorefineries Joint Call

### Topic: *Sustainable Biorefineries*

- **Targeted at the funding of a limited number, large, multi-disciplinary, Collaborative Projects**
- **Scope includes:**
  - **address the entire value chain**
  - **integrated multi-disciplinary approach**
  - **demonstrate performance, sustainability and feasibility at least at pilot scale in an integrated approach**
  - **demonstrate the part of the biorefinery complex that is closer to the market at industrial pilot plant scale**
- **Contribute to European competitiveness and wealth by supplying wide range of bio-based products and energy in an economically, socially and environmentally sustainable manner**
- **New competences, job opportunities and markets**
- **Contribution to EU policy implementation, i.e. Lead Market Initiative, SET Plan, Energy & Climate Package.**
- **Relevant industrial participation is essential**
- **Indicative budget of 55 million**
- **Two-step evaluation procedure**





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# Work Programme 2009

## Biorefineries Joint Call

**Topic: *Enhancing exchange of information, synergies and cross-fertilization between projects in the field of Biorefineries***

- **Coordination and Support Action (Coordinating Action)**
- **Scope includes:**
  - **promote coordination of on-going research at European and national levels across Biotechnology, Energy, Industrial Technologies and Environment on distinctive features of the biorefinery concept**
  - **overcome fragmentation and develop cross-thematic synergies, identifying gaps and overlaps, defining research priority needs and infrastructure**
- **Enhance the cooperation between key researchers and industries in the field funded by EU and national programmes**
- **Relevant industrial participation is essential**
- **Up to one project may be funded**
- **Indicative budget of 2 million**
- **One-step evaluation procedure**



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# Work Programme 2009 Biorefinery Joint Call Submission Deadline

**Call published on 3 September 2008  
with  
submission deadline  
2 December 2009  
at 17.00.00 (Brussels local time)**

**Gateway to information  
<http://cordis.europa.eu/en/home.html>**

**Functional mailbox :  
[RTD-BIOREFINERY-JOINT-CALL@ec.europa.eu](mailto:RTD-BIOREFINERY-JOINT-CALL@ec.europa.eu)**





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**F**ood, **A**griculture and **F**isheries, and **B**iotechnology  
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 )

## THE WHOLE THEME IS OPEN TO INTERNATIONAL CO-OPERATION



### KBBE - Activity 2.1

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



### KBBE - Activity 2.2

“Fork to farm”: Food (including sea-food), health and well being



### KBBE - Activity 2.3

Life sciences, biotechnology and biochemistry for sustainable non-food products and processes

**International Cooperation**



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# MODALITIES of International Co-operation in Theme 2

## 1. GENERAL OPENING of all activities to participation by Third Countries

- **Third countries (other than AC): Additional partners**

## 2. TARGETED OPENING:

Topics with important international cooperation dimension

- **Third countries (other than AC): Additional partners**

## 3. SICAs-Specific International Co-operation Actions

- **ICPC: Compulsory partners**

## 4. COORDINATED CALL

between FP7-Theme 2 and Third countries

## 5. TWINNING of projects

between FP7-Theme 2 and related programmes/parallel calls from Third countries

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SEVENTH FRAMEWORK  
PROGRAMME





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# Call FP7-KBBE-2009-3(1/11)

Activity/ Area	Topics called	Funding Schemes
<a href="#"><u>Activity 2.1: Sustainable production and management of biological resources from land, forest and aquatic environments.</u></a>		
<a href="#"><u>Area 2.1.1: Enabling research</u></a>		
	<b><i>KBBE-2009-1-1-01: Integration of tools to support a system-based understanding of complex biological processes</i></b>	<b><i>CP-IP</i></b>
	<b><i>KBBE-2009-1-1-02: Mining genomics information of small ruminants to generate understanding of the genetic basis of phenotypes important to sustainable production and health</i></b>	<b><i>CP-FP</i></b>
	<b><i>KBBE-2009-1-1-03: Optimisation of methods to maintain farm animal biodiversity – SICA (Africa)</i></b>	<b><i>CP-FP-SICA</i></b>
<a href="#"><u>Area 2.1.2: Increased sustainability of all production systems (agriculture, forestry, Fisheries and aquaculture); plant health and crop protection</u></a>		
	<b><i>KBBE-2009-1-2-01: Legumes: key multifunctional legume crops for an energy-efficient and environmentally friendly future European agriculture</i></b>	<b><i>CP-FP</i></b>
	<b><i>KBBE-2009-1-2-02: Multifunctional grasslands for sustainable and competitive ruminant production systems and the delivery of ecosystem services</i></b>	<b><i>CP-FP</i></b>
	<b><i>KBBE-2009-1-2-03: : Irrigation water saving solutions for Mediterranean agriculture – SICA (Mediterranean Partner Countries)</i></b>	<b><i>CP-FP-SICA</i></b>

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# Call FP7-KBBE-2009-3(2/11)

Activity/Area	Topics called	Funding Schemes
<a href="#"><u>Activity 2.1: Sustainable production and management of biological resources from land, forest and aquatic environments. (cont.)</u></a>		
<a href="#"><u>Area 2.1.2: Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection (cont.)</u></a>		
<b>KBBE-2009-1-2-04: Improving performance and quality of crops in the context of organic and low-input systems by breeding and management</b>		<b>CP-IP</b>
<b>KBBE-2009-1-2-05: Water stress tolerance and water use efficiency in food Crops</b>		<b>CP-IP</b>
<b>KBBE-2009-1-2-06: Developing new methods for valuing and marketing currently non- marketable forest functions, goods and services</b>		<b>CP-FP</b>
<b>KBBE-2009-1-2-07: Meeting industrial requirements on wood raw-materials quality and quantity</b>		<b>CP-FP</b>
<b>KBBE-2009-1-2-08: Assessing and reducing vulnerability of European forests to climate change and the consequences for industrial and societal needs – SICA (Russia)</b>		<b>CP-FP-SICA</b>
<b>KBBE-2009-1-2-09: Impact and development of Conservation Agriculture techniques in developing countries – Mandatory ICPC (Africa)</b>		<b>CSA (supporting action)</b>
<b>KBBE-2009-1-2-10: Improving fisheries assessment methods by integrating new sources of biological knowledge</b>		<b>CP-FP</b>



# Call FP7-KBBE-2009-3(3/11)

Activity/ Area	Topics called	Funding Schemes
<a href="#"><u>Activity 2.1: Sustainable production and management of biological resources from land, forest and aquatic environments. (cont.)</u></a>		
<a href="#"><u>Area 2.1.2: Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection (cont.)</u></a>		
	<b>KBBE-2009-1-2-11: Improving mollusc spat production in hatcheries</b>	<b>CP-FP</b>
	<b>KBBE-2009-1-2-12: Sustainable inland extensive and semi-intensive aquaculture</b>	<b>CP-FP</b>
	<b>KBBE-2009-1-2-13: From capture based to self-sustained aquaculture</b>	<b>CP-FP</b>
	<b>KBBE-2009-1-2-14: Sustainable use of seas and oceans: importance of foraging fish in the ecosystem</b>	<b>CP-FP</b>
	<b>KBBE-2009-1-2-15: : Sustainable use of seas and oceans: integration of aquaculture and fisheries in the coastal zone</b>	<b>CP-FP</b>
<a href="#"><u>Area 2.1.3: Optimised animal health, production and welfare across agriculture, fisheries and aquaculture</u></a>		
	<b>KBBE-2009-1-3-01: Porcine reproductive and respiratory syndrome (PRRS): new generation, efficacious and safe vaccine, new control strategies – SICA (China and other ICPC from South East Asia)</b>	<b>CP-FP-SICA</b>
- NOT LEGALLY BINDING	<b>KBBE-2009-1-3-02: Diseases caused by Orbiviruses: African horse sickness, bluetongue and epizootic haemorrhagic disease: development of new generation vaccines and accompanying tests</b>	<b>CP-FP</b>





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# Call FP7-KBBE-2009-3(4/11)

Activity/ Area	Topics called	Funding Schemes
<a href="#">Activity 2.1: Sustainable production and management of biological resources from land, forest and aquatic environments. (cont.)</a>		
<a href="#">Area 2.1.3: Optimised animal health, production and welfare across agriculture, fisheries and aquaculture (cont.)</a>		
<b>KBBE-2009-1-3-03: Bee health: identification of emerging honey bee pest and diseases and re-emergence of pathogens and explaining the intimate mechanisms and the reasons for increased honey bee mortality</b>	<b>CP-FP</b>	
<b>KBBE-2009-1-3-04: Tick borne diseases. Improvement of current vaccine and development of new vaccines for theileriosis and babesiosis through exploitation of genomic data – SICA (China and Central Asia)</b>	<b>CP-FP-SICA</b>	
<b>KBBE-2009-1-3-05: Improving Campylobacter control measures in primary production of poultry</b>	<b>CP-FP</b>	
<a href="#">Area 2.1.4: Socio-economic research and support to policies</a>		
<b>KBBE-2009-1-4-01: Development of detection methods for quarantine plant pests and pathogens for use by Plant Health Inspection Services</b>	<b>CP-FP</b>	
<b>KBBE-2009-1-4-02: Spatial analysis of rural development measures for effective targeting of rural development policies</b>	<b>CP-FP</b>	
<b>KBBE-2009-1-4-03: A common data exchange system for agricultural systems</b>	<b>CSA (supporting action)</b>	
<b>KBBE-2009-1-4-04: Comparative analysis of factor markets for agriculture across the Member States</b>	<b>CP-FP</b>	

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# Call FP7-KBBE-2009-3 (5/11)

Activity/ Area	Topics called	Funding Schemes
<a href="#"><u>Activity 2.1: Sustainable production and management of biological resources from land, forest and aquatic environments. (cont.)</u></a>		
<a href="#"><u>Area 2.1.4: Socio-economic research and support to policies (cont.)</u></a>		
<b>KBBE-2009-1-4-05: Policy and institutional aspects of sustainable agriculture, forestry and rural development in the Mediterranean partner countries – SICA (Mediterranean Partner Countries)</b>		<b>CP-FP-SICA</b>
<b>KBBE-2009-1-4-06: Agricultural Innovation Systems &amp; Traditional knowledge – Mandatory ICPC (African ACP and South-Africa)</b>		<b>CSA (supporting action)</b>
<b>KBBE-2009-1-4-07: Globalisation and trade impact on developing countries – Mandatory ICPC (African ACP plus South Africa)</b>		<b>CSA (supporting action)</b>
<b>KBBE-2009-1-4-10: Consolidate alliances with Asia in the field of aquaculture - Mandatory ICPC (China and other ICPC from Asia)</b>		<b>CSA (coordinating action)</b>
<b>KBBE-2009-1-4-11: Consolidate alliances with the Mediterranean in the field of aquaculture - Mandatory ICPC (Mediterranean Partner Countries)</b>		<b>CSA (coordinating action)</b>
<b>KBBE-2009-1-4-12: Supporting governance in aquaculture research and innovation</b>		<b>CSA (supporting action)</b>

# Call FP7-KBBE-2009-3 (6/11)

Activity/ Area	Topics called	Funding Schemes
<a href="#"><u>Activity 2.2: Fork to farm: Food (including seafood), health and well being</u></a>		
<a href="#"><u>Area 2.2.1: Consumers</u></a>		
	<b><i>KBBE-2009-2-1-01: Determinants of food habit formation/breaking</i></b>	<b><i>CP-FP</i></b>
	<b><i>KBBE-2009-2-1-02: Benefit/risk perception and communication in the food chain</i></b>	<b><i>CP-FP</i></b>
	<b><i>KBBE-2009-2-1-03: Behavioural models for prevention of obesity, with a particular focus on children</i></b>	<b><i>CP-FP</i></b>
<a href="#"><u>Area 2.2.2: Nutrition</u></a>		
	<b><i>KBBE-2009-2-2-01: Stress, addiction and eating behaviour</i></b>	<b><i>CP-IP</i></b>
	<b><i>KBBE-2009-2-2-02: Role and mechanisms of action of plant bioactive Compounds</i></b>	<b><i>CP-FP</i></b>
	<b><i>KBBE-2009-2-2-03: Development of biomarkers for health-promoting functions</i></b>	<b><i>CP-IP</i></b>
	<b><i>KBBE-2009-2-2-04: Strategies for sustainable eating habits</i></b>	<b><i>CSA (supporting Action)</i></b>
<a href="#"><u>Area 2.2.3: Food processing</u></a>		
	<b><i>KBBE-2009-2-3-01: New solutions for improving refrigeration technologies along the food chain</i></b>	<b><i>CP-IP</i></b>
	<b><i>KBBE-2009-2-3-02: Sharing food technology research and development by means of international collaboration - SICA</i></b>	<b><i>CP-FP-SICA</i></b>

# Call FP7-KBBE-2009-3 (7/11)

Activity/ Area	Topics called	Funding Schemes
<a href="#"><u>Activity 2.2: Fork to farm: Food (including seafood), health and well being (cont.)</u></a>		
<a href="#"><u>Area 2.2.3: Food processing (cont.)</u></a>		
<b>KBBE-2009-2-3-03: Sustainable food and feed processing</b>		<b>CP-FP</b>
<a href="#"><u>Area 2.2.4: Food quality and safety</u></a>		
<b>KBBE-2009-2-4-01 Analytical tools for characterisation of nano-particles in the food matrix</b>		<b>CP-FP</b>
<b>KBBE-2009-2-4-02: Risk-benefit assessment of food supplements – SICA</b>		<b>CP-IP-SICA</b>
<b>KBBE-2009-2-4-03: Combined exposure to pesticides</b>		<b>CP-FP</b>
<b>KBBE-2009-2-4-04: Prospects for novel foods</b>		<b>CSA (Supporting Action)</b>
<a href="#"><u>Area 2.2.5: Environmental impacts and total food chain</u></a>		
<b>KBBE-2009-2-5-01: International food trade: Anticipating the impact of climate change on the safety of European and global food markets - SICA</b>		<b>CP-IP-SICA</b>
<b>KBBE-2009-2-5-02: Barriers to network learning in SMEs</b>		<b>CP-FP</b>
<b>KBBE-2009-2-5-03: Transparency along the food value chain</b>		<b>CSA (supporting Action)</b>

# Call FP7-KBBE-2009-3 (8/11)

Activity/ Area	Topics called	Funding Schemes
<u>Activity 2.2: Fork to farm: Food (including seafood), health and well being (cont.)</u>		
<u>Area 2.2.6: European Research Area</u>		
<b>KBBE-2009-2-6-01: Enhanced co-operation in food and health with a view to strengthening the European Research Area</b>		<b>CSA (supporting Action)</b>
<u>Area 2.2.7 Coordinated Call with India (Department of Biotechnology – DBT)</u>		
<b>KBBE-2009-2-7-01: Development of functional foods and ingredients</b>		<b>CP-FP- carried out in coordination with DBT (India).</b>
<b>KBBE-2009-2-7-02: Valorisation of by-products in food processing</b>		<b>CP-FP- carried out in coordination with DBT (India).</b>

# Call FP7-KBBE-2009-3 (9/11)

Activity/ Area	Topics called	Funding Schemes
<a href="#">Activity 2.3: Life sciences, biotechnology and biochemistry for sustainable non-food products and processes</a>		
<a href="#">Area 2.3.1: Novel sources of biomass and bioproducts</a>		
	<b>KBBE-2009-3-1-01: Optimisation of secondary metabolite production in plants: localisation, transport, storage and stability</b>	<b>CP-FP</b>
	<b>KBBE-2009-3-1-02: <i>Jatropha curcas</i> – breeding strategy – towards a sustainable crop for biomaterials and biofuels – SICA (India, Africa and Latin America)</b>	<b>CP-FP</b>
	<b>KBBE-2009-3-1-03: Abiotic stress tolerance: biotechnological applications from the lab to the field</b>	<b>CSA (supporting action)</b>
	<b>KBBE-2009-3-1-04: Prospecting for novel plant-produced compounds</b>	<b>CP-FP</b>
<a href="#">Area 2.3.2: Marine and fresh-water biotechnology (blue biotechnology)</a>		
	<b>KBBE-2009-3-2-01: Novel marine bioactive compounds for European industries</b>	<b>CP-IP</b>
	<b>KBBE-2009-3-2-02: Sustainable use of seas and oceans - Biomass from micro- and macro-algae for industrial applications</b>	<b>CP-FP</b>
<a href="#">Area 2.3.3: Industrial biotechnology: novel high added-value bio-products and bio-Processes</a>		
	<b>KBBE-2009-3-3-01: Novel industrial microorganisms with optimised metabolic Pathways</b>	<b>CP-FP</b>

# Call FP7-KBBE-2009-3 (10/11)

Activity/ Area	Topics called	Funding Schemes
<a href="#"><u>Activity 2.3: Life sciences, biotechnology and biochemistry for sustainable non-food products and processes (cont.)</u></a>		
<a href="#"><u>Area 2.3.3: Industrial biotechnology: novel high added-value bio-products and bio-processes (cont.)</u></a>		
<b>KBBE-2009-3-3-02: Integrated multi-enzyme, multistep biocatalytic Engineering</b>		<b>CP-FP</b>
<a href="#"><u>Area 2.3.4: Biorefinery</u></a>		
<b>KBBE-2009-3-4-03: Biomass and bioproducts: sustainability certification and socioeconomic implications – Mandatory ICPC (either Latin America, Africa and/or Asia)</b>		<b>CSA (coordinating action)</b>
<b>KBBE-2009-3-4-04: Biomass pre-treatment for optimised biomass deconstruction and analytical characterisation – SICA (Brazil)</b>		<b>CP-FP-SICA</b>
<a href="#"><u>Area 2.3.5: Environmental biotechnology</u></a>		
<b>KBBE-2009-3-5-01: Molecular approaches to bioremediation of polyaromatic hydrocarbon compounds</b>		<b>CP-FP</b>
<b>KBBE-2009-3-5-02: Innovative biotechnology approaches as eco-efficient alternative to industrial processes</b>		<b>CP-FP</b>



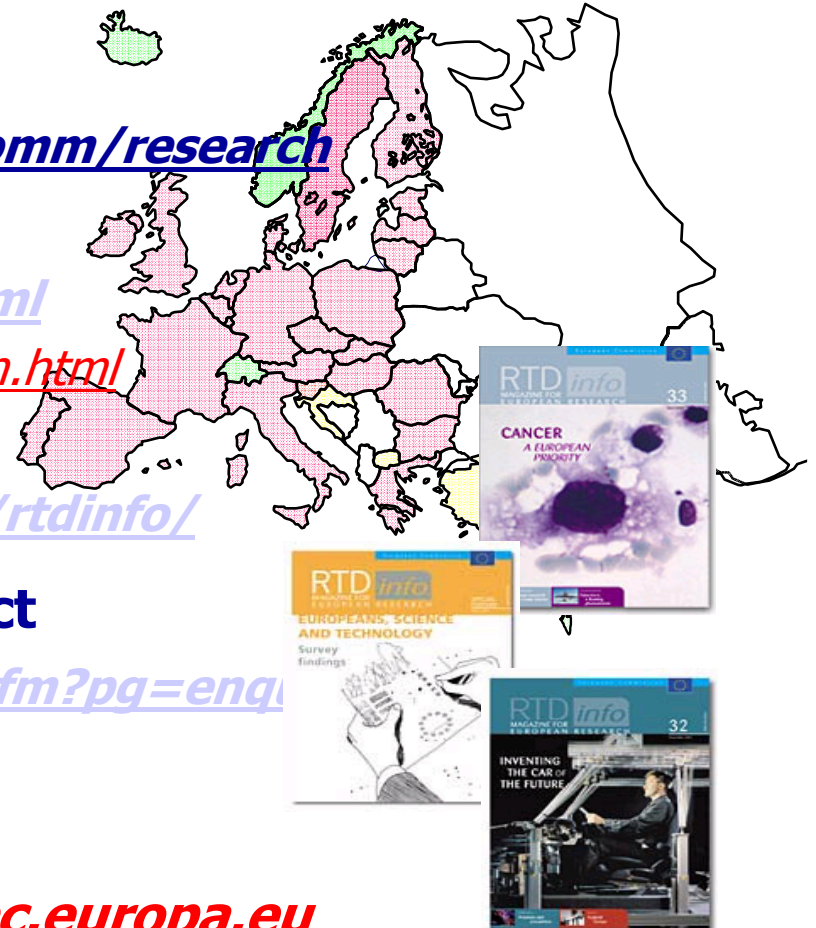
# Call FP7-KBBE-2009-3 (11/10)

Activity/ Area	Topics called	Funding Schemes
<a href="#"><u>Activity 2.3: Life sciences, biotechnology and biochemistry for sustainable non-food products and processes (cont.)</u></a>		
<a href="#"><u>Area 2.3.6: Emerging trends in biotechnology</u></a>		
	<b><i>KBBE-2009-3-6-01: Nanobiotechnology: smart nanobiotechnology devices to study biomolecule dynamics in real time</i></b>	<b><i>CP-FP</i></b>
	<b><i>KBBE-2009-3-6-02: Nanobiotechnology: functionalised membranes</i></b>	<b><i>CP-FP</i></b>
	<b><i>KBBE-2009-3-6-03: Nanobiotechnology: bio-interfaces for environmental Applications</i></b>	<b><i>CP-FP</i></b>
	<b><i>KBBE-2009-3-6-04: Nanobiotechnology: analysis of the ethical, safety, regulatory and socioeconomic aspects of nanobiotechnology</i></b>	<b><i>CSA (supporting action)</i></b>
	<b><i>KBBE-2009-3-6-05: Synthetic biology for biotechnological applications</i></b>	<b><i>CP-FP</i></b>
<a href="#"><u>Area 2.3.7: Joint call biorefinery</u></a>		
	<b><i>KBBE-2009-3-7-01: Sustainable biorefineries</i></b>	<b><i>CP</i></b>
	<b><i>KBBE-2009-3-7-02: Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of biorefineries</i></b>	<b><i>CSA (coordinating action)</i></b>



# 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](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=enq>
- **My email address: [piero.venturi@ec.europa.eu](mailto:piero.venturi@ec.europa.eu)**



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