



Presentation of the targets of 7th Framework Programme for Agriculture

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

- NOT LEGALLY BINDING -





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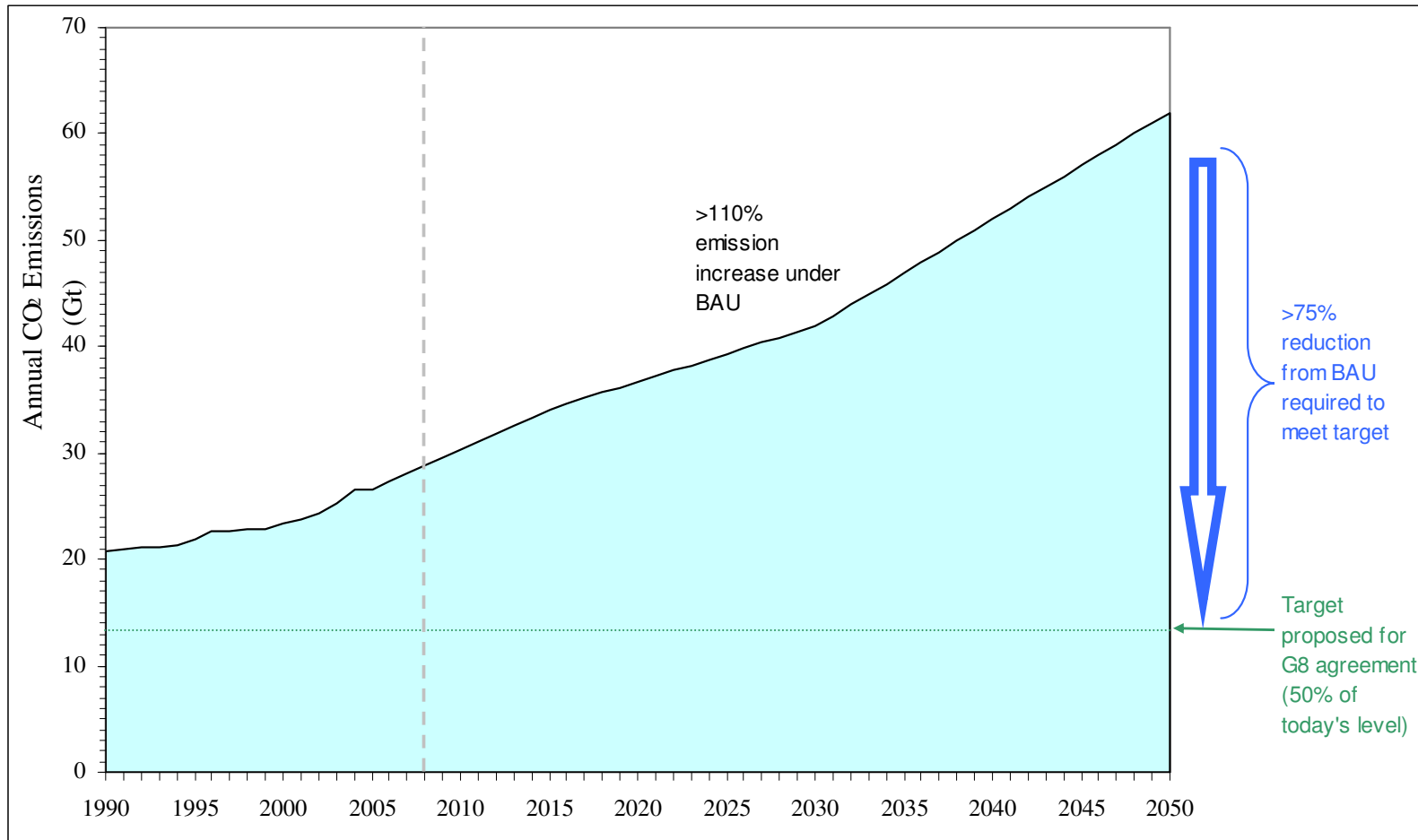
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Context: Major Challenges

- **Global warming and climate change (reduction of GHG emissions)**
- **Sustainable, secure and affordable supply of energy and other resources**
- **EU competitiveness, job creation and innovation**



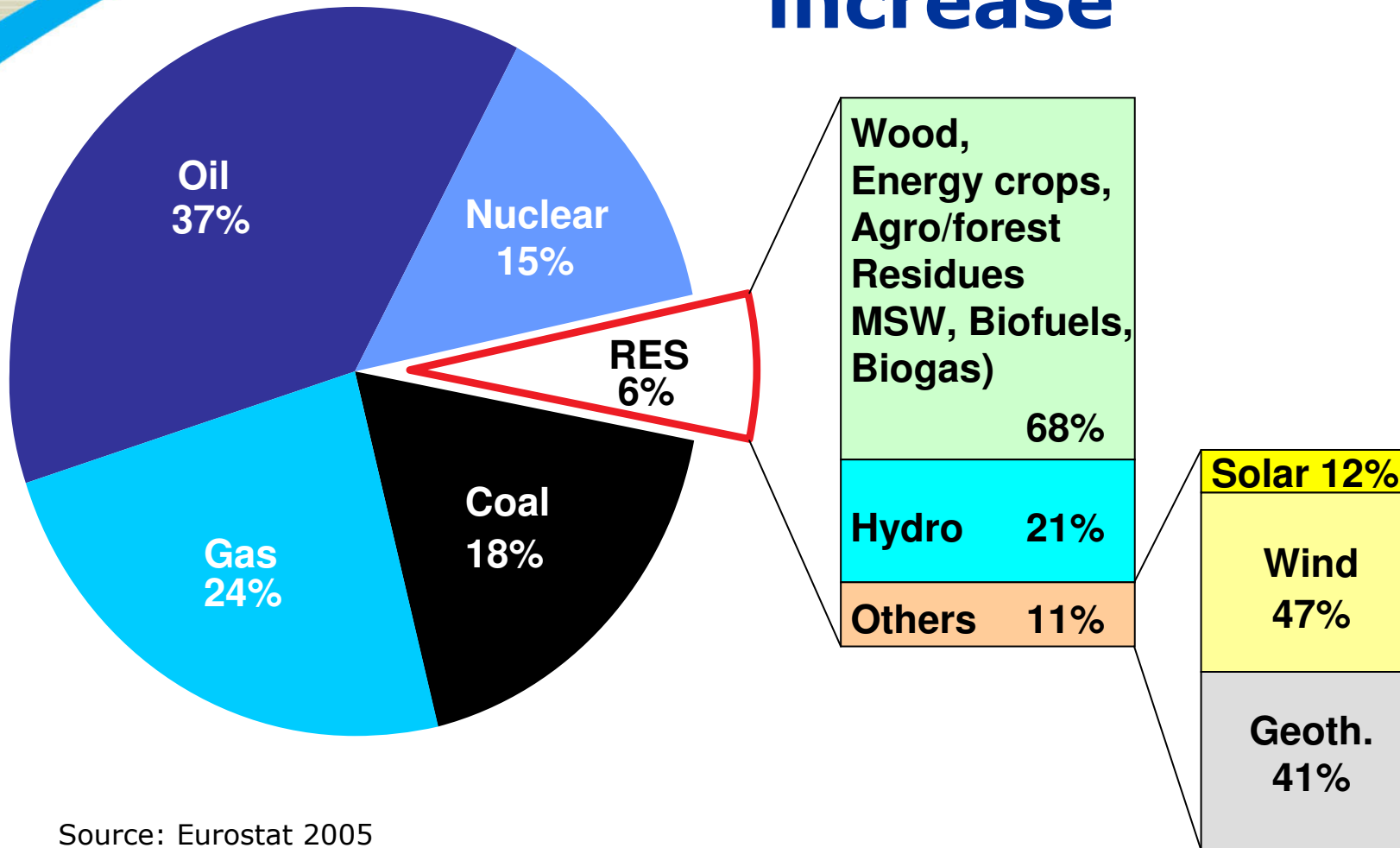
CO2 Reduction: Required Changes are Massive



•Sources: IEA "Energy Technology Perspectives 2008"; Chair's summary from G8 environment minister's meeting; Kobe, Japan; May 24-26, 2008.



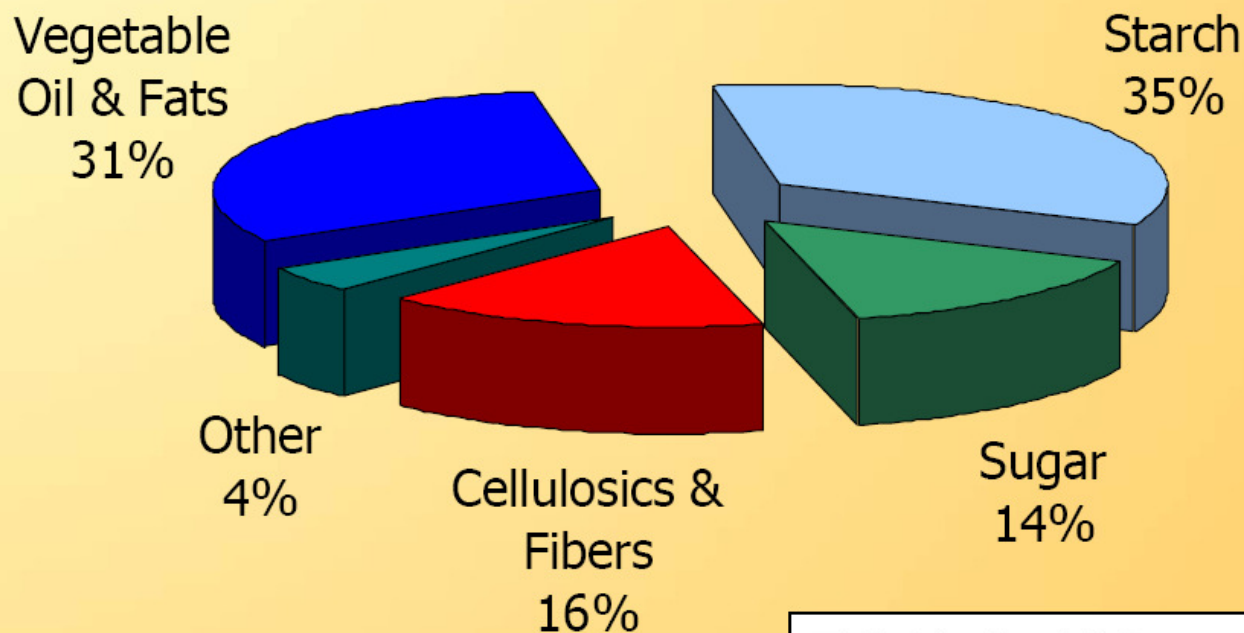
EU Energy Mix: RES share has to increase



Source: Eurostat 2005



EU-25 Industrial Use (2003)



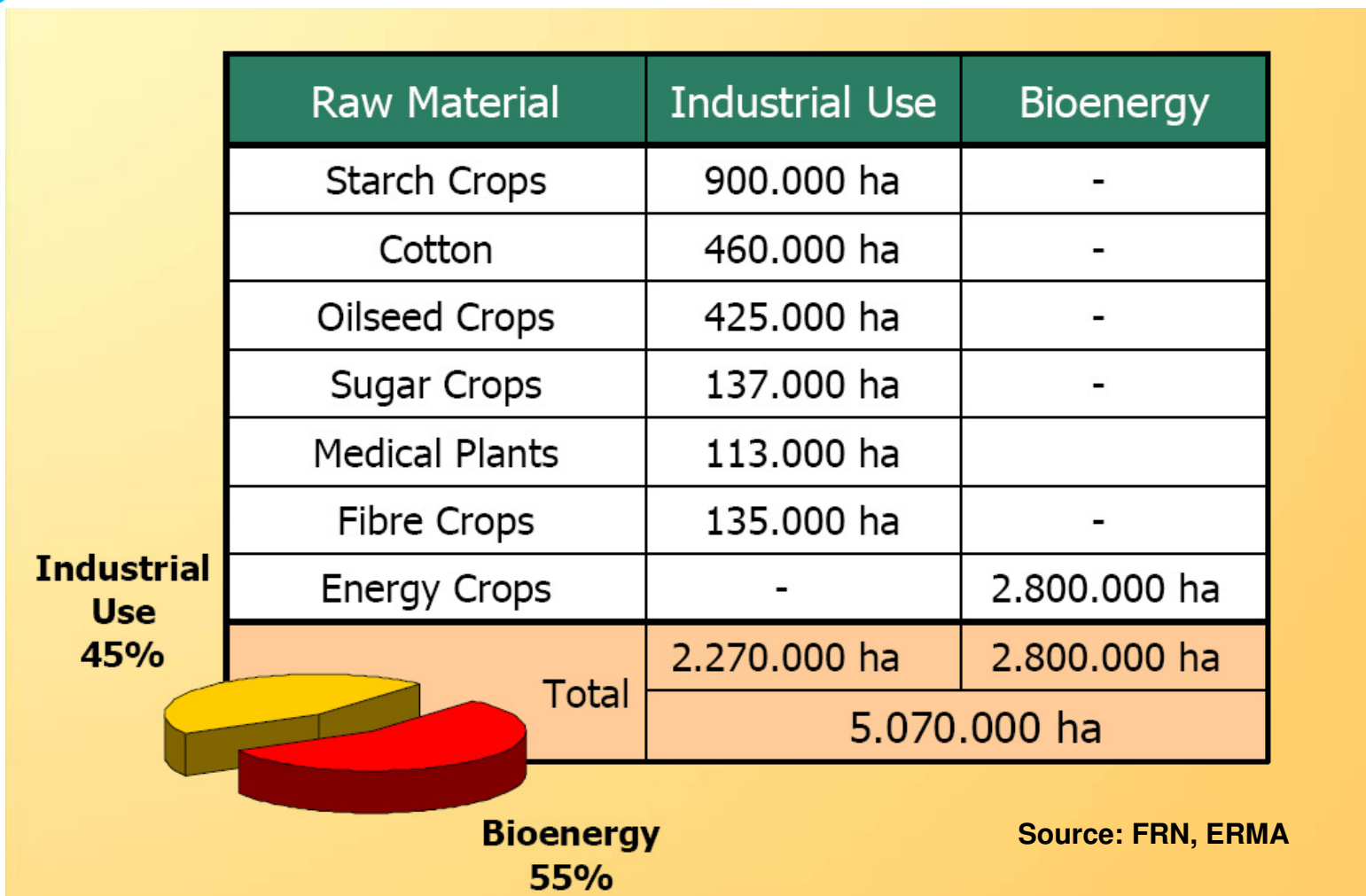
Total industrial use of RRM:
~ 9 Mio. t

estimations based on data from:

EU, IENICA, EHGA, CIRFS, EIHA, EuropaBio, AAF, Röper, Kaup, EurObserv'ER, FAO



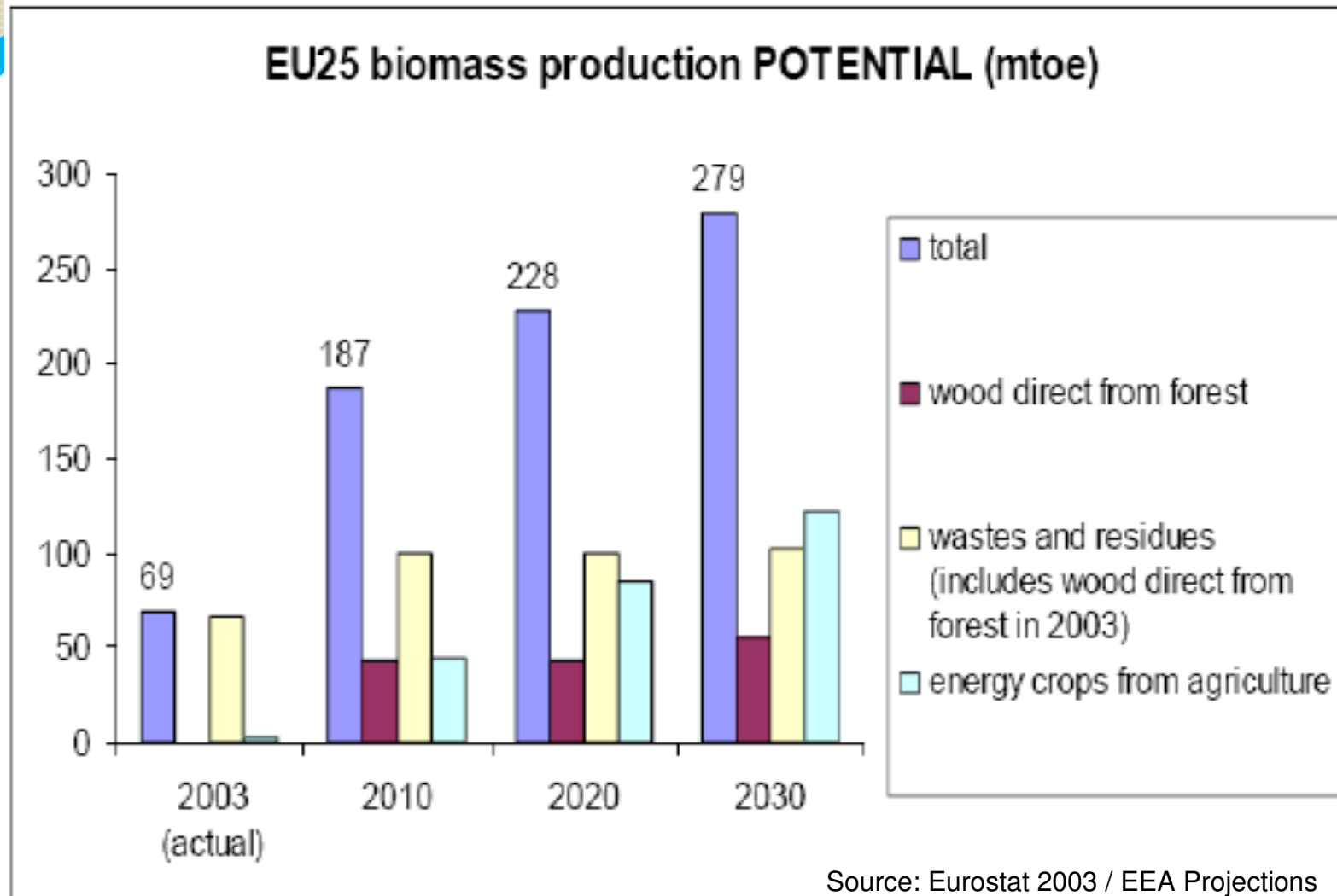
EU-25 Non-Food Crop Land (2005)



Source: FRN, ERMA



Availability of RR Materials





EU Most Relevant Policy Initiatives (1)

- **Lisbon Strategy (2000) and further adjustments (e.g. Wim Kok Report in 2004)** : Innovation as the motor for economic change; "learning economy"; social and environmental renewal
- **Life Sciences and Biotechnology : a Strategy for Europe (2002) and related knowledge-based bio-economy (KBBE - 2005)**: Transforming the life sciences knowledge into new sustainable, eco-efficient and competitive products
- **Environmental Technologies Action Plan (ETAP- 2004) linked to the EU's Sustainable Development Strategy**: Stimulate the development and use of environmentally friendly technologies inc. removal of barriers
- **Lead Market Initiative (2007)**: Foster the emergence of markets which are highly innovative, respond to customers' needs, have a strong technological and industrial basis in Europe and depend more than other on favourable framework conditions



EU Most Relevant Policy Initiatives (2)

- **Energy and Climate Package (2007):** Comprehensive set of policy actions and initiatives aimed at overcoming the energy and climate change challenges, inc. SET Plan (see below)
- **The Strategic Energy Technology Plan (2007):** Aligning technology development with energy policy goals, through notably, the strengthening of European research capacities (European Research Alliance) and the setting up of strategic public/private RD&D partnerships (European Industrial Initiatives, including one on Bioenergy)
- **Renewable Energy Directive (2008):** Fixing a number of objectives and targets (notably the "3x20%" by 2020) and a number of "boundary conditions": minimum 35 % GHG Savings; RE should be produced outside land with recognised high biodiversity or carbon stock value; 2nd generation count double; respect of sustainability criteria (still debated in EP and Council, will also apply to the Fuel Quality Directive)



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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



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
- **2nd generation biofuels count double**



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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)



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**



Action Plan Bio-based products




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

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



The 7th EU Framework Programme Total Funding € 53B

Specific Programmes Cooperation Themes

	Cooperation Collaborative Research		Cooperation – Collaborative Research	€ 32.365 m
		Ideas Frontier Research		
	People Human Potential	Ca Res		
Euratom				
			Health	
			Food, Agriculture and Fishery and Biotechnology	
			Information and communication technologies	
			Nanosciences, nanotechnologies, materials and new production technologies	
			Energy	
			Environment (including climate change)	
			Transport (including aeronautics)	
			Socio-economic sciences and the humanities	
			Space	
			Security	

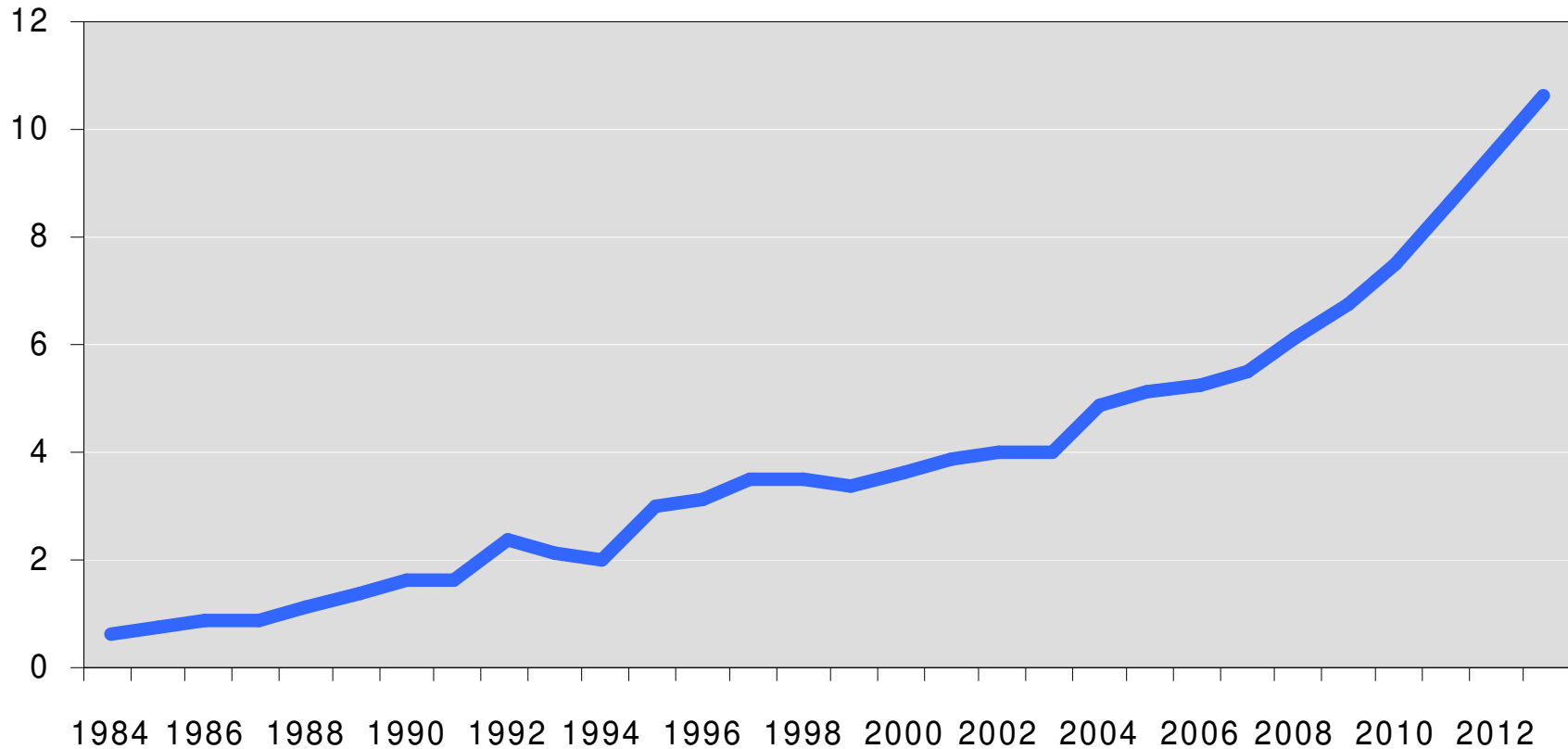


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EU Research Framework Programmes Annual Budgets between 1984 and 2013

€ billion



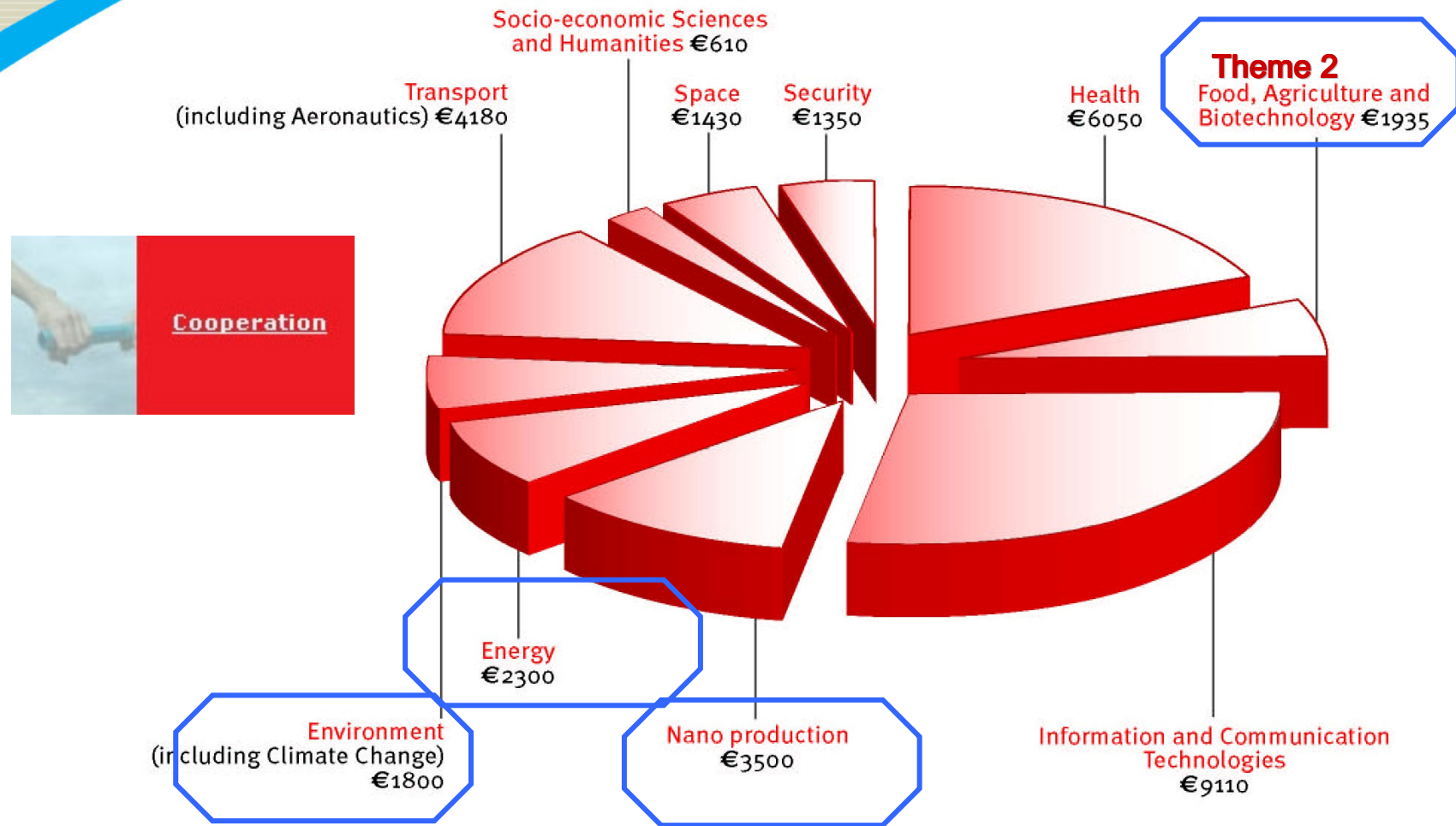
NB: budgets in current prices. Source: Annual Report 2003, plus FP7 revised proposal

- NOT LEGALLY BINDING -





FP7- Cooperation : 10 thematic areas





FP7 Cooperation Theme 2: calls for proposals

Closed calls:

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

- Call FP7-KBBE-2007-2A (**110 M€**) (two stage) (projects started)
- Call FP7-KBBE-2008-2B (**96,85 M€**) (projects under negotiation)

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



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Preparation of WP2010

Call FP7-KBBE-2010-4

INDICATIVE

Publication date: mid July 2009

Indicative budget: 203 million €

Foreseen deadline: 15th January 2010

Evaluation: March/April 2010

Indicative number of topics: 53

All proposals will be evaluated under the single-stage procedure

www.cordis.europa.eu/fp7/kbbe/home_en.htm





Food, Agriculture and Fisheries, and Biotechnology

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

Theme 2: 3 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



FP7 KBBE - Activity 2.3

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



Food, Agriculture and Fisheries, and Biotechnology



- Improved crops, feed-stocks, biomass for energy, environment, and high added value industrial products;
- bio-refinery
- Industrial biotechnology
- Marine biotechnology
- Environmental remediation and cleaner processing
- Enabling technologies



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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)

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

BILATERAL DIALOGUES and Joint

COUNTRY	WORKING GROUPS / TASK FORCES	Joint EVENTS	INITIATIVES in WP
CANADA	WG with AAFC - Agriculture and Agri-Food Canada (2007)	> 4 (since 2007)	- TWINNINGS of projects (since 2007) - Targeted topics
CHINA	Dilaogues with CNCBD, MoST and CAAS (2006)	> 10, including Fora on Bioeconomy (since 2004)	-SICAs, targeted topics
INDIA	WG with DBT - Dpt of Biotechnology, Gvt of India (2006)	> 6, including EU-India days in FAB (since 2005)	-CO-ORDINATED CALL (2009) - SICAs, targeted topics
RUSSIA	EC-RU Working Group on Agro-Bio-Food, with Russia Federal Agency for Science and Innovation (since 2006) -RF Technology Platforms and dialogues with ETPs	> 12 events, incl. yearly EU-RU Symposia on Biotechnology (since 2004)	-CO-ORDINATED CALL, (2008) - SICAs, targeted topics
SOUTH AFRICA	Dialogue with Dpt of Science and Technology, (2007)	> 3, incl BioBiz and EU-SA Dialogue on KBBE (yearly since 2006)	- SICAs, targeted topics
USA	EC-US Task Force on Biotechnology (1990), incl 5 thematic working groups	> 30 Workshops (since 1992)	- Targeted topics



MODALITIES of International Cooperation

1. GENERAL OPENING

All activities / topics are open to participation by Third Countries

Third countries (other than AC): as additional partners

2. TARGETED OPENING:

Some topics encourage international cooperation with some TC

Third countries (other than AC): as additional partners (encouraged)

3. SICAs - Specific International Co-operation Actions

Topics with mandatory participation of some TC-ICPC

International Co-operation Partner Countries : as compulsory partners

4. COORDINATED CALLS

Synchronised Calls, between FP7-Theme 2 and Third countries on topics of shared interest and with co-funding (ex Russia 2008, India 2009)

5. TWINNING of projects

between FP7-Theme 2 and related programmes from Third countries (ex: Canada)



TWINNING

Twinnings of FP7 projects with ABIP programme from AAFC

With a view to promoting international co-operation with third countries that are signatories of S&T bilateral agreements with the European Community, initiatives towards collaboration between projects selected respectively under this FP7 theme and under related research programmes from those third countries will be encouraged, on the basis of principles of mutual benefit and reciprocity.

As an example, collaboration activities with Canadian projects from the Agriculture Bioproducts Innovation Programme (ABIP) of Agriculture and Agri-food Canada (http://www.agr.gc.ca/sci/abip-piba/pdf/abip-piba_guide_e.pdf) could be supported. The EC reserves the right of asking the co-ordinators of projects selected, during contract negotiations, to include such activities. The costs of these activities are expected to be approximately 1% of the total European Community contribution to the FP project; parallel funds are expected to be allocated by the ABIP programme to the Canadian counterparts for twinning with the FP projects.



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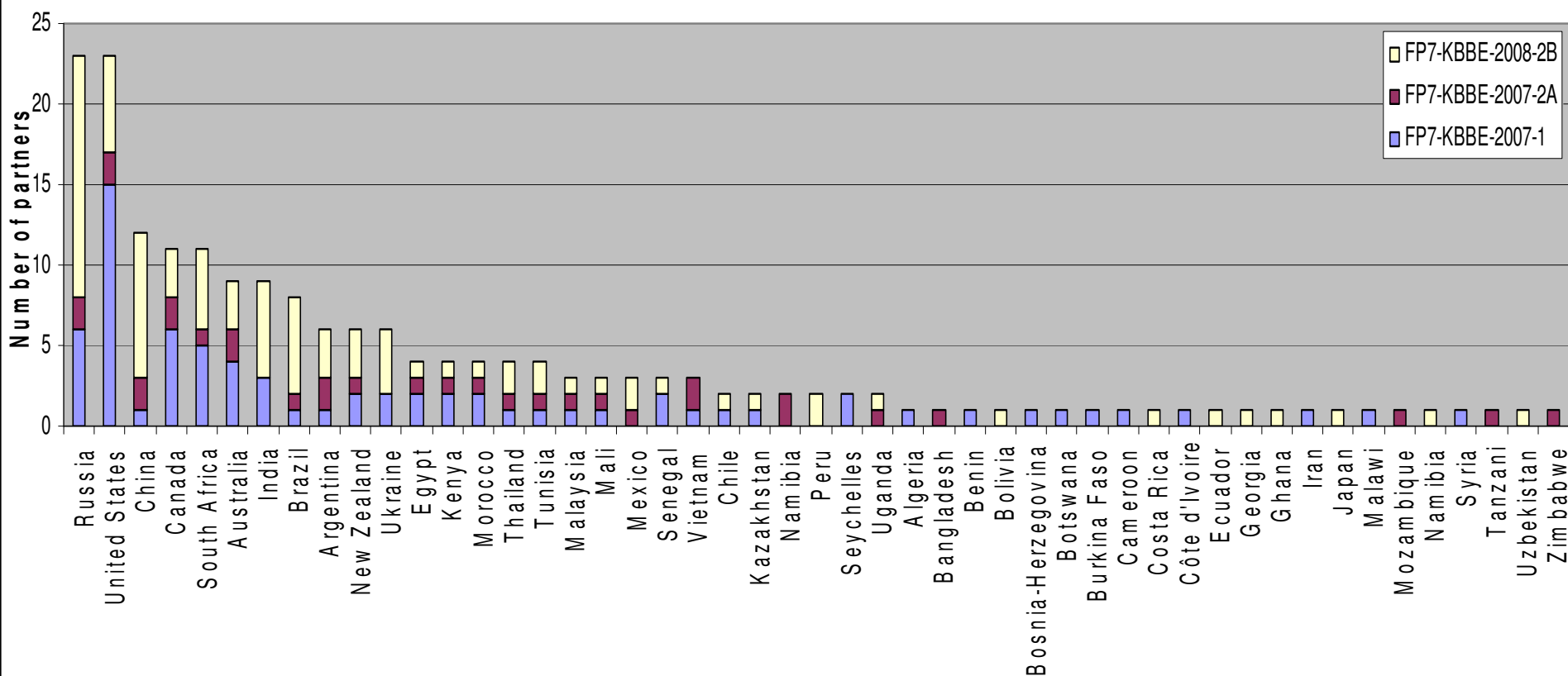
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PARTICIPATION of Third Countries in selected projects - 2007-2008

195 partners from 49 different Third Countries (others than the AC) in successful proposals

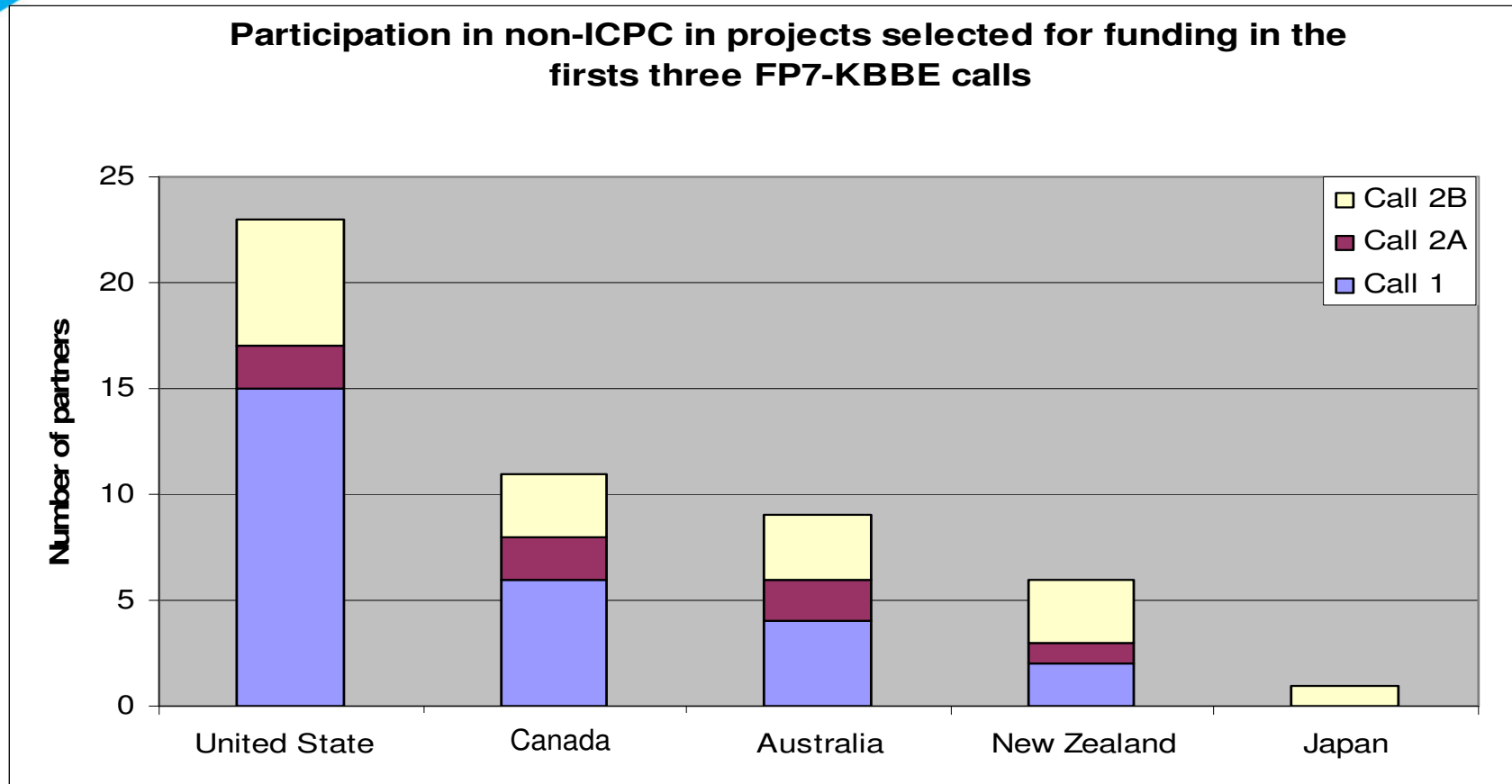
Top 10: RU & US; CN; CA, ZA; AU, IN; BR; AR, NZ, UA

Evolution of Third Countries (except AC) participation in proposals selected for funding.
Calls FP7-KBBE-2007-1, FP7-KBBE-2007-2A, FP7-KBBE-2008-2B





Participation of non-ICPC in selected proposals from the first three Calls - 2007-2008





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**



Community

Markets for bio-based products

	Current markets	Growth
Biofuels	EU: 3,2 Mtoe (biodiesel); 0,7 Mtoe ethanol	Average annual growth 28,2 % biodiesel; 12,8% ethanol
Fibre-based/composite materials (Construction; car industry, ..)	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
Paper (wood fibres/starch) and paperboard	EU paper/cardboard: 40 Mtoe	
Bioplastics; Biopolymers	EU: 50 Ktoe out of total of 73 Mtoe	30% production increase in recent years; 5% market share of packaging plastics by 2010
Surfactants	EU: 30% of total of 2,5 Mtoe	new markets: Plant health products; 60-65 of of detergents could be of vegetal origin
Biosolvents	Currently 1.5% of total (60.000 tons out of 4 Mtoe)	Could grow to 12%-40%
Biolubricants	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%
Pharmaceutical products incl. vaccines	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
Enzymes	53Ktoe in 2001 (3/4 in EU)	5% annual growth rate



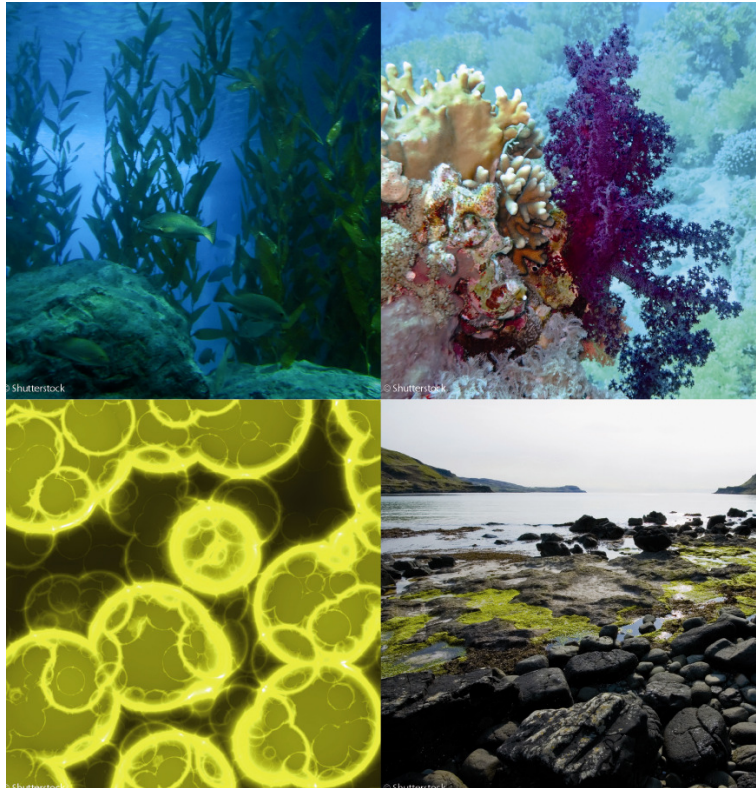
Theme 2:

Food, Agriculture and Fisheries, and Biotechnology

Knowledge-Based Bio-Economy (KBBE)

KBBE - OBJECTIVES

Build a **European Knowledge-Based Bio-Economy (KBBE)**



➤ **Respond to social, economic and GLOBAL 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** such as CAP, CFP, Forest Strategy, Animal Health, Environment, Energy, Development and Trade Policies

➤ **Respond quickly** to emerging research needs

➤ **Support the** coordination of National Research Programmes - ERA-NETS

Topics targeted to (encouraging) international co-operation

Targeted Topics 2009	Countries targeted	
	ICPC	Non-ICPC
Mining genomics information of small ruminants to generate new information on the genetic basis of phenotypes important to sustainable production and health		US
Improving performance and quality of crops in the context of organic and low-input systems by breeding and management		
From capture based to self-sustained aquaculture		
Diseases caused by Orbiviruses: African horse sickness, bluetongue and epizootic haemorrhagic disease: development of new generation vaccines and accompanying tests		
Analytical tools for the characterisation of nano-particles in the food matrix		US, CA
Abiotic stress tolerance: biotechnological applications from lab to the field		US
Prospecting for novel plant-produced compounds		
Novel marine bioactive compounds for European industries		
Sustainable use of seas and oceans - Biomass from micro- and macro-algae for industrial applications		
Nanobiotechnology: smart nanobiotechnology devices to study biomolecule dynamics in real time		US
Nanobiotechnology: bio-interfaces for environmental applications		US