



## Areas and Topics related to Sustainable Development in FP7 Work Programmes for 2009

### Introduction

This document aims at giving an overview of all contributions to sustainable development, in the Work programmes 2009 (WPs2009). This analysis is based on the WPs2009 that were published on 3<sup>rd</sup> September 2008. The same methodology as in "Work programmes 2007 and 2008 review" has been used.

Research policy has a central role to play in contributing to and promoting sustainable development by advancing knowledge, developing practical tools, encouraging the development of technologies and systems with this objective, as well as stimulating reflection about the concept itself. The Seventh Framework Programme (FP7) clearly acknowledges and supports this fact.

Sustainable development is a broadly encompassing concept that spans over and across policy fields related to social, economic and environmental activities and development. It follows that all research, and technological development dealing with these spheres of development has a potential impact on sustainability, whether intentional or not.

The general objective of this overview is to create a shared knowledge on how FP7 contributes to sustainable development.

It should be noted that this overview of work programmes covers only the specific programmes "Cooperation" and "Capacities". Indeed, the "bottom-up" nature of the "Ideas" and "People" specific programmes does not allow for any ex-ante link between their calls and sustainable development. However, it is clear that research funded under these programmes should be looked at carefully, in the "ex-post" screening, for their contribution to sustainable development.

This overview will become part of the monitoring system on research for sustainable development after its launching by the end of this year.

### *Points of reference – sustainable development strategy (SDS) and indicators (SDI)*

As always when dealing with this concept that is highly complex and in many ways abstract, it raises the question on how sustainable development should be defined. In other words - how



can it be determined whether a specific topic is or not relevant to issues of sustainability? A pragmatic approach has been taken, by linking the content of the topics and areas of research with:

1) The key challenges of the renewed EU Strategy of Sustainable development<sup>1</sup> (referred to as SDS).

The seven key challenges of the strategy are:

- Climate change and clean energy
- Sustainable transport
- Sustainable production and consumption
- Better management of natural resources
- Public health threats
- Social inclusion, demography and migration
- Fighting global poverty

2) The indicators supporting the strategy<sup>2</sup> (referred to as SDI)

SD Indicators have been developed in the following categories:

- |                                 |  |
|---------------------------------|--|
| 1. Economic development         | 6. Production and consumption patterns |
| 2. Poverty and social exclusion | 7. Management of natural resources     |
| 3. Ageing society               | 8. Transport                           |
| 4. Public health                | 9. Good governance                     |
| 5. Climate change and energy    | 10. Global partnership                 |

### ***Ambiguities concerning the contribution to sustainability***

The criteria of relevance has been set to not only identify topics that make a clear contribution, but also to include topics where the research has a direct or indirect impact on key objectives of the strategy, in a positive or negative way. This could help to identify areas where there is a possible need to strengthen the way aspects of sustainable development are actively taken into account in designing the topics for further work programmes.

None of the topics listed in the overview tables stand in open contradiction to the SDS. However, a few of the areas identified may have an ambiguous relation to long-term sustainability. Many factors come into play and it is possible that different criteria of sustainability may stand in contradiction to each other. For example, the articulation between increased intensiveness of agriculture and sustainability is worth considering.

### ***Description of the tables***

The mapping is organised per work programme.

Each section is introduced by a short paragraph that briefly describes how the objectives of the theme relate to the 7 key challenges of the sustainable development strategy, on the one

---

<sup>1</sup> Council of the European Union, 10117/06, 9 June 2006

<sup>2</sup>[http://epp.eurostat.ec.europa.eu/portal/page?\\_pageid=1998,47433161,1998\\_47437052&\\_dad=portal&\\_schema=PORTAL](http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1998,47433161,1998_47437052&_dad=portal&_schema=PORTAL)

hand, and to the indicators of sustainable development that support the SDS<sup>3</sup>, on the other hand.

Table 1: Correspondence between Themes and SDS key objectives

Theme	Health	Food	ICT	NMP	Energy	Environment	Transp.	Socio-ec.	Space	Security
<b>SDS Key Chall.</b>										
1. Climate change and clean energy		x	X	x	x	x	x	x	x	
2. Sustainable transport			X	x	x	x	x	x	x	x
3. SCP		x	X	x	x	x	x	x		x
4. Better mgt of nat. resources		x	X	X		x	x	x	x	x
5. Public health	x	x	X	x		x	x	x	x	x
6. Soc. Incl., demography and migration	x		X				x	x		
7. Fighting global poverty	x	x						x	x	

Table 2: Correspondence between Themes and SD indicators

Theme	Health	Food	ICT	NMP	Energy	Environment	Transp.	Socio-econ.	Space	Security
<b>SDI</b>										
1. Economic development	x	x	X	x		x	x	x	x	x
2. Poverty and social exclusion			X					x		
3. Ageing society				x				x		
4. Public health	x	x		x		x	x			x
5. Climate change and energy		x		x	x	x	x	x	x	
6. Production and consumption patterns		x		x		x	x			
7. Management of natural resources		x		x		x		x	x	x
8. Transport				x			x			x
9. Good governance				x				x	x	
10. Global partnership	x	x				x	x		x	

<sup>3</sup> Objectives, rationale and activities of the themes as stated in the Decision No 1982/2006/EC of the European Parliament and of the Council concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013).

## COOPERATION Work Programme

### THEME 1 – HEALTH

The overall objective of the Health Theme is to improve the health of European citizens and increase the competitiveness and boost the innovative capacity of European health related industries and businesses, while addressing global health issues including emerging epidemics.

Sustainable development is not mentioned explicitly in the objective and rationale of the theme. However, this theme is directly linked to the fourth key challenge of the SDS: Public health.

Emphasis is being put on translational research (translation of basic discoveries into clinical applications including scientific validation of experimental results), the development and validation of new therapies, strategies for health, promotion and prevention, child health and healthy ageing, diagnostic tools and medical technologies, as well as sustainable and efficient healthcare systems.

The objective and rationale of the theme also touch upon three sustainable development indicators: health improvement (SDI theme 4: Public health); increased competitiveness (SDI theme 1: Economic development, sub-theme competitiveness); and addressing global health issues (SDI theme 10: Global partnership).

Activity	Area	Sub area	Topic <sup>4</sup>	Funding scheme	SDS key challenge / SDI
2. Translating Research for Human Health	2.1 Integrating biological data and processes: large-scale data gathering, systems biology	2.1.1 Large-Scale Data Gathering	HEALTH-2009-2.1.1-2: Large-scale functional genomics efforts to identify molecular determinants of cancer;	Large CP	SDS – combating major diseases
	2.2 Research on the brain and related diseases, human development and ageing	2.2.1 Brain and brain-related diseases	HEALTH-2009-2.2.1-2: Identifying genetic and environmental interactions in schizophrenia;	Large CP	SDS - public health: Improving mental health
			HEALTH-2009-2.2.1-3: Optimising current therapeutic approaches to	Large CP	SDS - public health: Improving mental

<sup>4</sup> The identified topic are part of the Health WP09 – (European Commission C(2008)4598 of 28 August 2008).

			schizophrenia; HEALTH-2009-2.2.1-5: Psycho-social factors of brain disorders;	CSA	health SDS - public health: Improving mental health
	2.2 Research on the brain and related diseases, human development and	2.2.2 Human development and ageing	Not open in 2009.		
	2.3 Translational research in major infectious diseases: to confront major threats to public health	2.3.1 Anti-microbial drug resistance including fungal pathogens	HEALTH-2009-2.3.1-1: Global collaborative research on the prevention of antibiotic resistance;	Large CP	SDI level II – resistance to antibiotics
		2.3.2 HIV/AIDS, malaria, tuberculosis	HEALTH-2009-2.3.2-1: Integration of European efforts in research on malaria.	NoE	SDS - prevention of HIV/AIDS, malaria, tuberculosis
			HEALTH-2009-2.3.2-2: Identification and pre- clinical testing of new vaccine candidates for tuberculosis.	Large CP	
			HEALTH-2009-2.3.2-3: Discovery and/or development of new and promising anti-HIV microbicides.	Large CP	
	HEALTH-2009-2.3.2-4: Mucosal and topical vaccines for poverty- related diseases (HIV/AIDS, malaria and/or TB).	Large CP			

			HEALTH-2009-2.3.2-5: Translational vaccine research for poverty-related diseases (HIV/AIDS, malaria and/or TB).	Small/medium CP	
			HEALTH-2009-2.3.2-6: ERA-NET for stepping up European co-operation in HIV/AIDS research.	CSA	
		2.3.3 Potentially new and re-emerging epidemics	HEALTH-2009-2.3.3-1: Efficacy and effectiveness of personal protection equipment and other measures against influenza transmission.	Small/medium CP	Implicit relevance to SDS - Public health; epidemics, public threats
	2.4 Translational research in other major diseases	2.4.1 Cancer	Not open in 2009.		
		2.4.2 Cardio-vascular diseases	HEALTH-2009-2.4.2-1: Improved or new therapeutic approaches for the treatment of heart failure.	Large CP	SDS - Public health: chronic and life style diseases
			HEALTH-2009-2.4.2-2: Cardiac arrhythmias: from genes to improved management of patients.	Large CP	
HEALTH-2009-2.4.2-3: Translation of basic knowledge on	Small/medium CP				

			inherited cardiomyopathies into clinical practice.		
		2.4.3 Diabetes and obesity	HEALTH-2009-2.4.3-1: Novel therapeutical approach to pregnancy-induced diabetes.	Small/medium CP	SDS - Public health: chronic and life style diseases
			HEALTH-2009-2.4.3-2: Novel immunotherapies for type 1 diabetes.	Large CP	
			HEALTH-2009-2.4.3-3: Molecular pathways in food intake at CNS-liver-gut regulation level.	Small/medium CP	
		2.4.4 Rare diseases	HEALTH-2009-2.4.4-1: Rare neurological diseases.	Small/medium CP	SDS - Public health; child health and aging aspects
		2.4.5 Other chronic diseases	HEALTH-2009-2.4.5-1: Prevention and treatment of non-alcoholic fatty liver disease (NAFLD).	Small/medium CP	SDS - Public health: chronic diseases
			HEALTH-2009-2.4.5-2: Cellular and molecular mechanisms of the development of chronic kidney disease (CKD).	Large CP	
3. Optimising the delivery of health care to European citizens	3.1 Translating the results of clinical research outcome into clinical practice including better use of medicines, and appropriate		HEALTH-2009-3.1-1 Patient Safety: Effective implementation of	Small/medium CP	SDS - Public health; patient safety

	use of behavioural and organisational interventions and new health therapies and technologies.		prevention strategies for healthcare associated infections.		
			HEALTH-2009-3.1-2: Improve quality and safety of hospital care.	Small/medium CP	SDS - Public health; healthcare systems
			HEALTH-2009-3.1-4: Improved treatment of chronic diseases in developing countries.	Small/medium CP	SDS - Public health; chronic diseases, developing countries
	3.2 Quality, efficiency and solidarity of health care systems including transitional health systems		HEALTH-2009-3.2-1 Organisation of dementia care.	Small/medium CP	SDS- Public health: healthy ageing; Social inclusion, migration and demography: demographic changes
			HEALTH-2009-3.2-2 Healthcare outcomes and cost-benefits.	Small/medium CP	
			HEALTH-2009-3.2-3: Primary care quality linkage to costs.	Small/medium CP	
			HEALTH-2009-3.2-4: Impact of cross border collaboration on health services.	Small/medium CP	
			HEALTH-2009-3.2-5: Research access to comparable healthcare data.	CSA	
	3.3 Enhanced health promotion and disease prevention		HEALTH-2009-3.3-1: Child and adolescent mental health.	Small/medium CP	SDS - Public health: Health promotion; child health; ageing
			HEALTH-2009-3.3-2: Environmental prevention of substance abuse by adolescents.	Small/medium CP	

			HEALTH-2003-3.3-3: Ageing cohorts	Large CP	
			HEALTH-2009-3.3-4: Birth/Mother – Child Cohorts co-ordination.	CSA	
			HEALTH-2009-3.3-5: European child health research platform	CSA	
4. Other actions across the health theme	4.2 Responding to EU policy needs		HEALTH-2009-4.2.-3: Human Papillomavirus Vaccination (HPV) and cervical cancer screening programmes: estimate of impact of different policy options by way of disease modelling and health economics	Small/medium CP	Public health, disease burden
	4.3 Specific international cooperation actions (SICA)	4.3.1 Neglected infectious diseases	HEALTH-2009-4.3.1- 3: Human immune responses to co- infections of poverty- related (HIV, malaria, TB) and neglected infectious diseases.	Large CP	SDS-Public health: poverty- related (HIV, malaria, TB) and neglected infectious diseases in developing countries.
		4.3.2 International Public Health and Health Systems	HEALTH-2009-4.3.2- 2: Access to medicines	Small/medium CP	SDS-Public health: access to essential medicines in developing countries
			HEALTH-2009-4.3.2- 3: Integration of Disease Surveillance	Small/medium CP	SDS-Public health: infectious

			and Health Systems Response		diseases
		4.3.3 Coordinated topics with Russia	HEALTH-2009-4.3.3-2: Mechanisms of diabetic and weight-related co-morbidity in heart failure.	Small/medium CP	SDS-Public health:

## THEME 2 – FOOD, AGRICULTURE and FISHERIES and BIOTECHNOLOGY

The objective and rationale of this theme highlight the "relationship between social, economic and environmental challenges".<sup>5</sup> Sustainability is specifically mentioned in the context of management and production of bio-resources, and the sustainability of agriculture, aquaculture and fisheries.

The topics and areas directly address and/or indirectly concern the following objectives of the SDS: public health, better management of natural resources, sustainable consumption and production, and climate change and clean energy. In addition, some topics touch upon cross-cutting themes where economic, social and environmental sustainability concerns converge. An example of this is rural development.

Regarding SDI, this theme contributes directly to the following ones : SDI theme 4: Public health (categories: human health protection and lifestyle; food safety and quality); SDI 5: Climate change and energy (level III indicator: share of biofuels); SDI 6: Production and consumption patterns (category: agriculture) ;SDI 7 management of natural resources: (level I Indicator: fish taken from stocks outside safe biological limits; category marine ecosystem).

The word sustainability is frequently used in the descriptions of the topics. However at times it is unclear whether the reference to sustainability primarily refers only to the sustainability of the main subject of interest for the topic (for example crop or livestock), or whether broader issues such as the impact on the ecosystem at large have also been considered.

Support for the objectives of the Environmental Technology Action Plan (ETAP), as well as the biomass action plan and the European biofuels strategy, is explicitly mentioned through research into non-food applications of biological resources.

Activity	Area	Topic <sup>6</sup>	Funding scheme	SDS key challenge / SDI
2.1 Sustainable production and management of biological resources from land, forest and aquatic environment	2.1.1 Enabling research	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.	Small-medium CP	SDS - Public health; Sustainable production
		KBBE-2009-1-1-03: Optimisation of methods to maintain farm animal biodiversity – SICA (African ACP).	Small-medium CP – SICA	SDS - Biodiversity
	2.1.2 Increased sustainability of all production	KBBE-2009-1-2-01: Legumes: key multifunctional	Small-	SDS - Better

<sup>5</sup> OJ 30.12.2006 L412/13

<sup>6</sup> The identified topic are part of the Food, Agriculture, Fisheries, and Biotechnology WP09 – (European Commission C(2008)4598 of 28 August 2008).

systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection	legume crops for an energy-efficient and environmentally friendly future European agriculture.	medium CP	management of natural resources; biodiversity; energy efficiency
	KBBE-2009-1-2-02: Multifunctional grasslands for sustainable and competitive ruminant production systems and the delivery of ecosystem services.	Small-medium CP	SDS- environmental protection and sustainable agriculture, rural development
	KBBE-2009-1-2-03: Irrigation water saving solutions for Mediterranean agriculture – SICA (Mediterranean Partner Countries).	Small-medium CP – SICA	SDS – Better management of natural resources;
	KBBE-2009-1-2-04: Improving performance and quality of crops in the context of organic and low-input systems by breeding and management.	Large CP	SDS –Better management of natural resources, Millennium Development Goals
	KBBE-2009-1-2-05: Water stress tolerance and water use efficiency in food crops.	Large CP	SDS - Better management of natural resources; Climate change; efficient use of water resources
	KBBE-2009-1-2-06: Developing new methods for valuing and marketing currently non-marketable forest functions, goods and services.	Small-medium CP	SDS – Sustainable rural development
	KBBE-2009-1-2-07: Meeting industrial requirements on wood raw-materials quality and quantity.	Small-medium CP	SDS - Better management of natural resources
	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).	Small-medium CP - SICA	SDS – Climate change; Better management of natural resources
	KBBE-2009-1-2-09: Impact and development of Conservation Agriculture techniques in developing countries – Mandatory ICPC (African ACP).	CSA	SDS – Better management of natural resources;

				land use; Millennium Development Goals
		KBBE-2009-1-2-10: Improving fisheries assessment methods by integrating new sources of biological knowledge.	Small-medium CP	SDS – Better management of natural resources
		KBBE-2009-1-2-11: Improving mollusc spat production in hatcheries.	Small-medium CP	SDS – Better management of natural resources
		KBBE-2009-1-2-12: Sustainable inland extensive and semi-intensive aquaculture.	Small-medium CP	SDS – Better management of natural resources
		KBBE-2009-1-2-13: From capture based to self-sustained aquaculture.	Small-medium CP	SDS – Better management of natural resources
		KBBE-2009-1-2-014: Sustainable use of seas and oceans: importance of foraging fish in the ecosystem.	Small-medium CP	SDS – Better management of natural resources
		KBBE-2009-1-2-15: Sustainable use of seas and oceans: integration of aquaculture and fisheries in the coastal zone.	Small-medium CP	SDS – Better management of natural resources
	Optimised animal health, production and welfare across agriculture, fisheries and aquaculture	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.	Small-medium CP	SDS - Public health
		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.	Small-medium CP	SDS-Public health
		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).	Small-medium CP - SICA	SDS-Public health; Millennium Development Goals
		KBBE-2009-1-3-05: Improving <i>campylobacter</i> control measures in primary production of poultry.	Small-medium CP	SDS – Public health
	2.1.4 Socio-economic research and support to	KBBE-2009-1-4-01: Development of detection	Small-	SDS- Better

	policies	methods for quarantine plant pests and pathogens for use by Plant Health Inspection Services.	medium CP	management of natural resources, minimise economic and environmental damage
		KBBE-2009-1-4-02: Spatial analysis of rural development measures for effective targeting of rural development policies.	Small-medium CP	SDS- Rural development;
		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).	Small-medium CP - SICA	SDS– sustainable agriculture; rural development and environment; Millennium Development Goals
		KBBE-2009-1-4-06: Agricultural Innovation Systems & Tradition knowledge – Mandatory ICPC (African ACP).	CSA	SDS- Social, economic and environmental sustainability of local agrifood systems; Millennium Development Goals
		KBBE-2009-1-4-08: Agricultural Research for Development – ERA-NET.	CSA	SDS – Millennium Development Goals
		KBBE-2009-1-4-09: Organic-agriculture – ERA-NET.	CSA	SDS: Organic farming and agriculture
		KBBE-2009-1-4-10: Consolidate alliances with Asia in the field of aquaculture – Mandatory ICPC (China and other ICPC from Asia).	CSA	SDS: Sustainable aquaculture development
		KBBE-2009-1-4-11: Consolidate alliances with the Mediterranean in the field of aquaculture – Mandatory ICPC (Mediterranean Partner Countries).	CSA	SDS: Sustainable aquaculture development
		KBBE-2009-1-4-12: Supporting governance in aquaculture research and innovation.	CSA	SDS: Sustainable aquaculture development
2.2 Fork to farm: Food	2.2.1 Consumers	KBBE-2009-2-1-01: Determinants of food habit formation/breaking.	Small-medium	SDS-Public health, Consumer behaviour

(including seafood), health and well-being.			CP	and health (healthier food choices)
		KBBE-2009-2-1-03: Behavioural models for prevention of obesity, with a particular focus on children.	Small-medium CP	SDS-Public health (prevention of obesity, allergies)
	2.2.2 Nutrition	KBBE-2009-2-2-01: Stress, addiction and eating behaviour.	Large CP	SDS-Public health
		KBBE-2009-2-2-02: Role and mechanisms of action of plant bioactive compounds.	Small-medium CP	SDS-Public health
		KBBE-2009-2-2-03: Development of biomarkers for health-promoting functions.	Large CP	SDS-Public health
		KBBE-2009-2-2-04: Strategies for sustainable eating habits.	CSA	SDS-Public health; Sustainable food consumption
	2.2.3 Food processing	KBBE-2009-2-3-01: New solutions for improving refrigeration technologies along the food chain.	Large CP	SDS – number of sustainability – related challenges (Public health; Food safety and quality; reduce energy consumption etc.)
		KBBE-2009-2-3-02: Sharing food technology research and development by means of international collaboration – SICA.	Small-medium CP - SICA	SDS - Public health; consumer protection; Millennium Development Goals
		KBBE-2009-2-3-03: Sustainable food and feed processing.	Small-medium CP	SDS – number of sustainability – related challenges (Public health; Food safety and quality; reduce energy consumption etc.)
	2.2.4 Food quality and safety	KBBE-2009-2-4-02: Risk-benefit assessment of food supplements – SICA.	Large CP - SICA	SDS- Public health; Consumer protection
		KBBE-2009-2-4-03: Combined exposure to pesticides.	Small-medium	SDS- Public health

			CP	
		KBBE-2009-2-4-04: Prospects for novel foods.	CSA	SDS – Societal needs
	2.2.5 Environmental impacts and total food chain	KBBE-2009-2-5-01: International food trade: anticipating the impact of climate change on the safety of European and global food markets – SICA.	Large CP - SICA	SDS-Public health; Global food safety; Climate change
		KBBE-2009-2-5-03: Transparency along the food value chain.	CSA	SDS-Public health
	2.2.7. Coordinated Call with India (Department of Biotechnology – DBT)	KBBE-2009-2-7-01: Development of functional foods and ingredients.	Small-medium CP	SDS-Public health
		KBBE-2009-2-7-02: Valorisation of by-products in food processing.	Small-medium CP	SDS – Sustainable food production policy
2.3 Life sciences, biotechnology and biochemistry for sustainable food products and processes	2.3.1 Novel sources of biomass and bioproducts	KBBE-2009-3-1-01: Optimisation of secondary metabolite production in plants: localisation, transport, storage and stability.	Small-medium CP	SDS
		KBBE-2009-3-1-02: <i>Jatropha curcas</i> – breeding strategy – towards a sustainable crop for biomaterials and biofuels – SICA (India and/or African ACP and/or Latin America)	Small-medium CP - SICA	SDS-Climate change; bio – energy; Millennium Development Goals
		KBBE-2009-3-1-03: Abiotic stress tolerance: Biotechnological applications from the lab to the field.	CSA	SDS – Sustainable production
		KBBE-2009-3-1-04: Prospecting for novel plant-produced compounds.	Small-medium CP	SDS- Biodiversity
		KBBE-2009-3-2-02: Sustainable use of seas and oceans – Biomass from micro- and macro-algae for industrial applications.	Small-medium CP	SDS - Climate change and clean energy; biofuels; Better management of natural resources
	2.3.3. Industrial biotechnology: novel high added-value bio-products and bio-processes.	KBBE-2009-3-3-02: Integrated multi-enzyme, multistep biocatalytic engineering.	Small-medium CP	SDS – cleaner environment; bio catalytic processes
	2.3.4. Biorefinery.	KBBE-2009-3-4-01: Biomass and bioproducts: sustainability certification and socioeconomic	CSA	SDS: Climate change; biomass

		implications – Mandatory ICPC (Latin America and/or African ACP and/or Asia).		production, socio-economic goals; Millennium Development Goals
		KBBE-2009-3-4-02: Biomass pre-treatment for optimised biomass deconstruction and analytical characterisation – SICA (Brazil).	Small-medium CP - SICA	SDS: Climate change; biomass production, Millennium Development Goals
	2.3.5. Environmental biotechnology.	KBBE-2009-3-5-01: Molecular approaches to bioremediation of polycyclic aromatic hydrocarbon compounds.	Small-medium CP	SDS: Public health
		KBBE-2009-3-5-02: Innovative biotechnology approaches as eco-efficient alternative to industrial processes.	Small-medium CP	SDS: eco- efficiency
		KBBE-2009-3-6-03: Nanobiotechnology: bio-interfaces for environmental applications.	Small-medium CP	SDS: Better management of natural resources
	2.3.7. Biorefinery Joint Call.	KBBE-2009-3-7-01: Sustainable biorefinery.	CP	SDS: Climate change
		KBBE-2009-3-7-02: Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries.	CSA	SDS: Climate change

### THEME 3 – INFORMATION and COMMUNICATION TECHNOLOGIES

Information and Communication Technologies are recognised as key enabling technologies to help Europe reshaping its economy and society to meet the challenges of the 21st Century. This includes realising higher economic growth through improved competitiveness and productivity, whilst ensuring a sustainable future. The FP7 Theme ICT refers to the renewed SDS strategy and specifically addresses societal challenges of direct relevance to the unsustainable trends tackled by the SDS.

In the context of defining priorities for the WP2009, three future technology and socio- economic transformations stand out: the 'Future Internet', the 'alternative paths to ICT components and systems' and 'ICT for sustainable development'.

In particular, the future developments of ICT will be driven to a large extent by emerging societal challenges. In particular, the next generations of ICT will have to support the targets for lower carbon emissions not only with ultra low power consumption ICT devices and equipment but also through ICT solutions for better energy efficiency, lighting, virtual mobility and more efficient environmental simulation and monitoring. Support to this area is strengthened substantially and will address the various dimensions of ICT's contribution to sustainability.

The topics for 2009 have a potential relevance for the following: Sustainable consumption and production; Better management of natural resources; Social inclusion, demography and migration; Sustainable transport; Climate change and clean energy; Public health.

The links of this Theme with the SDI include: SDI 1: Economic development (category competitiveness, investment); SDI 2. Poverty and social exclusion; SDI 3. Ageing society; SDI 4. Public health; SDI 5: climate change and energy; SDI 7: better management of natural resources; SDI 8. Transport; SDI 9. Good governance

Activity/Challenge	Objective/topic <sup>7</sup>	Funding Scheme	SDS key challenge / SDI
4.3 Components, systems, engineering	ICT-2009.3.5 Engineering of Networked Monitoring and Control systems	STREP, NoE, IP, CSA	SDS-Climate change and clean energy; SDS-Sustainable production and consumption (energy efficiency, reduction of waste and resources in manufacturing). SDI : Economic development (category competitiveness, investment); better management of natural resources.
	ICT-2009.3.7 Photonics	IP, STREP, IP, ERA-NET Plus, CSA	SDS- Sustainable consumption; Climate change and clean energy; Higher energy efficiency
	ICT-2009.3.8 Organic Photonics	STREP, NoE	SDS-Climate change and clean energy; Higher energy

<sup>7</sup> The identified objectives are part of the ICT WP09 –(European Commission C(2008)6827 of 17 November 2008

	and Other Disruptive Photonics Technologies		efficiency
	ICT-2009.3.9. Microsystems and Smart Miniaturised Systems	IP, STREP, CSA	SDS-Climate change and clean energy; Public health; Sustainable transport; Better management of natural resources; Higher energy efficiency
4.5. Towards sustainable and personalised healthcare	ICT-2009.5.1 Personal Health Systems	IP/STREP, CSA (SA only)	SDS-Public health
	ICT-2009.5.2 ICT for Patient Safety	IP/STREP, STREP, CSA (SA only)	SDS-Public health
	ICT-2009.5.3 Virtual Physiological Human	CP, CSA	SDS-Public health
4.6 ICT for Mobility, Environmental Sustainability and Energy Efficiency	ICT-2009.6.1 ICT for Safety and Energy Efficiency in Mobility	IP, STREP, CSA	SDS-Sustainable transport; Safer, more efficient and environmental-friendly transport; emissions reduction; Better management of natural resources.
	ICT-2009.6.2 ICT for Mobility of the Future	IP, STREP, CSA	SDS-Sustainable transport; Safer, more efficient transport; improved quality of life in urban environments; Better management of natural resources.
	ICT-2009.6.3 ICT for Energy Efficiency	STREP, CSA (SA only)	SDS-Climate change and clean energy; energy efficiency; Better management of natural resources.
	ICT-2009.6.4 ICT for Environmental Services and Climate Change Adaptation	STREP, CSA (SA only)	SDS-Climate change and clean energy; Link to sustainable cities; Better management of natural resources.
	ICT-2009.6.5 Novel ICT Solutions for Smart Electricity Distribution Networks (Joint call between the ICT and Energy Themes)	Collaborative Projects	SDS-Climate change and clean energy; improved performance of the electricity distribution grid; Better management of natural resources.
4.7 ICT for Independent Living, Inclusion and Governance	ICT-2009.7.1 ICT & Ageing	STREP, IP, CSA	SDS- Social inclusion, demography and migration. Increase inclusion and participation of elderly
	ICT-2009.7.2 Accessible and Assistive ICT	IP, STREP, CSA (SA only)	SDS- Social inclusion; disabled
	ICT-2009.7.2 ICT for Governance and Policy Modelling	CP, CSA	SDS- Social inclusion, demography and migration; SDI 9 Good governance
4.8 Future and Emerging	ICT-2009.8.0 FET-Open:	STREP, CSA	SDS- strategy as a whole

Technologies	Challenging Current Thinking		<i>ICT as a catalyst for change – new technologies can have both positive and adverse impact on sustainable development</i>
	ICT-2009.8.5 FET proactive 5: Self-Awareness in Autonomic Systems	IP, STREP	SDS- Climate change and clean energy (more efficient use of resources)
	ICT-2009.8.6 FET proactive6: Towards Zero-Power ICT	STREP	SDS- Sustainable consumption (energy consumption); Climate change and clean energy
9.1 International Cooperation	ICT-2009.9.1.b Uptake of EU ICT results in developing economies	SICA	SDS-Fighting global poverty; SDI 2 Poverty and social exclusion

## THEME 4 – NANOSCIENCES, NANOTECHNOLOGIES MATERIALS and NEW PRODUCTION

Theme 4, NMP, focuses on pluri-disciplinary RTD and Innovation applied to all industrial sectors and all products/services and thus directly concerns the entire spectrum of human endeavours and applications, from clean buildings to flexible factories to nano-based diagnosis and therapy, etc. Furthermore, RTD&I in materials and products directly benefits key sectors of sustainable development, such as Transports and Energy, while its influence on consumption patterns and the development of clean technologies have also a direct impact on sustainability. All the above is being achieved through a shift of the basic industrial paradigm, namely the transformation of the EU industry from resource-based to knowledge-based industry, and it appears as such the fundamental objective of the Theme. Furthermore, the emergence of nano-sciences and nano-technologies opens new possibilities that go well beyond products and cover solutions of health problems, as well the use of nanoparticles in production. Their impact on nature and human systems remains largely unknown and specific RTD is thus being carried out to also support legislation and public acceptance.

It thus appears that NMP occupies a central place in all three pillars of sustainable development: creation of economic wealth through increased competitiveness; improvement of employment, work conditions, quality of life, health, safety; and decrease of the environmental footprint of both industrial activities themselves and of the products/services they generate, through the sustainable use of energy and material resources.

Activity	Area	Topic	Funding scheme	SDS key challenge / SDI
1. Nanosciences and Nanotechnologies	1.1 Nanosciences and converging sciences	NMP-2009-1.1-1 Nanobiotechnology: Applying life science principles as model for new nanotechnology-based mechanisms, processes, devices and/or systems	Small/med.-scale focused research project	SDS - Climate change and clean energy,
	1.2 Nanotechnologies and converging technologies	NMP-2009-1.2.1 Nanotechnology for harvesting energy via photovoltaic technologies	Small/med.-scale focused research project	SDS - Climate change and clean energy,
		NMP-2009-1.2.2 Molecular factory: manufacturing objects with predictable and	Small/med.-scale focused research project	SDS – Sustainable Consumption and Production

		controllable properties		
		NMP-2009-1.2.3 Nanotechnologies – coordinated call with Russia	Small/med.-scale focused research project	SDS-Public Health, Sustainable Consumption and Production
	1.3 Health, safety and Environmental Impacts	NMP-2009-1.3-1 Activities towards the development of appropriate solutions for the use, recycling and/or final treatment of nanotechnology-based products (Joint call with Theme 6: Environment, including Climate change)	Small/med.-scale focused research project	SDS-Public Health, Sustainable Consumption and Production
		NMP-2009-1.3-2 Exposure scenarios to nanoparticles	Coordination and Support Action	SDS- Public Health
2. Materials	2.3 Novel biomaterials and bio inspired materials	NMP-2009-2.3.1 Biomimetic gels and polymers for tissues repair	Small/med.-scale focused research project	SDS-Public Health SDI-Aging Society
	2.4 Advances in chemical technologies and	NMP-2009-2.4.1	SME-	SDS-Climate change and clean

	materials processing	New biomass-based composite materials and their processing	targeted CP	energy
	2.5 Using engineering to develop high performance knowledge-based materials	NMP-2009-2.5.1 Light high-performance composites	1 Large CP;	SDS-Sustainable transport, Climate change and clean energy, Sustainable Consumption and Production
	2.6 Coordinated activities and international cooperation	NMP-2009-2.6.1 Novel membranes for water technologies (SICA)	Small/med.-scale focused research projects	SDS- better management of natural resources, Public Health, Global poverty and SD challenges
3. New production	3.2 Adaptive production systems	NMP-2009-3.2.1 Innovative pathways for sustainable chemical production	Large CP	SDS- Sustainable Consumption and Production
	3.4 Rapid transfer and integration of new technologies into the design and operation of manufacturing processes	NMP-2009-3.4.1 Automation of robotics for sustainable crop and forestry management	Large CP	SDS – Better management of natural resources
		NMP-2009-3.4.2 Holistic and integrated approach to high-performance, reliable and adaptive machine tool design and production	SME-targeted CP	SDS – Sustainable Consumption and Production
4. Integration of technologies for industrial applications		NMP-2009-4.0.1 Sustainable Biorefineries	CP	SDS – Climate Change and Clean Energy, SCP
		NMP-2009-4.0.2 Enhancing	CSA	SDS – Climate Change and Clean Energy

		exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries		
		NMP-2009-4.0.4 Reducing the environmental footprint of energy intensive industries	Large CP	SDS-Sustainable Consumption and Production

## THEME 5 – ENERGY

The objective for this theme is to "adapt the current energy system into a more sustainable one"<sup>8</sup>, making a clear and direct contribution to the first key challenge of the SDS, i.e. climate change and clean energy. In this sense, the whole theme has a direct relevance for sustainable development. The contribution can take the form of increased energy efficiency; greening the production of energy.

The theme directly addresses the SD Indicators: Climate change and energy (level I indicators: total greenhouse emissions, gross inland energy consumption, by fuel. Subcategories for level II and III indicators: Climate change; Energy)

Activity	Area	Topic <sup>9</sup>	Funding scheme <sup>10</sup>	SDS key challenge / SDI
5.2. Renewable electricity generation	5.2.1 Photovoltaics	ENERGY.2009.2.1.1: Efficiency and material issues for thin-film photovoltaics.	CP	SDS-Climate change and clean energy. In principle the whole area contributes to renewable energy.
		ENERGY.2009.2.1.2: Solar Photovoltaics: Manufacturing and product issues for thin-film photovoltaics.	CP	
		ENERGY.2009.2.1.3: Support to the coordination of stakeholders' activities in the field of Photovoltaics.	CSA	
	5.2.2 Biomass	ENERGY.2009.2.2.1: Biomass to electricity from energy crops and recovered fuels.	CP	SDS-Climate change and clean energy
	5.2.3 Wind	See area Energy 5.2.9.		
	5.2.4 Geothermal	ENERGY.2009.2.4.1: Understanding and mitigation of induced seismicity associated with geothermal field development.	CP	SDS-Climate change and clean energy
	5.2.5 Concentrated solar power	ENERGY.2009.2.5.1: Key components for Concentrated Solar Power.	CP	SDS-Climate change and clean energy
	5.2.6 Ocean	See area Energy 5.2.9.		
	5.2.7 Hydro	Not open in 2009.	CP	
5.2.8 Innovative integration of renewable energy supply and energy efficiency in large	Not open in 2009.			

<sup>8</sup> Decision no 1982/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013) OJ L 412/18 30.12.2006

<sup>9</sup> The identified topic are part of the Energy WP 2009 – (European Commission C (2008) 4598 of 28 August 2008).

	buildings and/or CONCERTO communities			
	5.2.9 Cross-cutting issues	ENERGY.2009.2.9.1: Deep off-shore multi-purpose renewable energy conversion platforms for wind/ocean energy conversion.	CP	SDS-Climate change and clean energy
		ENERGY.2009.2.9.2: Coordination action on off-shore renewable energy conversion platforms.	CSA	
5.3. Renewable fuel production	5.3.1 First generation biofuel from biomass	Not open in 2009.		
	5.3.2 Second generation fuel from biomass	ENERGY.2009.3.2.1: Algal and other suitable non-food aquatic biomass feedstock for 2 <sup>nd</sup> generation biofuel production.	CSA	SDS-Climate change and clean energy.
		ENERGY.2009.3.2.2: Biowaste as feedstock for 2 <sup>nd</sup> generation.	CP	
		ENERGY.2009.3.2.3: Second Generation Biofuels (coordinated call with Brazil)	CP	
	5.3.3 Bio-refinery joint call	ENERGY.2009.3.3.1: Sustainable Biorefineries.	CP	SDS-Climate change and clean energy
		ENERGY.2009.3.3.2: Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries.	CSA	
	5.3.4 Biofuels from energy crops	Not open in 2009.		
	5.3.5 Alternative routes to renewable fuel production	Not open in 2009.		
5.3.6 Biofuel use in transport	Not open in 2009.			
5.3.7 cross-cutting issues	ENERGY.2009.3.7.1: Support to the coordination of stakeholders' activities in the field of Biofuels.	CSA	SDS-Climate change and clean energy	
5.4 Renewables for heating and cooling	5.4.1 Low/medium temperature solar thermal energy	ENERGY.2009.4.1.1: Low/medium temperature solar thermal systems for industrial Process Heat.	CP	SDS-Climate change and clean energy
	5.4.2 Biomass	Not open in 2009.		
	5.4.3 Geothermal energy	Not open in 2009.		
	5.4.4 Innovative integration of renewable energy supply and energy efficiency in large buildings and/or CONCERTO	Not open in 2009.		

	communities			
	5.4.5 cross-cutting issues	ENERGY.2009.4.5.1: Hybrid systems based on solar thermal heating/cooling, backed up by biomass or geothermal to compensate heat load intermittence.	CP	SDS-Climate change and clean energy
5.5. CO2 capture and storage technologies for zero emission power generation	5.5.1 CO2 capture	ENERGY.2009.5.1.1: Innovative capture techniques.	CP	SDS-Climate change and clean energy. In principle the whole area contributes to greening energy/emission reduction.
	5.5.2 CO2 storage	ENERGY.2009.5.2.1: Safe and reliable geological storage of CO2.	CP	
		ENERGY.2009.5.2.2 : Towards an infrastructure for CO2 transport and storage.	CP	
5.6. Clean coal technologies	5.6.1 Conversion technologies for zero emission power generation	ENERGY.2009.6.1.1: Efficiency increases in existing and new build pulverised coal power plants with a view to CCS.	CP	SDS-Climate change and clean energy
	5.6.2 Coal-based poly-generation	Not open in 2009.		
5.5&6 Cross-cutting actions between activities energy.5 and energy.6	5.5&5.6.1: Power generation technologies for integrated zero emission solutions	Not open in 2009.		
	5.5&5.6.2: Cross cutting and regulatory issues	ENERGY.2009.5&6.2.1: Support to the coordination of stakeholders' activities in the field of Zero Emission Energy Production.	CSA	
5.7 Smart energy networks	5.7.1 Development of inter-active distribution networks	ENERGY.2009.7.1.1: Optimisation of the electricity grid with large scale renewables and storage.	CP	SDS-Climate change and clean energy
	5.7.2 Pan- European energy networks	Not open in 2009.		
	5.7.3 Cross cutting issues and technologies	ENERGY.2009.7.3.1: HTS Devices for Electricity Networks	CP	SDS-Climate change and clean energy
		ENERGY.2009.7.3.2: High density/rapid release energy storage.	CP	
		ENERGY.2009.7.3.3: Strategic impact of the roll-out of electric and plug-in hybrid vehicles on grid infrastructures.	CP	
		ENERGY.2009.7.3.4: Support to the coordination of stakeholders' activities in the field of Smart Grids.	CSA	
ENERGY.2009.7.3.5: Novel ICT solutions for Smart Electricity Distribution Networks (Joint Call between the ICT and Energy Themes)	CP			

5.8. Energy efficiency and savings	5.8.1 Efficient energy use in the manufacturing industry	ENERGY.2009.8.1.1: Energy efficiency in energy intensive industry.	CP	SDS-Climate change and clean energy
	5.8.2 High efficiency poly-generation	Not open in 2009.		
	5.8.3 Large-scale integration of renewable energy supply and energy efficiency in buildings: ECO buildings	Not open in 2009.		
	5.8.4 Innovative integration of renewable energy supply and energy efficiency in large communities CONCERTO	Not open in 2009.		
	5.8.5 Innovative strategies for clean urban transport: CIVITAS-PLUS	Not open in 2009.		
	5.8.6 Socio-economic research and innovation	Other actions: a) Support to Concerto b) Participation in International Energy Agency	a) call for tender b) financial contribution	SDS-Climate change and clean energy
	5.8.7 Thematic promotion and dissemination	Not open in 2009.		
5.9 Knowledge for energy policy making	5.9.1 knowledge tools for energy-related policy making	ENERGY.2009.9.1.1: European energy infrastructure networks and systems transition planning.	CSA	SDS-Climate change and clean energy.
	5.9.2 scientific support to policy	ENERGY.2009.9.2.1: European scientific multidisciplinary "think-tank" to support energy policy and to assess the potential impacts of its measures.	CSA	SDS-Climate change and clean energy.

## THEME 6 – ENVIRONMENT

Sustainability is put to the forefront in the objective of the theme through the focus on "*sustainable management of the natural and human environment and its resources*"<sup>11</sup>. By and large the whole theme is relevant in itself. More specifically, individual topics contribute to the SDS objectives of public health, climate change and clean energy, better management of resources, sustainable transport, and sustainable consumption and production. Through some activities, and in particular GEO, the international dimension is fully taken into account.

An overarching priority in 2009 is adaptation to climate and environmental change, and related issues such as sustainable cities and coastal zones.

The theme contributes to the following indicators: Public health (category: health risks due to environmental conditions); Climate change and energy (category climate change); Production and consumption; Management of natural resources (categories biodiversity, marine ecosystems, freshwater resources). The Joint Call on Biorefinery is also tackling the hot issue of second generation biofuels, therefore contributing to (more) sustainable transport

Activity	Sub-activity	Area	Topic <sup>12</sup>	Funding Scheme	SDS key challenge / SDI
6.1 Climate change, pollution and risks	6.1.1 Pressures on environment and climate	6.1.1.1 The Earth System and Climate: Functioning and abrupt changes.	ENV.2009.1.1.1.1. Climate dynamics and abrupt changes – analysis of the palaeo-record.	Large scale CP	In principle, all topics in all areas are relevant to the SDS objectives regarding climate change
		6.1.1.2. Emissions and pressures: Natural and anthropogenic.	Not open in 2009.		
		6.1.1.3 The Global Carbon cycle –GreenHouse Gas budgets.	ENV.2009.1.1.3.1.Quantification and attribution of annual-to-decadal changes of carbon and GHG budgets in European terrestrial ecosystems to human and natural drivers and associated climate-carbon feedbacks.	Large scale CP	
		6.1.1.4. Future Climate.	ENV.2009.1.1.4.1. Process-oriented evaluation of Earth System Models with emphasis on climate feedbacks.	Small or medium-scale CP	

<sup>11</sup> FP7 Specific Programme for "Cooperation".

<sup>12</sup> These topics are part of WP09 (European Commission C(2008)4598 of 28 August 2008)

		6.1.1.5 Climate Change Natural and Socio-economic Impacts.	ENV.2009.1.1.5.1. Climate change predictions in Sub-Saharan Africa (east to west), quantification of impacts and assessment of adequate adaptation measures.	Small or medium CP – FP-SICA		
			ENV.2009.1.1.5.2. Climate induced changes in water resources in southern Europe and neighbouring countries as a threat to security.	Small or medium CP – FP-SICA		
		6.1.1.6 Response strategies: Adaptation, Mitigation and Policies.	ENV.2009.1.1.6.1. Integrated methodology providing a common platform for an improved assessment of climate change impacts, vulnerability and related cost effective adaptation measures.	Small or medium CP		
			ENV.2009.1.1.6.2. Options for response strategies integrating sectoral and cross-sectoral measures in view of post-2012 climate initiatives.	Small or medium CP		
			ENV.2009.1.1.6.3. Climate change impacts on the marine environment: research results and public perception.	CSA		
	6.1.2 Environment and health	6.1.2.1 Health impacts of climate change.	ENV.2009.1.2.1.1. Climate change and water related health issues in Europe.	Small or medium CP		SDS - Environment, Public health SDI - Health risks due to environmental conditions
			ENV.2009.1.2.1.2. Methods to quantify the impacts of climate and weather on health in developing low income countries.	Small or medium CP- FP-SICA		

		6.1.2.2 Health effects of environmental stressors other than climate change.	ENV.2009.1.2.2.1. Transport related air pollution and health impacts.	Large scale CP	
			ENV.2009.1.2.2.2 Health effects from electromagnetic fields (EMF): improved exposure assessment to wireless communication devices.	Small or medium CP	
		6.1.2.3 methods and decision support tools for environmental health risk analysis and policy development.	ENV.2009.1.2.3.1. European coordination action on human biomonitoring.	CSA	
	6.1.3. Natural Hazards	6.1.3.1. Hazard assessment, triggering factors and forecasting	ENV.2009.1.3.1.1. Forest fires In the context of climate and social changes.	CSA	SDS - Environment, Public health SDI - Health risks due to environmental conditions
		6.1.3.2. Vulnerability assessment and societal impacts.	ENV.2009.1.3.2.1. Costs of natural hazards	CSA	
			ENV.2009.1.3.2.2. Vulnerability assessment of buildings, lifelines systems and networks related to earthquakes.	Small or medium CP	
		6.1.3.3. Risk assessment and management.	ENV.2009.1.3.3.1. Risk, prevention and management of urban floods.	Small or medium CP- FP-SICA	
		6.1.3.4. Multi-risk evaluation and mitigation strategies.	Not open in 2009.		
6.2 Sustainable management of resources	6.2.1 Conservation and sustainable management of natural and man-made resources and biodiversity	6.2.1.1. Integrated Resource management.	Not open in 2009.		SDS - Better management of natural resources (In principle all areas and topics in this sub-activity)
		6.2.1.2 Water resources	ENV.2009.2.1.2.1. Water management and climate change impacts in the long-term perspective.	Large scale CP	
		6.2.1.3 Soil research and desertification	ENV.2009.2.1.3.1. Soil processes and modelling.	Large scale CP	
			ENV.2009.2.1.3.2 Desertification process and land degradation.	Small or medium CP-	

				FP-SICA	
		6.2.1.4 Biodiversity	ENV.2009.2.1.4.1. Assess the pan-European status of pollinators.	Small or medium CP	
		6.2.1.5 Urban development	ENV.2009.2.1.5.1. Sustainable development of coastal cities.	Large scale CP-IP-SICA	
		6.2.1.6 Integrated forest research	ENV.2009.2.1.6.1. Sustainable forest management as a tool to prevent unwanted forest fires.	CSA	
			ENV.2009.2.1.6.2. Forest ecosystem genomics	CSA	
	6.2.2 Management of marine environments	6.2.2.1 Marine resources	ENV.2009.2.2.1.1. Options for ecosystem-based management.	Large-scale CP	SDS - Better management of natural resources
			ENV.2009.2.2.1.2. Towards integrated European marine research strategy and programmes.	ERA-NET	
			ENV.2009.2.2.1.3. Support to "Maritime Partnership".	CSA	
			ENV.2009.2.2.1.4. Integrated Coastal Zone Management	Large scale CP-IP-SICA	
			ENV.2009.2.2.1.5. Management and protection of coral reefs in the Wider Caribbean.	Large scale CP-IP-SICA	

			ENV.2009.2.2.1.6. Contribution of subseafloor sampling programs to European deep-sea research.	CSA	
6.3 Environmental technologies	6.3.1 Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment	6.3.1.1 Water.	ENV.2009.6.3.1.1. Adaptation of water supply and sanitation systems to cope with climate change.	Large-scale CP	SDS - Better management of natural resources
		6.3.1.2 Soil.	ENV.2009.3.1.2.1. Construction technologies for mitigating the impacts of soil sealing on soil functions and services, including mitigation of flood risk.	Small or medium CP	
		6.3.1.3 Waste.	ENV.2009.3.1.3.1. Supporting sustainable nationwide and local waste processing industry in ACP countries: legal framework, economical incentives, business/organisational know-how.	CSA-SICA	
			ENV.2009.3.1.3.2 Activities towards the development of appropriate solutions for the use, recycling and final treatment of nanotechnology-based products (Joint call with NMP)	Small or medium CP	
		6.3.1.4 Clean Technologies.	Not open in 2009.		
		6.3.1.5 Built environment.	ENV.2009.3.1.5.1. Technologies for improved safety of the built environment in relation to flood events.	Small or medium CP	
			ENV.2009.3.1.5.2. Benchmarking and labelling of the sustainability performance of buildings.	Small or medium CP	
		6.3.1.6. Marine environment.	ENV.2009.3.1.6.1. Innovative coastal defence technologies.	Large-scale CP	
		6.3.1.7. Air technologies.	Not open in 2009.		

	6.3.2. Protection, conservation and enhancement of cultural heritage, including human habitat.	6.3.2.1. Assessment and conservation in cultural heritage.	ENV.2009.3.2.1.1. Technologies for protecting cultural heritage assets from risks and damages resulting from extreme events, especially in the case of earthquakes.	Small or medium CP	
			ENV.2009.3.2.1.2. Technologies for protecting the cultural heritage assets from risks and damages resulting from extreme events, especially in the case of fires and storms.	Small or medium CP	
		6.3.2.2. Networking, knowledge transfer and optimisation of results in cultural heritage.	Not open in 2009.		
		6.3.2.3. Environment technologies for archaeology and landscapes.	Not open in 2009.		
		6.3.2.4. Fostering the integration of cultural heritage in urban and rural settings.	Not open in 2009.		
6.3.3. Technology assessment, verification and testing	6.3.3.1. Risk assessment of chemicals and alternative strategies for testing.	ENV.2009.3.3.1.1. Screening methods for assessing the toxicological and eco-toxicological properties of chemicals.	Small or medium CP	Public health	
	6.3.3.2. Technology assessment.	ENV.2009.3.3.2.1. Improved Life Cycle Impact Assessment methods for better sustainability assessment of technologies.	Small or medium CP	SCP	
		ENV.2009.3.3.2.2. Sustainable biorefineries (Joint call with Energy, Food, NMP, TREN)	Large-scale CP	Climate change and clean energy, Sustainable transport, Better mgt of nat. resources	
		ENV.2009.3.3.2.3. Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries (Joint call with Energy, Food, NMP, TREN)	CSA		

		6.3.3.3. Environmental technologies verification and testing.	Not open in 2009.		
6.4 Earth observation and assessment tools for sustainable development	6.4.1 Earth and ocean observation systems and monitoring methods for the environment and sustainable development	6.4.1.1 Integration of European activities within GEO	ENV.2009.4.1.1.1. Contribution to observing systems for seismogenic hazards.	Large-scale CP	SDS - Climate change and clean energy; better management of natural resources (in principle are all Earth observation actions under 6.4.1 relevant);fighting global poverty
		6.4.1.2. Cross-cutting research activities relevant to GEO.	ENV.2009.4.1.2.1. Further structuring the European approach to Earth Observation.	CSA	
		6.4.1.3. Earth observation activities in emerging areas.	ENV.2009.4.1.3.1. Contribution to observing systems for environment and health monitoring and modelling.	Large – scale CP	
			ENV.2009.4.1.3.2. Earth observation in support of a sustainable exploitation of mineral resources.	Small or medium CP-FP-SICA	
		6.4.1.4. Developing capacity building activities in the domain of Earth Observation in the new EU countries and in the developing countries.	ENV.2009.4.1.4.1. Action in the domain of earth observation to support capacity building in GEO.	CSA	
	6.4.2 Forecasting methods and assessment tools for sustainable development taking into account different scales of observation.	6.4.2.1. Tools for impact assessment.	ENV.2009.4.2.1.1. Network of excellence for Impact Assessment Tools.	NoE	SDS- strategy as a whole, cross-cutting
		6.4.2.2. Sustainable development indicators.	Not open in 2009.		
		6.4.2.3. Interplay between social, economic and ecological systems.	ENV.200894.2.3.1. Assessment of economic instruments to enhance the conservation and sustainable use of biodiversity..	Small or medium CP	
			ENV.2009.4.2.3.2. Enhancing connectivity between research and policy-making in sustainable development.	Small or medium CP	

6.5. Horizontal actions	6.5.1. Dissemination and horizontal activities.		ENV.2009.5.1.0.1. Research excellence and major infrastructure in China and potential for S&T cooperation with EU partners in the area of environment.	CSA	SDS- strategy as a whole, cross-cutting
			ENV.2009.5.1.0.2. Knowledge transfer and uptake of EU-research results.	CSA	

## THEME 8 – SOCIO-ECONOMIC SCIENCES AND HUMANITIES<sup>13</sup>

The objective of this theme specifically mentions sustainability as one of the issues which should be dealt with. This theme includes the largest number of topics that take a broader look at sustainability and the relationship between economic, social and environmental factors. Cross-cutting topics deal with issues such as trade-offs between different aspects of sustainable development, future scenarios, effects of globalisation, and governance.

Relevant indicators: Economic development (categories growth, competitiveness and employment); Sustainable consumption; Social inclusion; Demographic changes; Climate change and energy; Management of natural resources; Global partnership; Good governance

Activity	Area	Topic <sup>14</sup>	Funding scheme	SDS key challenge / SDI
8.1 Growth, employment and competitiveness in a knowledge society - the European case	8.1.1 Changing role of knowledge throughout the economy	SSH-2009-1.1.1 Education in a European knowledge society	Small/medium CP	SDS- Social inclusion challenge–labour market participation
	8.1.2 Structural changes in the European knowledge economy and society	SSH-2009-1.2.1 Growth and service industries	Small/medium CP	SDS- Social inclusion challenge–labour market participation
	8.1.3 Strengthening policy coherence and coordination in Europe	SSH-2009-1.3.1. Public economic policy for growth	Small/medium CP	SDS – Strategy as a whole (growth focus)
8.2 Combining economic social and environmental objectives in a European perspective - Paths towards sustainable development	8.2.1 Socio-economic development trajectories	SSH-2009-2.1.1 New socio-economic concepts, paradigm shift and territorial	Small/medium CP	SDS – Strategy as a whole (dealing with global societal and environmental challenges)

<sup>13</sup> The projects indicated in this table cover one and or more of the three sustainable development pillars (economic, social and environmental). Nevertheless, the topics addressing the sustainability fully are part of the Activity 2.

<sup>14</sup> The identified topics are part of the SSH WP09 – (European Commission C(2008) 4598 of 28 August 2008)..

		dynamics in a long term perspective		
		SSH-2009-2.1.2 Cities and sustainable development	Small/medium CP – international cooperation	SDS-Strategy as a whole
		SSH-2009-2.1.3 Impacts of corporate social responsibility	Small/medium CP	SDS-Strategy as a whole (including potential trade-offs) – how is CSR beneficial to Lisbon and Gothenburg objectives
	8.2.2 Regional, territorial and social cohesion	SSH-2009-2.2.1 Social inequalities, their implications and policy options	Small/medium CP	SDS-Social inclusion challenge
	8.3.2 Societal trends and lifestyles	SSH-2009-3.2.1 Changes in consumption and consumer markets and consumer behaviour	Small/medium CP	SDS – SCP
		SSH-2009-3.2.3 Quality of work and impact on quality of life and economy	Small/medium CP	SDS- social inclusion and demography
	8.3.3 Cultural interactions in an international perspective	SSH-2009-3.3.1 Tolerance and cultural diversity	Small/medium CP	SDS - Social inclusion, demography and migration Integration, social cohesion

8.4 Europe in the world	8.4.1. Interactions and interdependences between world regions and their implications	SSH-2009-4.1.1 Competition and collaboration in access to oil, gas and mineral resources	Small/medium CP	SDS - Strategy as a whole (global/governance)
	8.4.2 Conflicts, peace and human rights	SSH-2009-4.2.1 Climate induced changes in water resources in Southern Europe and neighbouring countries as a threat to security	Small/medium CP - international cooperation	SDS- climate change
8.7 Foresight activities	8.7.1. Wide socio-economic foresight on key challenges	SSH-2009-7.1.1 The World and Europe in 2025	Small/medium CP; CSA – expert group	SDS-Strategy as a whole – global dimension
		SSH-2009-7.1.2 Foresight on the long term challenges for the Mediterranean area	Small/medium CP; CSA – expert group	SDS – management of natural resources

## THEME 9: Space

The objectives of 2009 work programme relate directly to the sustainable development strategy. The global monitoring of environment and climate change issues is an integral part of the programme. Information gathering in support of the Kyoto-protocol monitoring and the actions resulting from the Johannesburg Summit on sustainable development is mentioned explicitly in policy context of the Theme.

The main objective of the theme concerns support to activities such as the Global Monitoring for the Environment and Security, which contributes to the following indicators: Economic Development; Climate change and energy; Management of natural resources; Good Governance; and Global Partnership.

Activity	Area	Topic	Funding Scheme	SDS key challenge / SDI
9.1.1 Space-based applications at the service of European Society/ Integration, harmonisation, use and delivery of GMES data	9.1.1 Pre-operational validation of GMES services and products	SPA 2009 1.1.01 Stimulating the development of downstream GMES services	Small/medium CP; small CSA	SDS - Better management of natural resources Land monitoring and marine core service: observations of environmental developments and risks
		SPA 2009 1.1.02 Monitoring of climate change issues (extending core service activities)	Small/medium CP; small CSA	SDS – Climate change; Better management of natural resources
		SPA 2009 1.1.03 Integration of SatCom / SatNav with GMES for prevention and management of emergencies	Small/medium CP; small CSA	SDS - Better management of natural resources; prevention and management of various kinds of emergency
9.3 Cross-cutting activities		SPA 2009 3.2.01 International cooperation	CSA	SDS – Global partnership; support Africa in its sustainable economic and social development in accordance with the GMES and Africa initiative

## THEME 10 – SECURITY

The stated objective of this theme contains no specific reference to sustainability, even though the rationale mentions that the research under this theme could act as support to environmental policies. Furthermore, a brief reference is made to providing security in the context of natural disasters. This reference could lead to activities relevant to sustainable development. The second mission area 'Increasing the security of infrastructures and utilities' contributes as far as transport infrastructures are concerned indirectly to the challenge of sustainable transport. The fourth mission area 'Restoring security and safety in case of crisis' aims to ensure that governments, first responders and societies are better prepared prior to unpredictable catastrophic incidents, using new, innovative and affordable solutions. Besides the protection against terrorist acts, research will address incidents caused by natural disasters, industrial accidents and technological disasters.

On a theoretical level, sustainable development is closely linked to security in the broad sense of securing the carrying capacity of the ecosystem and securing the ability for present and future generations to meet their needs. In addition, it has often been claimed that the scarcity of resources linked to lower sustainability can lead to insecurity in terms of conflicts, and even armed combat.

Activity	Area	Topic <sup>15</sup>	Funding Scheme	SDS key challenge / SDI
1. Increasing the security of the citizens	1.3. Demonstration projects	SEC-2009-1.1.2 CBRNE (Chemical, Biological, Radiological, Nuclear agents and Explosives) (phase 1)	CSA	SDS – Public health
	1.3. Capability projects	SEC-2009-1.3.1 B-detection. Very fast alerting on broad substance type and identification. Low false alarm rates	CP	SDS – Public health
		SEC-2009-1.3.2. Drug precursors	CP	SDS – Public health
2. Increasing the security of infrastructures and utilities	2.2 Integration projects	SEC-2009-2.2.1. Integrated protection of rail transportation	CP	SDS – Sustainable transport
		SEC-2009-2.2.2. Integrated comprehensive approach to airport security	CP	SDS – Sustainable transport
4. Restoring security and safety in case of crisis	4.1 Demonstration projects	SEC-2009-4.1.1. Aftermath crisis management (phase 1)	CSA	SDS – Public health
	4.2. Integration projects	SEC-2009-4.2.1. First responder of the future	CP	SDS – Public health
	4.3. Capability projects	SEC-2009-4.3.2 Bio-dosimetric tools to manage radiological	CP	SDS – Public health

<sup>15</sup> The identified topics are part of the Security WP09 – (European Commission C (2008) 4598 of 28 August 2008).

		casualties		
		SEC-2009-4.3.3. Simulation, planning and training tools and methods for management of crises and complex emergencies	CP	SDS – Public health
6. Security and society	6.3 Foresight, scenarios and security as an evolving concept	SEC-2009-6.3.2 Research on rigorous methodologies for assessment of security investments and trade-off between security and other societal objectives (e.g. privacy and social cohesion)	CP, NoE and CSA	SDS - societal objectives, social cohesion
	6.4 Security Economics	SEC-2009-6.4.1 European Security Indicator: methodological research to provide a few select indicators of security and security policy in Europe measuring the effects of both insecurity and security policies on the economy	CP, NoE and CSA	SDS - Economic development

## CAPACITIES Work Programme

The objectives for this programme do not directly mention sustainability. However, two of its parts have direct relevance: "infrastructures" and "science in society". This relevance is cross-cutting to all key objectives to the SDS, as well as to most of the SDI.

Part	Subpart	Activity	Area	Topic	Funding Scheme	SDS key challenge / SDI
Infrastructures		Support to existing research infrastructures	ICT-based e-Infrastructures	INFRA-2009-1.2.3: Scientific Information Repository supporting the European FP7 Research Programme	CP, CSA	SDS – Strategy as a whole, cross-cutting
			Studies, conferences and coordination actions supporting policy development, including international cooperation, in all S&T fields	INFRA-2009-3.3 Studies, conferences and coordination actions supporting policy development in the context of international cooperation for e-Infrastructures	CSA	SDS – Strategy as a whole, cross-cutting
Science in society	5.1 A more dynamic governance of the science and society relationship	5.1.2 Broader engagement to anticipate and clarify political, societal and ethical issues	5.1.2.1 Broader engagement on science-related questions	SiS-2009-1.2.1.1 Structuring Public Engagement in Research (PER)	CSA	SDS – Strategy as a whole, cross-cutting

		5.1.3 Strengthening and improving the European Science system	5.1.3.2 Promoting trust and self- regulation in the scientific community	Sis 2009-1.3.2.1 Governance and Ethics of the responsible development of Nanosciences and Nanotechnologies	CSA	SDS – sustainable consumption and production
--	--	--	---	---	-----	--