

**WORK PROGRAMME 2009**

**COOPERATION**

**THEME 6**

***ENVIRONMENT (INCLUDING CLIMATE CHANGE)***

*(European Commission C(2008)4598 of 28 August 2008)*

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## **THEME 6: ENVIRONMENT (INCLUDING CLIMATE CHANGE)**

**Objective of the Environment Theme** (according to FP7 Specific Programme for 'Cooperation'): To promote sustainable management of the natural and human environment and its resources by advancing our knowledge on the interactions between the biosphere, ecosystems and human activities, and developing new technologies, tools and services, in order to address in an integrated way global environmental issues. Emphasis will be put on prediction of climate, ecological, earth and ocean systems changes, on tools and on technologies for monitoring, prevention and mitigation of environmental pressures and risks including on health and for the sustainability of the natural and man-made environment.

### **I CONTEXT**

#### Approach for 2009

**The main policy drivers** for the work programme 2009 are still the EU research's prominent contribution to implementation of relevant international commitments<sup>1</sup>, protocols<sup>2</sup>, initiatives<sup>3</sup>, as well as existing and emerging EU environmental legislation and policies<sup>4</sup> including implementation of the 6<sup>th</sup> Environmental Action programme, associated thematic strategies<sup>5</sup>, the action plans<sup>6</sup> and, not least, the implementation of the European Research Area (ERA)<sup>7</sup>. Lately, a **major change in political driver** is the focus on climate and environmental change, their consequences and link to energy. Therefore, an overarching priority in 2009 is adaptation to climate and environmental change, and related issues such as sustainable cities and coastal zones. These complex issues need to be addressed across the Theme in a problem-solving and coordinated manner, including socio-economic aspects. This overarching priority is in accordance with the policy initiatives to be adopted by the Commission in 2008 on 'Adaptation to climate change', 'Sustainable production and consumption' and 'Greening transport' as well as the priorities set out in the Conclusions of the Spring European Council 2008. In addition, the chosen overarching priority supports the policy initiatives to be adopted in 2008 in the area of research, notably those concerning Maritime research strategy and European strategies for joint programming and for international cooperation.

In the context of global challenges, there is a need in 2009, to rebalance the three elements of environment research and its contribution to sustainable development – 'understanding':

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<sup>1</sup> UN Framework Convention on Climate Change (UNFCCC), UN Convention on Biological Diversity, UN Convention on Combating Desertification, International Strategy for Natural Disaster Reduction

<sup>2</sup> Kyoto and Montreal protocols

<sup>3</sup> World Summit on Sustainable Development, Global Earth Observation system of System initiative (GEOSS), Intergovernmental Panel on Climate Change (IPCC)

<sup>4</sup> EU Water Initiative, EU Water Framework Directive, European Climate Change Programme II

<sup>5</sup> Thematic strategies on air pollution, pesticides, soil, waste, urban environment, marine environment and sustainable management of resources. Commission Communications 'Halting the Loss of Biodiversity by 2010', 'Limiting Global Climate Change to 2 Degrees Celsius', Green Paper 'Towards a Future Maritime Policy of the Union' and 'Living with the effects of inevitable climate change in Europe – options for Community action'.

<sup>6</sup> Environment and Health Action Plan (2004-2010) and Environmental Technologies Action Plan (ETAP)

<sup>7</sup> The Green Paper "The European Research Area: New Perspectives" (2007)

'assessing impact'; and 'responding' - in favour of the last ('responding'), where efforts in the first two calls focussed very successfully on the first ('understanding'). To maximise impact, responses to the challenges are sought in close collaboration with other Themes. With this in mind, the rationale and prioritisation of 2009 is function of changes in major political and S/T drivers and coverage of the objective and priorities of the Environment Theme in the first two calls, in particular the gaps remaining to be filled.

To promote the structuring of the ERA, two ERA-Nets will be established in 2009, in the fields of climate change and marine environment. In addition, strategic partnerships will support a concerted dialogue between the scientific community, the industry and policy makers in the context of a European strategy and programme on Marine and Maritime research, as set out in the Blue Book from 2007.

- **SME relevant research**

In the Environmental Technologies Activity, topics have been introduced which contribute to implementing the Strategic Research Agendas of relevant Technology Platforms<sup>8</sup> and which are specifically designed to encourage SME and industry participation in research and innovation. In order to ensure impact of the research efforts, the active participation of industrial partners represents an added value, which will be reflected in the evaluation. This approach is pursued through the following topics:

- ENV.2009.3.1.1.1 Adaptation of water supply and sanitation systems to cope with climate change
- 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
- 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
- ENV.2009.3.1.5.1 Technologies for improved safety of the built environment in relation to flood events
- ENV.2009.3.1.5.2 Benchmarking and labelling of the sustainability performance of buildings
- ENV.2009.3.2.1.1 Technologies for protecting cultural heritage assets from risks and damages resulting from earthquakes
- ENV.2009.3.2.1.2 Technologies for protecting cultural heritage assets from risks and damages resulting from extreme events, especially in the case of fires and storms
- ENV.2009.3.3.1.1 Screening methods for assessing the toxicological and ecotoxicological properties of chemicals
- ENV.2009.3.3.2.1 Improved Life Cycle Impact Assessment methods for better sustainability assessment of technologies
- ENV.2009.3.3.2.2 Sustainable biorefineries
- ENV.2009.3.3.2.3 Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of biorefineries

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<sup>8</sup> Technology Platform on Sustainable Chemistry, Technology Platform on Forestry, Technology Platform on Water Supply and Sanitation, Technology Platform on Construction, and Technology Platform on Sustainable Minerals Resources

• **International Cooperation**

International cooperation represents an important dimension of all research activities in the Environment Theme. There is provision for the financing of the participation of research partners from the International Cooperation Partner Countries (ICPC<sup>9</sup>). The Specific International Co-operation Actions (SICA) are targeted to International Cooperation Partner Countries (ICPC), and for these SICA the minimum participation of two Member States or Associated Countries plus two ICPC countries is an eligibility criterion (see page 58).

Notwithstanding the general opening of all topics to international cooperation, a comprehensive and coherent set of cooperation activities is defined for major cooperation countries, USA, China, Russia, India, Brazil, South Africa, as well as for major cooperation regions, the Mediterranean and Sub-Saharan African countries in particular, based on mutual benefit and depending on the category of countries involved (industrialised countries, emerging economies, developing countries) and the differentiated interests and research capacities.

<b>SICA or CSA with participation of ICPCs as eligibility criteria</b>	<b>Target country/ area (if specified)</b>
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)	Africa
ENV.2009.1.1.5.2 Climate induced changes in water resources in southern Europe and neighbouring countries as a threat to security	North Africa and Mediterranean partner countries, Middle East
ENV.2009.1.2.1.2 Methods to quantify the impacts of climate and weather on health in developing low income countries	Low income developing countries
ENV.2009.1.3.3.1 Risk, prevention and management of urban floods	Asia, e.g. China/ India/ Bangladesh
ENV.2009.2.1.3.2 Desertification process and land degradation	(not specified, but problem for North Africa/ Mediterranean)
ENV.2009.2.1.5.1 Sustainable development of coastal cities	India, South-East Asia
ENV.2009.2.2.1.4 Integrated Coastal Zone Management	Mediterranean, Black Sea Basin
ENV.2009.2.2.1.5 Management and protection of coral reefs in the Wider Caribbean	Caribbean region
ENV.2009.3.1.3.1 Supporting sustainable nationwide and local wastes processing industry in ACP countries: legal framework, economical incentives, business/ organisational know-how	ACP countries (eligibility criterion)
ENV.2009.4.1.3.2 Earth observation in support of a sustainable exploitation of mineral resources	(not specified)
ENV.2009.4.1.4.1 Action in the domain of EO to support capacity building in GEO	Developing countries (eligibility criterion)
ENV.2009.5.1.0.1 Research excellence and major infrastructure in China and potential for S&T cooperation with EU partners in the	China (eligibility criterion)

<sup>9</sup> The list of ICPC countries is included as an Annex 1 to the Cooperation work programme 2009.

area of environment	
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In addition to the SICA topics identified above, several other topics have been specifically highlighted as being research areas which are particularly well suited for international cooperation. For these topics, the active participation of (a) relevant international partner(s) (in particular from countries with whom the EC has signed S&T cooperation agreements<sup>10</sup>) should add to the scientific and/ or technological excellence of the project, lead to an increased impact of the research to be undertaken and promote long term research cooperation. These aspects will be considered specifically during the evaluation of all topics concerned by international cooperation:

Topic	Target country/ area (if specified)
ENV.2009.1.1.1.1 Climate dynamics and abrupt changes – analysis of the palaeo-record	(open to all)
ENV.2009.1.3.1.1 Wild fires in the context of climate and social changes	Mediterranean, North Africa
ENV.2009.1.3.2.2 Vulnerability assessment of buildings, lifelines systems and networks related to earthquakes	(open to all)
ENV.2009.2.1.3.1 Soil processes and modelling	USA
ENV.2009.2.1.6.2 Forest ecosystem genomics	North America (USA and/ or Canada) (eligibility criterion)
ENV.2009.3.1.1.1 Adaptation of water supply and sanitation systems to cope with climate change	(open to all)
ENV.2009.3.1.6.1 Innovative coastal defense technologies	(open to all)
ENV.2009.3.2.1.1 Technologies for protecting cultural heritage assets from risks and damages resulting from earthquakes	ICPC, in particular Mediterranean partner countries
ENV.2009.3.2.1.2 Technologies for protecting cultural heritage assets from risks and damages resulting from extreme events, especially in the cases of storms and fires	ICPC
ENV.2009.4.1.1.1 Contribution to observing systems for seismic hazards	(open to all)
ENV.2009.4.1.3.1 Contributing to observing systems for environment and health monitoring and modelling	(open to all)
ENV.2009.4.2.3.1 Assessment of economic instruments to enhance the conservation and sustainable use of biodiversity	Latin America

• **Cross-thematic approaches**

**Coordinated topics and joint calls with other Themes of the Cooperation programme** are appropriate means to address complex and policy relevant issues in a problem-solving and integrated way. These actions include:

- joint call on biorefineries (involving Themes: '2. Food, Agriculture and Fisheries, and Biotechnology', '4. Nanosciences, Nanotechnologies, Materials and New Production Technologies', '5. Energy', and '6. Environment (including climate change)')

<sup>10</sup> Argentina, Australia, Brazil, Canada, China, Chile, Egypt, India, Korea, Mexico, Morocco, Russia, South Africa, Tunisia, Ukraine, United States and New Zealand

- coordinated topic related to impacts of climate change to regional and global water security (with Theme '8. Socio-economic Sciences and Humanities')
- Coordinated topics on marine and maritime sciences with a view of promoting a "Sustainable use of the Seas and Oceans". The following topics will be covered:
  - Theme 2- "Food, Agriculture and Fisheries, and Biotechnology": Integration of aquaculture and fisheries in the coastal zone; Importance of foraging fish in the ecosystem; Biomass from micro- and macro-algae for industrial applications
  - Theme 5- "Energy": Deep off-shore multi-purpose renewable energy conversion platforms for wind/ocean energy conversion; Coordination action on off-shore renewable energy conversion platforms; Algal and other suitable non-food aquatic biomass feedstock for 2<sup>nd</sup> generation biofuel production
  - Theme 6- "Environment": Options for ecosystem based management; Towards integrated European marine research strategy and programmes; Support to "Maritime Partnership"; Integrated coastal zone management; Climate change impacts on the marine environment: research results and public perception.
- a joint call with Theme 4. Nanosciences, Nanotechnologies, Materials and New Production Technologies on "use, recycling and treatment of nanotechnology-based products" is foreseen to be published as a separate call in November 2008.

- **Dissemination actions**

**Visibility, dissemination and uptake of research results, and science-policy links** are further promoted and developed through innovative means across the activities. This is the reason behind cross-cutting topics, including regrouping and reopening of topics on dissemination and exploitation of data not covered in the 2007 call.

- ENV.2009.1.1.6.3 Climate change impacts on the marine environment: research results and public perception
- ENV.2009.4.2.3.2. Enhancing connectivity between research and policy-making in sustainable development
- ENV.2009.5.1.0.2 Knowledge transfer and uptake of EU-research results

- **ERA-Net**

In the 2009 work programme, specific ERA-Net actions have been identified taking into account both the existing ERA-Net activities and the inputs received in the consultation phase. The topics below will be subject to a joint call that will be launched separately (FP7-ERANET-2009-RTD) with a requested Community contribution up to EUR 2 000 000 per project:

- ENV.2009.1.1.6.4 ERA-Net on Climate Change Impacts and Responses
- ENV.2009.2.2.1.2 Towards integrated European marine research strategy and programmes

- **Usage of Earth observation data**

Under a specific arrangement with the European Space Agency (ESA), those projects selected for funding will be granted access to ESA data as Category-1, i.e. research and application development, especially on long term Earth science issues, at cost of reproduction, within the scope of the specific proposal. (See detailed terms and conditions at <http://eopi.esa.int>). The usage of ESA data is encouraged for all activities of the Environment Theme under this call for proposals (6.1, 6.2, 6.3, and 6.4).

- **Theme-specific information**



The **budget** for the 2009 work programme will, as for the first two work programmes under FP7, be implemented on an annual basis and is divided into 11 sub-activities with separate indicative budgets.

The following funding thresholds will apply to the FP7-ENV-2009-1 call:

- Collaborative Projects in this work programme are divided into a) small or medium-scale focused research projects, and b) large-scale integrating project:
  - For small or medium-scale focused research project, the requested Community contribution shall not exceed EUR 3 500 000, except for topic ENV.2009.4.2.3.2, where the requested Community contribution shall not exceed EUR 1 500 000.
  - For large-scale integrating project, the requested Community contribution shall be from EUR 4 000 000 up to EUR 7 000 000.
- Network of Excellence (NoE), the requested Community contribution shall be up to EUR 7 000 000.
- CSA, the 'Coordination and Support Action' funding scheme, allows for 2 different types of actions to be financed: a) coordinating action or b) supporting action. The requested Community contribution for these coordinating or supporting actions shall not exceed EUR 1 000 000, except for topic ENV.2009.1.2.3.1 where the requested Community contribution shall be up to EUR 4 000 000.
- For CSA, ERA-Net – coordinating action, the requested Community contribution shall not exceed EUR 2 000 000.
- For 'Research for the benefit of specific groups', the requested Community contribution shall not exceed EUR 1 500 000.

**It is important to note that the above mentioned funding thresholds will be applied as eligibility criteria and that the proposals not fulfilling these thresholds are considered as ineligible. Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and partnership.**

All proposals of the call FP7-ENV-2009-1, including Collaborative Projects (large-scale integrating project) and Networks of Excellence, will be evaluated under the one-step procedure. In the case of large-scale integrating Collaborative Projects and Network of Excellence, maximum one proposal will be retained per topic. In the case of small and medium-scale focused Collaborative Projects maximum two proposals will be retained per topic, except for ENV.2009.4.2.3.2, where maximum three proposals will be retained. There is no maximum number of proposals for Coordination and Support Action, except for topic ENV.2009.5.1.0.1, for which one proposal will be retained.

At the Panel Review stage of proposal evaluation, a ranked list will be drawn up for every indicative budget shown in the call fiche.

If necessary, the panel will determine a priority order for proposals which have been awarded the same score within a ranked list. The approach described in Annex 2 of the Cooperation work programme will be applied successively for every group of *ex aequo* proposals requiring prioritisation, with the addition that among the proposals that address topics not otherwise covered by more highly-rated proposals, SICA proposals are given first priority.

In case there would be an insufficient number of eligible proposals passing the evaluation thresholds in order to consume the budget of a given Sub-Activity, the remaining indicative budget of that Sub-Activity will be transferred to the other Sub-Activities pro-rate. In case additional funding, such as third country contribution, becomes available or when residual budgets remain under the Sub-Activities, the following formula and criteria (in the order indicated) shall be used to establish the list of proposals suggested for funding:

- 1) Maximising coverage of the work programme
- 2) Prioritising SICAs
- 3) Maximising the number of projects funded and ensuring efficient use of the overall call budget

For the Biorefinery Joint Call FP7-2009-BIOREFINERY (topics ENV.2009.3.3.2.2 and ENV.2009.3.3.2.3), no upper funding thresholds will apply as eligibility criteria, neither for the Collaborative Project proposals nor for the Coordination and Support Action proposals. The Collaborative Project proposals will be evaluated under the two step procedure and the Coordination and Support Action proposals under the one step procedure.

## II CONTENT OF CALLS IN 2009

### Activity 6.1 Climate Change, pollution and risks

#### **Sub-Activity 6.1.1 Pressures on environment and climate**

**Indicative budget: EUR 32.5 million**

In 2009, support will be given to integrated actions for understanding, analysing and predicting climate change and its impacts, with emphasis on abrupt changes and extreme events. Interactions between climate change, ecosystems and greenhouse gases budgets and changes in extreme hydrological events in Europe, advanced climate and earth system modelling, climate impacts and public perception, links between climate and water security will be addressed in line with results of the 4<sup>th</sup> IPCC assessment report. Adaptation to climate change and its impacts in Europe and Africa, and actions supporting the 'Bali Roadmap' and related post-2012 climate policy initiatives will receive particular attention.

#### **Area 6.1.1.1 The Earth System and Climate: Functioning and abrupt changes**

##### **ENV.1.1.1.1 Climate dynamics and abrupt changes – analysis of the palaeo-record**

Research should include the reconstruction and integrated analysis and modelling of past conditions with a focus on the dynamics of significant climate transitions and events associated with interglacials. Multidisciplinary approaches should be employed in integrating of palaeo archives (taking into account their diverse locations, proxy quality, time resolution etc) using modelling/ assimilation for dynamically consistent reconstruction of significant transitions, key processes, forcing and feedbacks of the earth system, in particular those involving biological processes and biogeochemical cycles. It is viewed that the active participation of relevant partners to ensure the widest geographical coverage of key proxy archives and the involvement of key specialists should add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken. This will be considered by the evaluators.

##### **Funding scheme: Collaborative Project (large scale integrating project)**

*Expected impact: Significant strengthening of the understanding and quantification of earth system dynamics and feedback processes of potential relevance for the climate change and possible abrupt changes in the coming centuries.*

#### **Area 6.1.1.2 Emissions and pressures: Natural and anthropogenic**

Not open in 2009.

### **Area 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**

The aim is to quantify the annual-to-decadal changes in the carbon and greenhouse gas (GHG) budget of European terrestrial ecosystems, including forests, soils and low-input and high-input agricultural production systems, attribute these changes to natural and anthropogenic drivers (including effects of past management), taking also into account the relevant socio-economic aspects, and assess the vulnerability of terrestrial carbon pools and the risk of positive feedbacks in the climate-carbon system. Observations should also be expanded in under-sampled regions (e.g. eastern and southern Europe) and include CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O and lateral C and N fluxes from local to continental scale. Results should be analysed in view of existing and future EU policies and international commitments, post-2012 discussions and future needs of the UNFCCC process.

##### **Funding scheme: Collaborative Project (large scale integrating project)**

*Expected impact: Quantification of temporal variability of European carbon and GHG budgets, and identification of the main driving processes and assessment of future vulnerability of sources and sinks. A more solid foundation for policy in relation to international commitments and post 2012 initiatives.*

### **Area 6.1.1.4 Future climate**

#### **ENV.2009.1.1.4.1 Process-oriented evaluation of Earth System Models with emphasis on climate feedbacks**

The aim is to define the diagnostics and metrics that can be used to investigate those climate feedback processes that form the major source of uncertainty in future climate predictions of Earth System Models (ESMs). Research will define dedicated model and observational analyses that help in identifying weaknesses in the current climate model representations of processes and feedbacks controlling interactions in the Earth system. Systematic approaches should be developed, to facilitate the complex evaluation and the improvement of ESMs. These approaches should use ground-based, airborne and satellite observations, going beyond simple data-model comparisons.

##### **Funding scheme: Collaborative Project (small or medium-scale focused research project)**

*Expected impact: Quantification and reduction of the uncertainty in the current representation of the various processes and feedbacks involved in ESMs with increasing degree of importance and complexity. Improvement of the quality of ESM predictive skill. Strengthening of the collaboration between modelling and measurement scientific communities to develop diagnostics and metrics for broad evaluation use.*

**Area 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**

The quality of seasonal forecasts and decadal climate change predictions should be improved over the Sub-Saharan African region (east to west) through better use and development of forecasting models on seasonal to decadal climatic scales. It will increase our confidence in the simulated sensitivity of rainfall perturbations due to changes of increased greenhouse gases, land-use, etc. Furthermore, a better understanding of climate impacts and improved forecasting capabilities are needed in key sectors such as water resources and agriculture. With these tools and taking into account the socio-economic aspects of African societies, the vulnerability to inter-annual variations and longer trends in climate can be evaluated. This in turn will lead to adaptation strategies for which their feasibility and associated costs will be assessed. This topic needs to have a strong involvement of the African research community.

**Funding scheme: Collaborative Project (small- or medium scale focused research project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries**

*Expected impact: Improved quality of the seasonal forecasts and decadal climate change predictions over the Sub-Saharan region (east to west). Improved forecasting capabilities and better understanding of climate impacts in key sectors, such as agriculture and water resources for development of early warning systems for food security, risk management and civil protection in Africa. Development of adaptation strategies and assessment of the feasibility and costs.*

**ENV.2009.1.1.5.2 Climate induced changes in water resources in southern Europe and neighbouring countries as a threat to security<sup>11</sup>**

The project will analyse ongoing and future climate induced changes in hydrological budgets and extremes in southern Europe and neighbouring countries. These changes will be analysed in a multi-disciplinary way under the frame of threats to national and human security. This will include the assessment of changes in mean flows, frequency and magnitude of extreme precipitation (intensity and duration), run-off, stream flows ground water balance, social and economic factors. Modelling capabilities should be improved to better quantify such changes over the next decades integrating meteorological/ climatic, hydrological and biological aspects to better quantify such changes and associated risks. Research needs to combine analysis of vulnerable regions of southern Europe and one or more of the targeted SICA regions.

**(Coordinated topic with Theme '8. Socio-Economic Sciences and Humanities')**

**Funding scheme: Collaborative project (small or medium-scale focused research project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries, targeted to North Africa and Mediterranean partner countries, and/ or Middle East**

*Expected impact: Reduction of uncertainties of climate change impacts on hydrology in the identified regions. Better assessment of climate effects to water resources, water uses and expected security risks. Better basis for achieving water security.*

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<sup>11</sup> Topic coordinated with Theme '8. Socio-Economic Sciences and Humanities', see topic SSH.2009.4.2.1 of the Theme 8 WP2009

### **Area 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**

The aim is to develop and apply a comprehensive and integrated methodology based on latest research results on impacts of and vulnerability to climate change and provide a common platform for the assessment of climate change impacts and vulnerability in key sectors at European level, considering as appropriate neighbouring countries. This will be applied to assess the cost-effectiveness of adaptation measures to attenuate the expected impacts taking into account cross-sectoral benefits and at scales relevant for implementing adaptation measures. A significant step forward should be made here to reduce uncertainties in impact assessment and by developing a metrics which is used to ensure comparability in quantifying impacts and vulnerability.

**Funding scheme: Collaborative Project (small- or medium scale focused research project)**

*Expected impact: Establishment and use of methodologies for the assessment of climate change vulnerability, impacts, and related costs of adaptation measures as European contribution to the Nairobi work programme on impacts, vulnerability and adaptation to climate change (UNFCCC) and the forthcoming Commission White Paper on Adaptation to Climate Change.*

#### **ENV.1.1.6.2 Options for response strategies integrating sectoral and cross-sectoral measures in view of post-2012 climate initiatives**

The project should develop options for strategies which will integrate sectoral and cross-sectoral instruments and measures for mitigation and adaptation to Climate change and assess their ecological, social and economic costs, benefits and trade-offs. Portfolios or mixes of strategies should be investigated that embrace both mitigation and adaptation including an analysis of the role of the private sector. The geographical focus of the response measures should be Europe, considering EU and Member States instruments and measures but embedded in the global context. The proposal should also develop new global low emission scenarios for limiting climate change, taking into account current policies, developments, and objectives (i.e. the 2°C target). Emission scenarios should have global coverage differentiated for key countries and regions, considering mitigation and adaptation measures in the key countries (e.g. USA, China, India, etc.). The project should take into account essential components of adaptation and mitigation identified in the context of the developments for a post-2012 Climate change agreement.

**Funding scheme: Collaborative Project (small or medium-scale focused research project)**

*Expected impact: Better options for EU strategies and policy measures on mitigation and adaptation to Climate change integrating sectoral and cross-sectoral approaches. Provision of low emission scenarios supporting the IPCC and post-2012 process, respectively. Follow up the forthcoming Commission White Paper on Adaptation to Climate Change.*

### **ENV.2009.1.1.6.3 Climate change impacts on the marine environment: research results and public perception<sup>12</sup>**

This action should include a study and an international conference to promote and exploit EU research results related to climate change impacts on the marine environment and address public perception. The aim is to discuss public knowledge and perception of these research results, and responses regarding the impacts and risks it has for the marine environment. This action will also address the adaptation of the marine environment to the expected climate change, including the socio-economic consequences. It should raise the awareness of citizens to research results in this specific area to prepare society for necessary mitigation and adaptation measures. The proposals should be able to demonstrate that they will be able to obtain the widest audience to the conference and that they will be able to obtain a wide and balanced participation from affected European countries and beyond.

#### **Funding scheme: Coordination and Support Action (supporting action)**

*Expected impact: Better exploitation and dissemination of research results related to climate change impacts on the marine environment, increased public knowledge and perception of the climate impact on the marine environment.*

### **ENV.2009.1.1.6.4 ERA-NET on Climate Change Impacts and Responses<sup>13</sup>**

The ERA-Net should facilitate collaboration between funding agencies and their research programmes on climate change, which should result in the alignment of national research agendas, and lead to transnational research activities including joint calls for proposals. It should focus on assessing climate predictions, impacts, vulnerability, monitoring and modelling, and regional adaptation response strategies.

#### **Funding scheme: ERA-Net (CSA-CA, with a requested Community contribution of up to EUR 2 million)**

*Expected impact: Reinforcement and deepening of cooperation/ coordination of research programmes on climate change. Optimisation of research spending and maximising the research outcome to address climate policy needs.*

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<sup>12</sup> This coordinated topic (ENV.2009.1.1.6.3) on 'sustainable use of seas and oceans' is implemented in coordination with other Themes. For the other coordinated topics, see the work programme 2009 parts of Theme 2. Food, Agriculture and Fisheries, and Biotechnology and Theme 5. Energy.

<sup>13</sup> This topic is part of a joint DG RTD ERA-Net call (FP7-ERANET-2009-RTD)

## **Sub-Activity 6.1.2 Environment and health**

**Indicative budget: EUR 21 million**

In 2009, increased attention will be paid to research on the health effects of climate change in Europe as well as globally, in particular in low income countries. Research on health effects of environmental stressors other than climate change will continue to be supported, with particular attention paid to those of continued (ambient air pollution) or increasing importance (electromagnetic fields). Attention will continue to be paid to environmental health risk analysis and policy development in particular in the context of Environment and Health Action Plan.

### **Area 6.1.2.1 Health impacts of climate change**

#### **ENV.2009.1.2.1.1 Climate change and water related health issues in Europe**

The aim is to investigate how the short and long-term human health, especially that of vulnerable populations, will be affected by the (re)-emergence of water-related pathogens as a result of changing climatic conditions such as increased or decreased rainfall. Studies can be supported to investigate transmission and proliferation patterns of pathogens and improved detection methods. Focus will be on sources for drinking water supply (ground water, wells, lakes, etc) and/or bathing waters in affected regions. Measures to mitigate possible adverse health effects will be proposed and evaluated including vulnerability and risk/ benefit aspects.

**Funding scheme: Collaborative Project (small- or medium scale focused research project)**

*Expected impact: Improved detection, transmission pattern and health effect data on (re)emerging pathogens in water as a result of changing climatic conditions. Concrete proposals for mitigation. Support for EU policies on climate change, drinking and bathing water quality, and the European Environment and Health Action Plan.*

#### **ENV.2009.1.2.1.2 Methods to quantify the impacts of climate and weather on health in developing low income countries**

The aim is to develop methods for the quantification of the impacts of climate and weather on various health outcomes in low-income regions. Direct as well as indirect impacts on health should be investigated. The developed methods should allow prioritisation of the health impacts from the viewpoint of their magnitude and graveness and should be tested on case studies in at least three different countries. Effective transfer and use of the research results will be ensured by involvement of users and stakeholders in the project.

**Funding scheme: Collaborative Project (small- or medium scale focused research project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries**

*Expected impact: More accurate and reliable quantifications of the impact of climate change on health outcomes in low-income developing countries. Enhanced capacity of relevant stakeholders to focus on and cope with priority health impacts of climate change. Support to EU policies (including the external dimension) on climate change and health.*



**Area 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**

The aim is to quantify emissions from the transport sector to assess the impact of particulate matter (size fractions, chemical composition) on human health, in order to design appropriate adaptation and mitigation strategies. Pollutant-specific human exposure to air pollution should be quantified in the urban environment (e.g. the role of ultra fine particles, impact of vehicular bio-fuels), near major airports (emissions from heavy ground transport as well as airplane operation) and coastal areas close to major shipping lanes. Methodologies need to be developed that connect the various transport sources, incorporate the latest scientific methods to describe the distribution, transformation processes and transport (including long-range) of pollutants, and address the health impacts in a more integrated manner. Integrated modelling systems are urgently needed to investigate the whole chain of processes from traffic flows and emissions to concentrations, exposure and the burden of disease of the populations. Information from existing monitoring networks should be used. In addition, targeted campaigns may be required to establish specific datasets, for example where measurements need to reflect actual exposure to pollution caused by the transport sector. Results should be analysed in view of existing and future EU policies and international commitments.

**Funding scheme: Collaborative Project (large-scale integrating project)**

*Expected impact: Improved knowledge base for the impact of transport emissions on health. Support for further development of policies for emission reduction. Support for urban planning in a wider policy and health context, e.g. free cycling paths, schools and airport infrastructure planning. Establishment of emission reduction targets for shipping. Support for the EU air pollution policies including shipping.*

**ENV.2009.1.2.2.2 Health effects from electromagnetic fields (EMF): improved exposure assessment to wireless communication devices**

The aim of the project will be to establish whether humans are at risk from increased exposure to electromagnetic fields from wireless networks at work, schools or homes. Multiple exposures from several sources should be taken into account. Exposure to different parts of the body should be estimated and potential risks to health evaluated. The project can include in vitro and in vivo investigations. The consortium should provide to interested stakeholders up-to-date scientific evidence-based risk assessment data on EMF and health and should ensure proper risk communication including risk/ benefit aspects.

**Funding scheme: Collaborative Project (small- or medium scale focused research project)**

*Expected impact: Improved science-based risk assessment data (exposure, effects) of EMF exposures from wireless communication devices in European populations in support of Community policies in this field.*

**Area 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**

The aim will be to bring together and coordinate the activities of interested stakeholders in human biomonitoring in EU member states, in order to take forward the Europe-wide pilot project on human biomonitoring, as called for by the European Environment and Health Action Plan. The project will contribute to the definition, organisation and management of joint initiatives on human biomonitoring. It will also contribute to the integration of human biomonitoring data with health/ environment monitoring data.

**Funding scheme: Coordination and Support Action (coordinating action – requested Community contribution of up to EUR 4 million)**

*Expected impact: Harmonisation of national activities on human biomonitoring to contribute to better data comparability across the EU. Provision of policy support for the implementation of the Environment and Health Action Plan, especially the Action 3 (Develop a coherent approach to biomonitoring in Europe).*

## **Sub-Activity 6.1.3 Natural Hazards**

**Indicative budget: EUR 13 million**

Work programme 2009 will emphasise research on climate/ meteorological related hazards, such as wild fires and drought in a changing climate and urban floods as an emerging policy need to support the Flood Directive. Seismic vulnerability of buildings will be studied in the context of European construction Technology Platform. Societal impacts and economic costs of climate/meteorological related hazards and disasters will be addressed to enable better diagnostics and effective design of future prevention strategies.

### **Area 6.1.3.1 Hazard assessment, triggering factors and forecasting**

#### **ENV.1.3.1.1 Forest fires in the context of climate and social changes**

Research will study, improve and integrate possible scenarios of climate change impacts, up-to-date drought and heat wave knowledge, human impacts, social and economic changes in order to better assess future fire regimes (e.g. size, frequency thresholds, intensity, spatial and temporal patterns, etc.) and landscape responses in affected European and Mediterranean regions. Attention will also be given to the rural-urban interface and to potential new fire prone areas not affected up to now, as well as new approaches to risk reduction and management. It is viewed that the active participation of relevant partners from the Mediterranean and North African countries, and other third country partners sharing similar Mediterranean type ecosystems or having long experience in fire research, should add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken. This will be considered by the evaluators.

#### **Funding scheme: Collaborative Project (large scale integrating project)**

*Expected impact: Enhanced capacity to assess vulnerability and risks for forest fires; improved management and prevention strategies for forest fires. Sharing common fire risk-associated research to climate change across continents.*

### **Area 6.1.3.2 Vulnerability assessment and societal impacts**

#### **ENV.2009.1.3.2.1 Costs of natural hazards**

Compile, analyse and assess existing methods and approaches enabling to better estimate the costs of hazards and disasters (*climate and hydro-meteorology related hazards*) including direct damages, indirect losses and costs for emergency response and preparedness. Evaluate knowledge and gaps on direct and indirect economic benefit of prevention measures. Establish best practices and map case studies in Europe on the effect of risk prevention measures and identify research needs.

#### **Funding scheme: Coordination and Support Action (coordinating action)**

*Expected impact: Improved access to state-of-the-art knowledge for costs of natural hazards with regard to methods, terminology, data collection methods and data gaps. More accurate estimates of economic benefits of disaster prevention/ mitigation measures.*

### **ENV.2009.1.3.2.2 Vulnerability assessment of buildings, lifelines systems and networks related to earthquakes**

Based on past and ongoing initiatives, the project is to develop unified European probabilistic/quantitative methods for systemic physical vulnerability evaluation for buildings, lifeline networks and infrastructures to earthquakes. Methods should explore interdependence of vulnerability between elements at risk and fragility curves should be assessed. Physical vulnerability should be linked to the evaluation of non-structural and economic losses and human casualties. Effectiveness of developed methods should be demonstrated through case studies. It is viewed that the active participation of third country partners with relevant long lasting research experience should add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken. This will be considered by the evaluators. (Contribution to the Implementation Action of the European Construction Technological Platform, Priority G)

**Funding scheme: Collaborative Project (small- or medium scale focused research project)**

*Expected impact: Increased understanding of vulnerability of various societal elements at risk, including the inter-element synergies, to promote more efficient use of resources for seismic risk mitigation. Establishment of a European reference for seismic societal vulnerability. Support the Strategic Research Agenda of the European Construction Technology Platform.*

### **Area 6.1.3.3 Risk assessment and management**

#### **ENV.2009.1.3.3.1 Risk, prevention and management of urban floods**

Research will develop efficient medium- to long-term strategies for urban flood management, analysing the dynamics of urban flood risks. It will include vulnerability and risk assessment linked to the prevention, management and potential consequences of urban floods considering the catchment area and interactions with the urban area. Research will include the impacts and interactions of different drivers (e.g. economic, social, health, hydraulics, structures and infrastructures, land use/planning, soil sealing limitation strategies and mitigating practices, climate trends), and provide adequate measures for an improved management at relevant levels. Choices of comparative studies in Europe and Asia (e.g. China, India, and Bangladesh) should be discussed.

**Funding scheme: Collaborative Project (small or medium-scale focused research project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries, targeted to Asia**

*Expected impact: Medium to long term strategies for flood prevention and flood management in urban areas. To improve resilience, considering different drivers.*

### **Area 6.1.3.4 Multi-risk evaluation and mitigation strategies**

Not open in 2009.



## **Activity 6.2 Sustainable management of resources**

### **Sub-Activity 6.2.1 Conservation and sustainable management of natural and man-made resources and biodiversity**

**Indicative budget: EUR 27 million**

In 2009, the focus will be put on a limited number of subjects in order to ensure expected impacts in terms of contribution to ERA and to related environmental policies and strategies. In addition the aim is to build up innovative methods for protecting and managing resources in a changing environment, taking in particular into account the impacts of climate change and biodiversity loss. In all topics, an ecosystem approach is promoted in the perspective of the adaptation to environmental changes, in particular the response to climate change. Activities are foreseen on integrated management of natural resources, climate change impacts on biodiversity, freshwater ecosystems and water quality, transferability of research results between countries and continents, innovative soil process models, integrative concepts for urban development, options for European forests and landscape management, as well as desertification and land degradation.

#### **Area 6.2.1.1 Integrated resource management**

Not open in 2009.

#### **Area 6.2.1.2 Water resources**

##### **ENV.2009.2.1.2.1 Water management and climate change impacts in the long-term perspective**

The project is for long-term assessment and modeling of the impacts of climate change on the hydro-chemical, hydrological and ecological processes and dynamics in river basins and associated wetlands, with a view of developing appropriate mitigation, adaptation and restoration strategies as well as adaptive and cost-effective water resource management options. The project should address climate change impacts on freshwater and wetland biodiversity (species distributional patterns, conservation status), on water quality and quantity, reference conditions and ecological thresholds for different water body types, across the various European eco-regions and climatic gradients and under a broad range of environmental conditions (in particular land-use and land-management regimes). Appropriate ecological indicators and vulnerability assessment methodologies to climate change should be developed.

##### **Funding scheme: Collaborative Project (large scale integrating project)**

*Expected impact: Improved prediction capacity of impacts of climate change on water, water resources and related natural systems in particular river basins and wetlands. New information and data will be used for adaptation strategies and response to climate change. New ecological indicators will be available, as well needed information for re-adjusting reference conditions in view of climate change. The implementation of the Water Framework*

*and Habitats Directives will be facilitated, thus assuring a better and more sustainable use and management of water resources.*

### **Area 6.2.1.3 Soil research and desertification**

#### **ENV.2009.2.1.3.1 Soil processes and modelling**

Soils in Europe and North America are facing similar threats, in particular the impacts of global climate change, the effects of land-use changes, etc. It is of mutual benefit to partners on both sides of the Atlantic to collaborate on this issue because soils are key ecosystem components that contribute to provide a broad range of services. Development of integrated soil system models (taking into account the impacts of combined drivers on soil processes, e.g. climate change and changes in land use) that can be transferred across a wide range of temporal and spatial scales, addressing the entire life cycle of soil systems and thus underpinning their restoration and sustainable management. The soil system should be considered within the critical zone framework by setting up soil observatories where data is collected that allows for modelling the life cycle of the soils, from rate of weathering of bed-rock (soil formation) to soil erosion/ degradation and restoration. A broad range of soil management problems should be addressed, taking a cross-thematic approach and, in particular, efforts will focus on resolving the scale, climate and geographical dependency of soil properties and processes, quantifying biological drivers of soil properties and processes, assessing pollutants life cycles and fluxes, carbon sequestration and the impacts of climate change, the formation and weathering of minerals in soils in response to the anthropogenic forcing of the carbon cycle and soil loss/degradation through human impacts. A common strategy for data access, standardisation and management will also be developed. It is viewed that the active participation of relevant partners from the US should add to the scientific and/ or technological excellence of the project and/ or lead to an increased impact of the research to be undertaken; this will be considered by the evaluators.

#### **Funding scheme: Collaborative Project (large scale integrating project)**

*Expected impact: New knowledge on soils through cooperation with North America; integration of European soil science excellence will lead to new approaches, models and unifying conceptual frameworks for soil research, also contributing to soil protection, restoration and management. A common strategy for data access, standardisation and management will facilitate the access to and the exploitation of standardised data. The project will adhere to the principles laid down in the EU Soil Thematic Strategy (COM(2006)231) and will contribute to its implementation..*

#### **ENV.2009.2.1.3.2 Desertification process and land degradation**

Research should focus on response to desertification, land degradation processes, ecosystem services decline and the associated loss of biodiversity via the development of protection and restoration methods, strategies and measures, as well as best practices, operational analytical methods and modelling studies to combat desertification, associated loss of biodiversity and land degradation. Considerations should be given to support decision-making in integrated land and water management. An ecosystem approach has to be adopted. The project could include innovative research on desertification processes and land degradation, taking into account the links between physical and socioeconomic processes, evaluate the costs and

benefits of any measures that could be proposed and facilitate knowledge transfer, addressing the stakeholders, including the institutional level. International cooperation should be envisaged to also address regions in the world facing similar situations as in Europe.

**Funding scheme: Collaborative Project (small- or medium scale focused research project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries**

*Expected impact: The results of the project(s) will allow the EU stakeholders and the relevant organisations in partner countries to develop and/or improve their strategies, planning and implementation plans against desertification and land degradation, and thus contribute directly to the UNCCD Convention for desertification, to the EU Soil Thematic strategy and to the science programme of the 'Committee for Science and Technology (CST)' with information and advice on scientific and technological matters relating to combating desertification and mitigating the effects of drought.*

#### **Area 6.2.1.4 Biodiversity**

##### **ENV.2009.2.1.4.1 Assess the pan-European status of pollinators**

Further quantify the parallel decline of pollinator and pollinated species and groups across Europe and beyond, and by increasing understanding of pollination interdependence of pollinators and key farmed, domestic and wild plant species, determine to what extent pollinator decline is driven by, or drives, environmental degradation. Apply standardised tools and protocols to further quantify the value of pollination in human nutrition and in maintenance of ecosystems, and the economic risks associated with the decline of pollination, and use the experience gained to improve the methods where necessary. Quantify, in an ecosystem perspective, the relative importance of various drivers of pollinator decline, including but not necessarily limited to land use change accompanied by loss of habitat and forage, habitat fragmentation, pesticide misuse, light pollution, global movement of parasites, diseases and invasive competitors, human persecution of particular species, genetically modified organisms and climate change. Improve understanding of human attitudes to pollinators and human behaviours that tend to encourage the decline of pollinators, and use this understanding to further develop and test predictive models for pollinator decline and the ecological and economic impact of those declines, and to develop and test solutions to pollinator decline.

**Funding scheme: Collaborative Project (small or medium-scale focused research project)**

*Expected impact: Improved capacity to assess conservation status and trends of pollinator species and to quantify economic and ecological values of pollination. Improved understanding of drivers of pollinator decline and associated economic risks. Improved understanding of interdependence and causal links between decline of pollinator and pollinated species and of relationships between pollinator decline and environmental degradation. Options to halt pollinator decline and assure that pollination processes will no longer be altered for e.g. sustainable agriculture, horticulture etc.*

#### **Area 6.2.1.5 Urban development**



### **ENV.2009.2.1.5.1 Sustainable development of coastal cities<sup>14</sup>**

Develop new integrative concepts for urban development, taking into account global change, the need for sustainable use and subsequent disposal of resources. This should address materials and energy, living resources and the soil functions, the relationships between urban, peri-urban and peripheral areas in view of maximising human welfare, minimising resource depletion, energy use, waste production, and vulnerability against natural and environmental hazards. The emphasis should be on coastal cities because they are hotspots for pollution, elevated water and energy demands, high (and seasonal) urbanisation pressures, and are particularly vulnerable to impacts of climate and global change due to their strategic location at the boundary of land and sea. An integrated ecosystem approach has to be adopted and the relationships and exchanges between the urban area and the surrounding landscape must be fully integrated in the research approach.

**Funding scheme: Collaborative Project (large scale integrating project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries, targeted to India and South-East Asia**

*Expected impact: Effective integration between innovative urban planning, integrated coastal zone management, sustainability impact assessment and socio-economic sciences, leading to new and improved methods and instruments towards the sustainability of coastal cities throughout Europe, thus implementing Local Agenda 21 goals, and facilitating the implementation of relevant EU policies and other international policies (i.e. UN-HABITAT, UNESCO-ICAM, etc.). End-user involvement and the use of collaborative/participatory approaches allowing in particular the identification of possible scenarios/ strategies, validation, dissemination and exploitation of results and will ensure a high take up potential.*

### **Area 6.2.1.6 Integrated forest research**

#### **ENV.2009.2.1.6.1 Sustainable forest management as a tool to prevent unwanted forest fires**

Based on currently available knowledge, the aim is to identify and assess possible options, including forest and land management options to prevent unwanted forest fires, taking into account socio-economic, institutional and legislative aspects. The proposal should identify obstacles which prevent appropriate integrated land management options to be implemented and approaches to overcome these obstacles.

**Funding scheme: Coordination and Support Action (supporting action)**

*Expected impact: Recommendations and practical guidelines for stakeholders involved in the entire sustainable management chain of silviculture, covering institutional aspects as well as practical management advice and incentives to prevent unwanted forest fires.*

#### **ENV.2009.2.1.6.2 Forest ecosystem genomics**

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<sup>14</sup> Calls in 2009-2010 under the FP7 ICT Theme will cover specific aspects related to the development and application of innovative Information and Communication Technologies (ICT) in support to sustainable management of urban areas including energy efficiency and climate change adaptation.

European and North American forests are facing similar threats, in particular the impacts of global climate change. It is of mutual benefit to partners on both sides of the Atlantic to collaborate on this issue because forest genomics can likely contribute to the adaptation of forests to these changes. The purpose of this topic is to facilitate scientific cooperation between Europe and North America on forest genomics with a view of exchanging experiences, harmonising approaches between the two science communities in North America and in Europe, identifying common research objectives, developing jointly innovative science plans and formulating strategies for future research/ comparative approaches are required to identify major trends of evolution: comparative either across species, environmental clines and gradients, or communities. The adaptation of forests e.g. to expected climate and environmental changes over the next 100-200 years should be targeted.

**Additional eligibility criterion: A minimum of two participants from North America (US and/ or Canada) are required. This requirement will be applied as an eligibility criterion.**

**Funding scheme: Coordination and Support Action (supporting action)**

*Expected impact: State-of-the- art knowledge in the area of forest genomics and identification of research objectives, strategies and science plans that could later on be considered by the EU Framework Programme and national funding agencies (in Europe and North America) for possible implementation through research projects with a view of paving the way for the adaptation of forest and forest management to ever increasing risks from changes in the environment, land use, forest management and climate and thus, contributing to the sustainable development of forests and the maintenance of their capacity to provide goods and services to society .*

## **Sub-Activity 6.2.2 Management of marine environments**

**Indicative budget: EUR 22 million**

The overall aim is to reconcile the short-term objective of exploiting marine resources with the long-term objective of protecting the seas and the oceans, including the biodiversity, and their capacity for providing expected goods and services. The 2009 call will be focused on (i) initiatives that can have a major impact in terms of ERA implementation (e.g. furthering existing ERA-Nets, promoting strategic partnerships, in relation to the recent communication on EU Maritime Policy and the announced communication on Maritime Research), (ii) boosting international research in strategic areas such as the Mediterranean/ Black Sea coastal areas, coral reefs, biodiversity and ecosystems structures and dynamics, as a basis for developing management options. An ecosystem approach has to be promoted and the proposals shall consider developing options to respond to climate change.

### **Area 6.2.2.1 Marine resources**

The coordinated topics (ENV.2009.2.2.1.1, ENV.2009.2.2.1.2, ENV.2009.2.2.1.3 and ENV.2009.2.2.1.4) on 'sustainable use of seas and oceans' under this Area is implemented in coordination with other Themes, in particular Themes '2. Food, Agriculture and Fisheries, and Biotechnologies' and '5. Energy'<sup>15</sup>.

#### **ENV.2009.2.2.1.1 Options for Ecosystem-based management**

The Marine Strategy deals with the implementation of an ecosystem approach to marine environmental management, and the Habitat directive contributes to the protection of representative habitats. Human activities may have a severe impact on marine ecosystems. Therefore it is important that conduct and management of such activities (including fisheries, dredging etc.) are carried out in a way that supports the objectives of the Marine Strategy and the Habitat Directive. The aim of this topic should be to investigate and quantitatively evaluate, specify and propose options and actions (including their cost benefit analysis) for a gradual transition from the current fragmented management of these activities (e.g. fish stock based regime for fisheries management) to a mature integrated management, including strategies for the implementation of the ecosystem approach at regional level, reconciling short-term economic objectives with long-term ecosystem sustainability objectives. Emphasis should be given to better managing the impacts of these activities on ecosystems. The envisaged shift in the seas and oceans management strategy should also consider environmental effects on ecosystems in order to investigate options for mitigation and adaptation. The management options must be coherent with the Marine Strategy Directive in terms of environmental quality objectives, implementation and governance. Relevant experience gained outside Europe including on social, economic, ecological and institutional obstacles to and side-effects of such transitions shall be taken into account. The 2006 "Communication on Halting Biodiversity Loss by 2010" should also be considered.

**Funding scheme: Collaborative Project (large scale integrating project)**

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<sup>15</sup> For the other coordinated topics, see the work programmes 2009 parts of Theme 2. Food, Agriculture and Fisheries, and Biotechnology and Theme 5. Energy

*Expected impact:* Improved knowledge base for policy options towards a sustainable and integrated management of marine ecosystems. Support to implementing two important policy areas: (1) the EU Marine Strategy and (2) the Habitats Directive. In a multi-factorial ecosystem approach to marine environmental the basis for a harmonised sustainable use and protection of the marine environment will be available. Further development and effective implementation of the ecosystem approach to marine management, as well as identification of management approaches that minimize unwanted alterations to marine ecosystems as recommended on the recently adopted Commission Blue Book on a future Maritime Policy for the EU.

### **ENV.2009.2.2.1.2 Towards integrated European marine research strategy and programmes<sup>16</sup>**

Support for a single marine ERA-Net, taking into account the ongoing integrating initiatives, with the aim of fostering cooperation/integration between marine research funding agencies, thereby developing a stable European overarching operational structure for marine research. This ERA-Net should address the need for developing and implementing common research strategies and programmes related to the European sea basins and common strategies and programmes for European coherence in developing and implementing globally important marine research. It will develop a coherent vision of the planning and use of research infrastructures, in line with the actions undertaken within the Capacity Programme (ESFRI opportunity list).

**Funding scheme: ERA- NET (CSA-CA, with a requested Community contribution of up to EUR 2 million)**

*Expected impact:* Sustained process enabling the delivery of an integrated European marine and maritime science, research technology and innovation strategy. Cross-sectoral, multinational and interdisciplinary research partnerships will be built; co-operation between research, industry and other stakeholders to enhance knowledge and technology transfer and innovation will become a reality; Development of scientific and technology capacity to strengthen the knowledge economy; the shared use of, planning of and investment in critical infrastructure on a Europe-wide basis.

### **ENV.2009.2.2.1.3 Support to "Maritime Partnership"**

Support to marine and maritime science communities to make concrete the concept of a 'Partnership' through e.g. the establishment of a Forum ('European Marine Science Partnership') that would contribute to developing interactions between partners (Member States, regional authorities, the research community, industry and other stakeholders) inter alia the development and implementation of an ambitious and European Strategy and programme on Marine and Maritime research (essential to provide the necessary scientific and technology interdisciplinary knowledge base) to support the future EU Maritime Policy.

**Funding scheme: Coordination and Support Action (supporting action)**

*Expected impact:* Implementation of one of the action points listed on the recently adopted Commission's blue book 'An Integrated Maritime Policy for the European Union', i.e: "To provide the interdisciplinary knowledge base to underpin the future EU Maritime Policy, the

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<sup>16</sup> This topic is part of a joint DG RTD ERA-Net call (FP7-ERANET-2009-RTD)

*European Commission has decided to take action to develop a Maritime Research Strategy, in consultation with Member States and with stakeholders in a European Marine Science Partnership. The strategy will identify ways and means for the partnership to be sustainable on a long-term basis, taking in consideration already established key structures". In this context the action delivers a platform for furthering the dialogue between the scientific community, industry, policy and decision makers, strengthening marine research and linking it to technology development. The 'maritime partnership' does also support the necessary funding mechanisms, specialised infrastructures, data collection and information management, and capacity building essential to manage our on-going relationship with the oceans and seas.*

#### **ENV.2009.2.2.1.4 Integrated Coastal Zone Management**

This topic is to provide an opportunity to the science and end-user communities all around the Mediterranean Sea and Black Sea basins to work together in order to identify common threats and solutions for the long-term sustainable development and environmental protection of coastal zones bordering these regional seas. Emphasis should be put on the need to develop integrated ecosystem-based approaches, engaging all relevant actors, via participatory approaches, and taking into account the multiple economic, social and environmental dimensions. This calls for multidisciplinary research, the development of dynamic and multi-scale models and integrated assessment instruments to assess existing and possible future scenarios, taking into account urban, coastal and land-and-sea relationships and the assimilative capacity of coastal ecosystems, in view of sound integrated coastal zone management, spatial planning and management orientated towards environmental protection and the sustainable use of resources. The project should also consider the need for an appropriate response to climate change.

**Funding scheme: Collaborative Project (large scale integrating project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries, targeted to Mediterranean partner countries and Black Sea Basin**

*Expected impact: Knowledge base for the concrete implementation of EU ICZM Recommendations, the EU Marine and Maritime policies, and other relevant international initiatives (i.e. UNEP-MAP, UNESCO-ICAM, the ICZM protocol under the Barcelona Convention, etc.). Integrated concepts of spatial planning, the management of multiple use and conflicting resource utilisation, and the economic valuation of impacts and policy options, orientated towards the protection and sustainable utilisation of resources in the coastal zones. Understanding of current ICZM strategies along these seas, established partnerships and synergies between countries, and scenarios of future sustainable development, in particular at basin/regional level.*

#### **ENV.2009.2.2.1.5 Management and protection of coral reefs in the Wider Caribbean**

Coral reefs are highly valued for their ecological and economic resources and provide a broad range of goods and services, including coastline protection, tourism and marine natural products. Climate change, pollution, destructive fishing practices, invasive species and uncontrolled recreational activities contribute to a significant decline in coral reef ecosystem health. The Wider Caribbean Region, which hosts the greatest coral reef system in the northern hemisphere, is particularly affected in the context of rapid demographic expansion in

the bordering countries. This topic calls for a project that will provide scientifically-based information on the present physical and ecological condition of coral reefs in the region, help in understanding the processes leading to temporal and spatial changes, as well as to the decline in biological diversity, and develop predictive tools that will support future decisions to manage the Wider Caribbean coral reef system and implement sustainable policy actions.

**Funding scheme: Collaborative Project (large scale integrating project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries, targeted to the Wider Caribbean**

*Expected impact: Contribution to the Millennium Development Goals by promoting the principles of sustainable development in Caribbean developing countries, taking also into account the need for an appropriate response to climate change and to develop an ecosystem approach. It will grant governmental, non-governmental and international environmental managers the scientific knowledge necessary for the sound management of regional coral reefs. It will enhance the level of scientific collaboration between the EU and regional partners, including the EU ultraperipheral regions.*

#### **ENV.2009.2.2.1.6. Contribution of subseafloor sampling programs to European deep-sea research**

The project is for planning and assessing the contribution of subseafloor sampling programs, including the European participation in international drilling initiatives, with a view of providing knowledge and information necessary for the understanding of deep-sea and sub-sea floor processes and patterns, in the perspective of the conservation and sustainable use of deep sea resources. A particular emphasis should be put on applications relevant to deep-sea ecosystem research and to global environmental change research. The needs of the end-users of the samplings, in particular the needs of ecosystem specialists, geologists, geophysicists and climatologists, should therefore be addressed and synergies with deep-sea research programmes, including observatories, should be strengthened.

**Funding scheme: Coordination and Support Action (coordinating action)**

*Expected impact: A broad assessment of the contribution of seabed drilling to the understanding of the functioning of deep-sea ecosystems and to the prediction of their evolution in the context of current environmental issues. Enhanced synergies between deep-sea research and drilling programmes.*

## **Activity 6.3 Environmental technologies**

### **Sub-Activity 6.3.1 Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment**

**Indicative budget: EUR 27 million<sup>17</sup>**

Within the overall strategic target of WP2009 of dealing with adaptation to environmental changes, it is foreseen to address the issue '*Preventing and protecting from extreme events and risks*', which will be articulated on several subjects related to extreme hydro-meteorological events and other risks such as coastal erosion, coastal floods and chemical/pollution risks. Apart from this main subject, some focused actions will address other priorities on waste/ recycling technologies, and on labelling the sustainability performance of buildings.

#### **Area 6.3.1.1 Water**

##### **ENV.2009.3.1.1.1 Adaptation of water supply and sanitation systems to cope with climate change**

The objective of this topic is to increase the technological capacity and performance of traditional water supply and sanitation systems (sewerage systems – including combined sewer overflows - and waste water treatment plants, dams, reservoirs, irrigation systems, etc.) in the context of expected increase of the frequency and severity of extreme events. This should include research to improve the current limitations and enhance the capability of existing measuring and forecasting technologies, as well as new design, monitoring, modelling and control system integration, overall on-line optimisation – also considering optimisation of energy requirements -, further development of promising control strategies, and decision support systems. This topic is open to international cooperation, since adaptation to climate change is an issue of global concern. It is viewed that the active participation of relevant international cooperation partners should add to the scientific and/ or technological excellence of the project, and/ or lead to an increased impact of the research to be undertaken; this will be considered by the evaluators. Project consortia should include a relevant participation of industrial partners, SMEs, and appropriate end-users (i.e. water utilities).

##### **Funding scheme: Collaborative Project (large scale integrating project)**

*Expected impact: Improved rainfall monitoring. More advanced, reliable and cost effective technological solutions, in order to help decision makers to undertake immediate and long-term effectiveness of system adaptation and management actions and to design appropriate environmental planning and optimal investment strategies at the urban development scale, in line with the requirements of various water related and climate change adaptation EU policies. Efficient transport and temporary storage of wastewater in combined sewer systems*

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<sup>17</sup> In addition, a joint call with 'Theme 4. Nanosciences, Nanotechnologies, Materials and New Production Technologies' on "use, recycling and/ or final treatment of nanotechnology-based products" is foreseen to be published as a separate call in November 2008

*protecting downstream treatment plants leading to an overall reduced environmental impact caused by heavy rainfalls in urban areas. Strengthening the European industrial competitiveness in this field.*

### **Area 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**

According to the Thematic Strategy for Soil Protection, soil sealing is a major threat to soil functions and ecosystem services and may lead, under extreme weather conditions, to increased flood risk. The research should result in innovative technological solutions for the sustainable use of soils in the built environment, particularly in urban and peri-urban areas. New or improved construction materials, technologies, systems, and design for buildings, roads, and urban infrastructures (such as permeable materials, construction methods which minimise soil compaction, etc.), should be developed, tested, and validated. This action should foresee appropriate involvement of industrial partners – including SMEs -, relevant end-users and decision makers.

**Funding scheme: Collaborative Project (small or medium-scale focused research project)**

*Expected impact: Project results should provide end user and decision makers with reliable and cost effective technological solutions and science-based concrete indications enabling them: i) to adopt more targeted and efficient measures for mitigating the negative impacts of soil sealing; ii) to plan in the mid and long term their strategies, while stimulating sustainable use of soil, thus supporting the implementation of the Thematic Strategy for Soil Protection.*

### **Area 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**

This networking action, addressing a group of ACP countries of homogeneous and coherent socio-economic contexts, should support the formulation and implementation of policies and technological solutions tailored to the local conditions. In particular the project should analyze the current situation in the targeted countries, the lessons learnt from EU technological/ organisational best practices, and the needs for appropriate/ adapted solutions, identify a list of policy and technology options for the waste management sector in the considered countries and evaluate the socio-economical implications of proposed changes.

**Additional eligibility criterion: A minimum of two participants from ACP countries is required. This requirement will be applied as an eligibility criterion.**

**Funding scheme: Coordination and Support Action (coordinating action)**

*Expected impact: Contribution to strengthening ACP stakeholders' capacity to work out national and regional policy frameworks and action plans for a sustainable development of their waste sector.*



#### **Area 6.3.1.4 Clean technologies**

Not open in 2009.

#### **Area 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**

The aim is to develop and validate innovative technologies, systems and tools for the improved protection of buildings, infrastructure and networks, (particularly the most vulnerable) from urban flooding. Research should lead to cost effective solutions particularly for existing structures and should therefore consider retrofit and new construction technologies that effectively mitigate the risks and consequences of flooding. The approach adopted should facilitate the design of more holistic flood defense systems and support the implementation of flood protection policies<sup>18</sup> enabling vulnerable buildings and networks to be assessed and protected to meet new defined safety standards. Projects must demonstrate a significant advance of knowledge and innovation in this field and be capable of ensuring the effective and widespread application of results in practice. This action should foresee a substantial involvement of industrial partners, relevant end users/decision makers, and SMEs.<sup>19</sup>

**Funding scheme: Collaborative Project (small or medium-scale focused research project)**

*Expected impact: Contribution to more cost effective upgrading of the built environment in areas vulnerable to urban flooding and improved harmonisation of flood safety levels and standards across Europe thereby supporting the European Flood Directive and the Strategic Research Agenda of the European Construction Technology Platform. Potential to reduce economic losses due to damage, disruption and injury and reduce loss of life resulting from urban flooding.*

##### **ENV.2009.3.1.5.2 Benchmarking and labelling of the sustainability performance of buildings**

Building on existing knowledge, research activities are needed to address the remaining unresolved issues which would enable the sustainability assessment of buildings (performance requirements such as accessibility, weighting, variables such as building type, target user, climate). There is a need to complement existing methodologies for assessing the energy performance and overall sustainability of buildings and identify actual minimum and more advanced sustainability performance levels, for recommended use in planning and

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<sup>18</sup> Considering the economic, social and health aspects as well as hydraulics, infrastructure, land use planning, climate trends etc.

<sup>19</sup> Coordination is foreseen, where relevant, with projects to be supported under topic ENV.2009.1.3.3.1 on Risk, prevention and management of urban floods, ENV.2009.2.1.5.1 on sustainable development of coastal cities, and topic ENV.2009.3.1.2.1 on construction technologies for mitigating the impacts of soil sealing on soil functions and services, including mitigation of flood risk.

construction. Research should be accompanied by networking and policy support activities, including such as, best practice examples of sustainable or green public procurement activities using the recommended performance levels in tendering procedures, which will facilitate Europe-wide implementation of the methodology through pilot testing, consultation and involvement of policy makers. This action should foresee a substantial involvement of industrial partners, relevant end-users/ decision makers, and SMEs.

**Funding scheme: Collaborative Project (small or medium-scale focused research project)**

*Expected impact: The use of sustainability performance targets and benchmarking as the basis for development of policy instruments and financial incentives, responding to needs identified in the LEAD MARKETS initiative on Sustainable Construction. Promotion of the widespread mainstreaming of sustainable construction practices in new and existing buildings resulting in improved overall quality of the built environment.*

### **Area 6.3.1.6 Marine environment**

#### **ENV.2009.3.1.6.1 Innovative coastal defence technologies**

The objective of this topic is to develop innovative "climate-proof" technologies and improve the safety and economic development of estuaries, deltas and coastal areas in the context of extreme event and sea level rise, taking into account climate change, uncertainties and risk concepts. Emphasis should be given to large urban and/or industrial areas and to ecological-friendly technologies which provide protection to inhabitants, infrastructures and economic activities. This topic is open to international cooperation, since many coastal areas in the world are already affected by the adverse effect of climate change. It is viewed that the active participation of relevant international cooperation partners should add to the scientific and/ or technological excellence of the project, and/ or lead to an increased impact of the research to be undertaken; this will be considered by the evaluators.

**Funding scheme: Collaborative Project (large scale integrating project)**

*Expected impact: More effective short-, medium- and long-term mitigation of the impact of coastal erosion, sea-level rise and coastal storms, resulting in improved defence planning strategies and more focused investments.*

### **Area 6.3.1.7 Air technologies**

Not open in 2009.

## **Sub-Activity 6.3.2 Protection, conservation and enhancement of cultural heritage, including human habitat**

**Indicative budget: EUR 8 million**

The overarching theme for Environmental Technologies '*Preventing and protecting from extreme events and risks*' will be articulated in the field of technologies for preventing and protecting cultural heritage assets from extreme events and risks resulting from natural hazards, especially in the cases of earthquakes, storms and fires.

### **Area 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**

Building on the most recent knowledge and state of the art, the aim is to develop integrated methodologies and innovative tools to ensure the efficient protection and preservation of the main cultural heritage assets as regards the impact of earthquakes. The proposal should critically review the existing methodologies applied for this risk. Research should develop and validate new technologies and tools in a systemic approach aiming to significantly reduce the vulnerability of the moveable and immovable cultural assets through non destructive, or low intrusive interventions, or appropriate retrofitting and reinforcement techniques. The sensitivity, compatibility and applicability of the proposed technologies to cultural heritage objects should be clearly demonstrated, also respecting their authenticity and sustainability. A relevant participation of industrial partners and SMEs is requested. It is viewed that the active participation of relevant partners from International Cooperation Partner Countries (ICPC), in particular Mediterranean Partner Countries, should add to the scientific and/ or technological excellence of the project, and/ or lead to an increased impact of the research to be undertaken; this will be considered by the evaluators.

**Funding scheme: Collaborative Project (small or medium-scale focused research project)**

*Expected impact: Enable cost-efficient and reliable mitigation of potential damages on cultural heritage assets resulting from earthquakes and of the related social, cultural and economic losses. The proposals are expected to support EU policy initiatives for risk mitigation in case of earthquakes, contributing to the improved management, regulations and standards. Transferability of results also beyond Europe. Support to the research agenda of the European Construction Technology Platform and its Focus Area Cultural Heritage.*

### **ENV.2009.3.2.1.2 Technologies for protecting cultural heritage assets from risks and damages resulting from extreme events, especially in the case of fires and storms**

Building on the most recent knowledge and state of the art, the aim is to develop integrated methodologies and innovative tools to ensure the efficient protection and preservation of the main cultural heritage assets as regards the impact of extreme events resulting from natural hazards<sup>20</sup> specifically targeting fires and storms. The proposal may address one, or both of these risks, and should critically review the existing methodologies applied for them. Research should develop and validate new technologies and tools -including warning devices - aiming at significantly reduce the vulnerability of the moveable and immoveable cultural assets through non destructive, or low intrusive interventions, or appropriate strengthening of structures with insufficient resistance. The sensitivity, compatibility and applicability of the proposed technologies to cultural heritage objects should be clearly demonstrated, also respecting their authenticity and sustainability. A relevant participation of industrial partners and SMEs is requested. It is viewed that the active participation of relevant partners from International Cooperation Partner Countries (ICPC) should add to the scientific and/ or technological excellence of the project, and/ or lead to an increased impact of the research to be undertaken; this will be considered by the evaluators.

**Funding scheme: Collaborative Project (small or medium-scale focused research project)**

*Expected impact: Enable cost-efficient and reliable prevention and mitigation of potential damages on cultural heritage assets resulting from fires and storms and of the related social, cultural and economic losses. The proposals are expected to improve maintenance and to support EU policy initiatives for risk mitigation, improved regulations and standards. Transferability of results also beyond Europe. Support to the research agenda of the European Construction Technology Platform and its Focus Area Cultural Heritage.*

### **Area 6.3.2.2 Networking, knowledge transfer and optimisation of results in cultural heritage**

Not open in 2009.

### **Area 6.3.2.3 Environment technologies for archaeology and landscapes**

Not open in 2009.

### **Area 6.3.2.4 Fostering the integration of cultural heritage in urban and rural settings**

Not open in 2009.

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<sup>20</sup> The impacts of floods on cultural heritage are already addressed by an ongoing FP6 project

### **Sub-Activity 6.3.3 Technology assessment, verification and testing**

**Indicative budget: EUR 7 million + EUR 10 million for the joint call on biorefineries**

The overarching theme for Environmental Technologies '*Preventing and protecting from extreme events and risks*' will provide the occasion for dealing with new computational methods for assessing chemical hazards. Moreover, it is foreseen to promote research for methodological developments for improving Life Cycle Impact Assessment (LCIA) methods.

#### **Area 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 ecotoxicological properties of chemicals<sup>21</sup>**

In the context of various regulatory frameworks for assessing and managing chemicals, new combinations of in vitro and in silico (computational) toxicological methods are needed to provide solutions to the screening and assessment of large numbers of chemicals, in view of reducing and replacing animal testing. New methods could use toxico-genomics (and other "-omics") and include ranking methods, estimation methods based on quantitative structure-activity relationships (QSARs), grouping approaches and expert systems. They should be incorporated into automated workflows for fast assays to facilitate their widespread and harmonised application. Emphasis should be given to methods for high-throughput screening in order to rapidly prioritise substances of high concern. A sound prioritisation is required to orient and focus the testing activities, as well as valid estimation methods to fill data gaps for hazard and risk assessment in order to deal with the very large number of chemicals to be tested in a short time (under REACH 30,000 chemicals to be registered in 11 years). The reliability and applicability domains of existing and new estimation methods should be characterised and their usefulness in relation to the EC Inventory of chemicals has to be demonstrated. Synergies should also be sought with activities on toxicological/ ecotoxicological screening at the Commission Joint Research Centre (JRC), the ECHA and the OECD. Projects should complement ongoing projects such as OSIRIS, CASCADE and CAESAR. The presence of industrial partners in the consortia is expected.

**Funding scheme: Collaborative Project (small or medium-scale focused research project)**

*Expected impact: Possible use of results for regulatory purposes in the screening of industrial chemicals.*

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<sup>21</sup> This topic is proposed in cooperation with the US Environmental Protection Agency (US-EPA), that will launch in parallel a call for a similar research activity. The EC and US-EPA envisage to establish a scientific cooperation between the projects that will be selected.

### **Area 6.3.3.2 Technology assessment**

#### **ENV.2009.3.3.2.1 Improved Life Cycle Impact Assessment methods (LCIA) for better sustainability assessment of technologies**

The International Standard ISO 14040 describes the principles and framework for life cycle assessment (LCA) including the life cycle impact assessment (LCIA) phase. As mentioned in the standard, there are no generally accepted methodologies for consistently and accurately associating inventory data with specific potential environmental impacts. To fill this knowledge gap, research should develop or improve life cycle impact assessment methods and characterisation factors for a series of "impact categories" for which there are not yet widely agreed LCIA methods, or for which the uncertainty is very high<sup>22</sup>. The improved decision support of the new factors shall be demonstrated in the context of at least three real case studies of EU policy interest<sup>23</sup>. Relevant industry participation should help to steer the research on the improved impact methods and characterisation factors towards applicability in practice to technologies, products, and services. Outcomes should complement the work done in other contexts (e.g. the European Platform for LCA or the UNPE-SETAC Life Cycle Initiative).

**Funding scheme: Collaborative Project (small or medium-scale focused research project)**

*Expected impact: Further standardisation of Life Cycle Assessment as an assessment tool, facilitating the use of Life Cycle Thinking in the implementation of EU initiatives such as the Sustainable and Consumption Action Plan, the Lead Market Initiative, the Waste Framework Directive, the Climate and Energy package, etc.*

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<sup>22</sup> Examples of these impact categories are: land use, biological resource depletion / biodiversity, water exploitation, eco-toxicity and human toxicity

<sup>23</sup> All the environmental LCA data resulting from the real case studies shall be consistent with the requirements of the International Reference Life Cycle System (ILCD) .

**Cross-thematic activity: Joint call on sustainable biorefineries<sup>24</sup>**

Biorefinery is the sustainable processing of biomass into a spectrum of value-added products (chemicals, materials, food and feed) and energy (biofuels, power and heat). By producing multiple bio-products and bio-energy, a biorefinery takes advantage of components and intermediaries and maximises the value derived from refining operations.

The aim of the joint call is the research, development and integration of innovative technologies to prove the viability related to the entire value chain (biomass production, biomass conversion, safe recycling and/ or disposal of waste, conformity of end-products to end-user requirements) of advanced biorefineries. It will be implemented through two topics.

The topic "Sustainable Biorefineries" will be targeted at the funding of a limited number of large, multi-disciplinary, collaborative projects addressing bio-products, bio-energy, sustainability and technical and economical viability. The topic "Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of biorefineries" will further seek to 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 through a single Coordination Action.

Quality proposals with the intended level of integration are expected to achieve a breakthrough beyond the "business as usual" scenario. Furthermore, proposals shall necessarily include the sustainability assessment of any proposed solution on the basis of a life cycle approach. This shall be developed with the aim to provide a robust scientific basis for policy and decision making at different levels and scales (from production unit to policy development).

Specific information on the joint call evaluation and implementation is provided in the call fiche.

**ENV.2009.3.3.2.2 Sustainable biorefineries**

**Scope:** Development of advanced biorefineries for sustainable processing of biomass into building blocks for the production of bio-based chemicals, materials, second generation biofuels, power and heat. The biorefineries shall demonstrate their performance, sustainability and feasibility at least at pilot scale in an integrated approach. Part of the biorefinery complex that is closer to the market shall be demonstrated at industrial pilot plant scale.

All proposals shall address the entire value chain from biomass feedstock production, logistics and pre-treatment to the development of thermo-chemical and bio-chemical technologies, including bio-technological routes, for the conversion of different types of biomass feedstock into bio-based products and energy. The utilisation and upgrading of residues and process waste streams and the purification and upgrading of the various products into final marketable services to consumers shall also be addressed. Bio-technological tools for the development of new non-food industrial crops and/ or biomass sources as feedstock may be applied. The upgrading and integration of new stable materials as well as of new non-enzymatic high-selective catalysts may be considered. The integration and optimisation aspects of all the main biorefinery sub-systems shall be described and show progress beyond the state-of-the-art.

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<sup>24</sup> Joint call with Themes '2. Food, Agriculture and Fisheries, and Biotechnology', 4. 'Nanosciences, Nanotechnologies, Materials and New Production Technologies', and '5. Energy'

With regard to sustainability, all proposals shall assess for the entire value chain the environmental, economic and social sustainability, including consequences due to the competition for food and biomass resources, the impact on water use and quality, changes in land-use, soil carbon stock balance and fertility, net balance of greenhouse gases, impact on biodiversity, potential toxicological risks, energy efficiency. Impacts on international and regional dynamics, end-users and consumer needs, investment feasibility may also be considered.

### **Funding Scheme: Collaborative Project**

**Expected Impact:** Funded projects are expected to demonstrate the capacity of biorefineries to contribute to European competitiveness and wealth by responding to the need for supplying a wide range of bio-based products and energy in an economically, socially, and environmentally sustainable manner. New competences, new job opportunities and new markets are also expected. Furthermore the development of biorefineries is expected to also contribute to the implementation of several EU policies and initiatives, notably the Lead Market Initiative, the SET Plan and the Energy & Climate Package in general.

**Other information:** The participation of relevant industrial partners, along with research organisations, SMEs, end-users and civil society organisations is essential to achieve the expected impact. This will be considered in the evaluation. The proposals may consider opportunities of international cooperation and address international integration of value chains, provided that they respond to sustainability criteria.

### **ENV.2009.3.3.2.3 Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries**

**Scope:** The aim is to 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. Information exchange and cross fertilisation may concern any aspect of the feedstock, the conversion and fractionation technologies, the integration of processes and uses of side-streams, the biofuels and the bio-based products, the energy efficiency, the economic, socio-economic and environmental performance, as well as other sustainability issues (impacts on food production schemes, impact on water use and quality, changes in land-use, access to resources, impact on biodiversity, and the net balance of greenhouse gases). Activities should aim to overcome fragmentation in this multidisciplinary field and develop cross-thematic synergies identifying gaps and overlaps, defining research priority needs and infrastructure. In addition, activities shall involve dissemination of results.

### **Funding Scheme: Coordination and support action (coordinating action)**

**Expected Impact:** Significant improvement is expected in the exchange and use of the information available on biorefinery concepts within the thematic projects, in the identification of complementary research results and the cross-fertilisation to make best use of them, and in the synergies between the thematic projects. Significant enhancement is also expected in the cooperation between key researchers and industries that are active in biorefinery research funded by EU and national programmes.

**Other information:** The consortium should include a balanced partnership from all scientific domains involved (biotechnologies-agriculture-food, energy, environment and industrial technologies) with solid experience and competence in the field and strong project



management skills. The partnership should demonstrate the added value of the cross-thematic collaboration in the proposed action. In that respect, the participation of relevant industrial partners is deemed as essential to achieve the expected impact. This will be considered in the evaluation. Networking and exchange activities with relevant international programmes shall be established. Up to one project may be funded.

**Area 6.3.3.3 Environmental technologies verification and testing**

Not open in 2009.

## **Activity 6.4 Earth observation and assessment tools for sustainable development**

### **Sub-Activity 6.4.1 Earth and ocean observation systems and monitoring methods for the environment and sustainable development**

**Indicative budget: EUR 20 million**

Earth Observation is central to environment research (e.g. climate, energy impact, weather) and the EU is playing a leading role in GEO and its primary initiative, GEOSS (Global Earth Observation System of Systems). The 2009 activities will therefore focus on the integration of European earth observation research relevant to GEO and contribution to the ERA through structuring measures; covering GEO related areas such as Environment and health, Seismogenic hazards, and Mineral resources in support to the EU Technology Platform on Sustainable Mineral Resources, and enhancing earth observation capacity building in developing countries.

#### **Area 6.4.1.1 Integration of European activities within GEO**

##### **ENV.2009.4.1.1.1 Contribution to observing systems for seismogenic hazards**

To proceed with long term monitoring/ observing experiments to establish in-situ (namely in borehole) seismic observatories, located on land in European high risk seismic areas. The project should help developing the next generation of earthquake monitoring/ observing systems in conjunction with the current efforts made in NERIES, through a cross-cutting approach for earthquake, landslides, tsunamis and volcanic related events. In the GEO context, it should contribute to fill the gap for multidisciplinary research in this area as pointed out in the 10-year implementation plan reference document and be coordinated with the implementation of GEO task DI-06-02. The project should collaborate with other key subsurface seismic observatories situated on active faults around the world and organise the research activities together with those existing experiments outside Europe, and ensure the communication of data as well as their access and interoperability by the wider science community. International co-operation with other experimental sites/ observatories is encouraged. It is viewed that the active participation of relevant partners from outside Europe should add to the scientific and/ or technological excellence of the project, as well as to its international dimension, and/ or lead to an increased impact of the research to be undertaken; this will be considered by the evaluators.

##### **Funding scheme: Collaborative Project (large scale integrating project)**

*Expected impact: Specification derived from basic knowledge on active seismic zone for the development of seismic stations close to the earthquake sources; increased interoperability between seismic monitoring systems; provision of information and data for understanding and modelling seismogenic zones in compliance with GEO for the observation and monitoring of multihazard seismogenic risks.*

### **Area 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**

The aim is to facilitate collaboration between and provide a forum to the Pan-European Organisations involved in the domain of Earth Observation across several of the nine GEO societal benefit areas, in bringing together both in-situ and space observing systems. Through the involvement of EU member states in those Pan-European organisations, this action should help developing and strengthening the coordination and collaboration between national and regional terrestrial, atmospheric, and oceanic observation programs collecting more specifically in-situ data. The project will establish and maintain a process for reaching interoperability arrangements, informed through an ongoing dialogue between the European stakeholders in the domain of Earth Observation. The action should help overcoming the disparities in the domain of Earth Observation in Europe and must include mechanisms for upgrading arrangements. An important cross-cutting issue to be considered when implementing this action consists of applying GEO concepts and principles through assimilation of observations in earth systems models for prediction of climate and build-up associated services, including the setting up of observing simulation experiments for optimising observing networks for climate predictions. The process will also take into account related activities in the framework of GMES.

#### **Funding scheme: Coordination and Support Action (supporting action)**

*Expected impact: Achieve a step forward towards an integrated sustained European earth observing system component of GEOSS, compatible with GEO principles and concepts.*

### **Area 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**

Relationships between health and environment are a matter of concern all over the world. GEOSS addresses the issue through the development of a relevant integrated observation system. This project aims to provide a sound S&T basis in Europe enabling the application of Earth observations to improving human health. The project should contribute, as specified in GEO task HE-07-02, to further develop and integrate databases of remotely sensed and in-situ environmental measurements together with new observations characterising human-induced landscape (habitat) changes or activities of human populations, and develop models to relate these to exposure and health effects data. A specific focus should be given to the development of a GIS as a generic tool enabling 1) the early detection of new and emerging infections in the European Union and 2) establishing links between environment factors and human exposure/ effect data. The project will lead to the identification of mechanisms and elaboration of risk maps for alerting public health professionals and other stakeholders on hazardous conditions identified by the monitoring of these parameters, as well as further informing epidemiological modelling studies. It is viewed that the active participation of relevant partners from outside Europe should add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken; this be considered by the evaluators.

**Funding scheme: Collaborative Project (large scale integrating project)**

*Expected impact: Filling the gap in Europe in the area of Environment and Health with respect to Earth Observation and monitoring systems and related activities which are for the time being lacking or need to be significantly completed as identified for the development of GEOSS. This will be achieved by taking advantage of expertise of, and cooperation with partners from outside Europe, also following the principles and objectives of GEO (development of GEOSS).*

**ENV.2009.4.1.3.2 Earth observation in support of a sustainable exploitation of mineral resources**

To provide the scientific basis to help monitoring/ observing, the impact on the environment and on the society of the exploration and exploitation of mineral resources involving key industrial partners in the domain of raw materials. The project should incorporate as well partners/ stakeholders with knowledge about heavily exploited areas – in particular in the developing countries. A demonstration component should be included in the project to be carried out through pilot phases of monitoring and observing of heavily exploited areas. More specifically it is expected that the project would contribute to the EU Technology Platform on Sustainable Resources in the domain of environmental footprint reduction by using new observing, monitoring methods, and providing information about populations and societies affected by the exploration and exploitation of raw material. The project should be implemented taking into account the relevant GEO tasks.

**Funding scheme: Collaborative Project (small- or medium scale focused research project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries**

*Expected impact: Improved interaction between industry and society as foreseen in the European Platform on Sustainable Mineral Resources and enhanced industry sustainability*

**Area 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 EO to support capacity building in GEO**

Proposals are requested with the objective of establishing a Capacity Building advisory capability in support of Earth Observation (EO) activities, seeking to build upon and complement existing actions in this domain. The primary objectives of any proposal should be:

- a) to work with stakeholders in new EU countries and developing countries to identify the actual EO capacity building needs of these groups and then to set out clear and detailed specifications for viable EO capacity building initiatives;
- b) to identify possible resource providers and to act as a broker to bring those stakeholders with viable initiatives into contact with these providers, making use of the proposers expert knowledge of the various types of potential sources of resources, and the procedures used by these providers to allocate funds;
- c) to act as a broker between the stakeholders and the resource providers, assisting the stakeholders to work with the providers to bring the identified EO capacity building initiatives to fruition;

- d) to facilitate education and training in support of EO capacity building, thereby providing a global base of technical expertise for GEOSS (Global Earth Observation System of Systems), including the domain of climate monitoring in developing countries;
- e) to produce monitoring and evaluation mechanisms aimed at determining the efficacy of GEO capacity building efforts.

This support action should contribute to the GEO 2007-2009 Work Plan tasks CB-07-01a, CB-07-01b, CB-07-01c and CB-07-01d.

**Additional eligibility criterion: A minimum of two participants from developing countries are required. The requirement will be applied as an eligibility criterion.**

**Funding scheme: Coordination and Support Action (supporting action)**

*Expected impact: This support action should make a major contribution to the implementation of the Group on Earth Observation (GEO) Seville roadmap to mobilise capacity building resources for realising the GEOSS. It should also demonstrate the capability of the GEO to co-ordinate resource mobilisation mechanisms and to act as a broker serving EO stakeholders and potential resource providers. It should also improve the integration of the GEOSS into regional and national planning processes for sustainable development. This support action should strengthen the capability of all countries, and in particular developing countries, to play an effective role in the capacity building activities of the GEO.*

## **Sub-Activity 6.4.2 Forecasting methods and assessment tools for sustainable development taking into account differing scales of observation**

**Indicative budget: EUR 12 million**

This Sub-Activity will support one of the objectives for research laid out in the renewed EU Sustainable Development Strategy, i.e. to bridge the gap between science, policy making and implementation. It aims to improve the effectiveness of different policy instruments in order to better understand the interplay between the socio-economic and environmental systems. Linkages and complementarities between existing tools will be enhanced. In order to support progress on greening the economy, the Sub-Activity will also put emphasis on research concerning economic valuation of biodiversity. Impact would be analysed according to the 3 pillars of sustainability: economic, environmental and social dimension. Each dimension of sustainability would be given equal consideration and interlinkages will be brought to light. For example, effects on employment, social inclusion and vulnerable groups and other social impacts will be assessed.

### **Area 6.4.2.1 Tools for impact assessment**

#### **ENV.2009.4.2.1.1 Network of excellence for Impact Assessment Tools**

The aim of this activity is to set up a Network of Excellence (NoE) which will aim at establishing a virtual centre of excellence with a shared impact assessment (IA) toolbox reaching out to policy makers and those involved in conducting impact assessments. This NoE will strive for an integrated development of impact assessment tools and their enhanced use in policy-making. Indeed, the renewed EU Sustainable Development Strategy (SDS) reaffirms the need to support policy-making by scientifically sound approaches for IA. The Joint Programme of Activities of the NoE will include research on IA concepts and tools. The research organisations should integrate their activities to address issues such as better reflection of spatial and temporal scales, the analysis of interacting processes between the three dimensions of sustainable development (environmental, economic and social), and the integration of model-based methods with participatory approaches. Linkages and complementarities between existing tools will be improved. Furthermore, the spreading of excellence will be organised around joint activities, such as a training and exchange program. The NoE will also establish the appropriate links with policy makers to ensure the use of the shared IA toolbox. In this context, the consortium should also establish a policy-advisory board.

**Funding scheme: Network of Excellence (requested Community contribution of up to EUR 7 million)**

*Expected impact: Increased integration of the IA research community, improved efficiency of IA tools through their integrated and mutually complementary development, structured dialogue between the research community and policy makers about IA tools development, and enhanced use of IA tools in policy processes at EU and Member State level.*

### **Area 6.4.2.2 Sustainable development indicators**

Not open in 2009.

### **Area 6.4.2.3 Interplay between social, economic and ecological systems**

#### **ENV.2009.4.2.3.1 Assessment of economic instruments to enhance the conservation and sustainable use of biodiversity**

Research will be carried out on the effectiveness of different instruments to enhance the conservation and sustainable use of biodiversity. Command-and-control and market-based instruments will be reviewed to better understand their role for cost-effective decision-making related to biodiversity conservation and sustainable use at different government levels, and support to environmental services provision, particularly under conditions of uncertainty created by global change. Ecosystems services, in particular, will be the focus of various evaluation methods. Guidelines and/ or scenarios could be drawn to apply benefit transfer in a systematic way. Changes in ecosystems services will be evaluated for policy purposes, as well as the distributional effects of changes in biodiversity policies. It is viewed that the active participation of relevant partners from the Latin American countries should add to the scientific and/ or technological excellence of the project and/ or lead to an increased impact of the research to be undertaken. This will be considered by the evaluators.

**Funding scheme: Collaborative Project (small or medium-scale focused research project)**

*Expected impact: Enhanced policy contribution to the EU Biodiversity Strategy, as well as to the Convention on Biological Diversity and the international follow-up to the Millennium Ecosystem Assessment.*

#### **ENV.2009.4.2.3.2 Enhancing connectivity between research and policymaking in sustainable development**

There is a wide consensus that research is underutilised in policy-making due to an increased specialisation and a lack of links between disciplines and sectors, and between research and policy. The aim of this activity is to experiment and develop new integrative modalities of linking research results to policy-making through 'secondary exploitation' of existing research. The topic calls for applying "knowledge brokerage" between scientists and policy makers on a specific policy issue, in the following domains: land use, urban development, sustainable consumption, marine policies, water and aquatic ecosystems, biodiversity and the economic, political and social conflicts related to climate change. The chosen issue should be one for which there is a significant body of research, which could be exploited in novel and innovative ways in cooperation between researchers, potentially including those of CSOs, and policy makers. The consortium shall necessarily include policy makers to ensure the uptake of project results. Due to the experimental nature of the project, and the importance of the learning process, the design should also include an in-built evaluation process that documents and critically analyses successes and difficulties with the chosen approach.

**Funding scheme: Collaborative Project (small- or medium-scale focused research project) or Research for the benefit of specific groups – civil society organisations (requested Community contribution of up to EUR 1 500 000, and maximum three proposals will be retained for this topic)**

*Expected impact: Increased use of research in Sustainable Development policy-making, in line with one of the policy guiding principles of the renewed EU SDS, i.e. the use of best available knowledge. Short to medium-term impact.*



## **Activity 6.5 Horizontal activities**

Main emphasis in 2009 work programme will be put on promoting better communication strategies and innovative approaches for the dissemination and uptake of research results. In addition, continuous efforts to build-up dialogue and mapping research excellence with international partner countries (China in 2009, Russia in WP2008) will be supported.

### **Sub-Activity 6.5.1 Dissemination and horizontal activities**

**Indicative budget: EUR 4 million**

#### **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**

The aim of this topic is to identify the scientific excellence and major research infrastructure in China in all areas of the FP7 Theme "Environment", in view of enhanced co-operation opportunities. This task should be carried out in an open and transparent way. The research activities and interest of all relevant major Chinese institutes should be surveyed and mapped against EU FP7 environment priorities. Attention should be paid to all geographical regions. The proposal should explain the proposed methodology to carry out the project. Existing relevant publicly available information from similar exercises in the past will be taken into account. The final product should become publicly available on a website in English and in Chinese and be given broad publicity. Rules about publication of personal data should be fully respected. Efforts will be made that the activity is carried out in close contact with the acknowledged Chinese research management structures. For this topic, one proposal will be retained for funding.

**Additional eligibility criterion: A minimum of one partner from an EU Member State or Associated Country and two Chinese partners in the consortium is required. This requirement will be applied as an eligibility criterion.**

**Funding scheme: Coordination and Support Action (supporting action)**

*Expected impact: Improved EU-China S&T cooperation in areas of mutual benefit, based on a better knowledge in Europe of the scientific excellence and major infrastructure in China and identification of potential co-operation opportunities and partners.*

#### **ENV.2009.5.1.0.2 Knowledge transfer and uptake of EU-research results**

The aim of this activity is to unlock the large knowledge potential from EU research activities in the area of environment for up-take and exploitation in industry, civil society and policy making. The results available in selected topical areas is to be synthesised, translated into knowledge which is accessible for professional use and exploited in novel and innovative ways in close cooperation between researchers, communication professionals and end-users. The proposals should respond to the need to break the link between environmental degradation and economic growth and address one or more of the following cross thematic issues: climate change, biodiversity, marine environment, earth observation, urban development and cultural heritage. Products and deliverables may include a variety of types

and media deployed in a creative way for professional audiences, including brokerage events, conferences and workshops, training, audiovisual and internet material, manuals, reference documents and other user-friendly publications. The consortium shall include end-users (industry, civil society organisations or policy-making authorities) to ensure the uptake of project results.

**Funding scheme: Coordination and Support Action (supporting action)**

*Expected impact Improved access to EU research results for industry, multipliers, the civil society, policy-makers due to increased collaboration between researchers and these end-users. Increased cross-sectoral and cross-thematic analysis and up-take of results. Increased visibility and uptake of EU S/T results, data and analysis in the economy and the society, including in policy design and implementation.*

### III IMPLEMENTATION OF CALLS

- Call identifier: *FP7-ENV-2009-1*
- Date of publication<sup>25</sup>: 3 September 2008
- Deadline<sup>26</sup>: 8 January 2009 at 17.00.00, Brussels local time
- **Indicative budget**<sup>27,28</sup>: EUR 193.5 million<sup>29</sup>

All budgetary figures given in this work programme are indicative. Following the evaluation of proposals, the final budget awarded to actions implemented through calls for proposals may vary:

- by up to 10% of the total value of the indicated budget for each call; and
- any repartition of the call budget may also vary by up to 10% of the value of the indicated budget for the call.

The final budgets for evaluation, monitoring and review may vary by up to 20% of the indicated budgets for these actions. The final budget for actions not implemented through calls for proposals may vary by up to 10% of the indicated budgets for these actions.

- Topics called:

ACTIVITY/ AREA	TOPICS CALLED	FUNDING SCHEMES
<b>ACTIVITY 6.1. CLIMATE CHANGE, POLLUTION AND RISKS</b>		
<b>Sub-activity 6.1.1. Pressures on environment and climate (EUR 32.5 million)</b>		
<i>1.1.1.</i>	<i>ENV.2009.1.1.1.1 Climate dynamics and abrupt changes – analysis of the palaeo-record</i>	<i>Collaborative Project (large-scale integrating project)</i>
<i>1.1.2.</i>	<i>Not open in 2009.</i>	
<i>1.1.3.</i>	<i>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</i>	<i>Collaborative Project (large-scale integrating project)</i>
<i>1.1.4.</i>	<i>ENV.2009.1.1.4.1 Process-oriented evaluation of Earth System Models with</i>	<i>Collaborative Project (small- or medium-scale focused</i>

<sup>25</sup> The Director General responsible for the call may publish it up to one month prior to or after the envisaged date of publication

<sup>26</sup> At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months

<sup>27</sup> Under the condition that the preliminary draft budget for 2008 is adopted without modifications by the budget authority

<sup>28</sup> A reserve list will be constituted if there is a sufficient number of good quality proposals. It will be used if extra budget becomes available.

<sup>29</sup> This amount includes an indicative amount of up to EUR 4 million for the ERA-Nets foreseen under this Theme – See Annex 4 of the Cooperation work programme concerning the FP7-ERANET-2009-RTD joint call.

	<i>emphasis on climate feedbacks</i>	<i>research project)</i>
<i>1.1.5.</i>	<i>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</i>	<i>Collaborative Project (small- or medium-scale focused research project) CP-FP-SICA-</i>
	<i>ENV.2009.1.1.5.2 Climate induced changes in water resources in southern Europe and neighbouring countries as a threat to security</i>	<i>Collaborative Project (small- or medium-scale focused research project) CP-FP-SICA- -Coordinated topic with Theme '8. Socioeconomic Science and Humanities'-</i>
<i>1.1.6.</i>	<i>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</i>	<i>Collaborative Project (small- or medium-scale focused research project)</i>
	<i>ENV.2009.1.1.6.2 Options for response strategies integrating sectoral and cross-sectoral measures in view of post-2012 climate initiatives</i>	<i>Collaborative Project (small- or medium-scale focused research project)</i>
	<i>ENV.2009.1.1.6.3 Climate change impacts on the marine environment: research results and public perception</i>	<i>Coordination and Support Action (supporting action) -Coordinated topic with Themes '2. Food, Agriculture and Fisheries, and Biotechnologies' and '5. Energy'-</i>
<b>Sub-activity 6.1.2. Environment and Health (EUR 21 million)</b>		
<i>1.2.1.</i>	<i>ENV.2009.1.2.1.1 Climate change and water related health issues in Europe</i>	<i>Collaborative Project (small- or medium-scale focused research project)</i>
	<i>ENV.2009.1.2.1.2 Methods to quantify the impacts of climate and weather on health in developing low income countries</i>	<i>Collaborative Project (small- or medium-scale focused research project) -CP-FP-SICA-</i>
<i>1.2.2.</i>	<i>ENV.2009.1.2.2.1 Transport related air pollution and health impacts</i>	<i>Collaborative Project (large-scale integrating project)</i>
	<i>ENV.2009.1.2.2.2 Health effects from electromagnetic fields (EMF): improved exposure assessment to wireless communication devices</i>	<i>Collaborative Project (small- or medium-scale focused research project)</i>

1.2.3.	<i>ENV.2009.1.2.3.1 European coordination action on human biomonitoring</i>	<i>Coordination and Support Action (coordinating action)</i>
<b>Sub-activity 6.1.3. Natural hazards (EUR 13 million)</b>		
1.3.1.	<i>ENV.2009.1.3.1.1 Forest fires in the context of climate and social changes</i>	<i>Collaborative Project (large-scale integrating project)</i>
1.3.2.	<i>ENV.2009.1.3.2.1 Costs of natural hazards</i>	<i>Coordination and Support Action (coordinating action)</i>
	<i>ENV.2009.1.3.2.2 Vulnerability assessment of buildings, lifelines systems and networks related to earthquakes</i>	<i>Collaborative Project (small- or medium-scale focused research project)</i>
1.3.3.	<i>ENV.2009.1.3.3.1 Risk, prevention and management of urban floods</i>	<i>Collaborative Project (small- or medium-scale focused research project)</i> <i>-CP-FP-SICA-</i>
1.3.4.	<i>Not open in 2009.</i>	

ACTIVITY/ AREA	TOPICS CALLED	FUNDING SCHEMES
<b>ACTIVITY 6.2. SUSTAINABLE MANAGEMENT OF RESOURCES</b>		
<b>Sub-activity 6.2.1. Conservation and sustainable management of natural and man-made resources and biodiversity (EUR 27 million)</b>		
2.1.1.	<i>Not open in 2009.</i>	
2.1.2.	<i>ENV.2009.2.1.2.1 Water management and climate change impacts in the long-term perspective</i>	<i>Collaborative Project (large scale integrating project)</i>
2.1.3.	<i>ENV.2009.2.1.3.1 Soil processes and modelling</i>	<i>Collaborative Project (large scale integrating project)</i>
	<i>ENV.2009.2.1.3.2 Desertification process and land degradation</i>	<i>Collaborative Project (small or medium scale focused research project)</i> <i>-CP-FP-SICA-</i>
2.1.4.	<i>ENV.2009.2.1.4.1 Assess the pan-European status of pollinators</i>	<i>Collaborative Project (small- or medium scale focused research project)</i>
2.1.5.	<i>ENV.2009.2.1.5.1 Sustainable development of coastal cities</i>	<i>Collaborative Project (large scale integrating project)</i> <i>-CP-IP-SICA -</i>
2.1.6.	<i>ENV.2009.2.1.6.1 Sustainable forest management as a tool to prevent unwanted forest fires</i>	<i>Coordination and Support Action (supporting action)</i>
	<i>ENV.2009.2.1.6.2 Forest ecosystem</i>	<i>Coordination and Support</i>

	<i>genomics</i>	<i>Action (supporting action)</i>
<b>Sub-activity 6.2.2. Management of marine environments (EUR 22 million)</b>		
2.2.1.	<i>ENV.2009.2.2.1.1 Options for Ecosystem-based management</i>	<i>Collaborative Project (large scale integrating project)</i> <i>-Coordinated topic with Themes '2. Food, Agriculture and Fisheries, and Biotechnology' and '5. Energy'-</i>
	<i>ENV.2009.2.2.1.3 Support to "Maritime Partnership"</i>	<i>Coordination and Support Action (supporting action)</i> <i>-Coordinated topic with Themes '2. Food, Agriculture and Fisheries, and Biotechnology' and '5. Energy'-</i>
	<i>ENV.2009.2.2.1.4 Integrated Coastal Zone Management</i>	<i>Collaborative Project (large scale integrating project)</i> <i>-CP-IP-SICA-</i> <i>-Coordinated topic with Themes '2. Food, Agriculture and Fisheries, and Biotechnology' and '5. Energy'-</i>
	<i>ENV.2009.2.2.1.5 Management and protection of coral reefs in the Wider Caribbean</i>	<i>Collaborative Project (large scale integrating project)</i> <i>-CP-IP-SICA-</i>
	<i>ENV.2009.2.2.1.6 Contribution of subseafloor sampling programs to European deep-sea research</i>	<i>Coordination and Support Action (coordinating action)</i>

ACTIVITY/ AREA	TOPICS CALLED	FUNDING SCHEMES
<b>ACTIVITY 6.3. ENVIRONMENTAL TECHNOLOGIES</b>		
<b>Sub-activity 6.3.1. Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment (EUR 27 million)</b>		
3.1.1.	<i>ENV.2009.3.1.1.1 Adaptation of water supply and sanitation systems to cope with climate change</i>	<i>Collaborative Project (large scale integrating project)</i>
3.1.2.	<i>ENV.2009.3.1.2.1 Construction technologies for mitigating the impacts of soil sealing on soil functions and services,</i>	<i>Collaborative Project (small- or medium scale focused research project)</i>

	<i>including mitigation of flood risk</i>	
3.1.3.	<i>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</i>	<i>Coordination and Support Action (coordinating action)</i>
3.1.4.	<i>Not open in 2009.</i>	
3.1.5.	<i>ENV.2009.3.1.5.1 Technologies for improved safety of the built environment in relation to flood events</i>	<i>Collaborative Project (small- or medium scale focused research project)</i>
	<i>ENV.2009.3.1.5.2 Benchmarking and labelling of the sustainability performance of buildings</i>	<i>Collaborative Projects (small- or medium scale focused research project)</i>
3.1.6.	<i>ENV.2009.3.1.6.1 Innovative coastal defence technologies</i>	<i>Collaborative Projects (large scale integrating project)</i>
3.1.7	<i>Not open in 2009.</i>	
<b>Sub-activity 6.3.2. Protection, conservation and enhancement of cultural heritage, including human habitat (EUR 8 million)</b>		
3.2.1.	<i>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</i>	<i>Collaborative Project (small or medium scale focused research project)</i>
	<i>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</i>	<i>Collaborative Project (small- or medium scale focused research project)</i>
3.2.2.	<i>Not open in 2009.</i>	
3.2.3.	<i>Not open in 2009.</i>	
3.2.4.	<i>Not open in 2009.</i>	
<b>Sub-activity 6.3.3. Technology assessment, verification and testing (EUR 7 million)</b>		
3.3.1.	<i>ENV.2009.3.3.1.1 Screening methods for assessing the toxicological and ecotoxicological properties of chemicals</i>	<i>Collaborative Project (small- or medium scale focused research project)</i>
3.3.2.	<i>ENV.2009.3.3.2.1 Improved Life Cycle Impact Assessment methods for better sustainability assessment of technologies</i>	<i>Collaborative Project (small- or medium scale focused research project)</i>
3.3.3.	<i>Not open in 2009.</i>	

ACTIVITY/ AREA	TOPICS CALLED	FUNDING SCHEMES
<b>ACTIVITY 6.4. EARTH OBSERVATION AND ASSESSMENT TOOLS FOR SUSTAINABLE DEVELOPMENT</b>		
<b>Sub-activity 6.4.1. Earth and ocean observation systems and monitoring methods for the environment and sustainable development (EUR 20 million)</b>		
4.1.1.	<i>ENV.2009.4.1.1.1 Contribution to observing systems for seismogenic hazards</i>	<i>Collaborative Project (large scale integrating project)</i>
4.1.2.	<i>ENV.2009.4.1.2.1 Further structuring the European approach to Earth Observation</i>	<i>Coordination and Support Action (supporting action)</i>
4.1.3.	<i>ENV.2009.4.1.3.1 Contribution to observing systems for environment and health monitoring and modelling</i>	<i>Collaborative Project (large scale integrating project)</i>
	<i>ENV.2009.4.1.3.2 Earth observation in support of a sustainable exploitation of mineral resources</i>	<i>Collaborative Project (small- or medium scale focused research project) -CP-FP-SICA-</i>
4.1.4.	<i>ENV.2009.4.1.4.1 Action in the domain of earth observation to support capacity building in GEO</i>	<i>Coordination and Support Action (supporting action)</i>
<b>Sub-activity 6.4.2. Forecasting methods and assessment tools for sustainable development taking into account different scales of observation (EUR 12 million)</b>		
4.2.1.	<i>ENV.2009.4.2.1.1 Network of excellence for Impact Assessment Tools</i>	<i>Network of Excellence</i>
4.2.2.	<i>Not open in 2009.</i>	
4.2.3.	<i>ENV.2009.4.2.3.1 Assessment of economic instruments to enhance the conservation and sustainable use of biodiversity</i>	<i>Collaborative Project (small- or medium scale focused research project)</i>
	<i>ENV.2009.4.2.3.2 Enhancing connectivity between research and policymaking in sustainable development</i>	<i>Collaborative Project (small- or medium scale focused research project) or Research for the Benefit of Specific Groups - CSO</i>

ACTIVITY/ AREA	TOPICS CALLED	FUNDING SCHEMES
<b>ACTIVITY 6.5. HORIZONTAL ACTIONS</b>		
<b>Sub-activity 6.5.1. Dissemination and horizontal activities (EUR 4 million)</b>		
	<i>ENV.2009.5.1.0.1 Research excellence and major infrastructure in China and potential for S&amp;T cooperation with EU partners in the area of environment</i>	<i>Coordination and Support Action (supporting action)</i>
	<i>ENV.2009.5.1.0.2 Knowledge transfer and</i>	<i>Coordination and Support</i>



	<i>uptake of EU-research results</i>	<i>Action (supporting action)</i>
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- Eligibility conditions:
  - For the topic ENV.2009.2.1.6.2, the participation of minimum two participants North America (USA and/or Canada) in the consortium is an additional eligibility criterion.
  - For the topic ENV.2009.3.1.3.1, the participation of minimum two ACP countries in the consortium is an additional eligibility criterion.
  - For the topic ENV.2009.4.1.4.1, a minimum of two participants from developing countries in the consortium is an additional eligibility criterion.
  - For the topic ENV.2009.5.1.0.1, the participation of minimum two Chinese partners in the consortium is an additional eligibility criterion.
  - For the funding scheme 'Research for the benefit of specific groups-CSOs' at least 1 of the legal entities has to be a civil society organisation (CSO). In this context, *civil society organisations* are considered to be any legal entity that is non-governmental, not-for-profit, not representing commercial interests, and pursuing a common purpose in the public interest. Professional associations and consultancy organisations are not considered as specific groups under this scheme.
  - The following budgetary thresholds are applied as eligibility criteria:
    - Collaborative Projects in this work programme are divided into a) small or medium-scale focused research projects, and b) large-scale integrating projects:
      - For small or medium-scale focused research projects, the requested Community contribution shall not exceed EUR 3 500 000 million, except for topic ENV.2009.4.2.3.2, where the requested Community contribution shall not exceed EUR 1 500 000.
      - For large-scale integrating projects the requested Community contribution shall be from EUR 4 000 000 up to EUR 7 000 000.
    - Network of Excellence (NoE), the requested Community contribution shall be up to EUR 7 000 000.
    - CSA, the 'Coordination and Support Action' funding scheme, allows for 2 different types of actions to be financed: a) coordinating action or b) supporting action. The requested Community contribution for these coordinating or supporting actions shall not exceed EUR 1 000 000 , except for topic ENV.2009.1.2.3.1, the requested Community contribution shall be up to EUR 4 000 000.
    - CSA, ERA-Net – coordinating type. The requested Community contribution shall not exceed EUR 2 000 000.
    - For 'Research for the benefit of specific groups, the requested Community contribution shall not exceed EUR 1 500 000.

**Only information provided in part A will be used to determine whether the proposal is eligible with respect to budget thresholds and partnership.**

- Particular requirements for participation, evaluation and implementation:  
The minimum number of participating legal entities for all funding schemes is set out in the Rules for Participation and presented in the relevant parts below.

<b>Funding scheme</b>	<b>Minimum conditions</b>
Collaborative project	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or

	AC
Collaborative project for specific cooperation actions (SICA) dedicated to international cooperation partner countries	At least 4 independent legal entities. Of these, 2 must be established in different MS or AC. The other 2 must be established in different international cooperation partner countries (ICPC)
Network of Excellence	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC
Coordination and support action (coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC
Coordination and support action (supporting action)	At least 1 independent legal entity.
Research for the benefit of specific groups	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC. At least 1 of the legal entities has to be a civil society organisation (CSO).

- Evaluation procedure:
  - A one-stage submission procedure will be followed.
  - Proposals may be evaluated remotely.
  - A reserve lists may be established for the sub-activities<sup>30</sup>
  - The evaluation criteria (including weights and thresholds) and sub-criteria together with the eligibility, selection and award criteria for the different funding schemes are set out in annex 2 to this work programme. In the case of large-scale integrating Collaborative Projects, maximum one project will be retained per topic. In the case of small and medium-scale focused Collaborative Projects, maximum two proposals will be retained per topic, except for topic ENV.2009.4.2.3.2 for which maximum three proposals will be retained. There is no maximum number of proposals for Coordination and Support Action, except for topic ENV.2009.5.1.0.1, for which one proposal will be retained.
  - If necessary, the panel will determine a priority order for proposals which have been awarded the same score within a ranked list. The approach described in Annex 2 of the Cooperation work programme will be applied successively for every group of *ex aequo* proposals requiring prioritisation, with the addition that among the proposals that address topics not otherwise covered by more highly-rated proposals, SICA proposals are given first priority.
  - In case there would be an insufficient number of eligible proposals passing the evaluation thresholds in order to consume the budget of a given Sub-Activity, the remaining indicative budget of that Sub-Activity will be transferred to the other Sub-Activities pro-rate. In case additional funding, such as third country contribution, becomes available or when residual budgets remain under the Sub-Activities, the

<sup>30</sup> A reserve list will be constituted if there is a sufficient number of good quality proposals. It will be used if extra budget becomes available.

following formula and criteria (in the order indicated) shall be used to establish the list of proposals suggested for funding:

- 1) Maximising coverage of the work programme
- 2) Prioritising SICAs
- 3) Maximising the number of projects funded and ensuring efficient use of the overall call budget

- Indicative evaluation and contractual timetable:  
Evaluations are expected to be carried out during the months of February – March 2009. It is expected that the contract negotiations for the shortlisted proposals will be opened in June 2009.
- Consortia agreements:  
Participants in collaborative projects (large-scale integrating projects) and Networks of Excellence are required to conclude consortia agreements.
- The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

**Call identifier:** FP7-2009-BIOREFINERY<sup>31</sup>

**Date of publication:** 3 September 2008

**Deadline:** 2 December 2008 at 17.00.00, Brussels local time<sup>32</sup>

**Indicative budget**<sup>33,34</sup>: EUR 57 million from the 2009 budget of which:

- EUR 10 million from Theme 2 – Food, Agriculture and fisheries, biotechnology (KBBE)
- EUR 7 million from Theme 4 – Nanosciences, nanotechnologies, materials and new production technologies (NMP)
- EUR 30 million from Theme 5 – Energy
- EUR 10 million from Theme 6 - Environment.

The final budget awarded to this call, following the evaluation of projects, may vary by up to 10% of the total value of the call.

**Topics called:**

The Biorefinery topics are evaluated and implemented jointly by the Themes 2, 4, 5, 6 mentioned above. They are identical in each theme. When applying for this call please use one of the activity codes below. Each proposal must be submitted only once

Activity/ Area	Topics called	Funding Schemes
<b>ACTIVITY KBBE 3: LIFE SCIENCES, BIOTECHNOLOGY AND BIOCHEMISTRY FOR SUSTAINABLE NON-FOOD PRODUCTS AND PROCESSES</b>		
KBBE-2009-3-7-01	Sustainable Biorefineries	Collaborative Project
KBBE-2009-3-7-02	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordinating action)
<b>ACTIVITY NMP 4: INTEGRATION OF TECHNOLOGIES FOR INDUSTRIAL APPLICATIONS</b>		
NMP-2009-4.0-1	Sustainable Biorefineries	Collaborative Project
NMP-2009-4.0-2	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordinating action)
<b>ACTIVITY ENERGY 3: RENEWABLE FUEL PRODUCTION</b>		
ENERGY.2009.3.3.1	Sustainable Biorefineries	Collaborative Project
ENERGY.2009.3.3.2	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordinating action)

<sup>31</sup> The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication

<sup>32</sup> At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months.

<sup>33</sup> A reserve list will be constituted if there is a sufficient number of good quality proposals. It will be used if extra budget becomes available.

<sup>34</sup> Under the condition that the preliminary draft budget for 2009 is adopted without modification by the budgetary authority.

<b>ACTIVITY ENV 3: ENVIRONMENTAL TECHNOLOGIES</b>		
ENV.2009.3.3.2.2	Sustainable Biorefineries	Collaborative Project
ENV.2009.3.3.2.3	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordinating action)

### Indicative budget per topic

	Indicative Budget <sup>35</sup>
Sustainable Biorefineries	EUR 55 million
Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	EUR 2 million

In case the budget of EUR 2 million for the topic 'Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries' cannot be consumed (totally or partially) the remaining budget will be returned to the topic 'Sustainable Biorefineries'.

### Eligibility Conditions

The evaluation criteria, together with the eligibility, selection and award criteria, for the different funding schemes are set out in Annex 2 to this work programme.

The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation. They are summarised in the table below<sup>36</sup>:

<b>Funding scheme</b>	<b>Minimum conditions</b>
Collaborative project	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and support actions (coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.

### Evaluation procedure:

- Proposals will not be evaluated anonymously.
- Proposals will be evaluated remotely with the consensus session being held in Brussels.
- The page limits that apply to proposals submitted under this call are given in the Guide for Applicants and in the proposal part B template available through the EPSS. The Commission will instruct the experts to disregard any pages in excess of these limits.

<sup>35</sup> A reserve list will be constituted if there is a sufficient number of good quality proposals. It will be used if extra budget becomes available.

<sup>36</sup> MS = Member States of the EU; AC = Associated country. Where the minimum conditions for an indirect action are satisfied by a number of legal entities, which together form one legal entity, the latter may be the sole participant, provided that it is established in a Member State or Associated country.

- At the Panel stage, proposals with equal overall scores will be prioritised according to their scores for the S/T Quality criterion. If they are still tied, they will be prioritised according to their scores for the Impact criterion.

### **TOPIC SUSTAINABLE BIOREFINERIES**

The evaluation of the topic *Sustainable Biorefineries* shall follow a two stages procedure. The first stage proposals should focus on the S&T content and on clear identification of the intended results, their intended use and the expected impact (economic, social, environmental, etc.). Information on consortium composition and estimated financial resources involved should also be provided.

First stage proposals will be evaluated on the basis of their S/T Quality and Impact. Stage 1 proposals shall be submitted by the closure date mentioned above.

Coordinators of retained proposals in stage 1 ("go" proposals) will be invited to submit a complete proposal that will be then evaluated against the entire set of evaluation criteria. The closure date of the second submission will be specified in the invitation to submit the complete proposal. The indicative closure date is 05.05.2009.

Hearings may be organised.

#### **Evaluation criteria and thresholds**

Stage 1 proposals are evaluated on the basis of their **S/T quality** and **Impact**. For each criterion marks from 0 to 5 will be given, with the possibility of 0.5 point scores. Successful proposals must pass the minimum thresholds as follows:

<b>STAGE 1</b>	<b>Minimum threshold</b>
<b>S/T quality</b>	<b>4/5</b>
<b>Impact</b>	<b>3/5</b>
<b>Overall threshold required</b>	<b>8/10</b>

Stage 2 proposals are evaluated on the basis of the following three criteria: **1. S/T quality; 2. Implementation; 3. Impact**. For each criterion marks from 0 to 5 will be given, with the possibility of 0.5 point scores. Successful proposals must pass the minimum thresholds as follows:

<b>STAGE 2</b>	<b>Minimum threshold</b>
<b>S/T quality</b>	<b>4/5</b>
<b>Implementation</b>	<b>3/5</b>
<b>Impact</b>	<b>4/5</b>
<b>Overall threshold required</b>	<b>12/15</b>

#### **Indicative Evaluation and contractual timetable**

Evaluation stage 1 proposals: remote phase December 2008, consensus phase January 2009.  
 Evaluation stage 2 proposals: remote phase May/ June 2009, consensus phase June 2009.  
 Evaluation results: estimated to be available by the end of July 2009. A reserve list of projects might be established.

**The following points will be reflected in the evaluation:**

The participation of relevant industrial partners, along with research organisations, SMEs, end-users and civil society organisations is essential to achieving the expected impact.

**TOPIC ENHANCING EXCHANGE OF INFORMATION, SYNERGIES AND CROSS-FERTILISATION BETWEEN PROJECTS IN THE FIELD OF BIOREFINERIES**

The evaluation of the topic Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries shall follow a one stage procedure. Proposals shall be submitted by the closure date mentioned above and evaluated against the entire set of evaluation criteria.

**Evaluation criteria and thresholds**

Proposals are evaluated on the basis of the following three criteria: **1. S/T quality; 2. Implementation; 3. Impact.** For each criterion marks from 0 to 5 will be given, with the possibility of 0.5 point scores. Successful proposals must pass the minimum thresholds as follows:

	<b>Minimum threshold</b>
<b>S/T quality</b>	<b>3/5</b>
<b>Implementation</b>	<b>3/5</b>
<b>Impact</b>	<b>3/5</b>
<b>Overall threshold required</b>	<b>10/15</b>

**Indicative evaluation and contractual timetable**

Evaluations are expected to be carried out in December 2008 and January 2009 (Remote phase December 2008, consensus phase January 2009). It is expected that the contract negotiations for the short listed proposal will open by March 2009.

**The following points will be reflected in the evaluation**

The participation of relevant industrial partners is deemed as essential to achieving the expected impact.

***POINTS RELEVANT TO BOTH TOPICS***

**Consortia agreements**

Participants in Collaborative Projects are required to conclude a consortium agreement prior to grant agreement. Participants in coordination and support actions are encouraged, but not required, to conclude a consortium agreement.

Forms of grant and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

## IV OTHER ACTIONS<sup>37</sup>

– Monitoring, Evaluation and Impact Assessment

The 'Environment' Theme will comply with the prevailing requirements for monitoring, evaluation and impact assessments, both ex-ante and ex-post. This may involve studies and surveys as appropriate implemented through public procurement, and/ or appointing (groups of) experts. The overall commitment appropriations for this Activity in 2009 will be up to EUR 300 000, of which maximum EUR 250 000 for public procurement.

The work will include a mid-term review of environment activities under the 7<sup>th</sup> Framework Programme and studies on the longer term impact of Community funding of research in certain areas/ disciplines/ sectors, including from previous Framework Programmes. This review will be subject to one contract following a public procurement procedure, to the extent possible by using a Framework contract already existing in the Commission for evaluation studies. The procedure is scheduled for the third quarter of 2009 in view of contract signature in the fourth quarter of 2009.

**Funding scheme:** CSA, public procurement / experts appointment

– ERA progress assessment in the Environment domain

A study will be supported to assess progress towards the realisation of the European Research Area in the S&T field of Environment. It will identify the strengths and weaknesses of research in this domain and identify any sector specific barriers impeding the realisation of ERA. This review will be subject to one contract following a public procurement procedure by using a Framework contract already existing in the Commission for evaluation studies. The procedure is scheduled for the first and second quarter of 2009. The overall commitment appropriations for this public procurement activity will be up to EUR 2 50 000.

**Funding scheme:** CSA, public procurement

– An annual contribution to the 2009 activities of the GEO Secretariat<sup>38</sup>

To ensure the implementation of the GEOSS according to its annual work plan and the continuity of the participation of Europe in GEO, the Commission will pay on behalf of the Community, which is member of the Group, a yearly contribution of EUR 600 000 to GEO Secretariat (hosted by World Meteorological Organisation in Geneva, Switzerland).

**Funding scheme:** CSA, other actions

– A contribution to a named beneficiary: World Meteorological Organisation

7bis Avenue de la Paix, Case Postale No 2300, CH-1211 Geneva

Dates: 31 August – 4 September

Location: Geneva

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<sup>37</sup> In accordance with Articles 14, 17 and 27 of Regulation (EC) No 1906/2006 of 18 December 2006 laying down the rules for the participation of undertakings, research centres and universities in actions under the Seventh Framework Programme and for the dissemination of research results (2007-2013).

<sup>38</sup> Contribution paid by the Communities as subscription to a body of which they are a member, according to Article 108(2)(d) of the Financial Regulation applicable to the general budget of the European Communities



Proposed EC contribution: EUR 200 000, in support to the Third World Climate Conference (WCC-3) in 2009. The objective is to contribute to this global conference on current issues of climate change. These Coordination and Support Action proposals shall be evaluated in accordance with the standard FP7 evaluation criteria (including weights and thresholds) and sub-criteria, together with the eligibility, selection and award criteria for the different funding schemes, as set out in Annex 2 to this work programme. Furthermore, the standard FP7 funding rates for Coordination and Support Actions shall apply.

**Funding scheme:** CSA, identified beneficiary

- The Hydrogen and Fuel Cell Technology Joint Technology Initiative<sup>39</sup> will have an impact on environment research and technological development. These activities will be implemented by separate mechanisms and the details of topics will not be elaborated in this work programme.
- External expertise
  - The use of appointed external experts for the evaluation of project proposals and, where appropriate, for the reviewing of running projects.
  - The set up of groups of external experts to advise on or support the design and implementation of Community research policy.

The indicative budget for external expertise is EUR 2 500 000.

**Funding scheme:** CSA, experts appointment

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<sup>39</sup> Commission Proposal for a Council Regulation setting up the Fuel Cells and Hydrogen Joint Undertaking, COM(2007)571 of 9 October 2007

## Indicative Budget

### Indicative budget for the Environment Theme for the 2009 work programme<sup>40</sup>

	2009 (in EUR million)
<b>Calls:</b>	
FP7-ENV-2009-1	193.5 <sup>41</sup>
FP7-2009-BIOREFINERY	10*
<b>Total</b>	<b>203.5</b>
<b>Evaluations</b>	<b>2.0</b>
<b>General activities (cf. Annex 4)</b>	<b>2.62</b>
<b>Other activities:</b>	
• Project reviews (600 000)	
• Programme impact assessment (300 000)	
• ERA progress assessment in the Environment domains (250 000)	
• Support to the 2009 Activities of the GEO Secretariat (600 000)	
• Contribution to the Third World Climate Conference (200 000)	
<b>Total</b>	<b>1.95</b>
<b>Estimated total budget allocation</b>	<b>210.07</b>

All budgetary figures given in this work programme are indicative. Following the evaluation of proposals, the final budget awarded to actions implemented through calls for proposals may vary:

- by up to 10% of the total value of the indicated budget for each call; and
- any repartition of the call budget may also vary by up to 10% of the value of the indicated budget for the call.

The final budgets for evaluation, monitoring and review may vary by up to 20% of the indicated budgets for these actions. The final budget for actions not implemented through calls for proposals may vary by up to 10% of the indicated budgets for these actions.

\*The total budget of the joint call FP7-2009-BIOREFINERY will be EUR 57 million of which EUR 10 million from Theme 2 – Food, Agriculture and fisheries,

<sup>40</sup> Under the condition that the preliminary draft budget for 2009 is adopted without modifications by the budget authority

<sup>41</sup> This amount includes an indicative amount of up to EUR 4 million for the ERA-Nets foreseen under this Theme – See Annex 4 of the Cooperation work programme concerning the FP7-ERANET-2009-RTD joint call.

biotechnology, EUR 7 million from Theme 4 – NMP, EUR 30 million from Theme 5 – Energy, EUR 10 million from Theme 6 - Environment<sup>42</sup>.

**Summary of budget allocation to general activities for 2009 in million EUR (cf. Annex 4)**

Cordis	0.69
Eureka/Research organisations	0.02
COST	1.9
ERA-Net	0.01
<b>Total</b>	<b>2.62</b>

**Summary of budget allocation in the work programme 2009**

<b>Sub-Activity</b>	<b>Indicative budget (in EUR million)</b>
<b>6.1.1 Pressures on Environment and Climate</b>	32.5
<b>6.1.2 Environment and Health</b>	21
<b>6.1.3 Natural Hazards</b>	13
<b>6.2.1 Conservation and Sustainable Management of Natural and Man-Made Resources and Biodiversity</b>	27
<b>6.2.2 Management of Marine Environments</b>	22
<b>6.3.1 Environmental Technologies</b>	27
<b>6.3.2 Cultural Heritage</b>	8
<b>6.3.3 Technology assessment, Verification and Testing</b>	7 (+10*)
<b>6.4.1 Earth Observation</b>	20
<b>6.4.2 Sustainable Development</b>	12
<b>6.5.1 Dissemination and Horizontal Activities</b>	4
<b>Total</b>	<b>203.5</b>

\* includes the budget of the joint call on biorefineries

<sup>42</sup> Under the condition that the preliminary draft budget for 2009 is adopted without modification by the budgetary authority.