WORK PROGRAMME SUB-PRIORITY 1.1.6.3 "GLOBAL CHANGE AND ECOSYSTEMS"

4th Call for Proposals

WORK PROGRAMME SUB-PRIORITY 1.1.6.3 "GLOBAL CHANGE AND ECOSYSTEMS"

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1. INTRODUCTION

Global Change and Ecosystems sub-priority is addressing seven areas relative to the issues of:

I. Impact and mechanisms of greenhouse gas emissions and atmospheric pollutants on climate, ozone depletion and carbon sinks
II. Water cycle, including soil-related aspects
III. Biodiversity and ecosystems
IV. Mechanisms of desertification and natural disasters
V. Strategies for sustainable land management, including coastal zones, agricultural land and forests
VI. Operational forecasting and modelling including global climatic change observation systems
VII. Complementary research

The topics of each of the areas which will be subject of the fourth call for proposals are detailed in the following sections.

A cross-cutting dimension of Sustainable Development horizontal to these areas and to the Energy and Transport sub-priorities is contained in the introduction of the Specific Programme for Global Change and Ecosystems; this dimension is also covered for research as indicated at the end of this sub-chapter.

The instruments to be used for the fourth call for proposals are indicated for each topic. Additional elements about the budget, deadline, evaluation of proposals and links with other priorities are indicated in the last sections of this sub-chapter. For general guidelines on the whole Specific Programme *"Integrating and strengthening the European Research Area"* please see also the General Introduction.

2. OBJECTIVES, STRUCTURE AND OVERALL APPROACH

The research undertaken under “Global change and Ecosystems” has to be considered as a major support to the European Union (EU) Strategy for Sustainable Development which has been emphasised at the Göteborg European Council in 2001 and enlarged to an international scale in the Johannesburg Summit on Sustainable Development in 2002. The programme of activities carried out by the Priority 6.3 "Global Change and Ecosystems" is strengthening the necessary scientific basis, including socio-economic assessments and tools and management practices, for the future orientation of the Sustainable Development Strategy and of the Sixth Environment Action Programme. It will also ensure their implementation at the enlarged EU level and, when relevant, at world level. Research undertaken under this priority is also strengthening the scientific and technological capacities needed for Europe to understand and control global change, preserve ecosystems and protect biodiversity. It encourages international cooperation to achieve common strategies to respond to global change issues.
In this context several of the research themes of this priority contribute directly to the ambitious objectives of Environmental Technologies Action Plan (ETAP) for the European Union[1] as well as to the European Strategy for Environment and Health[2] and the Group on

[1] Communication from the Commission to the Council and the European Parliament “Stimulating Technologies for Sustainable Development: An Environmental Technologies Action Plan for the European Union”, COM (2004)38 final.

[2] Communication from the Commission to the Council, the European Parliament and the European Economic and Social Committee “European Strategy for Environment and Health, COM (2003) 338.

Earth Observations (GEO) initiative. In the context of the GEO initiative, the research should contribute to the development of a system of earth observation systems which may also be useful to other initiatives (e.g. Global Monitoring for Environment and Security (GMES)).

The aim of the research activity is to assemble a critical mass of resources helping to integrate and strengthen the European Research Area (ERA). For this purpose new instruments, (Networks of Excellence (NOE) and Integrated Projects (IP)), will be given priority. They will be complemented by Specific Targeted Research Projects (STREPs), Co-ordination Actions (CA) and Specific Support Actions (SSA).

The participation of countries targeted[3] by specific international cooperation activities is highly encouraged.

3. TECHNICAL CONTENT

The Work Programme is structured according to "areas" and "topics". The following section describes the topics which will be subject of the fourth call for proposals. The expected instruments are indicated for each topic. As in previous calls, up to one project utilising a new instrument will be funded for each topic. Based on the experience gained from the first calls for proposals and in line with the spirit of the Marimon report, for each new instrument the indicative available budget for the community contribution is provided. In this call, up-to-two projects[4] [5] utilising a traditional instrument (Specific Targeted Research Projects and Co-ordination Actions), will be funded for the relevant topics, unless otherwise indicated. The number of Specific Support Actions is not limited. There will be competition between topics and this may result in some topics not being supported.

Area I: Impact and mechanisms of greenhouse gas emissions and atmospheric pollutants on climate, ozone depletion and carbon sinks

The objective is to detect and describe global change processes, associated with greenhouse gas emissions and atmospheric pollutants from all sources, including those resulting from energy supplies, transport and agriculture, to improve prediction and assessment of their global and regional impacts, evaluate mitigation options and improve the access of European researchers to facilities and platforms for global change research as well as researchers from other regions of the world to participate in such joint research.

Research will concentrate on carbon and nitrogen cycles, atmospheric pollutants and their regional impacts, climate dynamics and variability, prediction of climatic change and its impacts, stratospheric ozone and climate interactions and adaptation and mitigation strategies.

[3] Mediterranean countries, countries from Western Balkans, developing countries, Russia and other NIS countries.

[4] Except for cases where “up to one” is explicitly mentioned

[5] In case the overall indicative budget for New and/or Traditional Instruments would not be fully used after the selection of the first/two first ranked projects in each topic area, other best ranked proposals may be considered for funding, provided that they are complementary with the ranked proposals proposed for funding.

I.1 Carbon and Nitrogen cycles: sources and sinks

Research will focus on integrating observations, process studies and modelling of the budgets of carbon and nitrogen to better quantify the biospheric carbon and nitrogen sources and sinks for terrestrial, aquatic and marine ecosystems. Furthermore, the effects of human-induced and natural disturbances of ecosystems and their impact on the carbon cycle and inter-annual variability and future projections of the carbon cycle are to be addressed. Emphasis will be placed on relevant ecosystems, bio-geochemical and hydrological processes and feedbacks of potential significance for the climate system. Global integration of marine, aquatic and terrestrial carbon and nitrogen sources and sinks and exchanges between the reservoirs should be foreseen.

I.1.1 Regional carbon and greenhouse gas budgets

(Topic for up-to-two STREPs/CA)

Quantification, understanding and prediction of greenhouse gas emissions in the new member states and in areas which are vulnerable to human land-use pressure such as Amazonia, Northern Russia and Siberia or Sub-Saharan Africa. Emphasis on the utilization and extension of existing carbon observing systems, aiming at an improved quantification of the long term continental budgets and associated spatial and temporal variability, with a view to supporting the implementation of the Kyoto Protocol and for underpinning future climate change mitigation policies.

I.2 Atmospheric pollutants and their regional impacts

Research will focus on the chemistry of atmospheric pollutants and greenhouse gases, the formation of aerosols and ozone and their impact on regional air quality and climate. The quantification and prediction of the emissions, and the long-range transport of these atmospheric constituents, will be targeted. The effects of aerosols on the climate system, either directly, through radiative effects, or indirectly, (through interactions with the hydrological cycle), will be quantified. Atmospheric chemistry-climate interactions, including their links with land and ocean processes at regional and global scale, are to be investigated.

I.2.1 Atmospheric composition change: Methane, Nitrous Oxide and Hydrogen

(Topic for up-to-two STREPs/CA)

For a better understanding of the global cycles of Methane, Nitrous Oxide and Hydrogen, sinks and sources should be investigated and quantified on the regional scale. There is a need to ensure the monitoring of atmospheric methane and Nitrous Oxide and to put in place capabilities for the monitoring of Hydrogen. Current Hydrogen levels, variability and trends should be quantified and the role of Hydrogen in the global atmosphere on the budgets of OH, Methane and Ozone needs to be investigated.

I.2.2 Atmospheric aerosols and climate forcing

(Topic for up-to-one IP, indicative Community contribution 10 million EUR)

Quantification of the role of aerosols in climate forcing and in regional air-quality. Understanding and quantification of key processes, including formation, transport and transformation processes, which determine global and regional variability. Research should target atmospheric loading of primary and secondary aerosols, and their chemical-physical

properties. This should include associated direct and indirect effects on processes, dynamics and climate (e.g. radiation and cloud formation and properties). Quantification of possible feedback processes between climate change and the production and loading of natural aerosols and precursors.

I.3 Prediction of climatic change and its impacts

The research should be performed on a global to regional scale. The physical impacts in view include sea-level change, changes in storminess and precipitation, severity and frequency of droughts. Models for predicting climatic change and its impacts need to be further developed. Uncertainties in the predictions, in particular those linked to earth system processes, should be quantified, as should the limits of climate predictability.

I.3.1 Climate change impacts in the Mediterranean area.
(Topic for up-to-one IP, indicative Community contribution 10 million EUR)

Integrated quantification of climate change impacts in the Mediterranean. Within an integrated framework, probable changes over the next decades to a century, including e.g. changes of weather patterns, extreme events, sea circulation, water resources and air pollution levels should be addressed together with probable associated consequences for economic sectors, living conditions and health indicators. Possible mitigation and adaptation strategies should be discussed. Participation from North African and Middle Eastern countries is strongly encouraged.

I.3.2 Climate change impacts in central-eastern Europe
(Topic for up-to-two STREPs/CA)

Quantification (based on appropriate regional modelling and downscaling approaches) of specific climate change impacts in central-eastern Europe. Probable changes over the next decades to a century should be considered, including changes in weather patterns, extreme events, water resources, and associated consequences on e.g. agriculture, forestry and air pollution levels.

Area II: Water cycle, including soil-related aspects

The objective is to understand the mechanisms and assess the impact of global change, and in particular climate change, on the water cycle, water quality and availability, as well as soil functions and quality to provide the bases for management and technological tools for water systems, to mitigate the impacts.

The research will focus on hydrology and climate processes, the ecological impacts of global change, soil functioning and water quality, integrated management strategies and mitigation technologies, and scenarios of water demand and availability.

II.1 Hydrology and climate processes

Climate change has a profound impact on the components of the water cycle; very relevant research challenges still exist with regard to climate change modelling to make them compatible for river basin or catchment management. There is a need to develop downscaling methods and improved modelling approaches to translate the results of global and regional climate change modelling studies to hydrological studies at spatial and temporal scales relevant for water management, and to develop up-scaling methods for water cycle parameters and related data assimilation techniques. Forecasting of climate change impacts on hydrology should give special attention to possible changes in the frequency and severity of droughts and floods. The knowledge should then be integrated at the global scale in order to be able to quantify and assess the vulnerability of the global water cycle.

II.1.1 Global Water Cycle, Water Resources and Droughts

(Topic for up-to-one IP, indicative Community contribution 10 million EUR)

Climate change has a profound impact on the components of the water cycle. Forecasting such impacts must take into account possible changes in frequency and severity of droughts and floods as well as other global change processes. Feedbacks from changes in hydrology and hydrological processes to climate change must also be considered. The research should focus on the interactions between the global water cycle and environmental change. Based on advanced modelling and high quality observational data the vulnerability of the global water resources shall be clarified. This research should include regional scenarios of future water resources and of drought and flooding frequencies.

II.1.2 Flash-flood forecasting

(Topic for up-to-two STREPs/CA)

Several flash flood events have been documented, both in EU R&D reports and scientific papers. However, a coherent presentation of these events, providing a homogenous coverage about meteorological and hydrological characteristics - and about damages - is still missing. There is a need then to analyze past flash flood events in order to enhance our understanding of inherent space-time scales, hydrological and hydraulic causative processes. In addition the project should develop methodologies for gathering and organizing data from already established hydro-meteorological observatories as well as complementary information following a flash-flood event into a freely accessible common European database. The ultimate objective would be to develop a coherent set of technologies and tools aimed at the establishment of effective early warning systems.

II.2 Ecological impact of global change, soil functioning and water quality

Global change can exert severe impacts on the ecology of aquatic and wetland ecosystems, on the filter and transport functions of soils and on water quality. Assessments of these changes require a better understanding of the consequences of major hydrological changes, to identify and quantify the key bio-geochemical processes and to predict the consequences of global change at different scales. The integrated management of soil-water systems requires a detailed understanding of the properties, and the functional role of soils and the behaviour and fate of pollutants, in order to allow the development of risk-based management approaches.

Research will focus on the impacts of global change on the ecology of surface water bodies, on how to improve floodplain functioning and management, and on water-soil system functioning and management.

II.2.1 Integrated risk-based management of the water-sediment-soil system at river-basin scale.

(Topic for up-to-two STREPs/CA)

Development of integrated risk assessment-based management approaches contributing to the production of services for the prevention and/or reduction of the negative impacts caused by human activities on the water/sediment/soil system (erosion, loss of organic matter, contamination, sealing, compaction, salinisation, loss of biodiversity, vulnerability to floods and landslides, etc.). Where necessary, innovative research should be conducted to elaborate these management approaches. A number of targets have to be addressed, such as the identification of the causes of degradation and their actual and future status, the improvement of risk-assessment methodologies, the development of preventive approaches, the identification of mitigation and remediation measures, the development of operational management tools, recommendations and options that should provide the knowledge base for the evolution and the implementation of community policies.

II.3 Integrated management strategies and mitigation technologies

Research will focus on the development of integrated approaches and tools for water-soil resources management in the context of global change – with its different components of climate change, land use change, other anthropogenic drivers, etc. – and integrated vulnerability assessments, taking also into consideration socio-economic and technological aspects of water use. Research will focus on the catchment scale, on the specific aspects of integrated urban water management and related technologies as well as on the management of scarce water resources. Specific technological developments will address drinking water systems as well as wastewater and storm-water systems, with the objective to improve cost-effectiveness, reliability, long-term sustainability, minimising the use of resources and taking into account the socio-economic aspects linked to the exploitation of new technological options. This section of the work programme is contributing to the objectives of Environmental Technology Action Plan (ETAP).

II. 3.1 Source control of priority substances

(Topic for up-to-two STREPs/CA)

Art. 16 of the Water Framework Directive has put in place a mechanism through which a list of 33 priority pollutants, for which environmental quality standards and emission control measures have to be established, was created. From this list, a group of 11 priority hazardous substances were identified, which will be subject to cessation or phasing out of discharges, emissions and losses within an appropriate timetable that shall not exceed 20 years. This action will investigate alternative technologies, management options and monitoring systems for source control of priority substances, carrying out, as well, a multi-criteria comparison with end-of-pipe solutions. The impact of different substitution options of priority substances for their various uses should be assessed. This action contributes to the objectives of the Environmental Technologies Action Plan (ETAP).

II.3.2 New concepts and processes in wastewater treatment

(Topic for up-to-two STREPs)

New concepts and processes in wastewater treatment are emerging (i.e. combination of advanced oxidation and biological treatments, integration of membrane processes, aerobic granulation, bio-augmentation, novel automation and control systems, wastewater design, etc.), with great potential benefits for the stable quality of effluents, for energy and operational costs saving and for the protection of the environment. Research should focus on leapfrog conceptual innovations in wastewater technologies and systems, developing the most promising combination of innovative technologies and processes, with the objective of defining a new set of advanced standards for wastewater treatment that may offer sustainable tailor-made solutions to end-users, either for new installations, or for the upgrading of existing plants. This topic is especially oriented towards industrial participation (particularly SMEs), which should be accordingly reflected in the proposals. This action contributes to the objectives of the Environmental Technologies Action Plan (ETAP).

II.3.3 Advanced technologies for locating, maintaining and rehabilitating buried infrastructures

(Topic for up-to-two STREPs/CA)

Water companies and other public utilities (energy, telecommunications, etc.) are continuously upgrading and repairing buried infrastructures with growing direct and indirect costs.

The need for substantial progress to be made in the technological tools available for increasing the capacity of public and private utilities in the integrated asset management of buried infrastructure, has become a major issue, given the very substantial investments in the field and the impacts at various levels. Only the cost of traffic congestion due to road works is in fact estimated to reach 1500 billion € per annum in Europe, in 2010. This topic seeks to address the development of new reliable technologies for water distribution and sewer networks – incorporating also performance and risk based approaches – for locating assets, identifying defects, identifying leaks, monitoring, maintaining and rehabilitating the buried infrastructures. The cost-effectiveness of the developed technologies and tools has to be evaluated. The main aim is to improve operation, maintenance, rehabilitation, serviceability, pollution prevention and safety thus minimising direct and indirect costs, including the environmental and socioeconomic ones. The participation of industries, end-users and SMEs is requested.

II.3.4 Advances in desalination

(Topic for up-to-two STREPs/CA)

Innovative concepts and technological development of membrane-based water desalination processes shall be addressed through research, testing and validation activities. The assessment and the minimisation of environmental impacts (i.e. brine disposal, sea-water suction, etc.) and the optimisation of the energy sources and consumption shall be considered together with the reduction of capital and operating costs. Representative participation of industry (SMEs and end-users) is requested. The involvement of partners from third countries is encouraged. The topic is contributing to the objectives of the Environmental Technology Action Plan. Projects should link to on-going European research activities on water management in water-stressed areas.

II.3.5 Water in Agriculture: new systems and technologies for irrigation and drainage
(Topic for up-to-two STREPs/CA)

Irrigated agriculture is facing new challenges as competition for water supplies, coupled with significant increases in energy costs, environmental considerations and tariff increases, threaten its economic viability. Climate change and variability are raising additional concerns. The aims of this action is to improve and optimize the changing irrigation and drainage systems, and help farmers to control water more efficiently and improve the environmental and economic performance of irrigation systems taking into consideration the linkages between irrigation practices at farm level and integrated basin management. Priority should be given to new engineering irrigation infrastructures, management approaches, research and demonstration activities aimed at integrating innovative sensor technologies, and measurement devices (within appropriate Decision Support Systems) taking into consideration various economic (market), environmental and technical factors. The participation of third country partners and SMEs is requested.

II.3.6 Twinning European/third countries river basins
(Topic for up-to-two STREPs/CA)

Integrated water resources management, in the form of case studies, to be carried out on twinned catchments/river basins from Europe and catchments from South-Southeast and East-Asian countries. Proposals must address all important integrated water resources management related issues in a balanced way, including conflict resolution in transboundary catchments where relevant. The objective is to ensure concrete contribution to the elaboration and implementation of integrated water resources management/river basin management at the targeted basins. They should promote, among others, capacity building of local research communities and institutions in conformity with the objectives of the EU Water Initiative launched in Johannesburg at the World Summit on Sustainable Development, and when possible, collaborations, synergies and joint undertakings with other relevant international/regional platforms in the geographical areas concerned. The participation of International Organisations is welcome, particularly for establishing interfaces with other bilateral or multi-lateral international co-operation actions. In order to enhance synergies and promote the optimal use of existing results, European river basin selection should take into account catchment areas studied in other EC funded projects as well as the pilot river basins of the Water Framework Directive Implementation Strategy.

II.3.7 Sustainable sanitation in Africa
(Topic for up-to-two STREPs/CA)

Recent studies indicate that under current implementation trends, there is a risk of missing the MDG sanitation target by more than half a billion people, with a number of regions around the world lagging behind, including sub-Saharan Africa. Given the EU commitment as expressed in the EU Water Initiative, an increased research effort should accompany relevant activities, also, in anticipation of the first phase of implementation of the EU Water Facility for ACP countries. The goal shall be to develop a variety of innovative, adaptable and replicable approaches to sustainable sanitation, aiming at integrating appropriate low cost technologies in the context of community based management (peri-urban and rural) and their relevant governance, institutional frameworks and socio-economic constraints. The participation of local research institutions and end-users is requested.

II.3.8 A knowledge network for solving real-life water problems in developing countries

(Topic for up-to-one CA)

The objective of this action is to support the development of a world-wide knowledge network cross-cutting the fields of knowledge of the individual disciplinary professional water research institutes to share knowledge and best practices in water supply and sanitation and help developing countries find viable and socially compatible technological solutions.

II.4 Scenarios of water demand and availability

Scenarios and scenario analysis are useful tools in international environmental assessment for evaluating future environmental problems and assessing policies to resolve them. They act as a crucial bridge between environmental science and policy. With the aim of defining a sustainable development framework and to provide policy-makers with instruments in support of policy choices, more advanced analytical tools have to be worked out in order to define more realistic medium- and long-term scenarios for water demand and availability at a wide regional level. Research will concentrate on the development of scenarios for Europe and neighbouring countries.

II.4.1 Water scenarios for Europe and for neighbouring countries

(Topic for up-to-one IP, indicative Community contribution 7 million EUR)

The project should be based on the development of medium-long term (15-25 years) model-supported and consistent scenarios, based on physical and ecological data, and advanced policy, demography, socio-economic and technological option design strategies. They should blend qualitative and quantitative approaches and combine anticipatory/exploratory ones. The participation of third countries should cover in particular the areas surrounding the EU and associated candidate countries borders in order to cover Europe as a whole including the Urals and Caucasus and the Mediterranean and Black Sea areas. The project should provide the basis for regional strategic planning of water management and technology options. The participation of third countries is requested. The project will support the EU Water Initiative. To maximise synergies, the project should link with and get inputs from on-going and planned European research activities on climate change, the water cycle and on sustainable development.

AREA III: Biodiversity and ecosystems

The objective is to develop a better understanding of marine and terrestrial biodiversity and of ecosystem functioning, to understand and minimise the negative impacts of human activities on them, and to ensure sustainable management of natural resources and terrestrial and marine ecosystems (including fresh water systems) as well as the protection of genetic resources.

The research will focus on assessing and forecasting changes in biodiversity, structure, function and dynamics of ecosystems and their services, with emphasis on marine ecosystems' functioning, relationships between society, economy, biodiversity and habitats, integrated assessment of drivers affecting ecosystems functioning and biodiversity, and mitigation options and on risk assessment, management, conservation and rehabilitation options in relation to terrestrial and marine ecosystems.

III.1 Assessing and forecasting changes in biodiversity, structure, function and dynamics of ecosystems and their services, with emphasis on marine ecosystems functioning

The research should focus on understanding biodiversity and ecosystem patterns, processes and dynamics at European and global scales, in a changing environment. Proposals should take account of developing Earth systems analysis and modelling initiatives.

III.1.1 Develop model(s) and simulation(s) to assess and forecast changes in terrestrial biodiversity and ecosystems

(Topic for up-to-one IP, indicative Community contribution 7 million EUR)

Assess and forecast changes in terrestrial biodiversity and ecosystems and changes in the ability of biodiversity and ecosystems to supply goods and services and to buffer against emergent diseases and climate change. Models and simulations should be designed with, and their output tested through, co-ordinated campaigns of field observations in key European ecosystems. The models, based on the best science available, should be sensitive to bio-geographical and socio-economic variations across Europe and forecast the combined effects on biodiversity of the main drivers, including both climate change and changes in land-use brought about by the implementation of EU policies. The relative importance of the main drivers, their interactions and possible feedback should also be assessed and forecast.
The models should serve the protection and sustainable management and utilisation of biodiversity, ecosystems and natural resources. They should facilitate the assessment of alternative policy options and plausible scenarios of future socio-economic changes. Observations, analysis and model outputs should be organised, where possible, to be compatible with global Earth observations in biodiversity and compatible with current EU-wide monitoring. Outputs should be accessible to policy makers.

III.1.2 Assess and forecast changes in the Mediterranean and Black seas ecosystems and their ability to provide services.

(Topic for up-to-one IP, indicative Community contribution 10 million EUR)

Assess and forecast changes in the Mediterranean and Black Sea ecosystems as well as changes in the ability of these ecosystems to provide goods and services and to buffer against environmental change. Models and simulations should be designed with, and their output tested through, co-ordinated field measurement campaigns, building on existing networks. The models should be sensitive to bio-geographical variations across the sea basins and forecast the combined effects of the main drivers operating at the sea basin scale, including climate change. The models should serve the protection, rebuilding and sustainable management and utilisation of biodiversity, ecosystems and natural resources; they should also contribute to the assessment of alternative policy options. Emphasis will be given to international co-operation and to the participation of candidate countries.

III.2 Relationships between society, economy, biodiversity and habitats

The research should focus on gathering data sets and developing models and tools for assessing and forecasting the impacts of socio-economic mechanisms on biodiversity and ecosystems, and so, contribute to the development of mitigation and restoration strategies.

III.2.1 Shaping biodiversity conservation strategies for terrestrial and fresh water ecosystems

(Topic for up-to-one CA)

Contribution to the development of conservation strategies based on concepts of dynamic ecosystems and habitats. These concepts include structure, function, processes, changes in species composition. Strategies should take into account the minimum area and connectivity requirements and the needs of society. The work should take into account knowledge generated by appropriate projects (including EU-funded projects), especially those that deal with drivers of biodiversity change. It will consider: (1) how biological diversity relates to ecosystem resilience, ecosystem functioning, ecosystem health and ecosystem capacity to provide services, (2) the means to improve existing indicators or develop and test new ones. Relevant indicators include those underlying and supporting the headline indicators adopted under the UN convention on Biological Diversity. New indicators should provide cost-effective, reliable and rapid assessment methods to monitor the ecological quality of ecosystems and habitats and methods to assess deviation from undisturbed areas, (3) the means to assemble, perfect and manage Europe-wide lists of endangered or threatened habitats and ecosystems, and develop appropriate methods for habitat management in order to maintain viable populations of threatened species, or alternatively to allow populations to adapt or to migrate, (4) and the means to characterise the biological traits and properties that tend to increase the probability that a species becomes threatened, rare or invasive. The coordination action should also identify gaps in knowledge that should be filled in view of developing innovative conservation strategies. The results should be prepared and presented in a way that allows them to contribute to strategies for conservation. The partnership should be appropriate for a project relevant to pan-European strategies, and might involve teams, research and test areas outside Europe.

AREA IV: Mechanisms of desertification and natural disasters

The objective is to understand the mechanisms of desertification and natural disasters (such as those caused by seismic and volcanic activity), including their links with climatic change so as to improve risk and impact assessment, forecasting, and decision support methodologies.

The research will focus on mechanisms of desertification and natural disasters.

IV.1 Mechanisms of desertification

Research will focus on the study of driving processes in the framework of likely scenarios of multiple stresses driven by land use changes and climate change and the development of methods/tools to achieve an integrated assessment. Emphasis will also be put on desertification monitoring; the organisation and structuring of data and information; on criteria for mapping sensitive areas; the development of coupled advanced modelling tools (social/ecological systems); the identification of a thresholds-indicators framework; on the assessment of the effect of extreme climatic conditions on erosion processes, and on land

degradation and the resilience of fragile ecosystems. Research will be performed on the development of innovative, soft, ecologically-based techniques and soil conservation measures and technologies for the prevention and mitigation of land degradation. Strategies have to be developed for land management in large representative pilot areas relevant to the UN Convention to Combat Desertification.

IV.1.1 Combat land degradation and desertification

(Topic for up-to-one IP, indicative Community contribution 7 million EUR)

Development of concepts, methodologies and actions for the protection and restoration of fragile ecosystems including techniques for protection against ground surface water erosion and soil degradation; Improvement of scientific support to the development and application of protection and restoration strategies and measures, development and demonstration of best practices, control measures, operational analytical methods, for decision making and sustainability impact assessment of combating options. Development of a harmonised data-information system. Evaluation and improvement of the efficiency of existing mitigation and adaptation techniques and of the guidelines for the protection of land. Production and dissemination of manuals incorporating methodological approaches, best practices and policy-relevant material for combating land degradation. International co-operation with the relevant regions and with developing countries is very much encouraged. The development of a world-wide knowledge network to share experience, knowledge and best practices against land degradation and to find viable solutions is encouraged, in view of technology transfer opportunities. The project should take into account the framework set up by the GEO initiative and pay attention to social and economic dimensions.

IV.2 Natural Disasters

Research will focus on risk assessment and mitigation with the aim of evaluating strategies for disaster reduction, while integrating the social and economic impacts of disasters. Efforts should take into account the potential for the operationalisation[6] of the methods and technologies developed, their efficiency and cost of implementation. The characterisation of high-risk areas through remote sensing, will contribute towards improved pre-disaster planning and damage assessment.

IV.2.1 Reduction of seismic risks

(Topic for up-to-two STREPs/CAs)

Development of new methods and concepts in order to decrease risks from seismicity. The main aim is to improve the capacity and power of real time seismology to deliver timely, integrated information in order to enable actions to be taken immediately before destructive shocks occur and to provide information and warning in the subsequent phases of events. It should contribute to the preparedness for, and the mitigation of, the consequences of catastrophic seismic events in particular in large towns and highly populated areas in Europe. Within a multidisciplinary framework work should include the assessment of emerging systems, improvement of knowledge on site response and vulnerability/damage scenarios and development of improved methods and techniques. Participation from third countries is encouraged.

[6] Pre-operational pilot services will be developed in Priority 1.1.2.

IV.2.2 Assessment and reduction of tsunami risk in Europe
(Topic for up-to-two STREPs/CAs)

Identification, characterisation of the potential large tsunami sources (seismic and non-seismic) affecting Europe. Improvement of analytical methods of near real-time signals for precise characterisation of tsunami and the tsunami potential of complex sources and for the development of Early Warning Systems (EWS). The improvement of (integrated) numerical models enabling more accurate scenarios of large tsunami impact and the production of inundation maps of vulnerable areas in Europe. Improvement of more probabilistic or statistical approaches of tsunami generation and impacts.

Area V: Strategies for sustainable land management, including coastal zones, agricultural land and forests

The objective is to contribute to the development of strategies and tools for the sustainable use of land, with emphasis on the coastal zones, agricultural land and forests, including integrated concepts for the multipurpose utilisation of agricultural and forest resources, and the integrated forestry/wood chain in order to ensure sustainable development at economic, social, and at environmental levels. Qualitative and quantitative aspects of the multifunctionality of agriculture and forestry will be addressed.

Two parts will be addressed in this area, the first one dedicated to sustainable land-use and the second one addressing the qualitative and quantitative aspects of the multifunctionality of the agriculture and forest/wood chain.

V.1 Sustainable use of land

V.1.1 Strategies for sustainable urban, peri-urban and rural land use relationships
(Topic for up-to-one IP, indicative Community contribution 7 million EUR)

The objective is to contribute to identifying strategies for sustainable urban and peri-urban land use relationships, with emphasis on understanding, planning and forecasting tools as well as to evaluate costs for their implementation. Improved and new GEO compatible databases and tools will integrate the multiple functions in an urbanizing society. Emphasis will be put on the interaction between growing urban areas, the peri-urban and rural land uses, the environment, the industry, the agriculture production, the multi-purpose utilization of forest resources and coastal zones, the natural and leisure parks and the biodiversity. The analysis will consider the impact of forecasted and scenarios based demography changes (in total number, age proportions, etc.) and migration patterns. Social (in particular in terms of equity), economic and ecological relations, linkages and impacts between urban areas, the surroundings and the rural areas have to be considered. Results should be usable by policy makers for sustainable impact assessment of policy options in terms of understanding, planning and forecasting the interactions between urban, peri-urban and rural areas.

V.1.2 Development of tools for impact assessment of land uses policies on the sustainable development of developing countries

(Topic for up-to-two STREPs/CA)

The objective is to assess the impact of land use policies on the sustainable development of developing countries taking into account multi-functionalities and European policies options. Emphasis will be given to the development of GEO compatible databases and tools for understanding, planning and forecasting impacts of land use policies on sustainable development, in particular on biodiversity and supply of public goods and services. Any related change in competitiveness between Europe and the rest of the world will be analysed. The analysis should include environmental, social and economic impacts. Thresholds of sustainability and externalities should also be evaluated.

V.1.3 Sustainable Development and Integrated Coastal Zone Management

(Topic for up- to-one IP, indicative Community contribution 10 million EUR)

Development of decision-making tools for the integrated assessment of policy options for Sustainable Development and Integrated Coastal Zone Management, based on forecasting scenarios, cost-effectiveness, cost-benefit analyses and technological assessment, ensuring consistency with policies, including the precautionary principle, environmental regulations and economic instruments. This shall be based on the description of human activities in the coastal zones and structuration of the various societal and environmental functions of these zones. On the basis of a sound description of the state of the environment, qualitative and quantitative analysis of the causes of environmental degradation (e.g. pollution, loss of habitat, coastal erosion, urban expansion, development of large infrastructures, tourism) and the assessment of their impacts on the coastal zone, definition and evaluation of thresholds of sustainability for the coastal zone shall be provided. Specific emphasis shall be given to the development of generic tools integrating the economic, environmental and social dimensions and their interactions at different scales. Data management systems – including in-situ and remote sensing observations – will be developed with specific consideration for the GEO initiative.

AREA VI: Operational forecasting and modelling including global climatic change observation systems

The objective is to make systematic observations of atmospheric, terrestrial and oceanic parameters, including those of climate, so as to improve forecasting of the marine, terrestrial and atmospheric environment, consolidate long-term observations for the modelling and in particular prediction, establish common European data bases and contribute to international programmes.

The research will focus on development of observing and forecasting systems.

VI.1 Development of observing and forecasting systems

VI.1.1 European underwater ocean observatory system

(Topic for up-to-one NoE, indicative Community contribution 7 million EUR)

Contribute to the implementation of a sustainable European underwater ocean observation network, extending into deep water, capable of monitoring biological, geo-chemical, geological, geophysical and physical processes occurring throughout the water column, sea floor interface and solid earth below. The network should have long-term capability for documenting global change processes, but with real time monitoring of short and medium term events, providing immediate warnings related to natural hazards. Provision for data archiving and dissemination is to be included. It should contribute to the understanding of key process and to the protection of the management of natural resources. It would contribute to form the sub-sea segment of the GEO initiative and provide research data for GMES. It should not address shallow waters. Emphasis should be given on SME participation and to international cooperation as well as on the potential for technology transfer.

VI.1.2 Integrated development of European coastal and regional seas forecasting systems

(Topic for up-to-one IP, indicative Community contribution 7 million EUR)

Support the consolidation, integration and development of existing networks (remote sensing and in-situ observations) into an integrated pan-European system able to make long-term systematic measurements of oceanic parameters, including biological parameters, in the regional and coastal seas of Europe. Such a system is targeted at detecting environmental and climate changes, predicting their evolution, producing forecasts and developing decision support systems, taking particularly into account the GEO initiatives and complementing the GMES initiative. Such a system should be designed to respond to the GEOSS 10 year Implementation Plan. Emphasis will be given to international co-operation and to the participation of SMEs with the potential for technology transfer.

VI.1.3 European atmospheric observation systems

(Topic for up-to-one IP, indicative Community contribution 7 million EUR)

Continuation, optimisation and analyses of long-term, ground-based atmospheric observations complementary to satellite measurements. Significant improvement in the integration of, and the completing of data gaps, between ground-based and satellite measurements is required for the optimization of the European observing capabilities related to atmospheric composition, physical parameters and climatic change. The goal is to strengthen the observation of atmospheric climate parameters and the European component of the coordinated international observing networks. The project will contribute to the GEOSS aims for atmospheric composition and climate change.

VI. 1.4 Framework for economic and social aspects of the 10 year Implementation Plan of the GEO
(Topic for up-to-two STREPs/CA)

The economic and social benefits are the final objectives of the GEO initiative, nevertheless they still need to be defined and structured, following each of the nine areas of the 10 year Implementation Plan. Methods and tools need to be defined and developed in order to provide quantitative and qualitative assessment of these benefits. Aggregation of results will have also to be considered.

Additionally, in the context of setting up the Global Earth Observation System of Systems (GEOSS), the Commission will make a financial contribution[7] to the **World Meteorological Organisation (WMO) which is the host international organisation for the secretariat of the Group on Earth Observations,** by a Specific Support Action as foreseen under Article 9.2.a of the Rules for Participation. The World Meteorological Organisation (WMO) will accommodate, within their facilities in Geneva, the secretariat of the Group on Earth Observations. The GEO Secretariat will be hosted by WMO financed through a separate account, in accordance with the WMO Financial Regulations. This Secretariat will be involved in the implementation of a Global Earth Observation System of Systems (GEOSS), as laid down in the 10-Year-Implementation-Plan, which was endorsed within the Resolution of the Third Earth Observation Summit, adopted on 16 February 2005 in Brussels. The Community contribution to the Secretariat for 2005-2006 shall be approximately 1.8 million EUR.

Area VII: Complementary research

The objective is to focus on the development of advanced methodologies for risk assessment of processes, technologies, measures and policies, the appraisal of environmental quality, including reliable indicators of population health and environmental conditions and risk evaluation in relation to outdoor and indoor exposure. Relevant pre-normative research on measurements and testing for these purposes will also be necessary.

The research will focus on the development of advanced methodologies for risk assessment, and the appraisal of environmental quality, population health and monitoring tools.

VII.1 Development of advanced methodologies for risk assessment

Chemicals and pathogenic agents in the environment put tremendous pressure on natural environmental resources and environmental health in the different regions of Europe. The overall aim is to strengthen and advance risk assessment knowledge and practices for integrated risk assessment of environmental stressors and better application of the

[7] The Commission is full member of GEO since 16.02.2005 (Resolution of the third E.O. Summit and of the 10-year GEOSS implementation plan).

precautionary principle. The transfer of knowledge between experts in human health and environmental quality is essential. The approach should also include risk evaluation in relation to outdoor and indoor exposure and take into account the European diversity e.g. the geographical, ecological, social and cultural differences. The research will focus on the establishment of an integrated risk assessment scheme, covering both the development of risk assessment methodologies and more specific methods for the risk assessment of pharmaceuticals in the environment. Moreover, research will be launched on the development of new methodologies for assessing the life cycle of products.

VII.1.1 Intelligent testing strategy for chemicals

(Topic for up-to-one IP, indicative Community contribution 10 million EUR)

Integration of molecular modelling (computational chemistry), QSARs, read-across methods, in vivo and in vitro information on analogues, in order to minimise the need for animal testing. For chemicals that lack data on toxicological and exposure potential, the challenge is to create the means to efficiently and credibly predict toxic potency and levels of exposure to make reasonable decisions as to whether or not empirical studies are required to further refine a risk assessment. In the context of regulatory programmes, where data generation is required to make regulatory decisions, the challenge is to develop, in a scientifically credible and transparent manner, a change from a paradigm that requires extensive hazard testing, followed by the elimination of information not relevant to the assessment, to a paradigm that provides the means to use a hypothesis- and risk-driven approach to identify the specific *in vivo* information most relevant to the assessment. The development and the integration in this context of computational chemistry techniques, read-across methodologies, QSARs with in vitro and in-vivo information available on analogues may lead to the minimisation of animal testing. This is particularly necessary for the more complex end-points (i.e. reproductive or neuro-developmental), where in-vitro testing methods are not available and seem very difficult to develop.

VII.1.2 Life Cycle Analysis

(Topic for up-to-one CA)

To review current state of the art on the development and use of these tools and identification of knowledge gaps where further research is required. Links should be established with the relevant areas of knowledge developed in other fields and with other assessment tools including theory and tools on externalities.

VII.2 Appraisal of environmental quality, population health and monitoring tools

Climate change, the contamination of soil and water resources, air pollution and other forms of environmental damage have consequences not only on ecosystems but also directly or indirectly on human health. Research should address the climate change-driven environmental changes likely to affect human health. Moreover, research should tackle broad aspects of environmental quality, damage assessment, cost-benefit analysis and health impact assessment methodologies taking into account relevant Community policy. The actions should provide improved environmental monitoring and early warning tools, interface and transfer of

knowledge, integrated measurement systems and validated common standardised methods. The research will focus on the development of methods for appraising environmental quality and health, and on environmental monitoring tools (standards, measurement and testing).

VII.2.1 Validating, disseminating and exploiting best practices and decision-support tools for environment and health assessment and policy support

(Topic for up-to-one CA)

The aim is to build long-term scientific co-operation and collaboration between researchers, policy-makers and other stakeholders in the area of environment and health research and assessment. This network shall focus on the dissemination of knowledge and best practices gained in research activities supporting the implementation of the European Environment and Health Action Plan. The work will lead to the validation and development of wider use of decision-support tools for supporting the development of new policies and identification of possible emerging issues. In addition, the network will validate and exploit necessary methods and tools (e.g. software, models) to adapt data and results from European research projects on environment and health. The project will contribute to the development of the integrated environment and health information system of the European Environment and Health Action Plan (2004-2010), and liaise with relevant international organisations during this period.

VII.2.2 Development of methods and tools for environment and health impact assessment and cost-benefit analysis for building and assessing future environment and health scenarios

(Topic for up-to-one IP, indicative Community contribution 5 million EUR)

The aim of the project is to develop methodologies for risk assessment including combined exposures, stressors identification, health impact assessment and cost-benefit analysis for building and assessing future environment and health scenarios. The approach should include generation of new methodologies, including better representation of uncertainty models. It should be targeted to the application of the “full-chain approach”. It will identify relationships between sources of pollution, emissions, concentrations, human exposure and health impacts. It will further include the monetary valuation of environment and health effects, in the relevant application areas (e.g. air pollution, water, noise, odour and combined exposures). It will review the specific methodologies for valuating children’s health. This project will contribute directly to the implementation of the European Environment and Health Action Plan.

VII.2.3 Health, economic and social impacts of extreme events

(Topic for up-to-one IP, indicative Community contribution 5 million EUR)

The loss of lives caused in Europe by the heat wave of summer 2003, showed just one of the risks associated with extreme events that need a coherent approach of adaptation and protection measures including warning systems, particularly for the protection of the most vulnerable population groups. The aim of the project is to develop methodologies and systems to assess overall health, economic and social impacts of extreme events. The project should integrate and utilize data from different sources taking also into account concepts identified in the Implementation Plan of the Group on Earth Observation Initiative.

Area VIII Cross-cutting issue: Sustainable Development concepts and tools

The objective is to develop concepts and tools for facing the complex challenges expressed in the EU Strategy on Sustainable Development and the Johannesburg Summit and to characterise the sustainability dimension of the relevant policies. The precautionary principle and the regional aspects to sustainable development will be key elements to be taken into account. Development of tools related to the modelization of environmental technologies and their characteristics is part of the development of the broader "Sustainability Impact Assessment" capacities.

VIII.1 Estimating thresholds of sustainability and externalities

The definition and estimation of scientifically based thresholds of sustainability and points of no-return, as a tool for the sustainable management and the characterisation of the state of the environment, will have to be addressed; this implies an equal balance between the necessary ecological, social and economic dimensions. This activity will cover the estimation of cumulative, interactive effects over time caused by current and foreseeable actions, the coupling of data with policy judgements reflecting costs, the identification of time and scale of potential damages and the use of thresholds in policy making. Externalities play an important but not visible enough role in the economy (e.g. environmental and health externalities). The definition and the implementation of Sustainable Development initiatives have to take them explicitly into account and their economic and social valuation is necessary. Some of these externalities can be subject of monetary valuation which facilitates the cost-benefit analysis of initiatives. This activity will cover the characterisation of externalities of policies, activities and technologies, and the integration of externalities in the policy assessment and decision-making process.

VIII.1.1 Elaboration of new accounting frameworks of environmental externalities
(Topic for up-to-one IP, indicative Community contribution 5 million EUR)

The objective of the project is to quantify within an accounting framework environmental impacts in the EU 25. This framework will improve the quantitative analysis of impacts that are used in cost-effectiveness and cost-benefit analyses to support impact assessments of policies, of technologies and of measures involving current and future sustainability standards. The research will focus on environmental impacts covering a broad range of areas such as air, soil and water pollution, soil and biodiversity losses, toxics, noise, odours and waste. It will include the harmonisation, adaptation and generalisation of methods for valuating direct and external costs as well as benefits on society. The tools will allow identifying sustainability options and their impacts at the macro, sectoral and micro level, including the analysis of the knowledge spillovers that have an effect on relevant policies and multifunctional land-use planning. Building on existing experiences, the project will also develop cost-effective and operational tools for producing this data and results that are compatible with the GEO system.

VIII.1.2 Verification and testing networks
(Topic for up-to-two STREPs/CA)

Creation of sectoral networks of testing centres for environmental technologies (see Communication on ETAP[1] in the fields of: 1) Air emission reduction technologies, – in particular for industrial combustion processes and for small combustion sources -, and 2) Sludge and solid wastes treatment including recycling, to evaluate the reliability of specifications provided by the producers. The successful actions should develop testing protocols as well as put forward a concept which will permit the development, in a consistent way, of similar protocols in other sectors. Each network should comprise an expert institute to monitor and report on long-term technology and market prospects. Dissemination of information and awareness-raising should also be included.

Area IX: Specific Support Actions

Specific Support Actions are projects aiming to actively contribute to the implementation of the work programme, the analysis and dissemination of results or the preparation of future activities, with a view to enabling the Community to achieve or define its RTD strategic objectives. They will also be implemented to encourage and facilitate the participation in the activities of this priority thematic area of SMEs and they will stimulate international co-operation.

In addition to the Specific Support Action in favour of the World Meteorological Organisation (WMO) as the host international organisation for the secretariat of the Group on Earth Observations as indicated above under Area II, Section VI: "Operational forecasting and modelling including global climatic change observation systems", ***the following topics should be considered as examples for Specific Support Actions:***

Disaster Reduction in Europe: Synthesis of the state of knowledge on natural disasters, information and best practices on multi-risk assessment, prevention measures, and strategies for improving awareness-building. The synthesis should take into account the outcome of the UN World Conference on disaster reduction-Hyogo Framework for action 2005-2015 and be based on activities at national and European level. Important research and development needs should be identified and the best level of implementation (EU, national, regional …) and their complementarities should be discussed.

European assessment of the impact of transport on climate change and ozone depletion: Up to date assessment of the atmospheric loading, impacts on climate change and stratospheric ozone depletion of gases and particulates from the air- and surface transport sectors, and estimates of current and future trends. The assessment should build on the results from EU projects (FP5) and other national and international projects and sources (including the 1999 IPCC Special Report "Aviation and the Global Atmosphere").

Targeted actions to enhance the co-operation between Europe and the developing countries within the context of marine observation systems: They should aim to provide a European contribution to the development of pre-operational marine observation and information systems together with non-EU countries, in particular in developing countries, in the context of the GEO initiative GEOSS.

European biodiversity research strategy: Further development of a strategy that takes into account, inter alia, the projects funded under FP6 (including the ERA-Nets), the GEO initiative "GEOSS" and consequent need to involve 3rd countries, the declarations of the Paris Conference "Biodiversity: Science and Governance" and to further integrate all Member States and Candidate Countries into the ERA area for biodiversity.

EU- US scientific cooperation: A review of the joint initiatives in the field of ocean ecosystems, hydrological observatories, infrastructure and data management in order to explore opportunities and potential benefit to co-ordinate large research programmes and organisation of common workshops.

Rapid identification of pollutants: Deployment of co-operation and communication mechanisms among projects aimed at the development and application of cost-effective technologies for the rapid identification of pollutants (and in particular priority substances and "emerging pollutants" such as endocrine disruptors and pharmaceutical residues) in the marine environment, in freshwater, sediments and soils, and assessment of their fate in the environment after pollution disasters.

Millennium Development Goals for Water: Building interfaces/networking between development cooperation and scientific communities towards addressing water-related millennium development goals.

Assessment and dissemination of results emerging from European research on Environment and Health:
As part of the mid-term review of the Environment and Health Action Plan, an assessment of the progress made in the priority research areas will be carried out to identify and disseminate the results which have high policy relevance. In addition, the assessment should identify emerging environmental threats not yet covered in the Action Plan.

4. LINKS TO OTHER RESEARCH TOPICS

The main links between some topics of "Global Change and Ecosystems" and the other priorities which will be subject of co-ordination are indicated below. The differentiation between the priorities is indicated in the description of the topics presented in section 3.

- Priority 1.1.6.3. will contribute to Global Monitoring for Environment and Security (GMES) although the main research contribution will come from the Priority 1.1.4 "Aeronautics and Space".
- In situ Earth Observations, Natural disasters, Coastal and Water management systems will be co-ordinated with Priority 1.1.2 "Information Society Technologies".
- Sustainable Development and foresight of the "cross-cutting issue" activity will be subject to co-ordination with Priority 1.1.7 "Citizens and Governance in a Knowledge-based Society". It will also be co-ordinated with the similar activity of sub-priority 1.1.6.1. "Sustainable Energy" and sub-priority 1.1.6.2. "Sustainable Transport".
- Forestry/wood chain will be co-ordinated with Priority 1.1.3 "Nano-technology and Nano-sciences, Knowledge-based Multifunctional Materials, New Production Processes and Devices".

- Integrated Risk Assessment will be co-ordinated with Priority 1.1.5 "Food Quality and Safety"- Environmental health risks, and with the Integrated Scientific Area 1.4.2 "Health and Environment" (JRC multi-annual work programme), addressing exposure via human envirogenomics.
- Agricultural research for Sustainable Development as well as complementary research will be co-ordinated with Priority 1.1.5 "Food Quality and Safety".
- A general co-ordination for all areas is expected with "Specific activities covering a wider field of research", including activities related to the EU Water Initiative which will be co-ordinated with the "Specific Measures in support of International Co-operation".

5. IMPLEMENTATION PLAN AND RELATED ISSUES

Networks of Excellence, Integrated Projects, Specific Targeted Research Projects and Co-ordination Actions and Specific Support Actions are implemented by means of periodic calls with fixed deadlines.

Budget allocation, participants and type of instruments for the fourth call

Type of Instruments	Participants	Indicative budget 4th call 2005
Networks of Excellence	See general Rules for Participation	120
Integrated Projects	See general Rules for Participation	
STREPs	See general Rules for Participation	80
Co-ordination Actions	See general Rules for Participation	
Specific Support Actions	See general Rules for Participation	5

6. CALL INFORMATION

1. **Specific Programme:** Integrating and strengthening the European Research Area

2. **Activity:** Priority thematic area "Sustainable Development, Global Change and Ecosystems"; Sub-Priority "Global Change and Ecosystems"

3. **Call title:** Thematic call in the area of "Global Change and Ecosystems"

4. **Call identifier:** *FP6-2005-Global-4*

5. **Date of publication:** *19 July 2005*

6. **Closure date(s):** For IP and NOE: 3 November 2005 (first stage) at 17.00 (Brussels local time). For STREP and CA**:** 3 November 2005, at 17:00 (Brussels local time). For SSA: 3 November 2005, at 17:00 (Brussels local time) (please see also No. 12 Proposal submission and evaluation procedure).

7. Total indicative budget: 205 M€

Instrument	€ (millions)
IP and NOE	120
STREP and CA	80
SSA	5

8. Areas called and Instruments:

Area	Topic	Instrument	Indicative Community contribution [M€]
Area 6.3.I: Impact and mechanisms of greenhouse gas emissions and atmospheric pollutants on climate, ozone depletion and carbon sinks	I.1.1	STREPs/CA	-
	I.2.1	STREPs/CA	-
	I.2.2	IP	10
	I.3.1	IP	10
	I.3.2	STREPs/CA	-
Area 6.3.II: Water cycle, including soil-related aspects	II.1.1	IP	10
	II.1.2	STREPs/CA	-
	II.2.1	STREPs/CA	-
	II.3.1	STREPs/CA	-
	II.3.2	STREPs	-
	II.3.3	STREPs/CA	-
	II.3.4	STREPs/CA	-
	II.3.5	STREPs/CA	-
	II.3.6	STREPs/CA	-
	II.3.7	STREPs/CA	-
	II.3.8	CA	-
	II.4.1	IP	7
Area 6.3.III: Biodiversity and ecosystems	III.1.1	IP	7
	III.1.2	IP	10
	III.2.1	CA	-
Area 6.3.IV: Mechanisms of desertification and natural disasters	IV.1.1	IP	7
	IV.2.1	STREPs/CA	-
	IV.2.2	STREPs/CA	-
Area 6.3.V: Strategies for sustainable land management, including coastal zones, agricultural land and forests	V.1.1	IP	7
	V.1.2	STREPs/CA	-
	V.1.3	IP	10

Area 6.3.VI: Operational forecasting and modelling including global climatic change observation systems	VI.1.1	NOE	7
	VI.1.2	IP	7
	VI.1.3	IP	7
	VI.1.4	STREPs/CA	-
Area 6.3.VII: Complementary research	VII.1.1	IP	10
	VII.1.2	CA	-
	VII.2.1	CA	-
	VII.2.2	IP	5
	VII.2.3	IP	5
Area 6.3.VIII: Cross-cutting issue: Sustainable Development concepts and tools	VIII.1.1	IP	5
	VIII.1.2	STREPs/CA	-
Area 6.3.IX: Specific Support Actions	IX	SSA	-

9. Minimum number of participants[8]:

Instrument	Minimum number of participants
IP, NOE, STREP and CA	Three independent legal entities established in three different MS or AS, with at least two MS or ACC
SSA	1 legal entity from a MS or AS

10. Restrictions to participation: None.

11. Consortia agreements:

- Participants in IP and NOE resulting from this call are required to conclude a consortium agreement.
- Participants in STREP, CA, and SSA resulting from this call are encouraged, but not required, to conclude a consortium agreement.

12. Proposal submission and evaluation procedure:

- For IP and NOE the evaluation shall follow a two-stage procedure. First stage: An outline proposal consisting of a part A[9], and of a part B of a maximum of 15 pages for this stage (font size 12), addressing only a reduced set of the evaluation criteria i.e. :
  - For IP: [relevance, potential impact, and S/T excellence]
  - For NOE: [relevance, degree of integration and the JPA]

  shall be submitted at the closure date mentioned under item n°6 above. Proposals having passed the minimum thresholds required in the first stage (12 out of 15 for IP and 8 out of 10 for NOE) will be retained for the second stage ("go" proposals).

[8] MS = Member States of the EU; AS (incl. ACC) = Associated States; ACC = Associated candidate countries.

Any legal entity established in a Member State or Associated State and which is made up of the requested number of participants may be the sole participant in an indirect action.

[9] For part A, of IP and NOE outline proposals, only the co-ordinator shall fill in the requested forms with the details of its organisation and the overall project budget.

Second stage: Coordinators of "go" proposals will be requested to provide a complete proposal, consisting of parts A and B, which will be evaluated against the whole set of evaluation criteria. The closure date for the second submission will be included in the invitation to complete the proposal (indicative closure date: 2 March 2006).

- For other instruments, the evaluation shall follow a single stage procedure.
- The evaluation process may involve "remote" evaluation of proposals by members of the evaluation panel and applicants may be invited to discuss their proposal with the evaluation panel.
- Proposals will not be evaluated anonymously.

13. Evaluation criteria:

See Annex B of the work programme for the applicable criteria (including their individual weights and thresholds and the overall threshold) per instrument.

14. Indicative evaluation and contractual timetable:

- Evaluation results are expected to be available within two to three months after the closure date.
- Conclusion of first contracts: it is estimated that the first contracts related to this call will be signed as from:
  - June 2006 for STREP, CA and SSA;
  - October 2006 for IP and NOE.