THEME 6 ENVIRONMENT (INCLUDING CLIMATE CHANGE)

ORIENTATION PAPER 2013

APRIL 2012

Working document – not legally binding

Important notice:
This paper is made public at an early stage in the adoption process of the work programme to provide potential applicants with the current expected main lines of the 2013 work programme. It is a working document not yet endorsed by the Commission and its content does not in any way prejudge the subsequent modifications by the Commission, the subsequent formal opinion of the Programme Committee nor the final decision of the Commission. The final adoption and the publication of the later work programme by the Commission are expected by mid-July 2012 via *http://ec.europa.eu/research/participants/portal/page/cooperation*. Only the adopted work programme will have legal value.

Information and topic descriptions indicated in this orientation paper may not appear in the final work programme; likewise, new elements may be introduced at a later stage. No essential information, such as indicative budgets per call/area, will be provided by the Commission until the final work programme is adopted. Any such information disclosed by any other party shall not be construed as having been endorsed by or affiliated to the Commission.
The Commission expressly disclaims liability for any future changes to the content of this document.

Table of Contents

Objective

The objective of the Environment (including climate change) Theme is the sustainable management of the environment and its resources through advancing our knowledge of the interactions between the climate, 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, mitigation of and adaptation to environmental pressures and risks including on health, as well as for the sustainability of the natural and man-made environment.

I Context

Political Landscape

Against the backdrop of the current economic situation and increased global competition, the Union has defined a strategy to support growth and job creation, Europe 2020[1]. The Innovation Union Flagship[2] initiative supports this strategy through specific commitments. Research and innovation are key drivers of competitiveness, jobs, sustainable growth and social progress.

The work programme 2013 is aligned with, and contributes towards, the objectives of Europe 2020, the Flagship Initiatives 'Innovation Union' and 'A Resource Efficient Europe'[3], and other EU policies. There is a determined focus on fostering new ideas, supporting world class teams tackling significant societal challenges, and on ensuring that the fruits of our investments can be properly exploited.

In this way the work programme provides for a smooth transition towards the new research and innovation programme for 2014-2020, Horizon 2020[4].

Approach for 2013

Under the heading 'Transformative and Responsible Innovation', the 2013 Environment (including climate change) work programme addresses three specific objectives:

- addressing major societal challenges;
- developing and strengthening European leadership in environmental innovation; and
- promoting and facilitating knowledge transfer, assessment, uptake and exploitation of research and innovation data and results in policy, industry and society.

These objectives will be met under five key challenges which cut across the 11 sub-activities defined in the Specific Programme: Coping with climate change; Sustainable use and

[1] Commission Communication 'Europe 2020. A strategy for smart, sustainable and inclusive growth', COM (2010) 2020 final of 3.3.2010.

[2] Commission Communication 'Europe 2020 Flagship Initiative. Innovation Union', COM(2010) 546 final of 6.10.2010.

[3] Commission Communication 'A resource-efficient Europe — Flagship initiative under the Europe 2020 Strategy', COM(2011) 21 final of 26.1.2011.

[4] Commission Communication ' Horizon 2020 - The Framework Programme for Research and Innovation', COM(2011) 808 final of 30.11.2011

management of land and seas; Improved resource efficiency; Protecting citizens from environmental hazards; and Mobilising environmental knowledge for policy, industry and society. To address these objectives, broader topics going beyond the limits of individual sub-activities as set out in the Specific Programme, have been defined.

In addition, this work programme contributes to the following overarching cross-thematic priorities:

- **Oceans of the future:**

  A number of topics will potentially be part of a joint call: 'The Ocean of tomorrow – 2013': joining research forces to meet challenges in ocean management.

  The following topics also contribute to this strategic agenda:
  - ENV.2013.6.1-1 'Climate-related ocean processes and combined impacts of multiple stressors on the marine environment'
  - ENV.2013.6.2-8 'Sustainable management of Europe's deep sea and sub-sea floor resources'.

- **Water:**

  The following topics make a major contribution to the strategic agenda and will also contribute to the aims of the proposed European Innovation Partnership 'Water':
  - ENV.2013.WATER INNO&DEMO-1 'Water efficiency and innovation demonstration projects'
  - ENV.2013.WATER INNO&DEMO-2 'Ensuring the integration of water and innovation demonstration projects and support to trans-national networks of procurers'.

  The following topics also contribute to this strategic agenda:
  - ENV.2013.6.2-1 'Water resources management under complex, multi-stressor conditions'
  - ENV.2013.6.2-2 'Toxicants, environmental pollutants and land and water resources management'
  - ENV.2013.6.3-3 'Contribution to the assessment of global water resources through the use of new Earth Observation datasets and techniques'.

- **Raw materials:**

  The following topic makes a major contribution to the strategic agenda and will also contribute to the aims of the proposed European Innovation Partnership 'Raw Materials:'
  - ENV.2013.6.3-1 'Turning waste into a resource through innovative technologies, processes and services'

  The following topics address related issues relevant to this priority:
  - ENV.2013.6.2-3 'Transition to sustainable, low carbon societies'
  - ENV.2013.6.2-8 'Sustainable management of Europe's deep sea and sub-sea floor resources'
  - ENV.2013.6.3-2 'Eco-innovative demonstration projects'

- ENV.2013.6.5-2 'Mobilising environmental knowledge for policy and society', sub-topic d) 'Raising societal awareness and tackling skill shortages on raw materials'.

- **Smart cities:**

  The following topics address related issues relevant to this priority:
  - ENV.2013.6.2-3 'Transition to sustainable, low carbon societies'
  - ENV.2013.WATER INNO&DEMO-1 'Water efficiency and innovation demonstration projects'
  - ENV.2013.WATER INNO&DEMO-2 'Ensuring the integration of water and innovation demonstration projects and support to trans-national networks of procurers'
  - EeB.ENV.2013.6.3-4 'Energy efficient retrofitting and renewal of existing buildings for sustainable urban districts'
  - ENV.2013.6.4-2 'Closing gaps of knowledge and reducing exposure to electromagnetic fields (EMF)'
  - ENV.2013.6.5-2 'Mobilising environmental knowledge for policy and society', sub-topic e) 'Implications of socio-economic research on air pollution policy'.

- **Secure, clean and efficient energy:**

  The following topics address related issues relevant to this priority:
  - ENV.2013.6.2-3 'Transition to sustainable, low carbon societies'
  - EeB.ENV.2013.6.3-4 'Energy efficient retrofitting and renewal of existing buildings for sustainable urban districts'
  - ENV.2013.6.4-4 'Towards stress tests for critical infrastructures against natural hazards'
  - ENV.2013.6.5-2 'Mobilising environmental knowledge for policy and society', sub-topic a) 'Policy and economic implications of the post-2012 climate agreements'.

- **Bio-resource efficiency:**

  The following topics address related issues relevant to this priority:
  - ENV.2013.6.1-4 'Land cover and land-use change and climate change mitigation'
  - ENV.2013.6.1-5 'Quantification of consumption-based emissions of greenhouse gases and assessment of policy options'
  - ENV.2013.6.2-3 'Transition to sustainable, low carbon societies
  - ENV.2013.6.2-4 'Sustainable land care in Europe'
  - ENV.2013.6.2-6 'Improved monitoring of the impact of cultivation on the environment using global Earth Observations'
  - ENV.2013.6.5-1 'Accelerating progress towards the Green Economy', sub-topic c) 'Business practices for promoting the 'Green Economy' and sustainable production and consumption post Rio+20'.

a) Innovation Dimension of the activities and bridging towards Horizon 2020

This work programme contains innovation measures in support of activities closer to market such as:

- Support to market-uptake, notably through activities aimed at generating knowledge to deliver new and more innovative products, processes and services.

  This includes activities such as prototyping, testing, demonstrating, knowledge transfer, proof of concept, as mentioned in the following topics:
  - ENV.2013.6.2-4 Sustainable land care in Europe,
  - ENV.2013.6.2-8 Sustainable management of Europe's deep sea and sub-sea floor resources,
  - Topics under the potential joint call: 'The Ocean of tomorrow – 2013': joining research forces to meet challenges in ocean management
  - ENV.2013.6.3-1 Turning waste into a resource through innovative technologies, processes and services,
  - ENV.2013.6.3-2 Eco-innovative demonstration projects, and
  - ENV.2013.WATER INNO&DEMO-1 Water efficiency and innovation demonstration projects.

  Activities addressing exploitation of existing research results include the following topics:
  - ENV.2013.6.3-2 Eco-innovative demonstration projects,
  - EeB.ENV.2013.6.3-4 Energy efficient retrofitting and renewal of existing buildings for sustainable urban districts,
  - ENV.2013.6.5-1 Accelerating progress towards the Green Economy,
  - ENV.2013.6.5-2 Mobilising environmental knowledge for policy and society, sub-topic,
  - ENV.2013.6.5-3 Exploiting the European Open Data Strategy to mobilise the use of environmental data and information
  - ENV.2013.6.5-4 Knowledge platforms, networking and uptake of research results for strengthened international R&I cooperation.

  Innovation is also encouraged by supporting demand-side measures such as pre-commercial procurement (notably via topic ENV.2013.WATER INNO&DEMO-2 'Ensuring the integration of water and innovation demonstration projects and support to trans-national networks of procurers').

  Industrial participation is encouraged particularly in the following topics:
  - ENV.2013.6.2-4 Sustainable land care in Europe,
  - ENV.2013.6.2-8 Sustainable management of Europe's deep sea and sub-sea floor resources,
  - Topics under the potential joint call: 'The Ocean of tomorrow – 2013': joining research forces to meet challenges in ocean management,
  - ENV.2013.6.3-1 Turning waste into a resource through innovative technologies, processes and services,
  - ENV.2013.6.3-2 Eco-innovative demonstration projects, and
  - EeB.ENV.2013.6.3-4 Energy efficient retrofitting and renewal of existing buildings for sustainable urban districts.

Other user engagement is encouraged particularly in topics:

- ENV.2013.6.2-3 Transition to sustainable, low carbon societies,
- ENV.2013.6.2-5 Urban biodiversity and green infrastructure,
- ENV.2013.6.2-7 Development of advanced technologies and tools for mapping, diagnosing, protecting and managing cultural landscapes in rural areas
- Topics under the potential joint call: 'The Ocean of tomorrow – 2013': joining research forces to meet challenges in ocean management,
- ENV.2013.WATER INNO&DEMO-1 Water efficiency and innovation demonstration projects,
- EeB.ENV.2013.6.3-4 Energy efficient retrofitting and renewal of existing buildings for sustainable urban neighbourhoods,
- ENV.2013.6.5-1 Accelerating progress towards the Green Economy,
- ENV.2013.6.5-2 Mobilising environmental knowledge for policy and society, sub-topic f) Designing environmental research and innovation for solutions and uptake of results in the Danube macro region
- ENV.2013.6.5-4 Knowledge platforms, networking and uptake of research results for strengthened international R&I cooperation
- ENV.2013.6.5-5 Network for forward looking activities and assessment of research and innovation prospects.

The focus on innovation is reflected in the description of the objectives and scope of the specific topics, as well as in the expected impact statements. The innovation dimension of the proposals will be evaluated under the 'Impact' evaluation criterion.

- Support to broader aspects of innovation includes:
  - topics aimed at fostering service, process and/or organisational innovation, for example:
    ENV.2013.6.3-1 Turning waste into a resource through innovative technologies, processes and services,
    ENV.2013.6.3-2 Eco-innovative demonstration projects,
    ENV.2013.WATER INNO&DEMO-1 Water efficiency and innovation demonstration projects,
    ENV.2013.6.5-2 Mobilising environmental knowledge for policy and society, sub-topic c) Empowering international economic development through the use of environmental Earth Observations,
    ENV.2013.6.5-3 Exploiting the European Open Data Strategy to mobilise the use of environmental data and information;
  - topics with a component on social innovation, for example topics:
    ENV.2013.6.2-3 Transition to sustainable, low-carbon societies,
    ENV.2013.6.2-5 Urban biodiversity and green infrastructure.

- Support to new approaches stimulating innovation, notably through support to European Innovation Partnerships:
  - topic ENV.2013.WATER INNO&DEMO-1 Water efficiency and innovation demonstration projects,
    ENV.2013.WATER INNO&DEMO-2 Ensuring the integration of water and innovation demonstration projects and support to trans-national networks of procurers,

ENV.2013.6.3-1 Turning waste into a resource through innovative technologies, processes and services, and
ENV.2013.6.5-2 Mobilising environmental knowledge for policy and society, sub-topic d) Raising societal awareness and tackling skill shortages on raw materials.

b) SME relevant research

Participation of SMEs has strongly been encouraged in the FP7 Environment (including climate change) Theme. Since the start of FP7, almost 11.8 % of participants in the FP7 Environment (including climate change) Theme have been SMEs, receiving around 9.4 % of the total budget[5].

Efforts have been made to encourage SME participation notably through SME targeted topics and bottom-up approaches, together with demonstration actions, where SMEs can follow up research projects with work linked to 'demonstration' or production of prototypes before actually commercialising goods and services.

As an outcome of the 2013 work programme, an increase in SME participation to 15 % in 2013 is expected.

- Topics with mandatory levels of SME participation and ring-fenced SME budgets include:
  - ENV.2013.6.2-2 Toxicants, environmental pollutants and land and water resources management,
  - ENV.2013.6.2-4 Sustainable land care in Europe,
  - ENV.2013.6.2-5 Urban biodiversity and green infrastructure,
  - ENV.2013.6.2-6 Improved monitoring of the impact of cultivation on the environment using global Earth Observations,
  - ENV.2013.6.2-7 Development of advanced technologies and tools for mapping, diagnosing, protecting and managing cultural landscapes in rural areas,
  - ENV.2013.6.2-8 Sustainable management of Europe's deep sea and sub-sea floor resources,
  - ENV.2013.6.3-1 Turning waste into a resource through innovative technologies, processes and services,
  - ENV.2013.6.3-2 Eco-innovative demonstration projects,
  - ENV.2013.6.3-3 Contribution to the assessment of global water resources through the use of new Earth Observation datasets and techniques,
  - ENV.2013.WATER INNO&DEMO-1 Water efficiency and innovation demonstration projects,
  - EeB.ENV.2013.6.3-4 Energy efficient retrofitting and renewal of existing buildings for sustainable urban districts,
  - ENV.2013.6.5-3 Exploiting the European Open Data Strategy to mobilise the use of environmental data and information.

[5] Figures refer to 2007-2011, source: 'Eighth Progress Report on SMEs' Participation in FP7' (http://ec.europa.eu/research/sme-techweb/pdf/sme_participaton_in_fp7_2007_2011_full_report.pdf)

c) Strengthening the European Research Area

The following topics will particularly contribute towards strengthening the European Research Area:

- ENV.2013.6.2-8 'Sustainable management of Europe's deep sea and sub-sea floor resources'
- ENV.2013.6.3-1 'Turning waste into a resource through innovative technologies, processes and services'
- ENV.2013.WATER INNO&DEMO-1 'Water efficiency and innovation demonstration projects'
- ENV.2013.WATER INNO&DEMO-2 'Ensuring the integration of water and innovation demonstration projects and support to trans-national networks of procurers'
- ENV.2013.6.4-1 'Assessing individual exposure to environmental stressors and predicting health outcomes: paving the way for an EU-wide assessment'
- ENV.2013.6.5-2 'Mobilising environmental knowledge for policy and society', sub-topic d) 'Raising societal awareness and tackling skill shortages on raw materials'
- ENV.2013.6.5-2 'Mobilising environmental knowledge for policy and society', sub-topic f) 'Designing environmental research and innovation for solutions and uptake of results in the Danube macro region'
- ENV.2013.6.5-3 'Exploiting the European Open Data Strategy to mobilise the use of environmental data and information'
- ENV.2013.6.5-4 'Knowledge platforms, networking and uptake of research results for more strategic international R&I cooperation'
- ENV.2013.6.5-6 'ERA-NET Plus action: Development of new methodologies, technologies and products for the assessment, protection and management of historical and modern artefacts, buildings and sites'.

d) Dissemination actions

Dissemination activities are addressed throughout the work programme. Each proposal should allocate appropriate efforts and resources for dissemination to promote the use and uptake of results.

Topics with a specific focus on dissemination, knowledge transfer and public engagement include:

- ENV.2013.6.2-5 Urban biodiversity and green infrastructure,
- ENV.2013.6.2-6 Improved monitoring of the impact of cultivation on the environment using global Earth Observations,
- ENV.2013.WATER INNO&DEMO-1 Water efficiency and innovation demonstration projects,
- all of the topics under Challenge 6.5 'Mobilising environmental knowledge for policy, industry and society'.

Open access in FP7: Beneficiaries funded partially or entirely by the Cooperation Programme under the Environment (including climate change) Theme are required to deposit peer-reviewed articles resulting from projects in an institutional or subject-based repository, and to

make their best efforts to ensure that readers have open access to these articles within six months of publication.

e) Overall expected impact

It is expected that through its research and innovation actions the 2013 work programme will address the major societal challenges of coping with climate change and protecting citizens from environmental hazards. It will also boost European competitiveness by developing and strengthening European leadership in environmental innovation, notably by promoting novel applications and tools for improved resource efficiency of natural resources (e.g. water, land, marine), covering both technological and socio-economic innovation. Furthermore, the 2013 work programme will promote and facilitate knowledge transfer, assessment, uptake and exploitation of environmental research and innovation data and results by policy makers, industry and society. In addition, the results obtained will provide support for evidence-based decision-making, notably for EU policies in the field of environment and climate, e.g. soil, water, chemicals, disaster reduction, mitigation and adaptation, and support EU initiatives on climate action, resource efficiency and eco-innovation. In order to enhance the overall impact, the Commission may during the negotiation phase propose establishing coordination or clustering mechanisms between projects selected under these calls as well as with on-going projects in the given fields.

International Cooperation

International cooperation continues to be an integral part of the Environment Theme throughout the work programme and all topics are open for participants from the International Cooperation Partner Countries (ICPC). The strategic approach for international cooperation of EU environmental research includes annual identification of major cooperation countries and/or regions. Efforts will focus on actions that reflect the overarching messages and objectives of Rio+20 and the recent Durban outcome: green economy and sustainable development, paying attention to the Millennium Development Goals and strengthened international climate action. Regional networking for clustering of projects, uptake of research results and knowledge platforms will aim to enhance the scope of future cooperation with Latin America, ASEAN, Mediterranean, Black Sea and North Atlantic third countries. Other issues with international components include climate change (in particular for the Arctic, oceans and atmosphere), natural disasters (Japan and Asia) and GEO capacity building. Contributions to multilateral initiatives such as IPCC and GEO will continue.

Topics requiring or benefitting from the involvement of non-EU partners include:

- all topics under Challenge 6.1 'Coping with Climate Change',
- ENV.2013.6.2-6 Improved monitoring of the impact of cultivation on the environment using global Earth Observations,
- ENV.2013.6.3-3 Contribution to the assessment of global water resources through the use of new Earth Observation datasets and techniques,
- ENV.2013.6.4-3 Coasts at threat in Europe: tsunamis and climate-related risks,
- ENV.2013.6.5-1 Accelerating progress towards the Green Economy,
- ENV.2013.6.5-4 Knowledge platforms, networking and uptake of research results for strengthened international R&I cooperation.

Cross-thematic approaches

Special attention will be paid to cross-cutting marine and maritime research with the launch of a new cross-thematic call 'The Ocean of Tomorrow: joining research forces to meet challenges in ocean management'. Please note that a separate orientation paper on this potential joint call will be tentatively published and it is therefore not developed in this orientation paper. For details on the topics, please consult the relevant document on the Participant Portal.

The aim of this potential call will be to support the EU integrated maritime policy's objective of a thriving maritime economy, making the most of marine resources in an environmentally sustainable manner, in line with the EU Strategy for Marine and Maritime Research . The Strategy helps deliver the full potential of the maritime economy to the 'Europe 2020' goal of a smart, inclusive and sustainable growth for Europe.

A topic is launched in the context of the Public-Private Partnership 'Energy Efficient Buildings': EeB.ENV.2013.6.3-4 'Energy efficient retrofitting and renewal of existing buildings for sustainable urban districts, implemented in cooperation with Theme 3 Information and Communication Technologies (ICT), Theme 4 Nanosciences, Nanotechnologies, Materials and New Production Technologies and Theme 6 Environment (including climate change).

Cross-thematic approaches are also foreseen within this work programme to support actions on:

- raw materials, i.e. the topics ENV.2013.6.2-8 'Sustainable management of Europe's deep sea and sub-sea floor resources', ENV.2013.6.3-1 'Turning waste into a resource through innovative technologies, processes and services' and ENV.2013.6.5-2 'Mobilising environmental knowledge for policy and society', sub-topic d) 'Raising societal awareness and tackling skill shortages on raw materials'[6];
- security and EURATOM, i.e. the topic ENV.2013.6.4-4 'Towards stress tests for critical infrastructures against natural hazards'[7];
- socio-economic sciences, i.e. the topic ENV.2013.6.2-3 'Transition to sustainable, low-carbon societies'[8].

Moreover, due to the nature of the tasks required, the following topics would benefit from the inclusion of participants from socio-economic science disciplines:

- ENV.2013.6.1-1 Climate-related ocean processes and combined impacts of multiple stressors on the marine environment,
- ENV.2013.6.1-3 Impacts of higher-end scenarios (global average warming > 2 °C with respect to pre-industrial level),

[6] These topics complement actions to be supported under the Theme 4 Nanosciences, Nanotechnologies, Materials and New Production Technologies.
[7] Co-ordination with related actions under the EURATOM programme and the Theme 10 Security.
[8] Co-ordination with projects selected under the Theme 8 Socio-economic Sciences and Humanities work programme topic SSH.2013.2.1-1 'Obstacles and prospects for sustainable lifestyles and green economy in Europe'.

- ENV.2013.6.1-5 Quantification of consumption-based emissions of greenhouse gases and assessment of policy options,
- ENV.2013.6.1-6 Economics of adaptation to climate-change,
- ENV.2013.6.2-3 Transition to sustainable, low-carbon societies,
- ENV.2013.6.2-5 Urban biodiversity and green infrastructure,
- ENV.2013.6.3-1 Turning waste into a resource through innovative technologies, processes and services,
- ENV.2013.6.3-2 Eco-innovative demonstration projects,
- ENV.2013.WATER INNO&DEMO-1 Water efficiency and innovation demonstration projects,
- ENV.2013.WATER INNO&DEMO-2 Ensuring the integration of water and innovation demonstration projects and support to trans-national networks of procurers,
- EeB.ENV.2013.6.3-4 Energy efficient retrofitting and renewal of existing buildings for sustainable urban districts,
- ENV.2013.6.4-3 Coasts at threat in Europe: tsunamis and climate-related risks,
- ENV.2013.6.5-1 Accelerating progress towards the Green Economy,
- ENV.2013.6.5-2 Mobilising environmental knowledge for policy and society,
- ENV.2013.6.5-3 Exploiting the European Open Data Strategy to mobilise the use of environmental data and information,
- ENV.2013.6.5-5 Network for forward looking activities and assessment on research and innovation prospects.

Theme specific information

The budget of the 2013 work programme is divided into challenges with separate indicative budgets. The work programme 2013 is implemented through a range of funding schemes. The type of funding scheme used and specific features, e.g. SME participation, are described in the topic descriptions in section II and also in section III. For each funding scheme there are upper limits on the requested EU contribution (for details please see the topic descriptions in section II and general call information in section III). **Funding limits will be strictly applied as eligibility criteria. Proposals that do not respect this limit will be considered ineligible.**

The minimum number of applicants in funding schemes is specified in section III of this work programme. The duration of the project and the requested EU contribution should be in line with a realistic planning of the project. The budget request should also be in line with the needs of the consortia, within the maximum EU contribution, but not necessarily at it.

Usage of Earth Observation data: In the context of cooperation with the European Space Agency (ESA), projects selected for funding are encouraged to utilise ESA Earth Science data. The data, both from ESA missions or third party missions, are for the vast majority of cases available for free web download (further details for ESA missions and Third Party Missions are available at http://eopi.esa.int). Likewise, the utilisation of data produced from different initiatives of ESA or the European Commission, in particular Global Monitoring for Environment and Security (GMES), is encouraged in all activities of the Environment Theme. (Further details on space data in the context of GMES are available at http://gmesdata.esa.int/web/gsc/home).

Gender dimension: The pursuit of scientific knowledge and its technical application towards society requires the talent, perspectives and insight that can only be assured by increasing diversity in the research workforce. Therefore, all projects are encouraged to have a balanced participation of women and men in their research activities and to raise awareness on combating gender prejudices and stereotypes. When human beings are involved as users, gender differences may exist. These will be addressed as an integral part of the research to ensure the highest level of scientific quality. In addition, specific actions to promote gender equality in research can be financed as part of the proposal, as specified in Appendix 7 of the Negotiation Guidance Notes[9].

9 http://ec.europa.eu/research/participants/portal/ShowDoc/Extensions+Repository/General+Documentation/Guidance+documents+for+FP7/Negotiations+and+amendments/negotiation_en.pdf

II CONTENT OF CALLS

Challenge 6.1 Coping with climate change

In the light of cautionary evidence coming from Earth Observations and the high trends in global greenhouse gas emissions, research will on the one hand focus on reducing key uncertainties linked to the functioning of the earth-climate system and quantification of climate change impacts, and on the other hand explore the potential of adequate mitigation and adaptation policies to contribute to the Roadmap for moving to a competitive low carbon economy in 2050[10]. In particular, research will address the fundamental processes that couple land surface, atmosphere, ice-caps and oceans as well as the cumulative effects of climatic and non-climatic stressors on marine geochemistry and biodiversity. Moreover, research will further explore atmospheric processes and pollutants, spanning the stratosphere and lower troposphere and their impact on climate change and land ecosystems. Research and innovation will contribute to better quantification of impacts associated with high-end scenarios (> 2 °C) in order to inform policy makers of risks, opportunities, costs and benefits linked to different adaptation and mitigation pathways, their synergies and trade-offs. In this context, issues related to climate change and land use, land use change and associated GHG emission monitoring, reporting and verification will also be explored. Specific support to climate policies is also provided through dedicated actions on the quantification of consumption-based emissions and the development of methodologies for estimating adaptation costs at various scales. The participation of non-EU partners in all research proposals may bring added value due to the global nature of climate change research. Within this global context, projects may also consider addressing those parts of the globe — beyond geographical Europe — which may be more affected by climate change and by its consequences, such as polar areas, small island states or European outermost regions where relevant.

ENV.2013.6.1-1 Climate-related ocean processes and combined impacts of multiple stressors on the marine environment – FP7-ENV-2013-two-stage

Oceans play a key role in regulating the climate system. Moreover, marine processes and ecosystems are sensitive to climate change and other stressors. Synergies, combination and feedbacks of single pressures on the marine environment may result in amplified impacts. Under a comprehensive multi-forcing assessment, regional and global scale modelling capabilities, laboratory and field experiments and observation systems should be combined to enhance specific knowledge on key marine-climate research issues, such as:

- relevant climate-related physical-chemical ocean processes and dynamics, including coupled ocean-atmosphere mechanisms, stratification, thermohaline circulation, interaction with the cryosphere;
- cumulative impacts and feedbacks of greenhouse gases increase — leading in particular to warming, acidification and deoxygenation — and non-climatic stressors (such as

[10] Commission Communication 'A Roadmap for moving to a competitive low carbon economy in 2050', COM(2011) 112 final of 8.3.2011.

overfishing, pollution, etc.) on marine biogeochemistry, ecological communities, biodiversity, ecosystems and ecosystem services;
- assessment of socio-economic vulnerabilities and evaluation of how potential climate-driven physical and biological changes may affect relevant economic activities and human welfare.

Acknowledging that processes and impacts may be diversified and exacerbated in different regions, like the Arctic, proposals may address different processes and impacts, and may focus on different geographical areas, depending on their specific relevance to the key research challenges.

Funding scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 9 000 000.

One or more proposals can be selected.

Expected impact: Improved climate predictions and more accurate quantification of climate change impacts on marine ecosystems and services through the reduction of uncertainties. Improved EU and international policies aimed at protecting the marine environment and safeguarding it as a living resource for human communities, and more effective policy and management options for societal responses to climate change.

Specific feature: Projects selected under this topic will be linked through a coordination mechanism that will be defined during the negotiation stage. Costs of this coordination will be covered by project resources.

ENV.2013.6.1-2 Atmospheric processes, eco-systems and climate change – FP7-ENV-2013-two-stage

At all levels, from the lower troposphere to the stratosphere, natural and anthropogenic emissions initiate or affect atmospheric processes which interact, also through feedback mechanisms, with ecosystems and climate. Studies should integrate data from in situ measurements, from space observations and modelling. Large-scale field experiments may be accomplished where appropriate. Research should focus on improving the understanding of key processes, such as:

- at land surface/lower troposphere level, the interaction and feed-backs between atmospheric pollutants (such as ozone and the corresponding precursors), climate change and land ecosystems (in particular vegetation and forests);
- at different levels of the troposphere, the formation and properties of clouds related to biogenic (such as VOCs) and anthropogenic emissions (such as those from aviation and maritime transport) and their climate forcing; and
- at stratospheric level, the causes and expected evolution of ozone depletion over the Arctic region including the coupling between stratospheric processes and climate change and its feedbacks.

Acknowledging that the above-mentioned subjects require fairly different instrumental, observational and modelling capabilities, proposals under this topic may focus on addressing specific atmospheric processes, and may focus on different geographical areas, depending on their specific relevance to the key research challenges.

Proposals should improve the representation of these processes in relevant models and the assessments of socio-economic implications.

Funding scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 9 000 000.

One or more proposals can be selected.

Expected impact: Significant reduction of uncertainties of current state-of-the-art climate predictions at different scales leading to improved EU and international policies aimed at better protecting human and ecosystem health.
Specific feature: Projects selected under this topic, if addressing related subjects, will be linked through a coordination mechanism that will be defined during the negotiation stage. Costs of this coordination will be covered by project resources.

ENV.2013.6.1-3 Impacts of higher-end scenarios (global average warming > 2 °C with respect to pre-industrial level) – FP7-ENV-2013-two-stage

Current observations and trends show a growth of greenhouse gases emissions which dangerously approach higher-end scenarios leading to a projected average global temperature rise higher than the 2 °C target set by the Copenhagen Accord[11] and confirmed in Durban[12]. A better quantification of impacts and vulnerabilities associated with a range of high-end scenarios is therefore needed in order to inform policy and decision makers of the social and economic risks, opportunities, costs and benefits linked to different adaptation and mitigation pathways — also in relation to tipping points —, their synergies and trade-offs, while appropriately recognizing the inherent uncertainties in long-term projections. Proposals should duly consider recent achievements made in the fields of socio-economic and representative concentration pathways (RCP). For a range of RCPs (leading to high-end, intermediate and 2 °C warming levels) research should assess and compare impacts, vulnerabilities and adaptation options for key economic, social and environmental sectors as well as analyse economy-wide implications. The research should cover different scales — from global to local/regional — and address the time- and path-dependence of adaptation options under the different scenarios.
Funding scheme: Collaborative Project
The requested EU contribution per project shall not exceed EUR 9 000 000.
One or more proposals can be selected.
Expected impact: Innovative and effective mitigation and adaptation strategies and measures that would address multiple national, regional, or global priorities and stakeholders in key economic and social sectors. Assisting the EU in the development and implementation process of international climate agreements via a better quantification of impacts and vulnerabilities. By reducing uncertainties in long-term projections of climate change impacts, improved assessment of the risks, social and economic costs and opportunities of adaptation and mitigation options.
Specific feature: Projects selected under this topic will be linked through a coordination mechanism that will be defined during the negotiation stage. Costs of this coordination will be covered by project resources.

ENV.2013.6.1-4 Land cover and land-use change and climate change mitigation – FP7-ENV-2013-two-stage

Changes in land-use/land cover and land management practices affect the sources and sinks of greenhouse gases and may alter key physical and biochemical properties and processes (e.g. planetary albedo, energy balance, water and nutrient cycles) and thus have an important impact on climate. Research should quantify the net climate effects of major (past and future)

[11] UNFCCC Draft decision -/CP.15, Copenhagen Accord, FCCC/CP/2009/L.7.
[12] Decision -/CMP.7 of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol.

land cover and land use changes (both direct and indirect) in a global context in order to better assess their mitigation potential. Research should also improve the representation of land cover and land use change in global climate models, evaluate model performance and uncertainty, confront models with Earth Observation data and develop common metrics for evaluation. The interplay with climate change adaptation should also be explored. Other important drivers such as energy security, water availability and food production and their interplay with climate change also need to be considered at regional and global level in order to establish an integrated assessment approach in developing scenarios, exploring risks, opportunities, trade-offs, calculating costs/gains and taking into account ecosystem services. Furthermore there is a need to further improve the methodologies concerning monitoring, reporting and verification (MRV) including a quantitative and comparative assessment of land-use classification data sources.

Funding scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 6 000 000.

One or more proposals can be selected.

Expected impact: Input to the design, assessment and implementation of European and international policies related to land use changes and climate change mitigation through more accurate models and methodologies. Support the development of good practice guidelines regarding monitoring, reporting and verification (MRV) also with reference to indirect land use change (ILUC) criteria.

Specific feature: Projects selected under this topic will be linked through a coordination mechanism that will be defined during the negotiation stage. Costs of this coordination will be covered by project resources.

ENV.2013.6.1-5 Quantification of consumption-based emissions of greenhouse gases and assessment of policy options – FP7-ENV-2013-two-stage

In the face of growing human population and increased levels of consumers' income worldwide, and particularly in emerging economies, unchanged global trends in consumption of goods and services are projected to encourage an accelerated increase in aggregate greenhouse gases emission levels, reducing the likelihood of keeping global average temperature increase below 2 °C with respect to pre-industrial levels. It is therefore necessary to complement existing domestic greenhouse gases (GHG) emission reduction efforts with adequate policy instruments that address the influence of consumption patterns on both national and global GHG emission levels and trends. There is a need to develop further analytical tools (e.g. conceptual frameworks, economic models, accounting methods, behavioural economics) to better quantify global emissions related to consumption of goods and services, fully understand the drivers of upward trends and identify demand-side tools and policies that can trigger, over the short-, medium- and long-term, a change in consumption patterns towards a low-carbon future. In a context of an increasingly globalised world, research activities will also explore the transformations in the international flows of trade, investments, technology transfer and diffusion of innovation associated with consumption-based emission pathways, and the related policy implications. Feasibility and effectiveness of possible domestic and international measures aimed at reducing overall consumption-based emissions should be assessed. Proper treatment of uncertainty has to be associated with quantification methodologies. Limitations in data availability also need to be addressed through appropriate proxies.

Funding scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 3 000 000.

Up to one proposal can be selected.
Expected impact: Stimulation of innovative European and international climate policies and services due to the improved shared knowledge base on consumption emissions. More effective policy mix for achieving the objectives of the EU Climate and Energy package[13] and the Roadmap for moving to a competitive low carbon economy in 2050[14].

ENV.2013.6.1-6 Economics of adaptation to climate-change – FP7-ENV-2013-two-stage

More reliable quantification of the costs of climate-change consequences and assessment of adaptation options is required to further substantiate the economic case for adaptation to climate change. Research will develop and apply new and/or improve existing methodological frameworks for assessing the costs, benefits and effectiveness of climate change adaptation policies and measures in Europe at different levels. Research should focus on the reduction of uncertainties (and cascading uncertainty), increased comparability across different time horizons (short-, medium- and long-term) and geographical scales, better reflection of both monetary and non-monetary costs and benefits of adaptation, and quantification of additional costs of measures/policies due to adaptation to climate change (e.g. for measures/policies that are not solely motivated by the need to adapt to climate change, it is important to be able to better estimate the increase in cost due to climate change as compared to a baseline scenario). Moreover, research should provide methodologies for scaling up information generated and collected at the local level in a bottom-up approach and improve the understanding of the indirect effects of adaptation measures/policies on the overall economy and on growth and jobs.
Funding scheme: Collaborative Project
The requested EU contribution per project shall not exceed EUR 3 000 000.
Up to one proposal can be selected.
Expected impact: Support to the European Adaptation Strategy[15] by reducing uncertainties in costing of adaptation to climate change. Provide decision makers and planners at all levels with more reliable estimation of cost and benefits to drive and prioritise adaptation actions. The increased knowledge base will improve the prospects for innovative policy making and services in adaptation. Improved understanding of how adaptation can be integrated into planning frameworks and budget cycles, how climate change impacts and adaptation can affect the economy and society at large.

[13] http://ec.europa.eu/clima/policies/package/index_en.htm
[14] See footnote 10.
[15] White paper — Adapting to climate change: towards a European framework for action COM(2009) 147 final of 1.4.2009.

Challenge 6.2 Sustainable use and management of land and seas

The challenge is to improve the knowledge base on how ecosystems react to pressures in order to underpin the implementation of the transition phase to resilient, sustainable and resource efficient societies. Research will examine how concepts such as biodiversity offsets and no net loss of biodiversity can contribute to this transition. Research will investigate the potential of Green Infrastructure (including wooded and green areas in the urban environment) and the restoration economy and will deliver integrated governance strategies and tools for land and water resources management under complex, multi-stressor conditions, including emerging pollutants and pollutant mixtures, in line with the relevant EU policies. Innovative solutions will be sought to protect and conserve soil resources through combating land degradation and desertification and through identifying soil compaction**.** Innovative applications for Earth Observation in land use and ecosystem monitoring will be supported. Research will also address challenges associated with the sustainable exploitation, management and conservation of Europe's deep sea resources. Development of marine technology, notably sensors, will be supported in cooperation with other Themes.

ENV.2013.6.2-1 Water resources management under complex, multi-stressor conditions – FP7-ENV-2013-two-stage

The challenge is to underpin decision making, risk assessment and management of water systems under complex multiple stress conditions (combination of organic and inorganic pollution, flow and morphology alteration, surface and groundwater abstraction, land use change, climate variability and change, invasive species, pathogens, etc.). Research should have a clear user perspective and aim to enhance our understanding of stressors interactions, species interactions, species-stressor-relationships and impacts on the ecological functioning, stability and resilience of the aquatic ecosystems. Based on innovative methodologies, research should develop holistic approaches and tools to diagnose changes in the ecological status of surface water bodies, as defined in the Water Framework directive (WFD)[16], in relation to multiple stress conditions, identify the relevant stressors which are responsible for the deterioration of the chemical and ecological status of these water bodies and forecast and predict the ecosystem responses and ecological recovery as a consequence of alternative management measures on different spatial scales.

It should also aim at the development of integrated impact assessment tools, coupling bio-physical with socio-economic assessment of impacts (provision of ecosystem services) to improve water resource protection and management at EU and river basin levels.

Funding Scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 9 000 000.

One or more proposals can be selected.

Expected impact: Improved water status, better implementation of water policy and optimal decision making in water resources management under complex multiple stress conditions. Development of more cost-effective Programmes of Measures (POMs) to improve the

[16] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, OJ L327, 22.12.2000, p. 1

ecological status of surface water bodies from the local to the river basin scale – also in the context of ecosystem goods and services – in line with the EU Water Framework Directive[17].
Specific feature: Projects selected under this topic will be linked through a coordination mechanism that will be defined during the negotiation stage. Costs of this coordination will be covered by project resources.

ENV.2013.6.2-2 Toxicants, environmental pollutants and land and water resources management – FP7-ENV-2013-two-stage

Mixtures of toxic compounds have been found in most environmental compartments, including soils, sediments and water bodies. In water, attention has focused on the so-called priority substances; the list of these is subject to regular review. There is evidence to suggest that many emerging pollutants, for which a rather limited knowledge base is currently available, may be posing a significant ecological and human health risk through their presence in water bodies. The research should provide a common knowledge base on a wide range of toxicants and other chemicals acting as environmental and in particular aquatic pollutants. It should focus on emerging pollutants (pollutants whose potential risk we are only now becoming aware of) and their metabolites and transformation products as well as their synergistic effects. It should improve our understanding and modelling capacity regarding the sources, transport pathways and transfer times (air, soil, sediments, groundwater and surface waters, including receiving waters, biota) and fate (including degradation, (bio)accumulation, spatial and temporal variability of concentrations in different compartments) of these pollutants as well as regarding the quantification of their environmental impact. It should analyse the implications for the overall assessment of the ecological and human health risks posed by the presence and levels of these substances in the (aquatic) environment in the light of existing information on their inherent toxicity. The research should deliver chemical analysis methods that are sufficiently sensitive to detect and monitor the pollutants at concentrations below their predicted no-effect levels. It should also include the development of effect-based tools (such as biomarkers, bio-indicators and bioassays) for the identification and early detection of pollutants causing harmful ecological impacts (as a step towards linking chemical and ecological status of water) and for assessing the impacts of pollutant mixtures and should deliver methods to quantify impact in situ on a single-organism, population or community level.
Funding Scheme: Collaborative Project
The requested EU contribution per project shall not exceed EUR 12 000 000.
Up to one proposal can be selected.
Expected impact: Evidence based development of environmental and especially water policies with respect to emerging pollutants and pollutant mixtures through improved knowledge and tools. New knowledge enabling the design of control measures and abatement options, and the assessment of their effectiveness in meeting the environmental objectives of the Water Framework Directive[18]. Identification of substances with emissions which might require regulation because of the risk posed to or via the aquatic environment, and evidence based reviews of the list of priority substances under the Water Framework Directive. Development of innovative identification and detection tools.
Additional eligibility criteria: Projects will only be selected for funding on the condition that the estimated EU contribution going to SMEs is 15 % or more of the total estimated EU

[17] See footnote 16.
[18] See footnote 16.

contribution for the project as a whole. This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

ENV.2013.6.2-3 Transition to sustainable, low-carbon societies – FP7-ENV-2013-two-stage

Fundamental societal transformations are required in order to move towards sustainable, resource-efficient, low-carbon and climate resilient European societies consistent with the objectives set, amongst others, in the EU's Sustainable Development[19] and Biodiversity[20] Strategies, the 'Climate and Energy package (20/20/20 targets)'[21], the Roadmap for moving to a competitive low carbon economy in 2050[22] and the Roadmap for a Resource Efficient Europe[23]. Research will investigate values, policies and mechanisms behind societal transformation and the knowledge gained from experiences at different scales with such societal transitions and their trajectories. Using an integrated and trans-disciplinary approach, research will identify and analyse in detail the key challenges of the transition to sustainable, low carbon and resource efficient societies (including their interaction and feedbacks). Among the issues that may be taken into consideration are:

- institutional frameworks for innovative environmental governance at multiple scales;
- the potential contribution of local and regional action to European policies;
- the application of market-based mechanisms to new areas, and the use of innovative financing strategies;
- the factors enabling comprehension, behavioural changes, and the acceptance of green, low-carbon technologies and business models;
- the development of new adaptive strategies focused upon sustaining prosperity, well-being, quality of life and the maintenance and enhancement of biodiversity, including through novel concepts of sustainable management; and
- the novel and sustainable exploitation and use of green infrastructure and the development of new strategies for no net loss of biodiversity, ecosystems and their services as a component of the ecosystem approach.

Opportunities for innovation (including social innovation), co-benefits and job creation will be identified and studied to help the private sector, households, communities, local and regional governments respond and adapt to global environmental changes and support the development of green economic strategies in Europe.

Funding Scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 3 000 000.

One or more proposals can be selected.

Expected impact: Better implementation of the EU's Sustainable Development and Biodiversity Strategies, the 'Climate and Energy package (20/20/20 targets)' and the Roadmap for moving to a competitive low carbon economy in 2050 through increased understanding of societal transformations processes in the transition to sustainable, low carbon societies. Stimulation of public debate on social innovation and bottom-up approaches. Provision of

[19] Commission Communication 'A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development', COM(2001) 264 final of 15.5.2001.
[20] Commission Communication 'Our life insurance, our natural capital: an EU biodiversity strategy to 2020', COM(2011) 244 final of 3.5.2011.
[21] See footnote 133.
[22] See footnote 10.
[23] Commission Communication 'Roadmap to a Resource-Efficient Europe', COM(2011) 0571 final of 20.9.2011.

assessment of options and experiences to policy makers, resulting in improved decision making and increased cost-efficiency of policy response, as well as better understanding of the socio-economic and environmental impact of transition.
Specific feature: Projects selected under this topic will be linked through a coordination mechanism that will be defined during the negotiation stage. Costs of this coordination will be covered by project resources. In addition, these projects will be expected to coordinate their activities with the activities of projects selected under the Socio-economic Sciences and Humanities work programme topic SSH.2013.2.1-1 'Obstacles and prospects for sustainable lifestyles and green economy in Europe'.

ENV.2013.6.2-4 Sustainable land care in Europe – FP7-ENV-2013-two-stage

Taking full stock of existing scientific data and results obtained from relevant EU, international and national funded projects, integrative and interdisciplinary research must fill the knowledge gaps in the understanding of the complexity and functioning of soil systems and their interaction with human activities. Research will support the development of innovative, mitigation and restoration measures at appropriate scales to combat soil degradation processes, including desertification, or threats as defined in the EU Soil Thematic Strategy[24] (e.g. soil erosion, loss of organic matter, salinisation, compaction, sealing) under various climatic and environmental conditions around Europe. Through pilot projects or case studies including a demonstration phase and involving relevant stakeholders (including developers, industry and regulators), research will develop and validate measures to address these soil degradation processes or threats and to restore soil functions and ecosystem services. It should also assess the cost-effectiveness of these measures. It will also carry out an integrated impact assessment of the existing EU policies and strategies related to EU soil and land use to establish potential incoherence and contradictions.
Funding Scheme: Collaborative Project
The requested EU contribution per project shall not exceed EUR 9 000 000.
One or more proposals can be selected.
Expected impact: Contribution to the achievement of the objectives of the EU Soil Thematic Strategy; underpinning of sustainable land use and management; support to the implementation of the EU Soil Sealing Guidelines; underpinning of the implementation of the EU Floods Directive[25]; support to Member States in fulfilling relevant monitoring requirements under the UNCCD, particularly the mandatory impact indicators; support to the implementation of the European Landscape Convention[26]; provision of relevant information for a variety of EU policies, including agriculture, energy, and regional development.
Specific feature: Projects selected under this topic will be linked through a coordination mechanism that will be defined during the negotiation stage. Costs of this coordination will be covered by project resources.
Additional eligibility criteria: Projects will only be selected for funding on the condition that the estimated EU contribution going to SMEs is 15 % or more of the total estimated EU contribution for the project as a whole. This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

[24] http://ec.europa.eu/environment/soil/three_en.htm
[25] Directive 2007/60/EC of the European Parliament and Council of 23 October 2007 on the assessment and management of flood risks (Floods Directive), OJ L 288, 6.11.2007, p. 27.
[26] Florence, 20.10.2000, CETS No 176.

ENV.2013.6.2-5 Urban biodiversity and green infrastructure – FP7-ENV-2013-two-stage

Urban green infrastructure, such as green roof and walls, parks, urban forestry and tree plantations, urban farming areas, etc., can contribute to reverse the trend of biodiversity loss. It provides key environmental services in urban areas, improves the quality of life and health, strengthens diverse ecosystems and their services and links them with the ones in rural areas. It can help build resilience, for example in terms of adapting to climate change or coping with noise, and make important socio-cultural and economic contributions as part of a coherent ecosystem approach to governance.

The project should provide a sound evidence base for the development of green infrastructures and strategies for planning and design of green infrastructure in cities and urban areas, appropriately adapted to scales from the local to the city region level.

Research needs to assess the potential of sustainable use, as well as the status, trends, role and needs of urban biodiversity and ecosystem goods and services provided by urban green infrastructure in the face of urbanisation, climate change and challenges to health and well-being like noise. Of particular interest is the exploration of the innovation potential (including social innovation and health promotion) regarding the provision, valuation, protection and sustainable use of urban ecosystem services. Research will focus on linking environmental services with socio-cultural and economic services and engagement with local communities, as a contribution to a green economy.

Of particular interest is the study of planning and governance approaches that support the conservation and restoration of urban biodiversity and the building and maintaining of green infrastructure, taking into account conflicts of interest between various land uses and green infrastructures. Research will require an interdisciplinary approach.

Funding Scheme: Collaborative Project

The requested EU contribution shall not exceed EUR 6 000 000.

Up to one proposal can be selected.

Expected impact: Enhanced provision of ecosystem services by green infrastructure in correlation with environmental policy objectives. Link environmental services with socio-cultural and health aspects. Innovative contributions of ecosystem services to urban green economy. Tools/incentives for better implementation of environmental policies and improvement of environmental status, including the implementation of the Soil Sealing Guidelines. Enhanced collaboration between disciplines and stakeholders involved with urban green infrastructure, particularly at the local and the regional scale.

Additional eligibility criteria: Projects will only be selected for funding on the condition that the estimated EU contribution going to SMEs is 15 % or more of the total estimated EU contribution for the project as a whole. This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

ENV.2013.6.2-6 Improved monitoring of the impact of cultivation on the environment using global Earth Observations – FP7-ENV-2013-two-stage

Views on cultivation practices have significantly shifted to encompass concerns about sustainability. In this context, the present topic aims at conducting the necessary research and innovation activities that can contribute to establishing a global observation system for the assessment of the impact of cropland areas and crop change (including agroforestry) on the environment.

Research under this topic should integrate coordinated satellite and in situ data into the GEOSS Data-CORE, enable the interoperability of this data and make it available to users in support of the development of a global system of systems for crop monitoring. It should also provide, in collaboration with SMEs, Earth Observation techniques, crop and agricultural land use monitoring methods, model development, and spatial and statistical analysis, with the purpose of better understanding land use changes arising from shifts in cultivation practices. Finally it should contribute to the development of crop production projections through the use of global mapping strategies in order to assess the changes in the distribution of cropland areas and the associated cropping systems and evaluate the impacts of these changes on biodiversity, ecosystems and the broader environment.

The project should establish an international partnership, to enable the global agricultural and environmental monitoring community to compare results based on disparate sources of data over a variety of global cropping systems.

It should also ensure that a collaboration mechanism with GEO (Group on Earth Observation) is put in place to support the G20 Global Agricultural Geo-Monitoring Initiative (GEO-GLAM) to strengthen global agricultural monitoring by improving the use of Earth Observation for crop production projections.

Funding scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 9 000 000.

Up to one proposal can be selected.

Expected impact: Significant European contribution to the G20 GEO-GLAM initiative, reinforcing the awareness of decision and policy makers about the impact of agriculture on the global environment; networking of agricultural and environmental monitoring and research organisations; capacity building directed at a sustainable agricultural environment and enabling the prediction of the impact of crop production on the ecosystems; improved transparency of agricultural crop production and international coordination for risk-management capacity; European leadership for an initial global agricultural land monitoring system based on both satellite and in situ observations.

Specific feature

This research should be conducted in collaboration with international partners from outside the EU. The participation and appropriateness of non-EU partners in the consortium will be carefully considered during the evaluation.

Additional eligibility criteria: Projects will only be selected for funding on the condition that the estimated EU contribution going to SMEs is 15 % or more of the total estimated EU contribution for the project as a whole. This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

ENV.2013.6.2-7 Development of advanced technologies and tools for mapping, diagnosing, protecting and managing cultural landscapes in rural areas – FP7-ENV-2013-two-stage

Current environmental processes (e.g. climate change, water and soil pollution, erosion) and socio-economic pressure (e.g. urbanisation and industrialisation of rural areas, requirements for transport and energy supply etc.) are putting at risk Europe's cultural landscapes characterised by archaeological or historical remains. Improved knowledge of the impact of environmental and human factors, which have shaped landscapes over time, is essential to better understand their components, help develop resilience to change and better define protection and risk mitigation strategies.

Interdisciplinary research should target rural landscapes with significant archaeological or historical components deserving special protection at local or regional scale and should aim to develop new technologies and methodologies for mapping, diagnosing, protecting and managing cultural landscapes. In particular, spatial analysis, remote sensing, modelling, sampling and characterisation of historic habitat and artefacts, protocols, planning, conservation and remediation actions, should underline and respect the main features and values of cultural landscapes in rural areas, while also taking into account the 'human', ecological and 'natural' dimension of the territories concerned. Outcomes should inform policies, strategies and governance by regulating/public authorities, landowners, planners and managers, taking into account changing perceptions and meanings of landscape. Selected case studies should clearly demonstrate how the technologies, methods and tools are effective in assessing various types and levels of degradation under different geographic and climatic conditions, and in validating strategies for landscape protection and restoration, while combining cultural and natural assets. The participation of public authorities, agencies or associations of citizens at an appropriate level within the consortium is strongly recommended.

Funding scheme: SME-targeted Collaborative Project

The requested EU contribution per project shall not exceed EUR 3 000 000.

Up to one proposal can be selected.

Expected impact: Contribution to innovative schemes and sustainable best practices for protection or remediation schemes applied to cultural landscapes of historic and archaeological value. Create a favourable economic impact on the rural areas and sectors of activities concerned, including the impact for tourism, by exploitation and transfer of research results at a regional, national, or European scale by eco-innovative services and SMEs. Protection of cultural landscapes and assessment of socio-economic impacts of their protection. Implementation of the European Landscape Convention[27].

Specific feature: This topic is targeted at SMEs, in appropriate partnership with research institutions and national/regional authorities and other stakeholders directly concerned.

Additional eligibility criterion: Projects will only be selected for funding on the condition that the estimate EU contribution going to SMEs is 20 % or more of the total estimated EU contribution for the project as a whole. This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

[27] See footnote 266.

ENV.2013.6.2-8 Sustainable management of Europe's deep sea and sub-sea floor resources – FP7-ENV-2013-two-stage

Although the deep sea and sub-sea floors environments are still largely unknown, current research suggests that these environments modulate the global climate and contain immense mineral and biological resources. Because of the slow rates associated with deep sea processes, these systems are also particularly vulnerable to intervention and they will require careful management to preserve their function for future generations as human activities move into deeper waters. Research should therefore focus on the assessment of the environmental impacts of the exploitation of deep sea raw material resources and in particular rare earth minerals, hydrothermal mineral deposits, methane hydrates and similar seafloor and sub-seafloor resources that can be extracted using various techniques. It should also enhance the understanding of associated geological processes, e.g. the effect on the stability of methane hydrates and its repercussions for climate change or continental slope failures/tsunamis that endanger both ecosystems and society. Research should also assess the resilience of deep sea and sub-seafloor ecosystems and of biodiversity to resource extraction activities. It should determine recovery conditions, associated timescales and tipping points beyond which recovery is irreversible. Practices should be developed, including management practices, standards, legal instruments, covering national jurisdictions and international waters, concerning economically viable, environmentally sound and socially acceptable resource exploration and extraction. Finally it should assess and demonstrate new monitoring technologies and systems to fully determine the functioning of the deep sea and sub-seafloor ecosystems where the resources are found.

A pan-European, multi-disciplinary, cross-sectoral approach to ensure that knowledge and innovation are shared across Europe will be required.

Funding scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 9 000 000.

Up to one proposal can be selected.

Expected impact: Enhanced knowledge base on issues related to the environmental impacts and processes linked to deep sea exploitation activities. Determination of the boundary conditions of environmentally sustainable exploitation activities. Improved governance of deep sea environments. Innovative technologies and systems, leading to increased European competitiveness in the marine technology sector. Substantial contribution to the implementation of relevant EU initiatives such as the Integrated Maritime Policy[28], 'A Resource-Efficient Europe' roadmap[29] and the Marine Strategy Framework Directive[30]. Facilitate synergies with international initiatives like the Integrated Ocean Drilling Programme (IODP)[31].

Specific feature: A significant involvement from the industrial sector will be required, ranging from large industrial companies (e.g. deep sea mining oil & gas, telecommunications) to SMEs. The assessment and demonstration of relevant technologies should be included as an activity within any proposal submitted to this topic. This topic complements actions to be

[28] Commission Communication 'An Integrated Maritime Policy for the European Union', COM(2007) 574 final of 10.10.2007.

[29] See footnote 3.

[30] Directive 2008/56/EC of the European Parliament and of the Council establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive), OJ L 164, 25.6.2008, p. 19.

[31] www.iodp.org

supported under the Theme 4 Nanosciences, Nanotechnologies, Materials and New Production Technologies.

Additional eligibility criteria: Projects will only be selected for funding on the condition that the estimated EU contribution going to SMEs is 15 % or more of the total estimated EU contribution for the project as a whole. This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

JOINT CALL 'THE OCEAN OF TOMORROW – 2013': JOINING RESEARCH FORCES TO MEET CHALLENGES IN OCEAN MANAGEMENT

Fostering research and innovation on marine technologies

Topics implemented in cooperation with Food, Agriculture and Fisheries, and Biotechnology, NMP, Energy, Environment (including Climate Change) and Transport Themes.

Please note that a separate orientation paper on "The Ocean of Tomorrow 2013" potential joint call will be tentatively published and it is therefore not developed in this orientation paper. For details on the topics, please consult the relevant document on the Participant Portal.

The aim of this potential call will be to support the EU integrated maritime policy's objective of a thriving maritime economy, making the most of marine resources in an environmentally sustainable manner, in line with the EU Strategy for Marine and Maritime Research . The Strategy helps deliver the full potential of the maritime economy to the 'Europe 2020' goal of a smart, inclusive and sustainable growth for Europe.

The tentative orientation paper for "The Ocean of Tomorrow 2013" will possibly include four actions as follow:

Biosensors for real time monitoring of biohazard and man made chemical contaminants in the marine environment
Innovative multifunctional sensors for in-situ monitoring of marine environment and related maritime activities
Innovative antifouling materials for maritime applications
Innovative transport and deployment systems for the offshore wind energy sector

Challenge 6.3 Improving resource efficiency

Improving resource efficiency will help Europe to stimulate its economy and face the challenge of sustainable growth at a time of increasing energy prices, carbon constraints and greater competition for limited resources and markets. Research and innovation activities will aim to address the challenge of transitioning to a green economy while supporting important EU policy commitments included in the Roadmap on a Resource-Efficient Europe[32] and the Eco-Innovation Action Plan[33] and contributing to measuring progress towards the green economy. Research will also contribute to the aims of the proposed European Innovation Partnerships on 'Water'[34] and 'Raw Materials'[35]. Research and innovation will promote the development and testing of highly eco-innovative technologies, processes and services to valorise urban wastes and recover raw materials from industrial wastes, favouring a bottom-up approach, while also considering macro-level impacts, including rebound effects. Eco-innovation demonstration projects in selected areas will aim to improve the viability of cutting-edge technologies and foster the exploitation and up-take of new solutions, management and business models enhancing the efficiency and sustainability of resource use. The latter will increase the chances of market penetration and contribute to the implementation of current environmental standards. In the area of raw materials activities will be undertaken in cooperation with other Themes, e.g. cutting-edge technologies, processes and services for the optimum use of raw materials. Global assessment of water resources will be also performed based on the integration of in situ and space observation data.

ENV.2013.6.3-1 Turning waste into a resource through innovative technologies, processes and services – FP7-ENV-2013-two-stage

The overall objective of this topic is to reduce environmental impacts through innovative, breakthrough solutions that lead to a reduced demand for raw materials and contribute to more efficient use of materials generally, thus supporting important EU policy commitments reflected in the Roadmap to a Resource-Efficient Europe and helping to create a bridge with future Horizon 2020 activities on 'Climate action, resource efficiency and raw materials'. Proposals must focus on solid waste management (including existing industrial and urban waste dumps) and address one of the following two sub-topics:

a) *Valorisation of urban solid waste*. Research should focus on the development of innovative solutions which aim for a radical change in the way of collecting, handling, separating, processing, upcycling or transforming urban solid wastes and/or the development of new added-value products and services with good market potential based on recycled urban waste. This activity should contribute to more efficient and cost-effective urban mining and to a more circular economy.

b) *Recovery of valuable raw materials from industrial waste*. Research should address new, radical, different and sustainable solutions for the collection, recovery and preparation for

[32] See footnote 3.

[33] http://ec.europa.eu/environment/etap/inaction/pdfs/COMM_PDF_COM_2011_0899_F_EN_COMMUNICATION.pdf

[34] http://ec.europa.eu/environment/water/innovationpartnership/

[35] http://ec.europa.eu/enterprise/policies/raw-materials/innovation-partnership/index_en.htm

reuse of raw materials (like e.g. critical metals and minerals as defined in the context of the Raw Materials initiative[36]) from waste from key industrial sectors such as construction, chemicals, aerospace, machinery and equipment, automotive or ICT. New business models and reuse-oriented services to enable an efficient management of raw materials should be also considered. This topic complements related activities to be supported under Theme 4 Nanosciences, Nanotechnologies, Materials and New Production Technologies.
In both cases, proposals should demonstrate how the research foreseen will contribute to improving the environment, including how it will promote the development of new economic opportunities, improve resource efficiency and boost competitiveness. Proposals should also demonstrate that the proposed solutions have the potential to be substantially more sustainable, from a life cycle perspective, than current practice, should consider both direct and indirect, both positive and adverse impacts and, where appropriate, contribute to the standardisation process[37]. Pilot trials at an appropriate scale should be envisaged to facilitate future market uptake.
Funding scheme: SME-targeted Collaborative Project
The requested EU contribution per project: (as appropriate, wide range expected from such a bottom up call)
One or more proposals can be selected.
Expected impact: Breakthrough innovation in novel technologies, products or services with high potential to achieve a more green economy. More sustainable consumption and production patterns. Improved resource efficiency and reduced environmental impacts. Reduced waste production and pressure on raw materials. New business models, industrial symbiosis, and cradle-to-cradle approaches. Substantial contribution towards the sustainable supply of raw materials of economic importance in Europe. Improved communication and transfer of knowledge to policy making, business and to the general public.
Specific feature: This topic is mainly addressed to SMEs and industries, in appropriate partnership with research institutions and other stakeholders. Involvement of R&D performing SMEs is encouraged to ensure maximum impact. This topic contributes to the aims of the proposed European Innovation Partnership on 'Raw Materials'.
Additional eligibility criterion: Projects will only be selected for funding on the condition that the estimate EU contribution going to SMEs is 30 % or more of the total estimated EU contribution for the project as a whole. This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

ENV.2013.6.3-2 Eco-innovative demonstration projects – FP7-ENV-2013-two-stage

A significant gap still exists between the availability of new eco-innovative technologies, processes and services and their successful commercialisation into marketable products or services. The aim of this topic is to support the effective demonstration of existing cutting edge eco-innovative technologies[38], processes and services, which in spite of their high environmental and market potential have not succeeded in reaching the market. This topic targets only technologies, processes and services that can demonstrably enable radically stricter, smarter and more ambitious environmental standards (considering the integral

[36] http://ec.europa.eu/enterprise/policies/raw-materials/critical/index_en.htm
[37] Where appropriate, the use of the EU pilot programme on Environmental Technology Verification (ETV) is encouraged
[38] See footnote 41

footprint, including emissions, efficiency in use of resources, or other pressures on the environment) to be reached than those currently in place. In addition, the long-term sustainability of these eco-innovative technologies, processes and services should be considered. Research should focus on demonstration activities, prior to commercialisation, such as the testing of the technological performance and economic viability of prototypes, tools, and/or management systems, benchmarking and validation activities, up-scaling from laboratory/pilot scales to large urban/rural scales, etc. Technology transfer, training activities and standardisation activities in cooperation with appropriate European standardisation bodies should be also included. Market replication[39] and market demonstration activities, product development and commercial development activities are excluded from this topic. Participation is open to all industrial sectors. Eco-innovative fields of application of the projects might include: construction and demolition waste; remediation of contaminated sites; pesticides and fertilisers in agriculture; urban mining; waste from electric and electronic equipment; climate change adaptation. Demonstration proposals related to water applications must be addressed under topic ENV.2013.WATER INNO&DEMO-1.

Funding Scheme: SME-targeted Collaborative Project

The requested EU contribution per project: (as appropriate, wide range expected from such a bottom up call)

One or more proposals can be selected.

Expected impact: More rapid market uptake of already developed eco-innovative technologies with high potential to preserve the environment. Opportunities for new start-ups and markets in the short and medium term. Implementation of the Eco-innovation Action Plan[40] and the Roadmap to a Resource-Efficient Europe[41]. Improved communication and transfer of knowledge to policy making, business and to the general public. Building up European citizens' awareness of eco-innovation opportunities and raising social acceptance of eco-innovative technologies and production patterns.

Specific feature: This topic is mainly addressed to SMEs and industries, in appropriate partnership with research institutions and other stakeholders. Involvement of R&D performing SMEs is encouraged to ensure maximum impact.

Additional eligibility criterion: Projects will only be selected for funding on the condition that the estimate EU contribution going to SMEs is 30 % or more of the total estimated EU contribution for the project as a whole. This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

ENV.2013.6.3-3 Contribution to the assessment of global water resources through the use of new Earth Observation datasets and techniques – FP7-ENV-2013-two-stage

Environmental change and human activities are exerting increasing pressure on water resources in many regions of the world. The full extent of available water is, however, difficult to estimate, even in data-rich watersheds. This requires comprehensive datasets and information products supporting efficient management and decision-making, achieved through the use of co-ordinated and sustained observations of the water cycle at multiple scales, including globally. Research under this topic should therefore test new parameters and

[39] http://ec.europa.eu/ecoinnovation
[40] See footnote 37.
[41] See footnote 3.

data sources for the monitoring of global water resources, including those provided by European remote sensing missions (for example GOCE, Cryosat-2, SMOS and the EUMETSAT Polar System), seeking to improve current monitoring capabilities in terms of resolution and reliability. It should also address the quantification, quality and availability of global surface and groundwater resources, and the modelling of their evolution over time. Finally, it should integrate the required in situ and remote-sensing data into the GEOSS Data-CORE, enable the interoperability of these data and then use them to make global datasets available to users in support of the development of a global system of systems for assessing global water resources, water scarcity and drought.

Funding Scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 9 000 000.

Up to one proposal can be selected.

Expected impact: Increased availability of information products and services for monitoring regional and global water resources. Significant contribution to a GEOSS Water Cycle Integrator (WCI) to provide holistic views of water cycle information, through integration of observations, research, modelling and analysis. Advanced Earth Observation system for the support of international agreements on water management and European water policies. More efficient distribution of water at regional level, in particular in developing countries by building the required knowledge base and providing information on ground water, coastal zones, floods and droughts to public authorities, decision makers and citizens.

Specific feature: This research should be conducted within an international framework including non-EU partners.

Additional eligibility criteria: Projects will only be selected for funding on the condition that the estimated EU contribution going to SMEs is 15 % or more of the total estimated EU contribution for the project as a whole. This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

ENV.2013.WATER INNO&DEMO-1 Water efficiency and innovation demonstration projects – FP7-ENV-2013-WATER INNO&DEMO

The objective of this topic is to mobilise industry, Member States and stakeholders into promoting innovative solutions for water-related challenges, leading to the effective implementation of European directives and policies while creating market opportunities for European industry and SMEs. This will be achieved through the launch of demonstration projects in areas of urban water management (for example the reduction of water consumption, improved efficiency of distribution systems and waste water treatment processes), rural water management (for example promotion of re-use of water, agricultural and natural ecosystem water use, reduction of flood risks, enhancement of the quality of water services), and industrial water management (for example the minimisation of energy and water use, closed water cycles, reduction of environmental impact of effluents, recovery of raw material from waste water). The projects will develop, test and disseminate innovative solutions, based on the integration of technological, organisational, financial, ICT and management approaches and strengthen standardisation in the water sector. Demonstration projects should preferably be of an appropriate scale to enable the bringing together of various sites across Europe, facing similar water challenges, in an integrated and coordinated way. Nevertheless, if justified in terms of scope and ambition, small scale projects could be also submitted and could be clustered later. Proposals should also demonstrate links and synergies with related major water investment/implementation projects at local, regional or national level to help leverage the demand side across the whole value chain from research to markets

and strengthen complementarity with various EU funding mechanisms. Dissemination and exploitation activities, improve communication and transfer of knowledge both to policy making, business and to the general public, as well as activities aiming to increase the likelihood of market uptake of the project results should be also part of the demonstration projects.

Funding scheme: SME-targeted Collaborative Project

The requested EU contribution per project shall not exceed EUR 6 000 000

One or more proposals can be selected.

Expected impact: Implementation of the Europe 2020 Flagship Initiative on Innovation Union[42], and especially contribution to the aims of the proposed European Innovation Partnership on 'Water'[43], to promote growth and job creation in Europe. Strong partnership between public authorities, regulators, water utilities and companies, the research community and the public, to make best use of existing instruments, and to align and pool resources in order to adopt innovative water solutions more rapidly. Achieving the objectives of water-related policy. Creation of market opportunities and increased demand for innovation leading to global leadership for the European water technology and services sectors. Projects should clearly demonstrate their capability to facilitate market uptake and their potential to stimulate demand side measures for innovation.

Specific feature: This topic is mainly addressed to SMEs and industries, in appropriate partnership with research institutions and other stakeholders. Involvement of R&D performing SMEs is encouraged to ensure maximum impact. This topic contributes to the aims of the proposed European Innovation Partnership on 'Water' and to the aims of the Commission's initiative on 'Smart Cities and Communities'[44].

Additional eligibility criterion: Projects will only be selected for funding on the condition that the estimate EU contribution going to SMEs is 30 % or more of the total estimated EU contribution for the project as a whole. This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

ENV.2013.WATER INNO&DEMO-2 Ensuring the integration of water and innovation demonstration projects and support to trans-national networks of procurers – FP7-ENV-2013-WATER INNO&DEMO

Proposals must address one of the following two sub-topics:

a) Creation of a network to ensure an optimal coordination between the various sites of the demonstration projects selected in topic ENV.2013. WATER INNO&DEMO-1 and future Innovation Sites listed as indicative priority areas in the proposed European Innovation Partnership on 'Water', to promote a continuous dialogue and exchange of good practices between all actors involved, improve communication and transfer of knowledge, and, finally, to identify gaps in matching demand and supply innovation measures. This network should be built on existing successful technology platforms and partnerships, bring together both the public and private water sectors, and should liaise with the secretariat of the proposed European Innovation Partnership on 'Water';

b) Promotion and development of innovation-oriented public procurements in the domain covered by the proposed European Innovation Partnership on 'Water', with a view to

[42] See footnote 2.
[43] See footnote 348.
[44] http://ec.europa.eu/energy/technology/initiatives/smart_cities_en.htm

enhancing the strategic use of public procurement at regional and/or local level in order to stimulate creative responses from the market, uptake of R&I results and to develop innovative public services. Public authorities (e.g. public purchasers such as national/regional/local governments and/or their agencies, public authorities responsible for R&I programmes such as research councils, R&I funding agencies) wishing to work together in developing innovative procurements (including pre-commercial) are encouraged to test innovative procurement policies.

Funding scheme: Coordination and support action (coordinating action)

The requested European contribution per project shall not exceed EUR 1 000 000.

Up to one proposal can be selected for each sub-topic.

Expected impact: Implementation of the Europe 2020 Flagship Initiative on Innovation Union[45], and especially contribution to the aims of the proposed European Innovation Partnership on 'Water'[46], to promote growth and job creation in Europe. Strong partnership between public authorities, regulators, water utilities and companies, the research community and the public, to make best use of existing instruments, and to align and pool resources in order to adopt innovative water solutions more rapidly. Reduce fragmentation of public sector demand by enabling public bodies to collectively implement procurements strategies (including Pre-Commercial Procurement (PCP)) and joint actions so as to tackle problems in a more efficient way. Share risks and benefits of designing, prototyping and testing a limited number of new products and services with suppliers. Increased opportunities for wide commercialisation and uptake of R&I results.

Specific feature: This topic contributes to the aims of the proposed European Innovation Partnership on 'Water and to the aims of the Commission's initiative on 'Smart Cities and Communities'[47].

[45] See footnote 2.
[46] See footnote 348.
[47] See footnote 448.

Public-Private Partnership 'Energy Efficient Buildings Initiative'

Topic implemented in cooperation with NMP, ICT and Environment (including Climate Change) Themes.

For further details of the implementation of the call please see the Annex 5 of the Cooperation work programme.

EeB.ENV.2013.6.3-4 Energy efficient retrofitting and renewal of existing buildings for sustainable urban districts – FP7-2013-NMP-ENV-ICT-EeB

This topic is a contribution to the 'Energy efficient Buildings' (EeB) Public Private Partnership. The objective is to develop improved, easy to use tools that support cost-effective decision making through design, planning and implementation of renewal/retrofitting projects (including decisions such as demolishing vs retrofitting). These tools should particularly focus on the energy performance of buildings, the impact of district space planning and connections with networks and related installations (transport, energy, water, waste). The tools should also ensure the adoption of the most cost-optimal and affordable solutions for adapting, renewing and retrofitting groups of existing buildings that may include historic structures, fully incorporating the latest innovations and best available technologies that deliver significant energy efficiency improvements while addressing multiple resource challenges and ecosystem-based approaches, such as, for example, green roofs and walls. These solutions may cover indoor and outdoor issues, as well as social and economic concerns. Sufficient emphasis should be given to the demonstration and verification of the tools to be developed and their ability to evaluate in detail the impact potential of the solutions considered along the entire life cycle from design to decommissioning and recycling. Quantification of improvements in resource efficiency, improved health and comfort and lower greenhouse gas emissions is expected, both at the micro (projects) and macro (economy) scale, taking into account the rebound effect. Economic impacts including cost-benefit analysis and investment amortisation should also be considered, using renovation projects as case studies. Projects should specifically involve developers and public authorities whilst fostering the integration of the overall value chain involving architects, constructors, operators, financing entities, users, etc. SMEs should also be actively involved. The tools to be developed should take advantage of the use of standardised or pre-standardised metrics for sustainable buildings, including those being developed in on-going EU funded projects such as 'OpenHouse' and 'Superbuildings'.

Funding scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 3 000 000.

One or more proposals can be selected.

Expected impact: Demonstrably improved resource efficiency of existing buildings and clear reduction in energy use, in particular, together with associated CO_2 emissions. Benefits to stakeholders across the entire value chain including SMEs, leveraging the latest innovations that incorporate technologies from a wide variety of disciplines (e.g. architecture, civil and environmental engineering, energy technologies, restoration and conservation technologies, computer science, social sciences, to name just a few). Guidance to local community development agencies, developers, SMEs as suppliers and users of technologies, etc. Civil society organisations are welcome when appropriate. Support for the implementation of the

Directive on the Energy performance of buildings[48] and the Roadmap to a Resource-Efficient Europe[49]. Contribution to the aims of the Commission's initiative on 'Smart Cities and Communities'[50].

Additional eligibility criteria: Projects will only be selected for funding on the condition that the estimated EU contribution going to SMEs is 15 % or more of the total estimated EU contribution for the project as a whole. This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

[48] Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings, OJ L 153, 18.6.2010, p. 13.
[49] See footnote 3.
[50] See footnote 448.

Challenge 6.4 Protecting citizens from environmental hazards

Novel global approaches to protect citizens' health from emerging environmental risks will be explored. In particular research will enhance a comprehensive understanding of — and comparable data on — population exposures in Europe, by combining large-scale exposure data with population health data from a pilot European Exposure and Health Examination Survey[51]. In the field of electromagnetic frequencies, independent and more robust exposure assessment and health impact studies have to be deployed in order to respond to the rapid growth of new information and communication technologies. In the field of natural hazards, recent disasters in Japan, Asia and Europe require from research and innovation to explore more thoroughly ways and means to better learn how to prepare, prevent, monitor, forecast, warn, defend and react in view of similar events. This will contribute to more reliable and precise tsunami early warning systems, to sound methodologies for implementing stress tests for main infrastructures and to new means for defending coastal areas and populations from multiple hazards (including coastal and flash floods).

ENV.2013.6.4-1 Assessing individual exposure to environmental stressors and predicting health outcomes: paving the way for an EU-wide assessment – FP7-ENV-2013-two-stage

The majority of major chronic human diseases are likely to result from the combination of environmental exposures to chemical and physical stressors and human genetics; however, the environmental determinants are poorly understood in comparison to the genetic factors. Thus, new approaches relying on the concept of the individual exposome, representing all environmental contributors to disease received by an individual during a lifetime, are needed to better understand the underlying mechanisms of environment-health/disease associations. The aim of the research is to collect new harmonised and standardised large-scale exposure data from European populations to improve the quality and comparability of the input data across countries, with attempts to link individual and population-based exposure data to health data. The latter could consist of data available in health registries or new data that could be collected together with exposure data, e.g. through a pilot European Exposure and Health Examination Survey. Individual exposomes should be characterised by utilising existing biomarkers, and by developing biomarkers of exposure and effect based on epigenetics or other approaches. Strategies to improve the bioinformatics tools to handle the large amounts of data generated should also be considered.

Funding scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 12 000 000.

Up to one proposal can be selected.

Expected impact: Better and innovative European preventive strategies by improving assessment of individual exposures. Reduction of fragmentation of exposure data across the EU and contribution to harmonisation and comparability of data. Improved EU risk

[51] http://ec.europa.eu/health/data_collection/tools/mechanisms/index_en.htm#fragment1

assessment and management activities in the area of Environment and Health. Combining exposure and health assessment in an EU-wide study. Integration of the research and innovation dimension by development of innovative approaches to assess exposure-health relationships in an integrated manner. Development of the European Research Area.

ENV.2013.6.4-2 Closing gaps of knowledge and reducing exposure to electromagnetic fields (EMF) – FP7-ENV-2013-two-stage

As previous studies have been inconclusive as regards possible health effects of exposure to EMFs, further research should be carried out to better understand the possible mechanisms generating biological effects through the use of novel approaches, as well as to collect and improve exposure and health risk assessment of EMFs, and also to underpin policy development. A large-scale prospective population study – that could reach beyond the EU – could be envisaged to investigate, *inter alia*, the role of radiofrequency (RF) exposures in cancer risk, neurodegenerative diseases, reproductive problems, behaviour and ageing, and exposure and health effects from intermediate frequency (IF) fields. More data on cumulative personal exposures from various sources should be collected. The research should also propose non technological means to reduce exposure.

Funding scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 6 000 000.

Up to one proposal can be selected.

Expected impact: Support to EU and national regulatory bodies and policies by improving reliability of research data on potential effects of EMF exposures. Contribution to EU risk assessment and management activities through an improved evaluation of cumulative and integrated personal exposure. Application of novel approaches (e.g. systems biology) to EMF health research. Underpinning of non-technological means to reduce exposures.

ENV.2013.6.4-3 Coasts at threat in Europe: tsunamis and climate-related risks – FP7-ENV-2013-two-stage

Recent climate-related and tsunami catastrophic events have highlighted the increased exposure and vulnerability of societies in coastal areas. Research should strongly enhance today's forecasting, prediction and early warning capabilities in order to improve the assessment of coastal vulnerability and risks and develop adequate prevention, mitigation and preparedness measures. The knowledge gathered and lessons learned from recent dramatic events (e.g. Great East Japan Tsunami, Xynthia storm in France, Liguria flash floods), as well as from past and on-going EU research, should be used in order to design and develop management approaches to minimise social and economic losses and environmental impacts and increase resilience to such events.

Proposals should either address tsunamis or extreme hydro-meteorological events (e.g. extreme winds, storm surges, coastal and estuarine floods — taking in consideration the effects of climate change) and should focus on the respective key research challenges. Research should focus on Europe, but international cooperation with any third countries experiencing the same type of threats and willing to share know-how is encouraged. Innovative, cost-effective, technological or non-technological solutions as well as ecosystem-based approaches should be explored. Organisational and institutional/governance aspects have to be considered as well.

Funding scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 6 000 000.

One or more proposals can be selected.

Expected impact: Faster attainment of the disaster risk reduction goals of UNISDR (United Nations International Strategy for Disaster Reduction). Design of cost-effective risk-reduction plans, based on the proposed tools and solutions. Improved risk governance and preparedness through the provision of timely information and warnings to decision-makers.
Specific feature: Projects should consider attributing a specific budget to clustering activities with projects on related issues selected in this call and, where relevant, with those projects resulting from the collaborative research action on 'coastal vulnerability' announced in the first call of the International Opportunities Fund by the Belmont Forum[52].

ENV.2013.6.4-4 Towards stress tests for critical infrastructures against natural hazards – FP7-ENV-2013-two-stage

Rare low frequency high consequence natural hazards events can have catastrophic impacts on critical infrastructures and trigger cascading effects. Climate change, population dynamics, urbanisation and other global change factors affect the damage potential. Research should capitalise on knowledge acquired so far in various sectors having already developed stress test methodologies and from the lessons learned after Fukushima and adapt it for critical (non nuclear) infrastructure types that may be threatened by key natural hazards in Europe.
Investigations therefore need to address the definition, harmonisation and development of standards, critical parameters and methodologies for hazard and risk assessment for low-probability, high consequence events in Europe that could be applied in future stress tests. Issues like full exploration of uncertainties, expert judgement, site-specific versus regional assessment of hazards, multiple risks, time-dependent vulnerability, possible degradation, cascade effects and the interactive environmental and societal changes have to be considered as well. Test applications should illustrate the benefits of improved hazard and risk assessment for key critical sites in Europe.
Funding scheme: Collaborative Project
The requested EU contribution per project shall not exceed EUR 3 000 000.
One or more proposals can be selected.
Expected impact: Reinforced European safety assessment capacity. Improved and more reliable stress tests of critical infrastructures. Support for decision making and prioritisation in the field of mitigation options and support to preparedness. Better surveillance capacity.
Specific feature: Projects selected under this topic will be linked through a coordination mechanism that will be defined during the negotiation stage. Coordination with related actions under the EURATOM programme[53] and the Security Theme[54] will also be established. Costs of this coordination will be covered by project resources.

[52] www.belmontforum.org/iof
[53] See EURATOM topic Fission-2012-2.1.3: Consequences of combination of extreme external events on the safety of Nuclear Power Plants (NPPs)
[54] See work programme Security- topic SEC-2013.2.1-2 Impact of extreme weather on critical infrastructure-capability project.

Challenge 6.5 Mobilising environmental knowledge for policy, industry and society

Activities within this challenge aim to stimulate innovative approaches and tools to facilitate knowledge transfer, and uptake and exploitation of research data and results by policy makers, enterprises and society at large. In the post Rio+20 context, activities will focus on analysing the policy and socio-economic implications of climate agreements, taking stock of sustainable development indicators and support tools, identifying pragmatic solutions and best practices for policy makers in the EU and beyond, while also enabling the development of sustainable solutions and models for businesses. Networking and clustering of projects and research players will further the uptake of research results and promote sustainable R&I co-operation with Latin America, ASEAN and the Neighbourhood Policy countries. Furthermore, environmental knowledge will be harnessed to support EU policies in areas of societal interest such as disaster risk reduction, raw materials, resource efficiency and air quality, as well as in the Danube region. Foresight will aim to provide insight into the medium and long term trends and prospects of research and innovation, policy developments and market potential of new technologies in the areas of climate, resource efficiency and raw materials under Horizon 2020. In order to promote sustainable economic development both in the EU and in third countries, attention will be paid to sharing and exploiting knowledge from many varied sources, in particular the EU programme on Global Monitoring for Environment and Security (GMES), the Global Earth Observation System of Systems (GEOSS) and the GEOSS DataCore. To support the European Research Area in this field, an ERA-NET Plus will be launched on cultural heritage.

ENV.2013.6.5-1 Accelerating progress towards the Green Economy – FP7-ENV-2013-one-stage

The Green Economy is a vehicle to deliver sustainable development. It offers win-win opportunities to all countries regardless of the structure of their economy or their level of development. It builds on resource efficiency and its progress needs to be monitored. The exchange of best practice between all stakeholders needs to be encouraged at global level. Proposals should address one of the following three sub-topics to facilitate the acceleration towards a Green Economy in a global context:

a) Measuring progress: stocktaking

Many initiatives were launched to create indicators and various support tools aimed at quantifying the environmental and the economic impacts of human activities. Research should take stock of the work carried out globally in the field of sustainable development indicators, including those that can complement or replace GDP, and in the field of support tools such as those focusing on physical aspects, like energy throughput, life cycle and ecosystem assessments, and those integrating the economic dimension, like input-output databases. An assessment of on-going activities in this field and their outcomes should be carried out including identifying pragmatic solutions for Europe, and providing readily usable tools for policy makers. Potential research gaps should be identified and suggestions offered on how to overcome them.

b) Best practices and lessons learnt in the field of eco-innovation

The objective of this action is to develop a suitable structure and web-environment tool for the exchange of relevant experiences, developments, best practices and research outputs from programmes and projects in support or leading to eco-innovation. The tool should address both technological and non-technological innovation, built around relevant cases of successful and unsuccessful eco-innovation obtained from a variety of societal parties and actors, and provide a basis for further analysis and assessment of processes resulting in incremental or disruptive innovation for sustainability, success factors and remaining barriers. Participation of policy makers and SMEs is strongly encouraged, with the aim of acquiring a one-system approach which caters for various target groups, thereby encouraging cross-sectoral information exchange and information spill-overs. For maximum benefit, impact, and efficiency, substantive linkages and cooperation should be sought with relevant European networks including Eco-Innovera and EcoPol, as well as with the Eco-Innovation Observatory.

c) Business practices for promoting 'Green Economy' and sustainable production and consumption post Rio+20

There is a need to stimulate the post RIO+20 dialogues between the private sector and the research community on issues related to 'Green Economy'. The objective is to create a thematic knowledge base that would feed the discussion on sustainable consumption and production at international level as a contribution to the global green economy research agenda. Activities should focus on developing and supporting a network for global exchange of best practices between EU and non-EU actors involved in sustainable consumption and production. It should encourage cross-sectoral and multi-stakeholder research to develop sustainable business solutions and business models. Models, tools, instruments and practices identified will address the optimal mix of the following issues: resource management, job creation, social inclusion, governance and environmental footprints along the value chain and will look at their replicability and scaling up in different sectors and contexts, including beyond the EU borders.

Funding scheme: Coordination and Support Action (coordinating action)

The requested EU contribution per project shall not exceed EUR 1 000 000.

Up to one proposal can be selected per sub-topic.

Expected impact: Faster transition to a green European economy with positive impacts on the rest of the world. Tangible, enhanced and innovative implementation of the Flagship Initiatives on the Innovation Union[55], the EC Communication on a 'Roadmap to a Resource-Efficient Europe'[56], the Eco-innovation Action Plan[57] as well as the EU Strategy for Sustainable Development[58]. Evidence based identification by policymakers of the most adequate indicators and support tools that can be directly and easily used. Reinforced dialogue at international level. Reinforced governance tool to speed up the transition towards more sustainable business options. Demonstrated contribution to job creation within a sustainable development context. Better dissemination of eco-innovation best practices and stronger policy guidance to support measures for eco-innovation uptake. Improved networking between policy makers, SMEs, eco-innovators and civil society organisations. Recognition of the benefits of eco-innovation by the business community. Improved communication and transfer of knowledge to policy making, business and to the general public.

[55] See footnote 2.
[56] See footnote 3.
[57] See footnote 337.
[58] See footnote 199.

ENV.2013.6.5-2 Mobilising environmental knowledge for policy and society – FP7-ENV-2013-one-stage

Innovative approaches and tools are needed for policy makers to facilitate the proper consideration and uptake of available scientific knowledge in key areas in policy making. Proposals should be innovative and address one of the following six key sub-topics to facilitate improved knowledge transfer and uptake, provide appropriate tools and models to manage information and data for policy makers both within Europe and globally, and raise awareness of natural resources, including raw materials:

a) Policy and economic implications of the post-2012 climate agreements

The action will contribute to a better understanding of the key policy and socio-economic implications of post-2012 climate agreements at the global level, as well as the specific benefits, costs and opportunities that this will entail for Europe. Key issues to be addressed may include: effectiveness of the new international regime in delivering the required mitigation objectives; projected socio-economic impacts; the role of low-carbon technology development and transfer; relationship between climate change and land-use trends; trends in energy prices. The analysis will also take into due consideration mitigation and adaption requirements in both developing countries and emerging economies.

b) Improved science-based policy decision making in disaster risk reduction

Various barriers (e.g. legal/institutional, political, cultural, historical, socio-economic) hamper the proper consideration of available scientific knowledge in decision making related to disaster risk reduction. Moreover, this is framed in an evolving situation where climate-related extreme events are growing and are expected to grow more in the future (see IPCC SREX report). There is a need for a better understanding of how risk-based decision mechanisms work, how information/knowledge is used, who are the actors involved, how information flow gaps are manageable in various socio-economic conditions and hazard levels. The management of uncertainty (and of cascades of uncertain events), and its impact on decision-making, have to be developed. A collaborative dialogue among stakeholders, policy makers, practitioners and scientists from different disciplines should enable mapping of relevant processes, identifying barriers, and proposing corrective methodologies and good practices for communication and knowledge transfer at different levels. The project should aim to explore ways to strengthen linkages and communication between disaster risk reduction and climate change adaptation communities.

c) Empowering international economic development through the use of environmental Earth Observations

The action will explore opportunities for economic development, in particular in developing countries, empowered by integrating and exploiting economic development initiatives and environmental Earth Observations. Work should identify the key international economic development processes that require environmental information and identify mechanisms to develop them in a sustainable fashion. Capacity building within local communities and local authorities should be addressed, enabling them to collaborate with international development programmes, use environmental Earth Observation information and products, and engage resource providers such as donors and the financial sector. The action should also look to catalyse the marketing and exploitation of Earth Observation applications for the creation of new innovative products and support services.

d) Raising societal awareness and tackling skill shortages on raw materials

The objective of this action is to support activities in order to mobilise the participation of civil society and industry, including SMEs, in a dialogue on raw materials and resource efficiency; to launch public debate and raise awareness of the opportunities and strengths related to the efficient use of raw materials; to raise the societal acceptance of their

substitution, replacement and recycling; and to help universities and industries, as well as geological surveys, tackle the problem of skill shortages in the European mining sector and green technologies for raw materials processing.

e) Implications of socio-economic research on air pollution policy

The objective of this action is to analyse the socio-economic aspects associated to national, regional and EU wide air pollution policy and to explore ways to better integrate the socio-economic dimension in those policies, in particular with respect to preferences, behaviour and responses of individuals and stakeholder groups (including civil society). Factors influencing the uptake by citizens of individual-level measures to improve air quality should be considered. This action will deliver regular specific reports in support to the on-going revision of the EU Air policy and links should will established with the EU funded coordinated action in the field of 'Integrated assessment of Air Pollution'.

f) Designing environmental research and innovation for solutions and uptake of results in the Danube macro region

The EU Strategy for the Danube region foresees that science and technology are a major driving force for the development of a knowledge based economy in this area. This project will explore and identify instruments and tools for enhancing research and innovation cooperation for the environment in this region at a more integrated and strategic level as well as for the exploitation of results by society and the economy, including policy makers. Synergies will be sought with projects funded by other EU instruments (e.g. Structural Funds) as well as by national or private sources. The project will identify future research and innovation needs and the ways and means to achieve responses. EU and nationally funded research and innovation projects related to the environment with high added value and relevance to the Danube region will be identified and clustered. Priority will be given to consortia which can demonstrate knowledge of the research, innovation and institutional structures in the region.

Funding scheme: Coordination and support action (coordinating action)

The requested EU contribution per project shall not exceed EUR 1 000 000.

Up to one proposal can be selected per sub-topic.

Expected impact:

a) Enhanced implementation of the 'Climate and Energy package (20/20/20 targets)'[59] and the Roadmap for moving to a competitive low carbon economy in 2050[60]. Strengthened EU climate policy informed by forward-looking analysis and better understanding of consequences of different policies and climate regimes on economic sectors and European society as a whole. Increased stakeholders' understanding of the consequences of international climate regime and EU climate policies for European citizens, as well as enhanced awareness and public acceptance.

b) Overcome barriers in decision making and risk communication through innovative means; reconciliation of users' demands and knowledge supply; timely contribution to EU policy development.

c) Highly visible and effective capacity building efforts in the field of Earth Observation within local communities and authorities. Demonstrable economic development through the integration and exploitation of economic development initiatives and environmental Earth Observations. The quantifiable engagement of resource providers, (e.g., donors, the financial sector, etc.). The creation of new and innovative products through the use of environmental Earth Observations.

[59] See footnote 133.
[60] See footnote 10.

d) Improve the conditions for a favourable framework for the development of raw materials in Europe. Contribution to the aims of the proposed European Innovation Partnership on 'Raw Materials'[61].

e) Better understanding of how new policies can be developed that have better acceptance by key stakeholder groups difficult to target with today's policy tools.

f) Mobilisation of all actors and resources from public (national or EU) and private sources for higher investment in research and innovation towards an efficient river-delta-coast-sea management in the Danube/Danube Delta/Black Sea region.

ENV.2013.6.5-3 Exploiting the European Open Data Strategy to mobilise the use of environmental data and information – FP7-ENV-2013-two-stage

Opening up public sector data and information for re-use has a significant and currently untapped potential to act as an engine for innovation, growth and transparent governance. Exploiting Europe's Open Data Strategy can contribute to: decision-making in policy areas; fostering the participation of citizens in environmental governance; and generating new innovative products and services, which can lead to new businesses, jobs and growth.

Using open, readily accessible and freely available Earth Observation data and information, projects should enable wide access to scientific data to allow researchers in different domains to collaborate on the same data sets, to ensure seamless interoperability of data catalogues, to engage in entirely new forms of scientific research and to explore correlations between research results; then using models, innovative environmental tools and information products, based on accepted standards, deliver benefits to researchers, European end-user agencies, the industrial sector, policy makers, and citizens, across environmental knowledge domains.

Attention should be focussed on sharing and exploiting data and information from many varied sources, including in particular: open public sector data portals, the programme on Global Monitoring for Environment and Security (GMES), the Global Earth Observation System of Systems (GEOSS) and especially the GEOSS Data-CORE.

Relevant European Strategies and Policies: EU 2020 Strategy; Digital Agenda for Europe – Open Data Strategy[62]; INSPIRE[63]; CIP[64] to stimulate the emergence of new business.

Funding scheme: Collaborative Project

The requested EU contribution per project shall not exceed EUR 6 000 000.

One or more proposals can be selected.

Expected impact: The creation of opportunities in global markets, new businesses, jobs and growth, through the delivery of a wide range of innovative products and services; better evidence-based policy making and administrative efficiency at all levels of government, resulting in improved public services, e.g. the provision of information to address crisis situations and disasters with cross-boundary impact; greater transparency in public administration through the improved visibility of information, informing citizens and business about policies, public spending and outcomes; empowering citizens and citizens' associations, enabling them to contribute to environmental governance processes in the domains of transparency, knowledge management, accountability and responsiveness.

[61] See footnote 359.

[62] http://ec.europa.eu/information_society/digital-agenda/index_en.htm

[63] Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE), PB L 108, 25.4.2007, p. 1.

[64] Competitiveness and Innovation Framework Programme (CIP) http://ec.europa.eu/cip/

Additional eligibility criterion: Proposals will only be selected for funding if the estimated EU contribution going to SMEs is 30 % or more of the total requested EU contribution for the whole project. This will be re-assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded.

ENV.2013.6.5-4 Knowledge platforms, networking and uptake of research results for more strategic international R&I cooperation – FP7-ENV-2013-one-stage

The objectives are to establish sustainable research and innovation cooperation between main EU and third country actors and to enhance uptake of research results on subjects of mutual interest in the areas of climate action, resource efficiency and raw materials, as described in the Commission proposal for Horizon 2020[65]. Targeted regions are:

a) Latin America,
b) ASEAN,
c) the Mediterranean and the Black Sea,
d) the North Atlantic.

Each proposal should address one targeted region only. EU funded projects with high added value and relevance to the regional needs will be identified and clustered. Clusters will bring together, through bilateral or bi-regional meetings, EU and third country researchers and other relevant stakeholders, aiming at the identification of tools and instruments for enhancing cooperation at a more strategic level and exploitation of results, including twinning of projects. The level of maturity of R&I relations with the EU, as well as cultural, political and administrative differences affecting international R&I cooperation with respective regions should be taken into account. Synergies will be sought with projects funded by other EU instruments (external cooperation) or other parts of the Framework Programme (International Cooperation Activities in the Capacities Programme) and the consortium should build on their reports and recommendations. Consortia should include a sufficient number of eligible ICPC country partners or other international partners from the target regions to ensure adequate scale and scope of cooperation. Priority will be given to consortia which can ensure contacts with and sufficient additional financial commitment from research-related regional structures and/or national authorities or major research institutes in the region.

The final product will be concrete proposals for upgrading the joint research and innovation agenda at more strategic levels and linking major EU projects or clusters of them with projects/networks in the countries of the region and the potential users, such as policymakers and industry. It will also identify potential sources of funding (national, EU, international) other than FP7.

Funding scheme: Coordination and Support Action (coordinating action)

The requested EU contribution per project shall not exceed EUR 1 000 000.

Up to one proposal per region can be selected.

Expected impact: More strategic, integrated and sustainable research and innovation collaboration in the field of climate change, resource efficiency and raw materials between the EU and third countries from Latin America, ASEAN, the Mediterranean and the Black Sea, and the North Atlantic, by bringing the scientific communities and programmes closer to each other around specific challenges, linking their efforts and exploiting research results. Stimulation of future integrated and strategic cooperation activities, mobilisation of financial

[65] See footnote 4

means from various sources and enhanced uptake and use of research and research results for meeting societal challenges in bi-regional and bilateral mutual priorities.

ENV.2013.6.5-5 Network for forward looking activities and assessment of research and innovation prospects – FP7-ENV-2013-one-stage

The aim is to establish a research and innovation policy support network of research institutes and other organisations including stakeholder organisations that may include think tanks, professional and industrial associations and policy analysts, as appropriate. The network will collect strategic information about medium and long term research and innovation trends and prospects, and will carry out forward looking analysis in the areas of climate action, resource efficiency and raw materials as described in the Commission proposal for Horizon 2020[66]. It will analyse technology, policy and market developments as well as policies and programmes of major EU and third country research and innovation actors. In addition, the network will develop, propose and monitor indicators for assessing the impact (in terms of policy, economy, society, sustainability) of EU R&I cooperation both within the EU and with some selected third countries in the field of climate, resource efficiency and raw materials. It will develop a scoreboard of the implementation of European Research Area (ERA) in the specific area and its links with the Innovation Union strategy. It will produce regular quantitative and qualitative briefings with information, trends and strategic options for R&I addressed to EU research managers and policy makers on specific issues. Partners with experience in forward looking, horizon scanning, forecasting and in research policy impact assessment will be important assets for the consortium. Synergies and cooperation with other relevant FP7 activities should be ensured.

Funding scheme: Coordination and Support Action (coordinating action)

The requested EU contribution per project shall not exceed EUR 3 000 000.

Expected duration: 5 years

Up to one proposal can be selected.

Expected impact: Improved quality of R&I policies and programmes in the fields of climate action, resource efficiency and raw materials through substantiated evidence and trends. Improved impact of EU research and innovation on societies, policies and markets through advanced assessment of needs and developments. Improved European competitiveness and political leadership by early reaction to emerging trends, issues and opportunities.

ENV.2013.6.5-6 ERA-NET Plus action: Development of new methodologies, technologies and products for the assessment, protection and management of historical and modern artefacts, buildings and sites

The main aim of this ERA-NET Plus action is to pool the necessary financial resources from the participating national (or regional) research programmes and the European Union with a view to implement a single joint call for proposals for research projects in the cultural heritage field that will be evaluated and managed jointly by the participating programmes. The action should aim at the development of new methodologies, technologies and products for the assessment, protection and management of historical and modern artefacts, buildings and sites. It should help assess the impact of past, present and future environments on cultural heritage while considering social, economic and environmental sustainability strategies for the

[66] See footnote 4

cultural heritage sector. Through an interdisciplinary approach, the joint call should clearly focus in priority on tangible cultural heritage research — while not excluding, when appropriate, interlinked aspects of digital and intangible heritage — and on the synergies derived from cooperation at a transnational level. The topics related to the joint call should be commensurate to the available funds to ensure a reasonable success rate.

This ERA-NET Plus action is aimed at improving the coordination of national research activities and policies in the domain of cultural heritage research. The EC contribution to the joint call budget serves as an incentive to achieve critical mass and a higher degree of integration. The overall subject of the call must be of major interest and ensure significant added value at European level.

Funding scheme: Coordination and support action (ERA-NET Plus).

The total EU contribution for this ERA-NET Plus action is limited to a maximum of 33 % of the total of cumulative joint call budget, up to a limit of EUR 4 million for the EU contribution. Complete and detailed information on funding scheme, special eligibility criteria and expected impact for ERA-NET Plus actions can be found in Annex IV of the cooperation work programme.

Up to one proposal can be selected.

Expected impact: Better use of scarce resources. Increased quality of research and synergies at European, national and regional level. Reduced fragmentation of research efforts.

Special features: A single joint call should be implemented with a clear prior financial commitment from the participants. Eligible participants are programme owners or programme managers that contribute to the call budget. A minimum of 5 participants from 5 different Member or Associated States providing funding is required. The minimum total budget of the joint call is EUR 5 million. Each project retained for funding should be transnational (i.e. with minimum 2 partners from different countries). Coordination experience between national programmes is a necessary prerequisite. Participation in this ERA-NET Plus action is open to all Member States/Associated Countries within, and also beyond, the framework of the Joint Programming Initiative on 'Cultural Heritage and Global Change: a new challenge for Europe'.