

## EU Africa Research Cooperation in Horizon 2020: Health, Climate Change, and Agriculture



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### Building Bi-regional Partnerships for Global Challenges



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# Societal Challenge 1: Health, demographic change and wellbeing

[http://ec.europa.eu/research/horizon2020/pdf/work-programmes/health\\_draft\\_work\\_programme.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/horizon2020/pdf/work-programmes/health_draft_work_programme.pdf#view=fit&pagemode=none)

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**4.11.2013**

# Societal Challenge – “Health, Demographic Change & Wellbeing” - 2014-15

- Health Research of a Budget of 549 million Euros (About 20% to SMEs)
- 32 topics in the personalizing health and care focus area call
- 10 topics in the coordination activities call
- Other small additional topics designed to support the implementation of the challenge

# Why personalizing Health and Care?

- Ageing of the European population
- An increasing communicable and non-communicable diseases burden
- Fall-out from the economic crisis

# Objectives of personalizing health and care

- To improve understanding of the causes and mechanisms underlying health, healthy ageing and diseases
- Improve the ability to monitor health, prevent, detect, treat and manage diseases
- Support older people to remain active and healthy
- Test and demonstrate new models and tools for health and care delivery

# Calls for Projects – Horizon 2020

€15 billion + over the first two years

Some calls from the 2014 budget are already open for submissions as of 10/12/13.

Calls in the 2014 budget alone are worth around €7.8 billion, with funding focused on the three key pillars of Horizon 2020:

# Priority Areas of H2020

- Excellent Science: Around €3 billion, including €1.7 billion for grants from the European Research Council for top scientists and €800 million for Marie Skłodowska-Curie fellowships for younger researchers.
- Industrial Leadership: €1.8 billion to support Europe's industrial leadership.
- Societal challenges: €2.8 billion for innovative projects addressing Horizon 2020's societal challenges.

# Structure of the Call

Divided into 7 areas: reflecting the need for translational and integrated approach to the challenge



# Call for personalising health and care

## 1. Understanding health, ageing and disease

- PHC 1 – 2014: Understanding health, ageing and disease: determinants, risk factors and pathways
- PHC 2 – 2015: Understanding health, ageing and disease: systems medicine

## 2. Effective health promotion, disease prevention, preparedness and screening

- PHC 3 - 2015) Health promotion and disease prevention: improved inter-sector co-operation for environment and health based interventions
- PHC 4 - 2014) Health promotion and disease prevention: translating 'omics' into stratified approaches
- PHC 5 - 2014) Evaluating existing screening and prevention programmes
- PHC 6 - 2014) Improving the control of infectious epidemics and foodborne outbreaks through rapid identification of pathogens (see also SC2)
- PHC 7 - 2014) Vaccine development for poverty-related and neglected infectious diseases: Tuberculosis
- PHC 8 - 2015) Vaccine development for poverty-related and neglected infectious diseases – HIV/AIDS

## 3. Improving diagnosis

- PHC 9 - 2014) Development of new diagnostic tools and technologies: *in vitro* devices, assays and platforms
- PHC 10 - 2015) Development of new diagnostic tools and technologies: *in vivo* medical imaging technologies
- PHC 11 – 2014 and 2015) Clinical validation of biomarkers

# Calls cont.

## 4. Innovative treatments and technologies

- PHC 12 - 2014) New therapies for chronic non-communicable diseases
- PHC 13 - 2015) New therapies for rare diseases
- PHC 14 – 2014/15) Clinical research on regenerative medicine
- PHC 15 – 2015) Tools and technologies for advanced therapies
- PHC 16 – 2014) Comparing the effectiveness of existing healthcare interventions in the elderly
- PHC 17 – 2015) Establishing effectiveness of health care interventions in the paediatric population

## 5. Advancing active and healthy ageing

- PHC 18 – 2014) Advancing active and healthy ageing with ICT: Service robotics within assisted living environments; and ICT solutions for independent living with cognitive impairment
- PHC 19 – 2015) Advancing active and healthy ageing with ICT: Early risk detection and intervention
- PHC 20 – 2015) Promoting mental wellbeing: in the ageing population

## 6. Integrated, sustainable, citizen-centred care

- PHC 21 - 2014) Developing and comparing new models for safe and efficient, prevention oriented, health and care systems:
- PHC 22 - 2015) Piloting personalised medicine in health and care systems
- PHC 23 - 2015) Advanced ICT systems and services for Integrated Care
- PHC 24 - 2014) Self-management of health and disease: citizen engagement and mHealth
- PHC 25 - 2015) Self-management of health and disease: decisional support systems and patient empowerment supported by ICT
- PHC 26 - 2015) Public procurement of innovative eHealth services
- PHC 27 – 201x): eHealth Sectoral Prize

# Health and Care calls cont.

## 7. Improving health information, data exploitation and providing an evidence base for health policies and regulation

- PHC 28 - 2015) Digital representation of health data to improve diseases' diagnosis and treatment
- PHC 29 - 2014) Foresight for health policy development and regulation
- PHC 30 – 2014) Advancing bioinformatics to meet biomedical and clinical needs
- PHC 31 – 2015) New approaches to improve predictive human safety testing
- PHC 32 - 2014) eHealth interoperability

## **Call – Co-ordination activities**

- HCO 1 – 2014) Innovation Partnership: Support for the European Innovation Partnership on Active and Healthy Ageing
- HCO 2 – 2014) Joint Programming: Coordination Action for the Joint Programming Initiative (JPI) "More Years, Better Lives - the Challenges and Opportunities of Demographic Change"
- HCO 3 – 201x) Support for the European Reference Networks: Efficient network modelling and validation
- HCO 4 – 2014) Support for international infectious disease preparedness research
- HCO 5 -201x) Global Alliance for Chronic Diseases: prevention and treatment of type 2 diabetes
- HCO 6 - 2014) ERA-NET - Establishing synergies between the Joint Programming on Neurodegenerative Disease Research and Horizon 2020
- HCO 7 - 2014) ERA-NET: Cancer research programmes and activities
- HCO 8 - 2014) ERA-NET: Brain related diseases research programmes and activities
- HCO 9 - 2014) ERA-NET: Systems medicine for clinical needs research programmes and activities
- HCO 10 – 201x) ERA NET: Rare Disease research implementing IRDiRC objectives

# Understanding health, ageing and disease

## PHC 1 - 2014 Understanding health, ageing and disease: determinants, risk factors and pathways

- Specific challenge: Common diseases result from varying degrees of interaction between the genetic make-up of individuals and behavioural, environmental, occupational and other factors. Better knowledge of these factors will improve risk identification and validation, and allow better diagnosis, risk-based prevention strategies and policies, as well as stratified treatment. This is particularly important given Europe's ageing population, and its need for improved preventive and therapeutic measures providing good health and prolonged independence.

In this context, the two following specific challenges have been identified:

- Exploring the combined role of genetic and non-genetic factors (e.g. environmental, occupational and behavioural) in disease development
- Better understanding of the mechanisms underlying the process of ageing

Scope: Proposals are invited which address this challenge by focusing on one of the elements listed below:

- The identification and validation of determinants of health and risk factors for disease through the generation, integration and validation of data derived from different sources (e.g. molecular, clinical and/or environmental epidemiology, exposure sciences, genetics etc). This should involve the exploitation of existing longitudinal studies and the assessment of the necessity to establish new ones.
- Identification of molecular and pathophysiological pathways characteristic of healthy ageing as well as health deterioration caused by time, exposure to environmental factors and disease accumulation.

Expected impact: Provides the knowledge base for:

- Clinically relevant re-classification of diseases under study
- Effective patient stratification
- New pathways for clinical research for better disease prevention, better and earlier diagnostics, health promotion and therapy development

As a result of:

- A better understanding of the combined effects of various intrinsic and extrinsic factors causing disease, and contributing to health and healthy ageing

# Understanding health, ageing and disease

## **PHC 2 - 2015) Understanding health, ageing and disease: systems medicine**

Specific challenge: The development of new, evidence-based treatments relies on an improved understanding of the, often very complex, pathophysiology of diseases. Systems (bio) medicine approaches have the potential to tackle this complexity through the integration of a variety of biological and medical research data and computational modelling.

In this context, the two following specific challenges have been identified:

- - Better understanding mechanisms that are common to several diseases.
- - Developing the necessary multidisciplinary expertise (e.g. modern biology, medicine, mathematics, computational technologies) for implementing systems (bio) medicine approaches.

Scope: Proposals are invited to address this challenge by focusing on one of the elements listed below:

- Development/optimisation and/or application of systems medicine approaches, and integration of biomedical and clinical data to produce or refine disease models using advanced statistical, computational and mathematical approaches. The predictive value of such models should be validated in well-phenotyped patient cohorts and their clinical significance proven. Consortia should clearly demonstrate why a systems medicine approach would be an improvement over the already established ways of tackling clinical needs in specific disease(s).
- The integration of pre-clinical and clinical studies for the identification of mechanisms common to several diseases. The relevance of those findings on the development of disease-specific pathophysiology should be assessed and validated.

Expected impact: This will provide:

- Leverage of existing investments in Europe in the field of systems biomedicine
- A better understanding of disease pathways and / or mechanisms common to a number of diseases
- New directions for clinical research for better disease prevention, health promotion and therapy development
- Systems medicine tools and approaches tailored for medical research and/or the clinic which represent an improvement over established practice.

# ***Effective health promotion, disease prevention, preparedness and screening***

- **PHC 3 - 2015) Health promotion and disease prevention: improved inter-sector co-operation for environment and health based interventions**

Specific challenge: Better health promotion and disease prevention interventions can make a significant contribution to the sustainability of health and care systems. The design and implementation of such 'health in all policies' approaches is however hindered by the variety and complexity of factors which impact health, and the consequent difficulty in assembling multi-sector teams to work on such interventions. These factors include but are not limited to: housing, water and sanitation systems, transportation, communication, education and information, workplace, nutrition, environment, and behaviour.

- Scope: Given the breadth of factors, the specific focus of this topic for 2015 is the integration of environment and health sectors (including but not limited to climate change, air quality, water and sanitation, the food chain, workplace) for the development and evaluation of inter-sector interventions for health promotion and disease prevention.
- Using a multidisciplinary approach and involving relevant stakeholders such as policy makers, the private sector, civil society organisations etc., proposals should develop and evaluate inter-sector interventions and/or policy initiatives to promote health or prevent disease linked to key environmental stressors for which changes in relevant EU and international policies related to environment and health would have the greatest impact.
- Success characteristics of interventions will be documented, including those which overcome known barriers to inter-sector co-operation, and those which build on existing successful initiatives. Contextual factors such as the interplay between politics and economics should be addressed.
- Research activities will be developed as a European contribution to existing international activities and those under development.

## Expected impact:

- On the basis of quantitative and qualitative indicators, evidence on effective interventions taking a 'health in all' approach, linking environment and health, allowing informed decisions on the reorganisation of health and care systems towards their sustainability,
- Contribution to the EU commitment to the Rio+20 agenda and the Parma declaration 2010, protecting health in an environment challenged by climate change
- Improved health and well-being of individuals or groups targeted by such interventions

# ***Effective health promotion, disease prevention, preparedness and screening***

- **PHC 4 - 2014) Health promotion and disease prevention: translating 'omics' into stratified approaches**
- Specific challenge: 'Omics' research (including but not limited to genomics, epi-genomics, meta-genomics and proteomics) is moving at a breath-taking pace. A major challenge for the next decade is to determine when and how the wealth of 'omics' information can be usefully applied by both the public and private sectors for the development of personalised /stratified approaches in health promotion and disease prevention.
- Scope: Proposals should:
- Develop and assess a personalised / stratified health promotion or disease prevention programme, taking into account the 'omics' characteristics of individuals, complemented by environmental and/or lifestyle factors. Work will include the development of tools and methods for the use of 'omics' data in such programmes and will address risk-benefit communication to various groups including individuals, policy makers and regulators.
- Include a multi-disciplinary approach to assess the validity and utility of 'omics' data in preventive medicine. This will include:
  - Assessment of the predictive value of such programmes in identifying at-risk groups throughout their lives, as compared with conventional methods
  - Assessment of the usefulness of 'omics' data for improving the health of individuals or populations
  - Assessment of the behavioural, ethical, legal, or social implications, as well as of the cost-effectiveness of the programme
- Preference will be given to proposals focusing on diseases with either high prevalence or which present a high risk to the individual, or a high cost to society.
- Expected impact:
- Evidence on the validity, utility and cost-effectiveness of 'omics' based health promotion and disease prevention programmes, allowing informed decisions on the organisation of health and care systems

# ***Effective health promotion, disease prevention, preparedness and screening***

## **PHC 5 - 2014) Evaluating existing screening and prevention programmes**

- Specific challenge: Some existing population based screening and disease prevention programmes have not been assessed for their effectiveness, or vary in terms of their application throughout Europe. This may result in inappropriate interventions, delayed provision of the correct treatment, increased disease burden, health inequities and increased costs for health and care systems.
- Such programmes therefore need systematic evaluation for their impact on health outcomes, cost effectiveness and health equality.

### Scope:

- Proposals should assess existing screening and disease prevention strategies and programmes, on the basis of health outcomes, equity and cost-efficiency, at the level of the individual or stratified population groups, across Europe.
- Comparison between different countries/regions, demographic groups and cultures will be made in order to identify specific contextual link elements as well as to identify opportunities for exchange of knowledge and experience between countries and regions.
- Research may include the development of new methods or the adaptation of existing ones for this type of assessment. These methods and tools (including self-assessment tools) should be applied in different health systems and organisational infrastructures to test their applicability in different political, economic and societal contexts.
- Due attention will be paid to the further development and dissemination of methodological expertise, including capacity building across Europe, from the outset in order that the expertise generated is not lost.

### Expected impact:

- Evidence for the increased use, or discontinuation of, existing screening and prevention programmes allowing informed decisions by policymakers
- Capacity building in the assessment of such screening and prevention programmes.
- Improved health outcomes, greater health equity and cost effectiveness based on the implementation of effective screening and prevention programmes



# Improving Diagnosis

## PHC 9 - 2014) Development of new diagnostic tools and technologies: *in vitro* devices, assays and platforms

### Specific challenge:

- The development of new diagnostics (more sensitive, robust and selective) for improved clinical practice demands the translation of multidisciplinary scientific and technological knowledge from diverse fields into clinical applications.
- Innovation in the diagnostics area relies on the development, translation and uptake of existing, new or evolving and often complex technologies.
- A wide range of multidisciplinary competencies need to be brought together to develop and bring new diagnostics to the patient. This is also a field where many small European companies are active.

### Scope:

- Proposals should focus on the development of innovative *in vitro* diagnostic tools and technologies (not novel applications of existing ones). Tools and technologies will improve over state of the art, the performance of diagnosis, prediction, monitoring, intervention or assessment of therapeutic response based on *in vitro* devices, assays and platforms.
- Additionally, proposals may include approaches based on high-throughput screening, nanotechnologies or microfluidics, data analysis methodology, or point-of-care diagnostics.

### Expected impact:

- New *in vitro* diagnostic tools and methods providing more accurate, more reliable and earlier disease diagnosis.
- Growth of the European diagnostics sector, in particular for SMEs

# Improving Diagnosis

**PHC 10 - 2015) Development of new diagnostic tools and technologies: *in vivo* medical imaging technologies**

Specific challenge:

- The development of new diagnostics (more sensitive, robust and selective) for improved clinical practice demands the translation of multidisciplinary scientific and technological knowledge from diverse fields into clinical applications.
- Innovation in the diagnostics area relies on the development, translation and uptake of existing, new or evolving, and often complex technologies. A wide range of multidisciplinary competencies need to be brought together to develop and bring new diagnostics to the patient. This is also a field where many European companies are active.

Scope: Proposals should focus on the development of innovative *in vivo* tools and technologies (not novel applications of existing ones). Tools and technology should aim at improving diagnosis, prediction, monitoring, image-based intervention or assessment of therapeutic response. Preference will be given to innovations that offer a clear advantage over existing tools and technologies. Development of *In vivo* medical imaging technologies should profit from existing high-tech engineering or physics solutions or innovative ideas and concepts coming from those fields.

Expected impact:

- New *in vivo* diagnostic tools and methods providing more accurate, more reliable and earlier disease diagnosis.
- Growth of the European diagnostics sector, in particular for SMEs

# Innovation treatments and techniques

## PHC 12 - 2014) New therapies for chronic non-communicable diseases

### Specific challenge:

- There is general consensus that chronic diseases are better managed through proper primary care interventions to avoid prolonged, costly treatment and hospitalisation. Nevertheless, while a considerable amount of knowledge has been generated by biomedical research in recent years, the development of new therapies is stagnating, in part due to a lack of clinical validation.

### Scope:

- Clinical trial(s) supporting proof of concept in humans to assess the potential clinical efficacy of the novel therapeutic concept(s) / optimisation of available therapies (e.g. drug repurposing). The application may build on pre-existing pre-clinical research.
- A concise feasibility assessment justified by available published and preliminary results and supporting data is also to be provided. Considerations of effectiveness / potential clinical benefit (possibly including real world data) should be integrated in the application if relevant.

### Expected impact:

- New therapeutic strategies with the highest potential to generate advances in clinical practice for chronic diseases ready for further phase II clinical development.
- Early identification of candidate strategies holding *no/little* promise for successful development and which do not warrant further investment into expensive late-stage clinical development.
- Improved therapeutic outcome of major chronic health issues with significant impact on burden of diseases both for individual patients and for health systems.

# Innovation treatments and techniques

## PHC 13 - 2015) New therapies for rare diseases

- Specific challenge: A considerable amount of knowledge has been generated by biomedical research in recent years, yet most of the 6000-8000 rare diseases are lacking therapies despite many diseases being life-threatening or chronically debilitating.
- Specific problems posed for rare diseases include the small and dispersed patient populations, the nature of the therapies proposed which are often highly specialised and novel requiring the engagement of regulatory authorities during development and the small markets for the therapies developed making generally leading to low commercial returns.

### Scope:

- Support should be given for development of new or improved therapeutic approaches, for repurposing of existing therapies, as well as for preclinical research, animal model development and GMP production.
- Proposed treatments to be developed may range from small molecule to gene or cell therapy.
- Clinical trials will only be supported in cases where "orphan designation" has been given and where the proposed clinical trial design takes into account recommendations from protocol assistance given by the European Medicines Agency and where a clear patient recruitment strategy is presented. A concise feasibility assessment justified by available published and preliminary results and supporting data is also to be provided. Considerations of effectiveness / potential clinical benefit (possibly including real world data) should be integrated in the application if relevant.
- Selected projects should contribute to the objectives of, and follow the guidelines and policies of the International Rare Diseases Research Consortium, IRDiRC.

### Expected impact:

- Advancing the development of new therapeutic options for patients living with rare diseases.
- Contribution to reaching the IRDiRC objective to deliver 200 new therapies for rare diseases by 2020.

# Integrated, sustainable, citizen-centred care

## **PHC 21 - 2014) Developing and comparing new models for safe and efficient, prevention oriented, health and care systems:**

- Specific challenge: Biomedical and behavioural research have provided evidence for new approaches to prevention, primary care and treatment. Their integration into health services requires cooperation across sectors and between stakeholders, and challenges the current boundaries of healthcare and established norms of operation.
- EU Member States have thus far had different responses to the need for reform, presenting an opportunity to learn how best to react to preserve and promote our population's health and avoid increases in health inequalities.

Scope: As action oriented research, proposals will develop new models for health systems that make these systems more patient-centred, prevention oriented, efficient, safe and sustainable.

- The models' applicability and adaptation to different health systems will be assessed, and their value, including individual and societal benefits, demonstrated.
- Models can apply to different levels within the health system (micro – the patient interaction level, meso- the health care organization and community level, and macro - the policy level). They must be compared with alternatives (including existing models), capitalising on the EU's diversity. Views of relevant stakeholders such as policy makers and citizens should be taken into account in the design of these models. Capacity building and awareness raising activities for the adoption and further use of models developed will be included.
- Work will address the related challenge of ensuring appropriate and sufficient resources (human, financial, infrastructural, equipment (or consumables) and technology) for these new models and develop adequate governance mechanisms. Research can include methodological work in the field of health technology assessment, health systems performance assessment, health workforce analysis as well as indicators and measures to describe and monitor the quality of life of European citizens adequately and track costs.

### Expected impact:

- On the basis of quantitative and qualitative indicators, evidence on new patient-centred, prevention oriented, safe and efficient models for health care services will be produced.
- Evidence to be used by policy makers and decision makers in making improvements to health and care systems.

# Integrated, sustainable, citizen-centred care

## PHC 22 - 2015) Piloting personalised medicine in health and care systems

- Specific challenge: Research on new models of care organisation suggests that personalising medicine may have the potential to respond to, amongst others, the increasing burden of chronic disease and the complexity of co-morbidities, and in doing so contribute to the sustainability of health and care systems.
- There is a need to demonstrate this potential in terms of sustainable benefits when personalised medicine is rolled out at a larger scale, and as a new model of care organisation. This demonstration is complicated by the diversity of European Union health systems.

Scope: Larger scale pilots of new models of care, based on the concept of personalised medicine will be conducted in existing health care environments and will take into account the EU's diversity in health system organisation. Research should be conducted in coordination with national/regional or local authorities engaging in health sector reform, with the design of new models taking into account the views of other relevant stakeholders, including policy makers and citizens.

- Evidence for health, economic and social benefit to individual patients, whole or stratified population groups and at the level of health care systems will be demonstrated. The organisational and resource requirements of the piloted models (data, personnel and financing) will be tracked, creating evidence on methods of implementation and benefits of the reform while ensuring safety, equity and cost efficiency. Appropriate measures for knowledge transfer and capacity building should be put in place.
- Expected impact: Based on quantitative and qualitative outcome and impact data, evidence on the validity, utility and cost-effectiveness of 'omics' based health promotion and disease prevention programs allowing informed decisions on the organisation of health and care systems

# Improving health information, data exploitation and providing an evidence base for health policies and regulation

## PHC 28 - 2015) Digital representation of health data to improve diseases' diagnosis and treatment

- Specific challenge: Currently available digital personalised models, tools and standards have application for some specific clinical targets. There is however a need for greater integration of patient information, for example of multi-scale and multi-level physiological models with patient specific data and population specific data, to generate new clinical information for patient management. Any such integrative digital representation (Digital Patient) must also allow meaningful knowledge extraction and a decisional support.
- Scope: Work will propose new decisional support systems based on a complex integration of heterogeneous data sources and subject-specific models. This will enable an integrated data analysis, and will present a highly visual data representation, using user-friendly interactive exploratory interfaces in order to assure usability and acceptability.
- They will be used by healthcare professionals for personalised prediction and decision in prevention, diagnosis or treatment and should take into account data protection and ethical considerations. The models should be multi-level and multi-scale and will integrate, when relevant for the targeted clinical situation, the required molecular and cellular data, including genomics and epigenomics data, or data on administration of therapeutics and exposure to environmental factors or link personalised physiology, functional disorders and diseases modelling. Integration of data coming from other technologies and key-enabling technologies is encouraged.

### Expected impact:

- Better management of complex clinical situations.
- Enabling use of the same information by the different medical services.
- Better control and inter-service coordination in the management of the patient health.
- Providing a consistent view of a patient's care needs.

# Improving health information, data exploitation and providing an evidence base for health policies and regulation

## **PHC 30 – 2014) Advancing bioinformatics to meet biomedical and clinical needs**

Specific challenge: Recent technological advances in molecular biology and biomedical sciences are resulting in a greatly increased rate of data generation and of many different types of data. Furthermore, these new technologies are becoming much less expensive and more accessible to individual laboratories and clinics – thus the rate of data generation at a local level is also set to increase dramatically. Currently available bioinformatics tools and approaches are not up to the task of data collection, storage, organisation, integration, analysis and exploitation in biomedical research and the clinic of such diverse and complex data. It is proposed to promote specific research actions to ensure that bioinformatics capabilities are not only made adequate for the current data challenge but also to meet future biomedical and clinical needs. SME interest in the field is high.

Scope: Proposals should focus on research, including the development of new mathematical, statistical and computational approaches, to address specific bottlenecks in bioinformatics that hold back better understanding and use of biomedical and clinical research data. The needs include, but are not limited to: better data capture, organisation and storage; improved data analysis and processing methodologies; new approaches for data integration (e.g. different types and sources, integration of the time component); new approaches to data standardisation, ensuring data consistency and sharing while also complying with data protection requirements; improving accessibility and user-friendliness of biomedical and clinical research data. Close links between developers and envisaged end- users of the new approaches must be ensured from the start of all projects, as must widespread dissemination of the new tools and approaches. Commercial development of new methodologies should be encouraged where appropriate.

### Expected impact:

- Widespread dissemination of the new bioinformatics approaches to maximise the accessibility and utility of biomedical data in research and medicine
- Increased commercial products in bioinformatics (e.g. data services).
- Increased research & innovation opportunities in this SME-intensive field
- Building on European excellence to make the EU a location of choice for advanced bioinformatics research



# Advancing Active and healthy ageing with ICT: Scope

- i) Service robotics within assisted living environments (Research - 100%)
- Work will build on advances in this domain, and will combine multi-disciplinary research involving behavioural, sociological, health and other relevant disciplines.
- ii) ICT Solutions for independent living with cognitive impairment (Innovation – 70%)
- Pilots will build on common, flexible and open ICT solutions which can be adapted to specific users' needs, allowing them to live independently for longer while experiencing cognitive impairment.

# Expected Impact

## i) service robotics and assisted living environments

- Evidence for the benefits of service robotics developed, based on proof of concept and involvement of relevant stakeholders
- Reduction of admissions and days spent in care institutions, and prolongation of time spent living in own home when ageing with emerging functional impairments.
- Improvement in quality of life of older persons of their care providers.
- Global leadership in advanced solutions supporting active and healthy ageing

## Expected Impact Cont.

- ii) ICT Solutions for independent living with cognitive impairment
  - Based on quantitative and qualitative output indicators and impact data, each pilot is expected to demonstrate relevant contributions to the following expected impacts:
    - Clear evidence on return of investment from ICT based solutions for cognitive impairments of older people;
    - Best practice for viable business and financing models which are scalable across Europe;
    - Clear evidence of improvements to quality of life and active ageing for involved users and carers;
    - Contribution to the competitiveness of the European ICT industry in the domain, through enhanced interoperability and scalable markets;
  - Prolongation of active participation in society, avoidance of unnecessary hospitalization and delay institutionalization for as long as possible.

# Early risk detection and intervention - Scope

- ICT based solutions are sought which support active and healthy ageing by enabling early detection and minimisation of risks associated with ageing, including (but not limited to) cognitive impairment, frailty, depression and falls.
- Such solutions will demonstrate the link between changes in behaviour and subsequent negative consequences of ageing by unobtrusive behavioural sensing, and large scale collection of data readily available in the daily living environment of older individuals.
- In addition, ICT based interventions countering identified risks will be designed, as will innovative treatments and therapies based on early detection.

# Expected Impact

- Evidence for the benefits of risk detection and intervention, based on proof of concept and involvement of relevant stakeholders
- Clear improvements of outcomes from new therapies and interventions based on early risk detection in comparison with current practices.
- Global leadership in ICT based innovation for active and healthy ageing.

# Advanced ICT systems and services for Integrated Care - Scope

- To go clearly beyond the current state of art in tele-health and tele-care systems by developing new ICT-based approaches for integrated care. Proposals will address barriers both from technological and organisational points of view:
- Development of robust, privacy compliant, accurate and cost-effective systems that facilitate monitoring of patient status, patient activity and compliance with therapy.
- Fusion, analysis and interpretation of patient and care provider data, to improve decision making among formal and informal care givers and patients.
- Multi-channel and multi-actor interaction and exchange of knowledge in integrated care settings, across digital collaborative platforms.

# Advance ICT Cont

- Development of patient-oriented services to support patient empowerment, self-care, adherence to care plans and treatment at the point of need.
- Development of new patient pathways, new training programmes for the care workforce and new organisational models to improve the coordination of care services as well as the skills and collaboration of health professionals, social carers and informal care givers.
- Personalisation of care management programmes to specific characteristics of patients' profiles, through analysis of multimodal data, risk stratification algorithms for chronic diseases and multi-morbidity conditions, predictive algorithms of patient's status, and personalisation tools for patients.
- Creation of new knowledge for the management of co-morbidities and for addressing poly-pharmacy.

# Expected Impact

- Reduce admissions and days spent in care institutions, and improvements in the daily activities of older persons through effective use of ICT and better coordination of care processes.
- Strengthen evidence base on health outcomes, quality of life and care efficiency gains from the use of ICT in integrated care.
- Improve cooperation and secure information exchange among the actors involved in health, social and informal care services.
- Improve interaction between patients and their carers, and more active participation of patients and their relatives in care processes.
- Reinforce medical knowledge with respect to management of co-morbidities.
- Strengthen European industrial position in ICT products and services by measurable indicators such as new business areas, start-ups and protected intellectual property



# Other useful link

- Fit for Health 2.0 ([www.fitforhealth.eu](http://www.fitforhealth.eu)) database to find partners for EU Framework research programme participation
- <https://ec.europa.eu/programmes/horizon2020/node/119>

## Societal Challenge 2: Food Security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

[http://ec.europa.eu/research/horizon2020/pdf/work-programmes/food\\_draft\\_work\\_programme.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/horizon2020/pdf/work-programmes/food_draft_work_programme.pdf#view=fit&pagemode=none)

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**4.11.2013**

# Societal Challenge 2: General Information

## Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- Aim to make the best of the biological resources in a sustainable way
- General focus on developing productive and efficient systems, supporting ecosystem services, and strengthening low carbon supply chains
- 2014-2015 focus on sustainable food security, blue growth, and supporting the bioeconomy
- Multi-disciplinary approach useful
- Focus on finding solutions
  - innovation aspect
  - integrating end-users
- All activities **open to third countries**, with specific topics stemming from ongoing international dialogues (**including the EU-Africa dialogue on research and innovation**)

# Societal Challenge 2: Food Security

## Sustainable Food Security

- This focus area will develop competitive and resource-efficient aquatic and terrestrial food productions systems covering: eco-intensification of production; sustainable management of natural resources, including the accurate valuation of ecosystems services, while addressing climate change mitigation and adaptation; technologies for a sustainable food chain; safe foods and healthy diets for all; and a global food security system.
- 2014-2015 focus on:
  - Sustainable food productions systems
  - Safe food and healthy diets
  - Global drivers of food security

# Societal Challenge 2: Food Security / Overview

## Topics

### SUSTAINABLE FOOD PRODUCTION SYSTEMS

SFS-1-2014/2015. Sustainable terrestrial livestock production

SFS-2-2014/2015. Sustainable crop production

SFS-3-2014. Practical solutions for native and alien pests affecting plants

SFS-4-2014. Soil quality and function

SFS-5-2015. Strategies for crop productivity, stability and quality

SFS-6-2014. Sustainable intensification pathways of agro-food systems in Africa

SFS-7-2014/2015. Genetic resources and agricultural diversity for food security, productivity and resilience

SFS-8-2014/2015. Resource-efficient eco-innovative food production and processing

SFS-9-2014. Towards a gradual elimination of discards in European fisheries

SFS-10-2014/2015. Tackling disease related challenges and threats faced by European farmed aquatic animals

SFS-11-2014/2015. Implementation of an Ecosystem-based approach for European aquaculture

# Societal Challenge 2: Food Security / Overview

## Topics

### **SAFE FOOD AND HEALTHY DIETS AND SUSTAINABLE CONSUMPTION**

SFS-12-2014. Assessing the health risks of combined human exposure to multiple food-related toxic substances

SFS-13-2015. Biological contamination of crops and the food chain

SFS-14-2014/2015. Authentication of food products

SFS-15-2014. Proteins of the future

SFS-16-2015. Tackling malnutrition in the elderly

SFS-17-2014. Innovative solutions for sustainable novel food processing

### **GLOBAL DRIVERS OF FOOD SECURITY**

SFS-18-2015. Small farms but global markets: the role of small and family farms in food and nutrition security

SFS-19-2014. Sustainable food and nutrition security through evidence based EU agro-food policies

SFS-20-2015. Sustainable food chains through public policies: the cases of the EU quality policy and of public sector food procurement

# Societal Challenge 2: Food Security

## SFS-3-2014/2015: Practical solutions for native and alien pests affecting plants

Scope: Proposals should address one of the following issues (a) and (b), and should clearly indicate to which one they refer.

- a) **[2014] Native and alien pests in agriculture and forestry:** Proposals should address threats for both the agricultural (including horticulture) and forestry sectors. A number of native and/or alien pests and invasive alien species causing (or having high potential to cause) significant economic losses, having a large environmental impact and therefore posing a major threat for Europe, should be tackled. Advanced solutions for pests (including weeds) and invasive alien species prevention and management, utilizing the latest plant health measures and technologies with biological and integrated approaches should be sought. While the center of gravity should be R&D activities, the technical and economic feasibility as well as the industrial relevance of the proposed technologies and mechanisms should be proven through relevant demonstration activities. **In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to include participants established in third countries experiences the same problems (including trade partners).** Involvement of industry (including SMEs) to translate the finding into marketable products or services is required. Active dissemination towards end-users is expected. Proposals should fall under the concept of 'multi-actor approach'.

...

> Research and innovation actions

# Societal Challenge 2: Food Security

## SFS-5-2014/2015: Strategies for crop productivity, stability and quality

Scope: Proposals should propose smart approaches and tools to improve identification, prediction and introduction of useful genetic variation in crops, as well as favorable combinations of genotypes and management practices in a range of environments. They should tackle crop improvement in a holistic manner, and seek for novel breeding targets to improve yield, yield stability, quality, biotic/abiotic stress tolerance/resistance and environmental benefits. Activities and results should feed into breeding programmes as well as help diversifying and optimizing crop management at different stages of plant development. **In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to include participants established in third countries.** Proposals should fall under the concept of 'multi-actor' approach and allow for adequate involvement of the farming sector in proposed activities. **This action allows for the provision of financial support to third parties in line with conditions set out in Part K of the General Annexes.**

> Research and innovation actions



# Societal Challenge 2: Food Security

## SFS-6-2014/2015: Sustainable intensification pathways of agro-food systems in Africa

Scope: Proposals should develop further the concept and approach expected to be implemented in the partnership. Feasibility, strategic priorities and action plan should be developed taking full account of present and emerging initiatives at national, EU, **African** (e.g. CAADP and the forthcoming Science Agenda for Agriculture in Africa) and global level so as to maximize complementarities and synergies. Furthermore, in addition to technological and economic factors, the strategic action plan should also take anthropological and cultural aspects into account. **In line with the objectives of the EU strategy for international cooperation in research and innovation and in particular with the implementation of the EU-Africa dialogue, proposals are encouraged to ensure commitment and participation of a variety of concerned partners established in the EU and in Africa.**

> Coordination and support actions

# Societal Challenge 2: Food Security

## SFS-7-2014/2015: Genetic resources and agricultural diversity for food security, productivity and resilience

Scope: Proposals should address one of the following issues (a) or (b), and should clearly indicate to which one they refer.

...

- b) **[2015] Management and sustainable use of genetic resources:** Proposals should implement comprehensive actions to improve the status and use of (in particular European) ex-situ and in-situ genetic collections. More specifically, they should support acquisition, conservation, characterization/evaluation and especially the use of specific genetic resources in breeding, farming and forestry activities. Furthermore, proposals should undertake broader dissemination and awareness raising activities. In doing so, they should closely liaise with relevant on-going initiatives e.g. seeking to harmonize, rationalize, and improve management of existing collections and databases. **In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to include participants established in third countries. This action allows for the provision of financial support to third parties in line with conditions set out in Part K of the General Annexes.** Proposals should address crop, forest and/or livestock genetic resources.

> Research and innovation actions

# Societal Challenge 2: Food Security

## SFS-13-2015: Biological contamination of crops and the food chain

Scope: Proposals should aim at reducing the risk of mycotoxin contamination in crops and all along the feed and food chains. They should bring about technical, management and organizational solutions (including HACCP techniques) that are effective at the various stages of production as well as at pre- and post-harvest levels and also deal with the safe use of contaminated batches. Proposals should take into account the development of ICT solutions as well as reliable and cost effective control tools to policy-proposed solutions. Proposals should benefit conventional and organic supply chains and fall under the concept of 'multi-actor approach' and allow for adequate involvement of the farming sector in proposed activities. In line with the objectives of the EU strategy for international cooperation in research and innovation and in particular with the implementation of the EU-China dialogue, **proposals are encouraged to include third country participants**, especially those established in China.

> Research and innovation actions

# Societal Challenge 2: Food Security

## SFS-14-2014/2015: Authentication of food products

Scope: Proposals should address one of the following issues (a) or (b), and should clearly indicate to which one they refer.

- a) **[2014] Authentication of olive oil:** Proposals should evaluate fraud vulnerability in the olive oil sector and develop, validate and harmonize methods and analytical protocols to detect undesired processing (e.g. deodorization), adulteration and to verify the quality of olive oil based on novel technological advances. Proposals should explore the establishment of a databank for olive oil and should contribute to standardization. **In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to include participants not only from EU producer and consumer Member States, but also from third country.**

...

> Research and innovation actions

# Societal Challenge 2: Food Security

## SFS-15-2014: Proteins of the future

Scope: A multidisciplinary approach, covering the whole food supply chain (from production to consumption) of new and/or existing protein sources should be taken. The market potential for the producer and added value for the consumer should be considered, together with food safety and quality parameters, regulatory issues, health and diet-related risks and benefits (including gendered safety tests), and gender issues. Appropriate dissemination and knowledge uptake activities should be included, as well as industry participation with a specific focus on SMEs. **In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to include participants established in third countries.** A sustainability assessment in line with the ILCD handbook should be conducted. Proposals should be focused on how new and/or adapted protein sources can provide innovative, cost-effective and resource-efficient alternatives to traditional sources, with more positive impacts on human health, the environment and biodiversity.

> Research and innovation actions

# Societal Challenge 2: Food Security

## SFS-18-2015: Small farms but global markets: the role of small and family farms in food and nutrition security

Scope: Proposals should thoroughly assess the role of family farms and other small food businesses and particularly those with small structures in achieving sustainable FNS, evaluating the means by which such entities could respond to the expected increase in demand for food, feed and fiber under ever scarcer resources, as well as providing evidence and developing tools to guide decision makers in the choice and combination of intensification pathways. Research should identify the optimal enabling environment for small and family farms and businesses to accomplish the aforementioned role on FNS and the multiple dimensions of sustainability with respect to infrastructure, supply chain and governance needs. Foresight activities should be carried out to project the potential weight and roles of the aforementioned entities in a few decades' time, regarding the various dimensions of sustainability, **including the challenges of less developed countries' growing rural densities**. Research work should build upon existing knowledge and take into account activities related to the 2014 International year of Family Farming and Smallholder Farming. **In line with the objectives of the EU strategy for international cooperation in research and innovation and in particular with the implementation of the EU-Africa dialogue, proposals are encouraged to include third country participants, especially those established in Africa and Asia.**

> Research and innovation actions

# Societal Challenge 2: Food Security

## SFS-19-2014: Sustainable food and nutrition security through evidence based EU agro-food policies

Scope: Proposals should address one of the following issues (a) or (b), and should clearly indicate to which one they refer.

...

- b) **[2014] Understanding relevant issues impacting the agro-food sector:** Specific analyses should address the following issues: 1) potential role of financial markets on commodity price formation and their potential benefits for farmers (including the conditions for access of farmers) for risk management; 2) Conditions of farmers' access to credit especially young farmers, in context of economic uncertainty and increasing capital intensity of production; 3) Mapping the web of policy requirements applicable to farmers at EU, national and regional levels and developing tools to assess their implications on farming across the EU, **including an extensive review and comparison of agro-food standards in the EU and important third countries** and assessment of their impacts on cost and competitiveness or on access to markets; 4) developing approaches to better take account of the functioning of the food supply chain, measuring implications of unfair business practices along the chain and developing solutions to address discrepancies, including the potential role of ICT to increase market transparency.

> Research and innovation actions

# Societal Challenge 2: Food Security

## SFS-20-2015: Sustainable food chains through public policies: the cases of the EU quality policy and of public sector food procurement

Scope: Proposals should investigate the impact of both the quality policy and public sector food procurement policies (including “school schemes”) on the overall sustainability of rural territories and their role in fostering the provisions of public goods as well as the impact of public food procurement on balanced nutrition. They should extend to short food supply chains which are impacted by both types of policies and assess their impact on the rural economy. Proposals should investigate the contribution and impact of the quality policy to the various objectives of the agricultural and rural development policies ranging from social and territorial cohesion to consumer confidence. Costs related to the policy and possible routes to improve its delivery should be researched. Proposals should cover a large array of PDOs and PGIs, organic products (including agriculture and aquaculture products), and short food supply chains based on regional sourcing. On food procurement policies, proposals should review existing practices, identify constraints to their development, investigate how communities of practice and partnerships involving a broad range of stakeholders can be utilized and shed light on its impact on territorial development. A large review of existing schemes should allow elaborating good practices, decision tools and recommendations for scaling up. Relevant data on short food supply chains should be gathered, which should allow the assessment of their contribution to the agricultural and rural economy. Relevant knowledge platforms should be set up. **Research should involve relevant categories of stakeholders and cover an appropriate number of EU Member States, Associated Countries and Third countries.** Proposals should fall under the concept of ‘multi-actor approach’. **This action allows for the provision of financial support to third parties in line with conditions set out in Part K of the General Annexes.**

>Research and Innovation actions



# Societal Challenge 2: Blue Growth

## Blue Growth: Unlocking the Potential of Seas and Oceans

- Aim is to improve the understanding of the complex interrelations between various maritime activities, technologies, including space enabled applications, and the marine environment to help boost the marine and maritime economy by accelerating its potential through R&I
- 2014-2015 focus on:
  - Sustainable exploitation of the diversity of marine life
  - New offshore challenges
  - Ocean observation systems/technologies
  - Horizontal activities
- International cooperation supporting the new Atlantic Ocean Cooperation Research Alliance

# Societal Challenge 2: Blue Growth / Overview

## Topics

### **SUSTAINABLY EXPLOITING THE DIVERSITY OF MARINE LIFE**

BG-1-2015. Improving the preservation and sustainable exploitation of Atlantic marine ecosystems

BG-2-2015. Forecasting and anticipating effects of climate change on fisheries and aquaculture

BG-3-2014. Novel marine derived biomolecules and industrial biomaterials

BG-4-2014. Enhancing the industrial exploitation potential of marine-derived enzymes

### **NEW OFFSHORE CHALLENGES**

BG-5-2014. Preparing for the future innovative offshore economy

BG-6-2014. Delivering the sub-sea technologies for new services at sea

BG-7-2015. Response capacities to oil spills and marine pollutions

### **OCEAN OBSERVATION TECHNOLOGIES/SYSTEMS**

BG-8-2014. Developing in-situ Atlantic Ocean Observations for a better management and sustainable exploitation of the maritime resources

BG-9-2014. Acoustic and imaging technologies

# Societal Challenge 2: Blue Growth / Overview

## Topics

### **HORIZONTAL ASPECTS, SOCIO-ECONOMIC SCIENCES, INNOVATION, ENGAGEMENT WITH SOCIETY, AND OCEAN GOVERNANCE ACROSS THE BLUE GROWTH FOCUS AREA**

BG-10-2014. Consolidating the economic sustainability and competitiveness of European fisheries and aquaculture sectors to reap the potential of seafood markets

BG-11-2014. Monitoring, dissemination and uptake of marine and maritime research

BG-12-2014/2015. Supporting SMEs efforts for the development – deployment and market replication of innovative solutions for blue growth

BG-13-2014. Ocean literacy – Engaging with society – Social innovation

BG-14-2014. Supporting international cooperation initiatives: Atlantic Ocean Cooperation Research Alliance

BG-15-2014. European polar research cooperation

BG-16-2015. Coordination action in support of the implementation of the Joint Programming Initiative on 'Healthy and Productive Seas and Oceans'

# Societal Challenge 2: Blue Growth

## BG-1-2015: Improving the preservation and sustainable exploitation of Atlantic marine ecosystems

Scope: Proposals should fill in knowledge gaps to deepen the understanding of the biogeographic patterns, biodiversity, biogeochemistry, and ecosystem services and goods supported by different marine ecosystems at ocean basin and management relevant scales and the capacity to model, understand and predict shifts in the dynamics of North Atlantic ecosystems, thereby supporting preservation and unlocking the potential for the sustainable productions of new products and industrial application. Decision support tools and methodologies should be developed to support adaptive (ecosystem based) management approaches enabling good governance of the North Atlantic marine ecosystem by the bordering countries so as to secure the sustainable exploitation of the living resources whilst ensuring its preservation. The work may draw upon related research expertise that has been developed within other sea basins. Proposals should also develop genuinely cross-disciplinary, integrated, systemic approaches – including the socio-economic dimension, as well as the engagement of the broader stakeholder communities. In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals should contribute to implementing the Transatlantic Research Alliance, launched by the Galway Statement on Atlantic Ocean Cooperation in May 2013, and should benefit from the inclusion of partners from the USA and Canada. **Cooperation is also encouraged with other international partners.**

> Research and innovation actions

# Societal Challenge 2: Blue Growth

## BG-8-2014: Developing in-situ Atlantic Ocean Observations for a better management and sustainable exploitation of the maritime resources

Scope: The Integrated Atlantic Ocean Observing System initiative should cover the whole Atlantic with the objective to deliver the knowledge base supporting the understanding of the Ocean Process at the level of the entire basin. Another focus of proposals should be to fill the observational gaps regarding the in-situ part of the Integrated Atlantic Ocean Observing System including through the optimization of existing systems and the use of new ocean observation technologies enabling reducing the costs of in-situ ocean observation and integration of the biological dimension into observing systems. The research and innovation necessary to underpin the full and open discover and access to the ocean observations and facilitating the interoperable exchange of ocean observations as promoted through GEO (Group on Earth Observation) at the scale of the Atlantic Ocean should **require the participation of international partners from both sides of the Atlantic**. In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals should contribute to implementing the Transatlantic Research Alliance, launched by the Galway Statement on Atlantic Ocean Cooperation in May 2013, and should benefit from the inclusion of partners from the USA and Canada.

> Research and innovation actions

# Societal Challenge 2: Blue Growth

## BG-13-2015: Ocean literacy – Engaging with society – Social Innovation

Scope: Proposals should focus on compiling existing knowledge in the broad area of Seas and Ocean Health (environmental status, pollution affecting marine biodiversity and ecosystems, ecosystem services). Attention will be paid to the impact this has on citizens, including on Human Health. Information collected should be turned into communication material, to be used for dissemination and engagement with societal stakeholders and public at large, e.g. via schools, aquaria, maritime and science museums. Ocean literacy in the EU should be promoted in a traditional or in a proactive mutual learning way by engaging with citizens as responsible actors of change in marine challenges. **In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals should benefit from the inclusion of partners established in third countries**, in particular the US and Canada, given the high potential for knowledge sharing in this field.

> Coordination and support actions

# Societal Challenge 2: Blue Growth

## BG-14-2014: Supporting international cooperation initiatives: Atlantic Ocean Cooperation Research Alliance

Scope: In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals should contribute to implementing the Transatlantic Research Alliance, launched by the Galway Statement on Atlantic Ocean Cooperation in May 2013, and should benefit from the inclusion of partners from the US and Canada. Proposals should underpin the establishment and implementation of the Atlantic Ocean Cooperation between the EU, its Member States and partner countries joining transatlantic research alliance as well as building on existing initiatives and programmes to increase coherence and coordination of ocean research cooperation programmes.

Proposals should address the following priority areas in an integrated way, identified in the Galway Statement: (i) Marine ecosystem-approach, (ii) Observing systems, (iii) Aquaculture, (iv) Ocean literacy – engaging with society, (v) seabed and benthic habitat mapping.

Within these priority areas, proposals should facilitate the mapping and connectivity of relevant on-going research activities and programmes in the Atlantic and the identification of research gaps. Proposals should also consider ongoing work to create a European Marine Observation and Data Network (EMODnet). Proposals should contribute to aligning the planning and programming of research activities, in view of launching joint Research & Innovation initiatives, while building on existing ones (e.g. Joint Programming Initiative “Healthy and Productive Seas and Oceans”, marine ERA-NETs (e.g. Seas-Era) and also national and multilateral initiatives). Proposals should facilitate a shared use of infrastructures, as well as dissemination and knowledge transfer activities leading to an optimal exploitation of projects results, fostering mobility and networking of researchers.

*(continued)*

# Societal Challenge 2: Blue Growth

## BG-14-2014: Supporting international cooperation initiatives: Atlantic Ocean Cooperation Research Alliance

Scope (continued):

Proposals should also establish a long-term knowledge sharing platform (existing knowledge or to be generated), in the areas mentioned above, to allow for long-term usability of the data, information and knowledge thereby ensuring tangible value creation from invested resources. This platform should comprise a classification system, which allows for an easy, focused, quick and reliable use and analysis of the information collected and stored. The principle of open access would need to govern such a platform. To enhance the exploitability of the platform for policy making and stakeholder consultation purposes, representatives from funding agencies and these communities should be consulted in their design. Options to secure the long-term viability of this platform should be included in the proposal. **Cooperation is as well encouraged with partners established in other third countries (e.g. Brazil).**

> Coordination and support actions



# Societal Challenge 2: Blue Growth

## BG-16-2015: Coordination action in support of the implementation of the Joint Programming Initiative on 'Healthy and Productive Seas and Oceans'

Scope: Proposals should build on the outcomes of the CSA Oceans project in support to the implementation of the Strategic Research and Innovation Agenda (SRIA) of JPI Oceans and in ensuring further alignment and convergence of national Research and Innovation activities and investments on marine research in line with the European Commission Recommendation of 2011. In this context, proposals should provide support for the designing and implementation of new transnational joint activities including joint calls if appropriate and using the most suitable and effective methods and tools for collaboration such as those proposed by the 'Voluntary guidelines on Framework Conditions', adopted by the High level Group on Joint Programming. These new joint actions, in interface with other initiatives, should focus on relevant issues and grand challenges identified in the JPI Oceans' implementation plan and provide support to key marine and maritime related EU policies and strategies.

Proposals should be used to establish and consolidate an operational network of marine and maritime researcher funders and other key players in Europe, with a view to ensure alignment of national research agendas and actions implemented in the framework of other initiatives such as marine ERA-Nets (e.g. Seas-Era) and Article 185 initiatives (e.g. Bonus 'Joint Baltic Sea Research Programme').

Cooperation between relevant EU marine research institutes should be further stimulated for better coordination in the collection of marine data, the use of sharing of marine research infrastructures of transnational interest. Proposals should also include measures supporting other ERA priorities such as improving researchers' mobility and training. **The international dimension of JPI Oceans should be further elaborated where appropriate and where there is added value, in order to achieve greater coherence at sea-basin and international level.**

> Coordination and support actions

# Societal Challenge 2: Bioeconomy

## Innovative, Sustainable and Inclusive Bioeconomy

- Aim to support sustainable agriculture and forestry management processes providing public goods and innovative products for sustainable growth; foster innovation (including social innovation) in rural areas for inclusive growth; and enhance innovation in the bio-based industry for smart growth
- Activities complimentary to the activities supported under the two Focus areas ‘Sustainable Food Security’ and ‘Blue Growth’

# Societal Challenge 2: Bioeconomy / Overview

## Topics

### **SUSTAINABLE AGRICULTURE AND FORESTRY**

ISIB-1-2014. Provision of public goods by EU agriculture and forestry: Putting the concept into practice

ISIB-2-2014/2015. Closing the research and innovation divide: the crucial role of innovation support services and knowledge exchange

ISIB-3-2015. Unlocking the growth potential of rural areas through enhanced governance and social innovation

ISIB-4-2014/2015. Improved data and management models for sustainable forestry

### **SUSTAINABLE AND COMPETITIVE BIO-BASED INDUSTRIES**

ISIB-5-2014. Renewable oil crops as a source of bio-based products

ISIB-6-2015. Converting CO<sub>2</sub> into chemicals

ISIB-7-2014. Public procurement networks on innovative bio-based products

# Societal Challenge 2: Bioeconomy / Overview

## Topics

### CROSS-CUTTING ACTIONS COVERING ALL ACTIVITIES

ISIB-8-2014. Towards an innovative and responsible bioeconomy

ISIB-9-2014. Supporting National Contact Points for Horizon 2020 Societal Challenge 2 on 'Food Security, Sustainable Agriculture, Marine and Maritime Research and the Bioeconomy' and the Key Enabling Technology (KET) 'Biotechnology'

ISIB-10-2014. Networking of Bioeconomy relevant ERA-NETs

ISIB-11-2014. Coordination action in support of the implementation by participating States of a Joint Programming Initiative on Agriculture, Food Security and Climate Change

ISIB-12-2015. Public-Public Partnerships in the bioeconomy

# Societal Challenge 2: Bioeconomy

## ISIB-3-2015: Unlocking the growth potential of rural areas through enhanced governance and social innovation

Scope: Proposals should undertake a thorough analysis of social innovation in agriculture, forestry and rural development, encompassing its complexity and various dimensions as well as its impact on unfolding the territorial capital in different regional contexts. Proposals should establish appropriate methods for the evaluation of social innovation. Attention needs to be given to different learning arrangements (e.g. multi-actor networks, producer-consumer association, hybrid innovative networks, territorial alliances) as well as to innovative governance mechanisms at various levels, and their potential implications for social innovation. Proposals should also address the role of different policy instruments, other relevant incentives and diverse entities (public/private, local/non local, active citizens, etc) as catalysts/constraints to social innovation. Proposals should explain why regions with similar initial conditions display diverging paths. Activities should cover diverse types of rural areas across the EU and Associated Countries and non-European Mediterranean countries. **In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to include third country participants, especially those established in Mediterranean countries.**

> Coordination and support actions

# Societal Challenge 2: Bioeconomy

## ISIB-9-2014: Supporting National Contact Points for Horizon 2020 Societal Challenge 2 on 'Food Security, Sustainable Agriculture, Marine and Maritime Research and the Bioeconomy' and the Key Enabling Technology (KET) 'Biotechnology'

Scope: Support should be given to a consortium of formally nominated NCPs in the areas of Societal Challenge 2 and the KET 'Biotechnology'. The activities should be tailored according to the nature of the area, and the priorities of the NCPs concerned. Various mechanisms may be included, such as benchmarking, joint workshops, enhanced cross-border brokerage events, specific training linked to Societal Challenge 2 and the KET 'Biotechnology' as well as to gender dimension of Research and Innovation, and twinning schemes. Special attention should be given to enhance the competence of NCPs, including helping less experienced NCPs rapidly acquire the know-how accumulated in other countries.

The focus throughout should be on issues specific to Societal Challenge 2 and the KET Biotechnology and should not duplicate actions foreseen in the NCP network for quality standards and horizontal issues under 'Science with and for Society'.

From EU Member States and Associated Countries, only NCPs who have been officially appointed by the relevant national authorities are eligible to participate in and receive funding for this action. **In line with the objectives of the EU strategy for international cooperation in research and innovation, participation of NCPs from third countries is welcome.**

The consortium should have a good representation of experienced and less experienced NCPs.

Submission of a single proposal is encouraged. NCPs from EU Member States or Associated Countries choosing not to participate as a member of the consortium should be identified and the reason explained in the proposal. These NCPs are nevertheless invited and encouraged to participate in the project activities (e.g. workshops), and the costs incurred by the consortium for such participation. (e.g. travel costs paid by the consortium) may be included in the estimated budget and be eligible for funding by the Commission.

> Coordination and support actions

# Societal Challenge 2: Bioeconomy

## ISIB-11-2014: Coordination action in support of the implementation by participating States of a Joint Programming Initiative on Agriculture, Food Security and Climate Change

Scope: Proposals should build on the results expected by the coordination action in support to the FACCE JPI in the implementation of the Strategic Research Agenda (SRA) and Implementation Plan using effective and efficient methods of collaboration such as those proposed by the 'Voluntary guidelines on Framework Conditions, adopted by the High Level Group on Joint Programming. To carry out activities foreseen in the Implementation Plan, current efforts should be assessed to provide information on Member State implication and to favor the alignment of these activities to the JPI's SRA. Moreover, proposals should support in harmonization, integration, and alignment of national research programming, to enable evidence-based policy making and effective cross-policy actions, investigate novel forms of implantation of SRA such as synchronized calls. **Finally, they should further strengthen the international dimension of the JPI to be addressed by ensuring coherence with other relevant international initiatives. In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to consider cooperation with related programmes from third countries.**

> Coordination and support actions

# Societal Challenge 2: Bioeconomy

## ISIB-12-2015: Public-Public Partnerships in the bioeconomy

Scope: Proposals should address one of the following issues and should clearly indicate to which one they refer:

- a. [2014] Sustainable and resilient agriculture for food and non-food systems: The resilience of regional agricultural systems in Europe, in particular to climate variability and to price volatility (prices of energy, agricultural inputs and agricultural commodities) and its need to be increased taking into account both food and non-food uses of biomass and the integration of production systems (use of by and co-products, recycling of waste, intercropping, etc...) within regions. Issues like greenhouse gas mitigation, fossil fuel substitution and indirect impacts including on land use, farmers and industry strategies deserve attention.
- b. [2015] Rural Development: Supporting rural development initiatives, with a view to promoting viable innovations in European regions; to ensure cohesion of rural areas and prevent economic and social marginalization, foster diversification of economic activities (including the service sector), ensure appropriate relations between rural and urban areas.
- c. [2015] Monitoring and mitigation of agricultural and forestry greenhouse gases (GHG): Monitoring and mitigation of agricultural GHG, including such aspects as reducing uncertainties and improving national agricultural GHG inventories (e.g. with ICOS), the role of climatic variability and agricultural and forestry practices for GHG emissions, the technical and economic potential of CH<sub>4</sub> and N<sub>2</sub>O mitigation, carbon sequestration and reduced emissions from energy use and pre-chain inputs, emissions/removals certification, economic and policy measures, including trade, barriers to implementation, life cycle assessment.
- d. [2015] Sustainable crop production: Sustainable crop production, including such areas as breeding, nutrients recycling and soil-plant-atmosphere interactions, plant health and protection, management practices and added value of the products.
- e. [2015] Sustainable livestock production: Sustainable livestock production, including animal health and welfare, but also in areas like breeding, nutrition and production systems.

(Continued)



# Societal Challenge 2: Bioeconomy

## ISIB-12-2015: Public-Public Partnerships in the bioeconomy

Scope: Proposals should address one of the following issues and should clearly indicate to which one they refer:

- f. [2015] Biomarkers for nutrition and health: Development and validation of biomarkers for nutrition and health, including biomarkers for food intake and for the risk of diet-related disease.

The main objective of these ERA-NETs is to pool the necessary financial resources from the participating national (or regional) research programmes and the EU and to implement joint trans-national calls with EU co-funding in the above areas (one co-funded call per grant agreement, resulting in grants to third parties). Thematic focusing of these calls should be commensurate with the funds available, so as to ensure a reasonable rate of success in the call. The ERA-NETs should seek synergies with other relevant European and international research and innovation initiatives affecting sustainability and resilience of agricultural and food systems, in particular with FACCE and HDHL Joint Initiatives. **In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to consider international cooperation, and the ERA-NETs should be open to participation by third countries national programmes.**

The proposals should also aim at implementing other joint activities including additional joint calls without EU co-funding.

> ERA-NET Cofund

## Societal Challenge 5: Climate action, environment, resource efficiency and raw materials

[http://ec.europa.eu/research/horizon2020/pdf/work-programmes/climate\\_action\\_environment\\_resource\\_efficiency\\_and\\_raw\\_materials\\_draft\\_work\\_programme.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/horizon2020/pdf/work-programmes/climate_action_environment_resource_efficiency_and_raw_materials_draft_work_programme.pdf#view=fit&pagemode=none)

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### Building Bi-regional Partnerships for Global Challenges



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# Societal Challenge 5: General Information

## Climate action, resource efficiency and raw materials

- Objective is to achieve an economy & society which lives within the sustainable limits of the planet's natural resources
- Focus on investing in innovation for a green economy
- Actions will:
  - Address gaps in the knowledge base
  - Identifying policies, methods, & tools to tackle challenges
- 2014-2015 focus on Water, Waste, and Growing a low carbon, resource efficient economy with a sustainable supply of raw materials

# Societal Challenge 5: Waste

Waste: A resource to Recycle, Reuse and Recover Raw Materials

- Towards a near-zero waste society – to boost innovative, environmentally-friendly and cross-sectoral **waste prevention & management solutions**
- Activities address the whole production & consumption cycle
- Specific challenges in the areas of food, agricultural and construction waste

# Societal Challenge 5: Waste / Overview

## Topics

WASTE-1-2014. Moving towards a circular economy through industrial symbiosis

WASTE-2-2014. A systems approach for the reduction, recycling and reuse of food waste

WASTE-3-2014. Recycling of raw materials from products and buildings

WASTE-4-2014/2015. Towards near-zero waste at European and global level

WASTE-5-2014. Preparing and promoting innovation procurement for resource efficiency

WASTE-6-2015. Promoting eco-innovative waste management and prevention as part of sustainable urban development

WASTE-7-2015. Ensuring sustainable use of agricultural waste, co-products and by-products

# Societal Challenge 5: Waste

## WASTE-2-2014. A systems approach for the reduction, recycling and reuse of food waste

Scope: Proposals should both address approaches to reducing food waste and packaging materials generated at relevant stages of the food system and investigate ways of converting food waste into value-added by-products. A comprehensive methodology for evaluating food waste in all its components will be developed addressing quality, safety, sustainability, legislation and costs. Inter-disciplinary research methods include practical, close-to-market approaches for characterizing possible new foods and feeds and identifying the risks and benefits related to the new production processes. A database/inventory should be developed of recyclable materials, valuable molecules, substances and materials originating from waste and by-products, also in view of future life cycle assessments (LCAs). Solid involvement of social sciences and humanities and civil society is a prerequisite to better understand the socio-economic, cultural and environmental dimension of food waste and promote change in the business and consumer environment for social innovation, while the use of ICT tools is expected to accelerate this. In line with the objectives of the EU's strategy for international cooperation in research and innovation and in particular with the implementation of the EU-China dialogue, **proposals are encouraged to include third country participants**, especially those established in China.

> Research and innovation actions

# Societal Challenge 5: Waste

## WASTE-4-2014/2015. Towards near-zero waste at European and global level

Scope: Actions should address one of the following issues:

- **[2014] A European near-zero waste stakeholder platform:** Creation of a stakeholder platform for defining an integrated strategic research and innovation agenda, including systemic eco-innovation and business models, for waste prevention and management in the EU, defining areas of waste technologies to be clustered, and proposing actions for strengthening links between research funding programmes across the EU. Synergies with relevant EU initiatives on waste should be considered. Roadmaps addressing specific waste streams, including the electronic waste coming from the ICT sector, should be developed. Proposals should help foster synergies between relevant stakeholders and value chains while identifying new market opportunities. They should provide for participatory and proactive social engagement of citizens and education as well as gender balance and sensitivity specific issues.
- **[2014] Global waste dimension:** Development of a strategy for **global dissemination and uptake** of European waste management best practices, benchmarks and standards, thereby raising awareness on behavioral, social, political, cultural and institutional aspects in solid waste management, and paving the way to new market opportunities. In line with the EU's strategy for international cooperation in research and innovation actions will **contribute to the commitments of Rio+20 and UNEP's Global Partnership on Waste Management** and will follow up on the on-going international activities such as the **EU-Africa pilot project on waste, aiming at developing a roadmap of potential joint European-African research and innovation actions, including knowledge transfer in the field of waste management.**

*(continued)*

# Societal Challenge 5: Waste

## WASTE-4-2014/2015. Towards near-zero waste at European and global level (continued)

- **Secondary raw materials inventory:** Establishment of an EU network for enhancing knowledge in order to improve the sustainable supply of raw materials through a secondary raw materials inventory component of an EU knowledge base with data and information on secondary raw materials and their materials flows, maps and evaluation of European stocks of raw materials, in particular critical raw materials. It should improve data collection on secondary raw materials at national and regional level in the EU and subsequent access to data, including the need for additional EU-wide waste statistics. Compatibility with relevant EU or global standards and interoperability with national databases and other relevant databases (e.g. from FP7 projects) should be ensured. If appropriate, the development of new standards should be examined.
- **Raw materials partnerships:** Creation of a common multi-stakeholder platform focused on a limited number of key raw materials across their whole value chain. **This should involve partners from across the value chain**, including mining, processing, recycling, application, public sectors (national/regional/local) and civil society, while respecting the conditions of each value chain.

> Coordination Action



# Societal Challenge 5: Water

## Water Innovation: Boosting its value for Europe

- Aim is to seize market opportunities by positioning Europe as a global market leader in water related innovative solutions
- Synergies with other sectors (including ICT) may generate larger returns
- Activities address integrated approaches to water and climate change; bringing innovative water solutions to the market; and harnessing water research and innovation results for the benefit of industry, policy makers and citizens in Europe and globally

# Societal Challenge 5: Water / Overview

## Topics

WATER-1-2014/2015. Bridging the gap: from innovative water solutions to market replication

WATER-2-2014/2015. Integrated Approaches to water and climate change

WATER-3-2014/2015. Stepping up EU research and innovation cooperation the water area

WATER-4-2014/2015. Harnessing EU water research and innovation results for industry, agriculture, policy makers and citizens

WATER-5-2014/2015. Strengthening international R&I cooperation in the field of water

# Societal Challenge 5: Water

## WATER-5-2014/2015. Strengthening international R&I cooperation in the field of water

Scope: Proposals should address one of the following issues:

- **[2014] Strategic cooperation partnerships** for water research and innovation between Europe and **the rest of the world**, promoting the creation of networks of companies (including SMEs), entrepreneurs, not for profit organizations, policy makers, regulators and funding bodies to create business and social opportunities. In line with the EU's strategy for international cooperation in research and innovation **proposals contributing to implementing on-going international activities and partnerships where the EU MS are jointly committed to providing a more coherent approach to research and innovation** (e.g. EU/MS-India research and innovation partnership on water, China-Europe Water Platform) **that aim at establishing a shared strategic research and innovation agenda will be given priority.**
- **[2015] A coordination platform** for scientists, decision makers, practitioners and **other key stakeholders representing a number of African countries** throughout the duration of Horizon 2020 to identify opportunities and constraints for the sustainable management of water and other natural resources and ecosystems and **for the development of cost-effective climate change adaptation and mitigation measures in Africa.**
- **[2015 ]Development of water supply and sanitation technology, systems and tools, and/or methodologies** to manage risks associated with water supply and sanitation and cross-boundary water management issues, or integrated water resources management systems for sustainable agriculture and food security, sustainable environment protection and economic growth, **focused on the non-EU Mediterranean countries and Africa.** Proposals should connect to local knowledge, socio-economic development cultures, policy institutions and implementing bodies, and take into account the gender dimension where relevant. In line with the EU's strategy for international cooperation in research and innovation international cooperation is encouraged, in particular with non-EU Mediterranean countries and Africa. Proposals should include participation of organizations from the above-mentioned regions.

> Research and Innovation actions & Coordination and support actions

# Societal Challenge 5: Raw Materials

## Growing a Low Carbon, Resource Efficient Economy with a Sustainable Supply of Raw Materials

- Aim is to support businesses in developing and bringing to the market eco-innovative solutions and to encourage their take-up; to improve our understanding of the complex interactions within, across and between ecosystems and the different elements driving changes in the environment, in order to better tackle these challenges and to use available knowledge; and to bring together and better coordinate research and innovation actions within Europe and beyond.
- Activities are foreseen at the **EU level and beyond**, also supporting relevant **international** efforts and initiatives.

# Societal Challenge 5: Raw Materials/Overview

## Topics

### **FIGHTING AND ADAPTING TO CLIMATE CHANGE**

SC-5-1 and SC5-2-2014/2015. Climate Services for Europe and globally

SC5-1-2014. Advanced Earth-system models

SC5-2-2015. ERA for Climate Services

SC5-3-2014. The economics of climate change and linkages with sustainable development

SC5-4-2015. Improving the air quality and reducing the carbon footprint of European cities

SC5-5-2014/2015. Coordinating and supporting research and innovation for climate action

### **PROTECTING THE ENVIRONMENT, SUSTAINABLY MANAGING NATURAL RESOURCES, WATER, BIODIVERSITY AND ECOSYSTEMS**

SC5-6-2014. Biodiversity and ecosystem services: drivers of change and causalities

SC5-7-2015. More effective ecosystem restoration in the EU

SC5-8-2014. Preparing and promoting innovation procurement for soil decontamination

SC5-9-2014. Consolidating the European Research Area on biodiversity and ecosystem services

SC5-10-2014/2015. Coordinating and supporting research and innovation for the management of natural resources

# Societal Challenge 5: Raw Materials / Overview

## Topics

ENSURING THE SUSTAINABLE SUPPLY OF NON-ENERGY AND NON-AGRICULTURE RAW MATERIALS

SC5-11-2014/2015. New solutions for sustainable production of raw materials

SC5-12-2014/2015. Innovative and sustainable solutions leading to substitution of raw materials

SC5-13-2014/2015. Coordinating and supporting raw materials research and innovation

ENABLING THE TRANSITION TOWARDS A GREEN ECONOMY THROUGH ECO-INNOVATION

SC5-14-2014. Consolidating global knowledge on the green economy in support of sustainable development objectives in Europe and internationally

DEVELOPING A COMPREHENSIVE AND SUSTAINED GLOBAL ENVIRONMENTAL OBSERVATION AND INFORMATION SYSTEMS

SC5-15-2015. Strengthening the European Research Area in the area of Earth observation

SC-16-2014. Making Earth Observation and Monitoring Data usable for ecosystem modelling and services

SC5-17-2015. Demonstrating the concept of 'Citizen Observatories'

SC5-18-2014/2015. Coordinating and supporting Earth Observation research and innovation in Europe and in the North African, Middle East, and Balkan Region

# Societal Challenge 5: Raw Materials / Overview

## Topics

### CROSS-CHALLENGE TOPICS

SC5-19-2014/2015. Coordinating and supporting research and innovation in the area of climate action, environment, resource efficiency and raw materials.

SC5-20-2014/2015. Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials

# Societal Challenge 5: Raw Materials

## SC5-3-2014. The economics of climate change and linkages with sustainable development

Scope: Proposals should address one of the following :

- Developing a comprehensive economic assessment of climate change. The assessment should consider different mitigation and adaptation strategies, focusing on the low-carbon transformation of the economy, and evaluate as well as the costs of inaction. Actions should quantify the costs, benefits and risks of different technological and societal transitional changes of the energy system, examine the impacts on green growth, innovation dynamics, job creation and social cohesion, and develop tools and methodologies in support of evidence-based decision making.
- Examining the link between climate change actions and sustainable development through **international research collaboration efforts** and **developing a science dialogue between the EU and third countries**, with a **focus on G20 countries**. Proposals should develop technological and socio-economic mitigation pathways and adaptation strategies in the context of wider sustainable development goals, examine actual and prospective mitigation policies in various countries to support evidence-based policy making for climate action in the context of sustainable development, and **undertake international collaboration with scientists with insights into the local challenges and opportunities**. In line with the EU's strategy for international cooperation in research and **innovation proposals should contribute to provide support for capacity-building and knowledge-sharing goals** under the UNFCCC and contribute to major international scientific assessments.

> Research and Innovation actions



# Societal Challenge 5: Raw Materials

## SC5-5-2014/2015. Coordinating and supporting research and innovation for climate action

Scope: Creation of European climate change networks to facilitate dialogue among the relevant scientific communities, funding bodies and user communities in Europe throughout the duration of Horizon 2020 and enhance effective communication and dissemination activities targeting different stakeholders, to maximize the impacts of the research and innovation initiatives and increase public awareness about climate science and research results. Proposals should cover activities such as clustering, **coordinating and creating synergies between international, EU and nationally funded climate change research and innovation actions**, developing joint programmes and projects, **creating links with related international programmes**, forward looking analysis to establish emerging needs, and effective mechanisms to strengthen science-policy interface. This requires genuinely cross-disciplinary, integrated and systemic approach – including the socio-economic dimension-, as well as the engagement and collaboration between the climate science and the broader stakeholder communities. Actions should address one of the following:

- **[2014] Climate mitigation options:** establishment of a comprehensive mapping and assessment of climate mitigation options, policies and related technologies in the EU taking into account their costs and opportunities. **It should include analyses of the potential for international cooperation/co-development with emerging economies and developing countries**, with the aim of ensuring synergies amongst research projects, **foster collaboration with national and international research programmes** and maximize impacts and outreach of EU-funded activities, also in view of accelerating technology transfer. Furthermore, the risks, benefits and socio-economic aspects of negative emission technologies (including geo-engineering) should also be addressed, together with new approaches for linking research on impacts and adaptation with those on mitigation options and economic costs. **In line with the EU's strategy for international cooperation in research and innovation international cooperation is encouraged, in particular with emerging economies and developing countries.**
- **[2015] Earth-system modelling and climate services:** parallel development of a EU-wide climate modelling and service framework to enable and encourage open exchange of knowledge, expertise and data in order to more accurately simulate climate evolution, and to improve the reliability of science based climate information at local, regional and global scales. It should integrate the European climate modelling, observations and service infrastructure initiatives and provide a science-stakeholder communication platform to better manage European resources, reduce fragmentation and **improve synergies between national, EU , and international activities.**

> Coordination and support action

# Societal Challenge 5: Raw Materials

## SC5-9-2014. Consolidating the European Research Area on biodiversity and ecosystem services

Scope: Proposals should pool the necessary financial resources from the participating national (or regional) research programmes with a view to implementing a joint call for proposals with EU co-funding in this area, based on a joint vision and a common strategic research agenda for biodiversity and ecosystem services, involving also social sciences and humanities as appropriate. **The joint call should be implemented in cooperation with non-EU countries where relevant**, and by developing links with relevant research infrastructures. **In line with the EU's strategy for international cooperation in research and innovation international cooperation with international partners is encouraged.** Proposers should also consider implementing other joint activities, including the establishment of a pan-European network of funding agencies and other key players in Europe, building on previous experience and avoiding overlaps with other initiatives, support to mutual learning and training, exchange of good practice, researcher mobility and equal opportunities (e.g. through EURAXESS) and better careers in the field as well as additional joint calls without EU co-funding.

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# Societal Challenge 5: Raw Materials

## SC5-10-2014/2015. Coordinating and supporting research and innovation for the management of natural resources

Scope: Creation of European networks to facilitate dialogue among the relevant scientific communities, funding bodies and user communities in Europe throughout the duration of Horizon 2020. Proposals should cover activities such as clustering, **coordinating and creating synergies between international, European and nationally funded research and innovation actions**, developing joint programmes and projects, **creating links with related international programmes**, forward looking analysis to establish emerging needs, communication and dissemination activities for an improved science-policy interface, and aligning research with decision-making requirements. This requires cross-disciplinary interaction and integrated, systemic approach, especially between socio-economic and environmental sciences.

Proposals should address only one of the following issues:

- **[2014] Enhancing mapping ecosystems and their services:** developing a flexible methodology that permits consistent aggregation and comparison across scales for coordination of a transparent, comparable and evidence-based mapping and assessment of ecosystems and their services including multiple ones, across the entire EU (including the outermost regions) and at a national level in order to guide policy- and decision-making. It should also analyze their interdependency, inter-linkages, synergies and potential trade-offs and value their multi-functionality for human well-being, building on the outcomes of the Millennium Ecosystem Assessment (MA) work and with the Economics of Ecosystems and Biodiversity (TEEB) studies.
- **[2014] Structuring research on soil, land-use and land management in Europe: a network of funding agencies and other key players in Europe (and possibly beyond)** to scope national funded research activities, develop a joint vision and design a strategic research agenda (SRA) for activities on soil, land-use and land management that could potentially be implemented through future joint calls. Examples of relevant issues are: land-use change effects and trends, spatial planning, **impacts at global level** and effects on trading partners, integrating socio-economic research and identifying elements linking to relevant policy domains and multilateral environmental agreements.
- **[2014] An EU support mechanism for evidence-based policy on biodiversity & ecosystem services:** setting up an innovative, self-sustainable governance mechanism with a long-term perspective extending beyond the life of the project to enhance effective and efficient interactions between science, society and policy related to biodiversity and ecosystems services in the EU. **This should build on existing science-policy interfaces and include all EU Member States, Associated or Accession countries and should be open to observers.**

> Coordination and support action

# Societal Challenge 5: Raw Materials

## SC5-14-2014. Consolidating global knowledge on the green economy in support of sustainable development objectives in the EU and internationally

Scope: Creation of networks to facilitate dialogue among the relevant scientific communities in the EU and beyond throughout the duration of Horizon 2020. Proposals should cover activities such as clustering, **coordinating and creating links and synergies between international and European research and innovation programmes** and other initiatives in the area of climate action, environment, resource efficiency and raw materials, and communication and dissemination activities for an improved science-policy interface in response to decision-making requirements. Network activities between stakeholders should contribute to consolidating European experience and research findings that are relevant to the green economy, including on systemic eco-innovation. This requires cross-disciplinary interaction and an integrated, systemic approach, especially between socio-economic and environmental sciences to support European initiatives for a green economy, **in which global aspects are taken into due consideration.**

**In line with the EU's strategy for international cooperation in research and innovation proposals should contribute to establish effective links to relevant international networks and initiatives, particularly those supporting the Rio+20 follow up and the green economy agenda at an international level.** Examples of areas of activity include: sustainable consumption and production, greening global value chains, green growth and jobs, green behavior, climate resilience, economic and environmental policies, etc. **Proposals should be geared towards supporting the development and implementation of sustainable development goals.**

**Proposals should include a sufficient number of international partners from the target region(s) to ensure adequate scale and scope of cooperation.**

> Coordination and support action

## Thank you



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