

HORIZON 2020
WORK PROGRAMME 2014 – 2015

9. *Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy*

Important Notice on the First Horizon 2020 Work Programme

This Work Programme covers 2014 and 2015. Due to the launching phase of Horizon 2020, parts of the Work Programme that relate to 2015 (topics, dates, budget) are provided at this stage on an indicative basis only. Such Work Programme parts will be decided during 2014.

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Including correction of clerical errors following Corrigendum C(2014)1509

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Introduction

Activities under Societal Challenge ‘Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy’ aim at making the best of our biological resources in a sustainable way. The objective is to contribute to securing sufficient supplies of safe, healthy and high quality food and other bio-based products, by developing productive, sustainable and resource-efficient primary production systems, fostering related ecosystem services and the recovery of biological diversity, alongside competitive and low carbon supply chains. This will accelerate the transition to a sustainable European bioeconomy, bridging the gap between new technologies and their implementation.

To achieve this objective, this Work Programme part offers opportunities in finding diverse and innovative solutions to well-identified challenges in key EU policy priorities. Through generic or dedicated topics, a broad multidisciplinary participation is welcomed in these efforts. The overarching principle underlying the activities proposed is that applicants are invited to find solutions which will make positive changes to our society, economy and environment, using resources more efficiently. In this respect, solutions should be found that cut across research and technological fields, with a strong innovation and market driven approach, in view of increasing growth and job creation. The involvement of end users including farmers, fishers, consumers, public authorities (including at local and regional levels) and society at large will be a key to achieve this. In particular, several topics will involve a 'multi-actor approach' as foreseen in the Horizon 2020 Regulation¹.

Solutions to tackle the identified challenges should duly integrate Socio-economic Sciences and Humanities. Gender differences should also be taken into account in risk assessment, in developing, designing and performing the relevant safety tests for new products – including gender attitudes, behaviours and factors intersecting with sex and gender (socio-economic status, geographic location, religion, etc.). Whenever possible, the activities should also include a better understanding and handling of the ethical aspects as well as the promotion of the highest ethical standards in the field and among the actors and stakeholders. The most common issues to be considered include personal data protection and privacy, protection of participants and researchers and ensuring informed consent, involvement of vulnerable population, the potential misuse of the research results, fair benefit sharing when developing countries are involved and the protection of the environment.

All activities are open to legal entities established in third countries and strong efforts are made to encourage them to seize this opportunity. In line with the objectives of the EU

¹ The multi-actor approach aims at more demand-driven innovation through the genuine and sufficient involvement of various actors (end-users such as farmers/farmers' groups, fishers/fisher's groups, advisors, enterprises, etc.) all along the project: from the participation in the planning of work and experiments, their execution up until the dissemination of results and the possible demonstration phase. The adequate choice of key actors with complementary types of knowledge (scientific and practical) should be reflected in the description of the project proposals and result in a broad implementation of project results. The multi-actor approach is more than a strong dissemination requirement or what a broad stakeholders' board can deliver: it should be illustrated with sufficient quantity and quality of knowledge exchange activities and a clear role for the different actors in the work. This should generate innovative solutions that are more likely to be applied thanks to the cross-fertilisation of ideas between actors, the co-creation and the generation of co-ownership for eventual results. A multi-actor project needs to take into account how the project proposal's objectives and planning are targeted to needs / problems and opportunities of end-users, and the complementarity with existing research. Facilitation between actors and openness to involve additional actors/groups of actors during the project, for instance relevant EIP operational groups, are strongly recommended. See topics SFS-1A; SFS-1C; SFS-2A; SFS-2B; SFS-3A; SFS-4; SFS-5; SFS-7A; SFS-13; SFS-20; ISIB-2; ISIB-4B, WASTE-2 and WASTE-7.

strategy for international cooperation in research and innovation², particular attention is paid to support important strategic bilateral agreements and dialogues, as well as multi-lateral cooperation initiatives and cooperation with international institutions. In this context, several topics have been specifically flagged as particularly well suited for international cooperation, stemming from the EU - China dialogue on research and innovation and the China-EU Task Force on Food, Agriculture and Biotechnology³, the Transatlantic Research Alliance, launched by the Galway Statement on Atlantic Ocean Cooperation⁴, the International KBBE Forum between the EU, Australia, Canada and New Zealand⁵, the EU - Africa dialogue on research and innovation⁶, or concerning other issues⁷. For these topics, support to international cooperation efforts and particularly the participation from entities from the targeted countries or regions will be positively considered during the evaluation of proposals.

A novelty in Horizon 2020 is the Open Research Data Pilot which aims to improve and maximise access to and re-use of research data generated by projects. While certain Work Programme parts and areas have been explicitly identified as participating in the Pilot on Open Research Data, individual actions funded under the Horizon 2020 parts and areas can choose to participate in the Pilot on a voluntary basis. The use of a Data Management Plan is required for projects participating in the Open Research Data Pilot. Further guidance on the Open Research Data Pilot is made available on the Participant Portal.

The 2014 - 2015 Work Programme for Societal Challenge 2 is composed of three calls. Two highly cross-cutting calls on 'Sustainable Food Security' and on 'Blue Growth' (to which other parts of Horizon 2020 contribute directly and indirectly) and a call aiming at fostering an 'Innovative, Sustainable and Inclusive Bioeconomy'. Activities under this Societal Challenge also contribute directly to calls published under other parts of the Work Programme, such as 'Personalising Health and Care'⁸, 'Waste: a Resource to Recycle, Reuse and Recover Raw Materials'⁹ and 'Water Innovation: Boosting its Value for Europe'¹⁰. Finally, the Article 187 Joint Technology Initiative on 'Bio-Based Industries' will finance activities with a strong innovation and industry drive aimed at delivering technological breakthroughs in the biomass to bio-product value chain.

Opportunities to tackling Societal Challenge 2 can be found also in other parts of the Work Programme, including in the 'Leadership in Enabling and Industrial Technologies' sections dedicated to the 'Key Enabling Technologies', as well as in Societal Challenges 1 on 'Health, Demographic Change and Wellbeing'; 3 on 'Secure, Clean and Efficient Energy'; 5 on 'Climate Action, Resource Efficiency and Raw Materials'; and 6 on 'Inclusive, Innovative and Secure Societies'.

² COM(2012) 497 final

³ See topics SFS-1A; SFS-1B; SFS-3B; SFS-4; SFS-13; WASTE-2 and WASTE-7; see joint conclusions of the Task Force

⁴ See topics BG-1; BG-7; BG-8; BG-13; BG-14; BG-15

⁵ See topics SFS-10; SFS-16

⁶ See topics SFS-6; SFS-18

⁷ See topics SFS-3A; SFS-5; SFS-10; SFS-7B; SFS-14A; SFS-15; SFS-16; SFS-19B; SFS-20; BG-14; BG-15; ISIB-3; ISIB-9; ISIB-11; ISIB-12; PHC-7

⁸ See topic PHC-7

⁹ See topics WASTE-2 and WASTE-7

¹⁰ See Topic WATER-4; Topics SFS-2; SFS-4; SFS-8; SFS-11; ISIB-4; ISIB-5; ISIB-12 and WASTE-7 also contribute to the objectives of the Focus Area 'Water innovation: boosting its value for Europe'

Call for Sustainable Food Security¹¹

H2020-SFS-2014/2015

Ensuring the availability of and access to sufficient safe and nutritious food is a key priority that impacts all EU citizens and needs to be ensured today and in the future. At the same time the production and processing of food is a key economic activity providing jobs, skills and training, attracting investments, supporting rural and urban economies and also shaping landscapes. Given the economic scale of the food sector, the potential gains from research and innovation, and the structure of the sector with a strong participation of SMEs, this focus area will develop competitive and resource-efficient aquatic and terrestrial food production 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. Enabling technologies and space-enabled applications, adequately set in a societal context, will be an important element in achieving these goals. Overall, research and innovation actions within this challenge will cover the whole food chain, including both the supply and demand sides.

The economic and strategic importance of the agri-food sector is reflected in the following figures: agricultural exports in 2011 were worth EUR 105 billion, or 7% of the total value of EU exports; Europe's food and drink industry is the largest manufacturing industry in the EU, and in 2010 generated an annual turnover of EUR 956 billion, almost half by SMEs, with over four million jobs. The whole agri-food sector employs 17 million people. Actions in this area will support the EU Approach to Food Security; the Europe 2020 Resource-efficient Europe Flagship; the European Innovation Partnership 'Agricultural Productivity and Sustainability'; the post-2015 Development Cooperation Agenda; the EU Biodiversity Strategy to 2020; the Common Fisheries Policy; and the reform of the Common Agricultural Policy. It is expected that efforts in research will help achieve a 20% gain in resource use efficiency (Roadmap to a Resource Efficient Europe); help reverse the diminishing trend of productivity gains in primary production by 2020 (European Innovation Partnership); enable food safety policy to be continually adjusted in the light of new scientific evidence (European Consumer Agenda); and provide the integrated EU approach needed for reducing ill health due to poor nutrition, overweight and obesity.

To maximise the impacts of activities undertaken under this Focus Area, WP 2014-2015 concentrates its efforts on key priorities for the EU to ensure that the critical mass needed to tackle the different sub-challenges is attained, while focusing on the main policy needs.

In particular, to progress towards sustainable food production systems, priority will be given in 2014 to minimising pre-harvest losses (including in aquaculture and fisheries), improving soil management and genetic resources supporting agricultural diversity and regional products, while 2015 will focus on improved livestock and crop productivity and genetics for sustaining agriculture. To support the production of safe food and healthy diets, priority will be given to food safety and to sustainable and competitive food production in 2014, and to nutrition in 2015. Finally, to integrate global drivers of food security, 2014 will focus on improving the understanding of current and future drivers of food security whereas in 2015 the contribution of the small farming sector will be investigated.

¹¹ The World Summit on Food Security in 2009 defined food security as existing 'when all people at all times have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life'.

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Given its markedly cross-cutting nature, this call incorporates contributions from different parts of Societal Challenge 2, and is also relevant to Societal Challenge 1 on ‘Health, Demographic Change and Wellbeing’ and Societal Challenge 6 on ‘Inclusive, Innovative and Secure Societies’.

Proposals are invited against the following topics:

Sustainable food production systems

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

Specific Challenge: Due to the increasing demand for animal derived food and the mounting pressure over land use, further intensification and expansion of animal production is expected. Development of the livestock sector at EU and global level is challenging as it puts pressure on the environment, human health and the welfare of animals within the systems. Climate change is an additional pressure to the sustainability (e.g. productivity, health) of livestock systems. Increasing efficiency is required, while decreasing the environmental footprint and increasing quality, e.g. nutritional value. Livestock farming systems generate valuable products for human consumption including some from resources that cannot otherwise be converted into food (e.g. grass-based systems). They support the development of rural communities. Extensive livestock systems can contribute to the management and maintenance of ecosystems and may increase biodiversity.

Means to improve sustainability and productivity of terrestrial livestock systems need to be sought through breeding, nutrition and health. New phenotypes linked to sustainable animal productivity could be developed and integrated into breeding schemes. Precision feeding could increase production efficiency by adapting accurately the needs and the delivery of feed to individual animals. The development of new or alternative feeds, in particular as protein sources, has the potential to minimise reliance on imports and increase European self-sufficiency. Livestock diseases reduce the efficiency of animal production and they have a major impact in terms of economic costs and animal welfare. Vaccination can be an efficient way to control diseases and to reduce the use of antimicrobials. Deeper knowledge is required to develop safer, cheaper, novel, multivalent and more efficient vaccines.

Farming systems need to be (re)designed in a holistic manner to best reconcile the various demands concerning productivity, sustainability and societal values, for now and the future.

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

A. [2014] Genetics and nutrition and alternative feed sources for terrestrial livestock production

Proposals should address the diversity of production types. New traits linked to feed conversion efficiency and to sustainability (e.g. robustness) should be investigated and phenotypes should be used for modelling biological functions and develop predictive approaches of performances. Precision feeding including new management systems should be developed in order to fulfil the need of individual animals, taking into account their physiological, health and welfare status, and their genetic make-up. Activities should also investigate diversifying feed sources, in particular as protein inputs, including industry by-products, organic waste and alternative crops, and better use of local resources (e.g. pastures and forage crops). The potential of the new technologies, including their influence on food quality should be assessed. Demonstration activities of the most promising solutions should be organised. Involvement of the livestock industry is expected. This call also involves socio-economic aspects as new business models and management systems are needed for specific

production systems. 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 China¹². Proposals should fall under the concept of 'multi-actor approach'¹³.

B. [2014] Tackling losses from terrestrial animal diseases

The goal is to better understand the interaction between the immune system of swine, poultry and ruminants and their specific pathogens, in particular pathogens associated with high production losses and to develop innovative and multivalent vaccines taking into account the individual variability in vaccine responsiveness and different developmental stages. Both the use of current and new vaccine vectors (including DNA & DIVA vaccines) could be foreseen together with novel and easy-to-use delivery systems and efficient adjuvants with the aim of fostering an earlier onset of protection and a longer duration of immunity. New biomarkers and phenotypes would be valuable to help breeding strategies for increased disease resistance.

Proposals should develop at least two vaccines at the demonstration level and address at least poultry and/or swine, and/or ruminants. Involvement of the animal pharmaceutical industry is expected to translate the finding into marketable products. Significant SME involvement should be ensured. 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 China¹⁴.

C. [2015] Assessing sustainability of terrestrial livestock production

Proposals should undertake an assessment of the sustainability and potential delivery of ecosystem services, social services, resilience, competitiveness and possible trade-offs of diverse EU animal production systems. The assessment should be holistic, encompass the main facets of the concerned systems, including international trade, extend to the dimensions of supply chains and territories and elaborate necessary indicators. Proposals should extend to socio-geographic and demographic changes of the concerned farming community and projections, as well as the expected place of animal products in the society and diets in the future, looking across the whole food chain. Proposals should establish a farm-level observatory and knowledge exchange networks on the sustainability of livestock linking with the European Innovation Partnership with a focus on innovative system solutions for short and long-term needs. Proposals should combine socio-economic work and case studies and sketch a roadmap for further research and policy making. Proposals should fall under the concept of 'multi-actor approach'¹⁵.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 7–9 million for (A) or (B) respectively and EUR 5–7 for (C) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Proposals should show how some, or all, of the following impacts will be achieved:

¹² This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

¹³ See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

¹⁴ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

¹⁵ See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

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- New efficiency traits to be incorporated into breeding schemes of various farm species enabling selection of animals more adapted to environmental changes
- Make Europe frontrunner in re-use of by-products and protein rich resources for feed
- Minimize risk to public health by preventing and controlling animal diseases and reducing the use of antibiotics in the “One health” perspective
- Increased level of animal welfare
- Increased efficiency and profitability of animal agriculture
- Improved overall sustainability and innovative capacity of the livestock sector
- Increased societal acceptance

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

SFS-2-2014/2015: Sustainable crop production¹⁶

Specific challenge: European crop production is facing more and more difficulties in remaining competitive in the global market for many reasons. Some of these reasons are the loss of soil fertility and the consequent massive use of expensive external nutrient inputs, notably Nitrogen and Phosphorous, for which European agriculture is almost totally dependent on imported products, or on fertilizers produced with expensive industrial processes, which generates greenhouse gases (GHGs). Therefore, more sustainable crop management strategies are needed to maintain or increase soil fertility. Inappropriate soil and water management and the overuse of external inputs in intensive crop production systems, represent an economic loss for the farmer and a significant burden for the environment and subsequent impact on human health, as they contribute significantly to ground water and surface water pollution, GHGs emissions, the build-up in soil contaminants, such as heavy metals and organic pollutants. Better soil management and optimisation of fertilisers and water are of paramount importance for conciliating the necessary competitiveness and the long-term sustainability of the entire intensive crop production sector in Europe.

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

A. [2014] External nutrient inputs

Proposals should find innovative and effective strategies to improve the management of external nutrient inputs and water, and optimise their use efficiency at farm level to improve both yield and quality. Novel approaches could include integration of precision farming latest tools and techniques, such as advanced automation, variable rate applications, remote sensing, field and crop sensors, ICT technologies, to achieve a comprehensive strategy for optimising external nutrient inputs and water management in European intensive agriculture and provide significant progress beyond the current state of the art. Novel technologies and approaches should allow reaching improved sustainability in different intensive crop production systems, decreasing negative impacts on the environment and providing better product quality and benefits to human health. In-field demonstration of the proposed technologies on a relevant

¹⁶ During the negotiation and implementation phases, synergies and complementarities with actions that will be selected under topics SFS-4 should be ensured.

scale to prove concept feasibility should also be foreseen. Proposals should fall under the concept of 'multi-actor approach'¹⁷.

B. [2015] Assessing soil-improving cropping systems

Proposals should assess real benefits that soil-improving cropping systems and agronomic techniques, e.g. precision farming, crop rotations, Conservation agriculture, can bring to European agriculture, as well as to identify and minimise limitations and drawbacks. Benefits may include a more rational use of natural resources, reduced energy needs, decreased GHG and other toxic gas emissions, soil fertility conservation, above and below ground biodiversity conservation and increased productivity. Limitations and drawbacks may include increased weeds, soil pathogens and problems with certain types of crops in relation to climatic conditions. Scientifically supported and field tested evidences of the mentioned beneficial effects of minimally disturbed soil, and no till or low tillage strategies, as well as of drawbacks and methods to minimise them, are needed to promote the adoption of soil-improving systems and techniques by European farmers. Considering the different pedo-climatic conditions and the varieties of cropping systems in Europe, the development of tailor-made soil-improving strategies, techniques and machinery suitable to different farming areas and adapted to different crops and crop systems, should help to overcome the current barriers that prevent their adoption by European farmers.

Proposals should fall under the concept of 'multi-actor approach'¹⁸.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 8 million for (A) and EUR 9 million for (B) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Proposals should show how some, or all, of the following impacts will be achieved:

- Improvement of ground and surface water quality.
- Reduction of soil contaminations with toxic compounds and heavy metals.
- Conservation of biodiversity and wildlife.
- Improved human health, through the reduced release of pollutants and GHGs.
- Scientific support to relevant EU policies¹⁹
- Sound scientific evaluation of benefits and drawbacks of soil-improving cropping systems and techniques.
- Reduction of soil erosion and improvement of soil quality and structure
- Increased European farmers' competitiveness through the reduction of production costs.
- Reduction of the negative environmental impact of crop production through less soil disturbance, better exploitation of soil biodiversity and functions and more rational use of external inputs, water and natural resource base.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

¹⁷ See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

¹⁸ See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

¹⁹ Fertiliser regulation ((EC) No 2003/2003), Nitrate directive (1991), Soil Thematic strategy (COM (2006) 231)

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

Specific challenge: Native and alien pests²⁰ cause increasing yearly losses to agriculture and forestry and plant production costs. Invasive alien species and new pests and diseases impact negatively on native species (e.g. outcompete), affect food chains, change biodiversity patterns and disrupt terrestrial ecosystems (including inland water bodies) and landscapes, with further impacts on economic and recreational activities. Climate change is expected to favour the permanent establishment of many alien pests and change the distribution of already established pests. The prevention of the entry, establishment and spread of new alien pests is regulated by the Directive 2000/29/EC. More environmental friendly approaches in pest and disease control are sought, in line with the Directive 2009/128/EC. Given the high costs associated with the prevention/controlling of pests and invasive alien species and the reduction of their environmental impacts, there is a need to further develop integrated mechanisms of response measures (practical solutions), ranging from prevention of entry to novel Integrated Pest Management (IPM) approaches.

Scope: Proposals should address one of the following issues (A) or (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, utilising the latest plant health measures and technologies with biological and integrated approaches should be sought. While the centre 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 experiencing the same problems (including trade partners)²¹. 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'²².

B. [2014] EU-China cooperation on IPM in agriculture

Proposals should cover a number of farming systems (including organic) and aim at increasing productivity while preserving ecosystems and reducing pesticide residues in food. Pests affecting fruits and vegetables are of particular interest, when the exchange of information, best practices and technologies is a benefit for both EU and China farmers/growers and consumers. A variety of IPM practices should be sought to address pests, such as chemical ecology, biological control agents, intercropping, planning tools for farm and landscape, etc. 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, the participation (also in terms of resources) of Chinese partners in research,

²⁰ Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products (ISPM No5, International Standards for Phytosanitary Terms 2010; FAO, 1990, revised FAO, 1995; IPPC, 1997)

²¹ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

²² See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

innovation and demonstration activities is strongly encouraged²³. Practical solutions for farmers/growers, close to the market, should be facilitated by the involvement of industry (including SMEs) aiming at IPM related technology transfer.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 7 million for (A) and EUR 3 million for (B) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Effective solutions for the prevention and management of pests and invasive alien species;
- Scientific support to the development of relevant EU policies;
- Significant economic gains/avoided losses for the European agriculture and forestry [A] and European and Chinese agriculture [B];
- Increased product quality and lower environmental impact (e.g. lower level of chemicals, less new pests)
- Development of science-based tools for developing strategies for improving the productivity and resilience of agriculture and forestry in the context of changing environmental conditions
- Impact on a range of agricultural and forestry production and risk management practices

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

SFS-4-2014: Soil quality and function²⁴

Specific challenge: Agricultural soils provide the basis for crop and animal production and in turn are impacted by the different types of land use, water quality, management practices, choice of crops, cultivars and genotypes. Effects include not only changes to chemical and physical soil properties but also to the composition of the soil biological community and plant-soil-microbial interactions. Understanding this complex and fragile interplay is crucial for developing on-farm soil management and conservation practices to increase agricultural productivity whilst avoiding degradation of this virtually non-renewable resource in environmentally sustainable ways.

Scope: Proposals should provide a comprehensive analysis of the various types of agricultural land use in Europe along with the effects of agricultural land use and management on soil properties and soil functioning. They should further propose ways by which the 'soil environmental footprint' of different cropping systems and management interventions can be established. Proposals should test new approaches to on-farm management that enhance key soil attributes for crop productivity and yield stability taking into account below and above ground aspects. Work should take into account various types of crop and livestock farming systems and pedo-climatic zones across the EU. In line with the objectives of the EU strategy for international cooperation in research and innovation and in particular with the

²³ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

²⁴ During the negotiation and implementation phases, synergies and complementarities with actions that will be selected under topics SFS-2 should be ensured.

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

implementation of the EU-China dialogue, proposals are encouraged to include third country participants, especially those established in China²⁵. Proposals should fall under the concept of 'multi-actor approach'²⁶ and allow for adequate involvement of the farming sector in proposed activities.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 3–5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

- Improved capacity and methods to assess soil-management interactions and their impact on soil functions
- widely accessible and cost efficient tools to monitor the 'health status' of agricultural soils by practitioners in the agricultural sector
- increases in crop productivity, quality, and yield stability in conventional and organic farming systems through improved practices for soil husbandry including crop rotations
- enhanced climate and environmental performance of agricultural activities (e.g. through reduced adverse impacts on agricultural soils)
- support to CAP environmental objectives and development of further policies in the area.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific Challenge: Crop productivity is determined by genetic variability and the complex interactions of the genotype (G) with its environment (E) in the context of specific management interventions (M). Understanding and capturing the dynamic of these above and below ground interactions in breeding programmes and farm management is considered as critical to address concerns over stagnating yields and yield gaps, building resilience to biotic and abiotic threats and further progress in crop improvement.

Scope: Proposals should propose smart approaches and tools to improve identification, prediction and introduction of useful genetic variation in crops, as well as favourable 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 optimising 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 countries²⁷. Proposals should fall under the concept of 'multi-actor approach'²⁸ and allow for

²⁵ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

²⁶ See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

²⁷ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

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.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 3–5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Increased knowledge on complex plant-environment interactions and suitable combinations of genotypes and management practices
- Continuous dynamic breeding sector through the development of novel breeding strategies and tools
- Increased productivity and stability of the agricultural sector through improved varieties and crop management strategies which allow for increased diversity and show higher adaptability to particular environments including under a changing climate

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: long-term projections suggest that the pressure on food and nutrition security (FNS) will be the highest in Africa as a combined result of low levels of agricultural productivity and high demographic growth rates. Boosting agricultural productivity while ensuring environmental, economic and social sustainability (including the fighting against land degradation/desertification and coping with climate change) is a challenge but essential in lifting poorer rural households out of poverty, ensuring rural employment and the livelihood of the farming community and providing food for an increasing urban population. The Science Agenda for African Agriculture is calling for a transformation of African agriculture. This transformation, which implies better integration of smallholder agriculture in markets and better functioning supply chains, needs to involve agricultural producers and processors. Productivity gains need to be sought beyond agricultural production practices, along the whole supply chain (including postharvest losses, waste). There is a growing recognition that pathways of intensification are diverse and context specific. Hence, concerted efforts on research and innovation on sustainable models of intensification in the agro-food chain and the proofs of concept should be keys to succeed in the endeavour of ensuring sustainable FNS. Several research institutions in EU Member States are exploring the establishment of a large partnership together with research partners in Africa, thus improving the impact of research by joining forces.

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 maximise complementarities and synergies. Furthermore, in addition to technological

²⁸ See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

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 Africa²⁹.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 1 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- creation of a long-term research partnership between Europe and Africa, involving potentially Member States and Associated countries and African countries, the related regional organisations (the EU and the African Union) and sub-regional coordination bodies on research and innovation on sustainable intensification pathways in agro-food systems. Creation of opportunities for private sector development;
- strong contribution to raising sustainable FNS in Africa in the medium term through socio-economic development
- better delivery and more efficient spending of research funds through synergies and complementarities between the various entities involved.

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: Genetic diversity in agriculture and forestry - both within and between species - is commonly recognised as a pre-requisite to ensure food security, productivity as well as resilience of crops, forests and animals vis-à-vis biotic and abiotic threats in changing environments. Widening the genetic basis of crops, forest trees and animals as well as diversifying production is therefore essential. This requires coordinated efforts to enhance conservation, access and use of a wide range of genetic resources conserved in ex-situ and in-situ/on-farm conditions. Local livestock breeds, forest plants and crops are a particularly important source of genetic variation as they are associated with a number of favourable characters such as robustness, adaptation to local – often marginal – conditions or organoleptic and health attributes. They also provide the basis for products with a regional identity for which there is increased consumer interest. Despite these benefits their use has been decreasing partly because of lower productivity as compared to modern, high yielding and more uniform breeds and varieties. The improvement of local breeds and crops provides opportunities for diversification in agriculture along with new openings for regional, high quality products and for economic development.

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

A. [2014] Traditional resources for agricultural diversity and the food chain

²⁹ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

Proposals should enhance description and evaluation as well as management and performance of local varieties and breeds along with their respective farming and (seed) production systems. Measures deployed should potentially span from research to demonstration and dissemination as well as development of (environmentally and economically) sustainable production schemes. Proposals should have a relevant socio-economic dimension, tap into knowledge from the formal and informal sectors, encourage the creation of networks within and between regions and address the value chain for regional high quality products. Overall, activities should capture more systematically the value of diverse and so far untapped genetic resources and encourage their broader use in breeding activities, in farming and in the food chain. Proposals should address either livestock or crop genetic resources (including from forest trees as relevant in farming activities). Proposals should fall under the concept of 'multi-actor approach'³⁰ and allow for adequate involvement of the farming sector in proposed activities.

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, characterisation/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 harmonise, rationalise and improve management of existing collections and databases³¹. 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 countries³². 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.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 3–4 million for (A) and EUR 5–7 million for (B) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Proposals should show how some, or all, of the following impacts will be achieved:

- improved in-situ/on-farm management and evaluation of genetic resources by the farming sector
- productivity and economic gains in specialised farming systems from the conventional and organic sectors
- promotion of traditional and/or underutilised crops (and their wild relatives as relevant) and breeds
- increased availability of diverse, high quality products, e.g. with enhanced health benefits for consumers
- economic benefits for farmers, other types of SMEs and regional economies through the expansion or creation of new products and markets
- broader adaption of livestock and cultivated plants (crops, forest trees for agriculture/agro-forestry) to limiting or changing agro-climatic conditions, e.g. by

³⁰ See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

³¹ See for example Horizon 2020 call INFRAIA 1-2014/2015: Integrating and opening existing national and regional research infrastructures of pan-European interest

³² This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

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

enhancing robustness through the use of adaptive traits from landraces and local breeds

- enhanced quality and scope of European ex-situ collections and in-situ collections/on-farm management
- enhanced methodologies for management, conservation, characterisation and evaluation of genetic resources
- increased transfer of genetic material into breeding programmes, farming or forest practices, i.e. identification of useful traits (variation) in collections
- increased awareness on the value of genetic resources, engagement of end-users and contribution to implementation of international commitments in the area (e.g. International Treaty on Plant Genetic Resources for Food and Agriculture, ITPGRFA)
- more extensive use of genetic resources in agriculture and forestry
- overall contribution to food security by supporting innovations in breeding and farming

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific Challenge: To remain competitive, limit environmental degradation and optimise the efficient use of resources, the development of more resource-efficient and sustainable food production and processing, throughout the food system, at all scales of business, in a competitive and innovative way is required. Current food production and processing systems, especially in the SME sector, need to be revised and optimised with the aim of achieving a significant reduction in water and energy use, greenhouse gas emissions and waste generation, while at the same time improving the efficiency in the use of raw materials, increasing climate resilience and ensuring or improving shelf life, food safety and quality. New competitive eco-innovative processes should be developed, within the framework of a transition towards a more resource-efficient, sustainable circular economy.

Scope: The SME instrument consists of three separate phases and a coaching and mentoring service for beneficiaries. Participants can apply to phase 1 with a view to applying to phase 2 at a later date, or directly to phase 2.

In phase 1, a feasibility study shall be developed verifying the technological/practical as well as economic viability of an innovation idea/concept with considerable novelty to the industry sector in which it is presented (new products, processes, design, services and technologies or new market applications of existing technologies). The activities could, for example, comprise risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project aligned to the enterprise strategy and with a European dimension. Bottlenecks in the ability to increase profitability of the enterprise through innovation shall be detected and analysed during phase 1 and addressed during phase 2 to increase the return in investment in innovation activities. The proposal should contain an initial business plan based on the proposed idea/concept.

The proposal should give the specifications of the elaborated business plan, which is to be the outcome of the project and the criteria for success.

Funding will be provided in the form of a lump sum of EUR 50,000. Projects should last around 6 months.

In phase 2, innovation projects will be supported that address the specific challenge of Sustainable Food Security and that demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan. Activities should focus on innovation activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation, design, market replication and the like aiming to bring an innovation idea (product, process, service etc.) to industrial readiness and maturity for market introduction, but may also include some research. For technological innovation a Technology Readiness Levels of 6 or above (or similar for non-technological innovations) are envisaged; please see part G of the General Annexes.

Proposals shall be based on an elaborated business plan either developed through phase 1 or another means. Particular attention must be paid to IP protection and ownership; applicants will have to present convincing measures to ensure the possibility of commercial exploitation ('freedom to operate').

Proposals shall contain a specification for the outcome of the project, including a first commercialisation plan, and criteria for success.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 and 2.5 million would allow phase 2 to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Projects should last between 12 and 24 months.

In addition, in phase 3, SMEs can benefit from indirect support measures and services as well as access to the financial facilities supported under Access to Risk Finance of this work programme.

Successful beneficiaries will be offered coaching and mentoring support during phase 1 and phase 2. This service will be accessible via the Enterprise Europe Network and delivered by a dedicated coach through consultation and signposting to the beneficiaries. The coaches will be recruited from a central database managed by the Commission and have all fulfilled stringent criteria with regards to business experience and competencies. Throughout the three phases of the instrument, the Network will complement the coaching support by providing access to its innovation and internationalisation service offering. This could include, for example, depending on the need of the SME, support in identifying growth potential, developing a growth plan and maximising it through internationalisation; strengthening the leadership and management skills of individuals in the senior management team and developing in-house coaching capacity; developing a marketing strategy or raising external finance.

Expected impact:

- Enhancing profitability and growth performance of SMEs by combining and transferring new and existing knowledge into innovative, disruptive and competitive solutions seizing European and global business opportunities.
- Market uptake and distribution of innovations tackling the specific challenge of Sustainable Food Security in a sustainable way.
- Increase of private investment in innovation, notably leverage of private co-investor and/or follow-up investments.
- The expected impact should be clearly described in qualitative and quantitative terms (e.g. on turnover, employment, market seize, IP management, sales, return on investment and profit).

Type of action: SME Instrument (70%)

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: The new orientation of the Common Fisheries Policy (CFP) calls for a move towards a gradual elimination of discards on a case-by-case basis, and taking into account the best available scientific advice to reduce unwanted catches and gradually ensure that all catches are landed. To do so, and to obtain better economic results while keeping consistency with the objectives of the CFP, particularly about compatibility with Maximum Sustainable Yield (MSY), there is a need to underpin innovations and changes in the tools and technologies used at all stages of the seafood supply chain, from catching to consumers.

Scope: Proposals should deal with the several key aspects underpinning the new policy: i) how to avoid unwanted catches both through improvements to selectivity but also through adaptations of fishing strategies and fishermen behaviour, ii) how to address practical issues of handling unwanted catches on board vessels that must be now landed, while ensuring that such catches can be fully documented, iii) how to make best use of unwanted catches without creating economic incentives and inadvertently developing markets for such products, iv) how to estimate the possible consequences for fish stocks and the marine ecosystem of the removal of biomass hitherto discarded at sea, v) how to control and monitor compliance with the new rules, and vi) how to estimate and monitor the socioeconomic consequences of the new regulatory framework, not only on the fishing fleets but also on local communities. Proposals should address in particular innovative technologies and practices, as well as simulation modelling of harvesting unwanted catches, to reduce and avoid discards, especially for fisheries with high discards rates, including on small-scale fisheries.

The proposals should also consider the attitudes and perceptions of stakeholders, as well as the potential of participatory approaches in improving the compliance with the new rules. Finally, proposals should address economic and social dimensions of the above-mentioned problems and should create bridges between cutting-edge research and technologies, fishermen, processors, wholesalers, retailers, policy makers and consumers.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Support through research and innovation a key orientations for the CFP regarding discards elimination
- Contribute to implement the Marine Strategy Framework Directive (MSFD) requiring moving towards good environmental status and in particular the descriptors related to 1: biological diversity, 3: population of commercial fish and shellfish, 4: elements of marine foodwebs
- Improved social and societal acceptance of conservation measures
- Increased level of control, compliance and enforcement of rules

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: Disease prevention and management are essential for the sustainability of the European aquaculture industry. The diversity of species and farming practices throughout Europe involves also a significant number of threats related to a large variety of pathogens that hamper production and require specific preventive and curative practices and tools ensuring a high level of biosecurity of aquaculture production and related seafood products. Among other disease-related threats, parasites and related infections can cause significant damages on farmed fish species and can result in poor growth performance, impaired welfare and death of farmed animals with significant consequences in terms of production and economic performance. Parasites can also affect the end users of aquaculture products and therefore their monitoring and eradication are essential for ensuring the safety of European consumers. The management of diseases is even more challenging in farmed aquatic mollusc where the absence of adaptive immune system further complicates the development of tools and methods allowing mitigating effects of diseases on production. Despite the initiatives that have been implemented to understand, explain and mitigate disease outbreaks affecting farmed molluscs, which seem to have multifactorial origins, the future of the European mollusc production sector is still challenged.

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

A. [2014] Scientific basis and tools for preventing and mitigating parasitic diseases of European farmed fish

Proposals should focus on parasites with documented socio-economic impact on European finfish aquaculture production and on trade of products thereof. The main focus should be on the development of reliable, cost-efficient detection and diagnostic tools, as well as, preventive and curative practices, tools, medicines and treatments (adapted to relevant life stages and husbandry practices of related fish species) against (endo- and ecto-) parasites and related infections, for conventional and organic aquaculture. Proposals should also take into consideration parasitic transfer between wild and reared fish species and its mitigation. Finally, they should avoid any duplication with relevant other related research initiatives.

B. [2015] Scientific basis and tools for preventing and mitigating farmed mollusc diseases

Proposals should consider pathogens with documented impact on the production of the main farmed species of mollusc in Europe (oysters, mussels, clams and scallops). They should focus on minimising transmission and impact of disease, while addressing risk assessment and management of infected farmed molluscs. They should also consolidate the basis for genetic selection of mollusc strains resistant to the most relevant pathogens. Particular focus should be put on oyster pathogens and diseases, with emphasis on Oyster Herpes virus (OsHV-1), in order to better understand genetic diversity, pathogens spread, pathogenicity and key drivers of emergence and/or absence of disease outbreaks in relevant parts of the world. In line with the objectives of the EU strategy for international cooperation in research and innovation and in particular with the implementation of the International KBBE Forum priorities, should aim at developing an international network on oyster diseases and mortalities, between Australia, New Zealand, Canada, USA, Japan, S. Korea and EU³³.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 7 million for (A) and EUR 4 million for (B) would allow this specific challenge to be

³³ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Proposals should show that proposed projects contribute to some or all of the following:

- Generation of scientific knowledge on fish parasites and mollusc pathogens, their life-cycles/stages and their interactions with hosts of commercial interest.
- Availability of solutions to minimise risks and transmission of fish and mollusc diseases.
- Prevention and mitigation of diseases that impede the development of the European aquaculture sector and for which efficient solutions are currently lacking.
- Reliable, cost-efficient detection and diagnostic tools, as well as, preventive and curative practices, tools, medicines and treatments against parasites and related infections.
- Scientific evidence on the potential interactions between farmed and wild populations in terms of epidemiology of parasitic infections.
- Enhanced risk analysis and infected stock management.
- Improved productivity, economic performance and image of European aquaculture through improved biosecurity, health and welfare of farmed fish and mollusc.
- Compliance with existing legal framework related to authorized treatments for aquaculture production and to seafood trade. Improved traceability and safety of European and imported seafood products.
- Set-up of an international network on oyster diseases, including the main oyster producing countries and allowing the exchange of best practices in terms of surveillance, epidemiology, diagnostics, husbandry and selection of resistant oyster strains.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: Access to space and high quality water are essential for European aquaculture operators. In particular, the lack of spatial planning is considered as one of the factors hindering the expansion of European aquaculture. Therefore, establishment of reliable (inland, coastal and offshore) spatial plans should be crucial for facilitating investment and development of the sector. Aquaculture also needs a high quality aquatic environment for ensuring the production of safe and nutritious seafood products. Subsequently, human activities, including operations of some specific aquaculture segments, that might affect negatively (e.g. through the impact of chemical, antibiotics, organic wastes, etc.) fresh water and marine ecosystems might also compromise the sustainability of European aquaculture. Therefore, ensuring the environmental sustainability of aquaculture practices is essential not only for guaranteeing compliance with the existing regulatory framework but also for improving the image of the European aquaculture sector. This should ultimately secure that the maximum economic potential of growth and employment is reached by the sector.

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

A. [2014] Optimizing space availability for European Aquaculture

Proposals should provide operational tools for spatial planning (including Geographic Information Systems, remote sensing and mapping for data management, analysis and modelling, decision-support tools) to support national administrations and business operators in identifying the potential for aquaculture to expand in Europe in terms of space requirements and conflicts with other users. Proposals should also focus on the development of innovative applications allowing promotion of these tools and training of all the potential end users. The development of these tools should take into account specificities of different European aquaculture segments, while covering the regional diversity of the European aquaculture sector.

B. [2015] Consolidating the environmental sustainability of European aquaculture

Proposals should compile existing and develop new tools for predicting and assessing the carrying capacity of the ecosystems at different geographic scales, taking into account specificities of the main European aquaculture segments and diversity of ecosystems in the main producing regions. They should also focus on improving existing and/or developing new integrated operational tools for the timely and cost-efficient environmental impact assessment of aquaculture production, in line with the requirements for the allocation of licenses for aquaculture businesses in the main producing European countries, as well as, for the implementation of the requirements set by the Marine Strategy Framework Directive in relation to aquaculture operations. They should also develop cost-efficient management tools and practices for improving the environmental sustainability of European aquaculture, including forecasting and modelling tools that can support and inform decision support systems, in situ observation technologies and early sensing and alarming systems. They should also develop adequate methodologies and assess the environmental and ecological services that different segments of the sector might provide.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 3 million for (A) and EUR 7.5 million for (B) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Proposals should show how some, or all, of the following impacts will be achieved:

- Support the Member States in establishing a coherent and efficient regulatory framework, implementing the Strategic Guidelines for the sustainable development of European Aquaculture and delivering a framework for sustainable growth.
- Support the development and implementation of coastal and marine spatial planning.
- Availability of new and efficient operational tools allowing national administrations to reduce the cost and time for delivering licenses for aquaculture operators.
- Contribution in creating enabling conditions for facilitating investments in European aquaculture through the provision of better observation, forecasting and decision support technologies.
- Availability of tools for reliable prediction and monitoring of environmental impacts of aquaculture operations.
- Strengthening the environmental sustainability of the aquaculture sector and enhancement of its image.
- Availability of tools for quantification of environmental services provided by the aquaculture sector

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: Risk assessment has long been the tool for science-based decision-making and has become an integral part of EU policy development. With regard to chemical hazards, there is increasing concern over the possible ‘cocktail effects’ of combined exposure to multiple food related toxic substances. The complex toxicology of chemical mixtures, and the diversity of the routes of exposure, call for the development of a more mechanism-based and quantitative framework for risk assessment estimating the impact on health, thereby increasing the efficiency and effectiveness of safety evaluations.

Scope: The state-of-the-art frameworks already in place at international level should be reviewed in the quest for a harmonised, evidence- and risk-based approach. Proposals should focus on the health risks of combined exposures to multiple chemicals from multiple sources across differing life stages, while weighing the risks from chemical mixtures in diets against the health benefits from the same foods and taking into account also the gender dimension. New strategies should be developed, implemented and supported by the respectively developed software and databases and tested in operational environments – using, for example, ‘omics’ technologies, bioassay systems, mathematical modelling, quantitative structure-activity relationship models and threshold of toxicological concern – so that tiered approaches for testing can be followed and targeted testing protocols developed. Proposals should address responsible research and innovation aspects by developing strategies that will result in a reduction in the use of animals in toxicological research.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 8 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- New strategies that help boost innovation in both the public and private sectors and significantly improve the robustness and efficiency of risk assessment
- Improvement in public health through a reduction in food-related toxic substances
- Free access for public authorities to the new software and databases developed beyond the lifetime of the projects
- A reduction in the use of animals in toxicological research
- Support to EU, Codex Alimentarius, and WHO health and food safety policies through the development of new risk assessment strategies

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: The occurrence of biological contamination in various crops is of major concern as it has major implications for food and feed safety, food security and international trade. Worldwide, it is estimated that mycotoxins are responsible for losses of up to 5-10% of crop production. Contaminations are due to a series of events including weather conditions, possible climate change effects, land use, crop management and varieties as well as harvest

and post-harvest techniques. Integrated approaches rather than isolated solutions are required to effectively control the incidence of mycotoxins in crops and reduce contamination throughout the feed and food chains.

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 organisational 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'³⁴ 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 China³⁵.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 3–5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- a toolkit (plant resources, management tools, technologies) to effectively monitor and reduce the incidence of mycotoxin contaminants in crop production as well as in the food and feed supply chains.
- contribution to legislation and standard setting
- safe use options for contaminated batches
- reduced occurrence of mycotoxin contamination in crops in order to improve productivity and competitiveness of European agriculture and food sectors.
- reduced risks for human and animal health, and thus increase consumer confidence in agro-food products.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: the EU is the world largest producer, consumer and exporter of olive oil. Olive oil is normally sold at a higher price than other vegetable oils and fraudulent activities are tempting. To preserve the image of olive oil, it is necessary to guarantee its quality and authenticity. Olive oil characteristics are regulated at EU level by Regulation (EEC) N° 2568/91 which establishes a list of physical, chemical and organoleptic characteristics as well as methods for their analysis. The list and the methods are updated to include the existing scientific knowledge. Yet despite these regular revisions some issues have not yet found proper solutions. In particular there is a need for the development, validation and pre- as well as co-normative activities followed by the standardization of a method for the assessment of the organoleptic characteristics based on the existing methods, reference materials and already

³⁴ See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

³⁵ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

performed research and development work. The specific challenge consists in developing, validating and harmonising analytical methods and quality parameters that specifically address technical authenticity issues. These issues concern in particular 1) the blend of extra-virgin olive oil or virgin olive oil with soft deodorised olive oil, 2) the blend of extra-virgin olive oil or virgin olive oil with other vegetable oil. Beyond the case of olive oil, there is also a strong need for better coordination of research in the area of food authenticity, integrity and traceability across the food supply chain between Member States and Associated Countries.

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 harmonise methods and analytical protocols to detect undesired processing (e.g. deodorisation), 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 standardisation. 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 country³⁶.

B. [2015] Authentication of food products

Proposals should aim at facilitating cooperation between European research funding bodies in the area of authentication of food products. They should aim at providing the basis for an exchange of information and future collaboration in relation to a) facilitating stock taking and analysis of recent or on-going research projects in this area with an emphasis on national projects in Member States; b) identification of future research priorities in this field and complementarities between activities at Member State and international level; and c) prepare the ground for an improved coordination of research, databases and approaches to verification of food authenticity, ensuring integrity and traceability along the food chain and among European countries. Beyond improving fraud detection, activities should aim at better anticipating and preventing frauds.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million for (A) and 0.5 million for (B) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Proposals should show how some, or all, of the following impacts will be achieved:

- generate with reliable, validated, cost efficient, harmonised and ready-to-use methods (based e.g. on genomic, metabolomic and other tools) to detect frauds and verify the quality of olive oil, which should be based on novel technologies and potentially feed into the standardisation activities and the regulatory framework related to olive oil quality (at the EU level and potentially at the international level) [A]
- lead to the creation of a databank of olive oils that is expected to be maintained after project completion [A]
- contribute to the implementation of the Action Plan for the EU olive oil sector [A]
- increase confidence of consumers and markets in olive oil quality [A] and other food products [B]

³⁶ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

- improve the competitiveness of the olive oil [A] and of the food supply chain [B]

Type of action: A: Research and innovation actions; B: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

SFS-15-2014: Proteins of the future

Specific challenge: The growing demand for meat and other protein-rich food sources, in many parts of the world, is of increasing concern in the light of growing population figures, environmental sustainability issues and land-use and food security concerns. Questions related to optimal production and processing methods, location (EU or other), health effects, environmental impact, and legal issues remain unanswered. Consumer acceptance of new and/or improved sustainable protein sources, as well as other factors related to market uptake, require further clarification if global food security together with environmental and socio-economic sustainability is to be ensured.

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 countries³⁷. A sustainability assessment in line with the ILCD handbook³⁸ 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.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 9 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- A significant increase in the quality of proteins and of the sustainability of their production and processing.
- A support to EU policies on agriculture, nutrition, health, environment, development and sustainable food security by increased market uptake of existing and/or new proteins that contribute to a healthy diet.
- A strengthening of international research, industrial cooperation and the EU economy, with a specific focus on SMEs and small-scale food processing.
- An increase in new market opportunities, in the short and medium term, as measured in terms of market share, turnover, employment and intellectual property.
- A clear contribution to social innovation due to Fair Trade/fairer trade, as well as an increase in socio-economic and environmental sustainability.

³⁷ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

³⁸ International Reference Life Cycle Data System; <http://lct.jrc.ec.europa.eu/pdf-directory/>

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

SFS-16-2015: Tackling malnutrition in the elderly

Specific challenge: Population ageing in Europe poses major demographic and socioeconomic challenges which are expected to increase over the coming decades. While the ageing process itself does not usually cause malnutrition in healthy and active elderly people with appropriate lifestyles, changes in body composition, organ function, the ability to eat or access food, inadequate dietary intake and the partial loss of taste and smell are associated with ageing and may contribute to malnutrition. Malnutrition and weight loss, which tend to develop more readily in the elderly, significantly affect the quality of life, impact on physical and psychological functioning and can have multiple effects including immobility, skeletal disorders, insulin resistance, hypertension, atherosclerosis and metabolic disorders. The elderly are also among the groups most vulnerable to malnutrition in crisis and disaster situations. Providing an adequate diet with all essential nutrients, and promoting physical activity are essential for healthy ageing.

Scope: Based on a better understanding of the mechanisms of the ageing process, dietary strategies to prevent and treat malnutrition in the elderly (living at home, in nursing homes, hospitals, and/or emergencies) should be developed. Dietary recommendations to prevent functional decline should be developed, with the aim of improving appetite and the health and the quality of life of the elderly. A holistic strategy to prevent malnutrition should be developed, and could include, amongst others, the role of nutrients (including those from marine sources where relevant) in the human organism (their bioavailability and interactions), the gut microbiome, food preparation at home, and a better understanding of the role of the physical and social environment (such as social networks). Proposals should address responsible research and innovation aspects by taking account of specific nutritional requirements, dietary behaviours and preferences, sensory aspects, the gender dimension, ethical, socio-economic and cultural aspects. Proposals could include the development of smarter and more intelligent devices for the monitoring of food intake. In line with the objectives of the EU strategy for international cooperation in research and innovation and in particular with the implementation of the International KBBE Forum priorities, proposals are encouraged to include third country participants, especially those established in Australia, Canada, Japan, New Zealand and/or the United States³⁹. Relevant stakeholders, including industry and SMEs, should be involved.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 9 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Design and development of evidence-based dietary strategies, dietary recommendations and new food products that support active and healthy ageing and help prevent malnutrition in the elderly, including in crisis and disaster situations.

³⁹ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

- Significant support to the European Innovation Partnership on Active and Healthy Ageing and to the development of the European Research Area through the JPI ‘A Healthy Diet for a Healthy Life’.
- A strengthening of the EU’s key global market position in innovative nutritional products and services for the elderly, as measured in terms of market share, turnover, employment and intellectual property.
- A generation of a better understanding of the interaction between nutrition and the ageing process through international collaboration and exchange of knowledge/best practice.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: Over recent decades, much research on innovative food processing technologies has been carried out with a view to combating pathogens, reducing spoilage and waste, optimising process efficiency, reducing the need for chemical preservatives, improving the functionality of foods, and improving the nutritional and sensorial properties of food responding to the demands of the different consumer niches and markets, also in terms of affordability. However, risks associated with scaling-up have often impeded real-scale demonstration of the viability of innovative solutions, and market failures and barriers have hindered the uptake of promising research and innovation results in novel food processing by industry and in the market. One way of supporting sustainable food security is through demonstration and first application in the market of eco-innovative solutions in sustainable novel food processing.

Scope: Proposals could comprise activities such as prototyping, testing, demonstrating and piloting in a (near to) operational environment, as well as experimental production, all with a view to paving the way for subsequent market replication. Proposals may, possibly, include limited R&D activities. In cases where there are clear market failures or barriers to uptake, proposals could comprise activities such as validating the benefits for the users/buyers of the first application in real life operating conditions, validating technical and economic performance at system level, validating standards, as well as activities to prepare market uptake and ensuring optimal access to and dissemination of results. Participation of SMEs is encouraged.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Wider and faster deployment of innovative solutions for sustainable novel food processing resulting from greater user acceptance, higher visibility of innovative solutions and the creation of scalable markets.
- Improved competitiveness as well as opportunities for growth, diversification and job creation for the EU food (equipment) sector in general and SMEs in particular

Type of action: Innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: The contribution of family farms and in particular smallholder farms to food and nutrition security (FNS) has been gaining global attention, both in Europe and in the context of less developed countries. While small farms, as well as other small and micro-sized food businesses, have an important role to play in supporting the local economy and food security in rural areas, this is often placed in contrast with the perceived benefits of large farm structures. This comparison, arguing for the benefits of economies of scale tends to downplay the efficiency of smallholdings, averts considerations for complementarities between agro-food systems, neglects the environmental and social aspects of sustainability such as the ability of small farms to maintain more diverse mixed production systems and the role of labour-inclusive family farms in maintaining an adequate rural/urban balance and enabling territorial development – a challenge for countries facing a strong rural population growth. It is therefore important to gain a better understanding of the contribution of small farms and food businesses to FNS and their resilience to shocks in an increasingly globalised and uncertain world. In particular, it must be understood whether small and family farms may contribute to a 'right balance' between technical, economic, environmental and social sustainability, taking into account the linkages with the up- and downstream sectors and in particular small and medium sized enterprises differentiating between the urban and rural dimensions of FNS, and identifying the requirements with regard to infrastructure (incl. labour, transport, energy, communication, food-safety, etc.), supply chain (local/regional markets), technical pathways (focus on production and transformation at farm level) and governance (local/global).

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 fibre 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 role 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 Asia⁴⁰.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 4–5 million would allow this specific challenge to be addressed appropriately.

⁴⁰ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- provide a better understanding of the role of small and family farms and small food businesses in meeting the sustainable FNS challenge (across its various dimensions) encompassing the implications on small and medium size businesses along the supply chain and within the context of demographic developments
- help better tailoring international cooperation and agricultural research for development to the agro-food sector
- contribute to policy making for the identification of new development models for the agro-food sector.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: The EU agro-food sector has considerable potential in addressing the various multifaceted challenges on food and nutrition security (FNS). Demographic, dietary and income trends, the broader economic and policy context, climate change and environmental sustainability as well as technological change are perceived as major drivers that shape FNS. Furthermore, as EU agriculture itself operates within a complex policy environment involving a plethora of domestic, EU and international policies (themselves being subject to change), a comprehensive understanding is required with regards to the combined implications of the numerous and multidisciplinary factors, including considerations on their future developments. Such an assessment should encompass the role of EU fisheries and aquaculture.

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

A. [2014] Strengthening the analytical capacity on food and nutrition security

A holistic approach is needed to capture the various socio-economic, environmental, climatic and territorial factors impacting on the EU agro-food sector along with their inter-linkages. Attention should be given to the implications of various policies and drivers of change affecting different actors along the supply chain (e.g. health and nutrition policies are gaining increasing importance for FNS) and to distinguish between long-term consumption trends (including their main socio-economic drivers) and consumer reactions to short-term shocks (e.g. economic, food scares, etc.). Research should develop indicators and analytical tools that improve the monitoring of EU FNS at various geographical scales (including at sub-regional level) and develop capacities for short-term forecasts and early warning systems for the most relevant agricultural commodities. It should also deliver improved quantitative modelling tools integrating socio-economic and bio-physical models, reflecting prevailing factors driving supply and demand at different geographic scales and a broad scope of agricultural products. Foresight exercises should contribute to the formulation of alternative future scenarios.

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 a 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.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million for (A) or (B) respectively would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Proposals should show how some, or all, of the following impacts will be achieved:

- provide an assessment of the state of EU FNS at sub-regional level (including the implications of fisheries and aquaculture)
- improve the capacity of policy makers to monitor its development, to carry out short-term projections and evidence-based risk assessments and to implement quantitative modelling of alternative future scenarios to aid the design and formulation of longer term agro-food policies
- bring about foresight and identify long-term challenges to FNS and the role of the EU agro-food sector, thus improving the capacity of related policies to provide appropriate answers.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: In 2012 a new Regulation on the quality schemes for agricultural products and foodstuffs was adopted in the EU. Important pillars of the EU quality policy are the 'protected designation of origin' (PDO)/'protected geographical indication' (PGI)/'traditional specialty guaranteed' (TSG) schemes, a scheme for optional quality terms and organic food and farming. They are meant to maintain a large variety of agricultural products, reflecting the diversity of EU agriculture and to allow remunerative prices to producers. The policy is expected to play an important role especially in disadvantaged and remote territories where agriculture is a prominent economic activity. On the other hand, the European public sector is emerging as a powerful actor in the food chain notably through public procurement policies which can create new markets and foster the development of an 'economy of quality'. Innovative approaches in this area are multiplying in various parts of Europe from different types of governance (communal, regional, etc.). These approaches cater for different objectives such as improving the nutritional balance of school canteens, contributing to education on food or fostering the procurement from local producers. Hence they have the

potential to deliver economic, environmental and social benefits (including health) to the society.

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 provision 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 utilised 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'⁴¹. 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.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 7 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- provide insight into the effects of the EU quality policy and public sector food procurement policies on sustainability and on the promotion of a healthy diet
- allow to better design and implement these policies and to foster their delivery to the overall sustainability of agriculture and the rural economy
- clarify how these approaches, through the creation of new quality markets, can foster the development of local food chains.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

⁴¹ See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

HORIZON 2020 – WORK PROGRAMME 2014-2015

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

CONDITIONS FOR THIS CALL

Publication date: 11/12/2013

Deadlines^{42;43}:

SFS-6-2014	26/06/2014 at 17.00.00 Brussels time	
SFS-1A-2014 SFS-1B-2014 SFS-2A-2014 SFS-3A-2014 SFS-3B-2014 SFS-4-2014 SFS-7A-2014 SFS-9-2014 SFS-10A-2014 SFS-11A-2014 SFS-12-2014 SFS-14A-2014 SFS-15-2014 SFS-17-2014 SFS-19-2014	First stage 12/03/2014 at 17.00.00 Brussels time	Second stage 26/06/2014 at 17.00.00 Brussels time
SFS-14B-2015	[11/06/2015 at 17.00.00 Brussels time]	
SFS-1C-2015 SFS-2B-2015 SFS-5-2015 SFS-7B-2015 SFS-10B-2015 SFS-11B-2015 SFS-13-2015 SFS-16-2015 SFS-18-2015 SFS-20-2015	First stage [24/02/2015 at 17.00.00 Brussels time]	Second stage [11/06/2015 at 17.00.00 Brussels time]

SFS-8- 2014/2015 – Open call cut-off dates – Open from	Phase 1 18/06/2014 24/09/2014 17/12/2014	Phase 2 09/10/2014 17/12/2014	Phase 1 [18/03/2015 17/06/2015 17/09/2015	Phase 2 [18/03/2015 17/06/2015 17/09/2015
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⁴² The Director-General responsible may delay this deadline by up to two months.

⁴³ The deadlines provided in brackets are indicative and subject to a separate financing decision for 2015.

HORIZON 2020 – WORK PROGRAMME 2014-2015

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

01/03/2014 for phase 1 and phase 2 ⁴⁴			16/12/2015]	16/12/2015]
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Overall indicative budget: EUR 138 million from the 2014 budget⁴⁵, and EUR 110.5 million from the 2015 budget⁴⁶

	2014 EUR million	2015 EUR million
SFS-1-2014/2015	27.00	7.00
SFS-2-2014/2015 SFS-3-2014	25.00	9.00
SFS-4-2014 SFS-5-2015	10.00	15.00
SFS-6-2014	1.00	
SFS-7-2014/2015	10.00	20.00
SFS-8-2014/2015	9.00 out of which 0.90 for phase 1 7.92 for phase 2 0.18 for mentoring & coaching support and phase 3	17 out of which 1.70 for phase 1 14.96 for phase 2 0.34 for mentoring & coaching support and phase 3
	Single stage for both phase 1 and phase 2. The budget available for phase 1 and phase 2 will be divided equally between each cut-off date.	
SFS-9-2014 SFS-10-2014/2015 SFS-11-2014/2015	20.00	11.50
SFS-12-2014 SFS-15-2014 SFS-16-2015	17.00	9.00
SFS-13-2015		10.00
SFS-14-2014/2015	5.00	0.50
SFS-17-2014	4.00	
SFS-18-2015		4.50
SFS-19-2014 SFS-20-2015	10.00	7.00

⁴⁴ The Director-General responsible may delay this date by up to two months.

⁴⁵ The budget amounts for 2014 are subject to the availability of the appropriations provided for in the draft budget for 2014 after the adoption of the budget for 2014 by the budgetary authority or if the budget is not adopted as provided for in the system of provisional twelfths.

⁴⁶ The budget amounts for 2015 are indicative and will be subject to a separate financing decision to cover the amounts to be allocated for 2015.

HORIZON 2020 – WORK PROGRAMME 2014-2015

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

Eligibility and admissibility conditions: The conditions are described in parts B and C of the General Annexes to the work programme, with the following exceptions:

SFS-8-2014/2015	Proposals for phase 1 are not required to provide a draft plan for exploitation and dissemination. A proposal for phase 2 shall include a commercialisation plan.
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Evaluation criteria, scoring and threshold: The criteria, scoring and threshold are described in part H of the General Annexes to the work programme, with the following exceptions:

SFS-8-2014/2015	Proposals will be evaluated individually when they arrive. They will be ranked after the respective cut-off dates. The criterion Impact will be evaluated first, then Excellence and Implementation. If the proposal fails to achieve the threshold for a criterion, the evaluation of the proposal will be stopped. For phase 1 the threshold for individual criteria will be 4. The overall threshold, applying to the sum of the three individual scores, will be 13. For phase 2 the threshold for the criterion Impact will be 4. The overall threshold, applying to the sum of the three individual scores, will be 12. The final consensus score of a proposal will be the median of the individual scores of the individual evaluators; and the consensus report will comprise a collation of the individual reports, or extracts from them. Where appropriate, a Panel Review will be organised remotely. Applicants can provide during the electronic proposal submission up to three names of persons that should not act as an evaluator in the evaluation of their proposal for potential competitive reasons ⁴⁷ .
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Evaluation procedure: The procedure for setting a priority order for proposals with the same score is given in part H of the General Annexes.

The full evaluation procedure is described in the relevant guide associated with this call.

- Indicative timetable for evaluation and grant agreement:

	Information on the outcome of the evaluation (single or first	Information on the outcome of the evaluation (second stage)	Indicative date for the signing of grant agreements
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⁴⁷ If any of the persons identified is an independent expert participating in the evaluation of the proposals for the call in question, they may be excluded from the evaluation of the proposal concerned, as long as it remains possible to have the proposal evaluated.

HORIZON 2020 – WORK PROGRAMME 2014-2015

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

	<i>stage)</i>		
SFS-6-2014 SFS-14B-2015	Maximum 5 months from the final date for submission		Maximum 3 months from the date of informing applicants
SFS-1-2014/2015 SFS-2-2014/2015 SFS-3-2014 SFS-4-2014 SFS-5-2015 SFS-7-2014/2015 SFS-9-2014 SFS-10-2014/2015 SFS-11-2014/2015 SFS-12-2014 SFS-13-2015 SFS-14A-2014 SFS-15-2014 SFS-16-2015 SFS-17-2014 SFS-18-2015 SFS-19-2014 SFS-20-2015	Maximum 2 months from the final date for submission	Maximum 5 months from the final date for submission	Maximum 3 months from the date of informing applicants
SFS-8-2014/2015	Two months after the corresponding cut-off date set out above for phase 1 and four months after the corresponding cut-off date set out above for phase 2		One month from the date of informing applicants in phase 1 and two months from the date of informing applicants in phase 2.

Consortium agreements: In line with the Rules for Participation and the Model Grant Agreement, participants in Research and Innovation Actions or in Innovation Actions are required to conclude a consortium agreement prior to grant agreement.

For the SME instrument, in the case of two or more SMEs submitting a proposal, in line with the Rules for Participation and the Model Grant Agreement, participants are required to conclude a consortium agreement prior to grant agreement.

Call for Blue Growth: Unlocking the potential of Seas and Oceans

H2020-BG-2014/2015

Rapid technological progress in working offshore in ever-deeper waters, the need to reduce greenhouse gas emissions, and the need to look at how the 71 % of the planet that is seas and oceans can deliver human necessities such as food and energy in a sustainable way have opened up an opportunity for blue growth with the aim to harness the huge potential of Europe's oceans, seas and coasts for jobs and growth. This focus area addresses this overall challenge through five cross-cutting priority domains supporting the Blue Growth Agenda: valorising the diversity of marine life; sustainable harvesting the deep-sea resources; new offshore challenge; ocean observation technologies; and the socioeconomic dimension. The aim of the focus area 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. It will enhance sectoral and cross-sectoral cooperation by building on major international, regional and national initiatives.

At present sea and ocean bio-resources provide 15% of the animal protein consumed globally; blue biotechnology has an expected yearly growth rate of 5 to 10%; deep-sea mineral extraction could gradually represent up to 10% of the world's minerals; marine renewable energy is rapidly extending to 40 GW of offshore wind capacity by 2020 and an exponentially rising 3.6 GW of sea and ocean energy by 2030. The Blue Growth economy in the EU is expected to grow to 7 million people employed by 2020. Actions in this area will support the EU 'Blue Growth' strategy and relevant EU policies (e.g. Sea Basins Strategies and Action Plans) as well as provide support for international cooperation.

To maximize the impacts of activities undertaken under this Focus Area, WP 2014-2015 will focus on key priorities for the EU, so as to mobilize the necessary critical mass to tackle these large cross-cutting challenges with adequate scale and scope.

The sustainable exploitation of the diversity of marine life will put emphasis in 2014 on valuing and mining marine biodiversity while 2015 will focus on the preservation and sustainable exploitation of marine ecosystems and climate change effects on marine living resources. The new offshore challenges will be tackled in 2014 through a support action (CSA) preparing potential further large –scale offshore initiatives and one initiative focused on sub-sea technologies while in 2015 a large scale initiative is planned on response to oil spill and maritime pollution. Also a large-scale initiative on improving ocean observation systems/technologies including novel monitoring systems for in-situ observations will be supported in 2014 as well as one activity on acoustic and imaging technologies. Finally, several horizontal activities regarding socio-economic issues, valorising research outcomes or engaging with society as well as projects targeting SMEs will be promoted in 2014.

In terms of international cooperation, the 'Blue Growth' Focus Area will support the new Atlantic Ocean Cooperation Research Alliance launched by the Galway Statement in May 2013⁴⁸.

Due to its high cross-cutting nature, this call integrates contributions coming from different parts of Societal Challenge 2, and from Societal Challenges 3 on 'Secure, Clean and Efficient Energy'; 4 on 'Smart, Green and Integrated Transport'; and 5 on 'Climate Action, Resource

⁴⁸ Galway Statement on Atlantic Ocean Cooperation Launching a Canada- European Union- United States of America Research Alliance (Galway, 24th of May 2013)

Efficiency and Raw Materials', as well as from the Pillar on Leadership in Enabling and Industrial Technologies. The call is also relevant for Societal Challenges 1 on 'Health, Demographic Change and Wellbeing'; and 6 on 'Inclusive, Innovative and Secure Societies'.

Opportunities for tackling 'Blue Growth' challenges can also be found in other parts of the Work Programme such as in Societal Challenge 3 on 'Secure, Clean and Efficient Energy' regarding renewable electricity generation, electricity grids and storage technologies as well as in Societal Challenge 5 on 'Climate Action, Resource Efficiency and Raw Materials' regarding climate change, biodiversity, ecosystem products and services, earth observation and the sustainable exploitation of raw materials, in the 'Leading Enabling and Industrial Technologies' part for the Advanced materials key enabling technology or in the 'Excellent Science' part for infrastructures.

Proposals are invited against the following topics:

Sustainably exploiting the diversity of marine life

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

Specific Challenge: The North Atlantic is a key marine region that encompasses ecologically and biologically important and fragile ecosystems (e.g. deep cold-water corals) and provides goods and services essential for our well-being such as regulating climate. Furthermore, a decade long international investment in instrumenting and quantifying the Atlantic meridional overturning circulation provides a robust foundation upon which large process studies can be built to study the biogeochemistry and biodiversity that controls growth at the base of the ocean food web. Such studies can inform a mechanistic understanding of element and energy flow in the system, which are important to modeling, predicting future changes in such things as ocean atmosphere feedback loops and sustainable yields for fisheries. The exploitation of aquatic living resources in the North Atlantic has been a key driver for growth and wealth creation in several coastal areas. However, the biodiversity and functioning of this fragile environment as well as the products and services they provide are currently under threat. Addressing these pressures cost-effectively, requires a strengthened knowledge base, improved innovation and predictive capacity and the development of adaptive management plans for sustainable exploitation and use of the marine resources.

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 production of new products and industrial applications. 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 (COM(2012) 497),

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proposals should contribute to implementing the Transatlantic Research Alliance, launched by the Galway Statement⁴⁹ on Atlantic Ocean Cooperation in May 2013, and should benefit from the inclusion of partners from the United States of America and Canada⁵⁰. Cooperation is also encouraged with other international partners.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 8–12 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Improve resources management (ecosystem approach) and governance to preserve them and unlock their potential for the sustainable production of the new products and industrial applications.
- Improve cooperation among EU Member States with respect to Atlantic ecosystem based research as well as with International partner countries
- Contribute to the implementation of the EU Integrated Maritime Policy, its environmental pillar the Marine Strategy Framework Directive (MSFD), The Common Fisheries policy (CFP), the EU 'Maritime Strategy for the Atlantic Ocean Area'⁵¹, and the Galway Statement on Atlantic Ocean Cooperation.
- Contribute to the implementation of international agreements to conserve Vulnerable Marine Ecosystems⁵² and Ecologically or Biologically Sensitive Areas⁵³.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge Global warming and climate change are likely to affect all the biosphere's components and impact the functioning of all aquatic ecosystems and the living organisms that populate them. In the context of an increasing global population and demand for sufficient and safe food supplies, it is critical to predict and anticipate the nature and magnitude of potential impacts of climate change on food production systems. A lot of scientific effort is put on the understanding of the interrelations between the oceans and the climate system, which is also a key prerequisite for predicting and anticipating potential consequences of climate change on seafood production methods and systems. Ensuring sufficient preparedness and quick adaptation capacity of European marine and freshwater fisheries and aquaculture sectors to potential threats and opportunities due to climate change might be decisive for the long term sustainability of the two sectors, as well as for guaranteeing to European consumers and societies an acceptable degree of self-sufficiency of seafood supplies.

⁵⁰ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

⁵¹ COM(2011) 782 final

⁵² UN Resolution 61/105

⁵³ Convention on Biological Diversity

Scope: Proposals should give similar emphasis on both (A) and (B):

A. Proposals should focus on understanding how climate change may affect the most important and less resilient exploited European fish stocks and should cover the diversity of ecosystems and EU fisheries. They should provide new insights, at different geographic scales (in the major European oceans, seas and inland waters) and different climate change scenarios, on how climate-induced changes may affect important biological processes (including, reproductive success, population dynamics, migration patterns, interactions between fish populations, etc.). Particular focus should be given on risk assessment and management, elaboration of adaptation strategies for fisheries management and development of novel forecasting and early warning methodologies.

B. Proposals should also investigate the potential effects and consequences of climate change on aquaculture taking into account the diversity of aquaculture practices, species and regional specificities, farming technologies and specific requirements of established and emerging European farmed species. Proposals should identify and model potential threats from global warming (including sea level rise, temperature/salinity changes, acidification, coastal erosion, HABs shellfish toxins, jellyfish, diseases spread and pathogens virulence, invasive species etc.) on the main segments of the European aquaculture sector (including freshwater), while considering the diversity of species and regional specificities of this sector. They should assess the economic risks related to these threats and should propose scenarios and realistic and cost-efficient adaptation and mitigation options and tools.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Support fisheries management and aquaculture development by reducing uncertainties and risk, while optimising the scientific advice, policies implementation and production planning.
- Allow regulators, fisherman and aquaculture operators to anticipate, prepare and adapt to different scenarios driven by climate change, while minimizing economic losses and social consequences.
- Identify opportunities that might occur under the different scenarios and prepare to reap the potential benefits for the European fisheries, aquaculture and seafood sectors and for consumers.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific Challenge: Due to the rich biodiversity and the specific physical and chemical conditions of the marine ecosystems, seas and oceans possess the capacity to produce a variety of molecules with unique features, unmatched biochemical diversity and structural complexity. This explains the increased recognition of marine organisms and microorganisms as a source of bioactive compounds and biomaterials with biotechnological, pharmaceutical or other industrial application. However, while an increasing number of marine derived products

are becoming commercialized, increasing the efficiency of the marine biodiscovery pipelines and developing sustainable technologies using marine sources in an environmentally responsible manner are still important challenges to be addressed.

Scope: Proposals should aim to develop innovative approaches to address the technical bottlenecks of marine resource identification, sustainable supply, discovery pipelines (e.g. separation, structure elucidation, identification of the profile of bioactives, de-replication strategies, mode of action, etc.) as well as more efficient production in biological systems. Proposals should be industry-driven. Proposals should cover the innovation chain from research, to development, and proof of concept. Legal aspects linked to securing clear access to marine resources, including related infrastructures and bio-resources banks and collections, their sustainable use as well as Access and Benefit Sharing aspects, should be properly considered. Environmental viability of the proposed concept should also be taken on board.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 6–10 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impacts:

- Enhance the competitiveness and sustainability of European industry sectors such as pharmaceutical, nutraceuticals cosmetic, industrial biotechnology and fine chemical, through increased efficiency of marine biodiscovery pipelines;
- Bring broad societal benefits, by allowing development of novel, improved or more economic and eco-friendly end-products and processes;
- Structuring of the European Research Area in this field;
- Contribute to the implantation of the objectives of the EU Blue Growth.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: If we consider the vast reservoir of enzymes identified through the latest large-scale marine genomics and metagenomic sequencing projects, the potential to unveil novel interesting enzymes from marine sources remains very high. However, this potential does not automatically guarantee novel commercial products. The challenge at hand is posed by both current limitations in screening and expression technologies as well as by issues of property rights and intellectual property. Both are still limiting factors that require further attention.

Scope: Proposals should address the development and demonstration of innovative technologies for high throughput enzyme screening and/or for the expression of marine enzymes and proteins through dedicated hosts and should focus on respective key research challenges including purification systems and upscaling of the marine enzymes. Screening should take into account industrial technical specifications of the enzymes of interest. Win-win academic and industry cooperation and/or agreements on issues related to property rights and intellectual property should be considered in order to maximise the exploitation potential.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Enhance the competitiveness and sustainability of European industry sectors such as consumer products, pharmaceutical, cosmetic, and fine chemicals, through increase efficiency in the enzyme identification-to-market success rate;
- Bring broad societal benefits by facilitating the development of novel, improved or more economic and eco-friendly end-products and processes;
- Contribute to realising the objectives of European policy initiatives, such as the EU Blue Growth Strategy and EU Strategy for Key Enabling Technologies.

Type of action: Innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

New offshore challenges

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

Specific challenge: Economic activities in Europe's seas and coasts are expected to intensify, diversify and expand further offshore driven by the competition for space on coastal areas and the increased exploitation of marine (renewable) energy, biological and mineral resources in the deep sea.

The development of large scale activities offshore and in deep sea areas requires overcoming a series of technological and operational challenges related to, among others, surface support facilities, control systems, fluid and solid transport or remotely operated robots/vehicles. Economic considerations are also central in the expansion of the Blue growth sectors. This is why there is a need to assess the most promising and sustainable business models and identify the corresponding technological and environmental challenges to allow these offshore developments to happen. Finally non-technological challenges such as grid connections, conflicts for use of the marine space and licensing in the context of marine spatial planning, must also be taken into account. One way to make use of our seas in a smarter, more sustainable and potentially less disruptive manner is to combine different, complementary and synergistic activities at sea at the same location (e.g. energy production and storage, fisheries and aquaculture, transport & logistics hubs, observation and monitoring), with multi-use offshore platforms. There is a need to review the work undertaken in this area to assess related business models.

Scope: Proposals should analyse and identify the social and economic developments in the offshore economy and the most promising, environmentally sustainable and economically feasible business models. This should include a review of marine renewable energy farms (both wind and ocean energy), offshore aquaculture facilities, multi-use offshore platforms projects⁵⁴ and their business models, as well as issues of competing access to marine space between different activities and, more broadly, all social and environmental impacts

⁵⁴ H2OCEAN, TROPOS and MERMAID in FP7-OCEAN-2011

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(including impacts on coastal areas). Proposals should also set-up a mechanism associating key stakeholders interested in the development of the Blue Economy, with a view to covering all the following objectives:

- identify the technological, challenges to be overcome to make these business models operational and define a shared research and technology agenda
- investigate solutions to overcome the non-technological challenges such as the infrastructure and grid development within the relevant EU legislative framework (in particular the maritime spatial planning and existing coastal and planning systems)
- propose large scale pilot initiative(s) to be launched in European seas which should demonstrate the feasibility of the most promising business models.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Prepare the ground for demonstration activities of most promising offshore business models;
- Significantly increase investments by the key European level maritime stakeholders (industrial, scientific communities) in the offshore economy;
- Support the EU Blue Growth and maritime spatial planning policy objectives.

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: The development of a new maritime economy necessitates tackling a range of technological challenges. One such challenge is the ability to remotely execute unmanned underwater operations ranging from simple observation/data collection and transmission of information to more complex industrial operations. Technologies deployed for maritime research (Remotely Operated Vehicles - ROVs, Autonomous Underwater Vehicles – AUVs) must be further improved, industrialised, i.e. made more robust, cost-effective, reliable and sophisticated (in terms of operating capabilities) and with increased autonomy. Another challenge is the ability to operate at even higher depths (down to 6,000m), and in extreme conditions (e.g. Arctic regions, with corrosive products, heavy/viscous liquids, high pressure - high temperature systems, etc.). The control of the potential impact on the environment of these activities is also important.

Scope: Proposals should address the innovative design of new underwater vehicles and robots and/or their main components required to work undersea. If relevant, proposals could go to the stage of demonstrators or prototypes. The areas of interest are the following:

- Remotely Operated Vehicles and Subsea Construction systems
- Specialised 'Robots' and Autonomous Underwater Vehicles, deployment, recovery and docking systems
- Subsea 'factory' machineries.

Where relevant, activities should cover the development of European standards.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 8–10 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Enable sustainable and safe offshore operations by European industries in extreme conditions (deep sea areas, Arctic conditions, corrosive products, high pressure and temperature...);
- Increase cost-effectiveness and competitiveness of the existing and new offshore economy (including marine renewable energy);
- Improve the scientific capacity to observe and understand the water column, the deep sea environment and their resources.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: The development of deep sea resources exploitation (particularly offshore Oil and Gas) is moving maritime operations to extreme pressure and low temperature conditions, with many unknown factors and limited response capacity.

As shown by the Gulf of Mexico accident in 2010, besides the lack of appropriate means to deal with a large scale pollution event at high depth/pressure, it is particularly challenging:

- to predict and measure the evolution of the pollution (e.g. oil spill, chemical pollution), in order to balance efficiency of the response with its environmental impact.;
- to design an appropriate response combining the right mix of interventions (e.g. mechanical collection, burning oil on surface, use of dispersants, bioremediation, natural dispersion or transformation of spilled oil...).

Given these challenges and to reinforce national capacities, the mandate of the European Maritime Safety Agency (EMSA) was extended to provide assistance to EU Member States to respond to pollution from oil and gas installations (besides pollution from ships).

There is a need to develop the capacity for rapid response to unanticipated and episodic marine pollution events in different types of oceanic conditions, including in closed basins and open seas, by advancing scientific and technological knowledge.

Scope: Proposals should aim at developing an integrated operational response capacity to major offshore and/or coastal pollution events (particularly oil & gas), including in extreme oceanic conditions. The integrated approach should combine oceanographic prediction of the pollution behaviour, understanding of the pollution impact including the role of marine microbial communities, use of physical, chemical and biological remediation and its impact on ecosystems, the use of specialised vessels and underwater (autonomous) vehicles. Proposals should improve the European operational response capacity to such events, with in particular integrated models and tools that can be tested for a better preparedness and support decision making in the management of such events. They should also cover, as appropriate,

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recommendations for infrastructure works to help protect sensitive ecosystems in high risk areas.

In line with the objectives of the EU strategy for international cooperation in research and innovation (COM (2012) 497), proposals should benefit from the inclusion of partners established in third countries, in particular the US and Canada⁵⁵, given the high potential for knowledge sharing in this field⁵⁶.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 4–6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Develop an integrated capacity to optimally respond to major marine pollution events (particularly oil & gas) combining oceanographic modelling of pollution behaviour, physical, chemical and biological mitigation as well as infrastructures;
- Mitigate negative impacts of marine pollution on the marine environment, coastal economies and communities;
- Improve the integration between the scientific community and relevant government agencies charged with dealing with pollution, including cross-border and trans-boundary co-operation;
- Reduce risks of the new offshore economy and improve the business environment for Blue Growth investments;
- Contribute to the implementation of the Directive 2013/30/EU on safety of offshore oil and gas prospecting, exploration and production activities and to the Offshore Protocol of the Barcelona Convention in the Mediterranean;
- Contribute to the effectiveness of EMSA's operational capacity to respond to pollution from oil and gas installations
- Improve societal acceptance of offshore activities.
- Increase competitiveness of European industry including SMEs within the marine industrial sector

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

Ocean observation technologies/systems

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

Specific challenge: The challenge is to conduct the Research and Innovation activities necessary to the deployment of an Integrated Atlantic Ocean Observing System (IAOOS), building on existing capacities on both side of the Atlantic. The Atlantic Ocean is the most

⁵⁵ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

⁵⁶ See Galway Statement on Atlantic Ocean Cooperation Launching a Canada- European Union- United States of America Research Alliance (Galway, 24th of May 2013) and related Final scientific report

prominent maritime domain situated at the doorstep of Europe. However, the sustainable exploration, exploitation and protection of this maritime domain require a knowledge base and predictive capabilities which are currently fragmented or not yet available. The creation of this knowledge base and predictive capability requires systematic collection of ocean observations recorded both remotely using Earth observation satellites and in-situ. Central to the development of the IAOOS should be the acquisition and use of in-situ observations and their integration with remote sensed data across the whole Atlantic Ocean in order to fill out the existing observational gaps. Applications based on the Copernicus Marine Monitoring service and the European Marine Observation and Data Network (EMODnet) may enable addressing this challenge.

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 optimisation 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 discovery and access to the ocean observations and facilitating the interoperable exchange of ocean observation 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 (COM (2012) 497), proposals should contribute to implementing the Transatlantic Research Alliance, launched by the Galway Statement⁵⁷ on Atlantic Ocean Cooperation in May 2013, and should benefit from the inclusion of partners from the US and Canada⁵⁸.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 15–20 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Enhance societal and economic role of the Atlantic Ocean in Europe.
- Provide leadership for Europe in implementing GEOSS.
- Increase temporal and geographic coverage of observational data in the Atlantic Ocean.
- Integrate standardised in-situ key marine observations including biological, (meta)genomic data into process models and forecast systems.
- Improve modelling outputs and reduce cost of data collection in support of ocean-related industrial and societal activities.
- Increase competitiveness of European industry and particularly SMEs within the marine industrial sector.
- Increase safety for offshore activities and coastal communities
- Contribute to make better informed decisions and documented processes within key sectors (manufacturing, ICT, maritime industry, environment technology, marine science and fisheries).

⁵⁷ Galway Statement on Atlantic Ocean Cooperation Launching a Canada- European Union- United States of America Research Alliance (Galway, 24th of May 2013)

⁵⁸ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

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- Improve the implementation of European maritime and environmental policies (e.g. Marine Strategy Framework Directive, Common Fisheries Policy, EU Integrated Maritime Policy).
- Enhance documentation necessary to cope with global challenges such as climate change, scarceness of natural resources and global scale hazards.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

BG-9-2014: Acoustic and imaging technologies

Specific challenge: Acoustic and imaging technologies (including LiDAR⁵⁹), combined with data processing have made considerable progress in the past 20 years and can provide remarkable insights into the state of marine ecosystems, from the water column to the seabed (and its habitats).

Acoustic technologies can be active (echosounder, multibeam sonar) or passive (devices to 'listen' and interpret marine sounds). They operate from a wide range of platforms, offer promising perspectives for characterising seabed and sea column habitats, species and ecology and can strongly support marine environment and fisheries management, as well as offshore activities and safety (e.g. detection of seeps, geologic events... etc.).

Imaging technologies have also proven to be powerful instruments to characterise the marine environment, its biomass, biodiversity, detect and provide estimates of pollution and marine litter. They can therefore be of important support to marine environment and fisheries management (e.g. marine litter assessment for the Marine Strategy Framework Directive - MSFD). However improvement is still needed to increase performance and cost efficiency of these technologies, whether it is to monitor the oceans, or to support marine industries.

Scope: Proposals should cover innovative technologies to improve the performance and the cost efficiency of underwater sensors and survey systems needed for acoustic detection, imaging or LiDAR, as well as the (fixed or mobile) platforms supporting them and signal and image processing to interpret raw data. Subsequent use of this information as part of an integrated framework of multi-modal data sources should also be considered.

Proposals should bring together marine scientists, technology providers and end-users (including policy makers), with a view to support implementation of MSFD, characterisation of good environmental status or to enhance a sustainable European maritime economy.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 4–6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impacts:

- Strengthen the competitiveness and safety of the European maritime industry by developing innovative and cost efficient underwater acoustic and imaging technology devices and survey systems;

⁵⁹ Light Detection and Ranging

- Support the implementation of marine environmental and fisheries policies (MSFD – CFP), including the objectives for detecting marine litter;
- Support marine science and ocean discovery (seabed and sea column characterisation).

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: Control of the production process, biological and environmental sustainability is necessary but not sufficient to ensure the economic sustainability of a seafood production enterprise. Fisheries and aquaculture sectors face competition in the global marketplace, both for inputs and for outputs. In addition, the limited availability of appropriate production and socio-economic data hampers the development of reliable models and prediction tools. Meeting these challenges is necessary for ensuring the long term economic sustainability of European fisheries and aquaculture sectors (marine and freshwater).

Scope: Proposals should focus on the economic sustainability of European fisheries and aquaculture (marine and freshwater), which is defined as the long term economic viability of the sector. Proposals should study and analyse production segments, systems and products, taking into account supply chains and markets as well as attempts to increase social awareness of health claims and acceptance of aquaculture products. They should consider and analyse the effects of several factors, including production costs, productivity growth, market development, supply chain, demand and supply characteristics, international trade price fluctuations, innovation and product development, etc. In addition, the impact of different regulatory systems on the profitability and growth of these sectors should be evaluated.

Proposals should also focus on the trends and dynamics of European and global seafood markets and explore the competitive potential of European fisheries and aquaculture products in this context. They should also investigate the interaction between European fisheries and aquaculture products in local and global markets. They should identify and analyse successful seafood products, investigate market niches as well as the potential of existing marketing tools promoting responsible practices (labels, certification schemes etc.) to boost the competitiveness of the European fishing and aquaculture industry. Finally, they should compile and quantify non market values of fisheries and aquaculture.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Consolidation of the economic sustainability of European fisheries and aquaculture sectors (marine and freshwater).

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- Scientific support to fishermen and aquaculture producers to better understand and benefit from the functioning of their markets.
- Availability of tools for production planning and development of novel products and markets, taking into account trends in the local and global seafood value chain and consumers preferences.
- Better understanding of the value chain organisation and of prices cycles, including in particular the 'boom and bust' cycles, and availability of solutions for predicting and avoiding similar situations in the future.
- Boosting the competitiveness of European seafood products by identifying the added value of existing marketing tools and their potential in steering European consumers' choices.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: The EU has been funding a large number of marine and maritime R&I projects spread across different programmes. Recent efforts have been made to monitor and facilitate access to information on these projects or their results. However, key tangible outputs are not always known or exploited when they could be of use to marine and maritime stakeholders, scientists and policy makers.

Scope: Proposals should develop a strategy to monitor and identify and select successful marine and maritime research projects in terms of outputs and impacts for the 'Blue Growth' agenda as well as support to the EU Marine Strategy Framework Directive. They should analyse key promising results, particularly those relevant for creating growth opportunities and social innovation. Projects to be taken into account should come from the Seventh Framework Programme ('Cooperation', 'People', 'Capacities' and 'Ideas' if relevant), ERA-NETs, CIP, Structural Funds and other relevant EU programmes. They should cover a wide scope of areas/sectors (environment, biotechnologies, food, transport, energy, ICT, materials, space, security, infrastructures...) including those that are relevant for maritime applications and the Blue Growth. Proposals should also consider and bridge with marine-related research and innovation activities to be funded under the various parts of Horizon 2020, especially through the Focus Area 'Blue Growth'.

Proposals should cover strategies for exploitation of research results including a targeted dissemination strategy towards key groups of marine/maritime stakeholders (including scientists and industry), as well as policy makers. Where relevant, proposals could be linked to the Competence Centre for Good Environmental Status, to be developed within the Joint Research Centre (JRC). Key marine/maritime events (European maritime days, large marine science/maritime industries conferences) should be used as dissemination/exploitation opportunities.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 4 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

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- Identify and make available ready-to-use knowledge/results to advance the Blue Growth Agenda and/or support the implementation of the EU Marine Strategy Framework Directive and the revised Common Fisheries Policy
- Demonstrate value creation from research results that are transferred during the project
- Strengthen communication, dissemination and exploitation of knowledge/technological developments between marine and maritime stakeholders
- Enhance the visibility and impact of marine/maritime research in society.

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: The potential of Europe's Oceans, seas and coasts is significant for job and growth creation if the appropriate investments in research and innovation are made. SMEs contribution to the development of the 'Blue Growth Strategy' (COM (2012) 494) can be significant in particular in the fields of marine biotechnology (related applications, key tools and technologies) as well as aquaculture related marine technologies and services.

However, SMEs lack access to finance to develop their activities and the economic and financial crisis has made access to finance even more difficult. This is particularly true in the previously mentioned maritime sectors, where access to finance for SMEs is considered as one of the most important barriers for the development of innovative maritime economic activities⁶⁰.

Scope: Scope: The SME instrument consists of three separate phases and a coaching and mentoring service for beneficiaries. Participants can apply to phase 1 with a view to applying to phase 2 at a later date, or directly to phase 2.

In phase 1, a feasibility study shall be developed verifying the technological/practical as well as economic viability of an innovation idea/concept with considerable novelty to the industry sector in which it is presented (new products, processes, design, services and technologies or new market applications of existing technologies). The activities could, for example, comprise risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project aligned to the enterprise strategy and with a European dimension. Bottlenecks in the ability to increase profitability of the enterprise through innovation shall be detected and analysed during phase 1 and addressed during phase 2 to increase the return in investment in innovation activities. The proposal should contain an initial business plan based on the proposed idea/concept.

The proposal should give the specifications of the elaborated business plan, which is to be the outcome of the project and the criteria for success.

Funding will be provided in the form of a lump sum of EUR 50,000. Projects should last around 6 months.

⁶⁰ Blue Growth Study - Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coasts – Ecorys, 2012

In phase 2, innovation projects will be supported that address the specific challenge of Blue Growth and that demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan. Activities should focus on innovation activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation, design, market replication and the like aiming to bring an innovation idea (product, process, service etc.) to industrial readiness and maturity for market introduction, but may also include some research. For technological innovation a Technology Readiness Levels of 6 or above (or similar for non-technological innovations) are envisaged; please see part G of the General Annexes.

Proposals shall be based on an elaborated business plan either developed through phase 1 or another means. Particular attention must be paid to IP protection and ownership; applicants will have to present convincing measures to ensure the possibility of commercial exploitation ('freedom to operate').

Proposals shall contain a specification for the outcome of the project, including a first commercialisation plan, and criteria for success.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 and 2.5 million would allow phase 2 to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Projects should last between 12 and 24 months.

In addition, in phase 3, SMEs can benefit from indirect support measures and services as well as access to the financial facilities supported under Access to Risk Finance of this work programme.

Successful beneficiaries will be offered coaching and mentoring support during phase 1 and phase 2. This service will be accessible via the Enterprise Europe Network and delivered by a dedicated coach through consultation and signposting to the beneficiaries. The coaches will be recruited from a central database managed by the Commission and have all fulfilled stringent criteria with regards to business experience and competencies. Throughout the three phases of the instrument, the Network will complement the coaching support by providing access to its innovation and internationalisation service offering. This could include, for example, depending on the need of the SME, support in identifying growth potential, developing a growth plan and maximising it through internationalisation; strengthening the leadership and management skills of individuals in the senior management team and developing in-house coaching capacity; developing a marketing strategy or raising external finance.

Expected impact:

- Enhancing profitability and growth performance of SMEs by combining and transferring new and existing knowledge into innovative, disruptive and competitive solutions seizing European and global business opportunities.
- Market uptake and distribution of innovations tackling the specific challenge of Blue Growth in a sustainable way.
- Increase of private investment in innovation, notably leverage of private co-investor and/or follow-up investments.
- The expected impact should be clearly described in qualitative and quantitative terms (e.g. on turnover, employment, market seize, IP management, sales, return on investment and profit).

Type of action: SME Instrument (70%)

The conditions related to this topic are provided at the end of this call and in the General Annexes.

BG-13-2014 Ocean literacy – Engaging with society – Social Innovation

Specific challenge: The development of the new maritime economy can have important socioeconomic consequences in coastal areas and in the marine space (synergies and/or conflicts of use between old and new activities). These developments, together with the pressures from human activities and climate change on the marine environment, make it crucial to engage with citizens and stakeholders about seas and ocean challenges.

We will not achieve a sustainable exploitation of marine resources and a good environmental status of our seas and oceans unless citizens understand the influence of seas and oceans on their lives and how their behaviour can have an impact on marine ecosystems. This is a pre-requisite to develop the ecosystem based approach for marine activities and promote the understanding/protection of marine ecosystem services.

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 museums⁶¹. 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 (COM (2012) 497), proposals should benefit from the inclusion of partners established in third countries, in particular the US and Canada⁶², given the high potential for knowledge sharing in this field⁶³.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 3.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Develop citizens' understanding of the importance of Seas and Ocean Health, as well as interactions and interdependencies between the two, fostering behavioural change;
- Support the ecosystem based approach in the management of maritime activities and contribute to the objectives of the Marine Strategy Framework Directive,
- Maximize the societal impact of EU funded marine and maritime research.

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

⁶¹ For such activities, synergies may also exist with the European Researchers' Night action under the Marie Skłodowska-Curie part of the Work programme

⁶² This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

⁶³ See Galway Statement on Atlantic Ocean Cooperation Launching a Canada- European Union- United States of America Research Alliance (Galway, 24th of May 2013)

BG-14-2014: Supporting international cooperation initiatives: Atlantic Ocean Cooperation Research Alliance⁶⁴

Specific Challenge: Marine and Maritime scientific and technological cooperation is instrumental in building dialogue, sharing knowledge and mutual understanding between different scientific communities, cultures and societies. It is a key component to tackle major societal challenges, underpin policies, and stimulate innovation. The EU has adopted various initiatives including the 'Blue Growth', the EU Atlantic Strategy and its Action Plan (2014 – 2020) to increase such cooperation. Furthermore the Galway Statement and the recently endorsed Atlantic Ocean Research Alliance⁶⁵ provides a unique framework for stimulating strategic cooperation between education, research, technology and industrial communities in order to jointly address challenges related to the sustainable exploitation of the Atlantic resources and thus promote economic growth and jobs for citizens and societies of both sides of the Atlantic.

However, further efforts are needed to create appropriate operational conditions among the relevant marine research and innovation activities and programmes related to the Atlantic ocean with a view to enhance their effectiveness and impact and facilitate synergies and allow for new collaboration initiatives.

Scope: In line with the objectives of the EU strategy for international cooperation in research and innovation (COM (2012) 497), 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 Canada⁶⁶. 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, (ii) Marine biotechnology , (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.

⁶⁴ This activity directly aimed at supporting the promotion of coherent and effective cooperation with third countries is excluded from the delegation to REA and will be implemented by the Commission services.

⁶⁵ Galway Statement on Atlantic Ocean Cooperation Launching a Canada- European Union- United States of America Research Alliance (Galway, 24th of May 2013)

⁶⁶ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

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)⁶⁷.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 3.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Support the implementation of the Galway Statement on an Atlantic Ocean Research Alliance.
- Improve the international cooperation framework of marine research programmes thus creating the basis for the development of future large-scale joint international marine research programmes.
- Establish a long term knowledge sharing platform for easy access to available information and data holding significant commercial potential relevant to the EU Blue Growth Agenda

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

BG-15-2014: European polar research cooperation⁶⁸

Specific challenge: Nowhere is climate change more evident than in the high latitudes. Increased shipping for transport and tourism purposes, highly variable fish stocks, increased oil and gas exploration and mining are challenges and opportunities faced in polar regions that require sound scientific knowledge of vulnerabilities and risks in order to develop appropriate regulatory policies. In the 2012 Joint Communication to the European Parliament and the Council 'Developing a European Union Policy towards the Arctic Region', the Commission and the High Representative point out that the EU will 'support research and channel knowledge to address the challenges of environmental and climate changes in the Arctic'. Rapid environmental changes in the Arctic and parts of the Antarctic continent have global impacts both by accelerating global warming and in a geo-strategic and socio-economic dimension. European countries operate world class research infrastructures in both Arctic and Antarctic regions and are leading in many fields of polar research with regards to climate, ecosystems, life in extreme environments, pollution monitoring and other aspects. Making the

⁶⁷ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

⁶⁸ This activity directly aimed at supporting the promotion of coherent and effective cooperation with third countries is excluded from the delegation to EASME and will be implemented by the Commission services.

most efficient use of these resources and the latest scientific developments, for addressing the abovementioned challenges requires a high degree of coordination within Europe and beyond.

Scope: Proposals should coordinate polar research in Europe and develop a comprehensive European Polar Research Programme. By setting up a continuous stakeholder dialogue the action should communicate user needs to the appropriate scientific community and/or research programme managers. In line with the objectives of the EU strategy for international cooperation in research and innovation (COM (2012) 497) 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 Canada⁶⁹. Cooperation is as well encouraged with partners from other third countries, such as Russia, Japan, China, India and Latin American countries⁷⁰, also by supporting Belmont forum cooperative research actions. This initiative strives for enhanced coordination with international research organisations and programmes related to polar research (e.g. AMAP⁷¹, WCRP⁷², and JPI⁷³ 'Climate') as well as with relevant operational services including Copernicus. It is also expected to provide support to the coordination and optimisation of existing monitoring and modelling programmes and related infrastructures and work towards interoperability of and open access to observational and modelling data and related products.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Substantially increase the scale and ambition of polar research cooperation in Europe.
- Increase the coherent and efficient use of European resources.
- Improve global cooperation.
- Induce a step change in the domain of open data access, quality control and interoperability.
- Contribute to policy advice at national and EU level and support to the EU's international commitments with respect to the Arctic Council, the Montreal protocol, and UNFCCC⁷⁴ and others related to polar sciences.

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

⁶⁹ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

⁷⁰ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

⁷¹ Arctic Monitoring and Assessment Programme

⁷² World Climate Research Program

⁷³ Joint Programming Initiative

⁷⁴ United Nations Framework Convention on Climate Change

BG-16-2015: Coordination action in support of the implementation of the Joint Programming Initiative on 'Healthy and Productive Seas and Oceans'⁷⁵

Specific challenge: Following the implementation of the actions foreseen by the Commission's Communication on Joint Programming to tackle Europe's major societal challenges, the Competitiveness Council has welcomed the progress made by EU Member States in Joint Programming Initiatives launched so far. Several Council Conclusions on Joint Programming invite the Commission to support JPIs via Coordination and Support Actions⁷⁶ to help achieving their main goals. By making more efficient use of MS investments and resources, JPI Ocean should help to address the societal challenges related to our seas and oceans, and consolidate the European marine research area.

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 2011⁷⁷. 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 research 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 and 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.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

⁷⁵ This activity directly aimed at supporting public-public partnerships with Member States and associated countries, technology platforms with industrial partners and earth observation networks is excluded from the delegation to REA and will be implemented by the Commission services.

⁷⁶ Council Conclusions of 12 October 2010, of 26 November 2010 and of 8 December 2011

⁷⁷ Commission Recommendation of 16.9.2011 on the research joint programming initiative 'Healthy and Productive Seas and Oceans' (2011/C 276/01)

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

- Streamline effective trans-national European research networking and synergies among national and EU research programmes and Member States investments related to healthy and productive seas and oceans.
- Progress towards the creation of a European Research Area in marine research.
- Improve integration and alignment in sharing, use and funding of research infrastructure between Member States and enhanced cooperation in data collection. Contribute to the implementation of key marine and maritime policies

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

HORIZON 2020 – WORK PROGRAMME 2014-2015

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

CONDITIONS FOR THIS CALL

Publication date: 11/12/2013

Deadlines^{78;79}:

BG-5-2014 BG-11-2014 BG-13-2014 BG-14-2014 BG-15-2014	26/06/2014 at 17.00.00 Brussels time	
BG-3-2014 BG-4-2014 BG-6-2014 BG-8-2014 BG-9-2014 BG-10-2014	First stage 12/03/2014 at 17.00.00 Brussels time	Second stage 26/06/2014 at 17.00.00 Brussels time
BG-16-2015	[11/06/2015 at 17.00.00 Brussels time]	
BG-1-2015 BG-2-2015 BG-7-2015	First stage [24/02/2015 at 17.00.00 Brussels time]	Second stage [11/06/2015 at 17.00.00 Brussels time]

BG-12- 2014/2015 – Open call cut-off dates – Open from 01/03/2014 for phase 1 and phase 2 ⁸⁰	Phase 1 18/06/2014 24/09/2014 17/12/2014	Phase 2 09/10/2014 17/12/2014	Phase 1 [18/03/2015 17/06/2015 17/09/2015 16/12/2015]	Phase 2 [18/03/2015 17/06/2015 17/09/2015 16/12/2015]
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Indicative budget: EUR 100.00 million from the 2014 budget^{81;82}, and EUR 45.00 million from the 2015 budget⁸³

⁷⁸ The Director-General responsible may delay this deadline by up to two months.

⁷⁹ The deadlines provided in brackets are indicative and subject to a separate financing decision for 2015.

⁸⁰ The Director-General responsible may delay this date by up to two months.

⁸¹ The budget amounts for 2014 are subject to the availability of the appropriations provided for in the draft budget for 2014 after the adoption of the budget for 2014 by the budgetary authority or if the budget is not adopted as provided for in the system of provisional twelfths.

⁸² Of which EUR 59.00 million from the societal challenge 'Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy', EUR 3.00 million from the societal challenge 'Secure, clean and efficient energy', EUR 15.00 million from the societal challenge 'Smart, green and integrated transport' and EUR 23 million from the societal challenge 'Climate action, environment, resource efficiency and raw materials'

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

	2014 EUR million	2015 EUR million
BG-1-2015		20.00
BG-2-2015		10.00
BG-3-2014	20.00	
BG-4-2014	6.00	
BG-5-2014	2.00	
BG-6-2014	16.00	
BG-7-2015		8.00
BG-8-2014	20.00	
BG-9-2014	10.00	
BG-10-2014	10.00	
BG-11-2014	4.00	
BG-12-2014/2015	3.00 out of which 0.30 for phase 1 2.64 for phase 2 0.06 for mentoring & coaching support and phase 3	5.00 out of which 0.50 for phase 1 4.40 for phase 2 0.10 for mentoring & coaching support and phase 3
	Single stage for both phase 1 and phase 2. The budget available for phase 1 and phase 2 will be divided equally between each cut-off date.	
BG-13-2014	3.50	
BG-14-2014	3.50	
BG-15-2014	2.00	
BG-16-2015		2.00

Eligibility and admissibility conditions: The conditions are described in parts B and C of the General Annexes to the work programme, with the following exceptions:

BG-5-2014	Duration of projects should be maximum 18 months
BG-11-2014 BG-13-2014	Duration of projects should be minimum 36 months
BG-14-2014	Duration of projects should be minimum 60 months
BG-16-2015	Up to <u>one</u> project per topic shall be funded.
BG-12-2014/2015	Proposals for phase 1 are not required to provide a draft plan for exploitation and dissemination. A proposal for phase 2 shall include a commercialisation plan.

Evaluation criteria, scoring and threshold: The criteria, scoring and threshold are described in part H of the General Annexes to the work programme, with the following exceptions:

⁸³ The budget amounts for 2015 are indicative and will be subject to a separate financing decision to cover the amounts to be allocated for 2015.

BG-12-2014/2015	Proposals will be evaluated individually when they arrive. They will be ranked after the respective cut-off dates. The criterion Impact will be evaluated first, then Excellence and Implementation. If the proposal fails to achieve the threshold for a criterion, the evaluation of the proposal will be stopped. For phase 1 the threshold for individual criteria will be 4. The overall threshold, applying to the sum of the three individual scores, will be 13. For phase 2 the threshold for the criterion Impact will be 4. The overall threshold, applying to the sum of the three individual scores, will be 12. The final consensus score of a proposal will be the median of the individual scores of the individual evaluators; and the consensus report will comprise a collation of the individual reports, or extracts from them. Where appropriate, a Panel Review will be organised remotely. Applicants can provide during the electronic proposal submission up to three names of persons that should not act as an evaluator in the evaluation of their proposal for potential competitive reasons⁸⁴.
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Evaluation procedure: The procedure for setting a priority order for proposals with the same score is given in part H of the General Annexes.

The full evaluation procedure is described in the relevant guide associated with this call.

- Indicative timetable for evaluation and grant agreement:

	Information on the outcome of the evaluation (<i>single or first stage</i>)	Information on the outcome of the evaluation (<i>second stage</i>)	Indicative date for the signing of grant agreements
BG-5-2014 BG-11-2014 BG-13-2014 BG-14-2014 BG-15-2014 BG-16-2015	Maximum 5 months from the final date for submission		Maximum 3 months from the date of informing applicants
BG-1-2015 BG-2-2015 BG-3-2014	Maximum 2 months from the final date for	Maximum 5 months from the final date for	Maximum 3 months from the date of

⁸⁴ If any of the persons identified is an independent expert participating in the evaluation of the proposals for the call in question, they may be excluded from the evaluation of the proposal concerned, as long as it remains possible to have the proposal evaluated.

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

BG-4-2014 BG-6-2014 BG-7-2015 BG-8-2014 BG-9-2014 BG-10-2014	submission	submission	informing applicants
BG-12-2014/2015	Two months after the corresponding cut-off date set out above for phase 1 and four months after the corresponding cut-off date set out above for phase 2		One month from the date of informing applicants in phase 1 and two months from the date of informing applicants in phase 2.

Consortium agreements: In line with the Rules for Participation and the Model Grant Agreement, participants in Research and Innovation Actions or in Innovation Actions are required to conclude a consortium agreement prior to grant agreement.

For the SME instrument, in the case of two or more SMEs submitting a proposal, in line with the Rules for Participation and the Model Grant Agreement, participants are required to conclude a consortium agreement prior to grant agreement.

Call for an Innovative, Sustainable and Inclusive Bioeconomy

H2020-ISIB-2014/2015

Societal Challenge 2 addresses a wide range of key EU policy priorities aiming at fostering an ‘Innovative, Sustainable and Inclusive Bioeconomy’, in line with the Commission Communication ‘Innovating for sustainable Growth: a Bioeconomy for Europe’⁸⁵. This call includes actions aimed at supporting sustainable agriculture and forestry management processes providing public goods and innovative products for sustainable growth; fostering innovation (including social innovation) in rural areas for inclusive growth; and enhancing innovation in the bio-based industry for smart growth. These activities, mainly innovation, market and user-driven are complementary to the ones supported under the two Focus areas calls ‘Sustainable Food Security’ and ‘Blue Growth’.

Most activities related to sustainable and competitive bio-based industries as defined in the Horizon 2020 Specific Programme will be implemented through the Joint Technology Initiative (JTI) on Bio-based Industries⁸⁶. Activities proposed in the current call are complementary to those undertaken by the JTI, and target the supply side of the biomass to bioproducts value chain through the development of innovative feedstocks, research and innovation on next generation bio-refineries using CO₂ as direct feedstock, and supporting markets for bio-based products.

The call ‘Innovative, Sustainable and Inclusive Bioeconomy’ also integrates cross-cutting activities covering all Societal Challenge 2:

- Communication, technology transfer and dissemination activities, seeking to foster citizens' engagement and promote participative governance of the Bioeconomy, respecting a Responsible Research and Innovation; and supporting National Contact Points for Societal Challenge 2;
- actions seeking to bridge the activities and projects under different pillars of Horizon 2020, and help the uptake of research results along the innovation chain;
- activities supporting the completion of the European Research Area through coordination and co-funding of public research programmes relevant to this societal challenge’.
- an inducement prize and a fast track to innovation instrument topic

Proposals are invited against the following topics:

Sustainable Agriculture and Forestry

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

Specific challenge: Traditionally, agricultural and forestry activities have been the provider of manifold – often underappreciated – public goods including ecosystem services. In view of the expected rise in primary production and more intensive production methods, the provision of public goods by agriculture and forestry is threatened, the more since these are considered to be ‘non-excludable’, ‘non-rival’ and therefore without market value. Although the term

⁸⁵ COM(2012)60 final

⁸⁶ <http://bridge2020.eu/about/>

'public goods' is widely used, the concept lacks an operational framework and a common understanding as regards the wider societal and non-market benefits of agriculture and forestry activities – in particular in the context of dynamic changes in land use and farming systems. Thorough evidence on the nature, extent and function of public goods provided by agriculture and forestry – including those of global nature - is required to identify demand as well as to create effective incentives and policy options for their continued provision.

Scope: Proposals should develop a systematic and operational framework to map, characterize and quantify the variety of public goods provided by agricultural and forestry ecosystems throughout Europe. This will include identifying links between economic activities in the primary production sectors and the delivery of public goods (including conflicting demands) as well as important 'disservices' of agriculture resulting in trade-offs as regards the provision of public goods. Proposals should take into account various temporal and spatial scales, different types of cropping, husbandry and forest management systems as well as the diversity and dynamics of climatic, natural, cultural and socio-economic conditions all over the EU. Furthermore, proposals should consider ways in which to valorise and establish effective support measures (policies, incentives, public services) for the delivery of public goods in response to societal expectations. Information and dissemination activities should target a wide range of stakeholders including from policy making, the farming and forestry sectors and allow for their active participation.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 2–3 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- increased understanding of the nature of management and other processes that influence the delivery of public goods by different types of farming and forestry systems in Europe (e.g. by means of a solid inventory)
- development of robust mechanisms and tools for a) measuring and valorising public goods (including in terms of value streams, as relevant) as well as for b) establishing the contributions of the agricultural and forestry sectors to the sustained delivery of these goods
- formulation of appropriate policies, incentives, service models and win-win scenarios to reduce conflicts between productivity objectives in primary production and the delivery of ecosystems services and other public goods
- overall, increased sustainability of primary production by reducing the negative impacts and enhancing the positive contributions of the agriculture and forestry sectors to public goods
-

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: In view of fostering economically viable and sustainable development in agriculture, forestry and rural areas it is essential to close the research and innovation divide. The Agricultural Knowledge and Innovation Systems (AKIS) are very different between

countries, regions and sectors and generally don't fully meet the challenge to increase simultaneously productivity and sustainability in agriculture and rural areas. Despite the continued generation of knowledge through scientific projects, research results are often insufficiently exploited and taken up in practice, and innovative ideas from practice are not captured and spread.

The AKIS Collaborative Working Group of the Standing Committee of Agricultural Research advocates the distinction between science-driven research and innovation-driven research, which are governed by different incentives. Cooperation between research and extension services or farmers and other actors in the supply chain is crucial for innovation-driven research and should be promoted, notably through the EIP. Therefore, mechanisms and networks, which stimulate this interaction and knowledge exchange, should be developed in view of optimising resource use and enhancing the transition to innovation-driven research. Making available science and practice based information is an essential condition for the setting up of EIP operational groups.

Scope: Projects should involve actors from science and agricultural practice and facilitate the exchange on existing knowledge on innovative approaches in agriculture, the supply chain, and rural areas. They should help to put existing research into practice and capture creative ideas from the grassroots-level. Methods for generation of innovation-driven research should be promoted taking into account the diversity of European regions, farming and agro-food systems.

Two types of networks are foreseen: (1) a network focusing on innovation support services, whose activities would include exchange and development of methods for innovation brokering and advisory activities with a focus on innovation, and (2) a number of networks on specific themes. Activities of these networks would include synthesising, sharing and presenting best practices and research results that are near to be put into practice, but not known or tested by practitioners. The resulting innovative knowledge and easy accessible end-user material should feed into the European Innovation Partnership (EIP) 'Agricultural Productivity and Sustainability' for broad dissemination to farmers and other actors in the agricultural innovation chain.

The networks shall involve a wide range of actors concerned by the specific themes, including scientists, farm advisory services, innovation support services, farmers/farmers' groups, various project groups feeding into the EIP, SMEs, etc. Up to one network on innovation support services shall be funded in 2014; all other projects should be networks dealing with specific themes. Proposals should fall under the concept of 'multi-actor approach'⁸⁷.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 2 million per network would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Improved flow of information and knowledge between academia and practitioners in particular on agricultural and forestry practices and innovations
- increased exchanges between European regions on innovative matters; new funding formats enhancing innovation-driven research; more efficient methods for innovation support services

⁸⁷ See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

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

- successful deployment of the vast reservoir of existing scientific and practical knowledge
- focused collection of innovative knowledge on specific themes, a greater user acceptance and intense dissemination of solutions for a more competitive and sustainable agriculture and forestry to farmers and other actors in the agricultural innovation chain
- thematic networks delivering accessible and long-term available end-user material on the themes which should also generate a better targeted and shared research agenda for innovation-driven research and multi-actor projects
- improved skills and education material on innovation approaches and on specific thematic areas
- Support to implementation of the European Innovation Partnership (EIP) 'Agricultural Productivity and Sustainability'.

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: Smart, inclusive and sustainable growth in the EU cannot be achieved without substantial contribution of its rural areas. The key challenge is to foster a balanced development of rural areas by enabling them to capitalize on their distinctive territorial capital and thus 'turn diversity into strength'. Social innovation relates to the development of new forms of organisations and interactions to respond to societal challenges. It is a collective learning process in which different social groups and actors participate and which results in new skills and practices as well as in new attitudes, values, behaviours and governance mechanisms. Although social innovation is considered as an enabler for a transition towards sustainable agriculture and rural development, there is limited empirical evidence of the extent and outcomes of social innovations and on the supporting conditions. Little is known as to how to support social innovation, in particular in marginalised rural areas where the social structure is most fragile. This also raises the challenge of promoting institutional capacity building in these areas, at different levels, to develop the social capital and skills required to support the creation of successful 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 countries⁸⁸.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- clarify the different dimensions of social innovation and its dynamics in agriculture, forestry and rural development
- Identify pathways to unfold the territorial capital of rural regions and thus shape sustainable development trajectories in different types of rural areas
- support more sustainable agri-food and forestry systems and rural development, thus contributing in the medium term to smart, inclusive and sustainable growth in rural areas
- improve territorial governance and pave the way for an integrated approach to rural development (i.e. ensuring effective mechanisms to coordinate different policies and establish appropriate linkages with other areas).
- deliver analyses of different innovative governance mechanisms with respect to social innovation in different contexts
- allow policy makers and the local communities to improve the formulation and delivery of relevant policies as well as to shape such programmes that explicitly foster the creation of sustainable social innovations.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific challenge: The significant societal changes over the last decades and the emergence of new policies, e.g. on biodiversity, bioenergy and climate change (LULUCF accounting, adaptation) trigger the need to enhance the sustainability of a multipurpose EU forestry. The changing context is particularly sensitive for forests, as their lifetime spans over a large period, limiting the adaptation potential. To maintain the socio-economic, and environmental functions of forests, there is need improve the record of forest data, systems of monitoring and management models. This is currently challenged in the EU by the diversity of national and subnational systems of forest inventory, cartography, monitoring and planning, developed in the context of local/regional frameworks of policies and conditions, making the overall assessment of forest management and policy development, difficult. In addition to the work on harmonisation of forest data deriving from the existing national databases, and site-specific adaptive forest management (i.e. breeding, harvesting and wood utilisation), there is further need to close the remaining gaps in the recorded parameter space and provide for consolidated methodologies for estimation of forest data and improved data systems, and develop stand-related techniques and management models responsive to changing conditions on long term, conducive to increased wood production, while meeting the increasing societal demands and bioeconomy objectives.

⁸⁸ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

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

A. [2014] Improved forest data

Proposals should contribute to improvement and harmonization of forest data flowing into European shared environmental information systems (e.g. EFDAC⁸⁹), by means of national forest inventories and monitoring of sustainable forest management. Work on forest data should build on the existing experience of the Member States on forest inventories, monitoring systems and management planning, complement previous projects and COST Actions, such as USEWOOD (FP 1001), FORSYS (FP 0804) or E43, and make innovative use of field-collected data and EC space-based applications on Earth observation and satellite positioning systems (e.g. Copernicus, Galileo). Priority should be given to parameters supporting several policy areas and representative for multipurpose forest management, as well as to parameters previously not systematically collected, such as disturbances. Specific methodologies and products should be readily available for end-users, i.e. forest administration and management planning entities. Data generated during the project must conform to INSPIRE guidelines⁹⁰.

B. [2015] Improved forest management models

Proposals should aim at the improvement of forest management models and stand-related techniques, including but not limited to species composition (including climate-adaptive genetics/breeding and assisted migration), age distribution, rotation/harvesting period, sustainable yields, restocking modalities (afforested land may also be analysed) and natural disturbances risk management. Management models should rely on consistent forest data and provide, in addition to improved wood quality and higher sustainable yields, sustained production of NWFP⁹¹, increased resilience to environmental change, and sustained provision of the whole 'basket' of ecosystem services, in accordance with the evolving societal demands, changing market conditions, and regional differences. Procedures, methodologies and techniques characterising the newly developed models should be readily available for end-users (i.e. forest owners, administration and management planning), and deemed acceptable for the policy actors. Proposals should fall under the concept of 'multi-actor approach'⁹².

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million for (A) or (B) respectively would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Proposals should show how some, or all, of the following impacts will be achieved:

- Strengthening the methodological framework for more accurate and harmonized information derived from forest inventories and monitoring systems, above the present state of the art, able to feed into the EU information systems.
- Further support in the development of EU policies and international processes relying on consistent forest information, such as UNFCCC⁹³, and contribution to further development of GEOSS (Global Earth Observation System of Systems) and the related GFOI initiative (Global Forest Observing Initiative).

⁸⁹ European Forest Data Centre

⁹⁰ Infrastructure for Spatial Information in the European Community

⁹¹ Non-Wood Forest Products

⁹² See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

⁹³ United Nations Framework Convention on Climate Change

- Forest management models geared to sustainable supply of wood for material and energy use, supporting further development of the bioeconomy.
- Forest stands resilient in a continuously changing environment (including climate change), while preserving the capacity to provide for NWFP and essential ecosystem services such as carbon sequestration, biodiversity conservation, water regulation, soil and nutrient regulation, and recreation.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

Sustainable and competitive bio-based industries

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

Specific challenge: At present, oil crops are already an important source of innovative bio-based products such as bioplastics, lubricants, paints or added value fine chemicals. With the opening of new markets for these products the demand for oil crops is increasing. The challenge for Europe here is to sustainably match this demand without increasing our dependency on external biomass or competing with food production or increasing environmental pressure (particularly on soil and land). The development of dedicated and optimised multipurpose oil crops, the full use of the biomass in a cascade approach as well as the environmentally sound and sustainable use of natural resources should be key to meet this challenge.

Scope: Proposals should focus on development of dedicated and optimised oil crops adapted to industrial needs. Research should encompass gene discovery and optimisation through to full use of biomass oil including vegetative tissues and ensure efficient exploitation of the residual biomass through modern breeding technologies. It should consider the environmental aspects (e.g. organic matter levels, biodiversity impact and water needs) of such full use of biomass. It should also ensure development of oil production with sufficient quantity, quality and homogeneity. The concepts should take into account the cascading approach and focus on added value products. A strong participation of SMEs should contribute to the realisation of the expected outcomes. Proposals should include demonstration activities to assess the techno-economic viability of the proposed concepts. The Technology Readiness Levels covered by the projects should range from 4 to 6; please see part G of the general Annexes. The overall economic, social and environmental sustainability issues as well as its Life Cycle Assessment should also be critical elements.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 10 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Broadening the range of suitable oil feedstock candidates with optimally-lowered resource inputs and developing economically viable and sustainable, eco-friendly end bio-based products
- Measurable improvement of critical aspects along the value chain from the cultivation issues, to optimisation of desired biochemical parameters and extraction of oils and other biomolecules, to improved valorisation of the raw materials, to allow development of industrial end products.

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- Contribution to European policy initiatives, including the EU Bioeconomy strategy and the EU Innovation Policy as well as to other related policies such as Lead Market Initiative on bio-based products.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

ISIB-6-2015: Converting CO₂ into chemicals

Specific challenge: The CO₂ originating from the use of fossil resources continues to accumulate in the atmosphere, accelerating climate change with disrupting impacts on the biosphere. The chemical industry which heavily relies on these non-renewable and scarce fossil resources is looking for sustainable alternative resources to deliver the chemicals our society needs without the related environmental burden. While there are important scientific and technological challenges hindering the exploitation of CO₂ as a chemical feedstock, it offers great potential to couple environmental protection and economic growth.

Scope: Proposals should address innovative technologies to use CO₂ from the atmosphere or captured in industrial processes as a direct feedstock for chemical production beyond algal biorefinery concepts. One or several routes that involve the conversion of CO₂ into valuable chemicals should be explored, such as (photo) catalytic or biochemical/enzymatic or other novel process technologies. Examples include the use of microbial electrosynthesis, the use of photosystems from plants outside the plant cells - or to construct artificial carbon fixation pathways that are more efficient than naturally occurring ones. The Technology Readiness Levels covered by the projects should range from 3 to 5; please see part G of the general Annexes.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Scientific and technological breakthroughs for the conversion of CO₂ into chemicals which can lead to the design of industrial processes with zero or even negative greenhouse gas emissions;
- Providing at the long term real opportunity for regions where the biomass availability is less plentiful, as is the case in Europe.

Considering the rather front-edge character of the proposed field, the impact is expected to be in the medium to long term.

Type of action: Research and innovation actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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

Specific Challenge: The potential for increasing demand for bio-based products through public procurement is huge, as European public authorities spend almost EUR 2000 billion, or 16% of GDP, on goods and services yearly. Many product areas could potentially feature

products made entirely or partly from renewable bio-based material. Likewise, many types of services could potentially benefit from bio-based inputs.

By introducing requirements for sustainability in tender specifications, the demand from public authorities could significantly increase the market for bio-based products and drive technological innovation in this market area.

Scope: Proposals should undertake coordination and support activities to investigate the feasibility and prepare the launch of a Public Procurement of Innovation (PPI) on biobased products and services. Activities should include:

- The identification of procurement needs that are common to the participating public procurement bodies;
- Determining the state-of-the art of potentially available bio-based products of interest;
- Developing and promoting the use of common environmental and functional/performance based requirements specifications, including the need for standardised measurement and testing methodologies, as well as other approaches for criteria setting and their verification;
- Intensifying the link between public procurers and standardisation bodies sharing information and facilitating collaboration;
- Improving procurers knowledge and capabilities by joint trainings, workshops and other networking activities;
- Carrying out the necessary legal work to ensure that the procurement complies with European and national law;
- Engaging on public dialogue on bio-based products.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- Lowering barriers and increasing bio-based products market segment by triggering demand for innovation through public procurement;
- Improving skills of public actors in designing procurement initiatives and increasing consumer awareness on bio-based products as well as developing decision making tools;
- Contributing to the objectives of the Lead Market Initiative on bio-based products and EU Innovation Policy, as well as other related policies such as Green Public Procurement.

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

Cross-cutting actions covering all activities

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

Specific challenge: The bioeconomy encompasses the production of renewable biological resources and the conversion of these resources and waste streams into value added products,

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

such as food, feed, bio-based products and bioenergy⁹⁴. It cuts across many different sectors and research and innovation fields, and has a wide range of socio-economic implications. Addressing comprehensively inter-connected societal challenges related to the bioeconomy requires: 1. Ensuring a responsible and participative governance, by overcoming the current lack of information and public debate on the bioeconomy, while responding to citizens' needs and concerns, by providing adequate support to new promising markets, and by reconciling conflicting policies and ethical concerns; and 2. Integrating efforts undertaken throughout all steps of the research and innovation chain, to facilitate the flow from discovery to market applications and to speed up the innovation process.

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

A. Engaging society, reaching end users and linking with policy makers for a participative governance of the bioeconomy⁹⁵

Proposals should foresee high impact information, awareness raising, educational and debate activities on the bioeconomy. They should address the creation of national or regional multi-stakeholder bioeconomy platforms, for informed debates involving policy makers, the various stakeholders (scientists, business, non-governmental organisations, etc.) and citizens, building on existing tools (such as the Bioeconomy Observatory) and scientific studies (such as foresight). These platforms should also facilitate the development of balanced and informed national and regional bioeconomy strategies.

B. Bridging research and innovation efforts for a sustainable bioeconomy⁹⁶

Proposals should create links among various bioeconomy-related research and innovation activities carried out under different parts of Horizon 2020 and of the Seventh Framework Programme. This should foster knowledge transfer of best practice in sustainable process and technologies and facilitate the flow from discovery to further research and innovation (e.g. through twinning, networking, exchanges) and help discoveries to reach the market faster.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 1–2 million for (A) or (B) respectively would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Proposals should show how some, or all, of the following impacts will be achieved:

- Engage the public to develop an understanding of the bioeconomy and its consequences and benefits.
- Improve the availability and quality of information on bioeconomy products and processes, including their social, economic and environmental impacts and the related ethical concerns, and foster future-oriented multi-stakeholders dialogues
- Facilitate the development and acceptability of regional and national bioeconomy strategies

⁹⁴ COM(2012) 60 final

⁹⁵ During the negotiation and implementation phases, synergies and complementarities with actions that will be selected under topics BG-13 and ISIB-3 should be ensured.

⁹⁶ During the negotiation and implementation phases, synergies and complementarities with actions that will be selected under topics BG-11 and ISIB-2 should be ensured.

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- Speed up the pace of innovation, by bridging the gap between discovery and market, through closer ties between activities throughout the research and innovation chain
- Contribute to increasing the number of innovative products and processes reaching the market, and increasing the number of new companies and new jobs created from EU-funded research and innovation projects. Impacts could also be important on standards and policy development.

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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’

Specific challenge: Facilitate trans-national co-operation between NCPs within Horizon 2020 Societal Challenge 2 on ‘Food Security, Sustainable Agriculture, Marine and Maritime Research and the Bioeconomy’ and the Key Enabling Technology (KET) ‘Biotechnology’ with a view to identifying and sharing good practices and raising the general standard of support to programme applicants, taking into account the diversity of actors that make up the constituency of this Societal challenge and the 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 welcome⁹⁷.

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.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 2 million would allow this specific challenge to be addressed appropriately.

⁹⁷ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

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Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- An improved and professionalised NCP service across Europe, thereby helping simplify access to Horizon 2020 calls, lowering the entry barriers for newcomers, and raising the average quality of proposals submitted.
- A more consistent level of NCP support services across Europe and in connection with the rest of the world.

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

ISIB-10-2014: Networking of Bioeconomy relevant ERA-NETs⁹⁸

Specific challenge: More than 30 ERA-NETs have been set-up in the Sixth and Seventh Framework Programmes on a wide range of scientific subjects and disciplines relevant to the Bioeconomy. While focusing on different scientific areas, they all work towards achieving a common goal of the transnational networking and coordination of national research programmes and address a number of horizontal issues, such as the mapping of existing research potential and foresight activities, the launching of joint calls and addressing the challenges of IPR rules and bioethical concerns.

Scope: Proposals should build on the results expected by the PLATFORM network of Bioeconomy relevant ERA-NETs with the aim to further expand the network and strengthen the initiatives undertaken for mutual learning, maximising synergies and increased coordination. The activities of PLATFORM should be continued under Horizon 2020 in close liaison with Joint Programming Initiatives (JPI) and Strategic & Collaborative Working Groups of SCAR, thus helping rationalising on limited resources for maximum impact.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 0.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- achieve a more effective and harmonised environment for the ERA-NETs
- contribute to the European Research Area in the Bioeconomy.

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

⁹⁸ This activity directly aimed at supporting public-public partnerships with Member States and associated countries, technology platforms with industrial partners and earth observation networks is excluded from the delegation to REA and will be implemented by the Commission services.

ISIB-11-2014: Coordination action in support of the implementation by participating States of a Joint Programming Initiative on Agriculture, Food Security and Climate Change⁹⁹

Specific challenge: Following the implementation of the actions foreseen by the Commission's Communication on Joint Programming to tackle Europe's major societal challenges, the Competitiveness Council has welcomed the progress made by EU Member States in Joint Programming Initiatives launched so far and especially in the Agriculture, Food Security and Climate Change Joint Programming Initiative (FACCE JPI) tackling the combined challenges of food security against the continuous threats from climate change, global population increase, and food and non-food demand. Several Council Conclusions on Joint Programming¹⁰⁰ invite the Commission to support JPIs via Coordination and Support Actions.

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 favour 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 implementation of SRA such as synchronised 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 countries¹⁰¹.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: In coordination with the SCAR Committee and relevant Bioeconomy ERA-NETs, proposals are expected to:

- promote the uptake of the FACCE SRA in national programmes and activities in order to reduce overlaps
- ensure coordination with Horizon 2020 objectives, with a scale and scope of action that should go well beyond what either the EU or Member States can achieve on their own.

Type of action: Coordination and support actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

⁹⁹ This activity directly aimed at supporting public-public partnerships with Member States and associated countries, technology platforms with industrial partners and earth observation networks is excluded from the delegation to REA and will be implemented by the Commission services.

¹⁰⁰ Council Conclusions of 12 October 2010, of 26 November 2010 and of 8 December 2011

¹⁰¹ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

ISIB-12-2014/2015: Public-Public Partnerships in the bioeconomy¹⁰²

Specific challenge: Agriculture, forestry and the agri-food sector are integral parts of the European economy and society. They are subject to multiple pressures from external drivers, which include rising food, feed, fuel and fibre demand, globalisation, environmental changes and public health aspects, and are constrained by planetary boundaries such as land and water limits. With the expected increase in global population, demand for animal food products and competition for natural resources, agriculture and forestry will need to become more efficient, and sustainable.

Scope: Proposals should address one of the following issues (A), (B), (C), (D), (E), or (F) 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 marginalisation, 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 CH₄ and N₂O 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.

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.

¹⁰² This activity directly aimed at supporting public-public partnerships with Member States and associated countries, technology platforms with industrial partners and earth observation networks is excluded from the delegation to REA and will be implemented by the Commission services.

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 agriculture and food systems, in particular the FACCE and HDHL Joint Programming 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 programmes¹⁰³.

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

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million for (A), (B), (C), (D), (E), or (F) respectively would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- improve coordination and reduce the overlap between national and EU funding in relevant fields of research;
- achieve a critical mass and ensure better use of limited resources in fields of mutual interests;
- share good practices in implementing research programmes;
- promote transnational collaboration and new knowledge generation and innovation;
- mobilise SMEs, when appropriate, in the transnational projects to enhance innovation.
- provide mapping of on-going research activities (where relevant);
- establish a network of research activities carried out at national and regional level, including a mutual opening of national and regional research programmes (where relevant).

Type of action: ERA-NET Cofund

The conditions related to this topic are provided at the end of this call and in the General Annexes.

¹⁰³ This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

HORIZON 2020 – WORK PROGRAMME 2014-2015

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

CONDITIONS FOR THIS CALL

Publication date: 11/12/2013

Deadlines^{104;105}:

ISIB-2-2014 ISIB-7-2014 ISIB-8A-2014 ISIB-8B-2014 ISIB-9-2014 ISIB-10-2014 ISIB-11-2014 ISIB-12A-2014	26/06/2014 at 17.00.00 Brussels time	
ISIB-1-2014 ISIB-4A-2014 ISIB-5-2014	First stage 12/03/2014 at 17.00.00 Brussels time	Second stage 26/06/2014 at 17.00.00 Brussels time
ISIB-2-2015 ISIB-12B-2015 ISIB-12C-2015 ISIB-12D-2015 ISIB-12E-2015 ISIB-12F-2015	[11/06/2015 at 17.00.00 Brussels time]	
ISIB-3-2015 ISIB-4B-2015 ISIB-6-2015	First stage [24/02/2015 at 17.00.00 Brussels time]	Second stage [11/06/2015 at 17.00.00 Brussels time]

Indicative budget: EUR 44.5 million from the 2014 budget¹⁰⁶, and EUR 42 million from the 2015 budget¹⁰⁷

	2014 EUR million	2015 EUR million
ISIB-1-2014 ISIB-3-2015	5.00	6.00
ISIB-2-2014/2015	10.00	10.00
ISIB-4-2014/2015	5.00	5.00
ISIB-5-2014 ISIB-6-2015	10.00	6.00

¹⁰⁴ The Director-General responsible may delay this deadline by up to two months.

¹⁰⁵ The deadlines provided in brackets are indicative and subject to a separate financing decision for 2015.

¹⁰⁶ The budget amounts for 2014 are subject to the availability of the appropriations provided for in the draft budget for 2014 after the adoption of the budget for 2014 by the budgetary authority or if the budget is not adopted as provided for in the system of provisional twelfths.

¹⁰⁷ The budget amounts for 2015 are indicative and will be subject to a separate financing decision to cover the amounts to be allocated for 2015.

HORIZON 2020 – WORK PROGRAMME 2014-2015

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

ISIB-7-2014	2.00	
ISIB-8-2014	3.00	
ISIB-9-2014	2.00	
ISIB-10-2014	2.50	
ISIB-11-2014		
ISIB-12-2014/2015	5.00	15.00

Eligibility and admissibility conditions: The conditions are described in parts B and C of the General Annexes to the work programme, with the following exceptions:

ISIB-9 ISIB-10 ISIB-11 ISIB-12	Up to <u>one</u> project per topic or sub-scope shall be funded.
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Evaluation criteria, scoring and threshold: The criteria, scoring and threshold are described in part H of the General Annexes to the work programme.

Evaluation procedure: The procedure for setting a priority order for proposals with the same score is given in part H of the General Annexes.

The full evaluation procedure is described in the relevant guide associated with this call.

- Indicative timetable for evaluation and grant agreement:

	Information on the outcome of the evaluation (<i>single or first stage</i>)	Information on the outcome of the evaluation (<i>second stage</i>)	Indicative date for the signing of grant agreements
ISIB-2-2014/2015 ISIB-7-2014 ISIB-8-2014 ISIB-9-2014 ISIB-10-2014 ISIB-11-2014 ISIB-12-2014/2015	Maximum 5 months from the final date for submission		Maximum 3 months from the date of informing applicants
ISIB-1-2014 ISIB-3-2015 ISIB-4-2014/2015 ISIB-5-2014 ISIB-6-2015	Maximum 2 months from the final date for submission	Maximum 5 months from the final date for submission	Maximum 3 months from the date of informing applicants

Consortium agreements: In line with the Rules for Participation and the Model Grant Agreement, participants in Research and Innovation Actions or in Innovation Actions are required to conclude a consortium agreement prior to grant agreement.

Fast Track to Innovation – Pilot

It is to be noted that the following information is provided at this stage only to facilitate the familiarisation with this topic. The Commission will provide in due course full details, together with the announcement of the relevant calls, on the Fast track to Innovation Topic.

The general aspects of this topic are as follows:

Under this Fast Track to Innovation (FTI) pilot, proposals for innovation actions linked to any technology field will be invited, on the basis of a continuously open call (with its first cut-off date in 2015) and a bottom-up-driven logic.

Any legal entity may participate and proposals may be submitted at any time. The Commission shall initiate three cut-off dates per year to evaluate proposals. Time between a cut-off date and signature of the grant agreement or notification of the grant decision shall not exceed six months. No more than 5 legal entities shall participate in an action. The amount of the grant shall not exceed EUR 3 million.

Proposals shall be ranked according to the impact, quality and efficiency of implementation and excellence, with the criterion of impact given a higher weighting. Factors such as time sensitivity and the international competitive situation shall be taken into sufficient account when evaluating the impact of a proposal, to allow for flexibility according to the various specificities within different fields of applied research.

Other actions (not subject to calls for proposals)^{108;109}

1. External expertise

This action will support the use of appointed independent experts for the evaluation of project proposals and, where appropriate, for the monitoring of running projects and ex-post evaluation of the programme.

Type of action: Expert contracts

Indicative timetable: First half of 2014 and first half of 2015

Indicative budget: EUR 3.62 million from the 2014 budget¹¹⁰ and EUR 3.50 million from the 2015 budget¹¹¹

2. Group of independent experts for policy relevant analyses and forward looking reflection on Bioeconomy related research

A group of independent experts should be established to provide a better understanding into existing and new trends which are of importance for the development of the European Bioeconomy. In this respect, in the framework of the Monitoring and Signalling Mechanism (MSM) established in support of the SCAR foresight process, an ad hoc foresight expert group formed by high-level independent experts should be contracted by the Commission, with the task to build on the 3 previous SCAR foresight rounds as well as recent exercises (i.e. JRC Foresight Global Food Security ending in June 2014) and deliver new insight about possible changes of importance for the development of the European Bioeconomy. The study should be conducted in close cooperation with relevant activities within on-going initiatives (i.e. SWG on Sustainable Bioresources, SWG on Forestry) and future foresights conducted by the Bioeconomy Observatory.

Type of action: Expert contracts (for group of experts ‘Experts group’)

Indicative timetable: First half of 2014

Indicative budget: EUR 0.20 million from the 2014 budget¹¹²

¹⁰⁸ The budget amounts for 2014 are subject to the availability of the appropriations provided for in the draft budget for 2014 after the adoption of the budget for 2014 by the budgetary authority or if the budget is not adopted as provided for in the system of provisional twelfths.

¹⁰⁹ The budget amounts for 2015 are indicative and will be subject to a separate financing decision to cover the amounts to be allocated for in 2015

¹¹⁰ Subject to the adoption of the draft budget 2014 by the Budgetary Authority without modifications of the appropriations foreseen on the corresponding budget line or the availability of appropriations in 2014 under the rules of provisional twelfths referred to in Article 315 of TFEU.

¹¹¹ These amounts will be included in the financial decision for 2015.

3. Inducement prize for an Innovative, Sustainable and Inclusive Bioeconomy

Inducement prizes stimulate new and innovative solutions to address the existing and emerging societal challenges that are otherwise rarely pursued via normal grants and business processes in enterprises. Prizes in the key area of the bioeconomy will be awarded on the basis of a pre-defined, audacious yet feasible target has been reached. The specific rules of the contest are subject to the outcome of an on-going study for the development and design of an inducement prize in the key area of the bioeconomy under Horizon 2020.

Type of action: Inducement prize

[Date of publication of the contest: The specific rules of the contest will be published in 2015]

Indicative budget: EUR 2.00 million from the 2015 budget¹¹³

¹¹² Subject to the adoption of the draft budget 2014 by the Budgetary Authority without modifications of the appropriations foreseen on the corresponding budget line or the availability of appropriations in 2014 under the rules of provisional twelfths referred to in Article 315 of TFEU.

¹¹³ These amounts will be included in the financial decision for 2015.

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

Calls	2014¹¹⁴ Budget EUR million¹¹⁵	2015¹¹⁶ Budget EUR million
Call H2020-SFS-2014/2015 Sustainable food security	138.00 <i>of which 36.00 from 05.090301 and 102.00 from 08.020302</i>	110.50
Call H2020-BG-2014/2015 Blue growth: unlocking the potential of Seas and Oceans	59.00 ¹¹⁷ <i>from 08.020302</i>	26.00 ¹¹⁸
Call H2020-ISIB-2014/2015 Innovative, sustainable and inclusive bioeconomy	44.50 <i>of which 15.00 from 05.090301 and 29.5 from 08.020302</i>	42.00
Contribution from this societal challenge to call ‘H2020-PHC-2014/2015’ (under Part 8 of the work programme)	5.00 <i>from 08.020302</i>	
Contribution from this societal challenge to call ‘H2020-WASTE-2014/2015’ (under Part 12 of the work programme)	9.00 <i>from 08.020302</i>	14.00
Contribution from this societal challenge to call ‘H2020-WATER-2014/2015’ (under Part 12 of the work programme)		3.00

¹¹⁴ Subject to the availability of the appropriations provided for in the draft budget for 2014 after the adoption of the budget for 2014 by the budgetary authority or if the budget is not adopted as provided for in the system of provisional twelfths.

¹¹⁵ The budget figures given in this table are rounded to two decimal places.

¹¹⁶ The budget amounts are indicative and will be subject to a separate financing decision to cover the amounts to be allocated for 2015.

¹¹⁷ To which EUR 3.00 million from the societal challenge ‘Secure, clean and efficient energy’ (budget line 08.020303), EUR 15.00 million from the societal challenge ‘Smart, green and integrated transport’ (budget line 08.020304) and EUR 23.00 million from the societal challenge ‘Climate action, environment, resource efficiency and raw materials’ (budget line 08.020305) will be added making a total of EUR 100.00 million for this call.

¹¹⁸ To which additional funding from other parts of Horizon 2020 will be added making a total of EUR 45.00 million for this call.

HORIZON 2020 – WORK PROGRAMME 2014-2015

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

Other Actions	2014¹¹⁹ Budget EUR million¹²⁰	2015¹²¹ Budget EUR million
Experts (expert evaluators, experts groups, monitors)	3.82 <i>of which 0.62 from 05.090301 and 3.20 from 08.020302</i>	3.50
Prize		2.00

Horizontal activities (08. 020501)	2014¹²² Budget EUR million¹²³	2015¹²⁴ Budget EUR million
Dissemination activities (see Part 17 of the work programme)	0.37 <i>of which 0.16 from 05.090301 and 0.21 from 08.020305</i>	—
Corporate communication (see Part 17 of the work programme)	0.20 <i>of which 0.09 from 05.090301 and 0.11 from 08.020302</i>	—

Estimated total budget	259.89	201.00
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¹¹⁹ The budget amounts for 2014 are subject to the availability of the appropriations provided for in the draft budget for 2014 after the adoption of the budget for 2014 by the budgetary authority or if the budget is not adopted as provided for in the system of provisional twelfths.

¹²⁰ The budget figures given in this table are rounded to two decimal places.

¹²¹ The budget amounts for 2015 are indicative and will be subject to a separate financing decision to cover the amounts to be allocated for 2015.

¹²² The budget amounts for 2014 are subject to the availability of the appropriations provided for in the draft budget for 2014 after the adoption of the budget for 2014 by the budgetary authority or if the budget is not adopted as provided for in the system of provisional twelfths.

¹²³ The budget figures given in this table are rounded to two decimal places.

¹²⁴ The budget amounts for 2015 are indicative and will be subject to a separate financing decision to cover the amounts to be allocated for 2015.