



International Cooperation in Horizon 2020

EU and South Africa

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In addition to the topics mentioned herein the European Commission flagged the following call topics (listed on page 10 in the [Roadmap for EU-South Africa S&T cooperation](#) and on page 9 in the [Roadmap for EU-African Union S&T cooperation](#)) as being particularly and thematically suitable for international STI cooperation with South Africa.

Industrial Leadership

Horizon 2020 Pillar:	Industrial Leadership
Programme:	Leadership in Enabling and Industrial Technologies - Space
Call Title:	Space 2018-2020
Call Identifier:	h2020-space-2018-2020
Topic Title:	International Cooperation Copernicus – Designing EO downstream applications with international partners
Topic Identifier:	DT-SPACE-06-EO-2019
Type of Action:	RIA Research and Innovation action
Deadline(s):	12-03-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-space-06-eo-2019.html>

Specific Challenges: Copernicus, the Union's Earth observation and monitoring programme produces a wealth of data and information regarding the Earth sub-systems (land, atmosphere, oceans) and cross-cutting processes (climate change, emergency and security). Cooperation with international partners is key to promoting the uptake of Copernicus globally, exploiting possibilities for integrating in-situ, space data and information technologies. Building the Copernicus full, free and open data policy, the Commission seeks to facilitate access to Copernicus data and information for interested international partners. Administrative cooperation arrangements on Copernicus data access and earth observation data exchange have already been signed with the United States and Australia, and discussions towards similar cooperation have been started with other countries and regions (including **Africa**, Latin American countries and Asia-Pacific countries).

Cooperation with partner countries should be fostered with a view to using Copernicus data to jointly develop algorithms, services and/or products which serve local user needs and/or enhance the Copernicus global product quality.

It is encouraged to cooperate on data processing and applications using the Copernicus DIAS, integrate third-party data (including in-situ data) and envisage data assimilation into models and products made available on the Copernicus platform of the Copernicus services.

For such applications and developments to succeed in the market or with public users, the products need to be shaped according to users' needs and their value to users must be openly demonstrated to the wider user

community. This needs to be achieved in an environment integrated at the level of the user, in order for users to accept the innovative potential which the product promises. This will require also specific attention to be given to the various processes in place in the users' workflows which incorporate the EO information. Furthermore, the transition of R&D product prototypes to viable commercial product lines after the end of the EU funded phase remains a challenge to be addressed early on during product development.

Scope: Proposals shall address a wide variety of applications stemming from the use of Earth observation and their smart integration with other related technologies. Copernicus should be considered as part of the solution which may include other space or non-space inputs. This is likely to lead to greater value, opportunities and especially market uptake. Applications shall be sustained by a production process capable of delivering to the user a product which is validated and accepted as a marketable product in the international partner country. International collaboration has a key role to play in this context, as it enhances access to markets beyond the national borders, notably by enabling space application providers to absorb market-related tacit knowledge and know-how of their partners. Corresponding validations and customisations are to be undertaken, and the business case for the application is to be demonstrated. Service level models are to be developed, with appropriate quality of service definitions for the application. Application products are expected to adopt open standards for data documentation, data models and services including data processing, visualisation and cataloguing on a large scale.

Activities shall include joint cal/val activities or integration of local in-situ systems to enhance service products. It is important to exploit the added value of integration of EO observation technologies (both satellite, airborne and ground based) with positioning ones, and ICT (enhancing new frontiers opened by cloud computing) from international partner countries through the development of applications, and encourage their insertion into the market.

The choice of EO application is left to the proposer.

Applicants are advised to consult further information on the availability of Copernicus Sentinel Data, access to Copernicus Contributing Mission data, as well as issues recommended to be detailed in the proposals via the Commission's Copernicus website^[1].

For projects to be funded under this topic:

- Participation of partners from countries that have signed a Copernicus Cooperation Arrangement^[2] is required;
- Participation of industry, in particular SMEs, is encouraged;
- Participation of partners involved in international GEO initiatives is encouraged.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This topic contributes to the Horizon 2020 focus area "Digitising and transforming European industry and services".

Expected Impact:

- Establish sustainable supply chains for innovative EO value added products and services with demonstrated commercial value with international client communities;
- Complete integration, based on international standards, into the customer's existing business processes and processing chains, as well as the economic viability of the application is to be demonstrated;
- Enhance the European industry's potential to take advantage of market opportunities and establish leadership in the field and to boost business activity;
- Lead to new or improved products, processes or services on the market that are capable of generating within 3 years after the end of public funding a significant turnover for the participants, and create new jobs;
- Lead to an improved quality of the Copernicus global product, thereby enhancing the staving of Copernicus data and information in a global environment and GEOSS.

Cross-cutting Priorities: International cooperation

^[1] <http://www.copernicus.eu/main/data-access>

^[2] See Copernicus.eu for list of countries concerned

Societal Challenges

Horizon 2020 Pillar:	Societal Challenges
Programme:	Climate action, environment, resource efficiency and raw materials
Call Title:	Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement
Call Identifier:	h2020-lc-cla-2018-2019-2020
Topic Title:	Human dynamics of climate change
Topic Identifier:	LC-CLA-05-2019
Type of Action:	RIA Research and Innovation action
Deadline(s):	19-02-2019,04-09-2019 (two-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-cla-05-2019.html>

Specific Challenges: As climatic changes increasingly place populations under pressure, human beings are already adapting. However, less developed countries – particularly in **Africa** – are often less resilient to climate change and require the deployment of appropriate support to adaptation, including in the form of bespoke climate services tailored to users' needs. There is some evidence that climate change may already be playing a role in shaping population migration patterns around the world (e.g. **Africa** to Europe). It is important to make use of the wealth of available socio-economic and geophysical data to better understand these patterns in order to develop appropriate policy responses.

Scope:

Actions should address only one of the following sub-topics:

- a. Climate services for **Africa**: Actions should exploit new, relevant climate data made available by Copernicus and other relevant sources (such as GEOSS) and create dedicated climate services for **Africa** for at least two of the following sectors: water, energy, land use^[1], health and infrastructure. Actions should develop and deliver tools/applications which demonstrate clear end-user engagement, consultation and participation, and which enhance planning and implementation of climate adaptation strategies in **Africa**. Actions should consider activities addressed by other initiatives such as the Global Framework for Climate Services (GFCS), Copernicus, and development cooperation activities, and provide added value.

Actions should further consider the EU-**Africa** Research and Innovation Partnership on Climate Change and Sustainable Energy^[2].

- b. Climate and human migration: Actions should identify and analyse drivers relating to climate change that may affect human migration and displacement patterns. Actions should – using a multidisciplinary approach – identify and describe climate parameters, develop analytical methodologies, and demonstrate how these relate to human migration patterns, including the probability of migration/forced displacement and design adaptation solutions that may help in alleviating migration pressures at the source. They should also provide guidelines and policy recommendations for the European Agenda on Migration. Actions may also harness local knowledge and information by engaging with civil society organisations and citizen groups.

For both of the sub-topics, in line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged^[3].

The participation of social sciences and humanities disciplines is encouraged to address the complex challenges of this topic, including challenges associated with relevant gender issues.

The Commission considers that proposals requesting a contribution from the EU of between EUR 5 million and 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:

The project results are expected to contribute to:

- better policy making for climate adaptation in partner countries and Europe;
- supporting international scientific assessments such as the IPCC Assessment Reports;
- stronger adaptive capacity and climate resilience.

Cross-cutting Priorities: International cooperation, Socio-economic science and humanities, Open Innovation, Gender

^[1] Links may be established with the project(s) resulting from topic SFS-43-2017: Earth observation services for the monitoring of agricultural production in **Africa**.

^[2] COM (2017) 17 final: Joint Communication to the European Parliament and the Council for a renewed impetus of the **Africa**-EU Partnership: see <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017JC0017&from=EN>

^[3] Proposals should pay attention to the special call conditions for this topic.

Horizon 2020 Pillar:	Societal Challenges
Programme:	Europe in a changing world – Inclusive, innovative and reflective societies
Call Title:	Migration
Call Identifier:	h2020-sc6-migration-2018-2019-2020
Topic Title:	International protection of refugees in a comparative perspective
Topic Identifier:	MIGRATION-07-2019
Type of Action:	RIA Research and Innovation action
Deadline(s):	14-03-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/migration-07-2019.html>

Specific Challenges: While policy areas such as development or trade benefit from global governance structures, a global refugee governance regime is still in its infancy. The challenge is to safeguard international law standards on the treatment of asylum seekers and internally displaced persons, address imbalances in sharing responsibilities, and ensure the EU plays a key role globally while also aligning the reform of its common asylum system to feed into the emerging regime of global asylum governance.

Scope: Proposals should examine the processes and content of the emerging international protection system, e.g. following the United Nations commitment for the adoption of a global asylum compact as well as its implementation in comparative perspective, with special focus on the EU's role and engagement. They should examine how sharing responsibilities, transferring skills and capabilities, can be organised as well as the compatibility of the emerging global asylum regime with international law, including international conventions on refugees and human rights. The EU arrangements with refugees' origin and transit countries should be assessed. Proposals should advise on the future development of asylum policies and their implementation both globally and within the EU, also addressing issues around both gender issues and equality. They should include comparative assessment of existing legal responses to protection needs and explore future options and their compatibility with international refugee law, with a view to also identifying durable solutions. Particular attention should be paid to the protection of vulnerable groups such as minors, unaccompanied or with their families, including from all forms of abuse and exploitation, and

women and girls from gender-based violence and discrimination. International cooperation is encouraged, in particular with Canada, Brazil, **South Africa** and Jordan, as well as relevant international organisations. Furthermore, the involvement of refugee and migrant scientists and scholars from relevant disciplines is strongly encouraged.

The Commission considers that proposals requesting a contribution from the EU in the order of EUR 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: The action will significantly advance the knowledge base on global migration and asylum governance by evaluating the process, discourses and outcomes of the planned compact on refugees. The action will assist European policymakers with identifying suitable strategies for engagement in the process leading to the implementation of the global refugee compact. They will also inform the EU's reform process of its common asylum system.

Horizon 2020 Pillar:	Societal Challenges
Programme:	Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy
Call Title:	Blue Growth
Call Identifier:	h2020-bg-2018-2020
Topic Title:	All Atlantic Ocean Research Alliance Flagship
Topic Identifier:	BG-08-2018-2019
Type of Action:	CSA Coordination and support action
Deadline(s):	13-02-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bg-08-2018-2019.html>

Specific Challenges: The Atlantic Ocean is an invaluable shared resource. The societal value of its blue economy is enormous for countries located on its shores. There are however, still considerable gaps in our knowledge and understanding of processes related to this ocean especially with regard to its chemistry, ecology, biodiversity, impacts of climate and the potential for the sustainable exploitation of its natural resources including aquaculture. The Atlantic Ocean is subject to a range of pressures, such as impacts related to climate change, pollution, fishing above sustainable levels, mining and coastal eutrophication. Both remote and local forces play a role in these changes and it is necessary to consider local, regional and basin-wide drivers and factors to understand, predict and adapt to change. Furthermore, the potential of seafood to reduce food and nutrition insecurity calls for collaboration at international level. Having already demonstrated how successful research cooperation can be in the North Atlantic Ocean^[1] in tackling some of these issues, the objective now is to take a systemic approach to tackle the scientific and socio-economic challenges and to move towards a basin-wide cooperation from Antarctica to the Arctic, through enhanced cooperation with countries bordering the South Atlantic, notably Brazil and **South Africa**^[2].

Scope: The actions shall aim at understanding and sustainably managing the Atlantic Ocean as a whole, through a large-scale basin effort involving both the northern and the southern parts of this ocean and its interlinks with the adjacent areas. In order to achieve this, it is necessary to bring together and systematically connect scientists, stakeholders, data, knowledge, expertise, capacities, and resources. This is only feasible through the synergistic

cooperation among the bordering countries. With the development of a South Atlantic Ocean Science Plan^[3] focusing on the challenges and research needs of the South Atlantic Ocean, which are also interconnected with the challenges and research needs of the North Atlantic Ocean, this cooperation can converge towards the implementation of a systemic approach by linking and jointly tackling the climate-food-ocean challenges. Overall, activities shall contribute to upscale cooperation along and across the Atlantic Ocean and the creation of long-term partnerships building on on-going initiatives such as the All Atlantic Ocean Research Alliance. In order to realise this, proposals shall address the following sub-topic [A]:

Coordination of marine and maritime research and innovation activities in the Atlantic Ocean

Activities shall launch a multi-stakeholder platform to reinforce international cooperation between Europe and tropical and South Atlantic countries and to connect with the challenges and research needs of the North Atlantic Ocean, as outlined above. The platform shall address the key following points: enhance business opportunities and the up-take of innovations e.g. aquaculture production systems, marine and maritime technologies; develop common standards e.g. for deep ocean and shelf observing systems, seafloor mapping, ecosystem approaches in utilizing marine living resources; reinforce capacity building by aligning European training programmes, including through industrial apprenticeship opportunities and networking with Atlantic partners; promote citizen awareness and literacy on ocean issues; align and converge international research and innovation cooperation activities and other relevant initiatives and investments between the northern and southern Atlantic countries. It will upscale cooperation with countries bordering the South Atlantic Ocean, in particular Brazil and **South Africa**, by reinforcing the mutual benefits of science diplomacy, addressing the grand challenges and opportunities of the Atlantic Ocean as a system, exploiting the benefits it holds for our citizens and entering a new era of Blue Enlightenment which spans from Antarctica to the Arctic.

This action should build on past and ongoing regional, national initiatives and programmes e.g. PIRATA^[4], SAMOC^[5], SA MAR-ECO^[6], GEOTRACES^[7], SOLAS^[8], OTN^[9], ICEMASA^[10], BCLME^[11], and EU projects e.g. MAREFRAME, BIOMORE, ATLANTOS, AORAC-SA, EU POLAR Net, INMARE, PREFACE etc. as well as national initiatives across and alongside the Atlantic Ocean. It should also involve (or liaise with) relevant European research infrastructures such as Euro-Argo ERIC and EMSO ERIC. In agreement with the Commission services, projects should ensure appropriate flexibility so as to respond in real time to potentially fast-changing policy scenarios.

The Commission considers that proposals requesting a contribution from the EU respectively in the range of EUR 4 million for this sub-topic [A], EUR 9 million for sub-topic [B] and EUR 8 million for sub-topic [C] would allow this specific challenge to be adequately addressed. Nonetheless, this does not

preclude the submission and selection of proposals requesting other amounts.

Proposals shall include a task to cluster with other projects financed under this topic and – if possible – with other relevant projects in the field funded by Horizon 2020. Possible links with related research and innovation activities supported by the Belmont Forum^[13] on Ocean sustainability shall also be considered.

Expected Impact: In order to contribute to the implementation of the EU Integrated Maritime Policy and its related Atlantic Strategy and Action Plan, the EU Blue Growth Strategy, the EU Marine Strategy Framework Directive, the EU Maritime Spatial Planning Directive, the EU International Ocean Governance Communication, the EU Communication for a Sustainable European Future, the UN SDGs, the EU Food 2030^[14] process for food and nutrition security, as well as the Atlantic Ocean Research Alliance, activities shall:

In the short term:

- Contribute to the implementation of the EU-Brazil-South Africa Belém Statement on Atlantic Ocean Research and Innovation cooperation (sub-topics A, B & C)^[15].
- Improve the coordination and alignment of programmes/initiatives and projects between South and North Atlantic regions and with the EU and its Member States (sub-topic A).
- Contribute to create the right conditions for the development of better and accurate monitoring, modelling, planning, management and prediction capacities in the whole Atlantic (sub-topics A & B).
- Increase the competitiveness of the EU's blue economy by developing new technologies to service societal needs and new value chains (sub-topics A, B & C).
- Contribute to the sustainable management and protection of marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans (UN SDG 14) (sub-topics A & B).

In the medium term:

- Increase EU leadership in ocean technology developments (sub-topics A, B & C).
- Create a well trained workforce able to tackle the multi-sectoral, multi-disciplinary challenges and opportunities of the Atlantic Ocean (sub-topics A & C).
- Consolidate education and training networks including more ocean-engaged citizens and communities (sub-topic A).
- Improve the professional skills and competences of those working and being trained to work within the blue economy.
- Contribute to policymaking in research, innovation and technology (sub-topics A, B & C).

Cross-cutting Priorities: International cooperation, Socio-economic science and humanities, Blue Growth

^[1] EU-Canada-US Galway Statement on Atlantic Ocean Cooperation, May 2013

^[2] EU-Brazil-**South Africa** Belém Statement on Atlantic Research and Innovation Cooperation, July 2017

^[3] South-South Framework for Scientific and Technical Cooperation in the South and Tropical Atlantic and Southern Ocean

^[4] Prediction and Research Moored Array in the Atlantic

^[5] South Atlantic Meridional Overturning Circulation.

^[6] South Atlantic Patterns and Processes of the Ecosystems of the southern Mid-Atlantic Ridge.

^[7] An international Study of the Marine Biogeochemical Cycles of Trace Element and their Isotopes.

^[8] Surface Ocean Lower Atmosphere Study.

^[9] Ocean Tracking Network.

^[10] International Centre for Education, Marine and Atmospheric Sciences over **Africa**.

^[11] Benguela Current Large Marine Ecosystem.

^[12] In this context, 'Aquaculture' comprises the farming of aquatic organisms (including fish, shellfish, algae and aquatic plants) in all types of controlled or natural water environments (fresh, brackish and seawater).

^[13] <https://www.belmontforum.org/>

^[14] European Research and Innovation for Food and Nutrition Security, SWD(2016)319.
<http://ec.europa.eu/transparency/regdoc/rep/10102/2016/EN/SWD-2016-319-F1-EN-MAIN.PDF>

^[15] EU-Brazil-**South Africa** Belém Statement on Atlantic Research and Innovation Cooperation, July 2017

Horizon 2020 Pillar:	Societal Challenges
Programme:	Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy
Call Title:	Blue Growth
Call Identifier:	h2020-bg-2018-2020
Topic Title:	All Atlantic Ocean Research Alliance Flagship
Topic Identifier:	BG-08-2018-2019
Type of Action:	RIA Research and Innovation action
Deadline(s):	13-02-2018,11-09-2018 (two-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bg-08-2018-2019.html>

Specific Challenges: The Atlantic Ocean is an invaluable shared resource. The societal value of its blue economy is enormous for countries located on its shores. There are however, still considerable gaps in our knowledge and understanding of processes related to this ocean especially with regard to its chemistry, ecology, biodiversity, impacts of climate and the potential for the sustainable exploitation of its natural resources including aquaculture. The Atlantic Ocean is subject to a range of pressures, such as impacts related to climate change, pollution, fishing above sustainable levels, mining and coastal eutrophication. Both remote and local forces play a role in these changes and it is necessary to consider local, regional and basin-wide drivers and factors to understand, predict and adapt to change. Furthermore, the potential of seafood to reduce food and nutrition insecurity calls for collaboration at international level. Having already demonstrated how successful research cooperation can be in the North Atlantic Ocean^[1] in tackling some of these issues, the objective now is to take a systemic approach to tackle the scientific and socio-economic challenges and to move towards a basin-wide cooperation from Antarctica to the Arctic, through enhanced cooperation with countries bordering the South Atlantic, notably Brazil and **South Africa**^[2].

Scope: The actions shall aim at understanding and sustainably managing the Atlantic Ocean as a whole, through a large-scale basin effort involving both the northern and the southern parts of this ocean and its interlinks with the adjacent areas. In order to achieve this, it is necessary to bring together and systematically connect scientists, stakeholders, data, knowledge, expertise, capacities, and resources. This is only feasible through the synergistic

cooperation among the bordering countries. With the development of a South Atlantic Ocean Science Plan^[3] focusing on the challenges and research needs of the South Atlantic Ocean, which are also interconnected with the challenges and research needs of the North Atlantic Ocean, this cooperation can converge towards the implementation of a systemic approach by linking and jointly tackling the climate-food-ocean challenges. Overall, activities shall contribute to upscale cooperation along and across the Atlantic Ocean and the creation of long-term partnerships building on on-going initiatives such as the All Atlantic Ocean Research Alliance. In order to realise this, proposals shall address the following sub-topic [B]:

Assessing the status of Atlantic marine ecosystems

Activities shall enhance the knowledge on the status and dynamics of Atlantic marine ecosystems, quantifying main drivers of short and long-term change, examine the interactions between different stressors, including climate change, and the role of cumulative impacts on ecosystem functioning and associated ecosystem services. They shall also contribute to improve the sustainability of the exploitation of the marine resources, through extending climate based predictions as well as testing for so-called tipping points, regimes shifts or more advanced assessments of ecosystem stability. Activities may entail 3D-mapping of the water column and high resolution seafloor mapping of selected large areas (including relevant marine ecosystems), considering the feasibility/safety and sustainability of these maritime operations. Mapping shall include variables of a different nature, such as physical, biological, chemical, habitats, seafloor characteristics and integrity (including in relation to climate change) and may require the development of new technologies. Furthermore, demonstration of cost-effective approaches to management and processing of the large quantities of data, better coordinated data sharing and operability, as well as the development of improved forecasting capabilities of stressors, tipping points, recovery and changes in ecosystem state will be important. The participation of industrial and regional stakeholders is encouraged to help define ecosystem-requirements. All data collected by the projects (including in international waters) shall be made open access by the end of the project. The choices of the selected areas need to be justified. Actions shall include capacity building and training with/in countries bordering the South and Tropical Atlantic Ocean. Links with ongoing initiatives such as EMODNet should be considered. The activities will be carried out in close co-operation with relevant Commission services (Directorate-General for Research and Innovation), ensuring coherence with related policy initiatives.

The Commission considers that proposals requesting a contribution from the EU respectively in the range of EUR 4 million for sub-topic [A], EUR 9 million for sub-topic [B] and EUR 8 million for sub-topic [C] would allow this specific challenge to be adequately addressed. Nonetheless, this does not preclude the submission and selection of proposals requesting other amounts.

Proposals shall include a task to cluster with other projects financed under this topic and – if possible – with other relevant projects in the field funded by Horizon 2020. Possible links with related research and innovation activities supported by the Belmont Forum^[13] on Ocean sustainability shall also be considered.

Expected Impact: In order to contribute to the implementation of the EU Integrated Maritime Policy and its related Atlantic Strategy and Action Plan, the EU Blue Growth Strategy, the EU Marine Strategy Framework Directive, the EU Maritime Spatial Planning Directive, the EU International Ocean Governance Communication, the EU Communication for a Sustainable European Future, the UN SDGs, the EU Food 2030^[14] process for food and nutrition security, as well as the Atlantic Ocean Research Alliance, activities shall:

In the short term:

- Contribute to the implementation of the EU-Brazil-**South Africa** Belém Statement on Atlantic Ocean Research and Innovation cooperation (sub-topics A, B & C)^[15].
- Contribute to create the right conditions for the development of better and accurate monitoring, modelling, planning, management and prediction capacities in the whole Atlantic (sub-topics A & B).
- Develop ecosystem assessments and forecasts as well as a deeper understanding of vulnerabilities and risk including those relating to the global climate system and the impacts of climate change (sub-topic B).
- Increase the competitiveness of the EU's blue economy by developing new technologies to service societal needs and new value chains (sub-topics A, B & C).
- Contribute to the sustainable management and protection of marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans (UN SDG 14) (sub-topics A & B).

In the medium term:

- Contribute to the development of ecosystem services to ensure the long-term sustainable management of marine resources (UN SDG 14) (sub-topic B).
- Increase EU leadership in ocean technology developments (sub-topics A, B & C).
- Improve the professional skills and competences of those working and being trained to work within the blue economy.
- Contribute to policymaking in research, innovation and technology (sub-topics A, B & C).

Cross-cutting Priorities: International cooperation, Socio-economic science and humanities, Blue Growth

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- [¹] EU-Canada-US Galway Statement on Atlantic Ocean Cooperation, May 2013
- [²] EU-Brazil-**South Africa** Belém Statement on Atlantic Research and Innovation Cooperation, July 2017
- [³] South-South Framework for Scientific and Technical Cooperation in the South and Tropical Atlantic and Southern Ocean
- [⁴] Prediction and Research Moored Array in the Atlantic
- [⁵] South Atlantic Meridional Overturning Circulation.
- [⁶] South Atlantic Patterns and Processes of the Ecosystems of the southern Mid-Atlantic Ridge.
- [⁷] An international Study of the Marine Biogeochemical Cycles of Trace Element and their Isotopes.
- [⁸] Surface Ocean Lower Atmosphere Study.
- [⁹] Ocean Tracking Network.
- [¹⁰] International Centre for Education, Marine and Atmospheric Sciences over **Africa**.
- [¹¹] Benguela Current Large Marine Ecosystem.
- [¹²] In this context, 'Aquaculture' comprises the farming of aquatic organisms (including fish, shellfish, algae and aquatic plants) in all types of controlled or natural water environments (fresh, brackish and seawater).
- [¹³] <https://www.belmontforum.org/>
- [¹⁴] European Research and Innovation for Food and Nutrition Security, SWD(2016)319.
<http://ec.europa.eu/transparency/regdoc/rep/10102/2016/EN/SWD-2016-319-F1-EN-MAIN.PDF>
- [¹⁵] EU-Brazil-**South Africa** Belém Statement on Atlantic Research and Innovation Cooperation, July 2017

Horizon 2020 Pillar:	Societal Challenges
Programme:	Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy
Call Title:	Sustainable Food Security
Call Identifier:	h2020-sfs-2018-2020
Topic Title:	Support to the implementation of the EU- Africa Research and Innovation Partnership on Food and Nutrition Security & Sustainable Agriculture (FNSSA)
Topic Identifier:	SFS-33-2018
Type of Action:	CSA Coordination and support action
Deadline(s):	13-02-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sfs-33-2018.html>

Specific Challenges: Following adoption of the FNSSA roadmap in 2016 there is a need to create a platform for exchanging information between different projects and to look for synergies between different funding mechanisms implementing the R&I Partnership on FNSSA. The partnership is a ten-year flexible research and innovation programme for which a long-term governance mechanism needs to be created.

Scope: The funded proposal will create a support structure for the implementation of the EU-**Africa** Research and Innovation Partnership on Food and Nutrition Security & Sustainable Agriculture (FNSSA). Activities will provide support to build a knowledge base on developments and current status of projects funded under Horizon 2020 and previous EU research programmes and relevant programmes to FNSSA funded from other sources. It will also encourage creating strong links to projects funded by the EU's development programmes or bilateral projects funded by the EU Member States and **African** partners. This structure will give full support to the Bureau of the EU-**Africa** High Level Policy Dialogue (HLPD) on science and technology and innovation, which is the final responsible organ. It will support the HLPD in monitoring and evaluating the outputs of the R&I Partnership and its cluster of H2020 projects (the HLPD Bureau will define the exact request each year). Activities will help analyse the impact of relevant EU-**Africa** research and innovation projects funded by the EU in FNSSA domain. Activities will contribute to human and institutional capacity building and provide the basis

for turning the EU-**Africa** R&I Partnership on FNSSA into a long-term platform for collaboration. They are expected to run for at least four years.

The Commission considers that proposals requesting a contribution from the EU of up to 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: In the short to medium term the work will result in

- the creation of a true cluster of projects in support of a coherent implementation of the EU-**Africa** R&I Partnership to optimise research and innovation programmes relevant to FNSSA;
- support to EU-**Africa** HLPD Bureau as a part of the implementation of the R&I Partnership on FNSSA.

In the long term activities will strengthen networking and collaboration and provide the basis for turning the EU-**Africa** R&I Partnership on FNSSA into a long-term platform for collaboration.

Cross-cutting Priorities: Gender; International cooperation

Horizon 2020 Pillar:	Societal Challenges
Programme:	Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy
Call Title:	Blue Growth
Call Identifier:	h2020-bg-2018-2020
Topic Title:	All Atlantic Ocean Research Alliance Flagship
Topic Identifier:	BG-08-2018-2019
Type of Action:	RIA Research and Innovation action
Deadline(s):	23-01-2019,04-09-2019 (two-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bg-08-2018-2019.html>

Specific Challenges: The Atlantic Ocean is an invaluable shared resource. The societal value of its blue economy is enormous for countries located on its shores. There are however, still considerable gaps in our knowledge and understanding of processes related to this ocean especially with regard to its chemistry, ecology, biodiversity, impacts of climate and the potential for the sustainable exploitation of its natural resources including aquaculture. The Atlantic Ocean is subject to a range of pressures, such as impacts related to climate change, pollution, fishing above sustainable levels, mining and coastal eutrophication. Both remote and local forces play a role in these changes and it is necessary to consider local, regional and basin-wide drivers and factors to understand, predict and adapt to change. Furthermore, the potential of seafood to reduce food and nutrition insecurity calls for collaboration at international level. Having already demonstrated how successful research cooperation can be in the North Atlantic Ocean^[1] in tackling some of these issues, the objective now is to take a systemic approach to tackle the scientific and socio-economic challenges and to move towards a basin-wide cooperation from Antarctica to the Arctic, through enhanced cooperation with countries bordering the South Atlantic, notably Brazil and **South Africa**^[2].

Scope: The actions shall aim at understanding and sustainably managing the Atlantic Ocean as a whole, through a large-scale basin effort involving both the northern and the southern parts of this ocean and its interlinks with the adjacent areas. In order to achieve this, it is necessary to bring together and systematically connect scientists, stakeholders, data, knowledge, expertise, capacities, and resources. This is only feasible through the synergistic

cooperation among the bordering countries. With the development of a South Atlantic Ocean Science Plan^[3] focusing on the challenges and research needs of the South Atlantic Ocean, which are also interconnected with the challenges and research needs of the North Atlantic Ocean, this cooperation can converge towards the implementation of a systemic approach by linking and jointly tackling the climate-food-ocean challenges. Overall, activities shall contribute to upscale cooperation along and across the Atlantic Ocean and the creation of long-term partnerships building on on-going initiatives such as the All Atlantic Ocean Research Alliance. In order to realise this, proposals shall address the following sub-topic [C]:

New value chains for aquaculture^[12] production

Activities shall explore new species, products and/or processes for aquaculture production (including algae). They shall consider existing, emerging and potential markets, take into consideration sound cost-effective production methods, sustainability and profitability. Consideration shall be given to the design of Internet of Things (IoT) approaches in the development of innovative production technologies, including new/improved biosensors, the circularity of the processes with the objective of zero waste and consider consumers' concerns and demands. The development of monitoring programmes for risk assessment including emerging pollutants and climate change resilience and mitigation will be essential. Activities shall contribute to reduce risks to human health. They will also foster higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors. Finally, it will be important to reinforce capacity building by aligning training programmes, including through industrial apprenticeship opportunities and networking along and across the Atlantic Ocean, in particular, but not exclusively, with **South Africa** and Brazil and other Atlantic Ocean coastal states. Reinforcing links between industrial partners is also crucial to exchange best practices and to facilitate the creation of business opportunities, therefore the SME participation in this topic is encouraged.

Consortia submitting proposals to this Flagship are encouraged to include participants from countries bordering the Atlantic Ocean as their active participation is key to the success of the proposals.

The Commission considers that proposals requesting a contribution from the EU respectively in the range of EUR 4 million for sub-topic [A], EUR 9 million for sub-topic [B] and EUR 8 million for sub-topic [C] would allow this specific challenge to be adequately addressed. Nonetheless, this does not preclude the submission and selection of proposals requesting other amounts.

Proposals shall include a task to cluster with other projects financed under this topic and – if possible – with other relevant projects in the field funded by Horizon 2020. Possible links with related research and innovation

activities supported by the Belmont Forum^[13] on Ocean sustainability shall also be considered.

Expected Impact: In order to contribute to the implementation of the EU Integrated Maritime Policy and its related Atlantic Strategy and Action Plan, the EU Blue Growth Strategy, the EU Marine Strategy Framework Directive, the EU Maritime Spatial Planning Directive, the EU International Ocean Governance Communication, the EU Communication for a Sustainable European Future, the UN SDGs, the EU Food 2030^[14] process for food and nutrition security, as well as the Atlantic Ocean Research Alliance, activities shall:

In the short term:

- Contribute to the implementation of the EU-Brazil-**South Africa** Belém Statement on Atlantic Ocean Research and Innovation cooperation (sub-topics A, B & C)^[15].
- Increase the competitiveness of the EU's blue economy by developing new technologies to service societal needs and new value chains (sub-topics A, B & C).
- Create a lasting partnership on sustainable aquaculture business opportunities for industrial partnerships between Europe and countries bordering the South Atlantic (sub-topic C).
- Contribute to creating sustainable food production systems and implementing resilient aquaculture practices that increase productivity and production, help maintain healthy and productive aquatic ecosystems and strengthen capacity for adaptation to climate change (UN SDG 2) (sub-topic C).

In the medium term:

- Ensure that nutritious and safe food is available, accessible and affordable for all while conserving natural resources and contributing to climate change mitigation (UN SDG 2 and SDG 13) (sub-topic C).
- Contribute to achieving a zero waste European aquaculture system by strengthening the sustainability, resilience and robustness of industry, by 2030 (sub-topic C).
- Increase EU leadership in ocean technology developments (sub-topics A, B & C).
- Increase consumers' trust and confidence in seafood products (sub-topic C).
- Create a well trained workforce able to tackle the multi-sectoral, multi-disciplinary challenges and opportunities of the Atlantic Ocean (sub-topics A & C).
- Improve the professional skills and competences of those working and being trained to work within the blue economy.
- Contribute to policymaking in research, innovation and technology (sub-topics A, B & C).

Cross-cutting Priorities: International cooperation, Socio-economic science and humanities, Blue Growth

- ^[1] EU-Canada-US Galway Statement on Atlantic Ocean Cooperation, May 2013
- ^[2] EU-Brazil-**South Africa** Belém Statement on Atlantic Research and Innovation Cooperation, July 2017
- ^[3] South-South Framework for Scientific and Technical Cooperation in the South and Tropical Atlantic and Southern Ocean
- ^[4] Prediction and Research Moored Array in the Atlantic
- ^[5] South Atlantic Meridional Overturning Circulation.
- ^[6] South Atlantic Patterns and Processes of the Ecosystems of the southern Mid-Atlantic Ridge.
- ^[7] An international Study of the Marine Biogeochemical Cycles of Trace Element and their Isotopes.
- ^[8] Surface Ocean Lower Atmosphere Study.
- ^[9] Ocean Tracking Network.
- ^[10] International Centre for Education, Marine and Atmospheric Sciences over **Africa**.
- ^[11] Benguela Current Large Marine Ecosystem.
- ^[12] In this context, 'Aquaculture' comprises the farming of aquatic organisms (including fish, shellfish, algae and aquatic plants) in all types of controlled or natural water environments (fresh, brackish and seawater).
- ^[13] <https://www.belmontforum.org/>
- ^[14] European Research and Innovation for Food and Nutrition Security, SWD(2016)319.
<http://ec.europa.eu/transparency/regdoc/rep/10102/2016/EN/SWD-2016-319-F1-EN-MAIN.PDF>
- ^[15] EU-Brazil-**South Africa** Belém Statement on Atlantic Research and Innovation Cooperation, July 2017

Horizon 2020 Pillar:	Societal Challenges
Programme:	Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy
Call Title:	Sustainable Food Security
Call Identifier:	h2020-sfs-2018-2020
Topic Title:	A vaccine against African swine fever
Topic Identifier:	SFS-12-2019
Type of Action:	IA Innovation action
Deadline(s):	23-01-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sfs-12-2019.html>

Specific Challenges: **African** swine fever (ASF) is a devastating viral disease of swine which is endemic in **Africa** and has been present in Europe for several years, after its introduction from Trans-Caucasian countries. It is a transmissible disease that has the potential for very serious and rapid spread, irrespective of national borders. It has a serious socio-economic impact on farming sector and is of major importance in the international trade of animals and animal products. While in the EU, strict control measures including in particular biosecurity, culling of infected pigs, killing of wild-boars, have so far managed to contain the spread of the disease, restrictions on farming and trade remain. The threat is permanent (including incursion of exotic strains from endemic countries) and concerns are raised on the possibility to eradicate the disease without vaccination.

No vaccine is currently available and the development of effective and safe ASF vaccines is urgent as an additional tool to re-inforce control and eradication strategies currently in place. For details of potential strategies and possible research steps for vaccine development, see the blueprint and roadmap^[1] produced by the EU Reference Laboratory for ASF.

Scope: The research proposals will address the necessary steps for developing safe vaccines against ASF for domestic pigs and wild boars. Proposals should build on past or ongoing EU funded research and on current knowledge of the characteristics of the viruses and research gaps, with the overall purpose of developing pilot vaccines and their companion DIVA test. Activities should address vaccination as part of a control strategy in different scenarios and should consider the potential impact on animal production and trade.

Particular focus should be put on the European situation and the role of wild boars in the spread of the disease, so the proposals should address at least the ASF viruses circulating in Europe, and may also cover all or the most relevant exotic ones. Wild fauna other than wild boars, that are involved in the epidemiology and for which vaccination may help control the disease, may also be addressed. Participation by non-EU regions particularly affected by ASF is recommended.

Proposals should fall under the concept of the 'multi-actor approach'^[2] and be based on the active participation of stakeholders from research, animal health authorities and the farming and business sectors. Involvement of the pharmaceutical industry is highly recommended.

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

Expected Impact:

- Pilot ASF vaccines and their companion DIVA tests for the possible prevention and/or eradication of the disease in domestic pigs and wild boars, with TRL 5 to 6;
- Contribution to international cooperation on animal health research, potentially reducing the threats from the introduction of exotic ASF virus strains in the EU and reducing the burden of ASF in countries outside the EU.

More generally, the selected project will contribute to a reduction of economic losses by the farming sectors and contribute to healthy livestock production. It will contribute to reduce the sanitary barriers to trade in swine and products therefrom.

Cross-cutting Priorities: International cooperation, RRI

^[1] http://ec.europa.eu/food/animals/animal-diseases/control-measures/asf_en#bmrp

^[2] See definition of the 'multi-actor approach' in the introduction to this Work Programme part.

Horizon 2020 Pillar:	Societal Challenges
Programme:	Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy
Call Title:	Sustainable Food Security
Call Identifier:	h2020-sfs-2018-2020
Topic Title:	European Joint Programme on agricultural soil management
Topic Identifier:	LC-SFS-20-2019
Type of Action:	COFUND-EJP COFUND (European Joint Programme)
Deadline(s):	23-01-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sfs-20-2019.html>

Specific Challenges: Good agriculture soil management contributes to food security, climate change mitigation/adaptation and ecosystem services. Preserving and increasing fertility of soils, not least through their organic content and water retaining capacity, increases agricultural production. Soils and their carbon content are also important for climate change mitigation. A number of good soil management practices have been developed to deal with some of the challenges; however serious knowledge gaps exist, e.g. on the characteristics of soils in various regions of Europe, the factors influencing their fertility or their capacity to store carbon, depending on different climate and environment conditions. The European Union is committed to addressing climate change with ambitious targets. An integrated framework for soil research in Europe is required to overcome current fragmentation and unleash the potential of agricultural soils to contribute to climate change mitigation/adaptation, while preserving or increasing agricultural functions.

Scope: The European Joint Programme will boost soil research with main emphasis on agricultural soil contribution to climate change mitigation and adaptation. The aim is to construct a sustainable framework for an integrated community of research groups working on related aspects of agricultural soil management^[1]. The activities should look at how management of agricultural soils can reduce degradation of land and soils (in particular soil erosion and loss of organic matter), preserve and increase fertility of soils and how the processes related to organic content and water retaining capacity can support mitigation and adaptation to climate change. The EJP will evaluate and foster implementation of novel technologies for soil management and carbon sequestration. The aim of the EJP is also to look for synergies between

different approaches used in Europe for farm level accounting of emissions and removals from agricultural activities and particularly of carbon storage. In doing so, activities will contribute to improving inventories, measurements, reporting and accounting activities at different scales. Sustainable agricultural productivity and environmental aspects will also be targeted in connection with climate change mitigation and adaptation, so that optimisation of land management is ensured.

The European Joint Programme will include joint programming and execution of research and other joint integrative activities such as education and training (e.g. short-term missions, workshops), knowledge management, access to experimental facilities and databases, including also harmonisation, standardisation.

State-of-art technologies for mapping and soil sampling (physical, chemical and biological parameters) should be explored for wider and simple use from national level to farm level. In return, by e.g. developing new ICT tools, this could help farmers to protect and manage soils in line with current scientific understanding of processes. The EJP should also facilitate sampling and further development of LUCAS^[2] –European Soil Database as well support EU contribution to global soil mapping activities.

Participating legal entities must have research funding and/or management responsibilities in the field of agriculture soil management.

The proposal should include a five-year roadmap describing the key priorities and governance processes as well as the first annual work plan.

The acquired knowledge should support policy making in the domain of agricultural soil management and related policies, such as agriculture, climate and environment, and when feasible and appropriate transfer of science to practice for better agricultural soil management by farmers should be envisaged.

The activities will need to be coordinated as appropriate with the Global Soil Partnership and more particularly with European Soil Partnership node, with the **Global Research Alliance** on agricultural greenhouse gases, the project selected under SFS-50-2017, 4/1000, GACSA, JPI FACCE, JPI CLIMATE, Belmont Forum, and soil activities coordinated by the JRC^[3] when relevant and appropriate. The work of the EJP will also support number of policies: Common Agricultural Policy, Climate Change related policy and relevant environmental policies, in particular the implementation of the EU Soil Thematic Strategy^[4].

Considering the budget available, the scope covered and the potential entities for the EJP, the Commission considers that an EU contribution to a maximum 50% of the total eligible costs of the action or up to 40 million EUR would allow this specific challenge to be addressed appropriately.

Expected Impact: The project will lead to significant long term alignment of research strategies and activities at national and EU level by:

- fostering understanding of soil management and its influence on climate mitigation and adaptation, sustainable agricultural production and environment;
- understanding how soil carbon sequestration can contribute to climate change mitigation at regional level including accounting for carbon;
- strengthening scientific cooperation at European level including training of young scientists;
- development of agreed knowledge base and database for European contribution towards international reporting;
- contributing to the European Soil Data Centre with harmonised European soil information for international reporting.

^[1] Agro-forestry is included in the topic.

^[2] Land use/cover area frame statistical survey, abbreviated as LUCAS, is a European field survey program funded and executed by Eurostat http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Land_use/cover_area_frame_survey_%28LUCAS%29

^[3] European Soil Data Centre; EIONET - European Environment Information and Observation Network – soil network

^[4] COM(2006)231

Horizon 2020 Pillar:	Societal Challenges
Programme:	Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy
Call Title:	Sustainable Food Security
Call Identifier:	h2020-sfs-2018-2020
Topic Title:	Food Systems Africa
Topic Identifier:	LC-SFS-34-2019
Type of Action:	RIA Research and Innovation action
Deadline(s):	23-01-2019, 04-09-2019 (two-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sfs-34-2019.html>

Specific Challenges: Nutritional imbalances in both Europe and **Africa** are increasing, characterised by growing diet-related, non-communicable diseases and persistent under-nutrition. The UN projects that the global population will increase from 7 billion to more than 9 billion by 2050^[1], of which the majority is expected to occur in **Africa**. To anticipate such population growth and challenges associated with enhanced climate change, agricultural systems need to become more sustainable and better linked to nutrition performance by strengthening the agro-biodiversity of resilient cropping systems, thereby increasing the range of food products for a balanced, healthy diet. Furthermore, resource-efficient, resilient food value chains need to be developed to deliver sufficient, safe, affordable and nutritious food to local consumers and for high value global markets. **Africa** has a wealth of local varieties, food intelligence and healthy **African** diets including plant based proteins, which are currently largely untapped and not reaching the market, neither in **African** cities nor in Europe.

Scope: Proposals shall assess and deliver better nutrition performance of **African** farming systems, strengthening the agro-biodiversity (and integrated aquaculture systems) and food diversity. They shall address innovative approaches in local food systems while covering technological, food safety, social and gender issues^[2], and address sustainable postharvest technologies, including bio-based packaging, to reduce food waste along the post-harvest/consumer chain and plastic littering. Empowerment of small farmers (including aquafarmers) and processors benefitting rural areas leading to diversity of diets and improving food identity is essential. Food supply chains (conventional and organic) for both local urban markets and

high value global markets shall be targeted. Proposals need to ensure the commitment and participation of a variety of partners established in the EU and in **Africa**, and shall establish relevant links with other projects involved in the EU-**Africa** Research and Innovation Partnership on Food and Nutrition Security & Sustainable Agriculture (FNSSA). Proposals should include a task to cluster with other projects involved in the EU-**Africa** R&I Partnership on FNSSA and with the cooperation platform established under SFS-32-2017.

The Commission considers that proposals following a multi-actor approach including civil society organisations requesting a contribution from the EU of the order 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:

In the framework of SDG no 1, 2, 3, 8, 10, 12, 13, 15 and 17, the EU-**Africa** R&I Partnership on FNSSA^[3], the EU's Bioeconomy Strategy 2012, and the FOOD 2030 SWD^[4], proposals shall describe how projects can contribute to:

- Improved food systems resulting in sustainable, healthy **African** diets (comparable to the Mediterranean diet) that on the short term are to become mainstream in 10 **African** cities;
- Empowerment of small farmers (including aquafarmers) combined with sustainable growth of food chain operators (SMEs) in rural areas in **Africa**, both for internal markets and export;
- New market opportunities for novel food products, tools and processes applicable in **Africa** that are taking into account food safety issues across the entire food value chain (e.g. improved food storage under mycotoxins free conditions) and reduce food waste;
- Significant reduction of malnutrition in **Africa** and particularly in relation to children, including those within the first 1, 000 days of life, by implementing nutritional recommendations (proportion/figures to be specified in the proposals as well as reflections on specific food strategies for crisis and civil war situations);
- Major progress towards the establishment of the EU-**Africa** Research and Innovation Partnership on FNSSA and impact at local level;
- Development and implementation of pilot innovation actions for the benefit of **African** and European consumers at TRL 4-5.

Cross-cutting Priorities: International cooperation, Gender, Blue Growth, RRI, Socio-economic science and humanities

^[1] <http://www.un.org/en/development/desa/news/population/2015-report.html>

^[2] Applicants may be interested in a separate but connected call topic on " Implementation research for maternal and child health" under Societal Challenge 1.

^[3] Joint communication to the EP and Council for a renewed impetus to the **Africa**-EU Partnership', JOIN (2017) 17

^[4] European Research and Innovation for Food and Nutrition Security, SWD(2016)319.
<http://ec.europa.eu/transparency/regdoc/rep/10102/2016/EN/SWD-2016-319-F1-EN-MAIN.PDF>

Horizon 2020 Pillar:	Societal Challenges
Programme:	Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy
Call Title:	Sustainable Food Security
Call Identifier:	h2020-sfs-2018-2020
Topic Title:	Sustainable Intensification in Africa
Topic Identifier:	SFS-35-2019-2020
Type of Action:	RIA Research and Innovation action
Deadline(s):	23-01-2019,04-09-2019 (two-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sfs-35-2019-2020.html>

Specific Challenges: **African** and European agriculture share the common challenge of moving towards more sustainable ways of agricultural production. Both regions aim to ensure food production and reduce the environmental impact of agricultural activities in the face of climate change, more unpredictable water supply and increased degradation of (land) resources. Systems approaches are needed to optimise agricultural productivity as well as the delivery of ecosystem services.

Scope:

A. [2019]: **African** Farming Systems, sustainable intensification pathways (RIA)

Activities shall seek to implement and test systems approaches for the sustainable intensification of primary production in **Africa**, taking into account its long term economic support to local communities. The proposed research should address the improvement of agricultural practices by tackling land and water management (including land degradation where appropriate) and sustainable soil management (including its quality and nutrients uptake) for sustainable intensification. The importance of traditional agricultural practices like grazing methods, livestock, crops and legumes should be duly reflected. Emphasis should be given to farming systems that support restoration of land, increase land productivity and/or bring land back into production. Proper attention should be given to the importance of gender in **African** agricultural production.

For proper analysis, a range of different systems should be included (e.g. organic farming, agroecology, agroforestry). While presenting results the importance of scale of the analysis and its applicability should be taken into account. The analysed systems should include socio-economic aspects, analyse its resilience to climate change, farm income and where pertinent also cultural aspects of farming. Preference will be given to proposals focusing on specific regions of **Africa**.

Proposals fall under the concept of the ‘multi-actor approach’^[1]. Proposals should include a task to cluster with other projects financed under the topic and with the cooperation platform established under SFS-33-2017.

B.[2019]: Soil system for **Africa** (RIA)

For the implementation of the EU-**Africa** R&I Partnership on FNSSA a comparable and open database on agricultural soils information is needed. It is expected that a minimum of 20 000 sampling points will be sufficient to create a database with standard soil properties (a similar procedure to the one used for LUCAS^[2] - European database - should be developed).

The soil samples will only be taken from the agricultural land and analysed by one laboratory for the: physical and chemical parameters. As a minimum the following parameters should be analysed: particle size (clay, silt and sand content), pH (acidity and alkalinity), organic carbon, carbonate content, phosphorus content, total nitrogen content and extractable potassium content. In addition an analysis of heavy metal content and other chemical residues in selected sub-samples might be proposed in order to assess the risk of soil contamination. Based on the analysed samples a set of indicators for monitoring of state of land soil, water and ecosystem should be proposed. Other physical, chemical and biological parameters for soil test might be proposed along with the specific indicators for which they will be used. The indicators should be developed as a part of the long-term implementation of FNSSA and its contribution to the SDGs discussion. Presentation of data should be provided in an open data and map viewer and should include four aspect pictures of where the soil sample was taken and should link with open earth data from e.g. the Copernicus programme and the project funded under H2020 topic SFS-43-2017^[3]. It is expected that the open database will contain at least a minimum of 20 000 soil sample analysed by one laboratory. The final methodology should be developed in cooperation with and validated by the Joint Research Centre and the Global Soil Partnership – IPTS **African** members.

Proposals should include a task to cluster with other projects financed under the topic and with the cooperation platform established under SFS-32-2017.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 7.5 million for sub-topic A and EUR 5 million for sub-topic B would allow this specific challenge to be addressed properly. Nonetheless,

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

Expected Impact:

In the short to medium term:

- Boost the impact of **Africa**-EU joint research at local level by addressing the entire value-chain, strengthening capacity-building and focusing on demonstration projects and pilot actions to bring research and innovation results to the users (sub-topic A);
- Provide simple tools and solutions for preserving and increasing natural resources of specific agro-system (sub-topic A);
- Identification of methods and tools for improving soil condition for water retention, increase in nutrient and organic matter (sub-topic A);
- Proposed methods and solutions for different farming systems should include potential of transferability and scale at which solution can be implemented (sub-topic A).
- Solutions and tools for increasing farm income within sustainability of long term farming (sub-topic A);
- Based on the soil sample analysis, provide a set of key indicators for soil assessment in **Africa** (sub-topic B).

In the long term:

for sub-topic A - improve agricultural production potential and income of farmers and for sub-topic B- provide an open soil dataset with a set of key indicators with methodology for which soil samples and the time line of indicators can be independently repeated in support of monitoring of soil and land degradation. The set of indicators should as much as possible support the relevant SDGs implementation discussion.

Delegation Exception Footnote: It is expected that this topic will continue in 2020

Cross-cutting Priorities: Socio-economic science and humanities, RRI, Gender, International cooperation

^[1] See definition of the 'multi-actor approach' in the introduction to this Work Programme part.

^[2] Number of publications related to LUCAS soil component can be found under the following link:
<http://esdac.jrc.ec.europa.eu/resource-type/documents>

^[3] https://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-food_en.pdf

Horizon 2020 Pillar:	Societal Challenges
Programme:	Health, demographic change and wellbeing
Call Title:	Better Health and care, economic growth and sustainable health systems
Call Identifier:	h2020-sc1-bhc-2018-2020
Topic Title:	New anti-infective agents for prevention and/or treatment of neglected infectious diseases (NID)
Topic Identifier:	SC1-BHC-15-2018
Type of Action:	RIA Research and Innovation action
Deadline(s):	06-02-2018,04-09-2018 (two-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc1-bhc-15-2018.html>

Specific Challenges: Neglected Infectious Diseases (NIDs) diseases are responsible for a significant health and socioeconomic burden in large parts of the world, particularly in resource-poor countries, however some (e.g. leishmaniasis, Chagas disease) are increasingly becoming a concern for Europe too, driven by factors like the climate change and globalization. Despite a significant effort to develop new drugs to treat these diseases over the past 10 years, existing therapies suffer from various shortcomings, namely, a high degree of toxicity and unwanted effects, as well as treatment regimens often lengthy or parenteral that discourage compliance and increase the emergence of resistance. Vaccines can also be a major tool for the control of NIDs, particularly given the limitations of mass drug administration strategies, but currently the only major NIDs for which licensed vaccines exist are rabies and dengue. Development of new, more effective, safe and affordable treatments and vaccines for NIDs is therefore an urgent need.

In the last few years, increased awareness and funding for NIDs has resulted in the identification and preclinical development of several treatment and vaccine candidates against various NIDs. However, the typical NIDs 'market failure' (i.e. high risk and low potential return) discourages the uptake and costly further development of these candidates by pharmaceutical and biotechnology companies. Targeted public funding is therefore necessary to bridge the gap between preclinical and clinical development, and help advance existing candidates along the development pipeline.

Scope: The topic bridges the gap between preclinical and early clinical development of drugs and/or vaccines against neglected bacterial and parasitic diseases^[1]. Therefore, the proposed actions should focus on late preclinical (e.g. validation in animal models, toxicology, Good Manufacturing Practices (GMP) production, preparation of Investigational Medicinal Product Dossier) and early clinical (up to phase 1) development of already existing lead drug and vaccine candidates. Multidisciplinary platforms bringing together academic and industry research teams, from European and disease-endemic countries, with the capacity to exploit existing experience and propose innovative solutions addressing several relevant pathogens are particularly encouraged. Sex and gender differences should be taken into account where relevant.

The downstream constraints of candidates for the effective deployment and uptake by limited-resources public health systems should be taken into account by the proposed action:

- It should address the following key elements of the target-product profile (TPP): suitability, acceptability, adaptability of the intervention to be developed for different population groups, including particularly vulnerable ones (e.g. women and children), served by under-resourced health systems.
- It should also address issues that permeate and often impede access such as: optimal route and dosing or immunization regime, up-scaling of manufacturing, registration and pre-qualification, distribution and field-deployment logistics (e.g. storing temperatures), and the predicted cost per patient of the final product.
- Ultimately, the proposed action should include a clear pathway through the different necessary steps (research, manufacturing, regulatory approvals and licensing, IP management, pricing etc.) in order to allow uptake by health systems in limited-resource settings.

Due to the specific challenge of this topic, in addition to the minimum number of participants set out in the General Annexes, proposals shall include at least one participant from disease-endemic countries.

Please note that this topic is part of the lump sum funding pilot scheme. Funding for grants awarded under this topic will take the form of lump sums as defined in Commission Decision. Details of the lump sum funding pilot scheme are published on the Participant Portal together with the specific Model Grant Agreement for Lump Sums applicable.

The Commission considers that proposals requesting a contribution from the EU of between EUR 5 and 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:

- Increase the number and quality of treatment and vaccine candidates for neglected infectious diseases appropriate for implementation and uptake by health systems with limited resources.

- Reduce the NIDs disease burden and their social and economic consequences, and thus contribute to achieving the United Nation's Sustainable Development Goals 1 (No Poverty), 3 (Good Health and Well-being), 5 (Gender Equality), 10 (Reduced Inequalities) and 13 (Climate Change).
- Strengthen the pipeline of products available to proceed into further development and clinical testing and, if appropriate, within the context of the **European and Developing Countries Clinical Trials Partnership** (EDCTP2).

Cross-cutting Priorities: Socio-economic science and humanities; International cooperation; Gender

^[1] For the purpose of this call, eligible neglected diseases are: childhood diarrhoeal diseases, kinetoplastid diseases (human **African** Trypanosomiasis, leishmaniasis, Chagas disease) and helminth (Schistosomiasis, soil-transmitted helminthiases, food-borne trematodiases, filariasis, Onchocerciasis, taeniasis/cysticercosis, dracunculiasis, echinococcosis) diseases, as well as bacterial diseases like Buruli ulcer, leprosy, yaws and mycetoma. Neglected viral diseases are specifically excluded from this topic.

Horizon 2020 Pillar:	Societal Challenges
Programme:	Health, demographic change and wellbeing
Call Title:	Better Health and care, economic growth and sustainable health systems
Call Identifier:	h2020-sc1-bhc-2018-2020
Topic Title:	Global Alliance for Chronic Diseases (GACD) - Scaling-up of evidence-based health interventions at population level for the prevention and management of hypertension and/or diabetes
Topic Identifier:	SC1-BHC-16-2018
Type of Action:	RIA Research and Innovation action
Deadline(s):	18-04-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc1-bhc-16-2018.html>

Specific Challenges: The **Global Alliance for Chronic Diseases**^[1] (**GACD**) aims to coordinate research on chronic diseases at a global level in order to enhance knowledge exchange across individual projects, and to better understand the impact of socio-economic, cultural, geopolitical and policy on research findings, so as to appropriately adapt interventions and scale-up to different geographical, economic and cultural settings. The **GACD** call will support research associated with the scale-up of interventions for the prevention and/or management of hypertension and/or diabetes in low- and middle-income countries (LMIC^[2]) and/or in vulnerable populations in High Income Countries (HIC).

Hypertension affects one billion people worldwide and is a major contributor to the growing global pandemic of cardiovascular disease and stroke. It is estimated that raised blood pressure indirectly currently kills approximately 8 million people every year^[3], while cardiovascular disease accounts for approximately 18 million deaths a year^[4], nearly one third of total deaths. Not only is hypertension more prevalent in LMIC, there are also more people affected because a larger proportion of the population live in those countries than in HIC.

Poor hypertension control and the absence of strategies to maintain normal blood pressure, particularly in LMICs and in vulnerable populations in HIC, reflect the challenges of effective and affordable implementation in healthcare and other sectors.

In the past twenty years the global death rate from diabetes has doubled and the World Health Organisation is predicting that this will increase by two thirds by 2030. It is currently estimated that 422 million adults worldwide suffer from diabetes of which 80% are from LMIC. In 2012, an estimated 1.5 million deaths were directly caused by diabetes and another 2.2 million deaths were attributable to high blood glucose^[5].

Identifying and evaluating interventions to assess efficacy is not always enough to ensure their wide uptake in the real-world. Even when information, tools and interventions have been tested within real-world effectiveness studies, the development of knowledge to support their broader uptake^[6] has often remained outside the remit of research. Effectively implementing and scaling-up interventions, programmes, and policies to the regional and national levels are persistent challenges.

It is essential that policy makers, communities, families, caregivers, patients, as well as healthcare practice and other settings are equipped with evidence-based strategies to integrate scientific knowledge and effective interventions into everyday use. Researchers have found it challenging to ensure that tools and interventions deemed efficacious within clinical or community-based trials are readily adopted and implemented. Scaling-up interventions to large populations is not a straightforward task. In practice, translation from a pragmatic trial to the real-life commissioning and continuous delivery of an intervention across a health system is a huge political and economic challenge. Without intentional, guided efforts to scale-up, a new evidence-based intervention might not be broadly implemented.

Scope: Proposals must focus on the scale-up of interventions at population level for hypertension and/or diabetes prevention and/or management in LMIC, and/or in vulnerable populations in HIC. Proposals addressing comorbidities with either hypertension or diabetes, including between them, are encouraged.

Proposals must align with commitments or planned commitments at a regional or country level to implement evidence-based interventions (including evidence of cost-effectiveness and affordability) across health or other sectors. Policymakers, intervention payers (excluding research funding agencies), researchers (including local researchers), implementers and beneficiaries should be involved at all stages of the intervention development and implementation design to identify the challenges to intervention delivery in real settings. Such partners will be integral to the success and sustainability of the programme and it is essential that they are engaged early, and participate actively in the design of the research proposal. Researchers should collaborate closely with the authorities responsible for the programme's delivery. Those authorities must pay for and provide the interventions, possibly through loans contracted from development banks or other financial providers. Proposals will carry out the research associated with the scale-up of the intervention.

Proposals must build on evidence-based interventions (including evidence of cost-effectiveness and affordability) for the respective population groups under defined contextual circumstances and should seek to replicate and scale-up interventions. The selected interventions to be scaled-up should have been proven to be equitable, safe, effective, and efficient as well as making local health systems and health services more responsive and person-centred. In particular, proposals should:

- Be targeted at the regional or national level.
- Identify, develop, test, evaluate and/or refine strategies to scale-up evidence-based practices^[7] into public health, clinical practice, and community settings.
- Identify, understand, and develop strategies for overcoming barriers to the adoption, adaptation, integration, scale-up and sustainability of evidence-based interventions, tools, policies, and guidelines. They should address a range of scale-up challenges, including complex processes, inefficient use of resources, inequitable allocation of resources, and supply and demand barriers to scaling-up and sustainability.
- Identify, understand, and develop strategies for measuring the unintended consequences of intervening at a system level.
- Use scale-up methods, tools, and approaches to enhancing equity, efficiency, people-centred, and responsive health systems, promoting a culture of evidence-informed learning, engaging stakeholders, and improving decisions on policies and programmes to achieve better health outcomes.
- Be aligned with existing policies, programme management, monitoring and evaluation processes. They may include important shifts in the practices, incentives, and engagement of global, national and regional health policy, regulatory frameworks, management, research, publication, and civil society stakeholders.
- Include health economic assessments as an integral part of the proposed research.
- Demonstrate that policy makers and health authorities are supportive of, and have been engaged in designing the research proposal.

Proposals should be multidisciplinary and cross-sectorial. Relevant gender and cultural aspects, as well as vulnerable populations, should be taken into account. Proposals may build on previous hypertension and diabetes projects supported under the **GACD** that have demonstrated the potential for impact.

The proposal will cover the research around the scaling up of the interventions. The research may cover:

- Identification of the best evidence-based interventions;
- Definition and implementation of optimum scale-up methods (e.g. pilots in multiple settings, defining a scalable unit);
- Embed real time monitoring/evaluation to refine protocols and ensure adaptability and effective uptake;
- Evaluation of health outcomes;

- Where appropriate, make recommendations for the replication of the applied scale-up interventions to other countries or very large regions.

Research under **GACD** involves regular exchange of research findings and information across participating projects by means of cross-project working groups and annual joint meetings. Wherever feasible, projects should harmonise and standardise their data collection and exchange data. Applicants must budget for annual costs of having two team members participate in one annual face-to-face meeting of the Annual Scientific Meeting (location to vary annually).

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 to 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:

(one of or combinations of):

- Enhanced programmes and policies that can significantly reduce the numbers of patients with hypertension and/or diabetes through prevention.
- Enhanced programmes and policies that can significantly increase the number of patients for whom hypertension and/or diabetes was previously undetected.
- Enhanced programmes and policies that can significantly increase the number of patients for whom hypertension and/or diabetes is controlled.
- Enhanced effective, efficient, equitable and sustainable health systems, to lesser inequalities and greater health equity and additional societal benefits, in the medium and long-term.
- Improved health services more responsive to the need of the comorbidities of hypertension and diabetes and other non-communicable diseases.
- Recommendations to translate findings to other countries or very large regions.
- Contribute to the attainment of the sustainable development goals for non-communicable diseases^[8].

Cross-cutting Priorities: Gender, Socio-economic science and humanities, International cooperation

^[1] <http://www.gacd.org/>

^[2] World Bank country classification based on estimates of gross national income per capita: databank.worldbank.org/data/download/site-content/CLASS.xls

^[3] Forouzanfar et al. JAMA. 2017;317(2):165-182. doi:10.1001/jama.2016.19043

^[4] Roth et al. J Am Coll Cardiol. 2017 May 15. pii: S0735-1097(17)37244-3.

^[5] WHO Global report on diabetes: <http://www.who.int/diabetes/global-report/en/>

^[6] For instance: cost and financing of the intervention, provider training, availability of resources, integration into healthcare systems, delivery to vulnerable or difficult-to-reach populations, monitoring the quality of intervention delivery

^[7] For instance: behavioural interventions; prevention, early detection, diagnostic, treatment and disease management interventions; quality improvement programmes

^[8] <https://sustainabledevelopment.un.org/sdg3>

Horizon 2020 Pillar:	Societal Challenges
Programme:	Secure, clean and efficient energy
Call Title:	Building a low-carbon, climate resilient future: Secure, clean and efficient energy
Call Identifier:	h2020-lc-sc3-2018-2019-2020
Topic Title:	Support action in preparation of a Joint Programming activity
Topic Identifier:	LC-SC3-JA-4-2018
Type of Action:	CSA Coordination and support action
Deadline(s):	31-01-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sc3-ja-4-2018.html>

Specific Challenges: Providing sustainable and affordable energy to sub-Saharan **Africa** is critical to the development of a region that accounts for 13% of the world's population, but only 4% of its energy demand. Sub-Saharan **Africa's** energy resources are more than sufficient to meet its demands, but they are unevenly distributed and under-developed (IEA, 2014).

Building local capacities and promoting research, including applied research, are recognized to be essential pillars in the development of sustainable energy in **Africa**. **Africa**-EU research cooperation in this area can contribute substantially to further technology take-up in the region. It can also strengthen the market position of involved European institutions through increased knowledge and competitive capacity.

Several initiatives in the past decade have launched support projects aiming to promote research addressing **African** energy challenges. The participation of **African** researchers in related calls has however remained limited. **African** scientists and researchers in general are underrepresented in the international arena: there are only few scientific publications or patent applications related to renewable energy, and limited participation in international conferences. In addition to the limited exposure the international scientific community, limited research capacities both in the sense of human capital and financial resources hinder better representation of **African** researchers in abovementioned funding schemes.

Following the EU commitments under the Paris Agreement, Agenda 2030 on Sustainable Development and Cotonou Agreement, research and innovation cooperation in the field of renewable energy generation technologies between

EU and **Africa** needs to be strengthened and further developed. Coordination of the existing bilateral activities between European and **African** countries is advisable. The challenge is bringing together the national funding agencies of EU member states and **African** states interested in developing joint research activities between the two continents to create synergies and to push forward common research and innovation cooperation in the field of renewable energy generations.

Scope: The proposal will be the preparatory step towards the European Joint Programme, topic LC-SC3-JA-5-2019. The consortium has to bring together the core relevant European funding agencies and **African** partners already involved research and innovation cooperation actions.

The fields of activities to be programmed will cover the research and development of new or the adaptation of renewable energy generation technologies to the **African** environmental, social and economic conditions, of providing affordable access to renewable energy and of improving the innovation cycles.

The objectives will be the development a common strategic joint research and innovation programme on renewable energy technology and to establish its organisational principles that could lead to a Joint Programme. The common strategic joint programme needs to create synergies with existing **African**-European programmes such as the **Africa**-EU Energy Partnership, the EU Energy Initiative, the **Africa** Renewable Energy Initiative and the EU-**Africa** Research and Innovation Partnership.

The estimated duration to achieve these objectives is approximately 12 months.

Expected Impact: The expected impact will be firstly the achievement of the joint commitments necessary to propose and to implement a Joint Programme, secondly the identifications through its strategic joint programme of the essential research and innovation activities needed to reinforce and to boost European and **African** research cooperation.

Delegation Exception Footnote: This activity directly aimed at supporting public-public partnerships with Member States and Associated Countries, technology platforms with industrial partners is excluded from the delegation to Executive Agencies and will be implemented by the Commission services.

Cross-cutting Priorities: Clean Energy; International cooperation

Horizon 2020 Pillar:	Societal Challenges
Programme:	Secure, clean and efficient energy
Call Title:	Building a low-carbon, climate resilient future: Secure, clean and efficient energy
Call Identifier:	h2020-lc-sc3-2018-2019-2020
Topic Title:	Joint Programming with EU and African partners for a R&I actions in the area of renewable energy
Topic Identifier:	LC-SC3-JA-5-2019
Type of Action:	COFUND-EJP COFUND (European Joint Programme)
Deadline(s):	27-08-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sc3-ja-5-2019.html>

Specific Challenges: Providing sustainable and affordable energy to sub-Saharan **Africa** is critical to the development of a region that accounts for 13% of the world's population, but only 4% of its energy demand. Sub-Saharan **Africa's** energy resources are more than sufficient to meet its demands, but they are unevenly distributed and under-developed (IEA, 2014).

Building local capacities and promoting research, including applied research, are recognized to be essential pillars in the development of sustainable energy in **Africa**. **Africa**-EU research cooperation in this area can contribute substantially to further technology take-up in the region. It can also strengthen the market position of involved European institutions through increased knowledge and competitive capacity.

Several initiatives in the past decade have launched support projects aiming to promote research addressing **African** energy challenges. The participation of **African** researchers in related calls has however remained limited. **African** scientists and researchers in general are underrepresented in the international arena: there are only few scientific publications or patent applications related to renewable energy, and limited participation in international conferences. In addition to the limited exposure the international scientific community, limited research capacities both in the sense of human capital and financial resources hinder better representation of **African** researchers in abovementioned funding schemes.

Following the EU commitments under the Paris Agreement, Agenda 2030 on Sustainable Development and Cotonou Agreement, research and innovation

cooperation in the field of renewable energy generation technologies between EU and **Africa** needs to be strengthened and further developed. Coordination of the existing bilateral activities between European and **African** countries is advisable. The challenge is bringing together the national funding agencies of EU member states and **African** states interested in developing joint research activities between the two continents to create synergies and to push forward common research and innovation cooperation in the field of renewable energy production and use.

Scope: The proposal will implement the common strategic joint research and innovation programme on renewable energy technology developed in the preparatory phase, topic LC-SC3-JA-2-2018, to adapt renewable energy technologies to the **African** environmental, social and economic conditions through joint research efforts.

The range of activities can include research projects, demonstration projects, technology transfer projects, and exchange of researchers between European and **African** actors. The activities will also create synergies with existing development programmes.

Expected Impact: The expected impacts are firstly the creation of long lasting research and development cooperation between European and **African** stakeholders through common understanding and trust, secondly the development of vibrant research and industrial frameworks and thirdly the development of renewable energy.

Delegation Exception Footnote: This activity directly aimed at supporting public-public partnerships with Member States and Associated Countries, technology platforms with industrial partners is excluded from the delegation to Executive Agencies and will be implemented by the Commission services.

Cross-cutting Priorities: Clean Energy; International cooperation

Horizon 2020 Pillar:	Societal Challenges
Programme:	Smart, green and integrated transport
Call Title:	Building a low-carbon, climate resilient future: Green Vehicles
Call Identifier:	h2020-lc-gv-2018-2019-2020
Topic Title:	InCo flagship on “Urban mobility and sustainable electrification in large urban areas in developing and emerging economies”
Topic Identifier:	LC-GV-05-2019
Type of Action:	IA Innovation action
Deadline(s):	24-04-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-gv-05-2019.html>

Specific Challenges: Climate change, energy security and local air pollution are some of the key questions for the 21st century. Urban areas in developing and Emerging Countries are major driving factors in growing global energy demand and Greenhouse Gas emissions.

Although cities cover only 2% of the earth's surface, 50% of the world's population lives in cities, but they are responsible for three-quarters of the global energy consumption as well as approximately 80% of the global greenhouse gas emissions. While the trend towards urbanisation and the associated increase of personal and freight transport creates massive challenges, in particular in developing and Emerging Economies, it also offers the unique opportunity to shape energy use especially in the transport and urban form towards a low carbon pathway. Moving towards sustainable mobility will also help addressing urban congestion, access to jobs and public services, and local air pollution.

This is why urbanisation requires integrated mobility solutions that bring together technology opportunities with local and national policy, including land use and mobility planning. Efficient transport and mobility, based on a balanced mix of public and private transport and dependent on the characteristics of each city, is and will continue to be the backbone of cities' growth and competitiveness.

Whereas environmental issues are very high on urban mobility agendas, the importance of transport in urban social and economic structures is often

neglected in discussions. All three aspects of urban sustainability must be treated with equal importance and have to be examined in parallel.

Scope: Actions should bring together European, Asian (e.g. China), CELAC (Community of Latin American and Caribbean States) and **African** research partners, government agencies and urban authorities, private sector and civil society with relevant expertise and competence within the corresponding cooperation framework and foster participatory engagement in urban electrification in order to reduce air pollution and CO₂ emissions. All types of vehicle are considered under this topic (powered 2 wheelers, cars, buses, trucks and LDV).

Proposals should address all of the following activities:

- Development of a toolbox for advanced management strategies towards a more efficient private and public electric mobility: E-mobility management strategies, focusing on smart deployment and operation of vehicles, in particular electrified vehicle, to increase mobility and energy efficiency, emission reduction and user acceptance of electrified vehicles
 - A smart and cooperative management of the vehicle in urban operation, (intermodal route planning, ecorouting eco-driving charging and parking infrastructure availability...).
 - Deployment and operation of infrastructure use charging infrastructure (conventional and wireless) and network, availability of parking places. Adaptation and integration of existing/ adapted vehicles of different types if necessary.
 - Efficient integration of the operations of different electrified road public transport, from e-bike to bus rapid transit (e- BRT) including mini-buses, taxi and mobility services on demand through smart navigation and routing, coordinated traffic management, demand-responsive service and dispatching
- Comparative demonstrations activities and pilots in cities in Europe, Asia, **African** and/or CELAC countries: Innovative concepts for electrified road public transport (passenger and freight), jointly designed through International Partnerships as a contribution to a wider sustainable mobility concept, from the perspective of a seamless mobility, taking in account the acceptance of users (travellers or freight operator). Comparative demonstrations activities and pilots (in European and Chinese's Cities, **African**, CELAC countries) of such jointly designed concepts developed by local partners.
- Implementation concepts to scale up the demonstration activities. Evaluation of the relative outputs and accordingly the development of implementation concepts to scale up the demonstration activities and exploration of the sustainable mobility planning in the city transformation process :
 - Sustainable planning of city and transportation infrastructure: link city planning with policy discussion and implementation solutions and city goals

- Dedicated plans for financing solutions, including public and private operations.
- Regional and international replication conditions to reach out to a larger number of cities and countries

Cooperation and synergies with ongoing activities undertaken with international initiatives such as Decarbonising Transport (International Transport Forum) and the Urban Electric Mobility Initiative (UN-Habitat) and other joint initiatives of European Member States international cooperation initiatives and the European Commission (e.g. Mobilise Your City) should be sought where appropriate.

In line with the strategy for EU international cooperation in research and innovation^[1], international cooperation is encouraged.

Applicants are invited to read the eligibility and admissibility conditions for this topic.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 15 and 18 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:

Proposals are expected to contribute to:

- Capability to quantify the potential reduction of greenhouse gas and pollutant emissions as well as traffic congestion, by demonstrating improvements that can be achieved with new urban mobility systems and electrification, for each stakeholder in the value chain (in line with the objectives set by the COP21 and the New Urban Agenda)
- Reference models of the mobility system to provide a basis in order to assess the ability to replicate sustainable concepts by demonstrating the short- and long-term benefit for the stakeholders involved, and especially considering the relevant boundary conditions (i.e infrastructure, vehicle, usage needs and patterns, governance, financing schemes, urban organisation, etc) and how the result contributes to key EU policy goals (including climate goals and competitiveness of European industry
- A basis for strengthening the collaboration of the European Union with Asia (e.g. China, India, etc), Latin America (CELAC) and **Africa**, which also offers both a common starting point for common future legislative efforts, as well a favourable setting for new business opportunities for innovative local and European entrepreneurs.

Cross-cutting Priorities: Open Innovation, Contractual Public-Private Partnerships (cPPPs), EGVI, International cooperation, Socio-economic science and humanities

^[1] (COM (2012) 497)