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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.

Proposals are encouraged to use the Copernicus Data and Information Access Services (DIAS), or other existing data access solutions instead of setting up their own download and processing infrastructure. They are also encouraged to 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.

Tasks shall include joint calibration and validation activities or integration of local in-situ systems to enhance the quality of data and 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 proposals under this topic:

- Participation of at least one partner from a country that has signed a Copernicus Cooperation Arrangement[2] is required;
- Participation of industry, in particular SMEs, is encouraged;
- Involvement of post-graduate scientists, engineers and researchers is encouraged, for example through professional work experience or through fellowships/scholarships as applicable;
- Participation of partners involved in international **GEO Initiative**s 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 stating of Copernicus data and information in a global environment and **GEOSS**.

Cross-cutting Priorities: International cooperation

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[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, food security, 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, Gender, RRI, Socio-economic science and humanities, Open Innovation

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[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: GOVERNANCE FOR THE FUTURE

Call Identifier: H2020-SC6-GOVERNANCE-2018-2019-2020

Topic Title: Drivers and contexts of violent extremism in the broader MENA region and the Balkans

Topic Identifier: SU-GOVERNANCE-10-2019

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/su-governance-10-2019.html

Specific Challenges: Parts of the broader Middle East and **North Africa** (MENA) region and of the Balkans have been experiencing ethnic, religious and territorial conflicts and civil wars as well as a rise in violent extremism fuelled or justified also by religious interpretations. More empirical and interdisciplinary research is needed to understand the various historical, geopolitical, socioeconomic, ideological, cultural, psychological, and demographic factors that drive these conflicts and violent extremism in these regions. The various ways in which these phenomena impact Europe also need closer scrutiny.

Scope: Proposals should produce country and regional analyses of the interplay between religion, politics and identity. This should include country and regional comparisons. Religious extremism in particular should be addressed from angles such as drivers, narratives, authority figures and formal leadership. Radical interpretations and appropriations of religion to justify violent extremism as well as their impact on individual rights (including women's rights and gender issues more broadly) should be studied. Links to recent developments with an impact on Europe - such as the issue of foreign fighters and the role of diasporas and community leaders - should be assessed.

Concrete proposals should be made on which preventive measures are effective and should be stepped up. In particular, research should examine to what extent this is the case with measures such as strengthening moderate voices among religious and other communities, fostering education and inclusion as tools for reconciliation, promoting online media literacy and countering radical propaganda. Proposals should involve relevant actors (e.g. policymakers,

religious leaders, representatives of civil society) to ensure mutual learning and take-up of results.

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 improve the knowledge base on violent extremism in the broader MENA region and the Balkans. It will ensure a step-up in mutual learning between the EU and third countries in light of common challenges.

Cross-cutting Priorities: Socio-economic science and humanities, 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: 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-33-2018.

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

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[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: 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.

The selected project should take into consideration the EU animal health regulatory framework, and follow the policies and contribute to the objectives of the STAR-IDAZ international research consortium[2].

Proposals should fall under the concept of the 'multi-actor approach'[3] 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, at target TRL 5-6;
- 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

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

[2] http://www.star-idaz.net/

[3] 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: 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) plant protection and pest control (including integrated pest management) 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-33-2018.

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** – ITPS **African** members.

Proposals should include a task to cluster with other projects financed under the topic and with the cooperation platform established under SFS-33-2018.

The Commission considers that proposals requesting a contribution form 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: Gender, Socio-economic science and humanities, International cooperation, RRI

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[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: 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: Bioclimatic approaches for improving energy performance in buildings in Africa and Europe

Topic Identifier: LC-SC3-EE-18-2019

Type of Action: CSA Coordination and support action

Deadline(s): 03-09-2019 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sc3-ee-18-2019.html

Specific Challenges: **Africa** is going through a rapid urbanisation phase and it is anticipated that, by 2030, there will be more people living in urban than rural areas. On the other hand, the housing supply is already far from meeting the highly growing demand in cities and the expectations of home owners, in terms of performance, comfort and health. One of the reasons for this situation is the insufficient use of construction materials and technologies, which are adapted to local climate and economic contexts. Imported materials and technologies, which are not always suitable for local conditions, are replacing the traditional and local building designs, construction techniques and materials. Poor indoor thermal conditions, in particular overheating, and high demand for expansive active cooling, are often the result together with an increased buildings' energy footprint. Use of cheap and low-quality materials to cut down construction costs and lack of knowledge about their performance are other problems related to this issue. There is a need to increase the knowledge about the benefits of using bioclimatic buildings design approaches, local materials, and construction techniques suitable to local contexts.

Scope: Proposals should study the performance of a selection of European and **African** local bioclimatic building designs, local construction materials and techniques to determine how they could be utilized to increase the energy performance, living quality and sustainability of buildings in targeted geographical zones in **Africa** and their climatic and socio-economic conditions. Proposals should promote innovations, including bioclimatic approaches, to enable adaptation of local materials and techniques to current building design and construction practices and lifestyles. They should include maximizing passive cooling, passive

ventilation, natural light gains and suitability for specific local climate conditions (e.g. stark rains). They should investigate how sustainable supply chains of local materials could be established or improved to cope with fast paces of construction, contributing to the support of local businesses. They should foster exchange and mutual learning between European and **African** stakeholders (policy-makers, architects, auditors, building sector private companies) for better regulation and implementation of locally adapted bioclimatic construction approaches.

Proposals should include the following activities:

- Identification and documentation of **African** and European affordable buildings designs, construction techniques and materials suitable for a selection of local climatic and socio-economic contexts in **Africa**, based on bioclimatic construction approaches.
- Exchange activities around the topic of fostering low-cost, high performance, locally adapted bioclimatic construction approaches for **African** and European policy-makers and on the development of building policies, standards, regulations, certificates and other relevant instruments and support measures in a selection of geographical zones in **Africa**.

They could also include the organization of one or several study visits to demonstration sites for **African** policy-makers and other key stakeholder including the construction sector. South-south cooperation is also encouraged.

- Investigation of the measures (in particular policy ones) that could effectively support the development of sustainable and cost-effective supply chains of local construction materials, in order to enhance their competitiveness and contribute to the growth of local businesses.

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

Expected Impact: Proposals are expected to demonstrate that they will trigger as many as possible of the impacts listed below:

- Increased use of affordable, locally-adapted bioclimatic construction approaches in buildings in **Africa** with high energy performance and increase living comfort;
- Expected (potential for) energy savings (kWh) in buildings thanks to the improved techniques;
- Number of documented locally-adapted bioclimatic affordable building design, construction techniques and materials;
- Number of participating policy-makers and other key stakeholders with increased knowledge;
- Number of exchange meetings and/or study visits;
- Number of new legislative, regulatory, standardisation, certification schemes or other support measures launched or under preparation;

- Investments aiming to develop or deploy affordable, locally-adapted bioclimatic buildings design, construction techniques and materials;
- Promotion of effective sustainable supply chains of local construction materials;
- Number of workers with increased related skills in the bioclimatic construction sector.

Cross-cutting Priorities: International cooperation, Clean Energy

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): 25-04-2019 (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 will include at least one demonstrator in the following regions: Europe, Asia, **Africa** and CELAC (leading to a minimum of 4 city demonstrators). Demonstrations will involve local partners. 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).
- 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 and with any Air Quality Plans
  - 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.

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)
- UN's Sustainable Development Goals 11 "Sustainable cities and communities" and 13 "Climate Action"
- 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, Clean Energy, Contractual Public-Private Partnerships (cPPPs), EGVI, RRI, Socio-economic science and humanities, International cooperation

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[1] (COM (2012) 497)