



## CONCEPT NOTE

### EU-Africa Research and Innovation Partnership on Climate Change and Sustainable Energy

#### Introduction

The fight against climate change needs on the one hand mitigation of greenhouse gas emissions and in other hand, adaptation measures to reduce climate risks, specifically for most vulnerable. Reduced economic activity during the COVID-19 pandemic has alleviated the stress on the energy systems in Africa, but has a strong socio-economic impact. While the supply of energy continued in a seamless way, oil producing countries in Africa also experienced a severe drop of their revenues, due to the large drop of oil prices at international markets..This affected investments in clean energy technologies and the availability of financing for new clean energy projects massively. Economics are expected to rebound, in the best case by investing in climate friendly solutions, both to mitigate emissions and to adapt by developing more resilient societies.

Renewable energy technologies remain the baseline on which to build a sustainable future. A wide deployment of renewable energy systems will pave the way to increase access to energy and higher security and reliability in time of crisis, as it offers the capacities to produce energy closer to where it is needed. Together with a broader transition to more circular and resource-efficient economies, that can also significantly contribute to lower greenhouse gas emissions, it will also sustain the socio-economic recovery in the medium-long term through the creation of local value chains and associated job creations, while ensuring a sustainable future for European and African citizens.

Regarding impact on climate the COVID episode was an opportunity for the R&I community to get a glimpse of behaviour changes needed for a world with i) significantly lower anthropogenic greenhouse gas emissions, and ii) reduced vulnerabilities in term of climate and health. The COVID pandemics also created a situation faced by the world similar in terms of disruption to what could be triggered by the current global warming and climate change in the future.

Decarbonisation of the economy, associated to zero pollution ambition and biodiversity recovery, as proposed by the European Green Deal and reinforced by the EU recovery plan “new Generation EU”, is the proposed way forward in Europe to accelerate the economic recovery of our continent as well as mitigation in Europe and adaptation for reduced climate change impacts. Similarly, Africa Agenda 2063 envisions a climate resilient Africa with reduced emission levels arising from agriculture, biodiversity loss, land use, deforestations, etc. as well as reductions in loss of life and property due to natural and anthropogenic disasters and weather and climate extreme events. The High Level Work Programme on Climate Change Action in Africa (WPCCAA) endorsed by the AU Assembly strives to accelerate Africa’s climate action.

The actions for the climate action and energy transition should build on strong research and innovation in different economic sectors, not only energy, but also sustainable industry and

productive use, circular economy, construction, transport and agriculture, food and health that would benefit both the EU and the AU. In this regards, R&I will support adaptive measures for addressing climate change risks.

In future energy systems, green hydrogen presents a unique opportunity for energy system integration, raising the share of renewable energy for difficult to electrify sectors such as industries and transport. With substantial renewable energy sources, Africa has a unique opportunity to accelerate the uptake of this new technology to replace fossil fuels. The discussion on the creation of the African Hydrogen Partnership (AHP) started in Jan 2019 and since then there has been discussion with governments, industry, financial institutions and large end consumers. Their vision is the Green African Hydrogen Deal.

In this context, the current and future activities of the CCSE partnership would build on existing activities, benefit to the extent possible from the investments into the recovery from the pandemics and, most importantly, maximise the impacts of the activities undertaken through an effective valorisation of the R&I results.

The following initiatives can be highlighted as examples of ongoing and proposed activities:

- Three EU-projects relevant for climate services are starting this year with a total funding of about 21 MEUR developing, in cooperation with numerous partners across the African continent, climate services which will support adaptation and mitigation efforts in various sectors for Africa, including energy and agriculture. Attention will also be paid to the potential of circular economy in the climate mitigation effort. These projects will also help in identifying further research requirements as well as enhance Africa's capacities in climate monitoring.
- The Intra-ACP Climate Services and Related Applications project (52MEUR) provides an opportunity for both the AU and the EU to collectively address the challenge of delivering the scientific knowledge required to support informed decision making, adaptation and mitigation policies, early warning, better planning, and a wide range of climate actions in all sectors of the economy including agriculture, health, disaster risk reduction, energy, forestry, water, etc. While R&I inform climate services, the project inculcates the culture of innovation and would also help in identification of critical climate research needs.
- The Global Climate Change Alliance Plus (GCCA+) project (9MEUR) supports the implementation of the Paris Agreement on Climate Change and the correspondent Nationally Determined Contributions (NDCs) in Africa. The project helps African countries to achieve their mitigation and adaptation goals.
- Coordination and Support Action/CSA SINCERE 2018-2022, coordinated by JPI Climate and funded by the EC, are strengthening open international climate change research and innovation cooperation with a Flagship Action in Africa, in support of both Paris Climate Agreement, Sendai Framework for Disaster reduction and the UN Sustainable Development Goals.
- The Joint Research Programme project<sup>1</sup>, under evaluation, is expected to start by the end of 2020. Its budget amounts to 30MEUR with 15MEUR from coming from the EC and the other half originating from the consortiums members.
- Bioclimatic approaches for improving energy performance in buildings in Africa and Europe (lc-sc3-ee-18-2019, 1 MEUR, Start in September 2020)

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<sup>1</sup> Topic LC-SC3-JA-5-2020: Long Term EU-Africa Partnership for Research and Innovation actions in the area of renewable energy

- A call for demonstration projects in Africa has been proposed for the Horizon 2020 Green Deal call of the EC. The announcement of the call content will take place in September 2020.
- Other climate-related topics of the GD call should be open for international collaboration. Those should be relevant to the EU-AU collaboration (biodiversity restoration, climate services).
- The EC, DG R&I, is about to launch a pilot climate platform to strengthen the links between the EU-AU R&I projects in the domain of climate change.
- The Great Green Wall Initiative provides an essential platform for nature-based solutions to the challenge of climate change. Already a renewable energy component is being developed by the partners named “Desert to energy project” which aims at harnessing the immense solar energy potentials of the Beneficiary countries (Sahel, Sahara and SADC).
- Horizon Europe, the new research funding instrument of the EU budget (2021-2027), will address the priorities of the EU Green Deal. As the CCSE roadmap is very aligned to those priorities, both in the areas of climate and renewable energy R&I, this could create a number of opportunities for joint research.
- Industry advocates the need for the European Union and its member states to design, create and facilitate a hydrogen market, infrastructure and economy. Crucial is the design and realisation of new, unique and long-lasting mutual co-operation mechanisms on political, societal and economic levels between the EU and African countries.
- The CCSE roadmap is to be complemented in the following areas:
  - While the ongoing actions are covering very well new renewable energy sources and electricity services, very limited actions have been developed on energy efficiency. With the growing energy demand in Africa, in particular in cities and for cooling, it is crucial that the CCSE considers putting energy efficiency first, in particular in buildings. Research for demonstration projects and market development in energy efficiency in buildings is to be reinforced
  - The European industry advocates the need for the European Union and its Member States to design, create and facilitate a hydrogen market, infrastructure and economy. Activities to initiate will be explored.
  - The aspect of circular economy and circular technologies will be re-enforced when developing clean energy and climate related technologies.
  - Closer relationship will be built between the CCSE and the activities of the JRC on the water-energy-food nexus.
  - Regarding monitoring of climate impacts both the European countries and African countries are collaborating through GMES in Africa and through the international initiative GEO.

### **Background of the aforementioned initiative**

The above initiatives are based on the approved CCSE roadmap. The areas are expected a priori to be suitable for cooperation with African partners. The validation and endorsement of the proposals is sought in view of moving forward.

The Joint Research Programme project will provide a platform for funding agencies to organise joint calls and a platform for collaboration between research organisations wanting to work together on common goals and objectives, building capacities in the field of clean energy, green and circular technologies development and also in the administration of joint research activities.

As recognised by the 4<sup>th</sup> HLPD meeting in 2017, it is important to promote coordination between initiatives in the cooperation areas of climate and energy and of mobilising additional funding for the long-term implementation of the R&I Partnership on CCSE

The demonstration projects will provide the appropriate technological demonstration of different clean energy green and circular technologies in the African contexts. The projects will also ensure that the related technology value chains are identified and developed in the local context to generate sustainable development opportunities.

A good understanding of the water-energy-food nexus is required to build proper balance in the use of water in area where it is scarce.

### **Objectives**

The objective is to progress knowledge in the areas of activities and deliver R&I outputs that would be taken up to accelerate the climate and energy transition and prepare the AU and the EU to reduce climate change impacts.

On issues related to resilience and adaptation to reduce climate risks and vulnerabilities, it is essential to promote coordination at regional scale due to a fragmented landscape of bilateral and multilateral initiatives. In particular, efficient and sustainable climate services within African countries are of utmost importance to link capacity building, research and innovation to development strategies that allow resilience and adaptation to present and future climate risks and vulnerabilities. To this end, the creation of CCSE WG is essential to progress by committing the AU and EU climate change experts on such coordination.

Progress towards such objectives would be initiated by the selection of joint research and innovation priorities addressing renewable energy and energy efficiency technology, integration of renewable energy in the African energy systems, and climate mitigation, as well as climate resilience and adaptation. As the scope of climate services is very broad, focus on few priorities will be essential to achieve meaningful results in the selected area. The set of activities agreed upon should be designed to complement EU Member States R&I priorities with AU countries in the same areas. The full set of activities from the EU and Its Member States could lead to a Joint Programme.

Such joint programme should be designed to ensure that the impact of the joint R&I investments maximised in term of contribution to the societal objective described above. The common strategic joint programme needs also to create synergies with existing African-European programmes such as the Africa-EU Partnerships on FNSSA (Food and Agriculture) and EDCTP (Health), the Africa-EU Energy Partnership, the EU Energy Initiative, the Africa Renewable Energy Initiative, the Africa Adaptation Initiative and the EU-Africa Research and Innovation Partnership. Regarding monitoring of climate impact both the European countries and African countries are collaboration through the Climate Services programme in collaboration with the World Meteorological Organisation (WMO), GMES & Africa and through the international initiative GEO within the AFRIGEO initiative. Joint EU-AU R&I activities should contribute to deepen those initiatives, including the capacity to alert on climate risks as well as to estimate evolution of vulnerabilities from month to decades.

The activities will lead also to the creation of expertise for policymaking, knowledge and knowhow for the development and the commercialisation of clean energy technologies, climate solutions and the creation of climate resilient economies, livelihoods as well as a local vibrant renewable energy industry.

Stakeholders from public organisations like funding agencies and research institutions and from the private sector like technology developers, project promoters, energy providers and energy producers should be involved in the proposed programme.

### **Funding**

As mentioned above the Joint Research Programme project, under evaluation, is foreseen to start by the end of 2020: 30MEUR with 15MEUR from EC and 15MEUR from the consortium members.

For the demonstration projects no budgets are yet allocated from the EC side. It is expected that the projects will be funded under the Innovation Action modality, in which the EC will fund 75% of the total eligible cost of the project. The call is foreseen to be launched in September 2020 for a deadline in January 2021. Funding will be then needed in 2021 for timely start of projects by December 2021.

For the activities to be supported under Horizon Europe, no budget is yet allocated. The first deadlines are foreseen in the first semester of 2021 with projects possibly starting at the end of 2021.

On issues related to climate risk and vulnerability reductions by using resilience and adaptation strategies, a joint vision should be forged based on CCSE WG recommendations in 2021, as well as on on-going international foresights (e.g. CSA opened for African cooperation).