# Roadmap for EU - African Union S&T cooperation

## 1. AFRICAN UNION as a partner of the EU

Africa is a unique partner for the EU for historical and geographical reasons. The high degree of interdependence between Africa and Europe as well as the shared principles of equal partnership and joint ownership have contributed to the development of a long-term, broad and evolving partnership across various policy areas.

Africa is the second fastest growing region in the world with an annual growth rate of 4.7% over 2000-2017[1]. Its population, currently around 1.2 billion people and largely composed of young people, is expected to double by 2050. Europe is Africa's largest export market, accounting for approximately 35% of its exports[2].
The importance of Africa for Europe was highlighted by President Juncker in his State of the Union Address 2018[3], where he proposed a new, promising **Alliance for Sustainable Investment and Jobs between Europe and Africa**. This is an important initiative paving the way towards stronger cooperation between the two partners.

[*Latest EU-AFRICAN UNION Summit*]

The fifth African Union-European Union Summit took place in Abidjan, Ivory Coast, on 29-30 November 2017, under the title "**Investing in youth for a sustainable future**"[4]. The Summit was held ten years after the adoption of the Joint Africa-EU Strategy and offered the possibility to discuss priorities for current and future cooperation, including: youth, peace & security, governance including democracy, human rights, migration and mobility, investment and trade, skills development and job creation. The Summit adopted a **Declaration** entitled "Investing in Youth for Accelerated Inclusive Growth and Sustainable Development", and which calls for fostering science, technology and innovation collaboration, including through the launch of a dedicated **AU-EU R&I Partnership on Climate Change and Sustainable Energy**.

[*EU-AFRICAN UNION non-S&T cooperation agreements*]

Two main frameworks govern EU relations with Africa: the **ACP-EU Partnership Agreement** (**Cotonou agreement**) which provides a legal basis for relations with Sub-Saharan African countries together with Caribbean and Pacific countries; and the Joint Africa-EU Strategy (JAES) adopted by the African and European

[1] https://read.oecd-ilibrary.org/development/africa-s-development-dynamics-2018/summary/english_03f1a0cb-en#page1
[2] http://trade.ec.europa.eu/doclib/docs/2017/november/tradoc_156399.pdf
[3] https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-speech_en_0.pdf
[4] https://www.africa-eu-partnership.org/en/stay-informed/news/au-eu-summit-2017

Heads of State at the Lisbon Summit in 2007. The former (Cotonou agreement) is set to expire in February 2020. Negotiations for the post-2020 ACP-EU Partnership were launched in New York in September 2018[5].

The Joint Africa-EU Strategy (JAES) is the political framework steering relations with the whole African continent. It has changed the nature of the relationship between Africa and the EU to one based on partnership, egalitarian relationships, shared objectives and mutual benefits and risks. It developed a long term vision on how to ensure peace and security and leverage faster socio-economic growth and sustainable development in Africa.

The EU-ACP Cooperation Programme on Science & Technology[6] phase I (EUR 35 million 2000-2007), financed 36 projects. In the second phase of the programme (EUR 23 million, 2008-2013) 21 projects were financed. The focus of the programme is on **Energy Access and Efficiency** as well as **Agriculture and Food Security.** Based on the lessons learnt from these programmes, a new action of estimated EUR 60 million EU contribution is expected to kick-off early 2019 with a view to enhancing the scope of EU support to R&I stakeholders in ACP countries.

African Union Research Grants (20 million euros between 2008 and 2013; 17.5 million euros in 2016-2018). This action provides funding to the African Union Commission (AUC) to organise calls for proposals for collaborative research projects and to fund the selected projects. It has two objectives: 1) to support collaborative research that contributes to the sustainable development of African countries and the fight against poverty, while respecting ethical and gender issues (through the calls, the African Union Commission supported research in post-harvest agriculture, renewable and sustainable energy and water and sanitation).; and 2) to develop the capacity of the AUC to design, implement and monitor R&D funding programmes and, ultimately establish an efficient, credible and reputable African framework programme for research and innovation (R&I), which can also attract funds from other sources. The current phase of the programme (Phase II) focuses on Food & Nutrition Security and Sustainable Agriculture with particular attention on Sustainable Intensification and Food Systems for Nutrition.

[*EU-AFRICAN UNION S&T cooperation agreements*]

The EU-Africa High Level Policy Dialogue (HLPD) on Science, Technology and Innovation was adopted at the 2nd Africa-EU Summit in Tripoli in 2010 as an important element of the Joint Africa-EU Strategy (JAES). The dialogue serves as a platform for regular exchanges on research and innovation policy and aims to formulate and implement long-term priorities to strengthen Africa-Europe cooperation on science, technology and innovation. The dialogue brings together the European Commission the African Union Commission as well as the 28 EU Member States and the 55 African Union Member States.

Country-level bi-lateral Science and Technology Cooperation Agreements exist with several countries in Africa: South Africa (1996, entered into force 1997), Egypt (2005, entered into force 2008), Morocco (2004, entered into force 2005) and Algeria (signed 2012, entered into force 2013).

[5] http://europa.eu/rapid/press-release_IP-18-5902_en.htm
[6] http://www.acp-st.eu/fr/node/1192

An important development for the EU-Africa cooperation in R&I is the Association of Tunisia to Horizon 2020. Following the signing of the Association Agreement on 1 December 2015, researchers and innovators from Tunisia can participate in Horizon 2020 under the same conditions as their counterparts from EU Member States and other associated countries.

[*R&I landscape in AFRICAN UNION*][7]

The enabling role of STI in fostering growth and meeting societal needs in Africa is reflected through the adoption of the African Union Science, Technology and Innovation Strategy for Africa 2024 (STISA-2024), and of various national STI policy frameworks, which have grown in number throughout the past decade. The STISA-2024[8] is part of the long-term people-centred AU Agenda 2063, which recognises science, technology and innovation as multi-function tools and enablers for achieving continental development goals.

Despite the fact that Gross Expenditure on Research and Development (GERD), as a percentage of GDP, is increasing in African countries, it remains below the national and AU targets of 1%. One of the success stories is the higher rate of penetration of Information and Communication Technologies (ICTs) in many African countries and the positive impact that this has brought in several application areas, such as education and agriculture[9].

The share of academic publications from African Union countries in the overall world output of publications was only 2.88% in 2016 but has been steadily increasing as compared to 1.94% in 2010. Moreover, the scientific impact is also improving, as indicated by the rise of the field-weighted citation impact of African Union publications, from 0.88 in 2010 to 0.94 in 2016 (1.0 being the world average). The share of Africa Union international co-publications was 49.6% in 2016 (39.1% in EU28) as compared to 42.2% in 2010 (31.7% in EU28), showing that international scientific cooperation is significant and also rising[10].

As far as Africa's share of global researchers is concerned, the percentages between 2007 and 2013 have relatively been the same: In 2013 Africa accounted for 2.4% of the total of researchers in the world, a figure slightly higher than that of 2007 with 2.3%. In 2014 Africa's share of world publications was only 2.6%. However, when it comes to publications with international authors, there has been a 60.1% growth in publications with authors from Africa within the period 2008-2014. With respect to gender equality in R&I, Sub-Saharan Africa, with women constituting 30% of all researchers, is among the regions with the highest shares of female researchers.

So far, the research sector has had little impact in West Africa, due to various framework conditions such as lack of national research and innovation strategies, limited opportunities for cooperation between researchers of the region and limited involvement of the private sector. The number of publications coming from West Africa remains low, with only Gambia and Cabo Verde publishing 50 scientific articles or more per million inhabitants.

[7] Unless stated otherwise, the statistics and information provided in this section have been retrieved from: UNESCO Science Report: Towards 2030 (pub. in 2015)
[8] https://au.int/en/documents/29957/science-technology-and-innovation-strategy-africa-2024
[9] African Academy of Sciences Report: Africa beyond 2030 (pub. in 2018)
[10] Data retrieved from Scival/Scopus in October 2017.

At policy level, the ECOWAS Policy on Science and Technology (2011), which constitutes an integral part of the ECOWAS' Vision 2020 (2011), provides a framework through which its members can develop or improve their own national S&T strategies.

In East and Central Africa STI has gained a prominent role since 2009. Most policy documents coming from these regions envision prosperous societies based on good governance, inclusive growth and sustainable development. Most of these policy documents put great emphasis on STI, in particular for supporting development. The East African Community (EAC) and Common Market for Southern and Eastern Africa consider STI to be a key component of economic integration.

There is a wide recognition in Southern Africa that STI is a key driver of sustainable development. SADC (Southern African Development Cooperation) adopted a protocol for science, technology and innovation in 2008 with the aim to promote development and harmonisation of science, technology and innovation of the region's members.

The global crisis which was accompanied by low growth and high unemployment rates in Europe and North America, seems to have discouraged emigration in some parts of Africa and encouraged some researchers to return home. The contribution of the returnees to the development of their national research and innovation systems is decisive.

## 2. State of play of EU-AFRICAN UNION S&T cooperation

### 2.1. On-going FP7 and Horizon 2020 cooperation

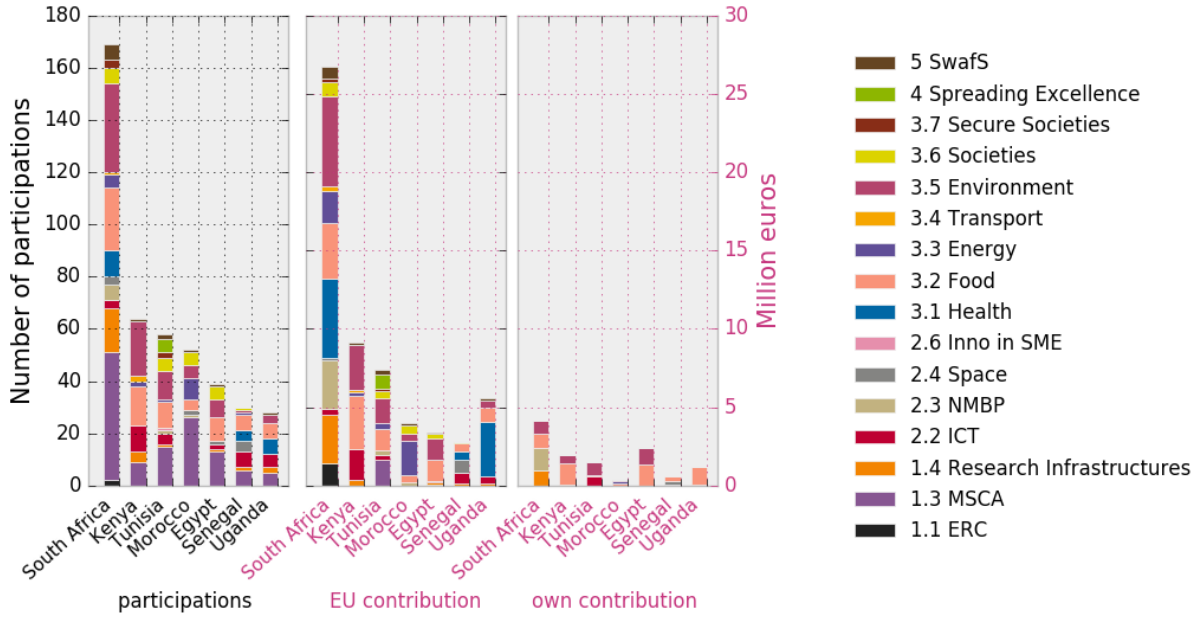
Entities from African Union member countries were involved 5980 times to 2489 eligible proposals for collaborative actions of FP7, leading to 453 funded projects that involve 1204 African Union participations, while African Union participants have received 166.9 million euros from EU. Health, food security, ICT, climate change and energy were among the primary areas of cooperation. What is more, 1648 nationals from African Union member states participated in Marie Curie actions, while six held an ERC grant.

With reference to Horizon 2020, up to October 2018 African Union applicants have been involved 2558 times in 1056 eligible proposals to collaborative[11] actions. 195 proposals were mainlisted, leading to a success rate of 18.5% (as compared to 15.8% overall). Overall, entities from throughout the African Union have 642 participations in 285 signed grants (of collaborative, Marie Skłodowska Curie Actions - MSCA and ERC actions), receiving 108.3 million euros from the EU and contributing with 15.2 million euros.

Figure 1 shows the participation of the most active African Union countries in Horizon 2020. Marie Skłodowska Curie Actions, food and environment are among the dominant areas of cooperation.

[11] Here referring to all actions except for ERC, MSCA, actions under the SME Instrument and Access to Risk Finance.

**Figure 1: Participation of the most active African Union countries in Horizon 2020**




Note: Participations of beneficiaries, third-parties and partner-organisations.
Source: DG Research and Innovation - International Cooperation
Data: CORDA (JRC, EIT and art.185 not included); extraction date: 15/10/2018

## 2.2. Current framework conditions for EU-AFRICAN UNION S&T cooperation

The scientific cooperation between Europe and Africa is long-standing, touching upon various fields, such as health, agriculture, environment, energy, ICT, etc. There is concrete commitment on both sides to strengthen the overall cooperation framework. Several activities have been undertaken to foster African participations in Horizon 2020. Several dedicated information days and trainings were organised between 2013 and 2017, with the support of CAAST-Net Plus[12], and through 2018, with the support of the 'Service Facility in Support of the Strategic Development of International Cooperation in Research and Innovation'[13].

[12] https://caast-net-plus.org/
[13] https://www.zsi.at/de/object/project/4521?_wrapper=print

Nevertheless, there are still certain factors which may delay the 'way forward':

- Relatively low level of R&D intensity, as illustrated above;
- Unequal access to information about cooperation opportunities through Horizon 2020 and other programmes;
- Institutional weakness and lack of experience of administrative, legal and financial aspects of EU-funded programmes;
- Limited communication/coordination between the scientific community and policy makers;
- Limited involvement of industry partners which may delay the uptake of project results;
- Limited visibility of successful collaborative research projects.

# 3. Priorities for the future in S&T cooperation

## 3.1. Areas of future S&T cooperation agreed at latest Joint Committee/High Level Dialogues

- **Food and Nutrition Security and Sustainable Agriculture (FNSSA) & Climate Change and Sustainable Energy**

  Under the European Union-African Union High Level Policy Dialogue (HLPD) on Science, Technology and Innovation, two research and innovation partnerships have been formed, focusing on: (i) Food and Nutrition Security and Sustainable Agriculture (FNSSA), and (ii) Climate Change and Sustainable Energy (CCSE). The first one, launched in 2016, is supported by Horizon 2020, the African Union Research Grants and country contributions (estimated EUR 150 million for 2016-2020). The second partnership was launched by the Abidjan Summit of November 2017. Its first actions will be supported by Horizon 2020 (estimated EUR 16 million for 2018-2020). A support action started in July 2018 to prepare a Joint Programme on Renewable Energy Technologies expected to start in 2020 (estimated European Commission and country contributions of about EUR 30 million for five years).

- **Global Health**

  There has been significant cooperation between Europe and Africa in the field of global health, especially through the European and Developing Countries Clinical Trials Partnership (EDCTP). This is a public-public partnership between countries in Europe and sub-Saharan Africa, and the European Union, which fosters research against poverty-related and infectious diseases in sub-Saharan Africa.[14] The second phase of the partnership (EDCTP2) is implemented as part of Horizon 2020. The EU will provide a contribution of up to €

[14] www.edctp.org/

683 million for the 10-year programme (2014-2024), provided this is matched by contributions from the European Participating States.

- **Synergies with other initiatives**
  - **Partnership for Research and Innovation in the Mediterranean Area (PRIMA)[15]:** This is one of the most ambitious initiatives in the framework of the Euro-Mediterranean cooperation aiming to "build research and innovation capacities and to develop knowledge and common innovative solutions for agro-food systems, to make them sustainable, and for integrated water provision and management in the Mediterranean area, to make those systems and that provision and management more climate resilient, efficient, cost-effective and environmentally and socially sustainable, and to contribute to solving water scarcity, food security, nutrition, health, well-being and migration problems upstream".
  - **All Atlantic Ocean Research Alliance:** Atlantic Ocean research cooperation is one of the main developing areas of joint interest. In parallel with the ongoing North Atlantic cooperation, significant steps have been made towards an All Atlantic Ocean Research Alliance. On 13 July 2017 the EU, Brazil and South Africa signed a joint Statement on Atlantic Ocean Research and Innovation Cooperation with a view to advancing joint collaborative scientific efforts in the Atlantic Ocean. In the same spirit, in November 2018, a Cooperation Arrangement between the European Commission and Cabo Verde is expected to be signed, with the aim of stepping up marine research and innovation cooperation.

## 3.2. Potential new areas of future S&T cooperation proposed at latest Joint Committee/High Level Dialogue, through SFIC, or by thematic services

- Closer cooperation with African countries is sought for the prevention and/or treatment of neglected infectious diseases (NID), Non-Communicable Diseases (Global Alliance for Chronic Diseases[16]), Anti-Microbial Resistance (AMR) and Emerging infectious diseases (Global Research Collaboration on Infectious Diseases Preparedness[17]).

- Enhanced cooperation on environmental research will be further encouraged, in particular in the field of urban mobility and sustainable electrification, with a view to addressing the challenges of climate change, energy security and local air pollution.

- In the same spirit, closer links among African and European partners are sought in the context of the Belmont Forum. The latter, created in 2009, is a global partnership of 21 research funding organisations and science councils investing in the advancement of interdisciplinary and transdisciplinary research in the field of global environmental change challenge.

[15] http://prima-med.org/
[16] www.gacd.org
[17] www.glopid-r.org

- The cooperation with Africa through the GEO (Group on Earth Observation[18]) and its 10-year strategic plan to 2025 will continue. AfriGEOSS, as the African segment of GEOSS (Global Earth Observation System of Systems) should enhance earth observation and climate monitoring capacities in Africa, as part of the global system to deliver services in priority domains for Africa such as for food security and health. In this context, the GEO governments, when they agreed to adopt the GEOS strategic plan to 2025, resolved to strengthen engagement with developing countries and foster regional cooperation. The Commission is supporting GEOSS activities in Africa through several projects based on Earth observation, in particular to provide projection for food production and assessment of biological resources.

- Africa and the EU will cooperate further together with a view to addressing the challenge of forced displacement. Solutions will be identified for protracted displacement situations, also in the framework of the EU Partnership Agreements and of the UN migration and refugee compacts. By mapping the dynamics of interactions between the displaced and the host community and bringing it to the attention of policymakers, this cooperation will enhance policy responses to integration needs.

- Interdisciplinary research cooperation between Europe and Africa (in particular North Africa) is encouraged to understand the various factors that drive violent extremism in the MENA region and the Balkans. Such cooperation will improve the knowledge base on violent extremism in these areas, while ensuring a step-up in mutual learning between the EU and third countries in light of common challenges.

- Emphasis will be placed on strengthening the innovation potential of our cooperation, including through innovation mapping exercises and gap analyses; the development of an Incubators and Accelerators Network across Africa with links to the EU innovation system; contribution to Smart Specialisation activities and support to technology transfer pilots.

- Attention will also be given to the science-policy interface and the importance of evidence-based policy making for good governance. In this context, synergies will be sought with activities led by the Commission's Joint Research Centre (JRC) which can feed into the priorities of the AU-EU High Level Policy Dialogue (HLPD).

[18] https://www.earthobservations.org/index2.php

**ANNEX: HORIZON 2020 WORK PROGRAMME 2018-20 TOPICS EXPLICITLY ENCOURAGING COOPERATION WITH THE AFRICAN UNION**

| | Topic identifier | Topic title | Call Submission Deadline |
|---|---|---|---|
| 2018 | SC1-BHC-15-2018 | New anti-infective agents for prevention and/or treatment of neglected infectious diseases (NID) | Closed |
| | SFS-33-2018 | Support to the implementation of the EU-Africa Research and Innovation Partnership on Food and Nutrition Security & Sustainable Agriculture (FNSSA) | Closed |
| | LC-SC3-JA-4-2018 | Support action in preparation of a Joint Programming activity | Closed |
| | MIGRATION-08-2018 | Addressing the challenge of forced displacement | Closed |
| 2019 | LC-SFS-34-2019 | Food Systems Africa | 23 January 2019 |
| | SFS-35-2019-2020 | Sustainable Intensification in Africa | 23 January 2019 |
| | LC-SC3-JA-5-2019 | Joint Programming with EU and African partners for R&I actions in the area of renewable energy | 27 August 2019 |
| | LC-GV-05-2019 | InCo flagship on "Urban mobility and sustainable electrification in large urban areas in developing and emerging economies" | 24 April 2019 |
| | LC-CLA-05-2019 | Human dynamics of climate change | 19 February 2019 |
| | LC-SC3-EE-18-2019 | Bioclimatic approaches for improving energy performance in buildings in Africa and Europe | 03 September 2019 |
| | SU-GOVERNANCE-10-2019 | Drivers and contexts of violent extremism in the broader MENA region and the Balkans | 14 March 2019 |
| 2020 | CE-SFS-36-2020 | Diversifying farmers' income through small bio-based concepts | forthcoming |