



**Strengthening Technology,
Research and Innovation
Cooperation between
Europe and South Africa**

European Research and Innovation Cooperation Programmes
with South Africa

Deliverable 2.2

Contents

Executive summary	4
1. Introduction	5
2. Methodology	7
3. Current Bilateral Research and Innovation Programmes	10
3.1. Formal Bilateral Agreements between South Africa and EU MS and AC	10
3.2. S&T Thematic Areas of Focus between South Africa and EU MS and AC	12
3.3. Commonly Utilised Instruments for Implementing the Bilateral Programmes	14
4. Twinning call on marine science	18
4.1. Recommended Thematic Areas of Focus for Joint Activities	18
4.2. Instruments / Mechanisms for Implementing Joint Programmes	18
5. Potential Challenges and Proposed Solutions	21
6. Concluding Remarks	22
Abbreviations	23

List of Tables

Table 1: ESASTAP 2020 partners	5
Table 2: Bilateral Agreements	12
Table 3: Currently active and future bilateral thematic areas of focus	13
Table 4: Agency partners with the NRF	16



List of Graphs

Graph 1: Number of Consulted S&T Liaison Officers per Region	8
Graph 2: SA S&T Bilateral Agreements with EU Ms and AC	10
Graph 3: Agreement Type	11
Graph 4: Agreements at Agency Level	11

Annex

Annex A: Matrix Document of the Current Bilateral Programmes.....	25
Annex B: Schedule of one-on-one Consultations with S&T Liaison Officers	40

Executive summary

The Strengthening of Technology, Research and Innovation between Europe and South Africa (ESASTAP) Project and its predecessors have been instrumental in enhancing the success of the SA- EU science, technology and innovation cooperation. Recent discussions on areas of cooperation between South Africa and EU led to a renewed focus on themes of common interest such as health, blue economy, and water and food security.

As the research conducted in this study shows, there is currently sufficient scope to improve coordination of different bilateral cooperation initiatives between European countries and South Africa. Better coordination of various research and innovation initiatives could result in more optimal investment of resources through funding partners, as well as provide key resources and new tools of cooperation for South Africa. More specifically, in the thematic areas, a cooperative approach will serve to better address and coordinate funding activities. However, the challenge is to be more effective in addressing basic needs for sustainable development and to do so in a better informed and coordinated manner.

Lessons from the ESASTAP Plus report on the *“Assessment of the Pilot Initiative: Lessons Learned and Recommendations”*, indicate that coordination of various research and innovation initiatives will never work without entrenching the principle of ownership in partners. It is thus important that the joint programmes to be embarked upon should be identified and supported by the partners themselves. The role of ESASTAP 2020 therefore is to create an enabling environment for this to happen.

1. Introduction

This year (2016) marks the 20th year celebration of a successful cooperation in Science, Technology and Innovation (STI) between South Africa and the European Union (EU). STI policy dialogue is sustained through the meetings of the EU-SA Joint Science and Technology Cooperation Committee (JSTCC). Recently, discussions on new areas of cooperation have been framed through the *Roadmap for the Cooperation between South Africa and the European Union*, with a renewed focus on themes of common interest such as marine research, energy, as well as minerals and mining research.

The ESASTAP 2020 Project and its predecessors have been instrumental in enhancing the success of the SA-EU science, technology and innovation cooperation through strategic activities, the result of concerted efforts undertaken by the successive Framework Programme (FP) 6 as well as FP7 INCO projects SAccess, ESASTAP, ESASTAP-2 and ESASTAP Plus.

The importance of the continuation of the ESASTAP+ consortium in the new ESASTAP 2020 cannot be overemphasised. The new project includes most of the key partners in EU and SA and will ensure a smooth transition, transfer of knowledge and successful implementation of the actions proposed in the new ESASTAP project. A number of new European and South African partners have joined the consortium and this augurs well for the successful implementation of the ESASTAP2020 objectives going forward. All partners bring to the consortium unique and complimentary knowledge and expertise and will assist ESASTAP 2020 by providing access to research and innovation opportunities for research communities. The current ESASTAP2020 consortium consist of the following ten partners from seven countries:

Country	Institution	Status
South Africa	Department of Science and Technology (DST)	Old partner (WP1 Leader)
	National Research Foundation (NRF)	New partner (WP2 Leader)
	Technology Innovation Agency (TIA)	New partner
	Academy of Science of South Africa (ASSAf)	Old partner
Italy	Agenzia per la Promozione della Ricerca Europea (APRE)	New partner (WP3 Leader)
Greece	Foundation for Research and Technology Hellas (FORTH)	Old partner (WP4 and 5 Leader)
France	The French Institute for Research and Development (IRD)	Old partner
Norway	Research Council Norway	New partner
Germany	Deutsches Zentrum Fuer Luft - und Raumfahrt EV (DLR)	Old partner
Austria	Centre for Social Innovation (ZSI)	New partner

Table 1: ESASTAP 2020 partners

The National Research Foundation (NRF) currently leads Work Package (WP) 2 that seeks to ensure coordination of EU Member qStates (MS) and Associated Countries (AC)'s research and innovation policies and programmes with South Africa in order to maximise synergy for bigger impact and value add. To reach this goal, WP2 partners (i.e. NRF, DST, TIA, IRD, RCN and DLR) have undertaken a research study to analyse the current status of the SA-European Union bilateral research and innovation cooperation programmes with the view to define key areas and guidelines to create synergy and improve coordination between South Africa and individual EU MS and ACs.

South Africa is engaged in a significant number of bilateral agreements involving STI cooperation with EU members and ACs. There is a need for a better coordination of different bilateral S&T cooperation initiatives between South Africa and individual EU MS and AC. This could result in a more optimal investment of resources especially since South Africa and the EU share similar objectives and have a common interest in cooperation in research and innovation. Also, this type of

coordination will assist South Africa in particular to reduce the current heavy administration and coordination that comes with managing numerous bilateral programmes.

In its nature, high-level research is complex, expensive and interdisciplinary. Therefore, investment in such research requires going beyond bilateral programmes and paying more attention on establishing robust international multi-country partnerships. A fragmented approach to science and technology should be avoided. The fostering of links and collaboration between existing programmes and joint actions can add significant value to the overall South Africa-EU science and technology partnership.

Significant ground has already been covered in this area in the previous study that was conducted under ESASTAP Plus Work Package 2. This report, therefore, makes recommendations based on the outcomes detailed in the ESASTAP Plus report and the results of the research that was conducted by WP2 under ESASTAP2020.

As it was argued in ESASTAP Plus, 'the political situation is not mature enough to use words such as "coordination", "roadmap" or "coordination task force" that can lead to misunderstanding' (ESASTAP Plus Report, 4). Accordingly, recommendations made in this report, will align with the principle approach adopted in ESASTAP Plus - of ensuring that the "idea of joining forces" comes from the stakeholders themselves and that the principle of ownership is respected by all participating stakeholders. In this context, the responsibility of the ESASTAP2020 WP2 partners would be to provide recommendations for possible joint activities and create an enabling environment for the implementation of the agreed upon joint programmes.

This report is divided into four main sections as follows:

- **Methodology section:** Outlines the methodology that was employed to gather all the relevant information.
- **Analysis of Results section:** Provides a detailed description of the S&T bilateral programmes that currently exists between South Africa and individual EU MS and ACs.
- **Recommendations section:** Provides recommendations for joint activities in order to strengthen the SA EU S&T cooperation.
- **Potential Challenges section:** Tables potential challenges that might be experienced in the implementation of the identified joint activities.

2. Methodology

This section outlines the steps undertaken by ESASTAP2020 WP2 partners in identifying focus areas for coordination of South Africa's research and innovation bilateral cooperation programmes with EU MS and ACs.

The collating of information started with a desktop research. A Matrix template was subsequently designed in order to collate information from different relevant stakeholders. From the South African side, the stakeholders who were engaged to provide inputs into the initial Matrix template were the Department of Science and Technology (DST) and its research and innovation funding agencies such as the NRF, TIA and ASSAf. The NRF, being a basic research funding agency, completed and verified bilateral research programmes, and TIA being an innovation funding agency, completed information on bilateral innovation programmes. Neither the Human Sciences Research Council (HSRC) nor the Centre for Scientific and Industrial Research (CSIR) were not engaged as they are not necessarily funding agencies but rather, Research and Development (R&D) performers, i.e. beneficiaries of the bilateral programmes.

Moreover, the Delegation of the European Union to South Africa was engaged and requested to provide information on the EU programmes that South African researchers usually apply for. This was important as it will assist to determine the alignment between the supported bilateral programmes and the EU opportunities attracting South African researchers. This EU related information has also been included in the Matrix document.

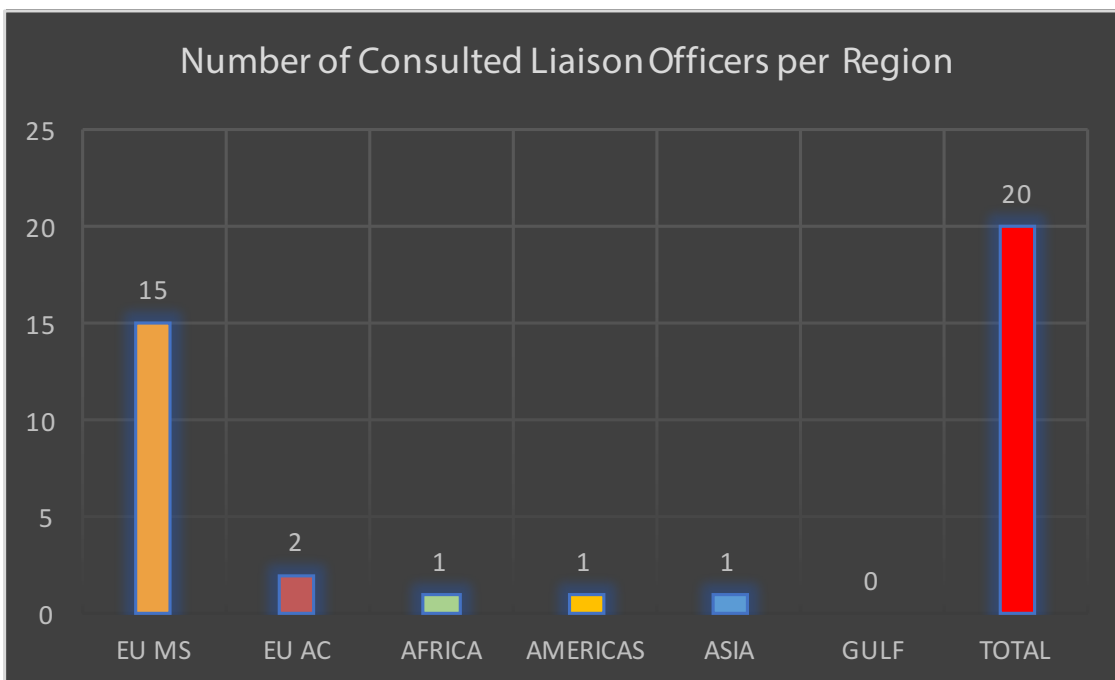
The Matrix document is detailed in nature. It was crucial to design it this way in order to ensure that there is "**one stop shop**" for all information. Below are all the elements addressed in the Matrix.

- Partners (i.e. which South African entity is partnering with which EU MS and AC)
- Identified programmes to be supported between the partners
- Projects supported within each specific programme
- Description and/or details of the supported projects
- Budget for each programme
- The scope of the programme (i.e. national, regional, global, etc.)
- Sector (i.e. innovation, research, policy dialogue, thematic area of focus, etc.)
- Type of support provided (i.e. research grant, fellowship, seed funding for start-ups, etc.)
- Current status (is the programme active, ongoing, closed, etc.)
- Implementation period

The Matrix document is included as **Annex A** of the report.

It was also important to verify the information composed through desktop research done with the South African partners against the information from the EU partners themselves. This verification was done through one-on-one consultations with all the EU MS and ACs S&T Liaison Officers (and/or S&T Attaches) represented in South Africa. Over and above this, it was also decided that it would be interesting to compare the outcomes of this exercise with what currently exist bilaterally between South Africa and other regions such as Africa, Asia, the Americas and the Gulf States (Middles East).

It was therefore decided that one country should be sampled from these regions for comparison purposes. The table below indicate a summary of the number of consulted S&T Liaison Officers per region.



Graph 1: Number of Consulted S&T Liaison Officers per Region

Through this exercise, a total of 20 S&T Liaison Officers were consulted with fifteen representing EU MS (i.e. Austria, Belgium, Denmark, Finland, Flanders France, Germany, Ireland, Italy, Lithuania, Netherlands, Poland, Portugal, Sweden, and United Kingdom). These fifteen EU MS were sampled based on (1) the fact that they actually had active bilateral programmes with South Africa - based on the information compiled from the desktop research, (2) they also had a S&T Liaison Officer or an equivalent official tasked with strengthening the S&T bilateral relations with South Africa based in their Embassy in South Africa, and (3) their availability during the time period of the consultations.

It is important to note the timing of these one-on-one consultations. The consultations were conducted during the months of July and August - which are the summer holiday months in Europe. This might have

affected the availability of some of the Liaison Officers as most of them were returning home for holidays. However, a sample of fifteen out of twenty-eight countries is generally a good sample to draw conclusions as it represents more than 50% of the overall respondents.

For EU Associated Countries only two S&T Liaison Officers were consulted, each representing Norway and Switzerland. The majority of the EU Associated Countries did not have S&T Liaison Officers based in their embassies in South Africa. Those that did, indicated, over the phone, that they did not have S&T bilateral programmes with South Africa but wished to establish one. The latter include countries such as Turkey, Serbia and Iceland.

For other regions only one country (per region) was consulted. Kenya was consulted for the African region on the grounds that it is the only African country with S&T Liaison Officer based in their embassy in South Africa. Also, from the desktop research conducted, Kenya had active bilateral programmes with South Africa and other EU MS that South Africa is partnering with. The United States of America (for the Americas) was consulted due to multiplicity of bilateral S&T programmes that this country has with South Africa and other EU MS. Although Japan (for Asia) was not consulted for a face-to-face meeting, a desktop research that was done indicated that South Africa's bilateral with Japan (and China) is by far the most active in Asia. No countries were sampled from the Gulf States (Middle East region) mainly because according to the desktop research there is currently no active bilateral programmes between South Africa and countries in this region. However, it was made clear that, at government level, South Africa is trying to establish S&T bilateral programmes with Oman and Iran and negotiations are at an advanced stage in this regard. A full schedule of these consultations including the actual individuals who were consulted is at [Annex B](#).

As a final consultative stage, all the S&T Liaison Officers who were consulted were brought together in a half day conference. The aim of this conference was not only to provide them with feedback post the one-on-one consultations but also to jointly finalise and agree on the identified joint activities for implementation.

Furthermore, information was also drawn from the extensive work that had already been done by WP2 partners under ESASTAP Plus. All the ESASTAP Plus reports were analysed. This exercise was crucial for this study to ensure continuity and avoid re-invention of the wheel. The outcomes of this report are therefore based on (1) actual recent research conducted by WP2 partners under ESASTAP 2020 and (2) recommendations made from the work done under ESASTAP Plus. Some of the joint activities suggested in this report are, therefore, meant to build on what was started under ESASTAP Plus.

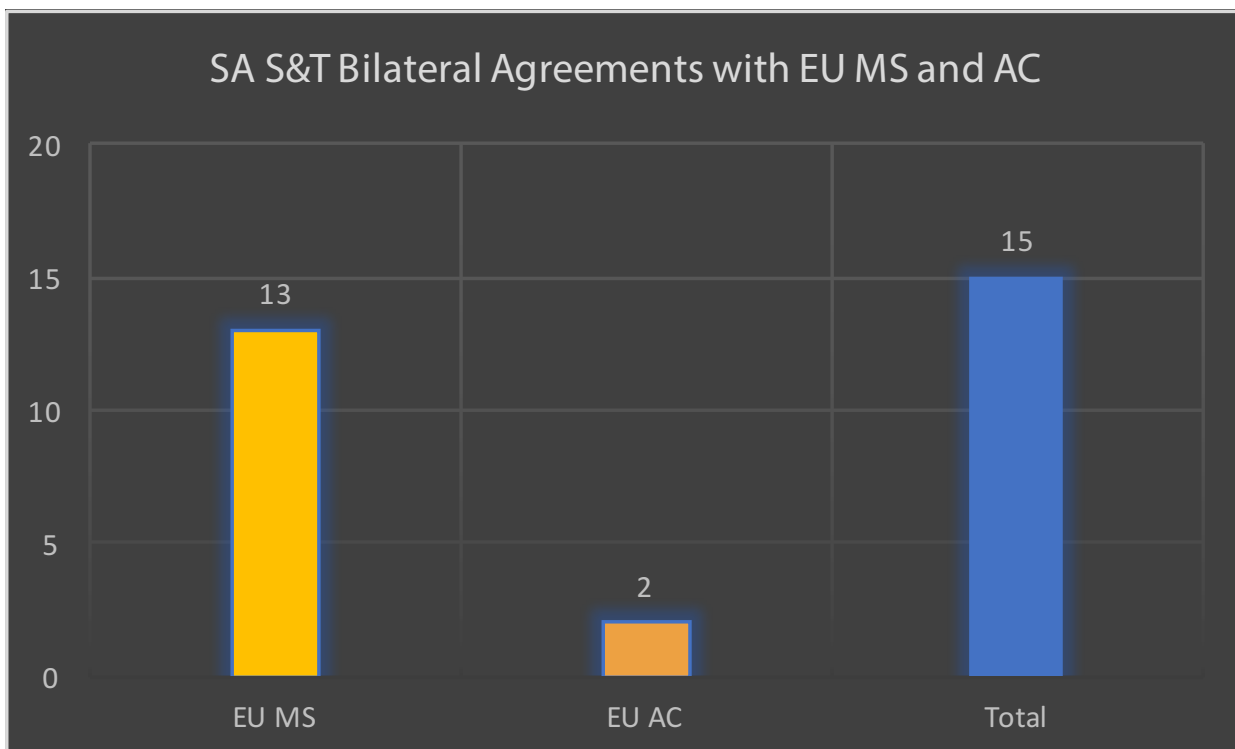
Finally, going forward, the plan is to ensure that there is consensus and commitment by all EU MS and ACs. This refers back to the point that was emphasised in the previous section - that the principle of ownership should be understood, adopted and respected by all partnering stakeholders. Without this, ESASTAP partners will find it extremely difficult to successfully implement any of the identified joint activities. ESASTAP 2020 WP2 partners are planning to invite all EU MS and ACs to a one-day workshop in December 2016, in order to present the outcomes of this study with the hope to solicit their support.

3. Current Bilateral Research and Innovation Programmes

This section provides an analytical summary of the information that was collated throughout this research. The section will focus on three main issues, i.e. (1) formally signed bilateral S&T agreements between South Africa and EU MS and ACs, (2) S&T thematic areas of focus between South Africa and EU MS and ACs, (3) commonly used instruments/mechanisms for implementing S&T bilateral agreements. The analysis of these three topics will also be done by looking at the bilateral programmes that South Africa has with countries in other regions (i.e. Africa, Asia and Americas) and also in line with the EU R&D programmes that South African researchers apply to.

3.1. Formal Bilateral Agreements between South Africa and EU MS and AC

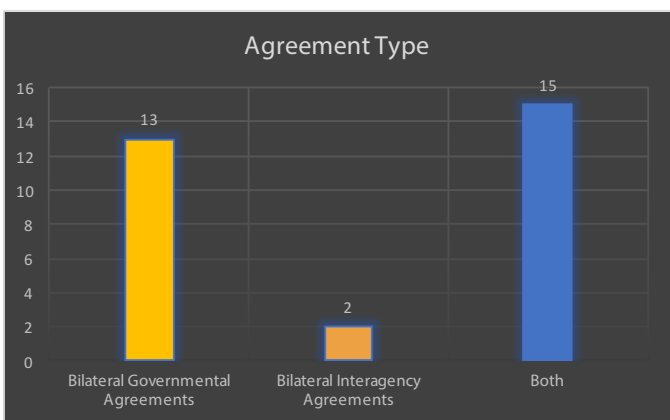
The 1996 formal S&T agreement between South Africa and the EU led to the establishment of bilateral S&T agreement between South Africa and several EU MS and AC. As illustrated on the graph below, there are currently fifteen activate bilateral research and innovation cooperation agreements between South Africa and EU MS and ACs.



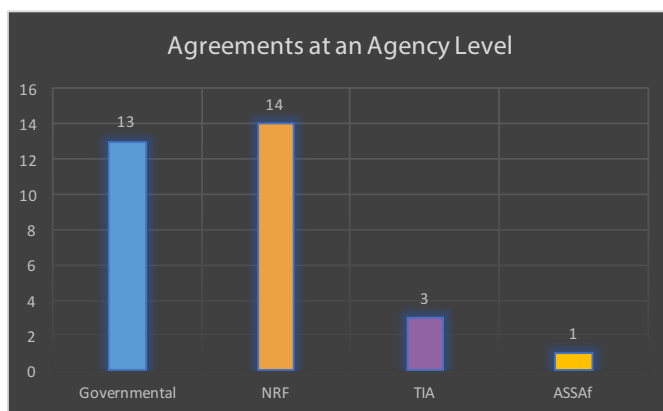
Graph 2: SA S&T Bilateral Agreements with EU Ms and AC

These bilateral agreements are concluded either at a governmental or interagency level in order to create a robust national system of innovation and enable its transition to a knowledge economy. The agreements provide that any EU MS or AC can enter into an S&T agreement and nominate a research or innovation

funding agency to implement the agreement on its behalf. In this instance, in most of the cases, the funding agency would also enter into a funding agreement that specifies (1) the type of instrument to be utilised in implementing the governmental agreement, (2) the funding modalities, (3) the activities to be supported, (4) the national and call specific eligibility criteria, and (5) criteria for evaluating proposals. It is only on rare occasions that an agency will enter into an interagency agreement without the umbrella government-to-government agreement. What usually happens is that, in most cases, a country would have two or more S&T agreements - one at a governmental level and the rest at agency level - depending on the stipulated clauses in the overall government agreement. As illustrated below, of the current fifteen active S&T bilateral agreements, only two are at an agency level (with the South African NRF) - without the bigger government agreement. As indicated earlier, the South African CSIR and HSRC were not consulted as they are not necessarily funding agencies but rather R&D performers.



Graph 3: Agreement Type



Graph 4: Agreements at Agency Level

The above mentioned fifteen bilateral agreements are currently at different stages of implementation. For example, the bilateral agreement with Portugal has recently been signed and has not yet been implemented. The NRF is currently in discussions with the Portuguese Funding Agency to identify mechanisms of implementing this agreement. There are also discussions at different levels to establish bilateral agreements where there's currently none. One of the examples is the ongoing discussions between the NRF and Nuffic Neso of Netherlands to establish a bilateral Human Capital Development (HCD) programme. The DST is also currently negotiating a bilateral programme, at a governmental level, with Finland Ministry of Employment and the Economy.

The Matrix document indicated in Annexure A provides a description of all the active bilateral agreements detailing the scope, supported programmes, duration and funding mechanisms for each supported programme. The table below is a summarised version of the current status of each of the bilateral agreement detailed in the attached Matrix document:

Country	Level	Status
Austria	Governmental and Interagency	Active
Belgium	Governmental and Interagency	Active
Czech Republic	Interagency	Recently lapsed, currently negotiating renewal
Finland	Interagency	Active, currently negotiating governmental
France	Governmental and Interagency	Active
Germany	Governmental and Interagency	Active
Italy	Governmental	Active, currently working on options for renewal
Netherlands	Governmental	Active
Norway	Governmental and Interagency	Active, currently working on options for renewal
Poland	Governmental and Interagency	Active
Portugal	Governmental	Recently signed, currently
Romania	Governmental	Active
Sweden	Governmental and Interagency	Active
Switzerland	Governmental and Interagency	Active
United Kingdom	Governmental and Interagency	Active

Table 2: Bilateral Agreements

3.2. S&T Thematic Areas of Focus between South Africa and EU MS and AC

All the active bilateral programmes that currently exists between South Africa and EU MS and ACs are designed on the basis of agreed upon thematic areas of focus deemed important by the partners. Some thematic areas can be identified as key priority fields where potential for better coordination and synergies can hold. During this study it became clear that there were three broad categories that appeared with almost all the bilateral programmes (i.e. Health, Blue Economy and Oceans, and Water and Food Security). These thematic areas were, however, captured/explained differently by different partners. Taking the “health” theme as an example, some partners emphasised the issue of “communicable and non-communicable diseases”, some focused on “pharmaceuticals”, while others focused on “medicinal biotechnology”. The table below indicates the countries that are currently focusing and/or would like to establish programmes on these three broad themes in their bilateral programmes with South Africa. The same themes are also key priority areas of focus between South Africa and Kenya, Japan and the United States.

Countries	Thematic Areas						Total active programmes	Total future programmes
	Health		Blue Economy and Oceans		Water and Food Security			
	health, infectious diseases, communicable and non-communicable diseases, medicine, biotechnology, pharmaceuticals		marine sciences, maritime resources, climate change, environment, blue economy, oceans, aquaculture		Agriculture, food and nutrition security, agrofood, water research, agribiotechnology			
Austria	x	x		x	x		2	2
Belgium	x	x	x	x	x	x	3	3
Denmark				x		x	0	2
Finland		x				x	0	2
Flanders	x		x	x			2	1
France	x	x	x	x	x	x	3	3
Germany	x	x		x	x	x	2	3
Ireland	x	x	x	x	x	x	3	3
Italy	x	x		x		x	1	3
Japan	x	x	x	x	x	x	3	3
Kenya	x	x	x	x	x	x	3	3
Lithuania		x		x		x	0	3
Netherlands		x		x	x	x	1	3
Norway			x	x			1	1
Poland	x		x		x		3	0
Portugal	x	x	x	x		x	2	0
Sweden	x	x	x	x	x	x	3	3
Switzerland	x						1	
United Kingdom	x	x	x	x	x	x	3	3
United States	x	x	x	x	x	x	3	3
Total	16	15	12	17	12	15		

Table 3: Currently active and future bilateral thematic areas of focus

This table also clearly illustrates the challenge that South Africa faces with managing numerous bilateral programmes all of which striving to achieve more or less the same thing. There are at least 10 programmes in each category with different EU countries. Also, this picture may change at any given time - taking into consideration the fact that there are currently negotiations taking place on developing new programmes with some of these countries.

It is important to note that in most of these bilateral programmes, interdisciplinary and/or multi-disciplinarily in thematic areas was encouraged and tend to be favoured. In today's knowledge landscape

there are powerful drivers for multidisciplinary research. The argument put forward is that through simple collaboration researchers from different disciplines can accomplish more by teaming up. Interdisciplinary research moves beyond simple collaboration and teaming to integrate data, methodologies, perspectives, and concepts from multiple disciplines in order to advance fundamental understanding or to solve real world problems. Nature and society are complex, and human beings' innate curiosity to understand the elements and forces within them requires examination from the perspective of multiple disciplines. For example, interrogating climate change, requires a consideration of, among other things, how oceans and rivers are influenced by land use and the products of industrialisation, atmospheric constituents and solar radiation. These subsystems are linked in time and space and have embedded in them multiple feedback mechanisms.

The issue of interdisciplinary research relates to one of the issues that came out strongly in this study, that is, the relationship between research and innovation. Majority of the bilateral programmes analysed tend to put emphasis on the need to ensure that all the research programmes supported have and/or leads to some form of innovation for economic development. This could only be possible through support of interdisciplinary research. This is because interdisciplinary research requires either that individual researchers gain depth of understanding in two or more disciplines and be conversant with the languages and methodologies of these disciplines, or more frequently that multidisciplinary teams assemble and create a common language and framework for discovery and innovation. The emphasis in most of the bilateral programmes is that entrepreneurial skills are key to any country's development into a knowledge economy. Therefore, partnerships for capacity building in innovation tend to be favoured. Examples here are the bilateral innovation programmes between South Africa and Switzerland, France and the United Kingdom (led by TIA from the South African side).

Furthermore, these bilateral cooperation programmes with South Africa tend to have a greater regional dimension. There is emphasis on the need to link bilateral activities more explicitly with regional and multilateral initiatives in order to build on leverage effects and synergies more effectively and avoid duplication. It also appears that bilateral programmes tend to be a first gateway for stakeholders to enter into bigger regional initiatives. This trend is also supported, to a large extent, by the importance and participation rate of South African researchers and innovators in the European Programme. Programmes such as the Erasmus Mundus, Nyerere Programme, H2020 ERA-NET Co-fund Programmes (e.g. ERAfrica and LEAP AGRI) Enterprise Europe Network (EEN) Programme, and CAAST-Net Plus, an ongoing FP7 CSA project, further promote a move for partnership beyond bilateral programmes.

3.3. Commonly Utilised Instruments for Implementing the Bilateral Programmes

The implementation of activities for almost all the bilateral programmes is the responsibility of the research and innovation national funding agencies. In South Africa, the NRF and TIA are the main funders and implementers of the S&T bilateral agreements on behalf of the Department of Science and Technology. The NRF has agency partners with most of the European countries. In some instances, the NRF would enter into partnership with more than one agency in one European country to implement programmes with

different focus. A case in point is the bilateral partnership with the United Kingdom under the Newton Fund Programme whereby the NRF has partnered with eight different UK partners.

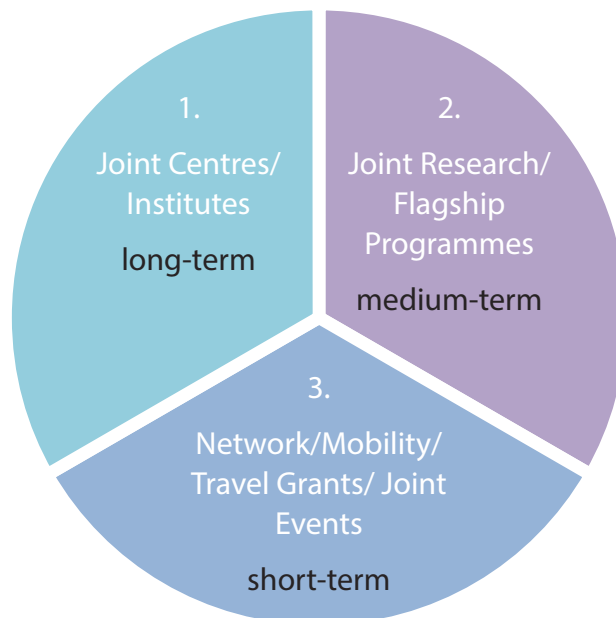
Table four below indicates the NRF partners within the currently active bilateral programmes.

Country	Funding Agency
Austria	<ul style="list-style-type: none"> • Austrian Agency for International Cooperation in Education and Research (OeAD-GmbH)
Belgium	<ul style="list-style-type: none"> • Fund for Scientific Research - FNRS (F.R.S.-FNRS)
Finland	<ul style="list-style-type: none"> • Academy of Finland (AF) • Finnish Funding Agency for Technology and Innovation (TEKES)
Flanders	<ul style="list-style-type: none"> • Fonds Wetenschappelijk Onderzoek (FWO)
France	<ul style="list-style-type: none"> • L'intitut de Recherche Pour le Development (IRD) • Le Centre National de la Recherche Scientifique (CNRS) • Le Centre de Cooperation Internationale en Recherche Agronomique Pour le Development (CIRAD)
Germany	<ul style="list-style-type: none"> • The Deutsche Forschungsgemeinschaft (DFG) • Deutscher Akademischer Austauschdienst - German Academic Exchange Service (DAAD) • German Aerospace Centre - Project Management Agency (DLR-PT)
Japan	<ul style="list-style-type: none"> • Japanese Society for the Promotion of Science (JSPS) • Japan Science and Technology Agency (JST)
Netherlands	<ul style="list-style-type: none"> • Netherlands Organization for Scientific Research (NWO) • Organisation for Internationalisation in Education (EP-Nuffic)
Norway	<ul style="list-style-type: none"> • Research Council Norway (RCN)
Poland	<ul style="list-style-type: none"> • National Centre for Research and Development (NCBR)
Portugal	<ul style="list-style-type: none"> • Foundation for Science and Technology (FCT)
Sweden	<ul style="list-style-type: none"> • Foundation for International Cooperation in Research and Higher Education (STINT) • Swedish Research Council
Switzerland	<ul style="list-style-type: none"> • Swiss National Science Foundation (NSF)

United Kingdom	<ul style="list-style-type: none"> • Academy of Medical Sciences • British Academy • British Council • Economic and Social Research Council (ESRC) • Research Council UK (RCUK) • Royal Academy • Royal Society • Science and Technology Facilities Council (STFC)
United States	<ul style="list-style-type: none"> • National Science Foundation (NSF)

Table 4: Agency partners with the NRF

All these bilateral programmes provide a framework in which science and technology cooperation is promoted. In all these frameworks partners make use of similar instruments/mechanisms to implement activities and/or enhance research and innovation HCD in their countries. The different instruments can be used simultaneously in one programme or a bilateral programme can be designed around a single instrument. The instruments used to implement bilateral programmes can be grouped into three categories depending on the level of funding provided and the longevity of the programme, as follows:



Category 1 Funding Mechanisms

Instruments in this category are used for bilateral programmes that are at a much higher strategic level - involving huge financial support and are more institutional in nature. This would involve the establishments of Joint Centres or Institutes for capacity development focusing on particular disciplines. France, as an example, has partnered with South Africa to establish a Joint Institute in Agricultural Sciences (F'SAGRI) based at three South African rural universities. Other examples of institutional programmes at a higher level include the establishment of Joint Bilateral Research Chairs. Case in point is the recently launched bilateral Joint Chairs between South Africa and Germany, Switzerland and the United Kingdom. A Joint Bilateral Research Chair can be supported for a period of - to 15 years. These are viewed as long term investments.

Category 2 Funding Mechanisms

There are, however, other instruments that are used to facilitate a set of HCD activities for medium to long term. These instruments include the funding of bilateral joint research and innovation programmes (or what is known as flagship programmes) for a minimum of 3 to a maximum of 5 year periods. This instrument also involves significant financial investment as one joint programme and/or flagship programme would involve supporting a team of researchers and their doctoral and post-doctoral students. Examples in this case include programmes such as: SANCOOP (South Africa / Norway Research Cooperation Programme), SSAJRP and SSABDP (South Africa / Switzerland Joint Research Programme and the Business Development Programme), IRTGs (South Africa / Germany International Research Training Groups), etc.

Category 3 Funding Mechanisms

This category is more to facilitate the mobility of researchers to assist them to meet and interact with their counterparts. This is more of a short term and enabling instrument, the aim of which is to provide seed funding. It involves the support for exchange of scientists, mobility /travel grants, and joint workshops, conference or seminars. This mobility support is encouraged and viewed as critical in bilateral programmes. Researchers make use of this mobility grant for different reasons such as to exchange knowledge, work on joint publications, access infrastructures that are not readily available in one's country, provide research training and prepare joint proposals for application to bigger programmes.

It is important to note that these instruments are sometimes used interchangeably and are interlinked. One instrument has a direct impact on the other. Also, depending on the maturity of the bilateral partnership, partners may decide to start implementing programmes using Category 3 instruments until such time they understand each other's systems better and their researchers have established stronger links with potential for long-term partnership. Therefore, Category 3 instruments are mostly used as a stepping stone to Category 2 and eventually Category 1.

4. Twinning call on marine science

4.1. Recommended Thematic Areas of Focus for Joint Activities

Given the detailed account of the existing bilateral programmes, instruments and preferred thematic areas of focus between partners, this study is able to draw conclusions and make suggestions/recommendations on activities that could be leveraged for better coordination and strengthening of European research and innovation cooperation programmes with South Africa in order to avoid duplications and extra administrative burdens. The suggested thematic areas for joint activities, indicated below, are viewed as feasible because of the support shown by countries through all the existing bilateral programmes.

- Health
- Blue Economy and Oceans
- Water and Food Security

In addition, opportunities for enhancing coordination between EU MS and ACs and South Africa in the field of Marine sciences and water have been discussed on several occasions in previous years under ESASTAP Plus. Few workshops and twinning events in Marine sciences and water were organised under ESASTAP Plus. Therefore, there would be no need to start from scratch but rather, to build on these activities going forward.

It is further suggested that all the identified joint activities to be supported within the above- recommended thematic areas should take into consideration the following cross-cutting factors:

- Inter and/or multi-disciplinarity in the research to be conducted;
- research projects must plan for or have an innovation angle; and
- capacity development of young and emerging researchers.

4.2. Instruments / Mechanisms for Implementing Joint Programmes

It is evident from the research conducted that there is currently a scope for better coordination of the different bilateral cooperation initiatives between European countries and South Africa. Better coordination of various research and innovation initiatives could result in a more optimal investment of resources through funding partners and provide key resources and new tools of cooperation for South Africa. In thematic areas particularly, a cooperative approach will serve to better address and coordinate funding activities. The challenge is to be more effective in addressing basic needs for sustainable development and to do so in a better informed and coordinated manner.

From the ESASTAP Plus report on the “Assessment of the Pilot Initiative: Lessons Learned and Recommendations”, it is clear that this form of coordination will never work without entrenching the principle of ownership in partners. It is thus important that the joint programmes to be embarked on should be identified and supported by the partners themselves. The role of ESASTAP 2020 therefore is to create an enabling environment for this to happen.

For ESASTAP 2020 partners to establish and launch a big joint multilateral programme as a way of coordinating activities between South Africa and EU MS and ACs will never work or be sustained for long term. This has already been tried under ESASTAP Plus and has not produced desired results. The reason for the failure is because if ESASTAP partners launches a programme, it then becomes an ESASTAP programme and not owned by the partnering countries themselves. Also, ESASTAP is a three year programme - it comes to an end at the end of the year 2020 - which leaves partners with a big question of: “and then what after ESASTAP?” It kills the idea of continuity and sustainability of joint programmes.

Hence, ESASTAP 2020 will adopt a role of facilitator, supporter and enabler. This report, therefore, recommends Category 3 instruments to be utilised by ESASTAP 2020 partners for coordinating and strengthening European research and innovation cooperation programmes with South Africa. The suggestion is for ESASTAP to lobby for support from South Africa and all EU MS and ACs and provide an enabling environment for partners to identify, design and support joint programmes. Depending on the phase and level of cooperation in research and innovation; and depending on the needs of the researchers, institutions and availability of funds from different partners, Category 3 instruments for mobility and networking seems to be a feasible and implementable option. These possible collaborative instruments could be used to support the following joint actions:

- organisation of joint multi country thematic workshops between SA and EU MS and ACs (based on the three recommended themes) bringing funders and researchers/scientists together;
- organisation of twinning events for researchers and scientists working within the three recommended themes;
- support of short-term exchanges between South African researchers and their European counterparts working within the three recommended themes;
- provision of mobility support for researchers needing to meet their partners to develop joint big multilateral proposals for submission to funders within the three recommended themes;
- create awareness and organise information sharing events - to promote multilateral opportunities within the three recommended themes;
- follow the HLDP process and coordinate initiatives with the RINEA project; and
- encourage participation in H2020 funding instruments such as ERA-net Cofunds and JPIs.

The longer term programmes that would come as a results of these collaborative instruments would have been exclusively defined and eventually owned by partners themselves.

Further to this, one of the main outcomes of the ESASTAP Plus work was the establishment of a forum that brings together all EU MS and ACs S&T Liaison Officers represented in South Africa. This is a crucial platform and a key instrument in exploring opportunities for greater cooperation and synergy in research and innovation partnerships. ESASTAP 2020 should continue maintaining and utilising this platform as it will assist in strengthening the European coordination.

As the last point, it is important to coordinate some of these bilateral activities with other existing multilateral instruments such as:

- ***The EU through H2020 (i.e. the EU Framework Programme for Research and Innovation):*** The success of the EU research funding, even under previous framework programmes, cannot be understated. The EU R&I support (from the previous Framework Programmes to H2020) has already brought together scientists and industry both within Europe and from around the world to find solutions to a vast array of challenges. Their innovation has improved lives all over the world and has assisted to make the industries more sustainable and competitive. Therefore, it would be far more valuable to ensure that the bilateral joint activities are conducted through these EU programmes.
- ***The EU-Africa High Level Policy Dialogue on Science, Technology and Innovation (HLPD):*** It would also be beneficial to align the bilateral joint activities with the HLPD roadmap towards a jointly funded EU-Africa Research and Innovation Partnership on Food and Nutrition Security and Sustainable Agriculture, especially because the priorities agreed upon between the EU and AU are especially relevant in this connection. This could be beneficial and sustained for long term as the HLPD currently 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 H2020-funded project Research and Innovation Network for Europe and Africa (RINEA):*** This can also serve as a valuable platform to use for the sustainability of the joint bilateral activities. Its objectives include encouraging transnational coordination of programmes and policies for international cooperation in STI between EU Member states/ Associated Countries and African countries. Four of the partners in ESASTAP2020 are also partners in RINEA.

5. Potential Challenges and Proposed Solutions

Challenges	Solutions
<p>One of the challenges, which was also identified under ESASTAP Plus, is the complexities, misunderstandings and the sensitivities that come with implementing multi-country programmes. Multilateral cooperation can be seen as less effective to promote national interests and many countries feel that their national priorities might be undermined.</p>	<p>This challenge might be overcome by the fact that the recommended thematic areas of focus were identified with (and not enforced on) all EU MS and ACs concerned. Therefore, the areas were recommended on the basis that they all serve as national priority areas for and by all the partnering countries (which means that they have already been endorsed at national level).</p>
<p>Multilateral programmes are mostly viewed as very difficult, challenging and less attractive than bilateral ones because in bilateral programmes there is trust, partners know each other and are familiar with each other's rules and ways of working.</p>	<p>The fact that all the identified EU MS and ACs are currently working with /or have in the past worked with South Africa on more or less similar programmes with similar instruments and funding mechanisms, should assist in alleviating this problem. There is already a sense of familiarity among partners and South Africa will be serving as a glue - bringing the partners together.</p>
<p>Multilateral cooperation takes away the identity of individual countries. Bilateral cooperation programmes tend to better promote the visibility of the two partnering states instead of joint programmes where the stakeholders may feel underestimated.</p>	<p>This is also the reason why ESASTAP 2020 partners will be having workshops with all EU MS and ACs - to ensure that there is commitment by all partners and that the principle of ownership is understood, adopted and respected by all.</p>

6. Concluding Remarks

It is clear from the preceding discussions that the partnership between South and the European Union is important and should be continued. The research conducted for this particular study shows that there is sufficient scope to improve coordination of different bilateral cooperation initiatives between EU partners and South Africa. It shows that better coordination of various research and innovation initiatives could result in optimal investment of resources for South Africa through the funding of partners, and provision of key resources and new tools of cooperation. A cooperative approach will serve to improve the coordination of funding activities. However, this coordination of various research and innovation initiatives will never yield desired results unless it entrenches the principle of ownership in partners. It is therefore important that the joint programmes for cooperation are supported by all partners. The role of ESASTAP 2020 in this regard, will be to create an enabling environment for this to happen.

Abbreviations

AC	Associated Country
AF	Academy of Finland
APRE	Agenzia per la Promozione della Ricerca Europea
ASSAf	Academy of Science of South Africa
CIRAD	Le Centre de Cooperation Internationale en Recherche Agronomique Pour le Development
CNRS	Le Centre National de la Recherche Scientifique
CSIR	Centre for Scientific and Industrial Research
DAAD	Deutscher Akademischer Austauschdienst - German Academic Exchange Service
DFG	The Deutsche Forschungsgemeinschaft
DLR	Deutsches Zentrum Fuer Luft - und Raumfahrt EV
DST	Department of Science and Technology
EEN	Enterprise Europe Network
EP Nuffic	Organisation for Internationalisation in Education
ESASTAP	Strengthening Technology, Research and Innovation between Europe and South Africa
ESRC	Economic and Social Research Council
EU	European Union
FCT	Foundation for Science and Technology
FNRS	Fund for Scientific Research - FNRS
FORTH	Foundation for Research and Technology Hellas
FP	Framework Programme
FWO	Fonds Wetenschappelijk Onderzoek
HCD	Human Capital Development
HLPD	High Level Policy Dialogue
HSRC	Human Sciences Research Council
IRD	L'intitut de Recherche Pour le Development
IRTGs	International Research Training Groups
JSPS	Japanese Society for the Promotion of Science
JST	Japan Science and Technology Agency
JSTCC	Joint Science and Technology Cooperation Committee
MS	Member State
MS	Member States
NCBR	National Centre for Research and Development

NRF	National Research Foundation
NSF	Swiss National Science Foundation
NSF	National Science Foundation
NWO	Netherlands Organization for Scientific Research
OeAD-GmbH	Austrian Agency for International Cooperation in Education and Research
R&D	Research and Development
RCN	Research Council Norway
RCUK	Research Council UK
RINEA	Research and Innovation Network for Europe and Africa
S&T	Science and Technology
SANCOOP	South Africa Norway
SSABDP	Swiss South Africa Business Development Programme
SSAJRP	Swiss South Africa Joint Research Programme
STFC	Science and Technology Facilities Council
STI	Science, Technology and Innovation
STINT	Foundation for International Cooperation in Research and Higher Education
TEKES	Finnish Funding Agency for Technology and Innovation
TIA	Technology Innovation Agency
WP	Work Package
ZSI	Austrian Centre for Social Innovation

Belgium	NRF/FNRS Mobility Programme	4 joint mobility projects involving exchanges between researchers, scientists, post-docs and doctoral students between the two countries.	The principle objective of the cooperation is to foster scientific and technological cooperation by facilitating brain circulation between the two countries. The programme supports mobility and exchange of researchers in natural and life science; engineering, social science and humanities.	60 000 € (FNRS)	800K ZAR (NRF)		National	Research mobility and networking	Grant	Active	2014-current	NRF
Belgium	NRF/FWO Joint Research Partnership	Supports 6 joint research projects in various thematic areas of focus.	The FWO supports joint research projects in nanotechnology, biotechnology, humanities, astronomy, human social dynamics, global change, ICT.		7.2 mil ZAR (SA side)		National	Various	Grant	Active	2010-current	NRF
EU	Innovation for Poverty Alleviation		The programme sought to test and demonstrate that innovation can lead to job creation and SMEs development through projects ranging from demonstration agronomy to wireless	30 000 000		ODA	National	Social innovation	Grant	Closed	2008-2013	DST
EU	EU-ACP S&T Cooperation Programme Phase I	12 SA institutions participate in 8 projects leading three of them.	Mein fields are biodiversity, agriculture and research management.	5 000 000		ODA	Regional	Capacity-building	Grant	Closed		DST
EU	EU-ACP S&T Cooperation Programme Phase II	SA institutions participate in 3 projects leading one of them.	The focus is on agriculture.	3 000 000		ODA	Regional	Capacity-building	Grant	Closed		
EU	National Development Policy Support Programme - General Budget Support						National					
EU	Employment Creation Fund	Technology Localisation Programme	Improve technological capability of local firms	9 600 000		ODA	National	Private Sector	Grant	Closed		DST; CSIR
EU	Dialogue Facility											
EU	Erasmus Mundus		Over 800 beneficiaries supported through scholarships and mobility grants to study, research or teach in Europe between	23 600 000		ODA	National	Higher Education - mobility	Grant	Closed	2011-2015	DHET & HEIs
EU	Erasmus Plus		Programme supports projects and activities in the fields of education, training, youth and sport. It is managed by Education, Audiovisual and Culture Executive Agency (EACEA) in Brussels.	36 700 000		ODA	National				2014-2020	
EU	EduLink II	So far there are 7 projects with the participation of SA institutions.		3,885,325 (EU total contribution for projects with SA)		ODA						
EU	Nyerere Programme		The programme grants scholarships to facilitate exchanges between African universities. This programme is a concrete action undertaken under the 7th thematic partnership of the Joint Africa-	25,410,725 (EU total contribution for projects with SA participation)		ODA						
EU	Horizon 2020		H2020 is EU Research and Innovation programme. It promises more breakthroughs, discoveries and world- firsts by taking great ideas from the lab to the market.			H2020	Global		Grant	Ongoing	2014-2020	Various

EU	Square Kilometre Array (SKA)		Support the detailed design of infrastructure required at the two SKA co-host sites - the Murchison region of Western Australia and the Karoo region of SA			H2020	Global	Space	Grant	Ongoing	2016	DST
EU	ERA-NET Cofund		EU can only fund up to 30% of the project's budget									
EU	European Developing Countries Clinical Trials Partnership Phase II	... clinical trials supported to date	Focus on developing new interventions against HIV/AIDS, Malaria and TB.			H2020	Regional	Health	Grant	Ongoing	2014-	
EU	7th Framework Programme (FP7)			37 000 000		FP7	Global		Grant	Ongoing	2007-2013	Various
EU	Marie Skłodowska Curie Actions - People Programme		470 SA researchers from 77 institutions were funded.	1 400 000		FP7		Higher Education	Grant	Closed	2007-2014	DST; DHET; universities
EU	EUREKA Network		SA is an associate member of the network, which comprises over 40 European governments and serves as a platform for the development of innovative joint research and development (R&D) projects.				Global	Private Sector			since June 2014	DST
EU	SA node of Enterprise Europe Network (EEN)		EEN helps SMEs with developing business in new markets, source or license new technologies, or access EU finance and EU funding				Global	Private Sector	TA		since July 2015	TIA; DST; CSIR
EU	"Cooperation in Scientific and Technical Research" (COST) Office - DST Reciprocal Agreement		Both sides avail funding for short-term scientific missions undertaken by SA and European researchers related to SA participation in COST actions (scientific networks).								In force since 2009	
EU	6th Framework Programme						Global					
EU	EUREKA Network		SA is an associate member of the network, which comprises over 40 European governments and serves as a platform for the development of innovative joint research and development (R&D) projects.				Global	Private Sector			since June 2014	DST
EU	EUROSTARS	*SA has joined EUROSTARS in March 2016	Eurostars is a joint programme between EUREKA and the European Commission, co-funded from the national budgets of 36 Eurostars Participating States and Partner Countries and by the European Union through Horizon 2020. Eurostars supports international innovative projects led by research and development-performing small- and medium-sized enterprises (R&D-performing SMEs).	In the 2014-2020 period it has a total public budget of €1.14 billion.								

EU	Coordination (or networking) actions	ERAfrica	ERAfrica aims to reduce the fragmentation of the European Research Area by increasing the coordination between national research programmes across European Union Member States and Associated countries, in close coordination with national research programmes in Africa. The consortium of the project gathers key S&T funding agencies and ministries from Europe and Africa and its actions will result in concrete co-operation between research programmes, such as their networking, mutual opening and the development, funding and implementation of joint activities.	2283370,42€ (EU contribution: 1991707,51€)		FP7					2010-2014	DST	
EU	Environment	PREFACE Enhancing prediction of tropical Atlantic climate and its impacts	"Tropical Atlantic climate recently experienced pronounced shifts of great socio-economic importance. The oceanic changes were largest in the eastern boundary upwelling systems. African countries bordering the Atlantic strongly depend upon their ocean - societal development, fisheries, and tourism. They were strongly affected by these climatic changes and will face important adaptation challenges associated with global warming.	12 170 344,87	8 999 433	FP7					2013-2017	UCT	
EU	Capacities Programme												
		ESASTAP; ESASTAP Plus; ESASTAP 2020	Promoting SA stakeholders access to EU RDI programmes and vice versa including through a Network of National Contact Points and promoting coordination of Member States' and Associate Countries' RDI programmes for SA			FP7			Grant				
EU		SAccess	Increase awareness in the EU of SA RDI programmes and opportunities for participating in them			FP7			Grant		2009 -		
EU		CAAST-Net, CAAST-Net Plus	Coordination and advancement of sub-Saharan Africa-EU S&T Cooperation			FP7			Grant				
EU	Joint Research Centre - SA partnerships		JRC has 23 partnerships with SA institutions. Areas of cooperation include space, in particular earth observations, environment, water, energy and others.										
			Below are examples of concrete cooperation activities:										
			Soil Atlas of Africa	Launched in 2013				Regional	Environment				UFS
			Towards a country-wide mapping & monitoring of formal and informal settlements in South Africa.	Launched in 2015				National	Earth Observations				SANSA
			World Atlas of Desertification	Work in Progress				Global	Environment				Dept of Agriculture
			Biodiversity and Protected Areas Management (BIO-PAMA)	BIOPAMA combines improving data availability with capacity development to strengthen protected area management. It has two main components: one concerning protected areas and another dealing with access and benefit sharing (ABS).				Regional	Biodiversity	Grant	Closed	2011-2015	

	European Research Council (ERC) - National Research Foundation (NRF) Cooperation Agreement		To facilitate access of ERC-funded projects by SA researchers									2015-	
EU	6th Framework Programme						Global						
	Thematic Calls for Proposals	SA researchers took part in 117 projects. The focus was on life sciences, food safety and quality as well as global change and ecosystems, most notably water research.	The list of projects is available on request	14 000 000		FP6		Various	Grant	Closed	2003-2013		
	European Developing Countries Clinical Trials Partnership Phase	88 clinical trials supported in sub-Saharan Africa	Focus on developing new interventions against HIV/AIDS, Malaria and TB.	30 000 000		FP6		Health	Grant	Closed	2003-2013	DoH; MRC	
EU	ERAfrica	13 (out of 17) projects have SA participation	Funding Parties from 15 African and European countries developed a first joint call for research proposals where all partners participated on an equal footing.	2,000,000 (EC contribution) A total amount of EUR 10.7 million was available for funding		FP7	EU-Africa	renewable energies; interfacing challenges; new ideas	Grant	Closed	2011-2016	DST/NRF + scientists from different research facilities	
Finland	NRF/AF Joint Research Programme	Currently supporting 4 joint research projects in Mineral Resources.	This programme aims to support joint research in agreed areas of cooperation for human capital development. The current support is for 4 joint 3-year projects in mineral resources and will end in 2019.	1,5 mil € (Finnish side)	3 mil ZAR (SA side)		National	Mineral Resources	Grant	Active	2011-2018	NRF	
Finland	Finnish-Southern Africa Partnership Programme to Strengthen the NEPAD SANBio Network		Aims to strengthen the Southern African Network for Biosciences (SANBio), a NEPAD flagship programme that aims to create a platform for collaborative biosciences research and innovation. The BioFISA II Programme focuses on three result areas/outcomes i) supporting the development of a functional and sustainable SANBio Network, ii) human capacity development and iii) establishing sustainable funding structures and mechanisms to support SANBio activities.	6 000 000									CSIR, DST and NEPAD
Finland	Southern Africa Innovation Support Programme, Phase 2	The Programme is under preparation and estimated to be mobilized end of 2016.	The Overall Objective of the Programme is "Enhanced regional innovation cooperation and national innovation systems contributing to inclusive business and development". The capacity of regional stakeholders is to be developed to enable them to interact at higher levels and to support the development of enterprises.	12 500 000									DST
France	NRF PROTEA Mobility Programme	16 Joint Projects in different thematic areas of focus.	Mobility funding for research exchanges between South Africa and France.		2 mil ZAR (SA side)		National	Research mobility and networking	Grant	Active	2009-current	NRF	

France	NRF/ IRD/ CNRS/ CIRAD Multi- institutional cooperation	To support various joint projects for joint research, training and capacity building in science and technology related fields. The number of joint activities to be supported is depended on the availability of funds for each financial year.	Focuses on supporting and implementing joint research programmes and activities in various fields including research networks which may associate many laboratories from several countries on a specified scientific theme.				National	Research and innovation	Grant	Active		NRF
France	CNRS / Agreements with the NRF	Associates International Laboratories (LIA) / Ecology of Radiation in an African Rodent (LIA Eco-Rhab)					National	Research	Various	Active	2014-2017	NRF
	CNRS / Agreements with the NRF	Associates International Laboratories (LIA) / Homi nids and Environments (LIA HOMEN)					National	Research		Active	2015-2018	NRF
	CNRS / Agreements with the NRF	Associates International Laboratories (LIA) / Evolution of vocal communication (LIA VOCOM)					National	Research		Active	2015-2018	NRF
	CNRS / Agreements with the NRF	International Joint Laboratory / International Centre for Education, Marine and Atmospheric Sciences over Africa (LMI Eco-ICEMASA)					National	Research		Active	2014-2018	NRF
	CNRS / Agreements with the NRF	International research group / Atmospheric Research in Southern Africa and the Indian Ocean (GDRI ARSAIO)					National	Research		Active	2014-2017	NRF
France	Innovation Partnership	Soft Landing Programme	France to host TIA supported (SA) companies in their incubator networks		R900K		National			Grant		TIA/French Embassy
	Agreement with Africa Centre for Health and Population studies	Antiretroviral treatment as a means of prevention against HIV	Twenty-five years after the human immunodeficiency virus (HIV) was discovered, the HIV prevention issue is yet to be resolved. Antiretroviral treatments are currently available on a large scale in the Southern hemisphere countries. Moreover, these treatments are proved to make HIV-infected people less, and even barely, contagious.				International	Research			2011-2014	Africa Centre for Health and Population studies

France	Agreement with NRF	PROTEA	<p>Protea is the Hubert Curien Partnership (PHC) Franco-South African. The program aims to develop relations between the French scientific communities and South Africa through joint research. The aim of the cooperation program is to encourage exchanges between researchers, supporting their mobility from one country to another, and to develop synergies between the two scientific communities, thus establishing a sustainable network.</p> <p>This call for proposals covers three themes:</p> <ol style="list-style-type: none"> 1) Food Security 2) sustainable and alternative energies, 3) space science for an improved quality of life 				National	Exchange, Research		Active		NRF
France	Agreement with UP	Public Policy and Governance platform	<p>The research and training platform on Public Policy and Governance (PP & G) has been validated by Cirad since March 2012. It is geared towards analysing Rural Development Policy and Natural Resource Management. Cirad and the University of Pretoria are spearheading a partnership that aims to develop regionally by integrating other partners from Mozambique and Zimbabwe.</p>				International	Research, Training				UP
France	7eme PCRD	NOPOOR	<p>The Nopoor project considers that poverty is a dynamic, multi-dimensional phenomenon that calls for dynamic assessment at individual level. All progress towards a theory of poverty has to be empirically founded by quantitative and qualitative studies in Southern partner countries and other relevant countries. A comparative approach gives rise to a better understanding of idiosyncratic and universal determinants</p>	8 000 000			National	Research		Active	2012-2017	UCT
France	Agreement CIRAD/UP	GovInn	<p>GovInn is an 'innovation laboratory' capable of generating new thinking about governance and development. It focuses on cutting-edge research, attracting innovators from all over the world. In short, GovInn is an intellectual 'inn' for innovation in the 21st century.</p>				National	Various		Active		UP
Germany	NRF/DAAD Incountry Scholarship Programme	<p>The programme supports 120 South African students p.a. with scholarships (60 PhD and 60 Masters students).</p>	<p>Since 2010 NRF and DAAD have jointly been supporting South African early career researchers by annually providing full-cost scholarships to SA students to study their MA and PhD in SA universities in all fields of study. Due to the success of the programme it was extended to the current numbers in 2016.</p>	110K ZAR p/a per PhD student/ 80K ZAR p/a per Masters student (NRF covers 50% and DAAD the other 50%)			National	Capacity building	Scholarships	Active	2010-current	DST / NRF
Germany	German - South African Bilateral Research Chair in Sustainable Natural Resource Management (Safe Mining)	Will support 1 bilateral research chair in Sustainable Natural Resource Management-Safe Mining.	<p>The programme aims to foster advanced research in this field, to consolidate scientific cooperation between the two countries and to increase the number of internationally ranking researchers at SA's public universities.</p>	1 500 000 €	4,5 mil ZAR		National	Sustainable Natural Resources	Grant	Active	2016-2021	DSR / NRF

Germany	NASAC-LEOPOLDINA II Project	Communication Event for the Climate Change Policymakers Booklet	ASSAf in collaboration with the Mauritius Academy of Science and Technology (MAST), German National Academy of Sciences (Leopoldina), Network of African Science Academies (NASAC), and Gender in Science, Innovation, Technology and Engineering (GenderInSITE), hosted a communication event for the Climate Change Adaptation and Resilience in Africa policymakers booklet. The objectives of the event were to communicate the booklet's key messages to policymakers and deliberate on various climate change aspects. The event was held on 4 and 5 July.		1,5Mil		Regional	Applied Science	Various	Active		ASSAf, MAST, NASAC & Leopoldina
Germany	Partnership with the German National Academy of Sciences Leopoldina	(1) Conference on strengthening the science-business-dialogue in the SADC region. (2) Zimbabwe science community	1. The conference will explore various topics in the area of Science-Business Dialogue. These include: early stakeholder involvement; international perspectives on science-business linkages; intellectual property rights and technology transfer; and youth and gender perspective on science-business dialogue and innovation. 2. Strengthen the involvement of scientists from Zimbabwe, based in South Africa, on the activities of the Zimbabwean Academy.	142 900 €			Regional					ASSAf & Leopoldina
Germany	AIMS Research Chair	German Research Chair in Mathematics with specialisation in Data Science at the African Institute for Mathematical Sciences. Funded by BMBF and executed by the Alexander von Humboldt	Aims to strengthen university education and research as well as capacity building in mathematical sciences in Africa. AIMS is part of the Next Einstein Initiative, a network of supra-regional centres of excellence.	628 000 €							2016 - 2020	AIMS South Africa
Germany	Science Partnerships for the Assessment of Complex Earth System Processes (SPACES)	Research partnerships between German and Southern African universities	Program aims to carry out scientific cooperation projects in the Southern African region, contributing to the formulation of science-based recommendations for the Earth system management to the government and ensure the sustainable use and conservation of various ecosystem services in the region.				Multilateral					Universities and extramural research institutions
Germany	Southern African Science Service Centre for Climate Change and Adaptive Land Use (SASSCAL)	Joint initiative between Angola, Botswana, Namibia, South Africa, Zambia, and Germany with Headquarters in Windhoek and national nodes.	SASSCAL intends to cover a variety of research issues in state-of-the-art climate change and land management research, responding to the regional definition of needs and demands. Research will be geared towards filling current regional or local gaps in integrated knowledge and will be coordinated with and linked to running cooperative national, regional and international.				Multilateral					DST/NRF

Italy	NRF/ICTP Infrastructure Mobility Programme	This partnership is in the form of (1) a postgraduate fellowship programme: whereby 8 South African PhD students in renewable energy, quantitative biology, high performance computing, astronomy, and mathematical sciences are supported to access ICTP research infrastructure, and (2) a Sandwich Programme: providing both South African emerging and established researchers mobility grants to access and conduct research at ICTP.	The programme intend to support the mobility of South African postgraduate (PhD) students and South African researchers to access ICTP research infrastructure, programs and short courses.		9 mil ZAR (from SA side)		National	Infrastructure mobility	Scholarships and grants	Active	2015 - 2018	NRF
Italy	NRF/TWAS Postgraduate Fellowship Programme	The programme supports up to 240 bursaries for postgraduate students as follows: (1) PhD Fellowship Programme: - 20 students p/a from developing countries outside Africa and endorsed by TWAS members in their country of origin are funded to pursue 3-years full-time PhD studies in SA, (2) Postdoctoral Fellowship Programme: 10 fellows p/a from developing countries outside Africa and endorsed by TWAS members in their country of origin are funded to pursue full-time research activities in the fields of natural sciences in SA for min of 6-months to a max of 3- years, and (3) African Renaissance PhD Fellowship Programme: 50 students p/a who are permanent residents in a developing African country and endorsed by TWAS members in their country of origin are funded to pursue full-time postgraduate fellowships leading to PhD studies in different fields of study in SA for up to 3-years.	TWAS and the NRF share common interests in developing a cadre of the next generation of researchers in Africa. Through TWAS, the main focus is on fostering collaboration between developing countries. For the NRF, the partnership is sought in order to strengthen supervisory capacity for postgraduate students in South Africa. When aligned and combined, these two goals address a national objective of South Africa to build human capacity that supports the positioning of the country for global competitiveness and emergence as an economic power. Therefore, the proposed outcome of the partnership is to foster scientific and technological cooperation by facilitating brain circulation between countries.		1 0 . 8 5 0 mil ZAR p/a (SA side)		Global	Various	Scholarship	Active	2015 - 2019	NRF

Norway	SANCOOP (South Africa Norway Programme on Climate Change, the Environment and Clean Energy).	19 joint projects are currently being supported (from 2013 - 2017).	This programme aims to foster collaboration between researchers and research institutions by involving masters and PhD students from both countries in cutting-edge research applicable to policymakers in the areas of climate change, the environment and clean energy.	NOK40 mil (Norwegian side)	10 mil ZAR (South African side)		National	Climate Change, the Environment and Clean Energy	Grants	Active	2013-2017	NRF
Poland	NRF/NCBR Science and Technology Research collaboration.	6-joint projects in various thematic areas of focus.	The partnership aims to support cooperative programmes, projects, and research development activities for the implementation of joint research projects, human capacity development.		3 mil ZAR (SA side)		National	Various	Grant	Active	2014-current	NRF
Portugal	SA/Portugal Research and Innovation Partnership	To support various joint projects in space science, renewable energy and sustainable development, biotechnology and pharmaceuticals, and oceans sciences.	The Partnership aims to support research and innovation projects with a specific focus on activities promoting the development of young and emerging researchers.	to be confirmed			National	Various	Grant	Active	2015-current	NRF
Romania	SA/Romania Science and Technology Collaboration	Supports 10 joint research projects in various thematic areas of focus.	This partnership provides opportunity for young researchers from both countries to engage through the funding of joint research activities in information and communications technology (ICT); bioeconomy; new materials; and human and social sciences.		2.5 mil ZAR (SA side)		National	Various	Grant	Active	2013-current	NRF
Sweden	SA/Sweden Bilateral Research Programme	Supports 10 joint research projects in any field of study.	This partnership supports cooperative programmes, projects and research and development of joint research projects, human capacity development and student/staff exchanges in all fields of study.		9 mil ZAR (from SA side)		National	Various	Grant	Active	2015-2020	NRF
Sweden	South Africa (NRF) / Sweden (STINT) Science and Technology Research Collaboration	This partnership supports cooperative programmes, projects and research and development of joint research projects, human capacity development and students/staff exchanges in all fields of study.			9 mil ZAR (from SA side)		National	Various	Grant	Active	2015-2020	NRF
Sweden	South African Medical Research Council (SAMRC) / The Swedish Research Council for Health, working life and welfare (FORTE) - collaborative research programme	Calls for joint research project proposals between South African and Swedish researchers, Funding up to 3 years between R200k- R1,0m per year	Joint research proposals may be submitted in the following 2 prioritised health research focus areas: inequalities in health, and Health Systems and Health Systems Policies, Basic, transnational, behavioural, clinical, preventive or epidemiological research may be proposed under this programme.	Not known	Not known		National	Health	Grant	Active	2016-2019	NRF
Sweden	Securing Water for Food: A Grand Challenge for Development (a collaboration between Sweden, USA, Netherlands and South Africa)	Challenge fund	Securing Water for Food is a new challenge fund to provide investment support for technological and business model innovations that will enable production of more food with less water in developing and emerging countries.	Global programme of 7,5 millions US dollars			Global	Water efficiency, waste, waste reuse, food production	Challenge fund	Active	2013-	DST

Sweden	The Swedish Institute Study Scholarships (SISS)	10 scholarship awarded per year for a period of 6 years	The Scholarships are awarded to South African students for full-time master's level studies in Sweden starting covering both living costs and tuition fees.	Estimate 25 million SEK			National/Global	Higher Education, master level	Grant	Active	2014-2019	DHET
Sweden	Linnaeus Palme International Exchange Programme	Institutional, student/teacher exchange, researchers	A Swedish exchange programme for teachers and students at undergraduate and master's level aiming at strengthening cooperation between institutions of higher education in Sweden and developing countries.	Not known	Not known		Global	Higher education, student/teacher exchange	Grant	Active	2000-	Various South African Higher Institutions
Switzerland	Swiss South Africa Business Development programme		Taking science to market saw the establishment of the Swiss South Africa Business Development (SSABDP) in 2010. A partnership was established between the Technology Innovation Agency (TIA) and the University of Basel as the leading agencies for the implementation of the Swiss South Africa Business Development Programme (SSABDP) Programme.					Innovation	Various	Active	2010-	TIA, University of Basel, amongst others
Switzerland	South Africa/ University of Basel	Swiss Bio-entrepreneurship Programme	Advanced technology Entrepreneur Programme presented by IFJ. 5 Day Venture Leader Business Development Programme in Switzerland. SA participants meet with swiss industry, investors and start-ups with (PhD's & Postdocs)	CHF 65 000	R1.2m		National		Grant	Ongoing		TIA
Switzerland	SSAJRP (Switzerland/ South Africa Joint Research Programme)	The programme will support up to 12 joint research and innovative projects that (1) ensure healthy lives and promote well-being (from new tools to systems understanding), (2) joint projects with emphasis on sustainability, focusing on the following fields: environmental sciences, engineering and energy-related issues, social sciences and humanities (including law) in the context of current and coming societal challenges, and methodologies and technologies for data intensive applications.	The programme mainly promotes industry- academia cooperation, and has facilitated over 100 exchange activities of early career and established researchers from both countries.	CHF 4.2 mil (Swiss side)	31.2 mil ZAR (SA side)		National	Research and Innovation	Grant	Active	2008-current	NRF
United Kingdom	South Africa / UK Newton Fund Programme	As of July 2016, 41 joint research calls have launched between 22 different UK and SA delivery partners. 163 awards have been made to date. Activities under the UK-SA Newton Fund are grouped into three main pillars: People, Research, and Translation. The programme continues to expand as the UK contribution ramps up in 2017.	Launched in 2014 and running to 2021. Part of UK's Official Development Assistance, the Newton Fund aims to promote the economic development and social welfare of partner countries. The UK- SA programme focuses on the thematic areas of Higher Education, Health, Environment/Climate Change, Food Security, Urbanisation, and Astronomy for Development with cross-cutting themes of innovation, human capital development, big data, and regionalisation.	UK has invested GBP 735 mil to 15 selected countries including SA. GBP 40 mil investment in South Africa from 2014-2021	Equivalent matched contribution through cash, in-kind, and equitable leveraged funding mechanism	ODA	National	Various	Fellowship and grants	Active	2014-2021	Various

	People	UK-SA bilateral Research Chairs	3 chairs awarded in fields of Food Security, Oceans/Food Security, and Political Theory 23 fellowships awarded to date				National	Various	Grant	Active	2014-2021	NRF
	People	Newton Fellowships					National	Various	Grant	Active	2014-2021	NRF
	People	Mobility Grants	105 mobility and travel grants awarded to date				National	Various	Fellowship	Active	2014-2021	NRF
	People	11 PhD Partnerships	The partnership programme involves 288 UK and SA PhD students				National	Various	Grant	Active	2014-2021	NRF
	People	Research Workshops (4 bilateral, 3 trilateral with Egypt)	4 bilateral and 3 trilateral (with Egypt) workshops funded to date. Additional trilateral workshops with Kenya to launch July 2016.				National	Various	Grant	Active	2014-2021	NRF
	People	Regional Astronomy Capacity Building	Centred around the African Very Long Baseline Interferometry Network (AVN) uses the UK and SA's radio astronomy expertise in Radio Astronomy to aid in human capital development in STEM related subjects. Radio astronomy laboratories have been created across the AVN partner countries - Kenya, Botswana, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Namibia, and Zambia.				National/Regional	Various	Grant	Active	2014-2021	NRF / SKA Africa
	Research	Joint Public Health Research	Two health calls on non-communication diseases and TB implementation science launched. 13 projects awarded in 2016.				National	Health	Grant	Active	2014-2021	SA MRC
	Research	Social Science for Development joint research	5 calls launched in thematic areas including urbanisation, equity in higher education, and food security.				National	Various	Grant	Active	2014-2021	NRF
	Translation	Leaders in Innovation Fellowships	Royal Academy of Engineering has hosted 30 South African innovators to provide mentorship and commercialisation skills.				National	Innovation	Grant	Active	2014-2021	TIA
	Translation	Weather and Climate Science to Service Partnership	UK Met Office and SA Weather Service are building links to combat the challenges of extreme weather and risks from changing climate.				National	Climate Change and the Environment	Grant	Active	2014-2021	SA Weather Service
	UK-SA Space Agency MoU	Various collaborative activities proposed by MoU	Key areas of collaboration include earth observation, space science and satellite applications.	GBP 8.5 mil			National	Space		Active	2015-current	SA Space Agency
	Square Kilometre Array (SKA)		£100 million agreed by Parliament for the construction phase, over £85 million to operate the telescope and £500,000 a year over 10 years to maintain the HQ at Jodrell Bank.	GBP 190 mil			National	Space / Astronomy		Active		
	Chevening Scholarships	UK Government's flagship global scholarship programme offered since 1984. Full funding for a one year Master's course at any UK university. Each year approximately 45 scholarships are awarded to South Africans.	Target areas for the programme include Education and Health Policy and Administration, International trade, Economics and Finance; Science, Innovation and Engineering; Governance and Human Rights; International Relations and Foreign Policy.	Up to GBP 13,000 for each scholarship.			Global	Various	Scholarship	Active		
	Scientific Seminar Scheme (ended 2014)	Project ran for one year very successfully but ended in 2014 due to lack of UK funding. Both sides interested in re-starting the initiative. Led on UK side by Royal Society.	Scientific forums bringing together groups of early to mid-career scientists from SA and the UK to promote collaboration and knowledge transfer by encouraging interaction within the wider research community. These scientific forums took place in either SA or the UK.	ZAR 3.1 mil			National	Various		Ended 2014	2013-2014	NRF
Poland	NRF/NCBR Science and Technology Research collaboration.	6-joint projects in various thematic areas of focus.	The partnership aims to support cooperative programmes, projects, and research development activities for the implementation of joint research projects, human capacity development.		3 mil ZAR (SA side)		National	Various	Grant	Active	2014-current	NRF

Portugal	SA/Portugal Research and Innovation Partnership	To support various joint projects in space science, renewable energy and sustainable development, biotechnology and pharmaceuticals, and oceans sciences.	The Partnership aims to support research and innovation projects with a specific focus on activities promoting the development of young and emerging researchers.	to be confirmed			National	Various	Grant	Active	2015-current	NRF
Romania	SA/Romania Science and Technology Collaboration	Supports 10 joint research projects in various thematic areas of focus.	This partnership provides opportunity for young researchers from both countries to engage through the funding of joint research activities in information and communications technology (ICT); bioeconomy; new materials; and human and social sciences.		2.5 mil ZAR (SA side)		National	Various	Grant	Active	2013-current	NRF
	EUREKA Network		SA is an associate member of the network, which comprises over 40 European governments and serves as a platform for the development of innovative joint research and development (R&D) projects.				Global	Private Sector			since Jun 2014	DST
	Eureka project (SOUTH AFRICA/ SPAIN)	EUR-20140022	Development of a new solidification simulator prototype for the modernization of the South African foundry industry and its subsequent commercialization in the world market.	167 000								Metal Casting Technology Station (MCTS) University of Johannesburg
	Eureka project (SOUTH AFRICA/ SPAIN)	EUR-20140031	Research and development of advanced technologies for cae analysis and design of large dam under extreme conditions	200 000								
	Eureka project (SOUTH AFRICA/ SPAIN)	EUR-20150004	Advanced design & operation of large PV power plants	961 280								Nelson Mandela Metropolitan
	Eureka project (SOUTH AFRICA/ SPAIN)	EG20 502	Stellio Automotive									
		ASAFEM - Antibiotics and anti-quorum sensing compounds from African fungal endophytes inhabiting medicinal plants and cultures of macromycetes										University of KZN (one of partners)
		EndoAfrica - Vascular endothelial dysfunction: the putative interface of emerging cardiovascular risk factors affecting populations living with and without HIV in SSA										University of Stellenbosch (lead partner)

		FoIEA - Contribution of cereal-based fermented foods to folate intake in European and African countries											University of Pretoria (one of partners)
		icononuXnctrhieasnge - Increasing Innovation Potential By European-African Cooperation											University of Pretoria (one of partners)
		SOCBIOAfrica - Addressing societal challenges of biotechnology in Africa. Towards balanced innovation.											North West University (one of partners)
		Fruit Fly - Detection methods for fruit flies of economic significance to fruit and vegetable production in Africa and Indian Ocean islands.											Citrus Research International (lead partner)
		MAXess - Measuring accessibility in policy evaluation											University of Pretoria
		RDSControl - Stymieing infant mortality: effects of manipulating oxygen tension on lung development lung vascular plasticity											University of Johannesburg (one of partners)
		SAPDRY - Development of grain drying facilities that use super absorbent polymers and adjusting the properties of SAPs to optimise drying of grain and control of aflatoxin contamination											University of Venda (one of partners)
		Ad-Pow-Gen - Development of an advanced high-efficient low-cost power-generation with minimum carbon emission from hybrid-fueled supplies											University of Cape Town (one of partners)
		HENERGY - Advanced Hydrogen Energy Systems											University of Western Cape (one of partners)

Annex B: Schedule of one-on-one Consultations with S&T Liaison Officers

SCHEDULE OF MEETINGS					
One-on-One Consultation with EU Liaison Officers/Attaches Represented in South Africa Work Package 2 (Deliverable: 2.2.) Coordination of the EU MS and AC Bilateral Cooperation with South Africa					
Country	Embassy Address	Person Interviewed	Email Address	Meeting Date	Meeting Time
Austria	454 a Fehrsen Street, Brooklyn, Pretoria	Mr Matthias Radosztics	matthias.radosztics@bmeia.gv.at	27-Jul-16	10:00 - 11:00
Belgium	625 Leyds Street, Muckleneuk	Patrick de Bouck	Patrick.debouck@diplobel.fed.be	26-Jul-16	11:00 - 12:30
Denmark	1166 Park Street, Hatfield, Pretoria	Jorgen Erik	ioelar@um.dk	27-Jul-16	11:30 - 12:30
Finland	628 Leyds Street, Muckleneuk	Anna Merrifield	Anna.Merrifield@formin.fi Paivi.lehtonen@formin.fi	22-Jun-16	08:30 - 09:30
Flanders	497 Cameron Street, Bailey's Muckleneuk	Geraldine Reymenants	geraldine.reymenants@flanders.org.za	22-Jul-16	11:00 - 12:00
France	250 Melk Street, Corner Middel Street	Jean-Paul Toutain	jean-paul.toutain@diplomatie.gouv.fr	2-Aug-16	15:00 - 16:00
Germany	201 Florence Ribeiro Avenue, Groenkloof	Eva Ziegert (also representing Slovenia)	Wiss-1@pret.diplo.de	18-Jul-16	15:00 - 16:00
Italy	796 George Avenue, Arcadia	Dr. Perguido Sarti	Pretoria.scienza@esteri.it	19-Jul-16	10:00 - 11:30
Kenya	308 Brooks Street, Pretoria	Dr Gatama Gichini	gatamagichini@kenya.org.za	19-Aug-16	14:30 - 16:00



Lithuania	235 Grosvenor Street, Hatfield	Gediminas Kuras	Gediminas@urm.IT	14-Jul-16	09:30 - 10:30
Netherlands	210 Queen Wilhelmina, Muckleneuk	Alexender Vander	alexander-vander@minbuza.nl	11-Aug-16	14:00 - 15:00
Norway	165 Lynnwood Road, Brooklyn	Alf Age Hansen	karl.klingsheim@innovationnorway.no	6-Jul-16	14:00 - 16:00
Poland	14 Amos Street, Colbyn, Pretoria	Dr Kzysztof Bielaj	Kzysztof.bielai@msz.gov.pl	18-Jul-16	16:30 - 17:30
Portugal	599 Leyds Street, Muckleneuk	Ana e Brito Maneira	ana.maneira@mne.pt	20-Jul-16	14:30 - 15:30
Sweden	1166 Park Street, Hatfield, Pretoria	Helena Pieteron	helena.pietersen@gov.se	20-Jul-16	10:00 - 11:30
Switzerland	225 Veale Street, Nieuw Muckleneuk	Jacqueline Friedenthal	iacquelene.friedenthal@eda.admin.ch	8-Aug-16	11:00 - 12:00
United Kingdom	255 Hill Street, Arcadia, Pretoria	John Wade Smith	john.wade-smith@fco.gov.uk laura.harris@fco.gov.uk	14-Jul-16	10:00 - 11:30
United States of America	877 Pretorius Street, Arcadia, Pretoria	Hagen Maroney	MaroneyHD@state.gov	1-Aug-16	11:30 - 12:30



Partners



PRAXI Network | Coordinator
Foundation for Research and Technology
Hellas
www.praxinetwork.gr



DST
Department of Science and Technology
www.dst.gov.za



ASSAf
Academy of Science of South Africa
www.assaf.org.za



APRE
Agenzia per la Promozione della
Ricerca Europea
www.apre.it



DLR
Deutsches Zentrum für Luft- und
Raumfahrt e. V.
www.dlr.de



IRD
Institut de Recherche pour le
Développement
www.ird.fr



NRF
National Research Foundation
www.nrf.ac.za



RCN
The Research Council of Norway
www.forskingsradet.no



TIA
Technology Innovation Agency
www.tia.org.za



ZSI
Zentrum für Soziale Innovation
www.zsi.at



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contact@esastap.org.za

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