

Programme Description

Centres of African Excellence

African-German Centre for Sustainable and Resilient Food Systems and Applied Agricultural and Food Data Science

The German Academic Exchange Service (Deutscher Akademischer Austauschdienst – DAAD) is distributing funds provided by the Federal Foreign Office (AA), the Federal Ministry of Education and Research (BMBF), and the Federal Ministry of Food and Agriculture (BMEL) to promote the implementation of the multi-institutional project '*African-German Centre for Sustainable and Resilient Food Systems and Applied Agricultural and Food Data Science*' in the context of and in line with the existing funding programme '*Fachzentren Afrika – Centres of African Excellence*'.

Thematic focus:

The climate crisis, conflicts, declining biodiversity, and limited and non-renewable natural resources are acute issues that pose key challenges to the growing world population at present and in the future, which constitute among other things a concrete tangible threat to food security and the realisation of the human right to adequate food globally and especially on the African continent. Environmentally friendly and resource-saving agriculture, including efficient and sustainable land use, transparent and sustainable value chains as well as innovative and sustainable approaches to food production and marketing, but also a concrete rethinking of current consumer behaviour including the promotion of sustainable nutrition and the reduction of food waste must become important issues for a cross-sectoral transformation of agricultural and food systems, taking into account the socio-economic context. These include agro-ecological approaches (such as organic farming), which can contribute to the transformation process towards sustainable and resilient food systems. Environmentally friendly and resource-conserving agriculture reduces climate risks, also in the interest of sustainable rural development, and serves to maintain healthy ecosystems, while at the same time providing employment opportunities and future perspectives for a growing number of young people in rural and urban areas. This requires a holistic view of agricultural and food systems and their sub-components, as well as a direct link to neighbouring systems such as (agro)forestry, health (e.g. One Health approach), ecology, economy and governance, as well as science and innovation systems. Socio-economic issues (e.g. access to resources, etc.) should also be included in the overall assessment.

The planned **Centre of Excellence for Sustainable and Resilient Food Systems and Applied Agricultural and Food Data Science**, with its main location in South Africa and a regional impact extending to sub-Saharan Africa, shall operate on an international and transdisciplinary basis and to bring together the thematic aspects of food production, processing, marketing and consumption for the areas of **education, research and transfer** in such a way that food systems can be considered within the framework of a **holistic approach**. It is envisaged that this will require the use of education policy initiatives, trans- and interdisciplinary research approaches and academic training paths. These should involve all necessary stakeholders – from decision-

makers through to small farmers, commercial producers, processors, traders and consumers. It also aims to ensure and strengthen the ongoing exchange between the stakeholders involved.

An integral and particularly forward-looking component of the planned Centre of Excellence is also the **inter-linking with the field of data science**. Data- and researched-based use of topic-relevant findings and their integration into the process of knowledge generation with regard to resilient and sustainable agricultural and food systems as well as the implementation and translation of these findings is an important component for the programme success.

Ministries involved and subcomponents of the centre:

The multi-institutional character of the overall project is also reflected in the longer-term objectives and expected impacts of the project, given the involvement of the above-mentioned ministries and the fact that the project is embedded in the DAAD funding programme "Centres of African Excellence", which has been funded by the AA since 2008.

The Centre of Excellence with its disciplinary focus on food systems including data science should be located at a university in South Africa with an impact in the region of sub-Saharan Africa. This project is a pilot for a synergy project among the following German Ministries and it covers the following partial programme lines (see Figure 1):

Funding line A – AA: Capacity Building and Transfer

- Financing of the general structural establishment of the Centre based on the existing DAAD funding programme "Fachzentren Afrika – Centres of African Excellence"
- Focus: Teaching and capacity building along with the development of micro degrees
- Networking and transfer activities

Funding line B – BMBF: Implementation of a Research Chair and Doctoral and Postdoctoral funding for German PhD/Postdoc candidates

- Start-up financing of a supplementary research chair for a member of a German higher education institution at the Centre of Excellence in South Africa, including accompanying activities (such as complementary research projects, research networking in a discipline-specific context) and funding of research stays (e.g for members and doctoral candidates from German HEIs)

Funding line C – BMEL: Doctoral and Post-doctoral funding for African PhD/Postdoc candidates

- Start-up financing of the Centre's supplementary research components, in other words establishment of a doctoral programme and post-doctoral funding for PhD students and postdocs from African HEIs including accompanying activities (implementation of small research projects with further applicability in organic production)

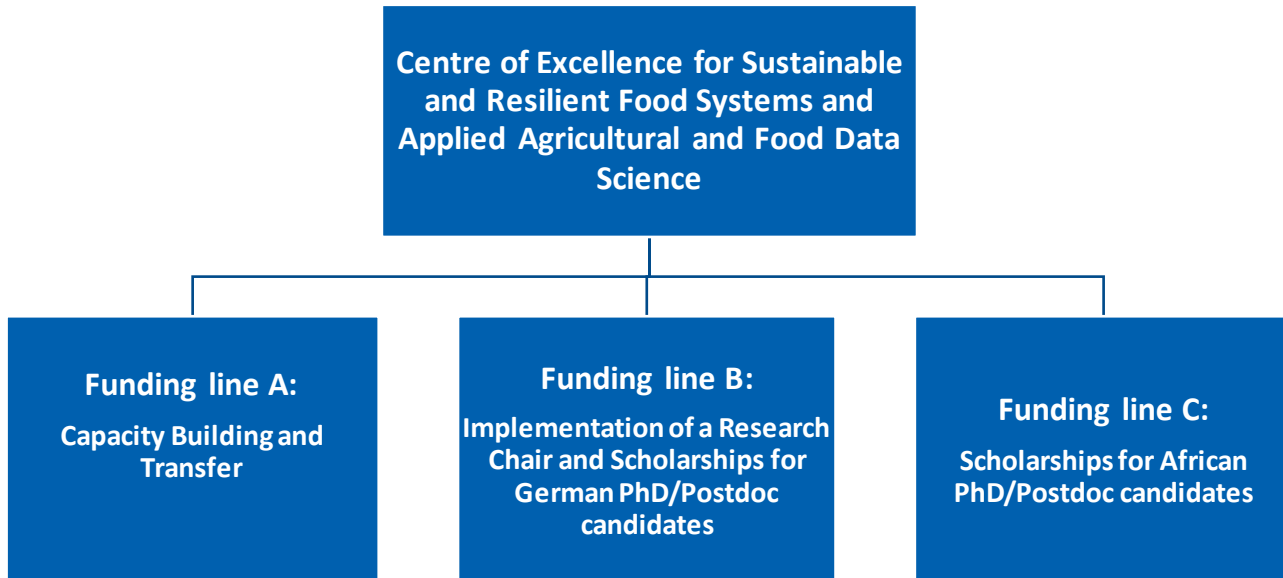


Figure 1: Funding components of the Centre of Excellence

On behalf of South Africa, the **National Research Foundation (NRF)** is also supporting the project with funds provided by the DSI (Department of Science and Innovation) to establish a further research chair including accompanying activities in South Africa for a member of a South African higher education institution. Following the establishment of the Centre, the National Research Foundation (NRF) of South Africa will initiate a process to support components of the Centre aligned with the NRF and Department of Science and Innovation (DSI) strategic investment funding instrument, such as the [South African Research Chairs Initiative \(SARChI\)](#).

The areas of teaching/learning, capacity building, promotion of early career scientists, research and knowledge transfer, including close relations with stakeholders, will be brought together in the overall concept using a **holistic approach**. An interdisciplinary approach will also be used thematically. In addition, the key actors/stakeholders from politics, science and society should be actively involved in all phases of a research and innovation cycle in the project, so that the **transdisciplinary approach** anchored in the 2030 Agenda can be comprehensively implemented.

Call for applications relating to the funding lines:

The call for applications comprises **three separate funding lines** (separated by funding bodies), which are nevertheless interlinked as part of the overall programme.

It is therefore crucial that applying higher education institutions (HEIs) present both their comprehensive overall concept for the implementation of the above-mentioned Centre of Excellence and submit an application per funding line and respectively funding body. Calls for all three funding lines are being issued in parallel.

Description of the comprehensive overall concept should occur via the application in Funding line A.

Only those higher education institutions that submit an application for all three funding lines (A, B, C) can be considered during the selection process. Funding is initially envisaged for a period of five years.

The call for applications relating to the NRF-financed research chair is to occur separately in South Africa. Consideration of even this additional component must be included in the overarching concept; it is expected that the applicant German higher education institutions will closely coordinate with their potential South African partner higher education institutions in this regard. The application (Line B) should therefore outline the terms of reference regarding the call for research chair as well as the incoming professor's five-year research programme.

Overarching objectives of the Centre of Excellence:

The implementation of the new Centre of Excellence is to be seen in the context of the multi-institutional involvement of various donors in the overall context of the Federal Government's Africa policy guidelines, including the strategic goals of foreign cultural and educational policy (AKBP), the BMBF's Africa strategy, the BMEL's research plan and its Africa concept (currently being revised) and the current priorities of the BMEL in the area of global food security (<https://www.bmel.de/DE/themen/internationales/agenda-2030/globale-ernaehrungssicherung.html>) as well as the implementation of the UN Sustainable Development Goals (e.g. *SDG 1 (No poverty)*, *SDG 2 (Zero hunger)*, *SDG 4 (Quality education)*, *SDG 13 (Climate action)*, *SDG 17 (Partnerships for the goals)*). This context also includes the "Future Strategy for Research and Innovation" and strategies for the internationalisation of education, science, and research.

This project accordingly contributes to enhancement of applied/practice-oriented, inter-, and transdisciplinary international research cooperation, and to the establishment of effective, internationally networked and innovation- and research-oriented higher education institutions.

The project/programme aims to make long-term contributions (**impacts**) in terms of the following points:

- *Impact 1: The programme is contributing to professionally developed individuals holding key positions in academia, non-academia and multiplier functions.*
- *Impact 2: The programme is contributing to the transfer of current research results into politics, business, civil society as well as academia and science.*
- *Impact 3: The programme is contributing to the strengthening of human and structural research capacities at the higher education institutions represented in the Centre of Excellence network.*
- *Impact 4: The programme is contributing to the competitiveness and sustainability of the Centres of African Excellence and is actively supporting relevant transfer cycles.*
- *Impact 5: The programme is contributing to the implementation of the German government's guidelines regarding its Africa-related policies as well as to the achievement of the SDG.*
- *Impact 6: The programme is contributing to the development of efficient, internationally networked as well as innovation- and research-oriented universities.*
- *Impact 7: The programme is contributing to the strengthening of applied/practice-oriented, inter- and transdisciplinary international research collaboration.*

To achieve these long-term results (impacts), the programme pursues the following **programme objectives (outcomes)**:

- Outcome 1: *Students, (junior) scientists and university lecturers are (further) educated and trained in subject-specific, interdisciplinary and methodological skills.*
- Outcome 2: *The (digital) teaching and supervision offers, especially in master's, doctoral and post-doctoral education, has been improved at the participating partner universities and other universities in sub-Saharan Africa.*
- Outcome 3: *The results of the applied transdisciplinary research projects are accessible to a pan-African and international specialized public.*
- Outcome 4: *Innovative and strategic approaches to ensure financial, staff-related and structural sustainability of the centre have been developed.*
- Outcome 5: *The centre works (digitally supported) in networks with relevant African, German and international stakeholders from politics, business, academia and science and civil society.*

These programme objectives should be achieved by means of the following direct **results (outputs) of measures / activities**:

- Output 1: *Professionally qualified and methodologically competent students, (junior) researchers and lecturers have received study, teaching and/or research funding.*
- Output 2: *Applied and transdisciplinary research is (digitally supported) realized.*
- Output 3: *(Digital) Teaching and practice-oriented training as well as continuing education modules that correspond to the local context and the relevant international state of science are jointly (further) developed.*
- Output 4: *Staff at the partner universities is (digitally supported) (further) qualified with regard to demand-oriented, subject-specific, interdisciplinary and administrative issues.*
- Output 5: *Contacts with relevant African, German and international stakeholders from the field of politics, business, academia and science and civil society have been established or consolidated.*

Fields of study:

The programme is open to disciplines in applied agricultural and food data sciences that deal with the thematic focus of the planned Centre of Excellence in an interdisciplinary and transdisciplinary manner, i.e. in the broadest sense with the holistic consideration and transformation of agricultural and food systems.

In terms of implementation, this means bringing together expertise from a wide range of disciplines in the fields of research and teaching, within the framework of systemic and sustainable multi-actor approaches. For details on the thematical focus of the research chair (funding line B, lead ministry BMBF) and the doctoral/postdoctoral programme for African PhD/postdoc candidates (funding line C, lead ministry BMEL), please refer to the relevant sections of the respective funding lines.



Other requirements:

A prerequisite for submission of an application is partnership with one or more partner higher education institutions in South Africa including at least one of the following institutions: ‘Historically Disadvantaged institutions’ (HDIs), Universities of Technology (UoTs), ‘emerging’ universities, or an existing network of partners (also) affiliated to these institutions. A higher education institution from another African country south of the Sahara must also be included. The size of a higher education association should be restricted to four (including potentially associated partners up to a maximum of five) institutions.

Cooperation with already established, substantively relevant Centres of African Excellence, DAAD projects (including Global Centres), research institutes, projects run by the participating Ministries and relevant ministerial research institutes as well as with policy makers is explicitly welcome. An appropriate inclusion of stakeholders within the context of the transfer cycle approach is crucial and must form part of the applying higher education institutions’ concept.