With a population of 13.4 million (2022) and projected real GDP growth of 6% in 2024, Benin is among the world's fastest growing economies.

Highly skilled human capital will boost this growth rate and drive implementation of Benin's National Development Plan.

Benin is making enormous strides to increase share of women in science and outperforms the rest of the world on share of women graduates in engineering (54.6%) and ICT (55.1%) (UNESCO, 2018).

BENIN
Country Report 2023

Benin is one of the nine African countries that is contributing to the Regional Scholarship and Innovation Fund (Rsif) of the Partnership for skills in Applied Sciences, Engineering and Technology (PASET) since 2021 *(Figure 1)*. Its contribution is USD 2 million to train Beninese PhD students in selected African host universities and collaborating with international partner institutions.

Through PASET-Rsif Benin will build strong institutions and future science leaders to drive a science and technology-led growth and development.
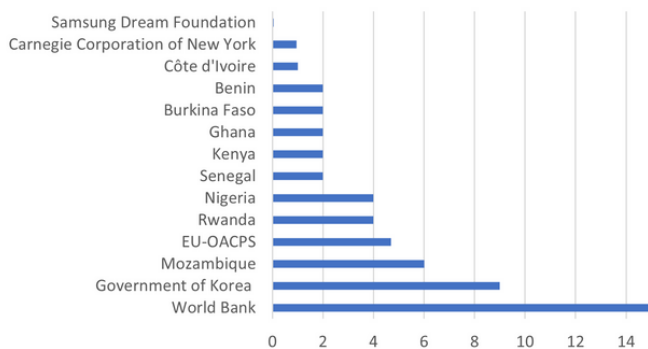
Rsif contributions (in mill. USD)

Figure 1: Rsif Contributing Countries and Partners

Rsif thematic areas

Data science, including artificial intelligence

Sustainable food systems including agribusiness

Minerals, Mining and Material Science

Energy including renewables

Climate Change

Rsif in Benin at a glance

19 Beninese Rsif PhD scholars (42% women)

7 Rsif PhD students hosted at UAC (3 nationalities, 29% women)

14 Research publications

4 Rsif research and innovation projects

Why Rsif matters

- **High quality PhD training:** Combining intra-Africa academic exchange and international partnerships for world-class doctoral training.
- **Wider academic and research network:** Research placement at an advanced institution for exposure to cutting-edge technologies and connecting with global research networks.
- **Regional integration within Africa:** Strengthening centers of excellence and innovation ecosystems for benefit of the whole region.
- **Better economies of scale:** Pan-African partnerships, and a jointly pooled science fund professionally managed by the Rsif Regional Coordination Unit at *icipe*.

Strengthening research and innovation capacity in Benin

The University of Abomey-Calavi (UAC) is one of the 15 Rsif African Host Universities *(Figure 2)*. The PhD programme in Information technologies and communication at Institute of Mathematics and Physical Sciences, Centre d'Excellence des Sciences Mathématiques, Informatique et Applications (SMIA) is hosting 7 Rsif funded PhD students (29% women, 3 nationalities).

UAC benefits from linkages with other African universities as well as the Rsif international partner institutions for the Rsif 'sandwich' programme where students spend 6-12 months at an advanced institution conducting collaborative research *(Figure 3)*. Rsif provided access to a wide range of scientific journals to the library and its students.

UAC is also a consortium member under the Accelerating Inclusive Green Growth through Agri-based Digital Innovation in West Africa (AGriDI) initiative, financed by the European Union through the ACP Innovation Fund. As part of the AGriDI initiative, UAC conducted a regional study on Digital Agriculture Policies and Strategies for Innovations in the Agri-Food Systems.

The study provides an overview of the status of digital agriculture in five West African countries (Benin, Burkina Faso, Côte d'Ivoire, Ghana, and Nigeria), makes recommendations for the effective transformation of the sector. The findings have been published in peer reviewed journal articles. (https://agridi.org/reports-publications/)
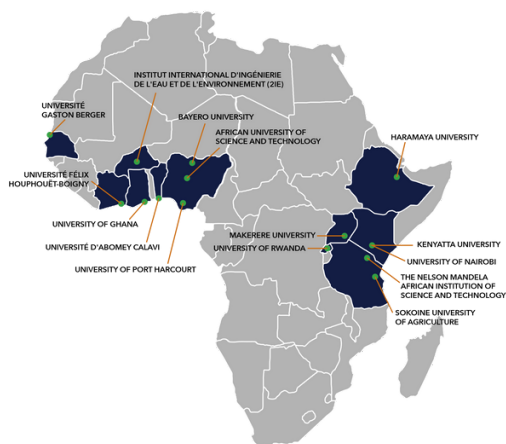
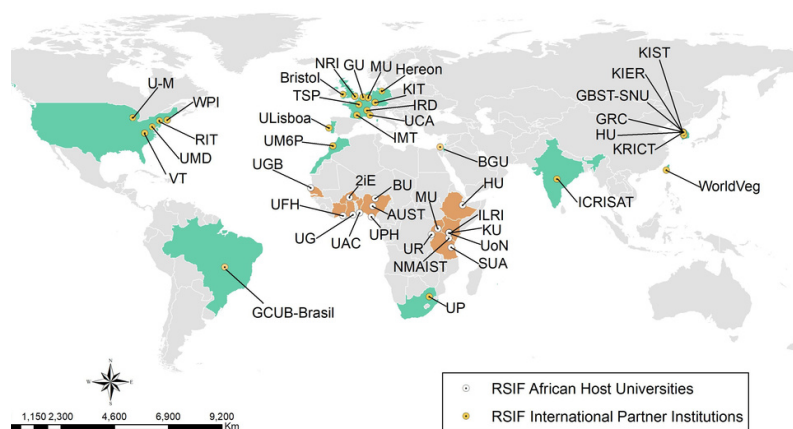*Figure 2: Rsif African Host Universities*

Figure 3: Rsif International Partner Institutions

> By working closely with academic institutions, relevant investors and governments, and other stakeholders ; specialized knowledge will be integrated in the region and transferred to the future generation

Spotlight on Beninese Rsif Scholars

Strengthening resilience to climate change

Dr Fréjus Ariel Kpêdétin Sodedji
First Rsif alumni from Benin. Currently affiliated with Université Abomey-Calavi, Benin.

PhD from Université Félix Houphouët-Boigny, the Africa Center of Excellence for Climate Change Biodiversity and Sustainable Agriculture (CCBAD) in Abidjan, Côte d'Ivoire.
Research placement at Korea Institute of Science and Technology (KIST), Korea with support from the Samsung Dream Scholarship Foundation.

Recipient of Rsif Junior Investigator Research Award (USD 80,000)

Research area: Strengthening resilience to climate change through the promotion of mungbean production and uses in Benin

> Rsif awards competitive research and innovation grants that complements the PhD training at African universities by supporting research that promotes scientific excellence and use of knowledge for sustainable development impact.

Machine Learning

Marianne Alfredine Omonlola Balogoun
Rsif PhD student in Information technologies and communication at University of Abomey-Calavi (UAC), Benin.

Research placement at Worcester Polytechnic Institute (WPI), USA.

Research area: Radio coverage prediction using machine learning techniques: case of digital terrestrial television in Benin

Solar energy

Lere Mitterand Deguenon
Rsif PhD student at 2iE, Burkina Faso.

Research placement at Rochester Institute of Technology (RIT), USA.

Research area: Sizing by technical and economic optimization of a hybrid off-grid PVE solar energy production system

1 journal publication

Earth Sciences

Gbetoglo Charles Komadja
Rsif PhD student at the African University of Science and Technology, Nigeria.

Research placement at Virginia Tech, USA.

Research area: Experimental and numerical simulation based-optimization approach of rock blasting outcomes in mining and civil engineering

2 journal publications

Genomics

Mahugnon Santoze Adido
Rsif PhD student at Sokoine University of Agriculture (SUA), Tanzania

Won a mobility grant to undertake his research at the University of Namur, Belgium.

Research area: Genome-Wide Association Analysis of Economically Important Traits in Freshwater Prawn Populations in Benin

Developing and scaling up digital innovations in agriculture

AGriCef mobile App by Université de Parakou

icipe in partnership with UAC leads the Accelerating Inclusive Green Growth through Agri-based Digital Innovation in West Africa (AGriDI) initiative. AGriDI aims to create a conducive environment for agri-based digital innovations, especially for women and youth farmers, and accelerating inclusive green growth.

Its specific objectives are: a) increased uptake of agri-based digital technologies by farmers' cooperatives and SMEs; b) strengthened collaboration between research communities, industry, and policy actors in digital innovations, and c) improved knowledge on policymaking facilitating scaling agri-business digital innovations. So far Rsif-AGriDI supports three projects in Benin:

6 Digi-kiosks are operational and producers trained in Agro-ecological methods to combat Fall Army Worm

An example is the AGriCef mobile App by Université de Parakou used to control the Fall armyworm (FAW) in maize in Northern Benin. Large-scale sustainable adoption of digital and agro-ecological practices by young producers can contribute to increasing maize yields and production in Northern Benin. The initiative offers several commercial opportunities for ICT Agro business Center, young people ready to engage in the provision of digital services ('digipreneurs' and 'digikiosques') and traders of agroecological inputs. Thanks to the access to and participation in digital information services, agronomic diagnosis and technical learning, producers enhance their capacities with a view to increase agricultural productivity of maize in the region.

Another innovation project example is the Ki@ App that collects and provides relevant market updates via SMS and voice message directly to local farmers on their mobile phones. A particular emphasis is given to the rice and maize supply chains as the major sources of staple food in Benin and to reach women and youth, to increase their role in the family farm.

In the context of its project for Strengthening the political and regulatory environment for the development and scaling up of digital innovations in the agricultural sector in Benin, ACED-Benin has conducted a study mapping the ecosystem for digital agriculture in Benin. The research report includes an analysis of the institutional environment, the digital solutions and the actors. A policy brief is also available.

ACED Benin Research Report and Policy Brief

Contact us

Regional Coordination Unit (RCU)
International Centre of Insect Physiology and Ecology (*icipe*)
P.O. Box 30772 – 00100, Nairobi, Kenya
Tel +254 (20) 8632000
Email: rsif@icipe.org

www.rsif-paset.org

@PasetRsif

@PASET-Rsif

@TheRSIF