Africa Regional Scholarship and Innovation Fund for Applied Sciences, Engineering and Technology

Progress Report
1 January – 31 March 2022

Executive Summary

Initiated and owned by African governments and implemented by *icipe*, the Regional Scholarship and Innovation Fund (RSIF) aims to build a critical mass of skills and knowledge needed to increase the use of science, technology, and innovation for sustainable economic growth in sub-Saharan Africa (SSA). This report provides achievements of the RSIF program for the period running from **1 January – 31 March 2022**. A summary is included below:

a) Preparations for the RSIF conference which will be hosted in collaboration with the University Mohammed VI Polytechnic (UM6P) are at an advanced stage. The hybrid conference with up to 100 physical participants and up to a thousand online will be held 24 - 26 May 2022. The theme of the Conference is "African-led science, technology and innovation for contributing to the SDGs and stimulating global development.
b) The Government of France offered to provide extra-support to two PhD students with RSIF scholarships going to France for a three month stay. The details of the student scholarship details are being worked on.
c) The Government of Canada provided support through the Canadian Executive Service Organization (CESO) to fund six experts who are currently providing supporting in the areas of gender, resource mobilisation and entrepreneurship.
d) Towards establishment of the RSIF Permanent Fund, The National Research Foundation (NRF) of South Africa has agreed to host an RSIF Ministerial meeting in December 2022 to discuss Strengthening a Regional Approach to Building Science, Technology and Innovation Capacity for Responding to Current and Emerging Challenges.
e) PhD Scholars in Cohorts 1, 2 & 3 continue with their PhD studies despite the challenges occasioned by Covid-19 . Total number of scholarships awarded for the three cohorts is 184 from over 20 African countries, with funding from eight contributing African countries. Of these, 71 (39%) are to women. A total of **75** high quality peer reviewed papers have been published by RSIF PhD scholars.
f) The selection process and award of Cohort 4 RSIF PhD Scholarships was concluded by PASET EB approval to award 74 (32% female and 45% Faculty) scholarships in February 2022. The scholars are expected to report to their respective AHUs in the second and third quarter of 2022.
g) The RSIF mentorship platform initial roll-out was undertaken at a staff pilot workshop on 8 March 2022. This workshop tested the learning materials created for onboarding staff& scholars. The architectural materials of the platform have been developed and discussions with stakeholders on the platform functionality held.
h) The first Call for Proposals of the Junior Investigator Research Award (JIRA) was launched and it targets RSIF PhD graduates who hold a permanent or post-doctoral position in a university or research centre in SSA. The Grants Independent Technical Committee (GITC) reviewed and approved **seven** Research and Innovation Grant projects for funding under the Improvement of Skills Development in Mozambique Project (MozSkills Project)
i) A kickoff meeting of the 10 third-party projects of AGriDI was held successfully in Cotonou, Benin on 14-18 March 2022.

Key challenges during the period

i) Inability to access laboratories during the pandemic caused delays in the scholars' research and necessitated this extension which will enable them to finalize their research and submit thesis for examination including defense. The contracts of seven (7) RSIF Cohort 1 scholars have been extended beyond their initial 48-month scholarship duration, for a period between three and seven months.

ii) **Nigeria** funding agreement issue continues to pend and delay confirmation of Nigerian-sponsored scholars.

iii) For Cohort 4 scholarships – **Mozambique and Senegal** – not enough eligible applicants were identified by the process and PASET EB approved an additional call that has been launched to the specific country citizens.

Summary of Request to the EB in this report

(1.1) RSIF General Fund and set up of the RSIF Permanent Fund:

EB is requested to note:

- Note the challenges in the fund flow arrangements between the Government of **Nigeria** and *icipe*. Several students await scholarships that are to be supported by this agreement. Icipe continues to follow up on this with the World Bank and the Government of Nigeria.
- Request for input towards the preparation of the ministerial meeting to be hosted by the Government of South Africa for PASET to be held in December, 2022.
- Note the discussions with the Mastercard Foundation on strengthening the pipeline for PhD candidates and the possibility to include support to Masters students scholarship as part of the discussion with RSIF.

(1.4 & 2.2) Implementation status of RSIF Research and Innovation Grants (*including MozSkills & AGriDI)*

The EB is requested to:

- note the progress in implementation of the Research and Innovation grants projects, including progress on implementation of the Government of Mozambique and EUC supported grants selection.

(3.2) PASET agreement with *icipe*

Request to EB:

- Noting that the current contributions from governments will not be affected by the discussion around charging of administrative fees, we request that agreement between *icipe* and PASET be finalised.

(3.3) RSIF communications

Request to EB:

- Thank the EB for comments and approval received towards finalization of the RSIF Logo. The comments have been used to revise the logo.

1.0 Introduction

The Regional Scholarship and Innovation Fund (RSIF), the flagship program of the Partnership for skills in Applied Sciences, Engineering and Technology (PASET), was established by African governments to build a critical mass of skills and knowledge needed to increase the use of science, technology, and innovation for sustainable economic growth in sub-Saharan Africa (SSA). This report provides progress in the implementation of the RSIF Program for the period **1 January to 31 March 2022**. The report is arranged along the two RSIF program component areas viz, Component 1: Capacity Development for the Operation of the Scholarship, Research, and Innovation Fund; and Component 2: PhD Scholarships, research grants and innovation grants.

Component 1: Capacity Development for the Operation of the Scholarship, Research, and Innovation Fund

1.1 Capacity building for the management of the RSIF General Fund and setting up the RSIF Permanent Fund:

RSIF aims through this sub-component to strengthen the capacity of *icipe* as the RSIF Regional Coordination Unit (RCU) to engage in innovative fundraising strategies to reach funding partners relevant to the Fund and to design and operationalise the RSIF Permanent Fund. Key activities undertaken during the period are presented below.

1.1.1 Resource mobilization

Highlights in the first quarter of 2022 include the following:

1. Following the re-opening of Moroccos's borders for international travel, RSIF conference preparations resumed in collaboration with the University Mohammed VI Polytechnic (UM6P). The Conference date has been set to 24-26 May 2022 for a hybrid conference with up to 100 physical participants and up to a thousand online. The theme of the Conference is "African-led science, technology and innovation for contributing to the SDGs and stimulating global development". The proposed programme will focus on the fourth industrial digital revolution (4iR), entrepreneurial universities linking with industry, and climate innovations for green growth. A donor roundtable is planned as a side event on 25 May 2022.
2. *icipe* continued discussions with the MasterCard Foundation on potential collaboration. The MasterCard Foundation highlights the importance of job creation. Ongoing discussions have included the possibility for RSIF to consider to work with the Mastercard Foundation to facilitate the postgraduate pipeline to PhD level, through support to Masters scholarships, in addition to PhDs.
3. Various letters for donor follow up were sent to potential RSIF partners in collaboration with the PASET Governing Council (GC) chair. These included communication to the Government of Uganda, to follow up on previous communication, and to the European Commission among others.
4. With the professional communications and marketing firm, PMS Group, stakeholder analysis and targeted messaging to donor categories has been developed and will be linked to new RSIF branding and marketing plan.
5. A grants write-shop on Erasmus+ Capacity Building in Higher Education (CBHE) was held at *icipe* from 31 January to 4 February 2022 for RSIF African Host Universities (AHUs). Three proposals by RSIF AHU-led teams were supported and submitted to Erasmus+ in partnership with European universities as below:
    a) Promoting internet of things and standardisation of industrial processes through academia-industry collaboration, led by University of Rwanda.

b) Transforming postgraduate training in climate-smart agriculture, led by Haramaya University.
c) Preparing the next generation of innovative professionals in agribusiness and agripreneurship, led by University of Ghana.

6. RSIF participated in a webinar series with private companies and advanced research institutes in partnership with Chitoze, the Inter-University Council for East Africa and the Association of African Univerities (AAU).
7. As part of pursuit of the RSIF Networks, three meetings were held this quarter on sustainable water technologies and digital agriculture including with BioSense (Serbia), Wetsus (Netherlands); and AGRIVI company (Croatia) to explore private sector collaboration.
8. The Government of France offered to provide extra-support to two PhD students with RSIF scholarships going to France for a three month stay. The details of the student scholarship details are being worked on.
9. The Government of Canada provided support through the Canadian Executive Service Organization (CESO) to fund six experts who are currently providing supporting in the areas of gender, resource mobilisation and entrepreneurship.

Country funding issues

- Discussions continued with the Government of Nigeria through the National Universities Commission (NUC) on the finalisation of the agreement between *icipe* and Nigeria. Disbursement modalities remain a challenge and the World Bank offered to follow up on potential alternative solutions to the disbursement issues raised.
- Discussions were held between World Bank and *icipe* lawyers to finalise the legal opinions for **Benin, Burkina Faso, Ghana and Senegal**, which were finalized and submitted to the World Bank by *icipe*.
- Follow up continues as part of mobilization of additional countries to join the RSIF initiative. Follow-up was done with Uganda, Tanzania, Malawi and Namibia.
- The current status of funding to RSIF is presented in Table 1.

Table 1: Committed and received funding to the RSIF Program as of 31 March 2021

No	Donor	Committed Funding	Funds Received	Contract End Date	Type
1	Benin	2.0	0.3	30-Jun-24	WB project
2	Burkina Faso	2.0	0.8	31-Dec-23	WB project
3	Côte d'Ivoire	2.0	1.0	n/a	Direct
4	European Union	4.7	1.9	31-Jan-25	Direct
5	Ghana	2.0	0.8	31-Dec-23	WB project
6	Kenya	2.0*	2.0	n/a	Direct
7	Mozambique	6.0	1.6	31-Dec-25	WB project
8	Nigeria	4.0	-	30-Jun-24	WB project
9	Rwanda	2.0*	2.0	n/a	Direct
10	Senegal	2.0	0.3	31-Dec-23	WB project
11	South Korea	9.0	2.2	30-Jun-24	WB Trust Fund
12	World Bank	15.0	7.8	30-Jun-24	World Bank IDA Grant
	Total	**52.7**	**20.7**		

** Kenya and Rwanda have indicated their intention to top up their RSIF contributions with an additional USD 2 million each in 2022.*

1.1.2 Design of the RSIF Permanent Fund

icipe continued its efforts to set the foundation for the establishment of the RSIF Permanent Fund by constituting a technical advisory committee. A Resource mobilization expert was also identified through CESO to support resource mobilization. The advisor has developed a work plan and will work with RSIF in the coming period to support resource mobilization and on the Permanent Fund. Other activities to support the Permanent Fund discussions were:

- The National Research Foundation (NRF) of South Africa has agreed in principle to host an RSIF Ministerial meeting: *Strengthening a Regional Approach to Building Science, Technology and Innovation Capacity for Responding to Current and Emerging Challenges*. South Africa has proposed for the meeting to be held in December, 2022.
- The RCU drafted a concept note for the PASET Development Partners Conference (Nov-22) hosted by **Senegal** in conjunction with its AU chairmanship: Developing highly skilled workforce for transition to an innovative-led, knowledge-based economy in Africa. The CN will be shared with PASET Executive Director for discussion.

Request to EB:

- Note the challenges and current efforts to streamline fund flow arrangements between the Government of Nigeria and icipe. Several students await scholarships that are to be supported by this agreement.
- Request for input towards the preparation of the ministerial meeting to be hosted by the Government of South Africa for PASET to be held in December, 2022.
- Note the discussions with the Mastercard Foundation on strengthening the pipeline for PhD candidates and the possibility to include support to Masters students scholarship as part of the discussion with RSIF.

1.2 Capacity development for the operation and management of doctoral training scholarships in selected AHUs

1.2.1 Selection of additional RSIF African Host Universities (AHUs)

The RSIF Partnership Agreement with Haramaya University, Ethiopia was signed on 31 March 2022. The pending agreement with Makerere University, Uganda is being finalized for endorsement by both partners. It is expected that this agreement will be signed early in the next quarter to enable Cohort 4 students to join the program in 2022.

1.2.2 Information Communications and Technology

With support from the Kenyan Ministry of Education, Microsoft Kenya was able to allocate educational licenses to RSIF-PASET. These licenses were allocated as students (500) and faculty (100) and are being rolled out for use as part of the activities related to the RSIF mentorship platform. The licenses will be used by both faculty and students and they provide a suite of Microsoft Office 365 tools ranging from email, office, MS Teams and Yammer. This provides the RSIF-PASET community with genuine software for research networking and mentorship through an online community for improved interactions.

1.3 Capacity development for improving the quality of PhD programs and research in ASET fields

The RCU continues to support the strengthening of capacity of AHUs to enhance the quality of their PhD training programs. The RCU also delivered training courses to RSIF Scholars to ensure that they are able to complete their PhD's successfully and also to transition to research careers on the continent. Guided by the RSIF Capacity Building Strategy, guest webinars, student webinars and cross-cutting courses and mentorship platform development were delivered during the period as below.

1.3.1 RSIF Guest Webinar Series

Monthly guest webinars were delivered, including the three below for the January to March reporting period:

(1) Dr Saliou Niassy, Head of Technology Transfer Unit at *icipe*; "Insect science and its application in Africa, the role of technology transfer" on 28 January 2022.

(2) Dr Victoria Nalule, CEO, Nalule Energy & Minerals Consultancy (NEM Energy); "Mining and the law in Africa" on 23 February 2022.

(3) Dr Noel Gahamanyi, RSIF Alumnus; "*Campylobacter* infections are a silent threat to both human health and food security: Lessons learnt and the way forward" on 30 March 2022

1.3.2 RSIF PhD Student Webinars and delivery of cross cutting courses.

Scientific presentations by nine RSIF PhD students were delivered during three student seminar events, held monthly from January – March 2022. Two cross-cutting courses were also delivered to RSIF PhD students:

1. A virtual course on thesis defense was delivered for RSIF Cohort I scholars. There were 20 participants participants (4 female, 16 male) eight of which were university faculty. The course was held on 21 January 2022.
2. A virtual training course on science communication training workshop: Presentations, posters & pitching virtual training was delivered. There were 131 participants (54 female, 77 male). The course was delivered 17&18 February 2022.

1.3.3 Mentorship platform

Learning materials for onboarding of staff were created and a two-hour workshop/user testing held on 8 March 2022 as a piloting activity. Material for the mentorship platform has been developed using MS Teams, Yammer, and SharePoint as the architecture of the platform. Other elements prepared include staff platform archives, staff, mentor and scholar profile templates and libraries and multiple community spaces for both location and specialization. Collaboration with the gender specialist to align the platform with suggestions of best practice is in progress. Discussions on the platform needs and functionality with stakeholders to increase buy-in and understanding were conducted. Feedback and findings are currently being implemented to improve the platform functionality.

1.3.4 Increased access to subscribed e-resources for AHU Libraries

RSIF recognizes the importance of enhancing access to high quality publications and up-to-date literature to support research at the AHUs. The following was achieved during the period:

- **Enhancing e-resources for universities and RSIF students:** AHU libraries continue to access e-resources (e-book and e-journal collections) subscribed through RSIF. In total, the AHUs have subscription access to 45,136 e-resources (41,926 e-books and 3,210 e-journals). Of the 45,136 e-resources, 4,474 e-books and 452 e-journals have perpetual access. Usage of the e-resources is at over 374,000 hits.
- **Strengthening skills for accessing e-resources:** RSIF facilitates publisher trainings by Springer Nature, Elsevier, ProQuest and Emerald. Publisher trainings are scheduled for second quarter of 2022 once Cohort 4 scholars have onboard.
- **Strengthening the capacity of AHU Libraries:** A two -day virtual knowledge sharing workshop for librarians from AHUs was conducted on 15 & 16 February 2022 as part of RSIF capacity building initiatives. There were 48 participants (32 female, 16 male) in attendance. The workshop covered discussions on how to improve academic library information services;

increasing access to e-resources; Developing information literacy courses; and solving key challenges facing academic libraries.

1.4 Capacity development for the operation and management of innovation grants

1.4.1 Implementation Status of RSIF Innovation Grants

1.4.1.1 Institutional Innovation Capacity Building Program (ICBP) grants

In this reporting period, project teams implementing the Institutional Innovation Capacity Building Program (ICBP) grants continued their activities towards building entrepreneurial capacity of their faculty and students and strengthening their Institutional innovation environments. We highlight selected activities below:

- *Courses and lecture seminars*: The African University of Science and Technology (AUST) through its Centre for Life Long Learning offered three short courses on project management to AUST staff targeting project managers, human resource and quality assurance managers, and research and other teams. 44 participants have been trained so far. Bayero University (BUK) organized a guest lecture series on innovation ecosystems, facilitated by Prof. Aart van den Bos from Verbos Academy, Netherlands. 75 participants attended the lecture.
- *Innovation hubs*: BUK has initiated an MOU with four innovation hubs in Nigeria for university industry collaboration
- *Additional financing*: The RSIF AUST Project engaged a consulting firm to support the operationalization of a university based innovation hub (AUSTinspire) with additional funding of USD 20,000 received from the African Development Bank. It will, among other activities, host an industry open day to enhance engagement with industry.
- *Institutional innovation policy*: A number of projects have drafted and advanced draft policies to enhance innovation. For example, the University of Port Harcourt developed a draft technology park policy, while Sokoine University of Agriculture has advanced in the development of a university-industry policy which is currently under review by key university stakeholders before submission to the university senate for approval.

1.4.1.2 RSIF Cooperability Grants

RSIF has to date supported two “cooperability” innovation projects that are preparing prototypes for commercialisation. One is the University of Rwanda’s Smart Bee Hiving Technology, which has completed design of a smart bee hiving Internet of Things (IoT) device and is procuring material for the development of the prototypes. The other is a project at the Universite Felix Houphouet-Boigny on development of a biopesticide from plant extracts to treat fungi in yams. The detailed status of each grant project is provided in Annex 1(a).

Component 2: PhD Scholarships and Research Grants

2.1 Training of Doctoral Students in ASET fields

2.1.1 Progress in the management of doctoral students

PhD Scholars in Cohorts 1, 2 & 3 continue to progress in their PhD studies despite the Covid-19 challenges. There are currently **245** RSIF PhD students across the four cohorts at various stages of doctoral training (Table 2).

As of 31 March, 2022, 75 peer reviewed papers have been published by students (Table 3). Students continue to publish high quality papers: Cohort 1 have published 50 peer-reviewed and conference papers, while Cohort 2 have published 25 papers. Of these, 19 papers were authored by females, 45 by males, and 1 paper co-authored by female and male scholars. The publications have a total of 228 citations (self-citations excluded), 41,798 full text views (downloads) and 37,358 abstract views. Student awards during the period include to Cohort 1 scholar Zakaria Sawadogo (Burkina Faso, Male) a '**Certificate of Outstanding Paper Award'** for his paper on Android malware classification. Sawadogo is undertaking his PhD at Université Gaston Berger. See Annex 2 for full details on the peer-reviewed publications by RSIF scholars.

Table 2: RSIF PhD Scholars by country and cohorts

Year	**No. of PhD scholarships**	**African governments funding RSIF**	**Breakdown of PhD recipients** (countries and no. of recipients for each)	**Percentage of scholars that are women**	**No of AHUs**
2018	15	Kenya, Rwanda	Benin 1, Ghana 1, Côte d'Ivoire 1, Kenya 5, Nigeria 1, Rwanda 4, Senegal 1, Tanzania 1	20%	4
2019	-		-	-	11
2020	64	Benin, Burkina Faso, Côte d'Ivoire, Ghana, Kenya, Rwanda, Senegal	Benin 4, Burkina Faso 2, Cameroon 3, Chad 2, Congo 1, Côte d'Ivoire 4, Ethiopia 2, Ghana 11, Kenya 12, Malawi 1, Nigeria 4, Rwanda 8, Senegal 3, Sudan 1, Tanzania 3, Uganda 2, Zimbabwe 1	42.2%	11
2021	94	Benin, Burkina Faso, Côte d'Ivoire, Ghana, Nigeria, Rwanda, Senegal	Benin 5; Burundi 2; Burkina Faso 2; Côte d'Ivoire 5; Ghana 9; Nigeria 21; Rwanda 8; Senegal 1; Cameroon 3; Chad 1; DRC 3; Ethiopia 7; Kenya 6; Malawi 2; Mali 1; Niger 2; South Sudan 1; Sudan 1; Tanzania 6; Togo 1; Uganda 4; Zimbabwe 3	38.3%	11
2022	72	Benin, Burkina Faso, Côte d'Ivoire, Ghana, Nigeria, Rwanda, Senegal , Kenya, Mozambique	Botswana 1; Benin 11; Burkina Faso 12; Burundi 1; Cameroon 1; Chad 1;; Congo, Democratic Republic 1; Côte d'Ivoire 1; Ethiopia 2; Ghana 2; Kenya 3; Malawi 1; Mali 1; Mozambique 7; Nigeria 17; Rwanda 2; Senegal 4; South Sudan 1; Tanzania 1; Uganda 1; Zimbabwe 1	33.3%	15
Total	**245**	**9**	**245**	**36.7%**	**15**

Table 3: RSIF Scholars (Cohort 1-4) publications (2018 – March 2022)*

Thematic area		Gender	2018	2019	2020	2021	2022*	Total	Thematic total
1.	Climate change	Female	-	-	2	1		3	12
		Male	-	2	-	7		9	
2.	Energy including Renewables	Female	-	-	-	1		1	3
		Male	-	-	-	2		2	
3.	Food security and Agribusiness	Female	-	-	1	3		4	23
		Male	-	1	9	9		19	
4.	Minerals, Mining and Materials Engineering	Female	-	-	-	5	1	6	23
		Male	-	1	5	11	-	17	
5.	ICTs including Big Data and Artificial Intelligence	Female	-	4	-	1		5	14
		Male	-	-	4	3	2	9	
Total			0	8	21	43	3	75	

*All works are uploaded on RSIF Repository: https://repository.rsif-paset.org

2.1.2 Status of Cohort 1 RSIF PhD Scholars

Currently, five (of 15) Cohort 1 scholars have completed their studies with successful thesis defense and/or graduated. A further eight scholars have completed their sandwich programs and are back to their AHUs to finalise writing of their theses. The eight have been granted short extensions of their contracts in order to complete their research thesis write-ups . The extensions were needed as a result of challenges during the covid pandemic, such as lab closures, loss of research materials etc. Of the last two, one is currently at his IPI (KIST in Korea) and hopes to complete his studies by June 2022. The last Cohort 1 Scholar has had significant challenges in progression of his research and training activities. Support is being provided to him through his supervisors and *icipe* to allow him complete his doctoral studies.

2.1.3 Current Status of the Cohort 2 RSIF PhD Scholars

There are a total of 64 Cohort 2 scholars, most of whom are in their AHUs completing their proposal writing and conducting research. Of the 64, 33 have completed their proposal writing while eight have completed over 50% of the proposal writing. 47 scholars have defended their proposals and 61 have begun their research work activities. 35 scholars are registered in universities that require mandatory course work as part of their doctoral studies and most have completed over 50% of the mandatory courses.

A total of 45 scholars have been matched to IPIs for their respective sandwich programes. These scholars are in the process of applying for visas and undertaking travel-related preparations with a view of travelling to their IPIs by June 2022. Matching is in progress for 13 scholars while the process has not commenced for six. There have been delays in matching the scholars due to the lengthy legal review process of institutional level tri-partite agreements. Six tripartite agreements have been signed. 12 others are in circulation with partners for review and are expected to be signed within the second quarter of 2022. See Table 4 for details on scholar placement by institution and gender.

Table 4: Cohort 2 Scholar sandwich placement by gender and institution

IPI	No. of Cohort 2 Students Matched	Female	Male
GBST-SNU	7	3	4
GRC-SNU	3	1	2
IRD	1	0	1
ILRI	1	1	0
KIER	2	1	1
KIT	3	1	2
KIST	2	0	2
KRICT	2	1	1
NESTLE	1	0	1
NRI	7	6	1
Telecom SudParis	1	1	0
U-Gent	2	1	1
UM6P	6	4	2
UP	3	0	3
VT	4	2	2
TOTAL	**45**	**22**	**23**

**All 45 matched scholars are expected to report to respective IPIs in quarter 2 of 2022*

2.1.4 Current status of Cohort-3 RSIF PhD Scholars

Cohort 3 scholars are in their AHUs pursuing their studies. As at end of March 2022, 73 of 94 scholars have reported to their AHUs. One scholar from Universite Gaston Berger will be reporting in May 2022 while another scholar from Bayero will be reporting later in the year 2022. 19 of the scholars funded by the **Nigerian** government still await to be awarded scholarships since the Subsidiary Agreement between the Nigerian Government and *icipe*, which is yet to be executed (see earlier section in the report).

2.1.5 Cohort 4 Call for Applications

The selection and scholarship award for RSIF Cohort 4 has been concluded. As indicated in the previous report, a total of 1,948 applications were received but only 331 were cleared after eligibility screening and shortlisting by the AHUs. The desk review of 331 applications by the Independent Review Committee (IRC) was completed on 21 January 2022. The Independent Review Committee evaluation held a virtual meeting on 25 January 2022 to review and pre-select scholars for award of scholarship. On 25 February 2022, the PASET Executive Board awarded 74 scholarships with a reserve list of 20.The scholarships include 24 females (32%), 34 members of university faculty (45%), and awardees represent 23 nationalities (10 Francophone, 12 Anglophone and 1 Lusophone) in SSA. The RSIF Scholarship recipients' list has been posted on RSIF webpage and all the scholarship applicants notified of the results. The Nigerian funded students will await funds confirmation before they can be formally informed and scholarship awards provided. Two scholarship recipients from Mozambique and Senegal already declined the scholarships but these opportunities will roll over to the special scholarship call that was been published and remains open until 15 April 2022.

A total of 105 scholarships were available for Cohort 4, but 31 country-restricted scholarships were not awarded due to insufficient eligible candidates from Mozambique (32 available scholarships, 8 awarded) and Senegal (12 available, 5 awarded).

The award of 74 scholarships for Cohort 4 brings the total number of students awarded to 258 from over 20 African countries, with funding contributions from nine African countries. 95 of the 258 awards (37%) are to women.

2.1.6 Additional Cohort 4 Call for Applications for Senegal and Mozambique

PASET EB approved a call for scholarships specific for Mozambique and Senegal nationals. The call was published on March 14, 2022 and closes on April 15, 2022. Two (2) capacity building and information dissemination webinars for potential applicants were held on 15 and 18 March 2022. This call is expected to recruit eligible scholars from these two nationalities and fill their scholarship quota.

2.2 Research Grants

2.2.1 Implementation status of First Cohort of Research Grants (Window 2, Type 1)

Research project teams continue to advance in their field work, data collection and in the design and development of prototypes from their research work. We provide two examples for activities this quarter:

i) The Nelson Mandela African Institution of Science and Technology (NMAIST)'s project on solar heat pump dryer for fruits and vegetables has developed a dryer prototype. Testing and modifications is ongoing. The team is also working on a manuscript titled *"Advances in heat pump dryers for dying biomaterials: kinetic, energy, nutritional, technoeconomic, exergoeconomic, and environmental assessments"* that will be submitted for publication in the next quarter.

ii) The University of Nairobi's (UoN) project team on Perovskite Solar Cell Technology participated in the 2nd African Conference on Fundamental and Applied Physics organized jointly by the African School of Physics (ASP), Mohammed V University in Rabat and Cadi Ayyad University in Marrakesh Morocco. The project has also facilitated a career mentorship talk targeting physics students in the university facilitated by the Chief Science Secretary of NACOSTI, Kenya. Detailed status of project for each project is presented in Annex 1(b).

2.2.2. First Call for award of Research Grants to RSIF post-doctoral graduates (Window 2, Type 2)

On March 9, 2022, the RCU launched the first Call for Proposals of the Junior Investigator Research Award (JIRA) with a submission deadline of June 30,2022. The Call targets RSIF PhD graduates who hold a permanent or post-doctoral position in a university or research centre in SSA. Two (2) of the Cohort 1 RSIF PhD scholars graduated in November 2021 and another three (3) have successfully defended their thesis and are eligible to apply to the grant. The RCU offered the 1st information webinar to provide clarifications on the Call to all Cohort 1 scholars on 4 March 2022. A second Call for Proposals will be launched later in the year targeting more scholars who may have defended their thesis and/or graduated by then.

2.2.3 Second Round of Research and Innovation Grants Projects

The RCU has advanced in the contracting of the 13 projects selected under the 2nd Round of research and innovation grants. In this reporting period, one-on-one virtual support was provided to all grantees to support their respective project teams to revise their proposals including budgets, and M&E frameworks and to facilitate them in addressing gaps as highlighted in the comments and feedback from the technical review process. So far seven project grant agreements are fully executed and implementation initiated. The RCU has initiated processing the funds transfer for the cleared sub-grants. A grants management training will be delivered in the next quarter to provide guidance on compliance and support technical implementation .

2.2.4 RSIF Research and Innovation grants for Mozambique (MozSkills Project)

On February 22, 2022, the Grants Independent Technical Committee (GITC) reviewed and approved **seven** projects for funding under the Improvement of Skills Development in Mozambique Project (MozSkills Project) (Table 5).

Table 5: No. of Grants Awarded in 1st RSIF/MozSkill Call for Proposals

Grant Window	Type of Grant	No. of Grants available*	No. of Grants awarded (1st Call)	No. of unallocated Grants	Amount per Grant (US$)	Grant Duration
Research Grants	RSIF/MozSkills Research Award	7	4	3	90,000	2 Years
Innovation Grants	RSIF/MozSKills Instituional Innovation Capacity Building Program Grants (ICBP)	5	2	3	70,000	2 Years
	RSIF/MozSKills Cooperability Grants	3	1	2	70,000	2 Years
Totals		**13**	**7**	**8**		

A feedback session with the selected applicants was facilitated by the RCU on March 30, 2022 to provide guidance to projects on improving their proposals, budgets, and monitoring and evaluation frameworks to meet requirements for contracting. Annex 3 provides the full list of approved Projects as at 31 March 2022. The RCU has launched the 2nd Call for Proposals to award the remaining eight grants under the three grant categories; https://www.rsif-paset.org/grants-scholarships/#research-grants.

2.2.5 Accelerating inclusive green growth through agri-based digital innovation in West Africa (AGriDI Project)

The 1st Call for Proposal for award of 12 grants under the AGriDi project was published with deadline date for submission of proposals for June 30, 2021. The sub-grant amounts are between EUR 150,000 and EUR 300,000 per project with funding from the European Union, ACP Research and Innovation Fund. In the prior period, all selected institutions were subjected to a due diligence check between October to December 2021, which assessed six (6) key criteria, namely: i) Partner legal status and financial management structure; ii) policies and procedures of the organizations; iii) accounting; iv) assurance; v) internal controls and managerial controls; and vi) reporting and monitoring. Nine (9) out of twelve (12) potential grantees passed the due diligence checks. In the reporting period, discussions have been ongoing with the other three to facilitate their compliance with the qualification criteria. One of the three fulfilled the due diligence check after on site visit making the number of grantees to ten (10). The formal contracting and signature process was completed by beginning of March 2022. A kickoff meeting of the 10 third-party projects of AGriDI was organized in Cotonou on 14-18 March 2022. The outcome of the AGriDI evaluation process and the listing of the grantees is attached as Annex 4 to this report.

The EB is requested to:

- note the progress in implementation of the Research and Innovation grants projects, including progress on implementation of the Government of Mozambique and EUC supported grants selection.

C. Cross-cutting activities

3.1 RSIF communications

RSIF relies on its website to consolidate and disseminate information on the activities and news. The website is also linked to its vibrant social media platforms. In the reporting period, a total of 3 blog posts about the various RSIF activities were prepared and shared on the website during the period. In addition, 10 issues of the RSIF weekly newsletter were produced and released. The total number of subscriptions to the newsletter has grown by over 600 to 12,288. Following consistent posting linked to strategic campaigns and events, RSIF's statistics on social media platforms such as Twitter, Facebook, LinkedIn, Instagram, and YouTube continue to steadily grow (with 2351, 2500, 859, 218 and 273 followers respectively). Engagement is up significantly and continues to grow. The announcement for Cohort 4 PhD call for scholarships for Mozambique and Senegal national was widely disseminated by various news channels including other higher education online channels. Scholars' projects and success stories continue to be documented.

RSIF has now fully onboarded the marketing firm Professional Marketing Services (PMS) Africa Group, to help contribute to the successful implementation of the RSIF Communications Strategy and achievement of its goals and objectives. The firm will contribute to increasing the visibility of RSIF and towards effective sustainable resource mobilization for RSIF and achievement of its desired impact on Africa's socio-economic transformation. To enhance RSIF's brand awareness and visibility, the firm has developed distinctive branding, in form of proposed logos and taglines, for RSIF to ensure consistency in messaging, visual identity and representation in all communication material and platforms. After deliberation from the team and following the democratic selection of the most preferred logo, a briefing note was written to the Executive Board requesting for the approval of the logo.

3.2 PASET agreement with *icipe*

RSIF currently has funding from nine African countries and the Government of Korea, the ACP Innovation Fund of the European Union and the World Bank. This funding is financing RSIF PhD Cohorts 1 - 4 up to December 2025, while the World Bank grant is funding the administration costs for the programme level activities at *icipe* up to December 2025. In this regard, for any subsequent RSIF scholarships beyond Cohort 4, it will be necessary for *icipe* to charge an administration cost because the World Bank grant for running operations of the RCU will be exhausted. *icipe* will in the next period prepare the projected administrative costs for this purpose.

3.3 World Bank RSIF Project Implementation Support Mission

The World Bank's Project Implementation Support Mission (ISM) to RSIF that was held from 23 – 25 February 2022. The mission Aide Memoire highlighted that overall, project implementation has improved. Project absorption for the Korea grant has improved from 17 percent to 30 percent since September 2021. *icipe* has implemented most of the recommendations from the MTR. Key recommendations completed are restructuring of the project to reflect the agreements reached at MTR (review and revision of the budget to December 2025, revision of indicators, and amendment of the financing agreement); improvement in RSIF Grievance Manual to include a rectification of issues section where actions are recorded; and development and approval of RSIF Sexual Gender-Based Violence Policy (SGBVP) policy. The few outstanding recommendations, such as the creation of academic networks and starting the international accreditation process, are advanced and will be completed by September 31, 2022. The Aide Memoire can be accessed here.

3.4 Monitoring and Evaluation

Monitoring and evaluation activities during this reporting included the finalization of the PhD students' satisfaction survey, review of the results frameworks of the second call of the innovations and research grants, and improving the M&E capacity of the AGriDI projects.

Results of the satisfaction survey provided basis for discussions of the ISM held from 23-25 February 2022. In addition, during the AGriDI third Party projects kick-off meeting held in Benin, from the 14-18 March 2022,grantees' capacity for implementing and monitoring the projects was built. Three days (3) of the meeting were specifically allocated for reviewing and revising the results frameworks and workplans. Grantees were provided a one-on-one assistance on improving their results frameworks.

3.5 Safeguards and RSIF Grievance Redress Mechanism (GRM)

There are general grievances from the 19 Cohort 3 awarded scholars that are to be funded by the Nigerian Government contribution since they are yet to receive their formal scholarship contracts. These scholarship contracts are yet to be issued since the Subsidiary Agreement between the Nigerian Government and *icipe* has not yet been signed by Nigeria. Discussions are on-going with the Government of Nigeria as has been mentioned earlier in this report.

Cohort 1 scholars raised grievances regarding the delayed release of stipends upon completion of contracts. For the extensions to be effected, it meant that the scholars be issued with new short-term contracts upon expiry of the already existing active contracts. In the *icipe* payroll system, an individual cannot have two contracts running simultaneously, hence issuance of the short-term contracts was delayed until the lapse of existing contract. The result of this was a delay in stipend release as these are processed quarterly. The matter was however resolved and the scholars will receive stipends once the internal process is completed . A copy of the grievance log which shows more details on grievances during the reporting period is attached as Annex 5.

3.6 Procurement

As of 31 March 2022, a total of nine (9) procurement activities were ongoing, including consultancies. There were two (2) tender activities awaiting for bid submission. Bid opening was done on 25 March, 2022 and received bids are under evaluation. Details of all ongoing procurement activities are included in Annex 6

3.7 Key challenges during the period

Key challenges during the period were:

a) Inability to access laboratories during the pandemic caused delays in the scholars' research and necessitated this extension. The contracts of seven (7) RSIF Cohort 1 scholars have been extended beyond the scholarship duration, for a period between three and seven months. Extensions are subject to review on the progress they will have made towards achieving agreed upon milestones. It is hoped that the short-term extensions will enable them to finalize their research and submit thesis for examination including defense in 2022.

b) Nigeria contract was still not signed, due to issues with the disbursement modality. This continues to delay the contracting of students selected under Nigerian funding.

Request to EB:

- Noting that the current contributions from governments will not be affected by the discussion around charging of administrative fees, we request that agreement between *icipe* and PASET be finalised.
- Thank the EB for comments and approval received towards finalization of the RSIF Logo. The comments have been used to revise the logo.

3.8 RSIF Funds Allocation Report -Government Contributions (31 March 2022)

The total of funds received by RSIF as at 31 March 2022 remains at US$18, 447,474 as received from eight African Governments (Table 6). A detailed expenditure report is included as Table 7.

Table 6. RSIF African Government Contributions as at 31 March 2022 *(Amounts in USD)*

INCOME	Recipient	Description	Total
B8501G00001	*icipe*	Fund Balance received from AAU (Govts of Kenya & Rwanda)	3,413,977
B8501G00001	*icipe*	Funds received from Ivorian Govt	1,033,497
B8501G00001	*icipe*	Signed Agreement - Govt of Ghana	2,000,000
B8501G00001	*icipe*	Signed Agreement - Govt of Burkina Faso	2,000,000
B8501G00001	*icipe*	Signed Agreement - Govt of Senegal	2,000,000
B8501G00001	*icipe*	Signed Agreement - Govt of Benin	2,000,000
B8501G00001	*icipe*	Signed Agreement - Govt of Mozambique	6,000,000
		Total Income	**18,447,474**

3.9 Key activities for the next quarter (April - June 2022)

The next period will focus on the following key activities:

1. Preparation and organization of the hybrid RSIF conference and donor roundtable
2. Setting up the technical advisory committee for the RSIF permanent fund
3. Continue with management of Cohorts 1-3 students
4. Onboarding and orientation of the cohort IV scholars
5. Continue with the delivery of courses in line with the RSIF capacity building strategy
6. Technical support to research and innovation grants
7. Selection of Window 2, Type 2 grants

Table 7: RSIF Funds Allocation Report – Government Contributions towards Scholarships (31st March 2021)[1]

INCOME		Notes	Kenya		Rwanda		Côte d'Ivoire		Ghana		Burkina Faso		Senegal		Benin		Mozambique		TOTAL
Funds received or per signed agreement		A	1,979,177		1,963,292		1,033,497		2,000,000		2,000,000		2,000,000		2,000,000		4,000,000		16,975,966
Less : AAU Admin charges		B	131,105		130,387		-		-		-		-		-		-		261,492
Funds available for Scholarships		C =A-B	**1,848,072**		**1,832,905**		**1,033,497**		**2,000,000**		**2,000,000**		**2,000,000**		**2,000,000**		**4,000,000**		**16,714,474**
Scholarship Cost per student (4 years)		E	100,000		100,000		100,000		100,000		100,000		100,000		100,000		100,000		
Number of Scholarships Available		F=C/E	**18**		**18**		**10**		**20**		**20**		**20**		**20**		**40**		**166**
Allocation of Scholarships																			
80% to Nationals	80%	G	15		15		8		16		16		16		16		32		**134**
20% to Non Nationals	20%	H	3		3		2		4		4		4		4		8		**32**
Scholarships Awarded																			
Nationals	74%	I	14	83%	15	80%	8	83%	15	63%	5	56%	5	74%	7	0%	-	0%	**69**
Non Nationals	26%	J	5	17%	3	20%	2	17%	3	38%	3	44%	4	26%	4	0%	-	0%	**24**
Scholarships to Award																			
Nationals		K=G-I	-		-		-		1		11		11		9		32		**23**
Non Nationals		L=H-J	-		-		-		1		1		-		-		8		**2**
Funds spent on Scholars																			
By AAU		M	178,000		89,000		-		-		-		-		-		-		**267,000**
By *Icipe*		N	816,465		738,092		291,410		569,246		226,360		190,774		141,035		-		**2,973,382**
Fund Balance		*O=C-M-N*	***853,608***		***1,005,813***		***742,087***		***1,430,754***		***1,773,640***		***1,809,226***		***1,858,965***		***4,000,000***		***13,474,092***

[1] The total contribution from the Government of Mozambique is US6million with US$2million towards RSIF Windows 2 & 3 on research and innovation grants. This table focuses on the contributions towards the RSIF Scholarships.

Annex 1(a): Status of 1st Round Research and Innovation Grant Projects as at March 31,2022

a. RSIF Cooperability Grant (Innovation Grants, Type 2)

	Cooperability Grant (Innovation Grants, Type 2)								
1	RSIF/COOP/001	Smart Bee Hiving Technology	Dr. Damien Hanyurwimfura	University of Rwanda	49,995	24 Months	**Project objective:** To design and implement a smart bee hiving monitoring system using IoT devices for smart bee honey farming production. **Status** -Design of IoT tool developed. - Data collection and procurement of relevant IoT devices for development of prototype ongoing - One paper published in sensor journal under MDPI publisher	-Delayed procurement, there were limited suppliers for some of the equipment needed for developing the prototype	- Procurement process will be initiated in April by the university
2	RSIF/COOP/002	Production durable et innovante de l'igname en Côte d'Ivoire par le contrôle des parasites post-récolte (Sustainable *and innovative production of yams in Côte d'Ivoire by post-harvest pest control)*	Dr. Brahama Camara	Universite Felix Houphouet-Boigny	50,000	24 Months	**Project objective:** To develop biopesticide from 4 plant extracts to treat fungi in yams **Status.** - Research work to develop a prototype ongoing, field work on data collection of infected yams and in vitro tests done, control tests done, -One article published based on research work done.	None	

Status of 1st Round Research and Innovation Grant Projects as at March 31,2022

b. RSIF Research Award (Research Grant, Type 1)

No	Grant Ref No	Project Title	Project Leader	African Host University	Proposal Value (USD)	Duration	Status	Challenges noted	Proposed solution offered
1	RSIF/RA/001	Solar-assisted heat pump dryer with energy storage for drying biomaterials	Dr. Thomas Kivevele	Nelson Mandela African Institution of Science and Technology	81,133	36 Months	**Project objective** is to develop a prototype of a solar assisted hear pump dryer integrated with energy storage system for drying fruits. **Status** -Renovation of sustainable energy lab completed -2 RSIF PhD students engaged and currently researching on objective 2 and 3 of the project -Construction of prototype done, modifications on going -Collection on samples of heat storage materials done -Fruits samples for testing the drying capacity initiated, testing has been initiated.	-Some research component related to field work delayed due to procurement delays	
2	RSIF/RA/002	Fluoride removal from drinking water using capacitive deionization	Dr. Yusufu A. Chande	Nelson Mandela African Institution of Science and Technology	90,000	36 Months	Project objective: to produce capacitive deionization (CDI) stack to be used for fluoride removal from water. **Status** -CDI laboratory has been renovated and 4 RSIF students using it -Research on various bio materials to be used for developing the stack at advanced stages including procurement of various research supplies -Presented in the virtual 12th European Symposium on Electrochemical Engineering (June 14-17, 2021)	-One student involved in the project is expected to go to Hanyang University (Collaborating partner) for Sandwich placement, however, Hanyang Univ. is currently not an IPI -Lengthy procurement processes at the University	-RCU has followed up with Hanyang University to sign MOU with PASET for hosting students

No	Grant Ref No	Project Title	Project Leader	African Host University	Proposal Value (USD)	Duration	Status	Challenges noted	Proposed solution offered
							-Participated in a workshop on Capacitive Deionization Modelling at Botswana International University of Science &Technology (October 2021)		
3	RSIF/RA/003	Do-It-For-Yourself Adaptation: New Pathways For Community Flood Risk Communication	Dr. Aliyu Salisu Barau	Bayero University, Kano.	90,000	24 Months	**Project objective:** To strengthen flood resilience/adaptation capacity of dryland rural communities by developing an innovative, integrated, interdisciplinary, knowledge based, and solution-oriented approach. **Status** -translation of meteorological terms and flood hazards related scientific terminologies completed. -desk review of most flood hazard and meteorological key words based on key terminologies approved by the UN General Assembly and other national climate agencies completed. -trainings for community members on flood response mechanisms conducted including sensitizing youth and women on following up politicians and policy makers for flood risk mitigation actions done. -produced 3 music tracks on flood related management -community members sensitized on human activities exacerbating flood incidences. -Developing cartoon related content on flood risk mitigation strategies	None	N/A
4	RSIF/RA/004	Real time Assessment of the indoor air pollution in Sub-Saharan households (Case study: Rwanda	Dr. Fredreric Nzanywayingoma	University of Rwanda	89,980	36 Months	**Project objective:** to investigate indoor air pollution in households using effective and adapted indoor air pollution IoT monitoring tools to	-Lengthy and delayed procurement processes at the university.	-RCU to provide procurement support where possible

No	Grant Ref No	Project Title	Project Leader	African Host University	Proposal Value (USD)	Duration	Status	Challenges noted	Proposed solution offered
		rural and urban areas)					evaluate the potential health hazard associated with the exposure to the indoor air pollution against the World Health Organization air quality guidelines targeting the Rwanda rural and urban population. **Status** -Designed and developed prototype IOT device for indoor air pollution monitoring., 3 devices have been developed. -Server and user interface for monitoring data sent by the prototype device has been configured. -PhD students have been trained on to develop and use the new IoT device	-Challenges getting suppliers for required IoT devices	
5	RSIF/RA/005	Research and Development of Photovoltaics based on Lead-Free Perovskite Solar Cell Technology	Prof. Francis Nyongesa	University of Nairobi	89,898	36 Months	**Project objective:** to conduct research and training in energy and renewable energy and policy advisory in photovoltaics' (PV) specifically on lead-free perovskite solar cells**.** **Status** - A career mentorship talk done targeting physics students in the university, facilitated by NACOSTI, Kenya -Participated in the African Conference on Fundamental and Applied Physics -Research work is on-going with 2 publications done in two Journals (New Journal of Chemistry and Materials Letters) - 7 conference presentations made as at Nov 2021	None	

No	Grant Ref No	Project Title	Project Leader	African Host University	Proposal Value (USD)	Duration	Status	Challenges noted	Proposed solution offered
							- One mentorship workshop conducted targeting scholars on career in physics and soft skills -2 short courses on solar PV technology, sizing and installation held in April and August targeting -Participated in the energy policy and innovation workshop in Kenya organized by NACOSTI to influence policy regulatory framework on solar use systems in the country. -Partnership established with the NACOSTI for development of energy policy paper for domestic and commercial use in Kenya.		
6	RSIF/RA/006	Building Resilient Agribusiness Practitioners through Design Thinking Approach	Prof. Irene Egyir	University of Ghana	89,748	36 Months	**Project objective:** to set up and pilot a Design Thinking (DT) Development Centre (DTDC) at the Department of Agricultural Economics and Agribusiness at the University of Ghana **Status** -Design Thinking Development Centre established -Design Thinking curriculum and training calendar drafted; 1st phase of DT sessions implemented. 70 students and faculty trained. - Network of faculty of agri-product departments in Universities in Ghana established, consists of over 122 members. Virtual interactions among members. 105 network members expresses interest to support Agri-product development for students as part of the graduation requirements.	- Post-COVID restricting at partner institutions has affected their level of engagement in project activities. - Networking platform meetings hindered by budget limitations	- Flexible timelines for implementation of workplan

No	Grant Ref No	Project Title	Project Leader	African Host University	Proposal Value (USD)	Duration	Status	Challenges noted	Proposed solution offered
	b. RSIF Institutional Innovation Capacity Building Program Grant (ICBP), Innovation Type 1								
1	RSIF/ICBP/001	Institutional Framework to enhance the Agri-Innovation Ecosystem within the University of Ghana	Prof. Irene Egyir	University of Ghana	50,000	24 Months	**Strengthening University Policy Environment** -Draft University of Ghana Agri-Innovation Policy strategy developed. -University's 10-year strategic plan has been reviewed to contextualize research and innovation status of the university. i.e facilities, and relevant training courses. **IP and Entrepreneurship capacity development** -2 workshops on IP protection and Agricultural Technology transfer conducted to 70 faculty and students - One online course with 2 modules on Agri-Innovation Development and Commercialization of Research developed and presented to graduate students and faculty - Training of Agri-TTO office staff on IP management conducted -Development of an accredited course on innovation and entrepreneurship ongoing. **Networking with partners** -1 Technical University and 4 Research Institutes of the Council for scientirfic and Industrial Research have been engaged in agri-innovation development and research commercialization - A formal partnership has been discussed with Head of Department of Family of Consumer Sciences in the UG School of Agriculture to host a maker space	- Lengthy and delayed procurement processes at the university. -COVID 19, affected operations for partner organizations	- RCU to provide procurement support where possible - Flexible timelines for implementation of workplan

No	Grant Ref No	Project Title	Project Leader	African Host University	Proposal Value (USD)	Duration	Status	Challenges noted	Proposed solution offered
2	RSIF/ICBP/002	Initiatives for Sustainable Food Security Innovations in the Drylands	Prof. Jibrin Mohammed Jibrin	Bayero University, Kano	50,000	18 Months	**IP and Entrepreneurship capacity development** -Guest Lecturer on "Innovation Ecosystem" facilitated by Aart van den Bos from Verbos Academy, Netherlands, 79 attendees (-61 students trained on research and innovation best practices. -41 university staff trained on operating functional Tech Transfer Offices. **Networking with partners** -MOU partnership discussions with 4 innovation hubs in Nigeria (Orange Corners/FATE Foundation, Abuja Technological village, IITA Business Incubation Platform (BIP) and ICRISAT Agribusiness and Innovation Platform. - Stakeholder mapping to identify interests and constraints of key actors in food and agriculture innovation ecosystem completed. -Guest lecture on "building an enabling innovation environment" held with 50 attendees -Database of local, regional and international innovation hubs created and uploaded to the CDA website		
3	RSIF/ICBP/003	Capacity Building for University-Industry Business Technology Transfer	Prof Julius Mwabora	University of Nairobi	50,000	24 Months	**Strengthening University Policy Environment**	- Slow university procurement processes delaying	- Flexible timelines for implementation of workplan

No	Grant Ref No	Project Title	Project Leader	African Host University	Proposal Value (USD)	Duration	Status	Challenges noted	Proposed solution offered
							-Review of relevant policies on technology transfer and research commercialization initiated -auditing of existing piloting and commercialization infrastructure initiated	implementation of some activities	
4	RSIF/ICBP/004	From research to markets: Strengthening the Innovation Capacity of AUSTInspire	Prof. Peter Onwualu	African University of Science and Technology (AUST), Abuja	50,000	14 Months	**Strengthening University Policy Environment** -Draft policy documents for copyright, innovation activities and start ups **Networking with industry partners** - Preparations for Industry open day initiated, stakeholders in government and private sector identified -Developed feasibility study report of hubs in Nigeria - Industry Advisory Board established -Innovation and entrepreneurship boot camp done. **IP and Entrepreneurship capacity development** -Inaugurated AUST Centre for Life Ling Learning, one course started, 3 certificate short courses have offered Project managers, HR and Quality Assurance Managers, Researchers and Result-Driven Teams. i)Advanced Diploma in Project Management, 8 weeks, 18 attendees ii)Introduction to M&E, 1 week, 30hrs intensive course, 11 attendees iii)Advanced Project Monitoring and Evaluation, 1 week, 30hrs intensive course, 15 attendees	-COVID 19 travel restrictions affected activity implementation for regional activities	- Flexible timelines for implementation of workplan

No	Grant Ref No	Project Title	Project Leader	African Host University	Proposal Value (USD)	Duration	Status	Challenges noted	Proposed solution offered
5	RSIF/ICBP/005	Innovative Biosystems for Self-sufficiency in Molecular Biology Reagents in Africa	Prof. Esron Karimuribo	Sokoine University of Agriculture	50,000	24 Months	**Strengthening University Policy Environment** -1st draft of IP Guidelines developed to facilitate operationalization of the SUA IP Policy. - Draft University-Industry linkage policy developed; consultations on-going **Networking with industry partners** -Agreement signed with TEMDO company for design and installation of a bioreactor for the project at SUA. -TEMDO has advanced in the design of the bioreactor - Networking visits to innovations hubs (RLabs and Kiota hubs)	-COVID 19 affected possibility to import bioreactor from a partner institute, opted for local manufacturing by local company (TEMDO) - Lengthy and delayed procurement and funds transfer processes at the university delayed the transfer of funds to TEMDO for construction of the bioreactor.	- RCU to provide procurement support where possible - Flexible timelines for implementation of workplan
6	RSIF/ICBP/006	Strengthening Institutional Infrastructure for an Innovation Ecosystem	Prof. Onyewuchi Akaranta	University of Port Harcourt	50,000	24 Months	**Strengthening University Policy Environment** -Draft University's Technology Park Strategic Policy Document developed **IP and Entrepreneurship capacity development/ management** -32 faculty members, graduate students trained on competitive grants writing. -3 certificates filed as at April 2021 secured, a further 2 patents have been filled for processing. Draft policy to be developed by April 2022. **Networking with industry partners** -3 draft partnership MoUs with 3 industrial partners are under review by university's legal unit.	-Partnering industries shutdown due to COVID_19 pandemic	- Identify other partners

Annex 2: Full Details of Publications by RSIF PhD Scholars

1. Climate Change

Sn.	Publication	YoP	Gender	Nationality	Cohort	AHU	Metrics
1.	Gebresamuel, G., **Abrha, H.**, Hagos, H., Elias, E., & Haile, M. (2021). Empirical modeling of the impact of climate change on altitudinal shift of major cereal crops in South Tigray, Northern Ethiopia. Journal of Crop Improvement, 1–24. https://doi.org/10.1080/15427528.2021.1931608	2021	Male	Ethiopia	Cohort 2	UFHB	1 citation 86 Abstract views
2.	Noulèkoun, F., Birhane, E., Kassa, H., Berhe, A., Gebremichael, Z. M., Adem, N. M., Syoum, Y., Mengistu, T., Lemma, B., Hagazi, N., **Abrha, H.**, Rannestad, M. M., & Mensah, S. (2021). Grazing exclosures increase soil organic carbon stock at a rate greater than "4 per 1000" per year across agricultural landscapes in Northern Ethiopia. Science of the Total Environment, 782, 146821. https://doi.org/10.1016/j.scitotenv.2021.146821	2021	Male	Ethiopia	Cohort 2	UFHB	4 citations 19 Abstract views
3.	Blomme, G., **Dusingizimana, P**., Ntamwira, J., Kearsley, E., Gaidashova, S., Rietveld, A., van Schagen, B., & Ocimati, W. (2021). Comparing effectiveness, cost- and time-efficiency of control options for Xanthomonas wilt of banana under Rwandan agro-ecological conditions. European Journal of Plant Pathology, 160(2), 487–501. https://doi.org/10.1007/s10658-021-02258-z	2021	Female	Rwanda	Cohort 2	UFHB	3 citations 1055 downloads
4.	Yisehak, B., Shiferaw, H., **Abrha, H.**, Gebremedhin, A., Hagos, H., Adhana, K., & Bezabh, T. (2021). Spatio-temporal characteristics of meteorological drought under changing climate in semi-arid region of northern Ethiopia. Environmental Systems Research, 10(1), 21. https://doi.org/10.1186/s40068-021-00226-4	2021	Male	Ethiopia	Cohort 2	UFHB	881 downloads
5.	Noulèkoun, F., Birhane, E., Mensah, S., Kassa, H., Berhe, A., Gebremichael, Z. M., Adem, N. M., Seyoum, Y., Mengistu, T., Lemma, B., Hagazi, N., & **Abrha, H.** (2021). Structural diversity consistently mediates species richness effects on aboveground carbon along altitudinal gradients in northern Ethiopian grazing exclosures. Science of the Total Environment, 776, 145838. https://doi.org/10.1016/j.scitotenv.2021.145838	2021	Male	Ethiopia	Cohort 2	UFHB	1 citation 19 Abstract views
6.	Kouyate, Z., Dao, K. M., Togola, O., Malle, A. K., Malle, O., Diakite, K., & **Traore, A.** (2021). Cowpea Seed Innovation Platform: A Hope for Small Seed Producers in Mali. In Enhancing Smallholder Farmers' Access to Seed of Improved Legume Varieties Through Multi-stakeholder Platforms (pp. 143–156). Springer Singapore. https://doi.org/10.1007/978-981-15-8014-7_10	2021	Male	Côte d'Ivoire (Ivory Coast)	Cohort 1	UFHB	2 citations 1311 downloads
7.	Sharma, K., Kreuze, J., Abdurahman, A., Parker, M., **Nduwayezu, A.**, & Rukundo, P. (2021). Molecular diversity and pathogenicity of ralstonia solanacearum species complex associated with bacterial wilt of potato in Rwanda. In Plant Disease (Vol. 105, Issue 4, pp. 770–779). American Phytopathological Society. https://doi.org/10.1094/PDIS-04-20-0851-RE	2021	Male	Rwanda	Cohort 2	UFHB	1 citation 1902 downloads

8.	**Sodedji, F. A. K.**, Agbahoungba, S., Agoyi, E. E., Kafoutchoni, M. K., Choi, J., Nguetta, S. P. A., Assogbadjo, A. E., & Kim, H. Y. (2021). Diversity, population structure, and linkage disequilibrium among cowpea accessions. The Plant Genome, 14(3), e20113. https://doi.org/10.1002/TPG2.20113	2021	Male	Benin	Cohort 1	UFHB	14 downloads
9.	Souleymane, S., Brahima, C., Tchoa, K., Seydou, T., **Adjata, K.**, Daouda, K., & Michel, Z. (2020). Salinity Stress Effect on the Germination of Three Cereals: Maize (Zea mays), Millet (Pennisetum glaucum) and Rice (Oriza sativa). International Journal of Plant & Soil Science, 69–78. https://doi.org/10.9734/ijpss/2020/v32i430273	2020	Female	Côte d'Ivoire (Ivory Coast)	Cohort 2	UFHB	
10.	Rietveld, A.M., **Dusingizimana, P.**, Blomme, G., Gaidashova, S.V., Ocimati, W., Ntamwira, J. (2020). A superior technology to control Banana Xanthomonas Wilt (BXW) in Rwanda. RTB Research Brief 03. Lima, Peru: CGIAR Research Program on Roots, Tubers and Bananas. 6 p. https://cgspace.cgiar.org/handle/10568/110019	2020	Female	Rwanda	Cohort 2	UFHB	1 citation 1 download
11.	**Sodedji, F. A. K**., Agbahoungba, S., Nguetta, S. P. A., Agoyi, E. E., Ayenan, M. A. T., Sossou, S. H., Mamadou, C., Assogbadjo, A. E., & Kone, D. (2019). Resistance to legume pod borer (Maruca vitrata Fabricius) in cowpea: genetic advances, challenges, and future prospects. In Journal of Crop Improvement (Vol. 34, Issue 2, pp. 238–267). Taylor and Francis Inc. https://doi.org/10.1080/15427528.2019.1680471	2019	Male	Benin	Cohort 1	UFHB	4 citations 442 Abstract views
12.	Ayenan, M. A. T., Danquah, A., Hanson, P., Ampomah-Dwamena, C., **Sodedji, F. A. K.**, Asante, I. K., & Danquah, E. Y. (2019). Accelerating Breeding for Heat Tolerance in Tomato (Solanum lycopersicum L.): An integrated approach. In Agronomy (Vol. 9, Issue 11, p. 720). MDPI AG. https://doi.org/10.3390/agronomy9110720	2019	Male	Benin	Cohort 1	UFHB	32 citations 5734 downloads 2640 Abstract views

2. Energy including Renewables

Sn.	Publication	YoP	Gender	Nationality	Cohort	AHU	Metrics
1.	Abdulkadir, M., Kajero, O. T., **Olarinoye, F. O.**, Udebhulu, D. O., Zhao, D., Aliyu, A. M., & Al-Sarkhi, A. (2021). Investigating the Behaviour of Air–Water Upward and Downward Flows: Are You Seeing What I Am Seeing? Energies 2021, Vol. 14, Page 7071, 14(21), 7071. https://doi.org/10.3390/EN14217071	2021	Female	Nigeria	Cohort 2	UPH	376 downloads 604 Abstract views
2.	**Obila, J. O.**, Lei, H., Ayieta, E. O., Ogacho, A. A., Aduda, B. O., & Wang, F. (2021). Optoelectronic property refinement of FASnI3 films for photovoltaic application. Materials Letters, 300, 130099. https://doi.org/10.1016/j.matlet.2021.130099	2021	Male	Kenya	Cohort 2	UoN	6 Abstract views
3.	**Obila, J. O.**, Lei, H., Ayieta, E. O., Ogacho, A. A., Aduda, B. O., & Wang, F. (2021). Improving the efficiency and stability of tin-based perovskite solar cells using anilinium hypophosphite additive. New Journal of Chemistry, 45(18), 8092–8100. https://doi.org/10.1039/d1nj00602a	2021	Male	Kenya	Cohort 2	UoN	1 citation 10 Abstract views

3. Food security and Agribusiness

Sn.	Publication Title	YoP	Gender	Nationality	Cohort	AHU	Metrics
1.	Kalee, N. E., **Gahamanyi, N.**, & Hoza, A. S. (2021). Prevalence and antimicrobial susceptibility profiles of Staphylococcus aureus from raw bovine milk in dairy and pastoral farms in Morogoro region, Tanzania. German Journal of Veterinary Research, 1(2), 1–7. https://doi.org/10.51585/GJVR.2021.2.0007	2021	Male	Rwanda	Cohort 1	SUA	75 downloads 1050 Abstract views
2.	**Njeru, F. N**., & Kusolwa, P. M. (2021). Nanobodies: their potential for applications in biotechnology, diagnosis and antiviral properties in Africa; focus on application in agriculture. Biotechnology & Biotechnological Equipment 35(1), 1331–1342. https://doi.org/10.1080/13102818.2021.1974943	2021	Female	Kenya	Cohort 2	SUA	1022 Abstract views
3.	**Maina, S.**, Ryu, D. H., Bakari, G., Misinzo, G., Nho, C. W., & Kim, H. Y. (2021). Variation in Phenolic Compounds and Antioxidant Activity of Various Organs of African Cabbage (Cleome gynandra L.) Accessions at Different Growth Stages. Antioxidants 2021, Vol. 10, Page 1952, 10(12), 1952. https://doi.org/10.3390/ANTIOX10121952	2021	Female	Kenya	Cohort 1	SUA	2 citations 980 downloads 858 Abstract views
4.	**Maina, S.**, Ryu, D. H., Cho, J. Y., Jung, D. S., Park, J.-E., Nho, C. W., Bakari, G., Misinzo, G., Jung, J. H., Yang, S.-H., & Kim, H.-Y. (2021). Exposure to Salinity and Light Spectra Regulates Glucosinolates, Phenolics, and Antioxidant Capacity of Brassica carinata L. Microgreens. Antioxidants 2021, Vol. 10, Page 1183, 10(8), 1183. https://doi.org/10.3390/ANTIOX10081183	2021	Female	Kenya	Cohort 1	SUA	2 citations 800 downloads 1159 Abstract views
5.	**Gahamanyi, N**., Munyaneza, E., Dukuzimana, E., Tuyiringire, N., Pan, C.-H., & Komba, E. V. G. (2021). Ethnobotany, Ethnopharmacology, and Phytochemistry of Medicinal Plants Used for Treating Human Diarrheal Cases in Rwanda: A Review. Antibiotics, 10(10), 1231. https://doi.org/10.3390/antibiotics10101231	2021	Male	Rwanda	Cohort 1	SUA	1 citation 842 downloads 1006 Abstract views
6.	Kivumbi, C. C., Yona, C., **Hakizimana, J. N.**, & Misinzo, G. (2021). An assessment of the epidemiology and socioeconomic impact of the 2019 African swine fever outbreak in Ngara district, western Tanzania. Veterinary and Animal Science, 14, 100198. https://doi.org/10.1016/J.VAS.2021.100198	2021	Male	Rwanda	Cohort 1	SUA	1 citation 1 downloads 6 Abstract views
7.	**Hakizimana, J. N.**, Ntirandekura, J. B., Yona, C., Nyabongo, L., Kamwendo, G., Chulu, J. L. C., … Misinzo, G. (2021). Complete genome analysis of African swine fever virus responsible for outbreaks in domestic pigs in 2018 in Burundi and 2019 in Malawi. Tropical Animal Health and Production, 53(438), pp. 1–10. https://doi.org/10.1007/S11250-021-02877-Y	2021	Male	Rwanda	Cohort 1	SUA	1 citation 1428 downloads
8.	**Gahamanyi, N.**, Song, D.-G., Yoon, K.-Y., Mboera, L. E. G., Matee, M. I., Mutangana, D., Komba, E. V. G., Pan, C.-H., & Amachawadi, R. G. (2021). Genomic Characterization of Fluoroquinolone-Resistant Thermophilic Campylobacter Strains Isolated from Layer Chicken Feces in Gangneung, South Korea by Whole-Genome Sequencing. Genes 2021, Vol. 12, Page 1131, 12(8), 1131. https://doi.org/10.3390/GENES12081131	2021	Male	Rwanda	Cohort 1	SUA	843 downloads 1469 Abstract views

9.	**Gahamanyi, N.**, Song, D. G., Yoon, K. Y., Mboera, L. E. G., Matee, M. I., Mutangana, D., Amachawadi, R. G., Komba, E. V. G., & Pan, C. H. (2021). Antimicrobial Resistance Profiles, Virulence Genes, and Genetic Diversity of Thermophilic Campylobacter Species Isolated from a Layer Poultry Farm in Korea. Frontiers in Microbiology, 12, 554. https://doi.org/10.3389/fmicb.2021.622275	2021	Male	Rwanda	Cohort 1	SUA	4 citation 823 downloads 3829 Abstract views
10.	**Gahamanyi, N.**, Mboera, L. E. G., Matee, M. I., Mutangana, D., Amachawadi, R. G., Yoon, K.-Y., Mabwi, H. A., Pan, C.-H., & Komba, E. V. G. (2021). Molecular detection of Campylobacter species from human and cattle faecal samples in Kilosa District, Tanzania. *East African Journal of Science, Technology and Innovation*, *3*(1). https://doi.org/10.37425/EAJSTI.V3I1.399	2021	Male	Rwanda	Cohort 1	SUA	
11.	**Hakizimana, J. N.**, Yona, C., Kamana, O., Nauwynck, H., & Misinzo, G. (2021). African swine fever virus circulation between tanzania and neighboring countries: A systematic review and meta-analysis. In Viruses (Vol. 13, Issue 2, p. 306). MDPI AG. https://doi.org/10.3390/v13020306	2021	Male	Rwanda	Cohort 1	SUA	7 citations 1407 downloads 2472 Abstract views
12.	**Mabwi, H. A.**, Hitayezu, E., Mauliasari, I. R., Mwaikono, K. S., Yoon, H. S., Komba, E. V. G., Pan, C. H., & Cha, K. H. (2021). Simulation of the mucosal environment in the re-construction of the synthetic gut microbial ecosystem. *Journal of Microbiological Methods*, *191*, 106351. https://doi.org/10.1016/J.MIMET.2021.106351	2021	Male	Kenya	Cohort 1	SUA	
13.	**Mabwi, H. A.,** Kim, E., Song, D. G., Yoon, H. S., Pan, C. H., Komba, E. V. G., Ko, G. P., & Cha, K. H. (2020). Synthetic gut microbiome: Advances and challenges. In Computational and Structural Biotechnology Journal (Vol. 19, pp. 363–371). Elsevier B.V. https://doi.org/10.1016/j.csbj.2020.12.029	2020	Male	Kenya	Cohort 1	SUA	8 citations 50 downloads
14.	Alhassan, H., **Abu, B. M.**, & Nkegbe, P. K. (2020). Access to Credit, Farm Productivity and Market Participation in Ghana: A Conditional Mixed Process Approach. Margin, 14(2), 226–246. https://doi.org/10.1177/0973801020904490	2020	Male	Ghana	Cohort 2	UoG	7 citations 316 downloads
15.	**Gahamanyi, N.**, Mboera, L. E. G., Matee, M. I., Mutangana, D., & Komba, E. V. G. (2020). Prevalence, Risk Factors, and Antimicrobial Resistance Profiles of Thermophilic Campylobacter Species in Humans and Animals in Sub-Saharan Africa: A Systematic Review. In International Journal of Microbiology (Vol. 2020). Hindawi Limited. https://doi.org/10.1155/2020/2092478	2020	Male	Rwanda	Cohort 1	SUA	17 citations 2632 downloads 3463 Abstract views
16.	**Gahamanyi, N.**, Song, D. G., Cha, K. H., Yoon, K. Y., Mboera, L. E. G., Matee, M. I., Mutangana, D., Amachawadi, R. G., Komba, E. V. G., & Pan, C. H. (2020). Susceptibility of campylobacter strains to selected natural products and frontline antibiotics. Antibiotics, 9(11), 1–14. https://doi.org/10.3390/antibiotics9110790	2020	Male	Rwanda	Cohort 1	SUA	6 citations 1439 downloads 1254 Abstract views
17.	**Waema, M. W.**, Misinzo, G., Kagira, J. M., Agola, E. L., & Ngowi, H. A. (2020). DNA-Detection Based Diagnostics for Taenia solium Cysticercosis in Porcine. In Journal of Parasitology Research (Vol. 2020). Hindawi Limited. https://doi.org/10.1155/2020/5706981	2020	Male	Kenya	Cohort 1	SUA	2 citations 1046 downloads 18835 Abstract views
18.	Asitik, A. J., & **Abu, B. M.** (2020). Women empowerment in agriculture and food security in Savannah Accelerated Development Authority zone of Ghana. African Journal of Economic and Management Studies, 11(2), 253–270. https://doi.org/10.1108/AJEMS-03-2019-0102	2020	Male	Ghana	Cohort 2	UoG	4 citations 326 downloads
19.	**Hakizimana, J. N**., Nyabongo, L., Ntirandekura, J. B., Yona, C., Ntakirutimana, D., Kamana, O., Nauwynck, H., & Misinzo, G. (2020). Genetic Analysis of African Swine Fever Virus From the 2018 Outbreak in South-Eastern Burundi. Frontiers in Veterinary Science, 7, 578474. https://doi.org/10.3389/fvets.2020.578474	2020	Male	Rwanda	Cohort 1	SUA	8 citations 1262 downloads 4143 Abstract views

20.	**Maina, S.**, Misinzo, G., Bakari, G., & Kim, H. Y. (2020). Human, animal and plant health benefits of glucosinolates and strategies for enhanced bioactivity: A systematic review. In Molecules (Vol. 25, Issue 16, p. 3682). MDPI AG. https://doi.org/10.3390/molecules25163682	2020	Female	Kenya	Cohort 1	SUA	28 citations 1525 downloads 2328 Abstract views
21.	**Hakizimana, J. N**., Kamwendo, G., Chulu, J. L. C., Kamana, O., Nauwynck, H. J., & Misinzo, G. (2020). Genetic profile of African swine fever virus responsible for the 2019 outbreak in northern Malawi. BMC Veterinary Research, 16(1), 1–10. https://doi.org/10.1186/s12917-020-02536-8	2020	Male	Rwanda	Cohort 1	SUA	2 citations 2169 downloads
22.	Umuhozariho, M. G., Hagenimana, T., Nsabimana, P., **Sirimu, C.**, Uwobasa, N., & Uwineza, A. P. (2020). Effect of oven and freeze drying on nutritional composition of pumpkin (Cucurbita maxima) processed flour. Rwanda Journal of Agricultural Sciences, 2(1), 33–39. https://www.ajol.info/index.php/rjeas/article/view/200843	2020	Male	Rwanda	Cohort 2	SUA	1 citation
23.	Shao, E. R., Somi, N. P., **Kifato, E. G.**, Gunda, D. W., Kilonzo, S. B., & Nyombi, B. M. (2019). Bacterial contamination and antimicrobial susceptibility pattern of isolates from stethoscopes at a referral hospital in Tanzania. Tanzania Medical Journal, 30(1), 37–52. https://tmj.or.tz/index.php/tmj/article/view/288	2019	Male	Tanzania	Cohort 1	SUA	1 citation 1 downloads

4. ICTs including Big Data and Artificial Intelligence

Sn.	Publication Title	YoP	Gender	Nationality	Cohort	AHU	Metrics
1.	**Sawadogo, Z.**, Mendy, G., Dembele, J. M., & Ouya, S. (2022). Android malware detection: Investigating the impact of imbalanced data-sets on the performance of machine learning models. 2022 24th International Conference on Advanced Communication Technology (ICACT), 435–441. https://doi.org/10.23919/ICACT53585.2022.9728833	2022	Male	Burkina Faso	Cohort 1	UGB	
2.	**Sawadogo, Z.**, Mendy, G., Dembelle, J. M., & Ouya, S. (2022). Android Malware Classification: Updating Features Through Incremental Learning Approach(UFILA). 2022 24th International Conference on Advanced Communication Technology (ICACT), 544–550. https://doi.org/10.23919/ICACT53585.2022.9728977	2022	Male	Burkina Faso	Cohort 1	UGB	
3.	**Maniraguha, F.**, Vodacek, A., Ndashimye, E., & Rushingabigwi, G. (2021). Ground Clutter Mitigation and Insect Signature Detection for Polarimetric C-Band Doppler Weather Radar. 2021 IEEE Global Humanitarian Technology Conference (GHTC), 289–296. https://doi.org/10.1109/GHTC53159.2021.9612449	2021	Male	Rwanda	Cohort 2	UoR	34 downloads
4.	**Nyasulu C.**, Diattara A., Traore A., Ba C. (2021) Enhancing Farmers Productivity Through IoT and Machine Learning: A State-of-the-Art Review of Recent Trends in Africa. In: Faye Y., Gueye A., Gueye B., Diongue D., Nguer E.H.M., Ba M. (eds) Research in Computer Science and Its Applications. CNRIA 2021. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, vol 400. Springer, Cham. https://doi.org/10.1007/978-3-030-90556-9_10	2021	Male	Malawi	Cohort 2	UGB	61 Abstract views
5.	**Effah, E.**, Thiare, O., & Wyglinski, A. (2020a). Energy-Efficient Multihop Routing Framework for Cluster-based Agricultural Internet of Things (CA-IoT). IEEE Vehicular Technology Conference, 2020-November. https://doi.org/10.1109/VTC2020-FALL49728.2020.9348608	2020	Male	Ghana	Cohort 1	UGB	41 downloads

6.	**Effah, E.**, Thiare, O., & Wyglinski, A. (2020b). Multi-Objective Optimization Modeling of Clustering-Based Agricultural Internet of Things. IEEE Vehicular Technology Conference, 2020-November. https://doi.org/10.1109/VTC2020-FALL49728.2020.9348460	2020	Male	Ghana	Cohort 1	UGB	42 downloads
7.	**Thiam, F.**, Mbaye, M. and Wyglinski, A.M "Generic Reliability Analysis Model of IoT : Agriculture use case," 2021 IEEE 93rd Vehicular Technology Conference (VTC2021-Spring), 2021, pp. 1-5. https://doi.org/10.1109/vtc2021-spring51267.2021.9448791	2021	Female	Senegal	Cohort 1	UGB	63 downloads
8.	**Nizeyimana, E.**, Hanyurwimfura, D., Shibasaki, R. and Nsenga, J. "Design of a Decentralized and Predictive Real-Time Framework for Air Pollution Spikes Monitoring," 2021 IEEE 6th International Conference on Cloud Computing and Big Data Analytics (ICCCBDA), 2021, pp. 501-504. https://doi.org/10.1109/ICCCBDA51879.2021.9442611	2021	Male	Rwanda	Cohort 2	UoR	52 downloads
9.	**Effah, E.**, & Thiare, O. (2020). Realistic Cluster-Based Energy-Efficient and Fault-Tolerant (RCEEFT) Routing Protocol for Wireless Sensor Networks (WSNs). Advances in Intelligent Systems and Computing, 1129 AISC, 320–337. https://doi.org/10.1007/978-3-030-39445-5_25	2020	Male	Ghana	Cohort 1	UGB	556 Abstract views
10.	**Fidele, M.**, Damien, H., & Eric, N. (2020). Effect of Window Size on PAPR Reduction in 4G LTE Network Using Peak Windowing Algorithm in Presence of Non-linear HPA. 2020 IEEE 5th International Conference on Signal and Image Processing, ICSIP 2020, 1128–1133. https://doi.org/10.1109/ICSIP49896.2020.9339272	2020	Male	Rwanda	Cohort 2	UoR	55 downloads
11.	Thiam, C., & **Thiam, F**. (2019b). Energy Efficient Cloud Data Center Using Dynamic Virtual Machine Consolidation Algorithm. Lecture Notes in Business Information Processing, 353, 514–525. https://doi.org/10.1007/978-3-030-20485-3_40 (Female,	2019	Female	Senegal	Cohort 1	UGB	1033 Abstract views
12.	Thiam, C., & **Thiam, F. (**2019a, October 1). Optimizing electrical energy consumption in cloud data center. 2019 3rd International Conference on Intelligent Computing in Data Sciences, ICDS 2019. https://doi.org/10.1109/ICDS47004.2019.8942232	2019	Female	Senegal	Cohort 1	UGB	59 downloads
13.	Thiam, C., & **Thiam, F.** (2019). An Energy-Efficient VM migrations optimization in Cloud Data Centers. IEEE AFRICON Conference, 2019-September. https://doi.org/10.1109/AFRICON46755.2019.9133776	2019	Female	Senegal	Cohort 1	UGB	122 downloads
14.	Thiam, C., **Thiam, F.**, & Mbaye, M. (2019). Optimized energy and SLA-aware virtual machine placement strategies in Cloud: Study. 5th IEEE International Smart Cities Conference, ISC2 2019, 44–49. https://doi.org/10.1109/ISC246665.2019.9071675	2019	Female	Senegal	Cohort 1	UGB	50 downloads

5. Minerals, Mining and Materials Engineering

Sn.	Publication Title	YoP	Gender	Nationality	Cohort	AHU	Metrics
1.	**Bih, N. L.**, Mahamat, A. A., Chinweze, C., Ayeni, O., Bidossèssi, H. J., Onwualu, P. A., & Boakye, E. E. (2022). The Effect of Bone Ash on the Physio-Chemical and Mechanical Properties of Clay Ceramic Bricks. *Buildings 2022, Vol. 12, Page 336*, *12*(3), 336. https://doi.org/10.3390/BUILDINGS12030336	2022	Female	Cameroon	Cohort 2	NM-AIST	211 downloads 291 Abstract views

2.	Ichwani, R., **Koech, R.**, Oyewole, O. K., Huda, A., Oyewole, D. O., Cromwell, J., Martin, J. L., Grimm, R. L., & Soboyejo, W. O. (2021). Interfacial fracture of hybrid organic-inorganic perovskite solar cells. Extreme Mechanics Letters, 101515. https://doi.org/10.1016/j.eml.2021.101515	2021	Male	Kenya	Cohort 1	AUST	12 Abstract views
3.	**Koech, R. K**., Ichwani, R., Oyewole, D. O., Kigozi, M., Amune, D., Sanni, D. M., Adeniji, S. A., Oyewole, O. K., Bello, A., Ntsoenzok, E., & Soboyejo, W. O. (2021). Tin Oxide Modified Titanium Dioxide as Electron Transport Layer in Formamidinium-Rich Perovskite Solar Cells. Energies 2021, Vol. 14, Page 7870, 14(23), 7870. https://doi.org/10.3390/EN14237870	2021	Male	Kenya	Cohort 1	AUST	483 downloads 404 Abstract views
4.	**Afolayan, D. O.**, Eggleston, C. M., Onwualu, A. P., Adetunji, A. R., Tao, M., & Amankwah, R. K. (2021). Physicochemical Studies for Risk Identification, Assessment, and Characterization of Artisanal Barite Mining in Nigeria. *Sustainability 2021, Vol. 13, Page 12982*, *13*(23), 12982. https://doi.org/10.3390/SU132312982	2021	Male	Nigeria	Cohort 1	NM-AIST	362 downloads 402 Abstract views
5.	Olanrewaju, Y. A., Orisekeh, K., Oyelade, O. v., **Koech, R. K.**, Ichwani, R., Ebunu, A. I., Amune, D. I., Bello, A., Anye, V. C., Oyewole, O. K., & Soboyejo, W. O. (2022). Effects of temperature-dependent burn-in decay on the performance of triple cation mixed halide perovskite solar cells. AIP Advances, 12(1), 015122. https://doi.org/10.1063/5.0078821	2022	Male	Kenya	Cohort 1	AUST	974 downloads
6.	**Afolayan, D. O.**, Onwualu, A. P., Eggleston, C. M., Adetunji, A. R., Tao, M., & Amankwah, R. K. (2021). Safe Mining Assessment of Artisanal Barite Mining Activities in Nigeria. Mining 2021, Vol. 1, Pages 224-240, 1(2), 224–240. https://doi.org/10.3390/MINING1020015	2021	Male	Nigeria	Cohort 1	NM-AIST	1712 downloads 1194 Abstract views
7.	**Alfredy, T.**, Elisadiki, J., & Jande, Y. A. C. (2021). Capacitive deionization: a promising technology for water defluoridation: a review. Water Supply, 0, 1. https://doi.org/10.2166/WS.2021.287	2021	Female	Tanzania	Cohort 2	NM-AIST	179 downloads 429 Abstract views
8.	**Koech, R. K**., Ichwani, R., Martin, J. L., Oyewole, D. O., Oyelade, O. v., Olanrewaju, Y. A., Sanni, D. M., Adeniji, S. A., Grimm, R. L., Bello, A., Oyewole, O. K., Ntsoenzok, E., & Soboyejo, W. O. (2021). A study of the effects of a thermally evaporated nanoscale CsBr layer on the optoelectronic properties and stability of formamidinium-rich perovskite solar cells. AIP Advances, 11(9), 095112. https://doi.org/10.1063/5.0064398	2021	Male	Kenya	Cohort 1	AUST	1505 downloads
9.	**Habinshuti, J. B.**, **Munganyinka, J. P.**, Adetunji, A. R., Mishra, B., Ofori-Sarpong, G., Komadja, G. C., Tanvar, H., Mukiza, J., & Onwualu, A. P. (2021). Mineralogical and physical studies of low-grade tantalum-tin ores from selected areas of Rwanda. Results in Engineering, 11, 100248. https://doi.org/10.1016/J.RINENG.2021.100248	2021	Male Female	Rwanda Rwanda	Cohort 1	NM-AIST AUST	8 downloads
10.	**Moirana, R. L.**, Mkunda, J., Perez, M. P., Machunda, R., & Mtei, K. (2021). The influence of fertilizers on the behavior of fluoride fractions in the alkaline soil. Journal of Fluorine Chemistry, 250, 109883. https://doi.org/10.1016/J.JFLUCHEM.2021.109883	2021	Female	Tanzania	Cohort 2	NM-AIST	2 citations
11.	Oyewole, D. O., **Koech, R. K.**, Ichwani, R., Ahmed, R., Hinostroza Tamayo, J., Adeniji, S. A., Cromwell, J., Colin Ulloa, E., Oyewole, O. K., Agyei-Tuffour, B., Titova, L. v., Burnham, N. A., & Soboyejo, W. O. (2021). Annealing effects on interdiffusion in layered FA-rich perovskite solar cells. AIP Advances, 11(6), 065327. https://doi.org/10.1063/5.0046205	2021	Male	Kenya	Cohort 1	AUST	2 citations 936 downloads
12.	**Afolayan, D. O**., Adetunji, A. R., Onwualu, A. P., Ogolo, O., & Amankwah, R. K. (2021). Characterization of barite reserves in Nigeria for use as weighting agent in drilling fluid. Journal of Petroleum Exploration and Production, 11(5), 2157–2178. https://doi.org/10.1007/s13202-021-01164-8	2021	Male	Nigeria	Cohort 1	NM-AIST	1 citation 1572 downloads

13.	**Moirana, R. L**., Kivevele, T., Mkunda, J., Mtei, K., & Machunda, R. (2021). Trends towards Effective Analysis of Fluorinated Compounds Using Inductively Coupled Plasma Mass Spectrometry (ICP-MS). In Journal of Analytical Methods in Chemistry (Vol. 2021). Hindawi Limited. https://doi.org/10.1155/2021/8837315	2021	Female	Tanzania	Cohort 2	NM-AIST	2 citations 701 downloads 1383 Abstract views
14.	Mahamat, A. A., Boukar, M. M., Ibrahim, N. M., Stanislas, T. T., **Linda Bih, N.**, Obianyo, I. I., & Savastano, H. (2021). Machine Learning Approaches for Prediction of the Compressive Strength of Alkali Activated Termite Mound Soil. Applied Sciences 2021, Vol. 11, Page 4754, 11(11), 4754. https://doi.org/10.3390/APP11114754	2021	Female	Cameroon	Cohort 2	NM-AIST	3 citations 563 downloads 716 Abstract views
15.	Sanni, D. M., Yerramilli, A. S., Ntsoenzok, E., Adeniji, S. A., Oyelade, O. v., **Koech, R. K.**, Fashina, A. A., & Alford, T. L. (2021). Impact of precursor concentration on the properties of perovskite solar cells obtained from the dehydrated lead acetate precursors. Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films, 39(3), 032801. https://doi.org/10.1116/6.0000714	2021	Male	Kenya	Cohort 1	AUST	1 citation 416 Abstract views
16.	Mahamat, A. A., **Linda Bih**, N., Ayeni, O., Azikiwe Onwualu, P., Savastano, H., & Oluwole Soboyejo, W. (2021). Development of Sustainable and Eco-Friendly Materials from Termite Hill Soil Stabilized with Cement for Low-Cost Housing in Chad. Buildings, 11(3), 86. https://doi.org/10.3390/buildings11030086	2021	Female	Cameroon	Cohort 2	NM-AIST	3 citations 1123 downloads 738 Abstract views
17.	Adeniji, S. A., Cromwell, J., Oyewole, D. O., Oyelade, O. v., **Koech, R. K.**, Sanni, D. M., Oyewole, O. K., Babatope, B., & Soboyejo, W. O. (2021). Pressure-assisted fabrication of perovskite light emitting devices. AIP Advances, 11(2), 025112. https://doi.org/10.1063/5.0035953	2021	Male	Kenya	Cohort 1	AUST	2 citations 739 downloads
18.	Bello, A; Sanni, D M; Adeniji, S A; Anye, V; Orisekeh, K; Kigozi, M; **Koech, R. K**. (2020) Combustion synthesis of battery-type positive electrodes for robust aqueous hybrid supercapacitor. Journal of Energy Storage, 27(2), 101160 https://doi.org/10.1016/j.est.2019.101160	2020	Male	Kenya	Cohort 1	AUST	4 citations 15 downloads
19.	Oyewole, O., Oyewole, D., Oyelade, O., Adeniji, S., **Koech, R. K.**, Asare, J., Agyei-Tuffour, B., & Soboyejo, W. (2020). Failure of Stretchable Organic Solar Cells under Monotonic and Cyclic Loading. Macromolecular Materials and Engineering, 305(11), 2000369. https://doi.org/10.1002/mame.202000369	2020	Male	Kenya	Cohort 1	AUST	3 citations 3 downloads
20.	Sanni, D. M., Ntsoenzok, E., Saintaimé, E., Adeniji, S. A., Oyelade, O. V. , **Koech, R. K.**, Amune, D. I., Bello, A. (2020) The role of hafnium acetylacetonate buffer layer on the performance of lead halide perovskite solar cells derived from dehydrated lead acetate as Pb source (*AIP Advances*, 2020) https://doi.org/10.1063/5.0012646	2020	Male	Kenya	Cohort 1	AUST	670 downloads
21.	Komadja, G. C., Pradhan, S. P., Roul, A. R., Adebayo, B., **Habinshuti, J. B.**, Glodji, L. A., & Onwualu, A. P. (2020). Assessment of stability of a Himalayan road cut slope with varying degrees of weathering: A finite-element-model-based approach. Heliyon, 6(11), e05297. https://doi.org/10.1016/j.heliyon.2020.e05297	2020	Male	Rwanda	Cohort 1	NM-AIST	7 citations 32 downloads
22.	Mukiza, J., Habarurema, G., Gerber, T. I. A., Hosten, E., Nkuranga, J. B., **Habinshuti, J. B.**, & Betz, R. (2020). Simultaneous cyclisation and coordination of dithizone to the fac-[Re(CO)3]+ core. Inorganic Chemistry Communications, 113, 107804. https://doi.org/10.1016/j.inoche.2020.107804	2020	Male	Rwanda	Cohort 1	NM-AIST	2 citations 2 downloads
23.	**Koech, R. K.**, Kigozi, M., Bello, A., Onwualu, P. A., & Soboyejo, W. O. (2019). Recent advances in solar energy harvesting materials with particular emphasis on photovoltaic materials. IEEE PES/IAS PowerAfrica Conference: Power Economics and Energy Innovation in Africa, PowerAfrica 2019, 627–632. https://doi.org/10.1109/PowerAfrica.2019.8928859	2019	Male	Kenya	Cohort 1	AUST	5 citations 244 downloads

Annex 3: List of Approved 1st Round RSIF/MozSkills Grant Projects

RSIF/MozSkill Research Award Projects						
No	**Project Leader**	**Name of Organization**	**Project Title**	**Budget (USD)**	**Thematic Area**	**Duration**
1	Prof. Sosdito Manaze	Universidade Eduardo Mondlane	Segurança alimentar, agronegócio sustentado e eficiência do uso de recursos na agricultura baseados em sistemas de observação da terra (*Earth Observation System in support of Food security, sustainable agribusiness and resource use efficiency in agriculture)*	89,945	Food Security & Agri Business	2 Yrs
2	Dr. Oscar Chichongue	Mozambique Agricultural Research Institute (IIAM)	Increasing resilience of smallholder farmers to Climate change through adoption of Climate Smart Agriculture practices in Mozambique	90,000	Climate Change	2 Yrs
3	Prof. Luis Cristovao	Universidade Zambeze	Solar dryer integrated with natural rocks as energy storage for drying fruits and vegetables in Mozambique	89,716	Energy including renewables	2 yrs
4	Prof. Celia Martins	Universidade Eduardo Mondlane	Produção in vitro de espécies florestais premium nativas de Moçambique (*In vitro production of premium forest native species of Mozambique)*	90,00	Climate Change	2 Yrs
	Totals			**359,661**		
RSIF/MozSkills Instituional Innovation Capacity Building Program Grants (ICBP)						
1	Prof. Borges Chambal	Universidade Eduardo Mondlane	Establishment and Capacity Building of the Technology Transfer Office (TTO)	70,000	N/A	2 Yrs
2	Mr. Arnaldo Ernesto	Instituto Superior Politecnico de Manica	Criação de Empresas Sustentáveis de Estudantes como Alternativa de Auto-Emprego (*Creation of Sustainable Student Companies as an alternative to self-employment)*	70,000	N/A	2 Yrs
	Totals			140,000		
RSIF/MozSkills Cooperability Grant						
1	Mr. Emilio Antonio	Universidade Rovuma	Biogas e Energia (*Biogas and Energy*)	70,000	Energy including renewables	2 Yrs
	Totals			**70,000**		

P.S Institutional Innovation Capacity Building Program Grants (ICBP) are Instituional innovation strengthening therefore not tied to a specific thematic area

Annex 4: List of projects selected and awarded grants under AGriDI

No	Name of Entity	Legal Status	Country of registration	Name of contact person for Project	Project Title & Acronym	Budget (€)	Duration (months)
	CATEGORY 1						
1	Université de Parakou	Public university	Benin	Prof Dr Ismail M. Moumouni	AGriCef, Une solution digitale pour une gestion agro-écologique plus efficace et efficiente de la Chenille Légionnaire d'Automne (CLA) au Nord Bénin (DigiCLA)	261,424.52	24
2	Federal University of Agriculture, Abeokuta, Nigeria (FUNAAB)	Public university	Nigeria	Prof Olusegun Folorunso	Digital Soil Mapping for Optimal Agricultural Yield and Sustainable Soil Biodiversity in Southwest Nigeria Using Artificial Intelligence (FUNAAB-SMARTSOIL)	261,424.52	24
3	West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL)	Not-for-profit organisation	Ghana	Dr. Kwame Oppong Hackman	Precision Pest and Disease Management System based on Multidimensional Big Data (PPeDMaS)	261,424.52	18
4	ASSOCIATION 3535	NGO	Cote D'ivoire	Richard Seshie	Solar-Powered Refrigerated Containers for Social Impact (COOL-LION)	261,424.52	24
	CATEGORY 2						
5	African Green Corporation SA	SA	Benin	Laurent Glin	Boosting rice and maize supply chains through innovative e-market and financial services to smallholder farmers in Benin (BoMeF)	222,500.00	24
6	Sosai Renewable Energy	For-profit	Nigeria	Habiba Ali	Improving Women's opportunities to access microfinance for solar-powered agro-processing equipment (MarketMap)	173,300.00	24
7	Esoko Limited	Limited Liability Company	Ghana	Daniel Asare-Kyei	Digital Tools to Drive Market Access and Manage Ag-Value Chains (DigiMakt)	221,272.70	24
8	AgroCenta Limited	Limited Liability Company	Ghana	Francis A. Obirikorang	Scaling AgroCenta Platform and Adoption for Effective Market Linkages in Ghana (SAPA)	224,838.17	24

No	Name of Entity	Legal Status	Country of registration	Name of contact person for Project	Project Title & Acronym	Budget (€)	Duration (months)
CATEGORY 3							
9	Centre d'Actions pour l'Environnement et le Développement Durable (ACED)	Organisation non gouvernementale a but non lucratif	Benin	Frejus Thoto	Renforcement de l'environnement politique et réglementaire pour le développement et la mise a l'échelle des innovations numériques dans le secteur agricole au Benin (REPINAB)	159,542.00	24
10	Science and Technology Policy Research Institute, Council for Scientific and Industrial Research (CSIR-STEPRI)	National Research Institute	Ghana	Dr. Rose Omari	Enhancing farmers' uptake of digital technologies through empirical research, innovation and policy intervention (EFUDTRIP)	160,000.00	24
TOTAL						**Euros2,207,150.96**	

Annex 5: RSIF Scholars' Grievance Log (Jan – March 2022)

	Complaint Received								Redress Activities				
Reg No.	Channel used	Name and address of complainant	Date of complaint	Grievance Summary	Category	GRM Level (AHUs/RCU/EB			Rectification of Issues: Not Commenced	In Progress	Completed	Resolved	Referred
1	Email	Mr Emmanuel Effah RSIF Cohort I scholar at WPI eeffah@wpi.edu	20 March 2022	The scholars through their representative raised a grievances regarding a delay in the disbursement of their stipends following the extension of their contracts.	Stipends		X			The internal processes with the formal extension and winding up of Cohort I contacts has been completed and now the payment process has began.			
2	Email	RSIF Cohort III scholars funded by Nigeria	Various Follow-up Emails from scholars in different times Jan-Mar 2022	The Scholars would like to know when they will sign their contracts	Scholarship		X			There are discussions spearheaded by RCU with the Nigerian Government		In Progress	

Annex 6: List of RSIF Project Procurement as of 31 March 2022

No.	Procurement activity	Status
1.	Consultancy for the development and design of a Scholarships and Grants Information Management System	Ongoing until 30/12/2022
2.	Procurement of Translation and Simultaneous Interpretation services	Ongoing until 28/02/2023
3.	Consultancy for Planning and facilitation of the first Regional Scholarship and Innovation Fund (RSIF) Annual Conference	Ongoing until 31/12/2022
4.	Short term consultancy for a Communications officer	Ongoing until 31/05/2022
5.	Procurement of Consultancy Services for design and development of a mentorship platform for the Regional Scholarship and Innovation Fund	Ongoing until 30/11/2022
6.	Consultancy to Design and Deliver a Business Incubation Workshop for Entrepreneurial Scientists Implementing RSIF Funded Innovation Projects	Ongoing until 31/07/2022
7.	Consultancy Firm for Communications, Branding and Outreach for the Regional Scholarship and Innovation Fund (RSIF).	Ongoing until 31/12/2022
8.	Video documentary and still photography services for the RSIF annual conference	Ongoing until 31/08/2022
9.	Consultancy for AGriDI Website development	Ongoing until 02/7/2022
10	Consultant to Develop and Deliver high-quality Safeguarding Training Course and Training of Trainers (ToT) Pack for RSIF.	Undergoing the evaluation stage
11.	Consultant to Facilitate the Creation and Implementation of RSIF Research Networks.	Undergoing the evaluation stage