

# Building a sustainable model for doctoral training, research and innovation in SSA: The PASET Regional Scholarship and Innovation Fund

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[www.icipe.org](http://www.icipe.org)



# Where I work: *icipe*

- A *Center of Excellence* in Africa- for research and capacity building for insect science and its application
- An *intergovernmental organization*- Charter signed by 13 countries worldwide
- >500 staff (39 nationalities) and several contracted workers
- 150-180 graduate students annually



Organization with  
a *unique* history:  
> 49 years



T.R. Odhiambo



H.R. Herren



C. Borgemeister



S. Kelemu

# The Programme I manage - BioInnovate Africa



A regional programme to stimulate the bio-economy in eastern Africa.

Implemented as a program of icipe & sponsored by Sida

In 6 countries:

Burundi, Ethiopia, Kenya, Rwanda, Tanzania, Uganda (+ S. Sudan)

Translates biological based innovative ideas/Inventions...



...into practical uses in society

# Today's talk:

The **PASET** Regional Scholarship  
and Innovation Fund



*An Africa-led initiative to bridge the skills gap in Applied Sciences, Engineering, & Technology*

## “Building a sustainable model for doctoral training, research and innovation in SSA: The PASET-Regional Scholarship and Innovation Fund”

Central thesis: A rich pool of knowledgeable, skilled and creative people is an essential element of a functional innovation ecosystem, and an important enabler for growth and transformation – should be a key contribution from African universities

# Introduction

Africa by 2063 –  
prosperous, peaceful &  
contributing to global  
development.



How? African governments want to raise per capita incomes to > USD 1,000 < USD 13,000 (i.e. becoming low and upper middle income countries)

...but in a  
sustainable way



# Introduction...

Item	World	Sub Sahara Africa	India	China
Population (2017 est)	7.53	1.06	1.34	1.37
Researchers/million (2015 Average)	1083	92	215	1,176
R&D exp/ % GDP (2016)	2.23	0.41	0.63	2.07
Scientific publications/% World output (2016)	2.3 million	1.1	4.8	18.5
Patents	?	233	848	1,757

Source:

<https://data.worldbank.org/indicator/IP.PAT.RESD>;

UNESCO Science Report 2015 (updated 2016)

# Introduction...

African countries need to continuously develop capabilities in applied sciences, engineering and technology, along with innovation ecosystems to translate the outputs into practical uses in society.

# PASET RSIF initiative

1. Partnership for skills in Applied Sciences, Engineering and Technology (PASET) - an initiative by African governments to address fundamental gaps in skills and knowledge necessary for long-term, sustained economic growth in sub-Saharan Africa (SSA).
2. PASET was launched in 2013 by the governments of Senegal, Ethiopia and Rwanda; later governments of Kenya and Ivory Coast joined.
3. PASET established a Regional Scholarship and Innovation Fund (RSIF) in 2015.

# RSIF objective

To build a sustainable doctoral training, research and innovation ecosystem necessary for Africa's development.

Ensuring:

1. highly skilled scientists, professionals and innovators
2. identify and nurture young talent
3. address imbalances in the number of women in PhD programs and research

# RSIF Priority themes



ICTs including big data and artificial intelligence



Food security and agribusiness



Minerals, mining and materials engineering

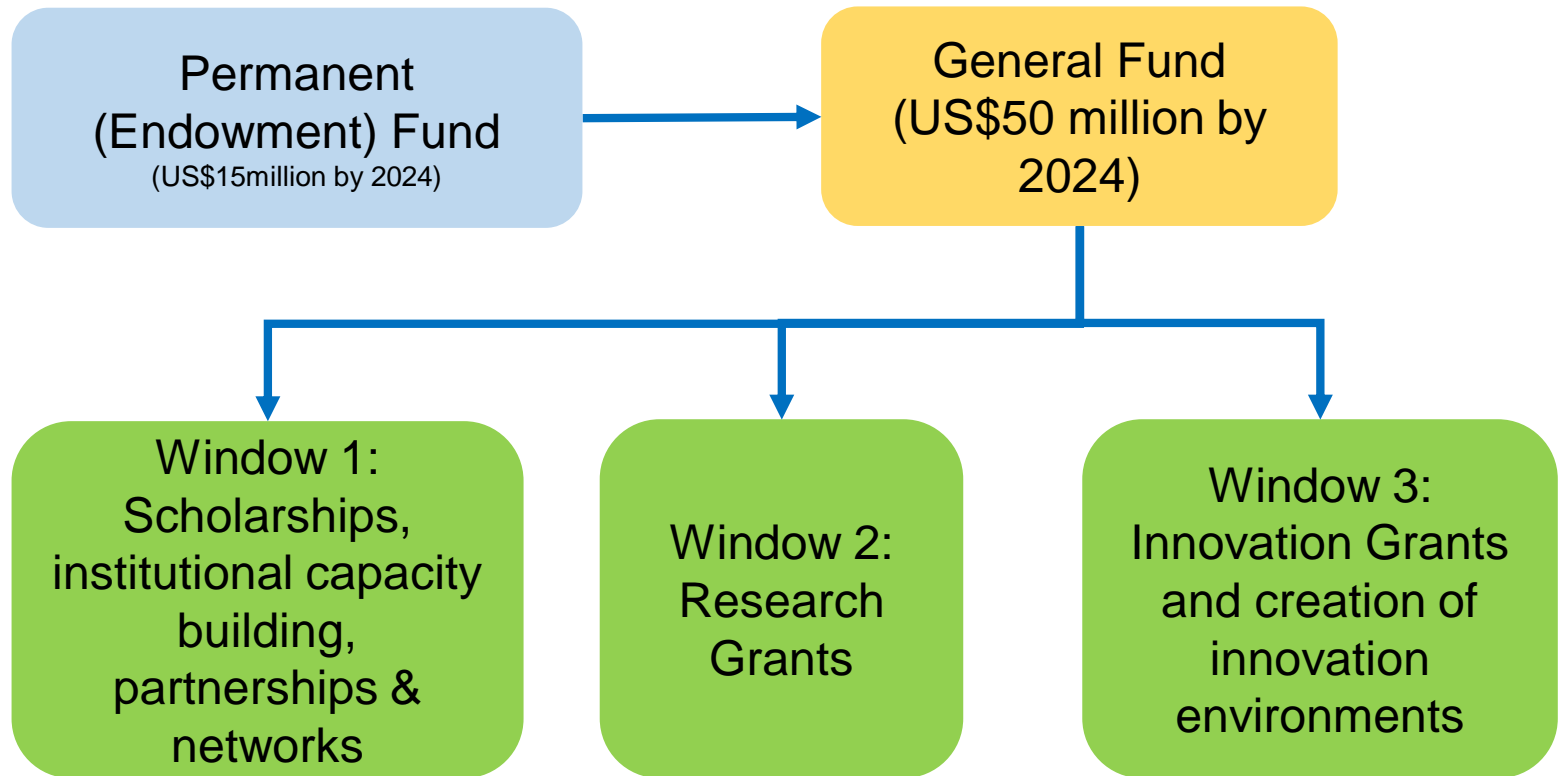


Energy including renewables

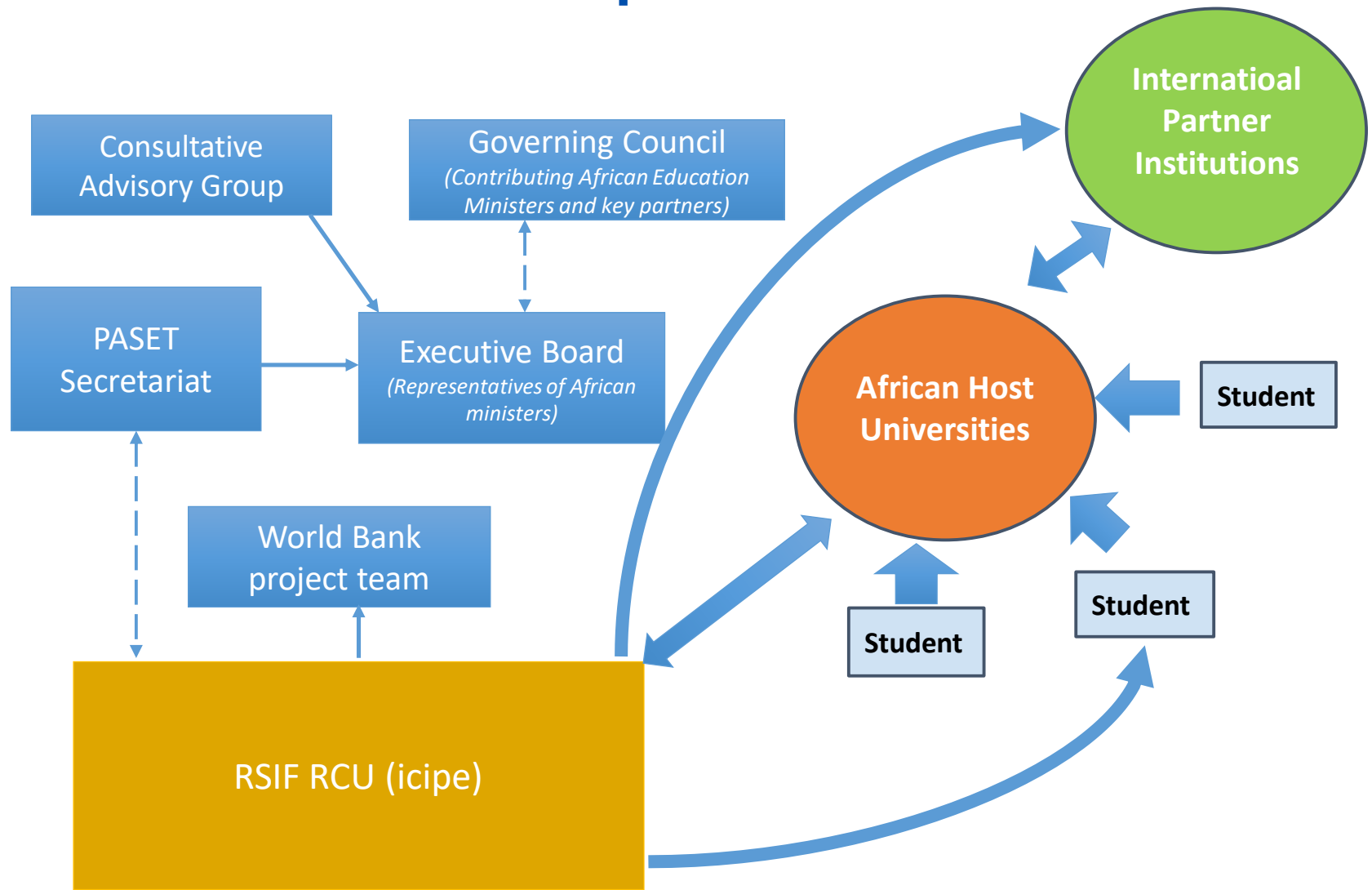


Climate change

# RSIF Design



# RSIF “Modus operandi”



# *icipe* as the RCU

- *icipe* as the Regional Coordination Unit since 2018.
- Overall planning, coordination, M&E of project activities
- Manage PhD training, research and innovation, institutional capacity building activities
- Facilitate partnerships and networks
- Manage and grow the Permanent (Endowment) and General Funds



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[www.icipe.org](http://www.icipe.org) | [www.rsif-paset.org](http://www.rsif-paset.org)



# Funding

Contributions received from Governments of Rwanda (US\$ 2M), Kenya (US\$ 2M), Côte d'Ivoire (US\$1M)



Contributions expected from Senegal, Ghana, Nigeria, Ethiopia, among others



The World Bank and the Government of South Korea are supporting RSIF through 6-year grants of US\$ 15M and US\$ 9M, respectively

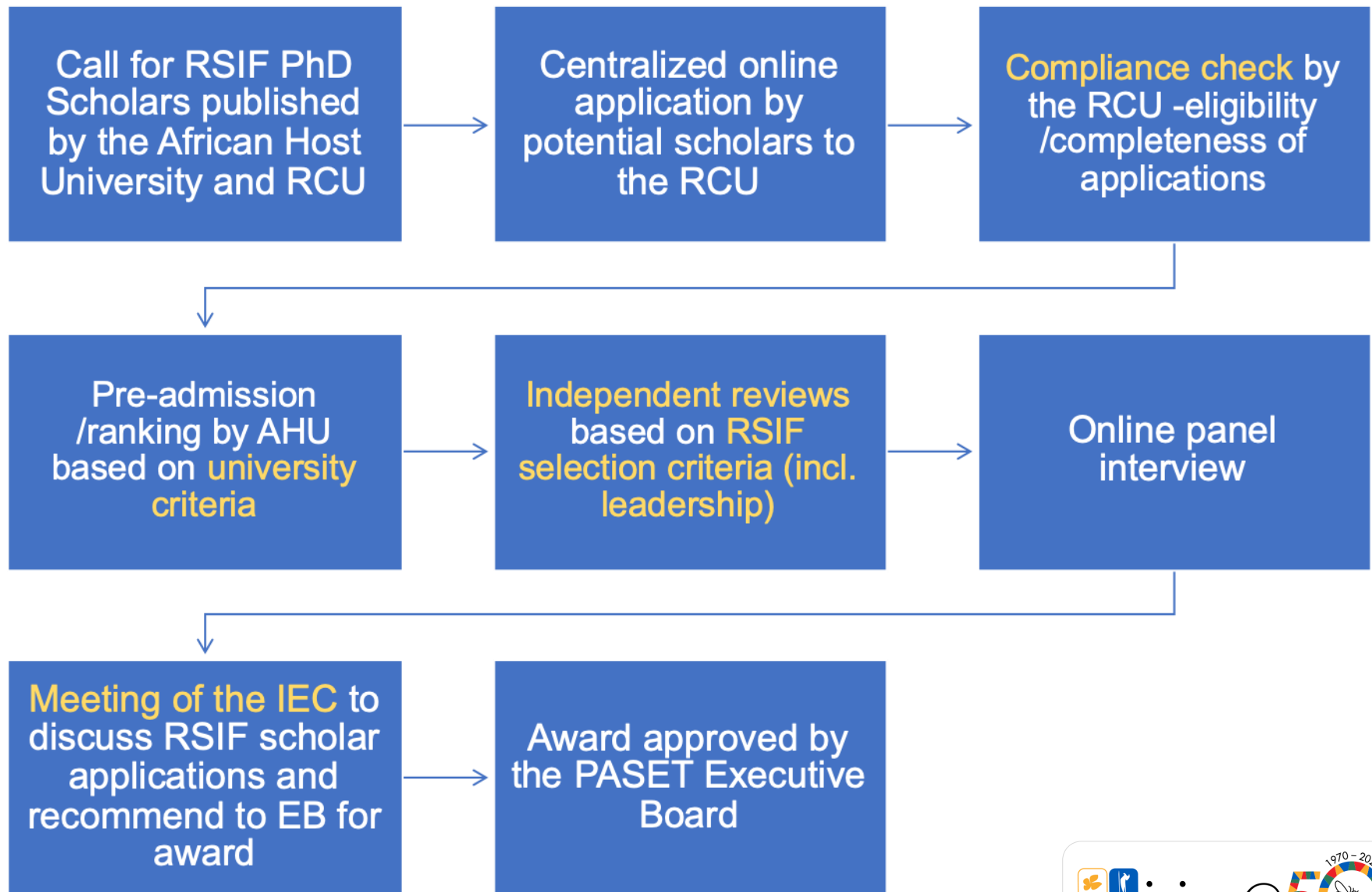


# RSIF AHU

No.	UNIVERSITY	COUNTRY	THEME
1	Nelson Mandela African Institution of Science and Technology	Tanzania	Mines, Minerals and Materials Engineering
2	African University of Science and Technology*	Nigeria	
3	University of Ghana	Ghana	Food Security
4	Sokoine University of Agriculture*	Tanzania	
5	University of Port Harcourt	Nigeria	Energy
6	University of Nairobi	Kenya	
7	University of Rwanda	Rwanda	ICT
8	University of Gaston Berger*	Senegal	
9	Bayero University	Nigeria	Climate Change
10	Université Félix Houphouët-Boigny*	Côte d'Ivoire	



# PhD Scholar selection process



# Student projections

Cohort 1: 15 students selected from 1030 students

Cohort 2: 50 students to be selected from 1752 applications

Cohort 3: > 70 students to be awarded. Advert to be circulated in January, 2020

# Mode of PhD training

## Year 1

African Host University  
(AHU)

### Up to 1 year

- Admitted to an AHU PhD program
- Matching with suitable IPI supervisor completed early in program
- Student, with support from both supervisors, develops research proposal and plan for activities at AHU and IPI
- Student begins research as required
- Completes coursework as required by AHU
- Takes TOEFL exam if required by IPI

## Years 2 & 3

International Partner  
Institution (IPI)

- **6 mths to 2 years** as a visiting scholar/ researcher
- Conducts major part of doctoral research
- Coursework as required by IPI
- Writes scientific papers

## Year 3/4

African Host  
University (AHU)

### 1+ year

- Finalise research as necessary
- Writes scientific papers
- Complete thesis
- Thesis defence is heard by both parties from AHU and IPI
- Degree awarded by AHU or jointly with IPI
- Graduation

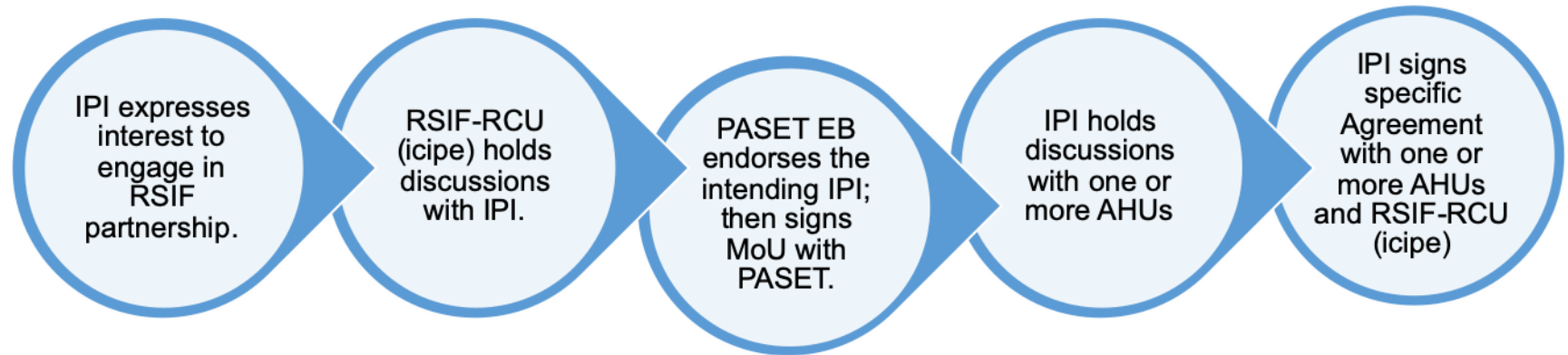
**Joint supervision** by African Host University and International Partner Institution supervisors

# International partner institutions

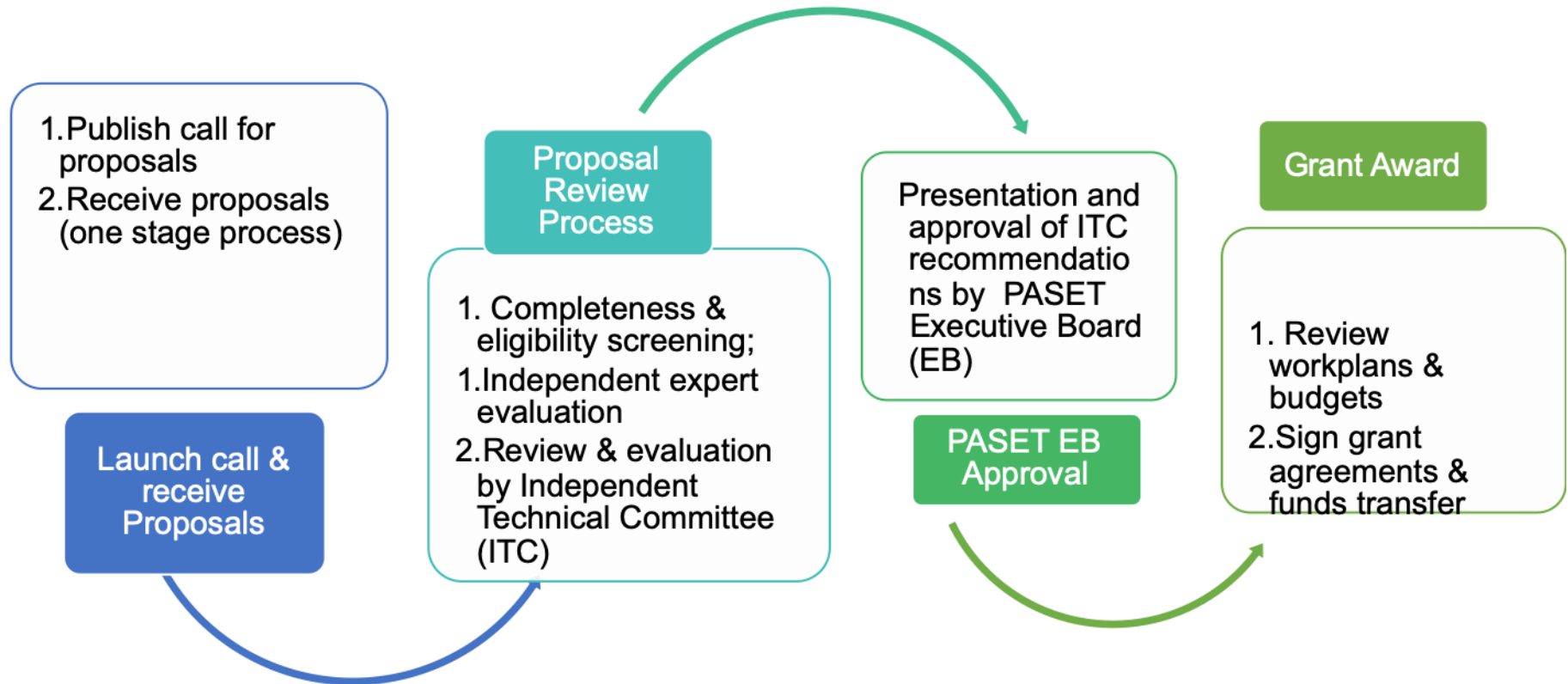
- IPIs are universities, research institutes/centers or companies (public or private)
- Institutions with strong PhD training, research & innovation in PASET thematic areas
- Experience or willingness to work with RSIF African Host Universities (AHU) in areas relevant to sub-Saharan Africa
- Can offer up to 2-year sandwich opportunities for RSIF PhD Scholars from Africa working on a research project with relevance to Africa.
- Willing to work with AHUs to improve quality of relevant PhD programs and develop research and innovation collaborations
- IPI should have an International Scholars' Office or other system for facilitating orientation and management of PhD-level International Scholars
- Etc



# Process of becoming International Partner Institute



# Research grants, innovation grants process



# Challenges to address going forward

1. How to ensure that RSIF scholars become academic leaders, researchers and innovators of the future
2. How to strengthen the selected PhD programs
3. How to use lessons from RSIF to improve broader university processes – e.g. student selection
4. How to encourage women to join PhD programs and facilitate their completion
5. How to enhance cross thematic research to achieve greater research impacts
6. How to ensure that universities and partners internalize the RSIF vision

# Conclusion

PASET RSIF is a step towards developing a sustainable model for doctoral training, research and innovation in SSA.

# Thank you



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