

# Rice research and development: Enhancing food security and resilience in Africa

*(Joint presentation by AfricaRice, IRRI and JICA)*



AfricaRice



# Rice: critical to food security and economy in Africa

## Strategic food security crop

- Fastest growing food staple (6% per year)
- Top dietary energy source in West Africa and Madagascar and 2<sup>nd</sup> in Africa

## Major challenges

Wide production-consumption gap (urbanization, changing consumer preferences)

Climate change (drought, floods, extreme temp.)

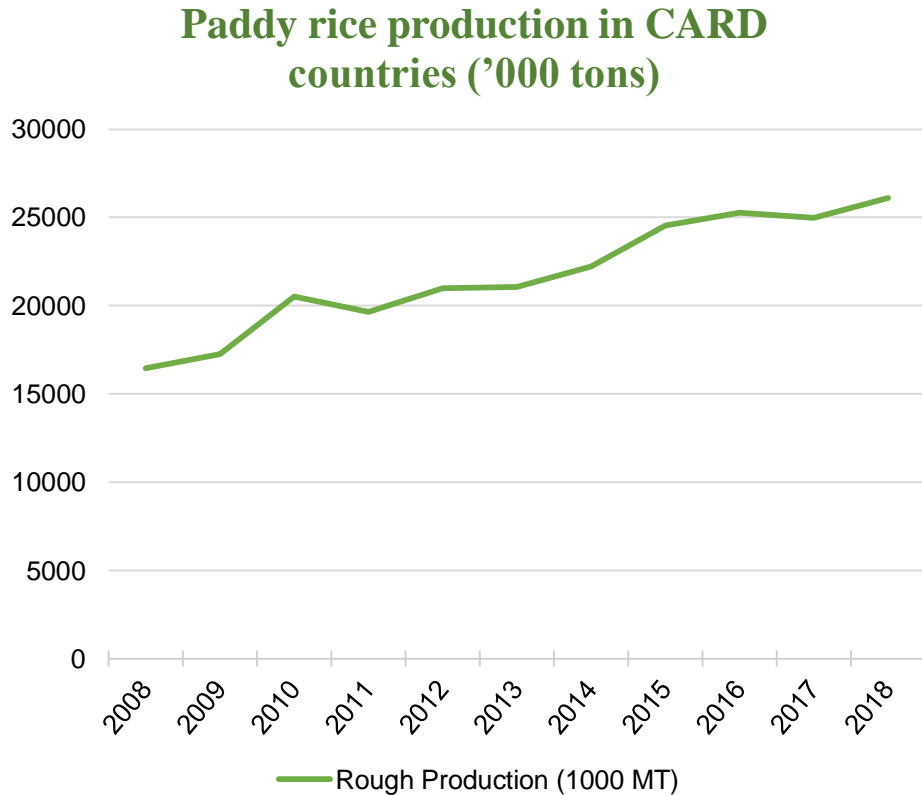


- Source of income for over 35 million smallholders
- Important for women (main labor force) and youth (employment)

- Increasing rice imports (USD6 billion in 2018)
- Need to enhance value chain performance, resilience
- Need for increased investments, policy support

# But there is a silver lining...

- **93% of CARD Phase 1 target achieved**
- **Paddy production rose to 26.1 million t in 2018 against CARD target of 28 million t**



Achievement thanks to participation of 23 CARD countries

Strong support of CARD founders:  
NEPAD  
AGRA  
JICA

CARD SC:  
AfDB, AGRA, AfricaRice, FARA, FAO, IFAD, IRRI, JICA, JIRCAS, NEPAD, World Bank, WFP

AfricaRice and IRRI, with national partners contributed:  
Improved technologies  
Policy advice  
Capacity development

# Nerica: tailor-made innovation for Africa's rainfed rice ecology

Total  
no. of  
Nericas  
: 82

- 18 upland
- 60 lowland
- 4 irrigated

Impact study in 16 countries:  
Nerica adoption

Brought food security to 7.2 million people  
Lifted 8 million people out of poverty

Major support from :  
Government of Japan,  
AfDB, UNOSSC, UNDP,  
Rockefeller Foundation, Gatsby  
Foundation

Important  
initiatives

**AfDB Multinational  
Nerica Project**

**African Rice  
Initiative**

**Interspecific  
Hybridization  
Project**



Important partners:  
AfDB, Belgium, Canada, CIAT,  
Cornell, EU, France, FAO,  
Gatsby Foundation, Germany,  
IFAD, IRD, IRRI, Japan, JICA,  
JIRCAS, Netherlands, Norway,  
NRI, Rockefeller Foundation, SG  
2000, Sweden, Tokyo University,  
UK, UNDP, UNOSSC, USA, WFP,  
World Vision, YAAS

# Improved varieties (inbreds / hybrids)

## Advanced rice varieties for Africa (Arica)

- New generation of elite rice varieties (after Nericas)
- 18 Aricas named



**Arica-3: high-yielding for lowlands (released in Mali)**

## Climate-smart varieties

- IRRI/AfricaRice STRASA project:
- 136 high-yielding stress-tolerant varieties released in 15 SSA countries (2009-2017)



**Two flood-tolerant varieties with SUB1 gene (released in Nigeria)**

## High-yielding hybrids

- Over 50 promising AfricaRice hybrids adapted to Africa
- Yield (10–13 t/ha) with good grain quality traits



**Aromatic hybrid released in Senegal (promoted by AfDB-TAAT project)**

# Smart crop management approaches and tools

## Smart-valleys approach

- **Smart-valleys: low-cost approach to develop inland valleys for rice-based systems in SSA**
- **Validated in Benin, Togo**
- **Under validation in Burkina Faso, Sierra Leone, Liberia**



**Advantages: Can increase yield from 1.5-2 t/ha to 3.5-4.5 t/ha**

## RiceAdvice mobile app

- **RiceAdvice: Android-based decision-support tool**
- **Helps farmers identify best option for fertilizer**
- **Business models being tested (youth employment opportunities)**



**Advantages: Can increase yield by around 0.5 to 1 t/ha and profitability by US\$100-200/ha/season**

# Putting energy into SSA's rice sector: small mechanization (prototypes)

Strengthening local capacity in the use, development and maintenance of equipment  
(promoted through AfDB SARD-SC and TAAT projects)

Power tiller with implements



Seeders



Motorized weeders



ASI rice thresher



GEM rice parboiler



Rice husk-based gasifier

# Capacity development

Developing capacity of rice stakeholders in Africa: vital element to transform SSA's rice sector

IRRI, AfricaRice, JICA: Strong focus on capacity development in SSA

Participants from over 20 SSA countries trained in seed systems and rice production

AfricaRice Regional Training Center in Saint Louis, Senegal

Season-long training for researchers, extension agents, and vocational training for youth

AfricaRice group training

15,790 participants (31% women) from 2008 to 2018

Topics: rice production, good agricultural practices processing, impact assessment

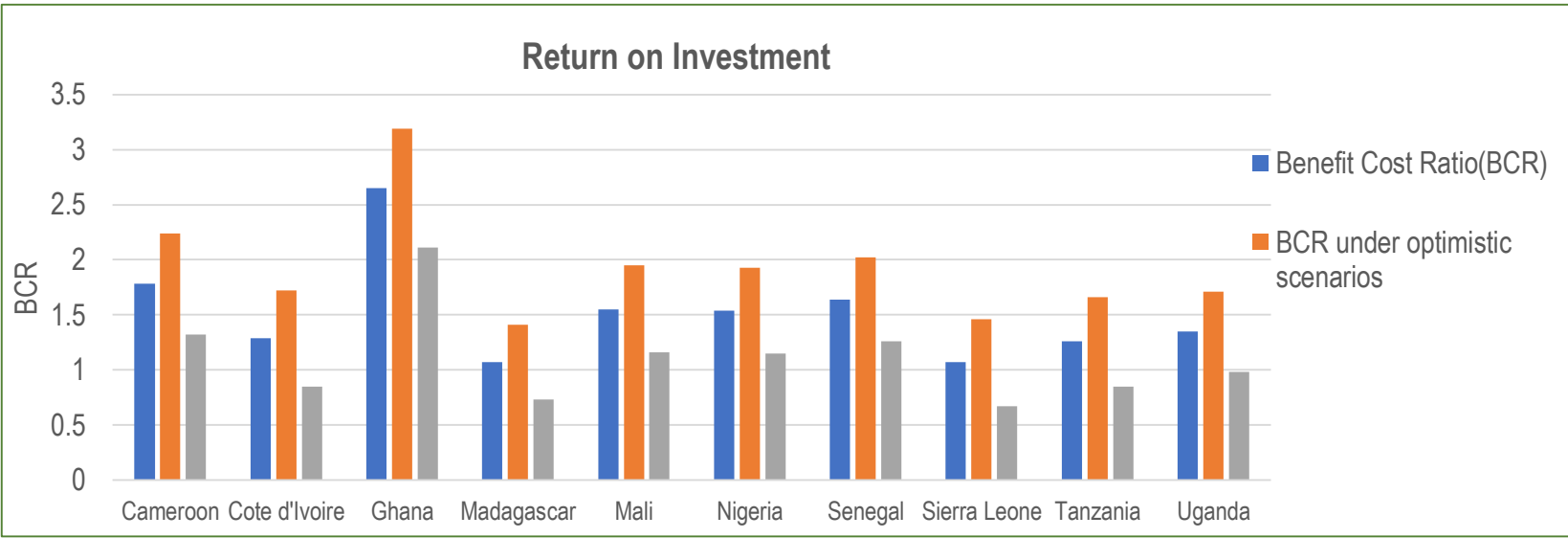
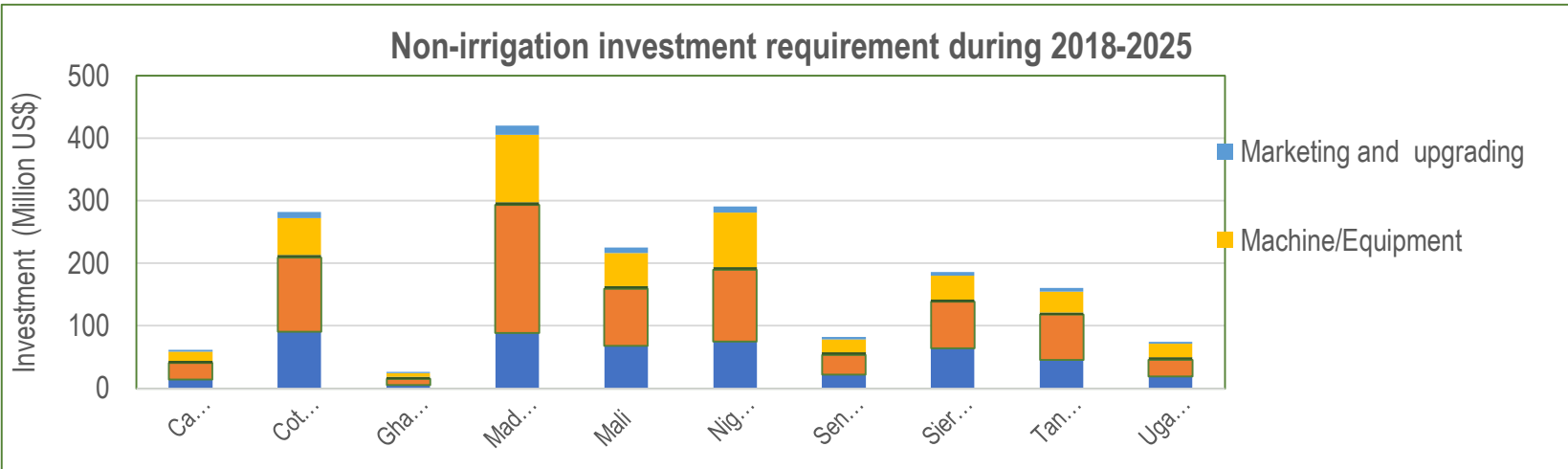




# New initiatives: accelerating rice self-sufficiency in Africa

## CIPRISSA – AfDB initiative led by AfricaRice

- Continental investment plan for accelerating rice self-sufficiency in Africa
- Evidence-based policy and investment decision-making instrument for accelerating rice self-sufficiency
- Roadmap developed for 10 SSA countries to reach rice self-sufficiency by 2025



## New initiatives: safe and healthy rice

- AfricaRice and IRRI will work together to deploy nutritious (micronutrient fortified, bio-fortified and low glycemic) rice to vulnerable populations in SSA.
- Versatile use of rice (rice and by-products) will create niche markets in Africa and contribute to the improvement of life and environment



# New initiatives: Africa Rice Village

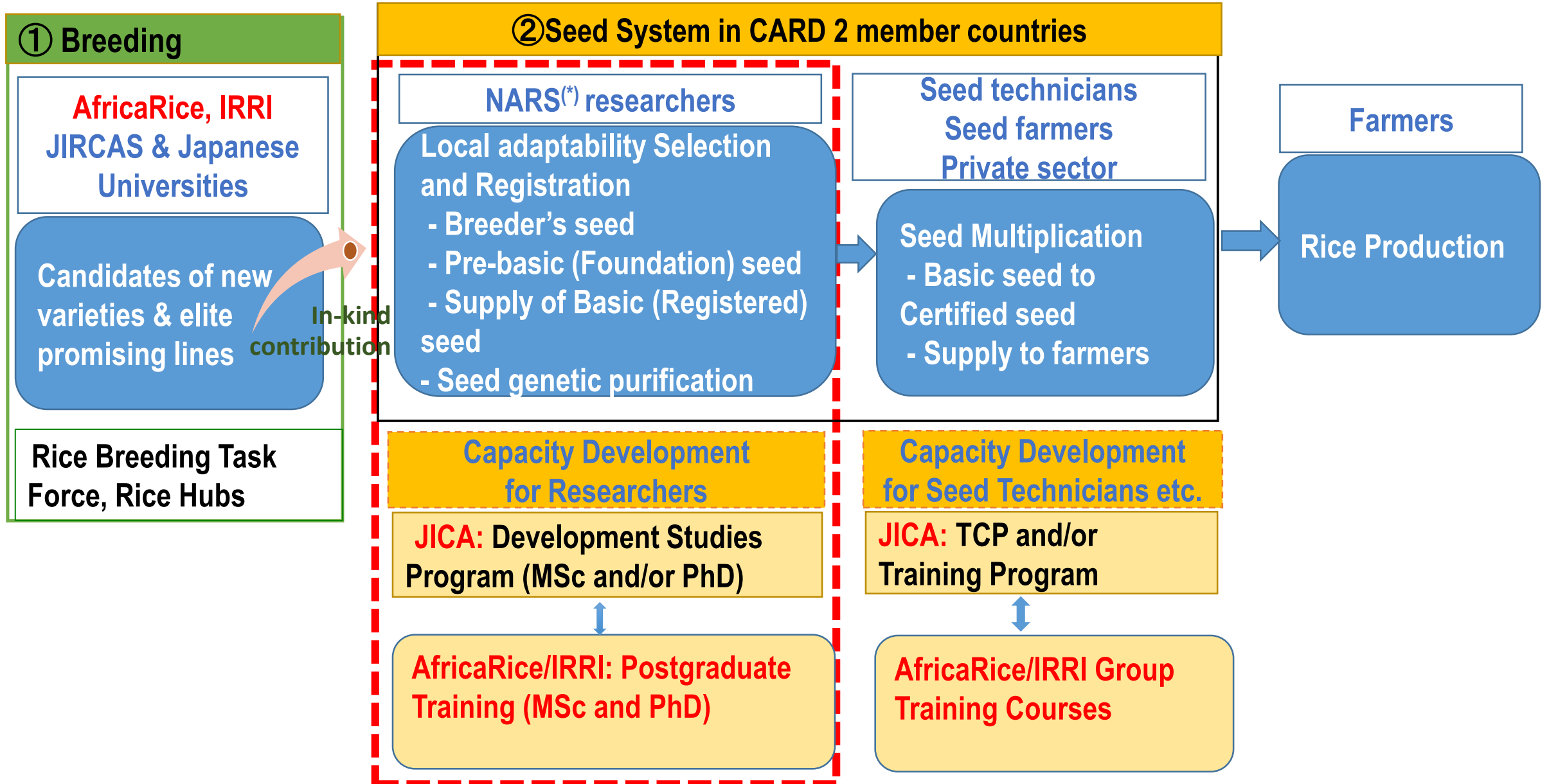
A holistic approach: connects producers, through contracts, to banks, insurance companies, input suppliers, agro-industries, using digitalization and ecosystem targeting (phygitalization)

- Mitigates risks, improves productivity, and ensures sustainability of farmers' livelihoods
- Model being piloted in M'bé, Côte d'Ivoire
- Preliminary outputs/outcomes:
  - Data generated to feed interest of finance institutions
  - Creation of business entities around women and youth

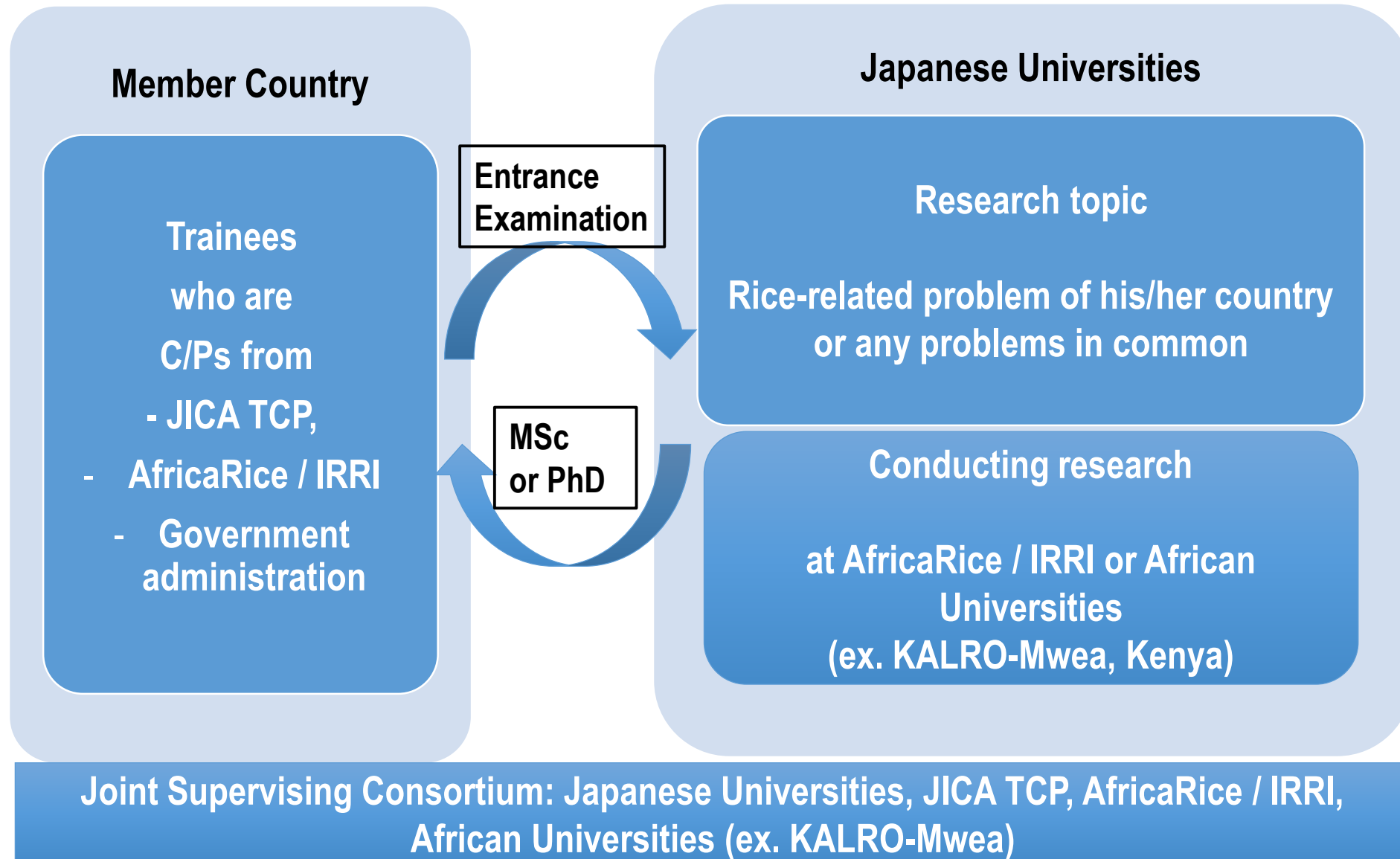


# Possible collaboration scheme in rice seed sector

Partners: AfricaRice, IRRI, JIRCAS, JICA, Japanese Universities in CARD2



# Possible capacity development scheme outline (MSc & PhD)



# On-going alliance process between AfricaRice and IRRI



**Dr Harold Roy-Macauley**  
**AfricaRice Director General**



**Dr Matthew Morell**  
**IRRI Director General**

- **Important progress made on alliance process of AfricaRice and IRRI to adequately respond to the growing challenges of the rice sector in Africa, through:**
- **A strong institutional alignment combining the comparative advantages of AfricaRice and IRRI, leading to:**
- **A single coherent and comprehensive rice research-for-development program for Africa, aligned with national priorities and goals of CARD2**
- **The support of stakeholders and funders is critical to the success of this process**

# Strong commitment to CARD2

- AfricaRice-IRRI Alliance strongly committed to working with all the partners to achieve the goals of CARD2 by aligning with the 'RICE' approach.
- Much greater attention to the development of rice seed system and its functional implementation in CARD2 member countries, and
- Multilateral collaboration among SC members of CARD2 for capacity development, esp. of rice researchers





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# Thank you