Agricultural policy and Institutional arrangements to enable climate smart rice

12 August 2025 - AfCAP Secretariat

Webinar Proceedings

1. Introduction to AfCAP & Rice CoP
2. Institutional Insights
3. Q&A
4. Plenary Reflections
5. Closing

About the African Climate Action Partnership (AfCAP)

- Global Climate Action Partnership (GCAP) Africa Regional Partnership
- A network for peer learning, technical collaboration, and information exchange.
- Supporting the implementation of ambitious LEDS strategies and Nationally Determined Contributions (NDCs).
- A country-driven, demand-driven approach to help build practitioner capacity.

AfCAP's Communities of Practice (CoPs)

1.

Africa Mini-Grids Community of Practice (AMG-COP)

Aim: Support a key network of stakeholder in creating an enabling environment for mini-grid deployment across Africa

2. 

Livestock Community of Practice

Aim: Enhance capacities for the design and implementation of long term low emissions, climate resilient development pathways (LTS) in the livestock sector across Africa

3. 

Soil Organic Carbon Community of Practice (SOC-COP)

Aim: To raise ambition in the presentation of SOC targets in future NDCs and LTS of African countries

4. 

Rice Community of Practice

Aim: To support low emission and climate resilient paddy rice production in Africa, having a collaborative network for key players to interact and share learning

About the Rice Community of Practice (CoP)

Mission:

Facilitate greater collaboration between key stakeholders, institutions and countries in the rice sector to promote low-emission and climate-resilient rice production across the continent.

About the Rice Community of Practice (CoP)

Objectives:

- Promote knowledge sharing and peer-to-peer exchanges among key stakeholders, programs, and national institutions in the rice sector.
- Encourage and support African climate champions and best practices in the rice sector.
- Support capacity development for the design and implementation of low-emission and climate-resilient rice production in Africa

Progress made

- Organised design workshop (virtual)
- Supported rice sector experts to participate in the LT-LEDS training and Africa Climate Week (2023)
- Organised a webinar on exploring collaborative pathways (2024)
- Organised an in-person event in collaboration with APRRG and SRI-2030 (2024)
- Establishment of an expert panel to support planning (2024)

Progress made

- Organised the Anglophone Regional Rice Forum in Kenya (2024)
- Launched the call for funding for baseline emissions data collection (2024)
- Organised a parallel session at the GCAP global event in Brazil (2024)
- Co-hosted a Francophone Rice Regional Forum with Africa Rice in Cote D'Ivoire (2025)
- Sponsored researchers to attending training in the Philippines on "GHG Emissions in Rice Systems: Basics of Mechanisms and Standard for Measurements" (2025)
- Organised and convened a Rice Technical Exchange Visit between TARI and key delegates from Kenya and Liberia in Morogoro, Tanzania
- Co-organised a Rice Institutional Exchange visit between AfricaRice & our Rice Seed Funding recipient Institute for Agricultural Research at Ahmadu Bello University Zaria, Nigeria

Upcoming

- One Strategic Exchange Visit
- Two upcoming Virtual Meetings (following this one)

African Climate Action Partnership

Partnering on climate action in Africa

Role of Research in shaping Climate-smart policy in the rice sector

Dr Jimmy Lamo
Senior Principal Research Officer/
Rice Breeder [NARO]

Photo from iStock-1135788525

Outline

1. Introduction
2. Research areas to address climate challenge
3. Climate smart technology deployment
4. Research case 1
5. Research case
6. Acknowledgement
7. Conclusion

Introduction

Provides evidence base for understanding climate change

Interventions

1. Sustainably increasing farm productivity and income

2. Strengthening resilience to climate change and variability.

3. Mitigating the contribution of agricultural practices to climate change through a reduction or removal of GHG emissions

FLOODED SOILS

Introduction

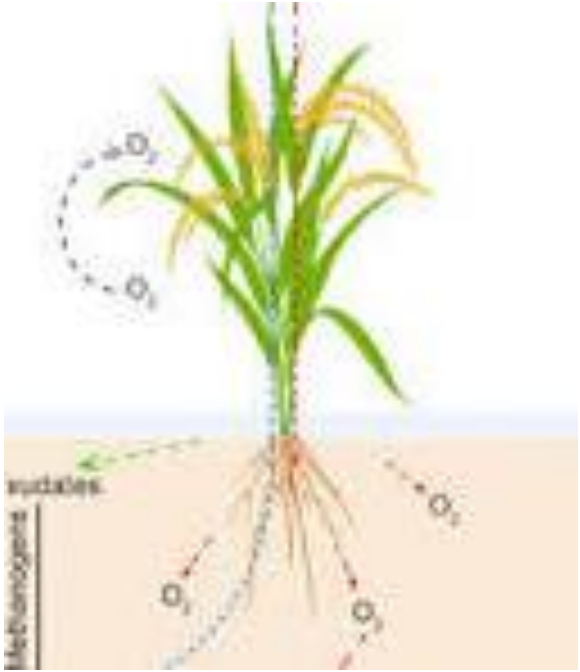
- Rice cultivation contributes to 7% of CH_4 emissions from agricultural lands.
- Methane emissions

  Flooded fields creating anaerobic conditions ideal for methanogenic bacteria. These bacteria decompose organic matter producing CH_4 as by product
- Nitrous oxide emissions

  Fertilizer use particularly N-based fertilizers in rice farming. This occurs through nitrification and denitrification processes in the soil.
- Residue management

  Burning residues releasing CO_2 and black carbon into the atmosphere

  This practice not only contributes to air pollution but also to global warming



FLOODED SOILS

Research Areas

1) Understanding Climate Change Impacts:

identifies and quantifies the effects of climate change in rice sector

assess the vulnerability of different regions through simulations of earth and prediction and populations to climate-related hazards

understanding is crucial for prioritizing climate actions and designing targeted policies

2) Developing Climate-Smart Technologies and Practices:

Research and development efforts are essential for creating innovative solutions to address climate change.

Developing Climate-Resilient Rice Varieties

i) Genetic Improvement

Speed Breeding

ii) Optimizing Water Management Practices:

Water-Saving Technologies

Waterlogging Tolerance

iii. Promoting Climate-Smart Agricultural Practices:

Direct Seeding

Conservation Agriculture

like no-till farming, crop rotations, and cover cropping in rice systems to improve soil health and reduce greenhouse gas emissions.

Integrated Nutrient Management

including balanced fertilization and organic amendments, to enhance nutrient use efficiency and reduce reliance on synthetic fertilizers.

Research areas

3) Informing Policy Design and Implementation

Impact Assessments

On rice production and the effectiveness of different adaptation and mitigation strategies.

Policy Recommendations

including incentives for adopting climate-resilient technologies, regulations on water use, and support for farmers transitioning to sustainable practices.

Evaluating policy effectiveness

refine policies and improve their effectiveness

International Cooperation

enabling countries to learn from each other's experiences and develop effective climate-smart policies.

4). Facilitating Collaboration and Knowledge Sharing

fosters collaboration among scientists, policymakers, and other stakeholders.

developing and implementing effective climate-smart policies that are tailored to specific contexts.

including scientific publications, policy briefs, and stakeholder workshops, to promote knowledge sharing and best practices.

RESEARCH

Climate smart rice deployment

1. **Policy support and financial incentives**
   - Government policies
   - Land tenure security
2. **Capacity Building**
   - Farmer training programs
   - Technical assistance
3. **Research and development**
   - Development of new innovations like low emission and high yielding varieties
   - Participatory on-farm field trials and demonstrations workshops
4. **Infrastructure development**
   - Irrigation systems to support practices like AWD
   - Storage and processing facilities
5. **Monitoring and evaluation**
   - Impact assessment
   - Feedback mechanisms
6. **Public awareness campaigns**
   - Information dissemination
   - Community workshops

Case of Climate smart rice interventions

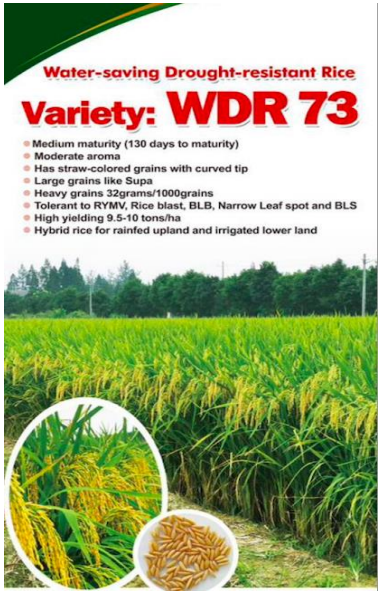
Several climate-smart rice interventions are available. Just 2 examples include:

1. Stress-tolerant rice varieties

- Food security - Drought, salinity, and submergence-tolerant varieties increase yield.
- GHG mitigation - These varieties often require fewer inputs and less water, reducing overall emissions from rice farming.
- Climate resilience - Submergence and salt-tolerant varieties maintain productivity under extreme weather events.

2. Integrated pest management (IPM)

- Food security - IPM reduces crop losses due to pests and diseases.
- GHG mitigation through reduced use of chemical pesticides.
- Climate resilience - IPM practices, such as crop rotation and biological control, improve ecosystem resilience, reducing the vulnerability of rice crops.



Acknowledgement

- NARO
- African climate smart partnership
- Methane Hub

Conclusion

1. Rice production increase associated with GHG emissions increase.
2. Rice yield in is also largely impacted by climate change.
3. Increasing rice production within environmental limits requires reducing GHG, increasing rice yield and climate resilience.
4. Climate smart rice cultivation practices have potential to increase food security and climate resilience and reduce GHG emissions.

Conclusion

Thank you

African Climate Action Partnership

Partnering on climate action in Africa

Agricultural Policy and Institutional Arrangements to Enable Climate-Smart Rice

Dr Mary Mutembei

Photo from iStock-1135788525

Outline

1. Introduction
2. Gaps
3. Role of institutions
4. Approches for scaling up adoption
5. What drives adoption
6. Challnges and recommendations
7. End

Introduction

Policies and institutional arrangements involve a combination of policy instruments, institutional frameworks, and stakeholder engagement to create an enabling environment for CSA adoption.

Policy coherence consideration:

- Incentives and disincentives
- Payments for Ecosystem Services
- Social Protection
- Regulatory FrameworkS

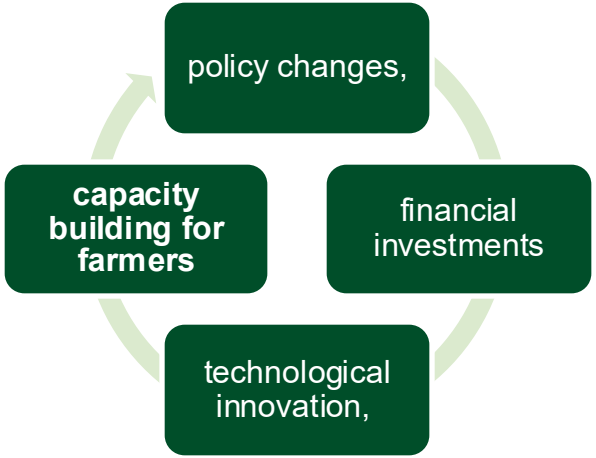
Institutional support mechanisms

- Stakeholder engagement:
- Information and knowledge sharing:
- Capacity development:
- Financial mechanisms:
- Research and development:
- Monitoring and evaluation

Gender Equity: Need to address gender inequalities: *(access to resources, information, and decision-making power*

Gaps

- Policy inconsistencies
- Limited knowledge on existing practices
- Limited access to finance for adoption and upscaling
- Inadequate monitoring and evaluation framework



Role of institutions

Institution	Role
Policy and regulatory bodies;	**Relevant Ministries:** **Agriculture:** Setting up strategies **Environment:** Setting up mitigation targets, integrate rice mitigation into national climate action plans. enforce compliance
Research and development:	Develop low-emission rice varieties, mitigation techniques (AWD, Direct Seeding, etc), M&E tools
Extension& advisory:	Train farmers on the mitigation and adaptation practices
Financial and incentive mechanisms	Carbon Credit Programs; Subsidies and Grants *Financial incentives remain low*

Approaches for scaling up adoption

Research and development

Farmer training and advisory

Partnerships (Public and private)

Value creation

Private sector initiatives

What drives adoption?

Factors such as cost-effectiveness, accessibility, and perceived benefits

Incentivizing these practices through targeted support and education may accelerate widespread adoption.

Challenges

- Low awareness and technical capacity among farmers.
- Inadequate funding and infrastructure.
- Fragmented coordination among institutions.

Recommendations

- Strengthening collaboration among agencies.
- Investment in farmer training and digital tools.
- Scaling up of pilot projects into national programs.
- Integration of GHG mitigation into agricultural subsidies and insurance schemes.

Aligning policy, research, finance, and farmer engagement, countries can reduce emissions while ensuring food security and climate resilience.


IKEA Foundation
NERICA 11
Ecology
UPLAND
Days to maturity
115 days
Yield
4-4.5ton/ Ha
Planting day
31ST March 2023
Site
Mamuri
KALRO
Kenya Agricultural & Livestock
Research Organization

Thank you

African Climate Action Partnership

Partnering on climate action in Africa

"The Importance of Building Stakeholder Alignment Across Rice Systems"

Rosemary Murori, IRRI

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IRRI International Rice Research Institute

CGIAR

- Established by the Ford Foundation and Rockefeller Foundation in 1960
- In partnership with the Government of the Philippines

>1000 staff from over **40** nationalities

> 600 research and development partners

Offices in **17** countries

IRRI 65 YEARS

The global importance of rice

Feeds
4 billion people
56% of world population

Grown by
144 million families
25% of world farmers

Annual value
$206 billion
13% of world crop value

Land Use
10% of total crop land

Fertilizer Use
15% of world total

Irrigation use
35% of world total

There is no alternative to building partnership alignments across rice systems

Institutes can't do it alone – challenges are vast, resources are limited

National research, CGIAR, private sector and scaling partners **have specific mandates**

Need to define **comparative advantage, respect mandates and strengthen ability** to deliver

By leveraging comparative advantages and strengthening partnerships – **the whole will be greater than the sum of its parts**

Areas of Work

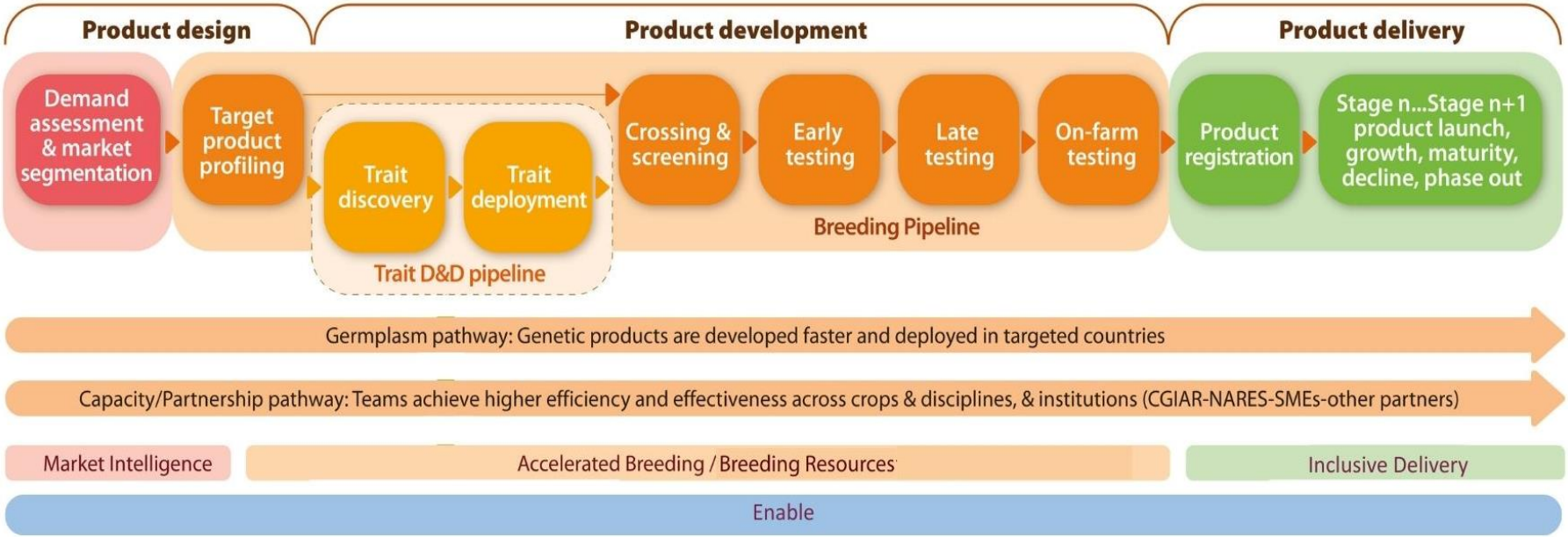
Market Intelligence

Accelerated Breeding

Inclusive Delivery

Breeding Resources

Enablers



Market Intelligence Stakeholders and why alignments?

Demand partners:
National Agricultural Research and Extension Systems (NARES)
Non-governmental organizations (NGOs)
Seed companies
Agri-business
SHF
Donors and investors

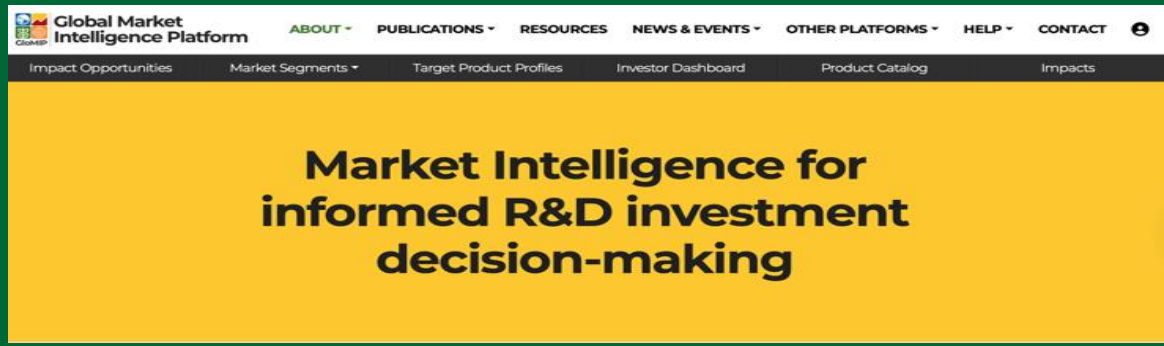
Scaling partners:
NARES
Private sector
Farmer cooperatives,
Others

Innovation partners:

Institutionalizing product design standards to ensure products **are in-demand, gender-intentional and impactful**

Better forward-looking market intelligence **= greater capacity for investment prioritization**

Better targeting and behavioural intelligence **= higher adoption and varietal turnover**



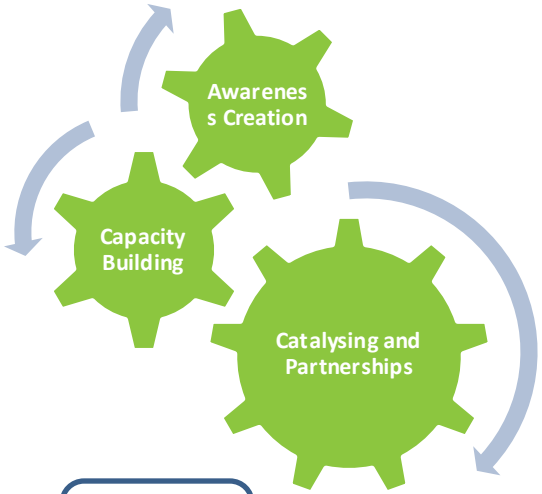
Breeding-Stakeholders and why alignments?

- Faster development of climate-resilient, nutritious, and market-preferred varieties
- Better targeted-wider adoption, impactful-greater food security
- Reduced malnutrition
- Increased income opportunities, equitable and sustainable
- Climate adaptation
- Reduced GHG emissions

Scaling partners

Position	Strategies to sustainably position quality seed within inclusive market segments
Deploy	Strategies to facilitate increased production and delivery of quality seed of improved varieties, digital tools
Track	Methods to assess and share data on varietal adoption, varietal turnover, seed replacement, and quality seed use
Power	Innovative partnerships, technical capacities, best-fit policy solution

Komboka variety in Kenya: A success story (KALRO, IRRI, MRGM, NIA, private companies, NGO, SHF)



Strategy Deployed by IRRI

Strategic intervention by IRRI, KALRO and other scaling partners (2020 – 2024)

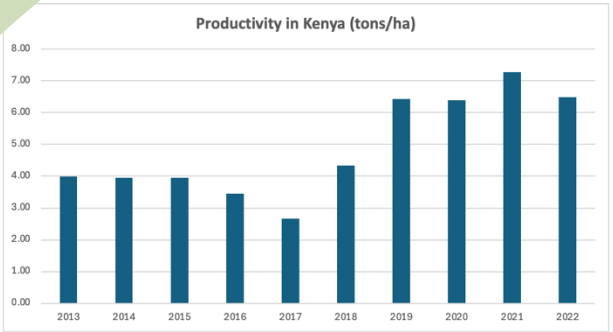
No of OFTs (eg Tricots)	**136**
No of stakeholder demos	**23**
No of seed producers trained	**98**
Value chain linkage workshops	**06**

Released in 2013

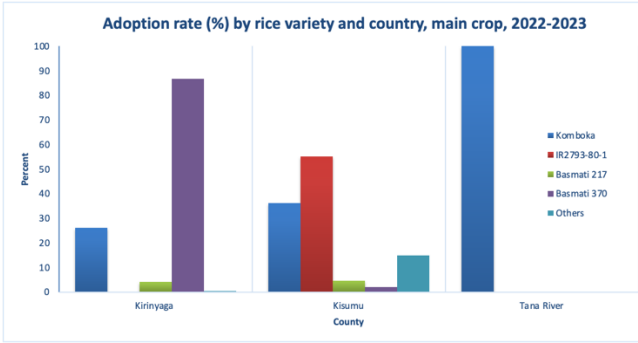
2019-20
2030 kgs of CS

2022-23
158 tons of CS
(78 times)

2024-25
400+ tons of CS
(197 times)



FAO data shows higher productivity (6+ tons/ha) over last 4-5 yrs)



A study shows 100% area under Komboka in Tana region (a new area under rice cultivation in Kenya)

Capacity strengthening of NARES and Farmers' Cooperatives in seed production

Seed dresser provided to seed producers (MRGM)

Processing method	Labor required	Quantity of seed processed (8 h)
Manual	09	1 ton
Seed dressers	**01**	**40 tons**

Thanks


Thank you for joining !
Africanclimateactionpartnership.org