



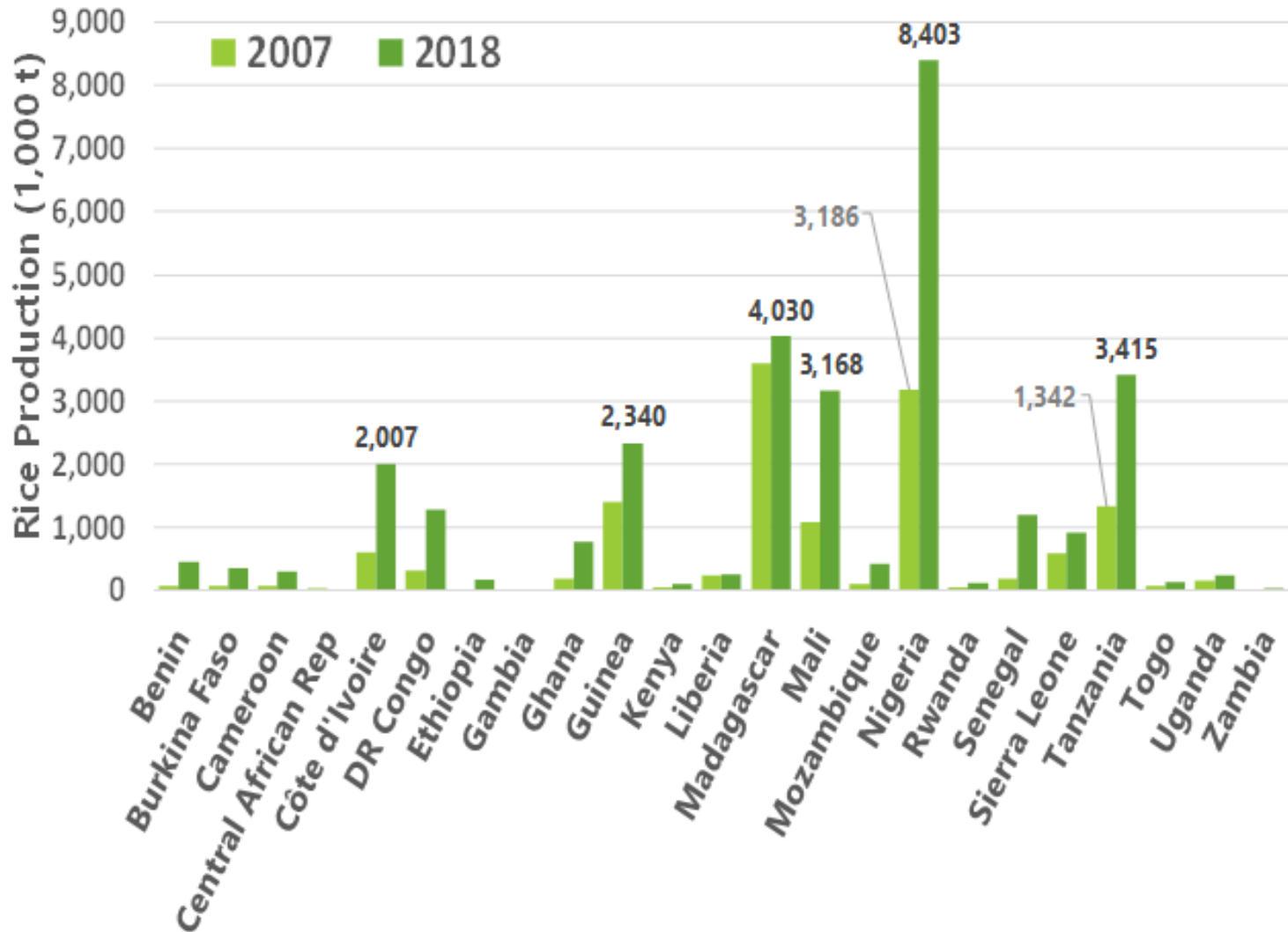
# JICA's way towards rice industry development through promoting production and marketing in sub-Saharan Africa

(CARD Side Event, TICAD8 )

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1. Achievement in rice promotion of 23 CARD member countries between 2007-2018
2. Contributing factors to rice production in six (6) best performed countries
3. Priorities shown in NRDS2 of 14 countries
4. JICA's way towards rice industry development
5. Conclusion

# Change in rice production of 23 CARD member countries between 2007 and 2018





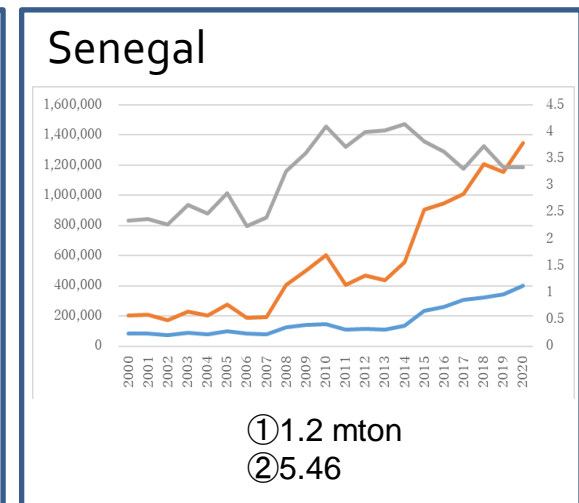
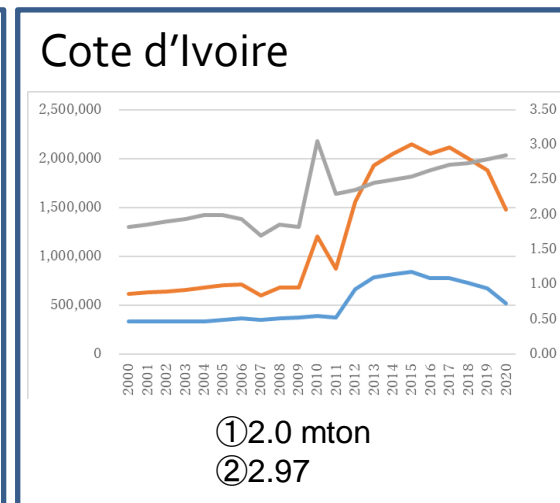
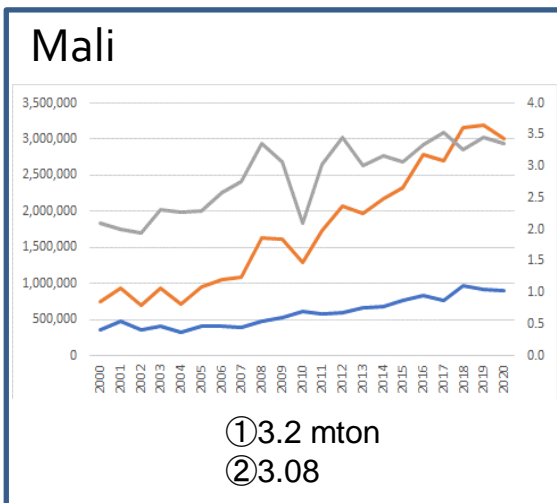
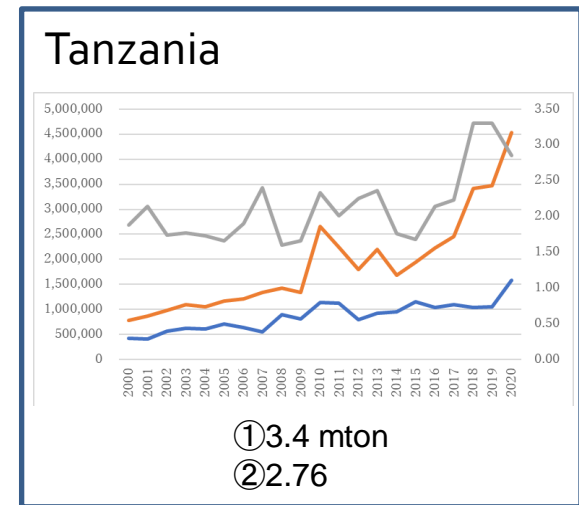
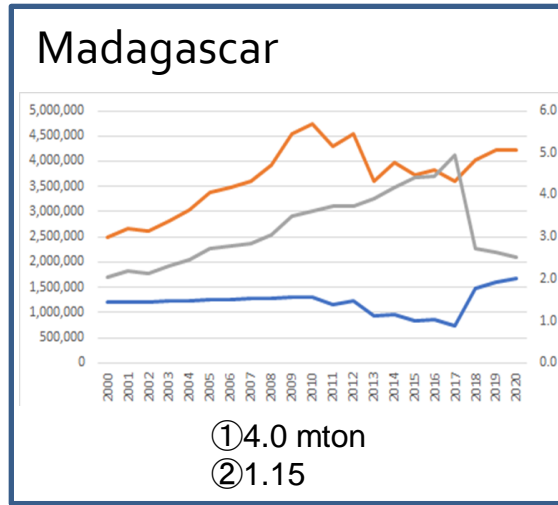
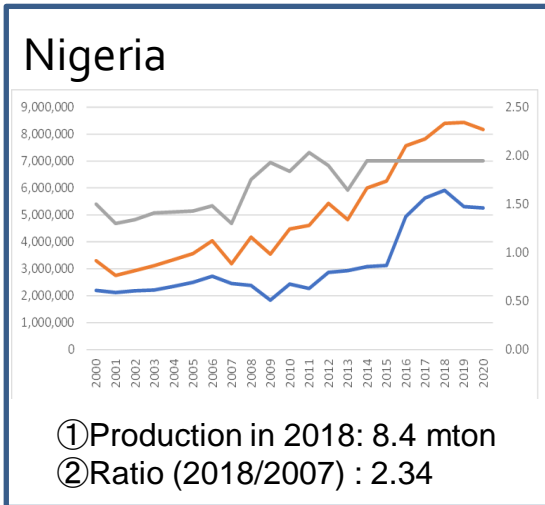
# Achievement of member countries of CARD (2007 – 2018)

(FAOSTAT accessed on March 29, 2022)

Country	Production (ton) (paddy)			Harvested area (ha)			Yield (ton/ha) (paddy)		
	Av. of 2005–2007	2018	Ratio (2018/2007)	2007	2018	Ratio (2018/2007)	2007	2018	Ratio (2018/2007)
Ethiopia	7,723	171,854	22.25	421	63,362	150.50	1.62	2.71	1.68
Benin	71,036	459,313	6.47	27,395	135,185	4.93	2.66	3.40	1.28
Senegal	220,984	1,206,587	5.46	80,312	323,635	4.03	2.41	3.73	1.55
Cameroon	63,720	300,000	4.71	68,268	244,353	3.58	1.00	1.23	1.23
DR Congo	315,830	1,286,872	4.07	418,781	1,523,168	3.64	0.76	0.84	1.12
Burkina Faso	92,044	350,392	3.81	40,534	160,949	3.97	1.70	2.18	1.28
Ghana	240,780	769,401	3.20	108,930	271,774	2.49	1.70	2.83	1.66
Mali	1,027,148	3,167,528	3.08	391,869	969,519	2.47	2.76	3.27	1.18
Cote d'Ivoire	675,380	2,006,845	2.97	356,396	732,540	2.06	1.70	2.74	1.61
Zambia	15,206	43,063	2.83	12,110	30,297	2.50	1.51	1.42	0.94
Tanzania	1,238,564	3,414,815	2.76	557,981	1,032,902	1.85	2.40	3.31	1.37
Nigeria	3,598,333	8,403,000	2.34	2,451,000	5,913,418	2.41	1.30	1.42	1.09
Togo	74,662	145,489	1.95	32,774	86,805	2.65	2.28	1.68	0.73
Kenya	58,258	112,605	1.93	16,457	25,966	1.58	2.87	4.34	1.51
Mozambique	88,417	170,129	1.92	362,100	350,000	0.97	0.28	0.49	1.71
Rwanda	62,375	113,880	1.83	15,005	32,780	2.18	4.13	3.47	0.84
Guinea	1,338,107	2,339,747	1.75	788,771	1,859,767	2.36	1.78	1.26	0.71
Liberia	183,533	257,995	1.41	160,000	238,090	1.49	1.45	1.08	0.75
Gambia	20,118	26,000	1.29	16,608	40,694	2.45	0.69	0.64	0.93
Uganda	156,333	199,266	1.27	119,000	71,806	0.60	1.36	2.78	2.04
Madagascar	3,492,048	4,030,000	1.15	1,272,030	1,480,000	1.16	2.83	2.72	0.96
Siera Leone	796,108	918,713	1.15	432,356	1,169,418	2.70	1.36	0.79	0.58
Central Africa	41,265	12,000	0.29	25,063	6,972	0.28	1.50	1.72	1.15

# Change in production, harvested area and yield

— Production(ton)    
 — Harvested area(ha)    
 — Yield(ton/ha)



## **Country reports and statistics:**

National Rice Development Strategy (NRDS)

Related documents and

## **Documents and reports:**

Steering committee:

World Bank, AfDB, IFAD, AGRA, USAID, USDA, GIZ

Research organization:

IRRI, Africa Rice, JIRCAS

Agricultural Policy Research in Africa (APRA)

JICA Technical Cooperation Project reports

JICA CARD final review assessment report, March 2018

## **Interviews:**

JICA TCP experts

Researchers

Focal points and government officials

# Contributing factors for rice production increase

	Policy	Irrigation	Quality seed	Technology	Milling & Supply chain	
Senegal	Presidential support to quality seed production (upland rice) with technical support of AfricaRice	Development of irrigation paddy fields	Seed inspection center for upland rice	Intensive cultivation in irrigated paddy fields (60% of total area)	Milling improvement for supply chain enhancement	
Mali	Policy (subsidy for fertilizer & tractor)	Small-scale and simple irrigation system	Privatization of seed production	Cultivation technology dissemination	Participation of private sector including farmer and farmers' organizations to post-harvest processing	Development of new variety and release
Cote d'Ivoire	Policy (NARO: National Rice Development Organization)	Quality seed production	Cultivation technology dissemination	Introduction of Milling machine	Supply chain platform	
Tanzania	Policy support (import tax, subsidy for agricultural input)	Irrigation development & management capacity	Agricultural mechanization (hand tractor, combine)	Cultivation technology dissemination	Privatization of millers & Improvement of milling machine – <b>Farmer's incentive for selling rice</b>	Supply chain promotion
Nigeria	Policy (VC, seed production-private sector, rice import limitation, subsidy for seed, fertilizer and pesticide)	Participatory paddy field development	National Agricultural Seed Council Act 2019	Cultivation technology dissemination	Grain quality analysis - farmer's negotiation against millers	<b>Farmer's incentive</b> (perboiled rice, quality rice grain, export promotion)
Madagascar	Agriculture Minister's initiative for PAPA Riz Technology Package dissemination	Development of irrigation field and community management of irrigation	Seed purification and use of good seed	Technology package and its dissemination		

# Factors contributing to the increase of rice production – summary of 6 selected countries

- Development of irrigation paddy field,  
ex. Mali: Promoted farmer participatory development and use of small-scale irrigation
- Enhancement of seed production, use of quality seed and promotion of privatization of seed production
- Dissemination of cultivation technology
- Promotion of supply chain starting from cultivation, post-harvest treatment, quality check of paddy by farmers in particular and marketing



**lead to the sensitization of farmers' motivation towards rice production**



1.

14 countries (as of May 2022) :

Angola, Benin, Burkina Faso, Central Africa,  
Ethiopia, Guinea Bissau, Kenya, Mali,  
Mozambique, Nigeria, Tanzania, Rwanda,  
Sudan and Togo

CARD(<http://riceforafrica.net>)



# Priority technology and activity planned in NRDS2 of 14 countries as of May 2022

Technology and activity	Country number														Remarks (over 8 score)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Breeding															Researcher
Seed production															Seed purification, CS, seed inspection
Technology (upland)															
Technology (lowland)															Development, soil management, pest management
Agricultural material (Fertilizer)															Supply and access
Agricultural material (Pesticide)															Supply and access
Irrigation															Rehabilitation, water management by community, development of irrigation paddy field
Agricultural mechanization															Farm mechanization, mechanic center, Private sector
Postharvest															Milling, postharvest loss, storage, grain quality, privatization
Marketing															Quality improvement of domestic rice, value addition (branding), VC development
Technology transfer, dissemination															Dissemination method, dissemination capacity
Human capacity building															Research and technology dissemination
Agricultural finance															Farmers
Governance, organization															Farmers' organization
Others															Infrastructure of farm areas, land ownership

14 countries: Angola, Benin, Burkina Faso, Central Africa, Ethiopia, Guinea Bisau, Kenya, Mali, Mozambique, Nigeria, Tanzania, Rwanda, Sudan and Togo

## **Seed production**

- ❑ Seed production and sale

## **Cultivation technology**

- Cultivation technology – development and improvement, fertilization, soil management, etc.
- Agricultural materials (fertilizer, pesticide): supply and access by farmers
- Irrigation and water management
- Farm mechanization and enhancement of farm infrastructure
- Technology transfer and dissemination

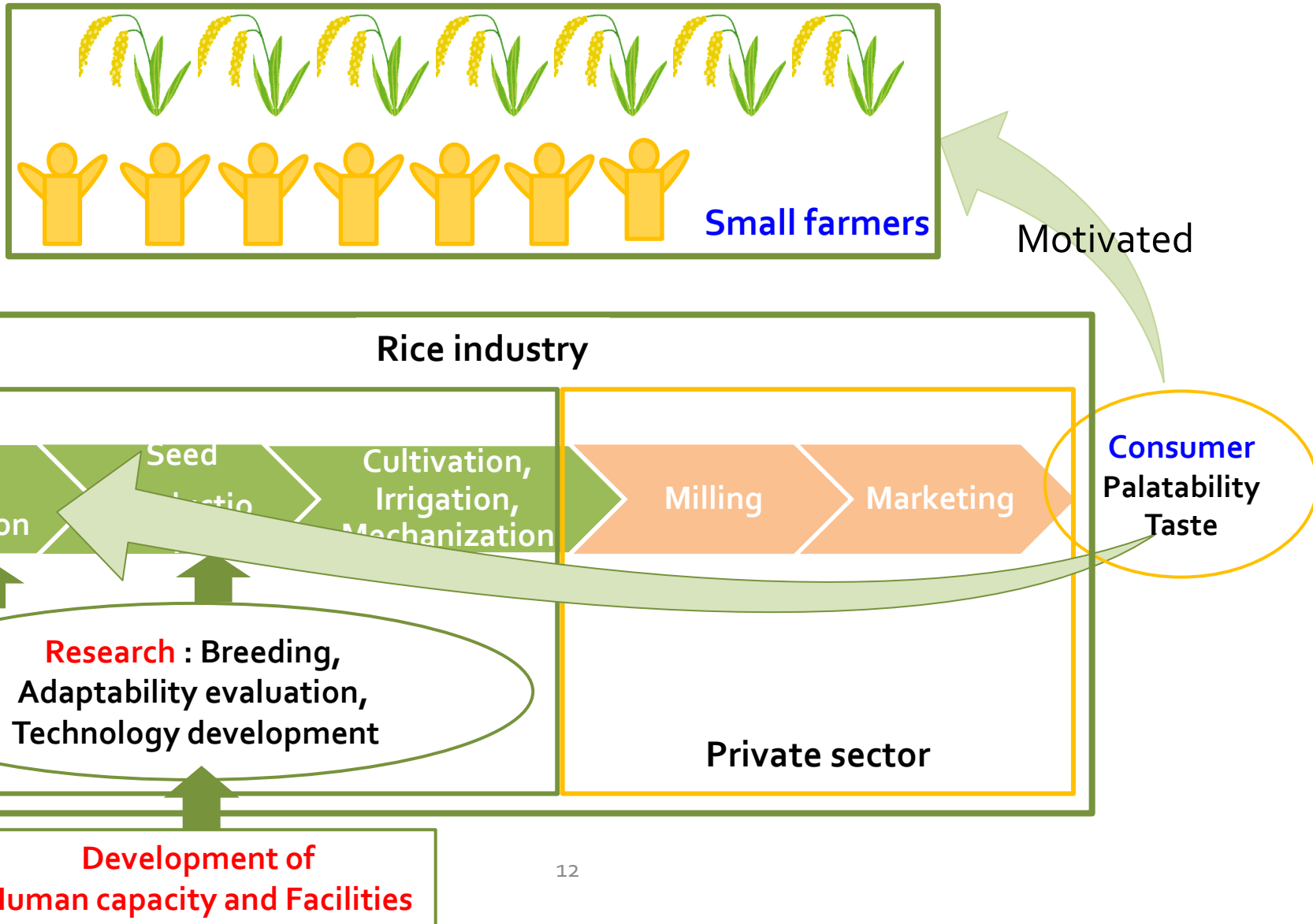
## **Post-harvest to supply chain**

- Post-harvest technology –milling, storage, quality improvement
- Supply chain enhancement

## **Capacity development**

- Human capacity development for research and dissemination

# Concept of rice industry



## Basic concept:

1. **Farmer is a real actor** - strengthening the sensitization of farmers' motivation towards rice production
2. **Quality and marketable rice production** - convincing farmers to enjoy rice production through enhancing income generation by proper operation of the rice industry
3. **Human capacity development of researchers and officials**— leading rice production by county- or locality- adaptive technology developed by her people because agriculture is totally environment-dependent activities

## ***(Resilience)***

- Seed production system
- Estimation of potential location and area for upland rice, NERICA
- Small-scale irrigation paddy development with water management capacity
- Farm mechanization with farm infrastructure development

## ***(Industrialization)***

- Enhancement of milling capacity

## ***(Competitiveness)***

- Selection of adaptive rice variety and dissemination of cultivation technology

## ***(Empowerment)***

- ◆ Enhancement of human capacity development
- ◆ Integration of policy and technology



# Estimation of potential location and area for upland rice, NERICA

■ **Postulated cultivation calendar:** **Sowing** at the beginning of rainy season; **Heading and Harvesting** at 70 and 100 days after sowing, respectively

■ Soil					
	Not suitable	Suitable	Very Suitable		
Soil pH	< 4.5 or 7.0 <	4.5 – 5.5	5.5 – 7.0		
■ Drought damage risk					
	Not suitable	High	Medium	Low	
Rainfall during 0–100 days after sowing	< 15mm/5days	15–20mm/5days	20–25mm/5days	25mm/5days <	
■ Cold damage risk					
	Not suitable	Very high	High	Medium	Low
Mean temperature of 55–75 days after sowing	< 15°C	15°C–17°C	17°C–19°C	19°C–22°C	22°C <
■ Risk in high temperature sterility					
	Not suitable	Very high	High	Medium	Low
Mean maximum temperature of 55–75 days after sowing	50°C <	45°C–50°C	40°C–45°C	35°C–40°C	< 35°C
■ Risk in vegetative growth damage					
	Not suitable	High	Medium	Low	Good growth
Mean temperature of 0–55 days after sowing	<12°C or 50°C <	12°C–16°C or 45°C–50°C	16°C–19°C or 40°C–45°C	19°C–25°C or 35°C–40°C	25°C–35°C
■ Risk in grain filling damage					
	Not suitable	High	Medium	Low	Good grain filling
Mean temperature of 76–100 days after sowing	< 10°C or 50°C <	10°C–18°C or 43°C–50°C	18°C–20°C or 36°C–43°C	20°C–22°C or 30°C–36°C	22°C–30°C

## Grant Aid for CARD Promotion

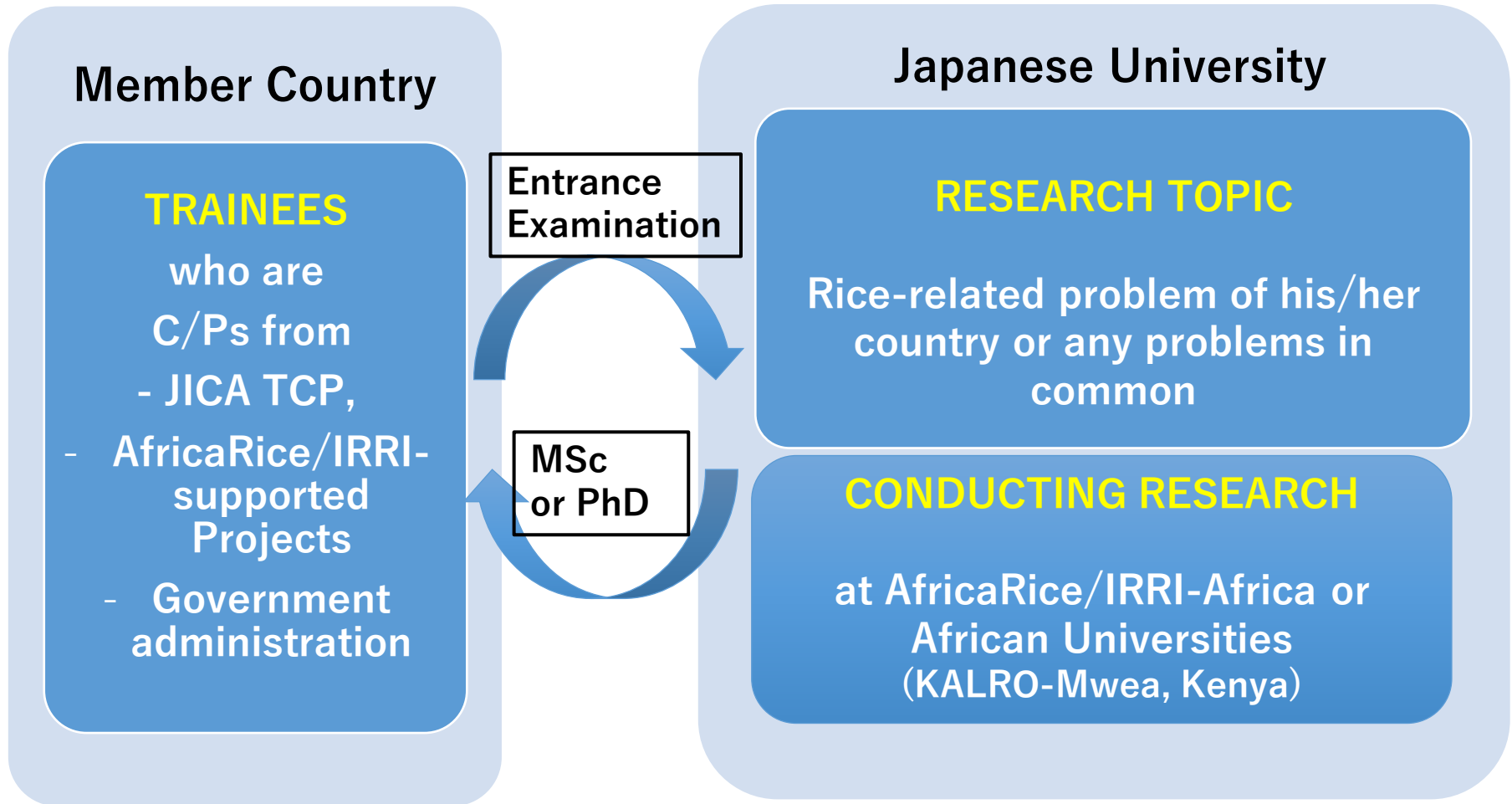
- Aimed at improving in the **seed production facilities**, provision of agricultural machines, experimental equipment, etc.

## Regional Hubs for Agricultural Mechanization

(Africa Field Innovation Center for Agricultural Technology (**AFICAT**))

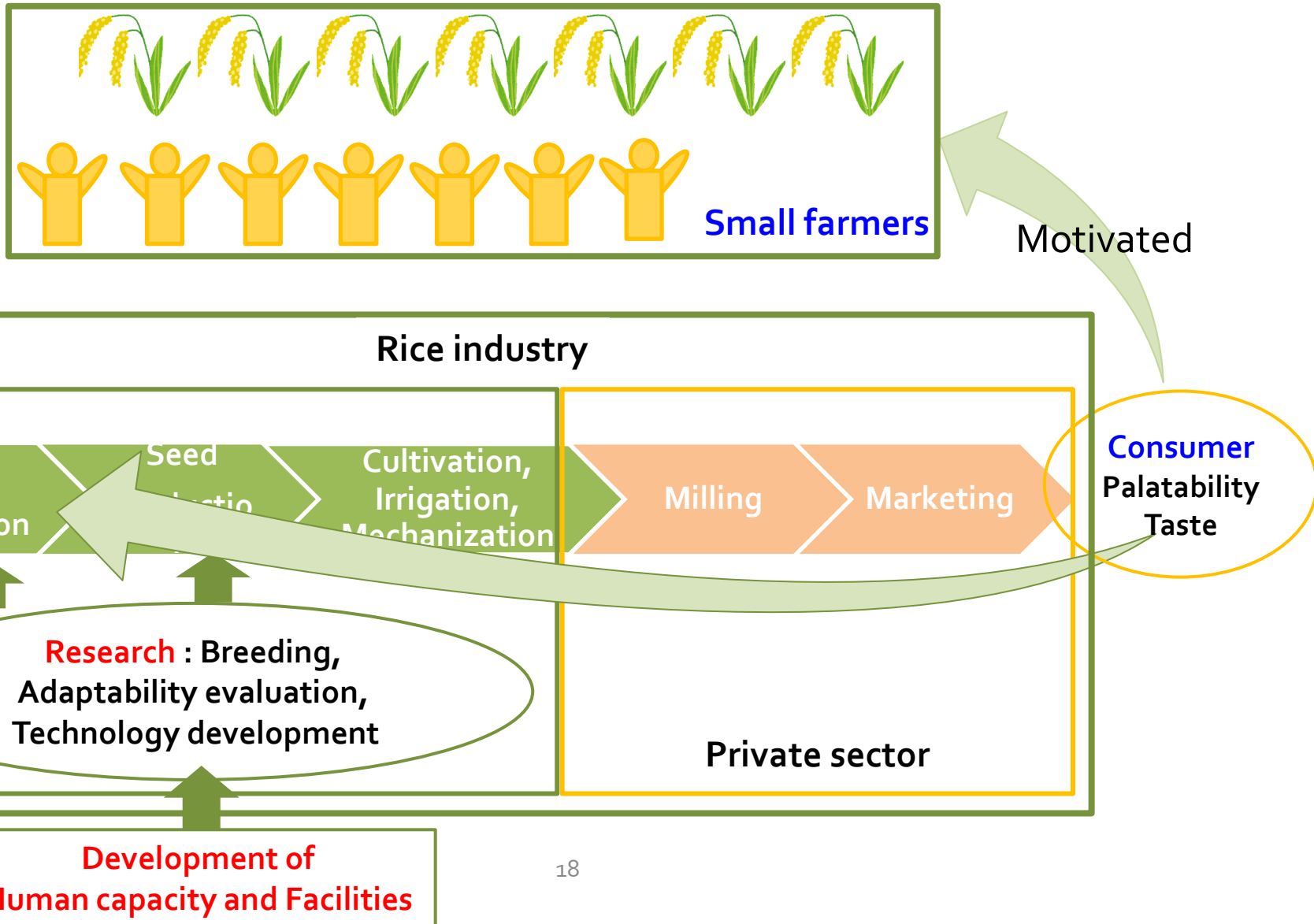
- To be implemented through public-private partnership
- For promotion of advanced technologies including agricultural machinery by Japanese private companies, in East Africa (Kenya and Tanzania) and West Africa (Cote d'Ivoire, Ghana and Nigeria)
- African private companies will be also involved.





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# Concept of rice industry



*Towards the goal of NRDS2 and beyond!*

Thank you very much for your attention.