

# Japan and AfricaRice

**Focusing on rice grain quality:** Right from the beginning of the collaboration, Japan has contributed greatly to the areas of rice post-harvest processing and grain quality. JICA helped establish the Grain Quality Laboratory at the Center's permanent headquarters in Côte d'Ivoire in the early years. JICA post-harvest processing and grain quality experts were seconded to the Center almost continuously from 1978 until 2000 and hundreds of national scientists and extension agents in sub-Saharan Africa (SSA) have been trained in this field. The issue of grain quality in rice breeding for Africa has gained even more importance since the turn of the millennium as locally produced rice needs to rival imports in terms of quality if domestic production is to stem the flow of imported rice into the region.

**Closing Yield Gaps:** Rice yields in farmers' fields are still far below what would be possible with improved management. The Africa-wide Rice Agronomy Task Force serves as a platform for enhancing productivity in rice-based systems through the introduction of good agricultural practices (GAP). As part of this Task Force, a Japanese agro-physiologist from AfricaRice has developed the protocols that are currently being used in 15 countries by national research institutions in SSA to analyze yield gaps and their determinants, in both rainfed and irrigated rice growth environments. He has also trained national partners in this field.

**Promoting 'RiceAdvice' app to bolster rice yield:** In 2006, Japan through MOFA supported a 1-year project to disseminate a customized crop management decision support tool – called RiceAdvice developed by AfricaRice – in Nigeria and Mali – to help improve rice productivity, maximize rice farmers' investment potential and catalyze youth employment.

This tool helps farmers apply mineral fertilizer more efficiently in order to optimize production and profits and reduce waste. The adoption of RiceAdvice recommendations can increase rice yield by about 20%, leading to an increase in profitability of about \$200 per hectare per season.

**Introducing Sawah Technology:** As part of the Smart-valleys project, supported by MAFF, the Sawah technology has been successfully adapted in Togo and Benin in close association with farmers, where it has shown promising results. After two years and with modifications for local conditions, farmers adopted the system and saw rice yields under rain-fed conditions increase from 1.5-2 tons per hectare to 3.5-4.5 tons per hectare. After its success in Benin and Togo, it is also being rolled out in Burkina Faso, Sierra Leone and Liberia.

**Improving Food Security Information in Africa:** A 3-year project was launched in 2013 with financial and technical support from Japan's MAFF to improve the food security information system in Africa through the generation of quality rice data and information. This has added value to the existing endeavors undertaken so far towards the goal of improving the availability and reliability of rice statistics in support of the objective of the CARD initiative.

**Capacity building:** Strengthening capacity of national partners is central to the partnership. Scientists and technicians selected from African national programs have greatly benefited from the Japan Capacity Building Program for African Agricultural Researchers. The Center has also benefited from Japan's Young Scientist Fellowship Program, which supports Japanese scientists to work at CGIAR Centers. The newly established Capacity Development Unit at AfricaRice, which boasts of a newly built training Center at the Station in St Louis, Senegal, will play a strong role in enhancing degree training and rice value chain actors' training in Africa.

**Emergency support:** In times of food crisis in SSA due to soaring prices, or natural disasters or epidemics, Japan, through MOFA, has provided emergency support to improve farmers' access to rice seed to vulnerable farmers. Through emergency rice projects implemented by AfricaRice, over 205,000 vulnerable farmers in 27 SSA countries have benefitted from this support and over 2,700 t of certified seed have been produced and distributed to farmers along with agricultural equipment (rice mills, threshers, power tillers, reapers). AfricaRice is leading the Japan-funded project to support Guinea through rice seed production and distribution to prevent the occurrence of social unrest and food insecurity due to natural disasters.

Japan  
and  
AfricaRice  
Over 35 Years of Strategic  
Partnership for Rice  
Development in Africa

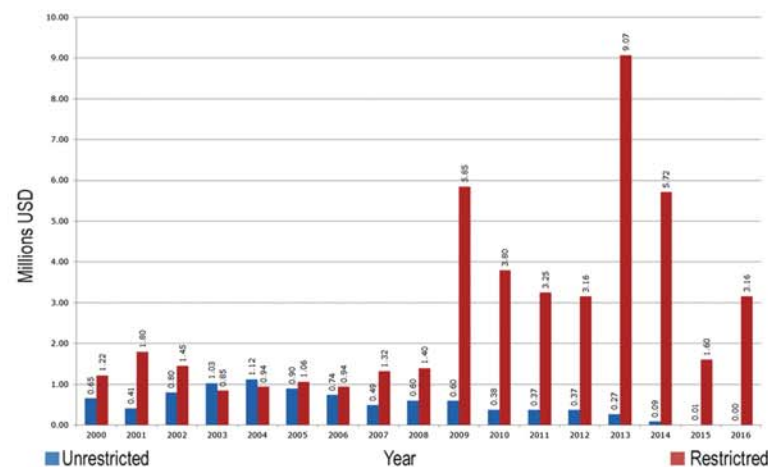


Japan has been a leading supporter of rice research for development in Africa for over 35 years through its strategic partnership with the Africa Rice Center (AfricaRice), which is the only CGIAR Research Center with African ownership.

Japan and AfricaRice have been working together with national partners across Africa. The products of this strategic partnership have benefitted millions of smallholder rice farmers and consumers across Africa, contributing to poverty reduction and food security in the continent.

AfricaRice is an active steering committee member of the Coalition for African Rice Development (CARD) – a joint initiative of JICA and AGRA – launched in 2008. AfricaRice and JIRCAS have been among the key architects of the Global Rice Science Partnership, a CGIAR Research Program on rice, that was led by IRRI. The Japan-AfricaRice partnership will continue to be actively involved in the new CGIAR Research Program "Rice Agri-Food System (RICE)".

AfricaRice gratefully acknowledges the substantial support provided by Japan through unrestricted and restricted funding channeled through Japan's Ministry of Foreign Affairs (MOFA), the Ministry of Agriculture, Forestry and Fisheries (MAFF) and the Ministry of Finance (MOF).



#### Japanese Board Members at AfricaRice

- M. Iwanaga, President, JIRCAS, 2011 – 2017
- K. Maruyama, Vice President, NARO, 2007 – 2011
- T. Horie, President, NARO, 2001 – 2007
- R. Ishii, Prof., University of Tokyo, 1995 – 2001
- T. Takeda, Prof. Emeritus, Kyushu University, 1989 – 1994

#### Japanese Scientists at AfricaRice

- A. Tanaka, Agronomist, AfricaRice, 2013 – Feb 2017
- T. Kumashiro, GDI Program Leader, AfricaRice, 2010 – 2015
- K. Saito, Agrophysiologist, AfricaRice, 2005 – to date
- K. Futakuchi, SPE Program Leader, AfricaRice, 1997 – to date
- S. Abe, Soil Scientist, AfricaRice, 2008 – 2013
- Y. Saigenji, Socio Economist, AfricaRice, 2010 – 2011
- T. Takita, Seed specialist, JICA, 2009 – 2011
- Y. Sokei, Agronomist, JICA, 2005 – 2011
- R. Ikeda, Seed specialist, JICA, 2005 – 2009
- H. Tsunematsu, Geneticist, JIRCAS, 2001 – 2002, 2004 – 2009
- H. Samejima, Geneticist, JIRCAS, 2005 – 2009
- T. Sakurai, Agriculture economist, JIRCAS, 1999 – 2003
- S. Tobita, Physiologist, JIRCAS, 1998 – 2001
- H. Watanabe, Processing, Grain quality expert, JICA, 1996 – 2000
- M. Takeda, Processing, Grain quality expert, JICA, 1988 – 1993
- H. Miyaishi, Processing, Grain quality expert, JICA, 1982 – 1987
- M. Kita, Processing, Grain quality expert, JICA, 1979 – 1981
- T. Akutsu, Processing, Grain quality expert, JICA, 1978 – 1980
- K. Furugori, Processing, Grain quality expert, JICA, 1978 – 1980

# Japan and AfricaRice

Scientists from the Japan International Cooperation Agency (JICA) and the Japan International Research Center for Agricultural Sciences (JIRCAS) have been working almost on a continuous basis at AfricaRice since 1978. There has been active research collaboration with Kyoto University, University of Tokyo, National Institute of Agrobiological Sciences (NIAS) and Kinki University.



The challenge is huge in Africa, where rice is the fastest growing food staple. Despite significant increases in rice production in several African countries over the last few years, the continent depends heavily on rice imports and remains vulnerable to food crises.

Also Africa is facing new global challenges such as climate change and rising food (rice) prices. In this changing environment,

#### Recent and ongoing Japan-funded projects implemented by AfricaRice and its partners

| Donor | Title of Project  | Duration            |
|-------|---|---------------------|
| MOFA  | Developing tailor-made varieties adaptable to African environments and strengthening the rice value chain (Japan earmarked/attribution project) | Annual              |
| MOF   | Seed support to Guinea  | Mar 2018 – Mar 2019 |
| MOFA  | Japan RiceAdvice West Africa  | Feb 2016 – Mar 2017 |
| MAFF  | Unlocking the genetic potential of an orphan crop species, African rice ( <i>Oryza glaberrima</i> ), for sustainable agriculture in Africa      | Apr 2016 - Mar 2018 |
| MAFF  | SMART-valleys   | Oct 2014 - Sep 2019 |

#### Development and release of a new generation of elite rice varieties:

A rice breeding project was implemented by IRRRI and AfricaRice from 2010-2015 with support from the Policy and Human Resources Development (PHRD) Fund of the Government of Japan, administered by the World Bank). The objective of the Africa component of the project was to accelerate the development and deployment of a new generation of elite rice varieties, after the NERICAs.

Based on Africa-wide evaluation, the Africa Rice Breeding Task Force identified high-performing rice varieties that outperformed the best varieties cultivated in the target environments. These varieties were nominated as the Advanced Rice for Africa (ARICA). Eighteen (18) ARICAs have been nominated and participatory varietal selection (PVS) involving farmers. This has helped to speed up the release of 14 ARICAs in 10 countries.

**Unlocking the genetic potential of African rice:** Africa's smallholder rice farmers need improved rice varieties that are resilient to climate change. The African rice, *Oryza glaberrima*, is known to be tolerant to several abiotic stresses that are prevalent in Africa. A 3-year project funded by MAFF through the Crop Trust was launched in January 2016 to exploit the genetic potential of *O. glaberrima* to enhance tolerance of rice cultivars to two major stresses, namely heat and stagnant flooding.

The diversity within *O. glaberrima* is being characterized to identify superior donors that could be used in breeding for heat tolerance. Three best *O. glaberrima* accessions with superior tolerance to stagnant flooding (that is important in the rainfed lowland environment under climate change) have been identified and are being exploited in breeding superior rice varieties.

#### Developing tailor-made varieties adaptable to African environments and strengthening the rice value chain:

Funded by the Ministry of Foreign Affairs (MOFA), this annual earmarked (attributed) project seeks to contribute to achieving the goal of CARD to double Africa's rice production in 2018 compared to the production in 2008.

The project's objectives are 1) to develop rice varieties with high performances under African environments; 2) to develop improved cultivation technologies. Market information is collected to assist the set-up of breeding targets and consumers' preferences for locally produced rice.

#### NERICA: Japan-AfricaRice Flagship Product

"The New Rice for Africa" or "NERICA," which is the flagship product of this strategic partnership, is now a household name in Africa – a name that stands for good rice. The NERICA families of varieties came from crosses between *O. glaberrima* and Asian rice (*O. sativa*). A total of 18 upland NERICA and 60 lowland NERICA-L varieties have been developed.

The development, adaptation and dissemination of the NERICAs through the participatory varietal selection (PVS) were supported by the Interspecific Hybridization Project (IHP), which was launched in 1997. Japan's MOFA was the major donor to the IHP, through the United Nations Development Programme's Technical Cooperation among Developing Countries. Japanese breeders and physiologists working within and outside AfricaRice were actively involved in the IHP.

JICA scientists along with many development partners have facilitated the dissemination of NERICA varieties across SSA. An impact study led by AfricaRice shows that NERICA has contributed to lifting about 8 million people out of poverty in 16 African countries. A highly conservative estimate of the extent of NERICA production throughout SSA in 2011 is 1.4 million hectares.