



# AfricaRice

## Strategy of the Rice Seed Service Unit (RSSU)

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### Context

Improved rice varieties with higher yield, biotic and abiotic stress tolerance/resistance, and market preferred traits, have significantly contributed to the well-being of smallholder farmers and rice consumers in general. The benefits from using improved varieties depends among others – on the availability and access to quality seed, and at an affordable price.

In response to demand for improved rice varieties, AfricaRice has developed over 200 rice varieties with tolerance to several biotic and abiotic stresses over the last 30 years. Many of these varieties have been released in countries across sub-Saharan Africa through the Africa-wide Rice Breeding Task Force. Despite this, most farmers – especially smallholder farmers – are still unable to access most of these varieties. The weak systematic approach to rice seed systems development as defined in the new breeding strategy and operational plan of the Genetic Diversity and Improvement (GDI) Program, has in part, contributed to the slow delivery of these improved varieties to rice farmers in Africa. In addition, there is limited involvement of the private seed sector including seed enterprises (small, medium, big) to sustain and advance quality rice seed production and distribution. Private sector seed enterprises have proven to be a sustainable and effective means for variety dissemination and farmer access to quality seed.

AfricaRice has embarked on partnership with private seed enterprises which, in general, is geared towards strengthening the rice seed value chain. The initiation of this partnership is based on the need to respond to the repeated request – by rice value chain stakeholders in AfricaRice member countries – for quality rice seeds of improved varieties. This suggested the need to produce larger quantities of breeder and foundation seed each year. Although there is a potential market for quality rice seed at country level, clear projections on requirements over time and space are lacking. Present efforts at promoting the advantages of using quality seed of improved varieties are inadequate.

In general, lack of regular planning in anticipation of seed demand, and appropriate budget allocation for seed production and distribution, affect the supply of quality seeds. Inadequacy in infrastructure such as storage, seed cleaning and processing facilities affect quality of seed produced. The situational context of variety maintenance and breeder seed production still need to be further improved at AfricaRice and in the countries. Many improved rice varieties have been developed by the center, but variety maintenance and regular supply of required quantities of quality breeder seed, remains a challenge. This has eventually resulted in inadequate supply of quality rice seed – especially the widely cultivated varieties, and 'new' ones.

In view of the critical importance of quality seed in disseminating improved and adapted varieties, there is need to rectify the existing situation. It has therefore become imperative to establish a 'rice seed service unit' within the Rice Sector Development (RSD) Program that will handle the routine production of adequate quantities of breeder and foundation seed; variety maintenance; facilitation of partnerships in the seed sector – especially with seed enterprises and companies; supporting advocacy for appropriate policies in partnership with sub-regional organizations; capacity building for stakeholders; and information and knowledge exchange among others.

### **General objective**

To build the capacity of the seed value chain stakeholders in the production and distribution of quality seed of improved rice varieties and hybrids, to enhance the productivity and competitiveness of the rice value chain in sub-Saharan Africa.

### **Specific objective**

To enable the production of breeder and foundation rice seed in partnership with national seed systems and seed enterprises and companies, to further produce certified and or quality declared seed for commercialization among smallholders and commercial farms.

### **Implementation and structure**

The rice seed strategy envisages the creation of a Seed Service Unit (RSSU) within the RSD Program that will strongly collaborate with the GDI program and its facilitated Africa-wide Breeding Task Force. The AfricaRice operational plan for rice varietal development and delivery outlines the connection between breeding activities carried out by the GDI program and seed delivery efforts by the RSD program (Figure 1). At the end of the breeding task force evaluation, the best lines are selected and nominated for release. The responsible breeder prepares and deliver nucleus seed, showing 100% genetic purity along with descriptions of major morphological characters for purity check in the field, to the Line Maintenance and Multiplication (LMM) manager. Seed experts in the RSD program receive pure breeder seed from the LMM manager and coordinate production of foundation and certified seeds by scaling partners (public and private) based on market demand.

The breeding strategy anticipated that financial resources for seed production will be pooled together from all the relevant projects, and coordinated action plans for seed production will be developed annually. However, this is yet to be happen due to the weak planning and coordination of activities between projects with elements of seed production – partly because no clear seed unit exists – and to which – such matters can be explicitly referred to.

In the medium to the long term, the Seed Service Unit will be nurtured – handholding – to a full-fledge independent seed service – capable of mobilizing funds and resources to sustain itself without the need to consistently draw on the center's 'restricted and or unrestricted funds'. A multidisciplinary and sector implementation approach through partnerships with public and private sector entities will be pursued. The unit will be responsible for the production and provision of breeder and foundation seeds and where necessary and in partnership with seed enterprises and companies as well as the national seed services, support the production of certify seeds by seed businesses.

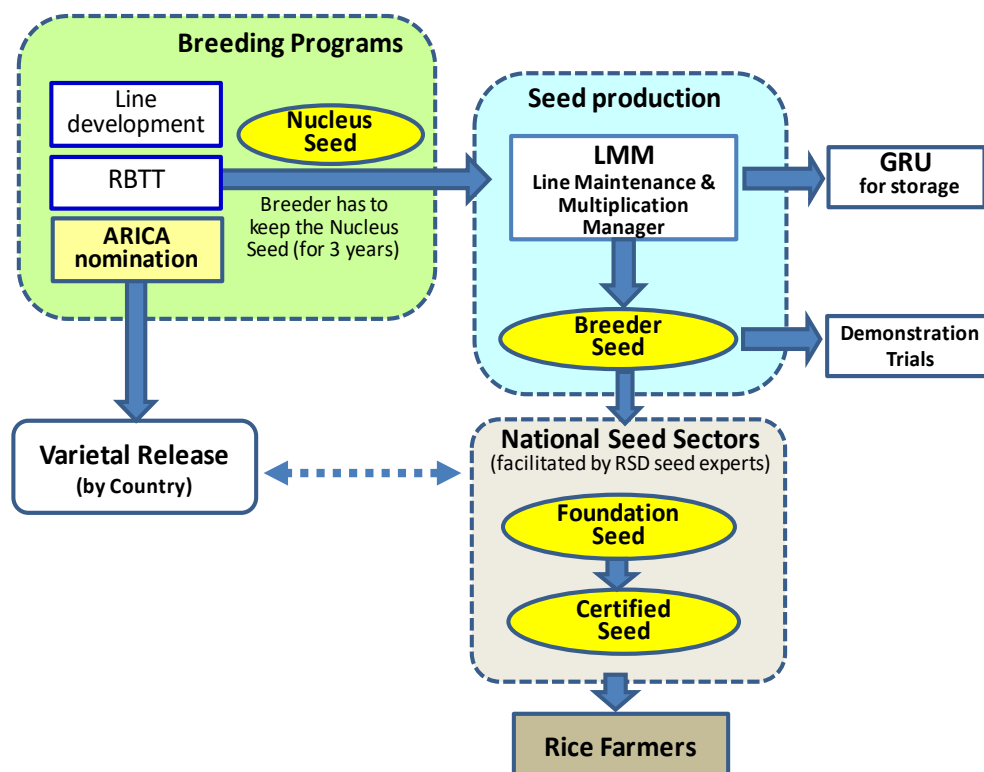


Figure 1: Linking GDI and RSD programs to stimulate diffusion of improved varieties.  
 Source: *Rice varietal development and delivery at AfricaRice – A new operational plan*

The core functions of RSSU will be: (i) Rice seed production; (ii) Capacity building and information and knowledge sharing; and (iii) Consultancy service.

#### i. Rice seed production

Through this activity, farmer access to quality rice seed will be facilitated. Advice on adequate investments by the public and private sectors in seed production and processing equipment will be provided.

These will be achieved through the following activities:

- Maintain breeder seeds of lines / improved rice varieties and hybrids developed by the breeders in the Genetic Diversity Program (GDI) and the Africa-wide rice breeding Task Force;
- Produce and maintain foundation seed of elite rice varieties and or widely cultivated improved varieties and hybrids that have high commercial value for food and nutrition security;
- In collaboration with national seed programs and seed entrepreneurs, facilitate seed distribution/commercialization of improved rice varieties and hybrids;
- Ensure compliance with seed exchange regulations and international standards on germplasm exchange for traceability of the seed;

- Monitoring of quantities of seed distributed by AfricaRice to scaling partners and collate data on amount of foundation and certified seeds produced by partners at the national and regional level on semi-annual and annual basis.

The expected outputs include:

**Output 1.1:** At least 81 tons of breeder seed of 10 AfricaRice elite varieties produced and/or maintained by AfricaRice by end of year 3; and 550 tons of foundation seed of popular and improved rice varieties are produced by AfricaRice, national agricultural research institutions (NARIs) and seed enterprises by the end of year 3 (Table 1).

**Output 1.2:** System put in place in at least three countries for effective monitoring of seed distribution by end of year 3.

**Table 1.** Amount of seed (t) produced/maintained at AfricaRice

Seed class	Year 1		Year 2		Year 3		Total (t)
	Season 1	Season 2	Season 1	Season 2	Season 1	Season 2	
<b>Breeder seed</b>							
G0	0.5	0.5	0.5	0.5	0.5	0.5	3
G1	1	1	1	1	1	1	6
G2	2	2	2	2	2	2	12
G3	10	10	10	10	10	10	60
<b>Total Breeder seed</b>	<b>13.5</b>	<b>13.5</b>	<b>13.5</b>	<b>13.5</b>	<b>13.5</b>	<b>13.5</b>	<b>81</b>
<b>Foundation seed</b>		50	100	100	100	200	550
<b>Grand Total</b>	<b>13.5</b>	<b>63.5</b>	<b>113.5</b>	<b>113.5</b>	<b>113.5</b>	<b>213.5</b>	<b>631</b>

## ii. Capacity building and information and knowledge sharing

Through this activity, seed sector players will increase their knowledge, competence and skills on improved seed production practices to maintain quality of seed. Thematic courses and vocational training on quality rice seed production and marketing will be organized based on curricula developed for the AfricaRice regional training center in St. Louis, Senegal. The capacity building and information and knowledge activities will include:

- Demonstrate new / elite rice varieties including hybrids for widespread dissemination and adoption in the rice hubs by smallholders and commercial farms in partnerships with seed entrepreneurs;
- Sensitizing farmers, input dealers and other seed sector players on the benefits of using and renewing certified seed through appropriate media;
- Train and support farmers, seed entrepreneurs and national seed programs to produce, maintain quality rice seeds of improved varieties for national and regional markets;
- Train national seed programs, regulatory agencies and seed enterprises in seed quality assurance and control.

The expected outputs include:

**Output 2.1:** Farmers' awareness of improved varieties and hybrids and use of quality rice seed is enhanced

**Output 2.2:** Capacity of farmers, national seed programs and seed entrepreneurs to produce quality rice seed enhanced

**iii. Consultancy service**

Through this activity, a sustainable seed system will be established in target countries through institutional skills strengthening in the rice seed sector. This will be achieved through the following activities:

- Proactively and innovatively support seed entrepreneurs in market intelligence on quality rice seed acquisition by governments, NGOs, commercial farms, and other rice value chain stakeholders;
- In partnership with seed entrepreneurs and where appropriate – larger scale commercial seed companies, innovatively promote the commercialization of new / elite and or popular rice varieties including hybrids;
- Develop sustainable business model(s) for the promotion of seed of improved rice varieties and hybrids as well as traditional popular varieties;
- Facilitate appropriate strategy on intellectual property rights (IPR) for hybrid rice deployment among other elite varieties developed by AfricaRice;
- Contribute to the development and or enhancement of regional seed legislation frameworks and strategies through sub-regional organizations and platforms;
- Facilitate the development of a Market Information System to widely promote quality rice seed within and across countries in collaboration with seed enterprises and farmer seed producers – and where appropriate – large scale commercial companies;
- Provide technical support to national seed programs in developing seed roadmaps for each of the target countries showing how foundation and certified seed production and dissemination will be organized and financed by identified partners.

The expected outputs include:

**Output 3.1:** Commercialization of new / elite and or popular rice varieties including hybrids with seed entrepreneurs promoted

**Output 3.2:** Market information system on seed availability and demand put in place in at least 3 countries by end of year 3



**Proposed staffing (subject to the unit raising funds to cover the positions)**

- 1 Secretary
- 1 Accountant
- 2 Research Assistant 2 (Breeder seed - Information / Foundation)
- 4 Field Technicians:
  - 1 Breeder seed and Characterization
  - 2 Foundation seed production
  - 1 Processing and Storage
- Seed experts and innovation
  - 1 Seed production specialist
  - Innovation specialist for scaling and impact
  - 2 Marketing and demand creation