

**Project Title: Fostering the Impact of Rice Technologies for better Livelihoods in Sub-Saharan Africa (FIRITEL)**

**Proposal One-Year Extension Phase**

**Year: 2021**

**Submitted by**

**Africa Rice Center (AfricaRice)**

to

**the DGD, FPS, Government of Belgium**

**FIRITEL Proposed one-year extension for the year 2021**

**Project Narrative**

The proposed one-year project aims to scale out digital technologies that have been developed or improved in the FIRITEL project. The project aimed to facilitate informed and effective decision making by the various rice stakeholders to support the growth of the rice sectors of African countries to achieve food security and create employment. It had three major objectives: 1) strengthening partnerships in the Rice Agri-food System with local and regional communities in target countries for scaling out modern technologies and boosting the rice sector; 2) validate innovations that increase the knowledge and research based options for improving the productivity and resilience of rice cropping systems and 3) strengthening the capacity of national scientists and service providers to catalyze entrepreneurship along the rice value chain. The perceived deliverables are: 1) enhanced productivity and resilience rice-based systems, 2) development of new digital technologies and 3) capacity building and innovation options to empower rice value chain actors and increase farming efficiency.

The four digital technologies that were either developed improved or adapted in the FIRITEL project had different objectives. It was either 1) to improve agricultural productivity (RiceAdvice), or 2) to upgrade the rice value chain through better market information (Remugol), or 3) to increase farmer’s income and livelihood by better choice of crops and optimizing the cropping period through better planning (Crop Calendar) or 4) improve the skills of farmers, millers, agro-input dealers and traders through learning new skills (e-learning toolkit).

**Project Countries**

The three project countries are Burkina Faso, Mali, Senegal with supervision from Cote d’Ivoire.

**Goal**

Contribute to increase smallholder farmers and value chain’s income through increased productivity and better market access.

**Purpose**

Scaling out of research products that were developed in the FIRITEL project and capacity building for correct and optimal use of digital technologies leading to increased agricultural productivity and income.

**Expected Outcomes**

1. The digital tools developed in the project are readily available and widely adopted;
2. Rice productivity has increased due to the application of digital tools;
3. Capacity and farming efficiency and learning of rice value chain actors has been strengthened.

**Deliverables**

This section presents the activities and expected outputs of the project. Detailed of expected impact and outcomes indicators as well as their targets are in the Logical framework in Annex.

**Output 1: Rice-based system productivity increased, and resilience enhanced due to yield gap reduction by applying best agronomic practices;**

The activities will consist of out-scaling the Sustainable Rice Platform (SRP) standards and the Smart-Valley approach to ensure effective use of inputs, better control of biotic and abiotic stresses, and optimum water management, among other bottlenecks to increase productivity. In the first year of the project, small groups of farmers were trained and exposed to the technologies. Data were collected to compare their performance and identify the gaps for capacity strengthening and out-scaling. The Innovation Platforms established by AfricaRice in the rice value chains as a vehicle for system-wide change and impact on beneficiaries will be the primary mechanism for out-scaling. The innovation platforms bring together key actors with different but complementary roles and interests to address the challenges and opportunities of the rice value chain. Key actors include farmers, processors, millers, traders, input suppliers, service providers, equipment fabricators, transporters, financial institutions (micro-finance and commercial banks), extension, NGOs, research organizations, policymakers, etc. The use of technologies and innovations is supported by institutional enablers, like the contractual arrangements, leading to enhanced system-wide performance. The training on the use of the SRP standard will continue in 2021. However, the project will use on-farm demonstrations to reach more adopters. The demonstrations will allow farmers to be aware of the economic, social, and environmental sustainability of the SRP standard. The diffusion of the Smart-Valley toolkits will also contribute to provide farmers with productivity and sustainability enhancing technology through better water management. The main activities will consist in organizing field demonstrations in collaboration with farmers, farmer’s organizations; and national extension services.

More specifically, the activities that will be carried out are:

* Identify SRP technologies gaps to promote among farmers to improve rice productivity. The SRP standards and performance indicators will be collected by completing the questionnaires developed by AfricaRice. The gaps of good practices identified will noticed to farmers and the extension agents to subsequently address them with available recommendations or identify priorities for strategic development activities.
* Organize farmers visits and exchanges for learning. Farmers will take the opportunity to practice and experiment the benefits of using the good agricultural practices. The discussions between farmers and technicians will be facilitated, and the farmer-farmers learning promoted through the visits and formal or informal discussions.
* Deploy the E-Resilient toolkit on Smart-valley approach. The “E-resilient lowland” is an e-learning toolkit to develop inland valleys with the Smart-Valleys approach to improve water control and farmers' resilience to climate change. The objectives of the innovation are to: i) provide organizational and technical support for all the actors involved in inland valley development, ii) transfer knowledge to extension agents and producers, and iii) improve the effectiveness of the rice production in lowlands. A wide range of stakeholders will be exposed to the water control and saving advantage of the Smart-Valley approach as the e-tools could be accessed online. Beneficiaries of the innovation are service providers who transfer the knowledge of inland valley development with the Smart-Valleys approach to farmers and the farmers themselves who can download the toolkit and follow the easy-to-apply instructions. The online interactions between communities will allow identifying emerging challenges related to rice cultivation in the lowland, and better designing of pro-poor agricultural technologies.

**Output 2: Digital technologies and knowledge disseminated for better and informed decision making**

In the FIRITEL project, the Crop Calendar Construction (CCC) was introduced to extension agents in order to familiarize them with the tool. Extensive on-station work was undertaken to calibration the model. In 2021, more extension agents will be trained and exposed through on-farm use and demonstration of the tool for appropriate control of the cropping calendar crucial to increase production and income. A graphic interface will be added to the application to make it more user-friendly. Regarding e-learning, a toolkit with 30 modules was developed and will be available on the AfricaRice website by the end of 2020, together with modules that were previously developed in another project, funded by GIZ. The toolkit and modules will be accessed online to a vast audience of potential users in Africa. More farmers will be exposed to demonstrations of the digital recommendations using RiceAdvice/Weed-Manager.

The best business models identified; will be promoted and supported by strong contract farming aimed at increasing the adoption rate of the technologies and strengthen the linkage between the actors.

The core activities of this output will include:

* Develop the field demonstration on ICT enhancing productivity tools like RiceAdvice-Weed-Manager. The application recommendations will be followed up and established in a farmer’s field alongside his/her usual weed management practice. Data on actual crop and weed management practices (of both the farmer’s practice and the Weed-Manager advices), labor input, and production cost will be determined through farm surveys prior and at the end of the season. Comparison will be made to showcase the advantage of using recommended weed management practices aimed at improving the yield.
* Identify appropriate ICT use business models especially for women and youth. As an integral part of sustainable development, gender-equitable use of ICT is now recognized worldwide. The project will identify and propose the appropriate business model that could contribute to improve women productivity and business opportunities using ICT tools.
* Establish contract farming to increase technology adoption, and large diffusion of the technologies developed through the Innovation Platforms, the dissemination tools (radio, knowledge management system, etc.).
* Conduct on-farm validation of CCC developed at the station by incorporating five rice cropping system. This will allow to adjust the model and encompassing all farming conditions for better advices.
* Organize farmers visits and exchanges for learning and adoption, as in Output 1.
* Design and develop the electronic version of the CCC. The current version of the CCC is developed under Microsoft Excel Spreadsheet. The extension agents trained in the first years of the project were able to use it and yield recommendation without difficulties. But to have a good outreach, the development of a graphic interface will be initiated that could be easily posted and downloaded by farmers, extension agents, technicians.

**Output 3: Capacity building and innovation options empowering rice value chain actors and improving farming efficiency; and learning.**

The gender study undertaken in the previous year of the FIRITEL will inform more about the implication of women on digital technologies development, use, and diffusion. ICT can improve women’s ability to act effectively and productively in agriculture. In 2021, the viable and sustainable women business model will be promoted alongside other digital technologies. Training in the appropriate use of the apps will be undertaken, to ascertain proper use that will lead to better results, be it increased productivity, better business models, or better-informed local traders and transformers. While putting more emphasis in issues related to women participation in digital agriculture, the activities will also include the support to students and training of NARES staffs in the three countries.

The main activities will include:

* Strengthen the capacities of women by promoting business models enhancing the use of agricultural digital tools;
* Organize training of women groups on the use of digital technologies to improve their integration in the rice value chain, and participation in decision making on on-farm resource allocation, and marketing of agricultural products;
* Support students to conduct research activities on agricultural ICT related topics in developing countries. The project will, therefore, enhance the collaboration with the national universities in the three countries;
* Organize training of additional extension agents and technicians.

**Budget**

|  |  |
| --- | --- |
| **Category** | **Budget** |
| Salaries and Allowances | 60,000 |
| Equipment and materials | 5,000 |
| Goods, services and inputs | 71,700 |
| Travel and allowances | 5,000 |
| Consultancies (incl. Partner grants) | 8,300 |
| Vehicles | 0 |
| Training (incl. students) | 16,200 |
| Workshops | 0 |
| **Subtotal** | **166,200** |
| Overhead | 29,800 |
| **Subtotal** | **196,000** |
| CSP | 4,000 |
| **Total** | **200,000** |

## ANNEX:

## FIRITEL extension Logical framework

|  | **Intervention logic** | **Indicators** | **Baseline** | **Targets (incl. reference year)** | **Sources and means of verification** | **Assumptions** |
| --- | --- | --- | --- | --- | --- | --- |
| **Overall objective: impact**  **Overall objective: Impact** | **Overall objective**:  Contribute to increased smallholder income through increased productivity and better market access | Percentage increase of rice farmers income due to the project | Average income is  US$ 1080 per ha | Increase of 10% of income of farmers due to the adoption of the technologies (2021) | General report of the project  Impact assessment report | The funding of the project does not experience a break  No major variation in rice price |
| **Intermediate outcomes** | ***Specific objective:***  1.To make available the yield gap reducing technologies developed in the project and increase its use | Adoption rate of yield gap reducing technologies | -2500 farmers in 2020  -25 extension agents in 2020  -25 service providers in 2020 | At least 50% of adopters among beneficiaries equivalent to the following total number of adopters of the developed technologies:   * 3750 farmers in 2021 * 40 extension agents in 2021 * 40 service providers in 2021 | General report of the project  Monitoring report | Each technology is well targeted and meets the need of the beneficiaries |
| 2. To increase rice productivity through the application of digital tools | Percentage of increase in the rice productivity | 5000 kg/ha in irrigated ecology | Yield increase by 11% (500 kg/ha) in the irrigated rice ecology in the area of intervention | General report of the project  On-farm experiment report | The new technologies are agreed with the partners  The experiments are timely implemented |
|  | 3.To strengthen the capacity and farming efficiency and learning of rice value chain actors | -Number of national scientists, extension agents, and service providers using the ICT tools | -50 extension agents in 2020  -50 service providers in 2020 | -At least 75 national scientists and extension agents using the ICT (2021)  -At least 75 service providers are using the ICT tools (2021) | General report of the project  Training report | The appropriate trainees are selected for better impact |
| **Results/ Outputs** | **Output 1:** Rice-based system productivity and resilience enhanced through yield gap reduction and best agronomic practices and development of new Digital technologies | -Number of new technologies to reduce yield gaps  -Number of on-farm demonstration | One technology reducing yield gaps  -0 on-farm demonstration | -At least two technologies to sustainably reduce yield gaps (2021)  -At least 20 on-farm demonstrations (2021) | NARES report  Project report  NARES report  Project report  Training report  Project report | The existing technologies are resilient to extreme events  Farmers are open to digital technologies  The tools are easily usable and accessible |
| **Output 2:** Digital technologies and knowledge developed and disseminated for better and informed decision making | -Number of ICT tools developed and scaled out for decision making | 1 (RiceAdvice) | -At least one ICT tool developed and functional in each country (2021)  -At least one business model for ICT tool promoted (2021) |
| **Output 3**: Capacity building and innovation options empowering rice value chain actors and farming efficiency. | -Number of business models promoted for women  -Number of value chain actors trained on sustainable farming | -0 women business model  -200 farmers trained on sustainable farming | -At least one business model for women promoted (2021)  -At least 300 farmers trained on sustainable farming (2021) | An enabling environment for business opportunities is available for women and youth |
| **Activities** | A 1.1: Conduct participatory on-farm demonstration on SRP standards | * Develop the field demonstration protocol for SRP * Inform farmers’ organizations * Select appropriate farmers and fields * Implement the protocol in the fields * Organize farmers visits and exchanges for learning * Deploy the E-Resilient toolkit on Smart-IV approach * Collect and analyze the data to produce a report | | | | |
| A 2.1: Promote decision support tool for rice value chain actors and organizations using modern ICT tools | * Identify appropriate business models for women and youth * Establish contract farming to increase technology adoption * Large diffusion of the technologies developed through the innovation platforms * Collect and analyze the data to produce a report | | | | |
| A 2.2: Conduct on-farm validation and e-development of the Crop Calendar Construction after two years of on-station testing/validation | * Develop the field demonstration protocol * Inform farmers’ organisations * Selection of appropriate farmers and fields * Implement the protocol in the fields * Organize farmers visit and exchanges for learning * Design and develop the electronic version of the CCC * Collect and analyze the data to produce a report | | | | |
| A 3.1: Invite scientists, students, particularly from target countries, to participate in collaboration with the local Universities | * Identify and support the Master students to conduct on-farm activities on GAP * Contribute to the training of NARES partners | | | | |
| A 3.2: Foster science-based innovation options that may lead to recommendations for business models enhancing the roles of women and youth | * Identify appropriate business models for women and youth * Promote business models for women and youth on the use of ICT tools * Collect and analyze the data to produce a report | | | | |
| A 3.3: Workshop/meeting | * Organize workshop/meeting with NARES to discuss the results and share information on the different activities | | | | |