ADAPTATION FUND

PRE-CONCEPT FOR A REGIONAL PROJECT

PART I: PROJECT INFORMATION

Title of Project:	Scaling-up climate-resilient rice production in West Africa
Countries:	Benin, Burkina Faso, Côte d'Ivoire, The Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo (all countries members of ECOWAS[1])
Thematic Focal Area:	Food security
Type of Implementing Entity:	Regional Implementing Entity (RIE)
Implementing Entity:	Sahara and Sahel Observatory (OSS)
Executing Entities:	Regional level: Regional Coordination Unit based at the Regional Centre of Specialization in Rice of ECOWAS (CRS-RIZ/IER) in Mali, in partnership with Climate-Resilient Farming Systems program at Cornell University, USA National level: National Executing Institutions (List in annex1)
Amount of Financing Requested:	13,955,270 in U.S Dollars

1. PROJECT BACKGROUND AND CONTEXT

West Africa is the rice basket of Sub-Saharan Africa, producing over two thirds of its rice. Rice is a staple crop grown in West Africa for more than 3500 years with the domestication of African rice (*Oryza glaberrima*). Produced by low-income smallholders across the entire region, rice plays a key role in regional food security for rural and urban populations. In recent years, increasing demand stemming from population growth and steady increase in annual per capity consumption (combined at 5.93% per year from 2010-2017; with per capita consumption in 2017 as high as 164 kg in Sierra Leone and 150 kg in Guinea) has outpaced production (4.1% per year for the same time period), leading to ever-increasing rice imports from Asia, accounting for 46% in 2017[2]. This places a heavy burden on government budgets and exposes the region to the volatility of world market prices. This became apparent in 2008, when world market prices tripled in less than four months, resulting in riots (e.g. Liberia, Senegal) over a staple food that the majority of population could not afford anymore. In response, the Economic Community of West African States (ECOWAS) launched a regional Rice Offensive in 2013 with the goal to achieve rice self-sufficiency by 2025. The untapped potential to increase rice production is very high, based on currently low yields, under-utilized land and the availability of climate-smart rice production techniques. By using the climate-resilient rice production approach, the Rice Offensive can address critical challenges simultanously: respond to increasing rice consumption needs, strengthen livelihoods of rice farming communities, allow for diversification of crops as well as other economic activities, improve the national economic well-being, free-up hard currency – previously used for rice imports - for other national needs, and contribute to political stability. All in all, this will allow to withstand and adapt to the imminent climate change threads to this key economic sector, and free human, environmental and financial capitals to tackle other pressing adaptation priorities. In addition, it was noted that the yield of rice increased by 33.22% over the period 2007-2017 while that of corn increased by only 5% over the same period. Other cereals such as millet and sorghum have seen their yield decline over the same period. These figures reflect the importance of rice production in the region[3].

[1] ECOWAS: Economic Community of West African States

[2] Styger E, Traoré G. 2018. 50,000 farmers in 13 countries: results from scaling-up SRI in West Africa. CORAF, Dakar, Senegal

3 http://www.fao.org/faostat/en/#data/QC

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. West Africa has been identified to be particularly vulnerable to climate change due to the combination of naturally high levels of climate variability, high reliance on rainfed agriculture, and limited economic and institutional capacity to cope with climate change[3].

The West African climate is characterized by a strong latitudinal rainfall gradient, separating the region into the humid tropical rainforest zone in the south, changing into sub-humid savanna zones and the semi-arid to arid Sahel-Sahara zone when proceeding north, each zone harboring a diversity of mostly subsistence-based rice systems. Climate bands extend from east to west, thus several countries are included in each of the climate zones. Countries with a north-south orientation often extend across two to three different climate zones. In the coastal zones, rainfed lowland and upland rice systems dominate. In the savanna zones, a mix of rainfed and irrigated systems can be found. Irrigation becomes more prevalent moving north into the drier zones of the Sahel. In 2017, mostly smallholder and resource-limited farmers produced rice on 7.3 million hectares, of which about 43% were planted as rainfed upland rice, 40% as rainfed lowland rice, 12% as irrigated rice, and 5% by other systems. Irrigated and rainfed lowland systems are the most productive, but they are also significant greenhouse gas emitters as a result of flooded fields.

Climate change forecasts for the region predict rising temperatures, increases in the number of very hot days, rising sea levels, erratic rainfall, and increased frequency of extreme weather events (droughts, floods, storms). Predictions for future rainfall are not consistent across different climate models, thus the path for adjustments will be uncertain and locally variable. Rainfall increases will mostly likely occur in the northern parts of the sub-humid zones and the Sahel, while decline in rainfall is predicted for southern parts of the countries on the Atlantic coast, with some models showing drastic reductions for Liberia and Sierra Leone. [4]

Key risks and impacts of climate change on rice production in West Africa can be summarized as follows: Increasing variability of climate events will disrupt the growing season calendars, shorten the cropping season, and exacerbate dry spells, droughts, and heat waves. It will also create greater likelihoods of floods, shortage of irrigation water, strong winds and storms, and changes in incidences and geographic range of pests and diseases - all of which can lead to substantial rice yield reductions or crop failure. Without adaptation measures, estimated reductions in rice yield across West Africa range from 5-25%[5], and up to 80%[6] depending on location and rice system. Common production practices are either traditional, marked by low yields, or those that depend on agro-chemical inputs, which are often not affordable for smallholders, nor are these practices environmentally sustainable. Both systems are highly susceptible to climate change. Expected associated impacts of climate change on West African rice farming communities include lower farm incomes, a decline in food security at local and national level, reduced welfare and persisting poverty. Climate variability will lead to erratic economic growth with an exacerbation of poverty, estimated to occur with *very high confidence* according to the 5th Intergovernmental Panel on Climate Change (IPCC) assessment[7]. To illustrate potential future losses: if regional rice production in 2017 were reduced by 20%, farmers would have lost 4.8 million tons of paddy rice with a value of more than 1.5 billion dollars. It can also be expected that pressure on natural resources will increase, be it on vegetation, soils or water, leading to overuse, degradation, potential conflicts, rural exodus and international emigration. To mitigate these effects, introducing adaptation measures and strengthening resilience is a necessity.

2. PROJECT OBJECTIVES

The global objective of the project is to improve climate resilience and increase rice system productivity of smallholder rice farmers across West Africa using a climate-resilient rice production approach. More specifically the project will:

- Strengthen the resilience and capacity of smallholder rice farmers and other rice stakeholders in the region to use agro-ecological and sustainable land and water management strategies that respond to the climate change threats in their respective localities.

[4] Jalloh A et al. 2012, West African Agriculture and Climate Change, IFPRI, Washington, DC

[5] Jalloh A et al. 2012, West African Agriculture and Climate Change, IFPRI, Washington, DC

[6] van Oort PAJ, Zwart SJ. 2018. Impacts of climate change on rice production in African causes of simulated yield changes. Glob. Change Biol. 24:1029-1045

[7] Niang I et al. 2014. Africa. In: Climate Change 2014. Impacts, Adaptation, and Vulnerability. Part B, 5th IPCC Assm; UK, USA.

- Assist farmers to implement and scale-up Climate-Resilient Rice Production (CRRP). This includes the System of Rice Intensification methodology (SRI) and locally adapted soil and water conservation management approaches.
- Support a communication platform and engage in advocacy to promote efficient exchange of knowledge and expertise among diverse stakeholder groups in West Africa and beyond.
- Facilitate the establishment of a coalition of partners at national and regional levels for the scaling-up of CRRP.

3. PROJECT COMPONENTS AND FINANCING

The project will be implemented in the 13 ECOWAS countries: Benin, Burkina Faso, Côte d'Ivoire, The Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo. It will build on existing human and institutional capacity, and the achievements of the regional project "Improving and Scaling up the System of Rice Intensification in West Africa" (SRI-WAAPP), which was commissioned and supervised by the West and Central African Council for Agricultural Research (CORAF). The project was part of the West Africa Agriculture Productivity Program (WAAPP) and supported by the World Bank under the institutional umbrella of ECOWAS. The SRI-WAAPP project ran from January 2014 to June 2016 and was coordinated by CRS-Riz in Mali. It directly benefited more than 50,000 farmers and reached 750,000 people overall, of whom 31% were women. Yields for rainfed lowland and irrigated rice increased by more than 50%.[8] This project to the Adaptation Fund is conceived in response to the strong, ongoing demand from West African rice farmers to scale-up SRI and associated agro-ecological practices.

The Climate-Resilient Rice Production (CRRP) approach used in this project is based on the System of Rice Intensification (SRI) methodology in combination with location-specific sustainable land and water management practices. SRI is an agro-ecological, climate-smart and low-input methodology to increase rice productivity. It allows yields to increase by 20-50% and more, while using 90% less seed, 30-50% less water and 30-100% less agro-chemicals. Compared to conventionally-grown rice plants, those grown using SRI are more vigorous and healthier, with deeper roots that can better withstand weather calamities such as drought, floods, and strong winds. Conventional crops succumb more easily to these forces, often leaving farmers with reduced or no harvests. Combining SRI with improved soil and water conservation practices, and if needed, integrated pest and disease management, will play an important role in developing climate-resilient, productive and sustainable rice systems. Based on country priorities and constraints analysis for each climate zone and targeted rice production system, the project will use a modular approach for capacity strengthening and field implementation.

Project/Programme Components	Expected Outcomes	Expected Outputs	Countries	Amount (US$)
1. Strengthen human and institutional capacity in climate-resilient rice production (CRRP)	Key stakeholders operating in different climate zones and rice systems gained knowledge and skills to successfully address climate-threats and implement CRRP in a sustainable way	- Capacities of regional, national and local stakeholders to master and disseminate a variety of CRRP topics strengthened - Capacity of national and regional research centres strengthened - Consultative and knowledge exchange meetings at national and regional levels held	All 13 countries	17% or 2,050,000

[8] The project results report can be accessed at www.sriwestafrica.org

2. Assist farmers in scaling-up CRRP	Farmers adapted successfully to climate threats for rice production, achieved higher rice productivity, and improved their incomes and livelihoods	- Adapted SRI, soil conservation and water management practices adopted by farmers - Targeted communities and smallholder farmers have strengthened their livelihoods through improved yields and incomes from rice - Technical rice production and sustainable land management innovations developed, tested and shared - CRRP adaptation strategies in different climate zones and rice systems monitored, analysed and results widely shared	All 13 countries	72% or 8,450,000
3. Strengthen communication, advocacy and partnerships for scaling-up CRRP	- Awareness and knowledge increased about CRRP in West Africa - Support and buy-in for CRRP from policy-makers, donors and development specialists created - Synergies created through partnerships and coordination to mainstream CRRP in West Africa	- Knowledge materials developed and disseminated and made available, responding to demand and need of different stakeholder groups - Web-based platform is functional, widely accessed and used - Advocacy briefs are developed and publicly available - Interaction and exchange between stakeholders is facilitated - Coalition of partners is set-up and regional partner roundtables held once a year	All 13 countries	11% or 1,300,000
4. Project Execution cost				9% or 1 062 000,000
5. Total Project Cost				100% or 12,862,000
6. Project Cycle Management Fee charged by the Implementing Entity				8.5% or 1 093 270,000
Amount of Financing Requested				13,955,270

4. PROJECT DURATION:

48 months or 4 years

PART II: PROJECT / PROGRAMME JUSTIFICATION

Component 1: Strengthen human and institutional capacity in CRRP, US$ 2,050,000 or 17% of project funding. At project start-up, in each country, a quick assessment of climate change threats to rice production will be undertaken and priorities for climate-resilient interventions identified. The assessments will be built on recommendations from the SRI-WAAPP project, integrate a participatory process, and take all current country-based activities into account. Farmers will actively participate in this process, with focus on gender, youth and vulnerable groups. This is followed by a capacity needs assessment in each country, the outcomes of which will be synthesized at the regional level to create a regional plan for capacity strengthening. The project will adopt a module approach for capacity strengthening. The regional and national coordination teams will identify specialists to provide needed expertise and develop the training materials for the identified topics. The modules will be designed around best practices and their scientific underpinnings, but also leave room to integrate relevant traditional and farmer knowledge. The modules will be adjusted as experience and knowledge develop and as the project evolves. Locally adapted manuals will become a product of this process. An initial Training of Trainers workshop will be held at the regional level, making sure that all project stakeholders from all participating countries share a common understanding of the technical issues and the project intervention approach. Trainers will then in turn train field technicians and farmers at the national and local levels using the developed modules. Yearly consultative and knowledge exchange workshops will be held at the national and regional levels. Regional technical working groups will ensure that project interventions remain relevant and evolve based on achievements,

needs and expertise. The project will also hold shorter trainings and information sessions for different rice sector and value-chain stakeholders.

Component 2: Assist farmers in scaling-up CRRP, US$ 8,450,000 or 72% of project funding. The project will assist farmers to implement best practices (already available from SRI-WAAPP and other projects) directly in their fields and work with farmers to develop innovative, adapted practices through participatory research. This will be done for each climate-zone and rice system. Farmers, extension technicians and researchers will collaborate in an iterative and participatory process. Adaptation activities will be monitored and periodically evaluated to maximize learning.

Integrating SRI with soil and water conservation in a holistic way is a new approach and will generate new solutions. It will create short-term benefits for farmers – by using the SRI method – while at the same time create longer-term benefits by regenerating and improving land and water resources. Previous projects often treated these two approaches separately. Combining them will induce significant synergies and improve both the rice systems' productivity, and their health and resilience.

The project will expand on experience gained under the SRI-WAAPP project, which monitored 1000 SRI sites across West Africa. For soil and water management, the project will work not only at the individual field level, but adopt a more holistic landscape approach, taking into account water flows and storage opportunities within the landscape in combination with soil fertility management. Specific methods include i) the "smart-valley approach" (where water is channelled and retained within the landscape for optimal irrigation purposes), ii) protecting soils from erosion and water run-off through field levelling and bunding, iii) use of seasonal small-scale irrigation operations, iv) increasing soil organic matter content to improve water and nutrient-holding capacity of soils, and v) protecting soil surface with mulching and cover-cropping. Proven traditional techniques will also be integrated. These methods are mostly knowledge and skill-based, and do not rely on heavy infrastructure investments. As such, this will lead to empowerment of farmers and allow them more independence in their decision-making. This is especially important for vulnerable groups and resource-limited farmers. Additionally, the project will expand and integrate innovations, techniques and knowledge developed by other partners (e.g. AfricaRice, African Rice Initiative) as they complement the projects activities. This will allow farmers to have access to a wide range of solutions and techniques and to be able to implement them depending on their needs and priorities.

Component 3: Strengthen communication, advocacy and partnerships for scaling-up CRRP, US$ 1,300,000 or 11% of the project budget. Effective communication is vital to scale-up CRRP. The project will develop innovative knowledge management mechanisms for information exchange, experimental learning, knowledge creation and analysis, and dissemination and uptake of knowledge. This can be done through an internet platform, published documents, videos, radio shows, exchange visits, personal outreach and more. Outputs will include technical reports, mapping of results, practical manuals, success stories and lessons learned. The project can expand on the knowledge management platform developed under SRI-WAAPP, which included a website and a Facebook page as well as stakeholder and document databases for all 13 countries. Currently hosted by Cornell University, these resources can be transferred to the new project. Knowledge sharing and exchange-visits will be organized at local, national, and regional levels. Beyond that, the project will contribute to knowledge exchanges with the three regional SRI networks of Asia, Latin America and the Caribbean, and Africa, and with the global SRI hub at Cornell University. Presentations and participation at the global rice fora, such as the International Rice Congress or the Sustainable Rice Platform meetings, can strengthen alliances and create new partnerships. This will be built on already established connections during SRI-WAAPP.

The project will also help set up a coalition of partners to mainstream and scale-up CRRP. It will convene an annual region-wide partner roundtable to strengthen support, lead complementary activities, and contribute to the implementation of the national and regional development and climate-action plans, such as the agricultural and rice strategies and National Determined Contributions. This will also allow coordination of project activities with other initiatives to avoid duplication. More specifically the platform will include technical and research partners, bi-lateral and multi-lateral projects, civil society, the private sector as well as financial partners. Holding a donor round table with multi-lateral, bi-lateral and private sector rice stakeholders (e.g. GIZ, USAID, IFAD, FAO, Olam International Ltd, World Bank among others) promises new synergies to propel the scaling-up efforts of CRRP along the value-chain. Engaging with the private sector in the rice value-chain, will be essential for sustainability and scaling-up reasons, including: providers for certified seed (examples associated with SRI exist for Nigeria), organic fertilizers (ELEPHANT VERT, Mali), SRI equipment (SOCAFON, Mali), and post-harvest operators including rice processing (including parboiling) and marketing (Benin and Togo). These successful linkages will be further explored during project preparation.

Justification for a regional approach, cost-effectiveness and alignment with national and regional strategies: Climate and agro-ecological zones run in latitudinal bands across West Africa, crossing several

countries. For example, conditions in northern Togo are more similar to those in northern Benin than to southern Togo. Under a regional approach, locally adapted experiences and innovations developed in one country can more easily be shared with other countries working in the same climate zone or rice system. Using a single operational framework, it will be easier to pool expertise from across the region, work with a common understanding, and share lessons learned. The groundwork for regional collaboration was laid during the SRI-WAAPP project, which set up an institutional support network and a community of practice for SRI common to all 13 countries. It would be much more expensive and difficult, if not impossible, to do this under 13 separate national programs.

The project will directly support the ECOWAS Regional Agricultural Policy for West Africa (ECOWAP) and its Regional Rice Offensive. The Rice Offensive is supported by the National Rice Development Strategies (NRDS), elaborated for each of the 13 participating countries. The project also aligns with the African Union Comprehensive Africa Agriculture Development Programme (CAADP) and contributes to the CAADP commitments to i) enhance climate resilience, ii) reduce poverty and iii) end hunger through inclusive agricultural growth. The activities proposed by this project will contribute to implementing proposed actions of the National Adaptation Plans (NAP), the National Adaptation Programmes of Action (NAPA), and the more recent National Determined Contributions (NDC) established by all 13 countries. Many of the NDC reports recognize problems with the rice production sector, such as: i) rice being especially vulnerable to the impacts of climate change, and ii) rice contributing to climate change with greenhouse gas emissions from flooding and use of fertilizers. Proposed NDC strategies are i) to shift towards climate-smart agricultural methods (that address production increase, adaptation to and mitigation of climate change at the same time), and ii) to pursue more holistic sustainable land and water management approaches (including improved organic matter management, water-saving technologies, and protection of soils from land degradation). The NDC reports from Burkina Faso, The Gambia, Mali, Senegal and Togo specifically recommend implementation and scaling-up of the System of Rice Intensification, recognized for its benefits of reduced methane emissions, water savings, reduced fertilizer use and increased yields.

Sustainability of project outcomes and economic, social and environmental benefits: Commitment to sustainability will drive the implementation approach and activities of the project. The capacity building of the ECOWAS Regional Centre of Specialization in Rice (CRS-Riz) will ensure the sustainability of project results and the coordination of existing national initiatives. The project will encourage national and regional rice-sector organizations to help implement and lead the scaling-up of CRRP. The involvement of the private sector will strengthen the value chain and contribute to the sustainability of investments. Awareness-raising and-information sharing about project results to all stakeholder groups, including national, bi-lateral, and multi-lateral policy and decision-making institutions, will focus on mobilizing political will as well as budgetary commitments. As a knowledge-based approach, SRI reduces dependence on outside inputs, and is therefore attractive for resource-limited smallholders including women and young farmers. They will be the focus of the project. CRRP trainings for farmers will encourage their empowerment and strengthen their independence in crop and land management decisions. Financial sustainability will be achieved through i) leadership and project coordination by governmental institutions at the national level, ii) work with governments to integrate CRRP in national policies and development strategies (example: Mali's National Program to Scale-up SRI), iii) strengthen CRRP in NDC implementation, iv) work with rice farmer umbrella organizations at national and regional level to integrate CRRP in their strategies and workplans, and v) harness the organized donor and partner platforms to align their actions in the rice sector with CRRP activities in the region.

CRRP, as applied by the project, is a "triple win" approach with environmental, social and economic benefits. Project implementation will result in a multitude of environmental benefits, including water-saving, reduced emissions in greenhouse gases, improved soil health and reduced use of chemical fertilizers and pesticides. When cultivated using the SRI method, rice plants become healthier, stronger and develop a deep root system, which allows them i) to better withstand droughts, floods and strong winds, and ii) to better resist pests and diseases. Additionally, reduced flooding of rice paddies under SRI will create a less humid field micro-climate, which is less conducive to the spread of diseases compared to conventional rice growing under permanent flooding. Farmers can reduce or eliminate the use of pesticides entirely. In case of a specific pest or disease problem, the project will hold trainings on the biological life cycle of the pest or disease, and educate farmers on different management approaches for control, following the integrated pest management, or IPM, approach.

Significant economic and social benefits are expected to occur from this project, as already witnessed by farmers in all 13 countries during the SRI-WAAPP project. With increased rice productivity of more than 50%, more rice was available for home consumption and marketing. Net incomes from SRI plots increased by at least 100% compared to conventional plots. Improved household food security freed up land for other crops. Labor and earned money could be used for other household needs, such as schooling fees, access to health care, or investment in

other economic activities.[9] These benefits are also expected to be achieved in this project. Increased rice production will be economically beneficial to other stakeholders in the rice value chain, be it equipment producers and distributers, mills or rice sellers. At the national and regional level, the increased rice production will reduce dependency on rice imports, currently a large burden for governmental budgets. It is predicted that CRRP will take a permanent foothold in the project zones and be further disseminated through community-driven efforts.

Consultative process during project preparation and compliance with environmental and social standards, policies and safeguards: As explained above, the SRI-WAAPP was a commissioned project and was developed in a participatory manner. Recommendations from the project beneficiaries from the 13 countries led to the initiative to apply for this project. The participatory process with stakeholders from the 13 countries will be continued in all the steps of project preparation, through video and call conferencing, and in workshops. The project proposal will be validated in a regional workshop before final submission to the Adaptation Fund.

Project design and implementation at all levels will comply with the Environmental and Social Policy (ESP) of the Adaptation Fund, as well as with national environmental legislation in each of the participating countries. Given that most project activities will be based on improved agronomy and require little if any use of chemical inputs or large-scale construction, the project carries few environmental or social risks. But as a precaution, all proposed project activities will be screened against the ESP requirements. Measures for avoidance and mitigation will be drawn up and implemented for any risks that may be identified.

PART III: IMPLEMENTATION ARRANGEMENTS

The project will be implemented by the Sahara and Sahel Observatory (OSS) which will serve as the Regional Implementing Entity (RIE) and will be responsible for all financial, monitoring and reporting aspects to the Adaptation Fund. OSS will also provide administrative and management support to the executing entities. The project will be coordinated and executed at the regional level by the ECOWAS Regional Centre of Specialization in Rice (CRS-Riz) hosted by the Institut d'Economie Rurale (IER) in Mali. CRS-Riz will partner with the Climate-Resilient Farming System Program at Cornell University in Ithaca, New York, USA to form the regional project coordination unit. A national focal point institution will be determined for each of the13 countries. For nine out of the 13 countries, the focal point institutions have already been identified, as indicated in the attached endorsement letters. The focal institutions will coordinate all national SRI activities, build a national CRRP alliance, and represent the link to the regional coordination. For the implementation of the project activites, agreements and contracts with identified technical partners will be set up specifying tasks, responsibilities, timelines and outputs to be delivered, overseen by the national and regional coordinations. As there are 3 National Implementing Entities (NIEs) of the Adaptation Fund (AF), these institutions will be involved in the Steering Committee at both the National and Regional levels as well as in the monitoring and evaluation of the implementation of the compliance with environmental and social safeguards.

[9] Styger E, Traoré G. 2018. 50,000 farmers in 13 countries: results from scaling-up SRI in West Africa. CORAF, Dakar, Senegal