



**ADAPTATION FUND**

**PROGRAMME ON INNOVATION:  
SMALL GRANTS PROJECTS THROUGH DIRECT ACCESS MODALITY  
REQUEST FOR PROJECT FUNDING FROM THE ADAPTATION FUND**

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project must be fully prepared when the request is submitted.

Complete documentation should be sent to:

The Adaptation Fund Board Secretariat  
1818 H Street NW  
MSN P4-400  
Washington, D.C., 20433  
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## ADAPTATION FUND

# PROGRAMME ON INNOVATION: SMALL GRANT PROJECT PROPOSAL

### PART I: PROJECT INFORMATION

Country:	SENEGAL
Title of Project:	<b>Djigui Niokolo: Developing agro-sylvo-pastoral models for sustainable agriculture and environmental preservation</b>
National Implementing Entity:	Centre de Suivi Ecologique
Executing Entity/ies:	SOS SAHEL International
Amount of Financing Requested:	<b>244,459 USD</b>

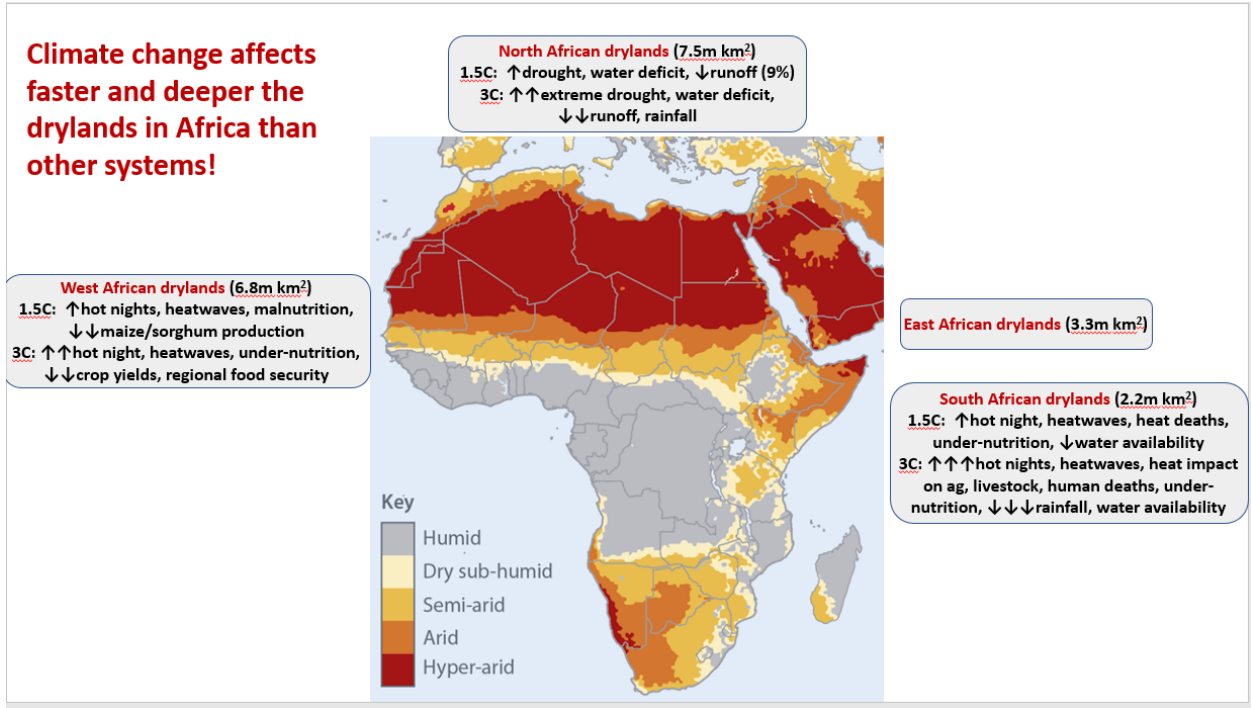
#### **Project Background and Context:**

*Provide brief information on the problem the proposed project is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.*

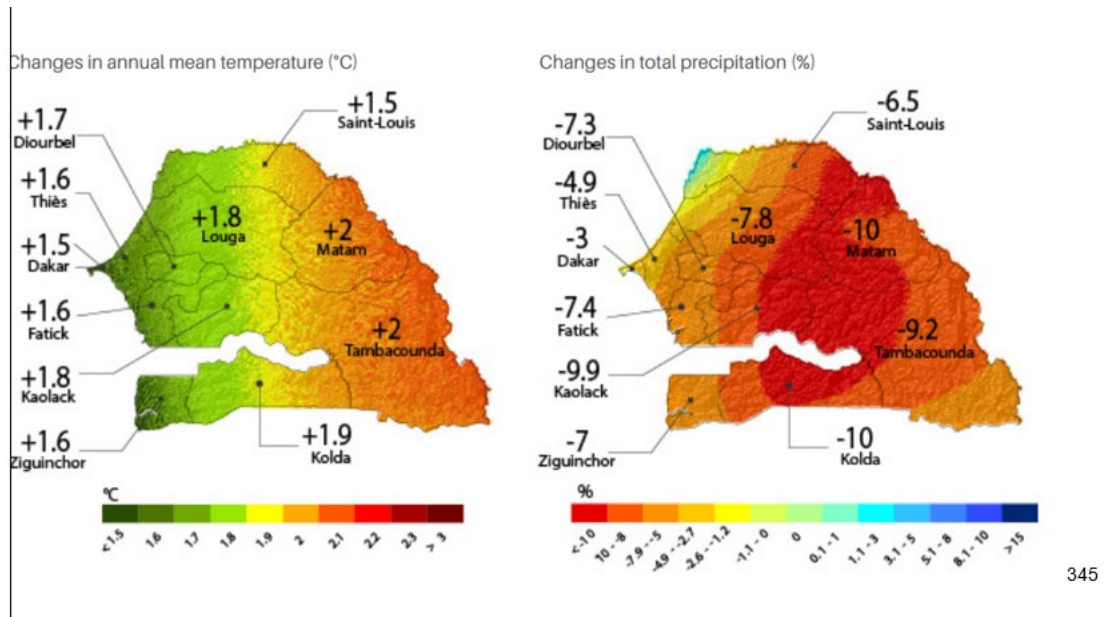
Climate change affects the drylands in Africa faster and deeper than other systems causing severe vulnerabilities to people and ecosystems. In Senegal, key economic sectors are affected, including agriculture, fisheries, tourism, housing, and health, among others. (CPDN, 2015). The effects and impacts of climate change, as well as climate variability, pose serious threats to the availability of natural resources on which rural populations primarily depend. In addition, limited access to technology and financial resources is a major cause of the current climate change adaptation challenge for vulnerable populations especially local communities. Therefore, the implementation of measures required to adapt to future climate prospects to control their potential impact on the environment and on the populations is a crucial issue for Senegal.

The territories are exposed in various ways to the effects of climate change. The responses to these changes in terms of anticipation and intervention capacity are varied. Administrative, political, ecological and socio-economic issues faced by territories are critical factors that determine and guide communities' adaptation capacities to climate change.

The low capacity of communities to identify and implement adaptation measures in the face of climate risks, as well as the lack of information and means of adaptation of populations that are highly dependent on natural resources, due in large part to their level of poverty (57% of rural populations are poor, according to the FAO), explain their current low level of reactivity to climate change.



Source: Mbow et al, 2022



Title: Projected changes in temperature and precipitation in Senegal by 2050

Senegal is a country with a high proportion of the population living below the poverty line. The monetary poverty rate is estimated at 37.8% in 2018/2019, a decrease in the poverty level of five points compared to 2011 (42.8%). Despite this drop in the poverty rate, the number of poor people in Senegal has increased (5,832,008 in 2011 versus 6,032,379 in 2018). In relation to the area of residence, poverty is more pronounced in rural areas (53.6% compared to 19.8% in urban areas), where there has been a greater decline in the level of poverty compared to 2011 (5.2 points compared to 2.1 points in urban areas). The survey results also show that the extreme poverty rate fell from 12.2% to 6.8% over the same period.

With regard to the level of poverty by region, the analysis shows that the regions of Sédhiou (65.7%), Kédougou (61.9%), Tambacounda (61.9%), Kolda (56.6%), Kaffrine (53.0%) and Ziguinchor (51.1%) are the most affected. This situation justifies the targeting of the Djigui Niokolo program in the regions of Kédougou, Tambacounda and Kolda.

In 2021, SOS SAHEL International, with the support of the French Development Agency (AFD), launched Djigui Niokolo ("Hope in Niokolo"), a project on the outskirts of the Niokolo-Koba National Parc in Senegal, a UNESCO Heritage site.

Djigui Niokolo aims to create **jobs, particularly for women and youth**, by developing **agroforestry and the fonio value chain**, a cereal native to the Sahel, using an integrated landscape approach with people at the center, coproducing context-specific knowledge, and management options with people at the center, enabling, effective partnerships, direct funding support and long-term commitments. This will improve small producer incomes while reinforcing the population's resilience to climate change and preserving their environment.

This project is implemented in the Tambacounda, Kedougou and Kolda regions, located on the **outskirts of the Niokolo-Koba National Park** (UNESCO Heritage site). According to a study by the PSE (Plan for an Emerging Senegal), these three regions have the **highest poverty rates** in the country: Kedougou (71.3%), Kolda (76.6%) and Tambacounda (46.7%). The prevalence of food insecurity is 39% for Tambacounda, 33%, for Kedougou and 42% for Kolda (source: National Food Security Council 2017). In these regions in 2017, more than 880,000 people faced critical levels of food insecurity. In 2018, according to a national survey, the number of unemployed persons in rural Senegal was 16% for youth and 24.1% for women (6.2% for men). This segment of the population is exposed to domestic (large urban centers, mining areas) and international (irregular) emigration, as well as poverty and food insecurity. Furthermore, these three regions are affected by heavy climate hazards, which have a negative impact on agriculture which is a main household activity.

According to a 2016-2020 policy paper for the environment and sustainable development sector, the rate of land and vegetation degradation in Senegal remains high, despite a significant decrease over the past three decades. This rate went from 80,000 ha/year in 1993 to 40,000 ha/year in 2010. In the intervention area, vegetation is under heavy pressure, due to illegal logging which is conducted to meet needs of local craftsman

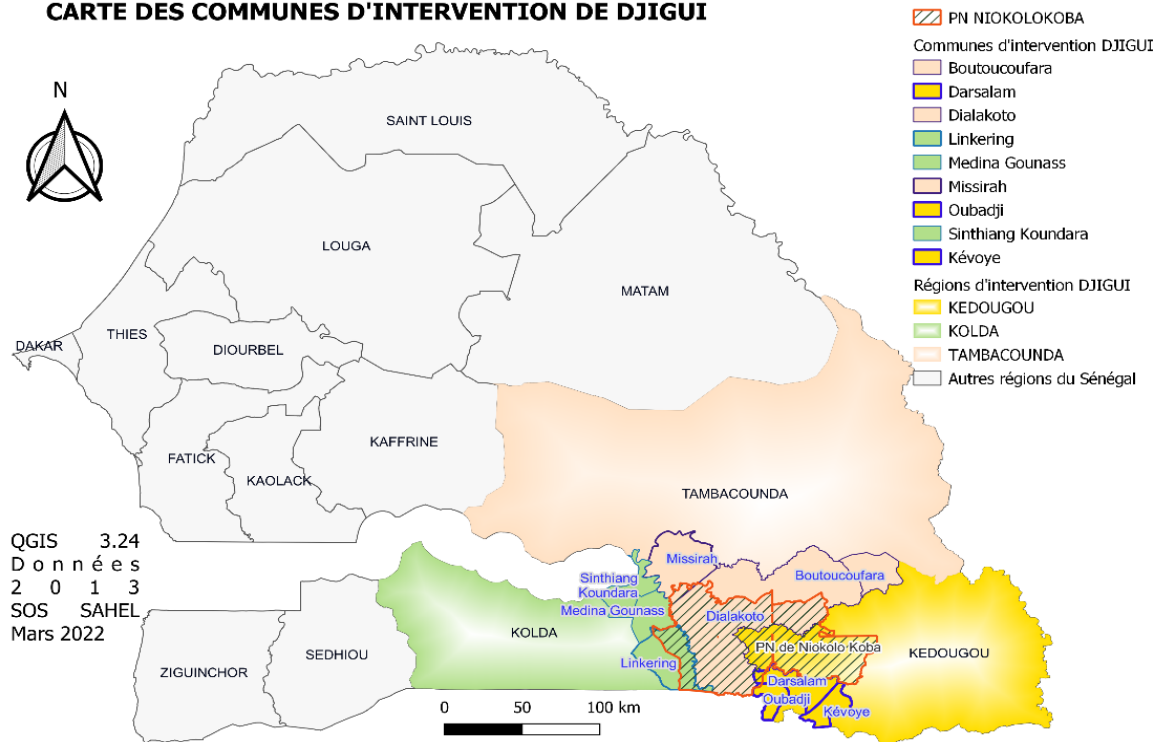
(carpentry). There are also issues of pollution due to chemical use (cyanide, mercury, pesticides) and hydrocarbons from motor pumps related to the exploitation of banana plantations and gold panning activities, especially in the Tambacounda region. In the livestock sector, pruning practiced by shepherds during the lean season, as well as the trampling of herds around water sources, hinders the regeneration of plant species and consequently accelerates land degradation (soil erosion).

As it relates to energy, the overuse of wood coupled with troubling climatic conditions in the region have resulted in a sharp decline in forest resources. This loss of vegetation cover is often accompanied by severe soil degradation. Agriculture remains very dependent on rainfall, which is increasingly unpredictable due to climate change. Biodiversity and natural resource conservation are also a major issue in the area as the Niokolo-Koba National Park has been classified as World Heritage Site in Danger since 2007. This requires better management and awareness of all stakeholders.

### **Area of intervention**

<b>Regions</b>	<b>Districts</b>	<b>Communes</b>
Tambacounda	Tambacounda	Missirah, Dialacoto
	Goudiry	Boutoucoufara
Kédougou	Salémata	Kevoye, Dar Salam, Oubadji
Kolda	Vélingara	Linkering, Medina Gounass, Sintiang Koundara

## CARTE DES COMMUNES D'INTERVENTION DE DJIGUI



### Main challenges to be addressed:

Given these socio-economic and environmental challenges, agricultural systems must be adapted to continue the progress made in food security over the last few decades and increase the resilience of local populations. If agricultural production systems do not adapt to climatic hazards, this progress could be reversed. Against this background, the project primarily aims to identify and develop agro-sylvo-pastoral systems (agriculture integrated with livestock and forestry) adapted to the climate. By supporting this project, the Adaptation Fund will contribute to the **development and dissemination of sustainable and economically efficient agricultural systems** through the establishment of 9 climate-smart farms and 18 farmer field schools in these three regions. This support is expected to enable to increase their resilience to climate change and to boost their productivity; thus their income.

Paradigm shift cannot be achieved without paying more attention to neglected plants, mainstreaming them into national programs and policies and re-vitalizing their use in local food systems, with benefits to food and nutritional security, as well as biodiversity and local economies (Mbow et al, 2022). Policies must also consider more equal distribution of land to enable scaling up neglected plants (Lipton and Saghai, 2017). This can be achieved through a tailored empowerment for locally-led that take account the resources available (policy, assets), the best practices and asset endowment such as rural infrastructures, promotion of neglected natural resources; reduction of human capital outflows from these to creating jobs for youth and women in the face of climate changes.

## **Project Objectives:**

*List the main objectives of the project.*

The main objective of the project is **“Develop and promote agro-sylvo-pastoral systems that are ecologically sustainable and economically efficient “**

**OS 1:** Strengthen awareness and ownership of adaptation and climate risk reduction processes of farmers

**OS 2:** Increase and disseminate adaptive capacities of farmers in agro-sylvo-pastoral practices

**OS 3:** Diversify and strengthen livelihoods and sources of income for vulnerable people in targeted areas by developing fonio value chain

Through this project, SOS SAHEL intends to strengthen local governance of natural resources and environmental preservation by developing ecologically sustainable and economically efficient agro-sylvo-pastoral systems - ensuring fertilization, soil protection and maintenance of biodiversity and community resilience to climate change.

The proposed project is part of the broader Djigui Niokolo program which seeks to contribute to ecosystem preservation and promote climate change adaptation technologies. More specifically, the project will help establish **9 climate-smart agro-sylvo-pastoral farms**. Through our "farmer field school" approach, **18 farmer field schools** will be set up as learning and experimentation sites for producers to explore new technical innovations and integrated crop-livestock-tree systems. This pedagogical approach will foster community dialogue and the dissemination of promising agricultural practices adapted to the locality, climate and land, further encouraging their adoption by the community and surrounding populations.

The economic model is based on the valorization of fonio production based on good agricultural practices that preserve the environment and strengthen the resilience of farmers to climate change. **The demand for fonio on the local, national and international markets is largely above the production offer.** The main challenge is to produce enough fonio in compliance with the standards and good agricultural practices.

## **Sustainability:**

Regarding environmental sustainability, the Djigui Niokolo project prioritizes conservation and valorization of natural resources alongside training and capacity building of the population particularly farmers and local government. Skills and practices will be developed through active learning and experimentation at the farms and the promotion of natural resource development plans by local authorities. As such, this project will facilitate intelligent management and use of resources that will continue long after the project closes – ensured by the capacity building and training efforts that will equip stakeholders in the community to carry forward valuable lessons learned and best practices.

The project will develop and disseminate adaptation and risk reduction technologies. Through the agroforestry farms, producers will appropriate climatic data from their areas to better adapt their production techniques to the crop calendar. With climatic variability, producers have long been confronted with technical difficulties: plant burns due to heat or crop losses due to rainfall. The poor control of the cultivation calendar in the context of climate change is one of the biggest problems for agriculture, especially in the intervention zones where it is dependent on rainfall. Through the farms, farmers will be strengthened to develop sustainable cropping systems in the context of climate change. The project also ensures environmental sustainability through soil restoration, conservation and natural resource preservation techniques that will be deployed at the farm level and implemented by farmers on their own farms. Producers will learn about ANR techniques, crop choices adapted to climate change and the development of alternative crops to cope with climate change. In this sense, fonio is promoted by the project. This local cereal is already widely consumed in the region. As its life cycle is very short, poor households can harvest it sooner than other cereals and reduce the food shortage period. Hence it is important in food security local strategies. It is also well adapted to high climate variability and drought conditions and Senegal climate change strategy mentions fonio to diversify food systems. It is a very resistant and very rustic plant that can even grow on marginal lands, poor and degraded soils. It is a drought tolerant plant and does not need much water. Thus, it is a sustainable crop for these producers in the current context of irregular and low rainfall. The knowledge and good practices will be documented and disseminated to other producers. These producers will also be able to benefit in the long term from this knowledge and technology.

<b>Region</b>	<b>Area in ha</b>	<b>Yield t/ha</b>	<b>Production in tons</b>
Tambacounda	88	600	53
Kédougou	2 345	1 025	2 403
Kolda	239	890	213
<b>Total</b>	<b>2 672</b>	<b>2515</b>	<b>2669</b>
<b>Average</b>	<b>890,7</b>	<b>838</b>	<b>889</b>

ANSD: Monthly bulletin of economic and financial statistics of December 2021: Final results of the 2020/2021 agricultural season - Summary of cereal crops

This project will allow for a paradigm shift in fonio production systems in the area, particularly in the regions of Kolda and Tambacounda.



## Project Components and Financing:

Project Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)	AFD Co-Financing	AF Financing
Component 1: Establishment of a framework for exchange and awareness raising among farmers for the appropriation of adaptation and climate risk reduction processes	9 agro-sylvo-pastoral climate-smart farms of 5ha are created	1200 producers have applied good agro-sylvo-pastoral practices	165 913	124 435	41 478
	6 exchange-study visits are made	At least 60% of the participants in the visits learned new knowledge about good agro-sylvo-pastoral practices	8 872	4 436	4 436
Component 2: Dissemination of climate change adaptation technologies	18 training sessions are organized for 1200 producers	1200 producers have strengthened their knowledge of good agro-sylvo-pastoral practices	22 653	11 327	11 327
	Best practices are disseminated on the knowledge		24 000	0	24 000

	management platform				
Component 3: Strengthening the livelihoods and sources of income of vulnerable people	18 "fonio school fields" are set up	80% of fonio producers have mastered and applied good fonio production techniques	78 500	39 250	39 250
	Yield per ha of fonio Increased	Fonio yield is increased by 30%	77 000	50 050	26 950
	The exploited land of fonio with good practices is increased	The area under fonio increased by 20% at the end of the project			
	Farmers' income for producers is increased	The agricultural income of fonio producers is increased by 25%			
	Support, advice and assistance to producers to improve the implementation of good fonio production practices adapted to climate change, through service centers.	Two Agricultural Service centers are in place	236 555	177 416	59 139

6. Project Execution cost			19 992
7. Total Project Cost			226 572
8. Project Cycle Management Fee charged by the Implementing Entity (if applicable)			17 887
<b>Amount of Financing Requested</b>			244 459

**Projected Calendar:**

*Indicate the dates of the following milestones for the proposed project/programme*

<b>Milestones</b>	<b>Expected Dates</b>
Start of Project Implementation	January 2023
Project Closing	February 2025
Terminal Evaluation	August 2025

## PART II: PROJECT JUSTIFICATION <sup>1</sup>

- A. Describe the project components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience.

The project intervenes in the following regions:

DEPARTMENT	COMMUNE	Selected target villages
SALEMATA	KEVOYE	Kévoye
		Kerevane
		Thiankoye
		Sambangar
		Lori
	DAR SALAM	Dar Salam
		Eganga
		Epingue Bassari
		Banfaroto
		Diarra Pont
	OUBADJI	Oundouféré
		Grignindine
		Back Back
		Madina Boïny
		Ethinangor
<b>TOTAL KEDOUGOU</b>	<b>3 communes</b>	<b>15 Villages</b>
VELINGARA	MEDINA GOUNAS	Missara couba
		Fass
		Rabat
		Missara ouba
		Barkatou
	LINKERING	Wadiyatoulaye
		Medina seckou
		Missara samba
		L'islam
		Darou salam
	SINTHIANG KOUNDARA	Medina kokoum
		Darou salam manda
		Sare dioulde

<sup>1</sup> Parts II and III should jointly not exceed 10 pages.

		Timmidala
		Sare mamadou egue
<b>TOTAL KOLDA</b>	<b>3 communes</b>	<b>15 Villages</b>
Tambacounda	Dialacoto	Damantan
		Bady
		Niongany
		Sitaouma
		Sinthiou Madina
	Missirah	Madina Mamoudou
		Moukouty
		Ramatoulaye
		Madina yero
		Hamdalaye Seyni
Goudiry	Boutoucoufara	Sinthiou Salif
		Belly wamé daaka
		Mboumboun foulbé
		Mboumboun sebé
		Timbifara
<b>TOTAL TAMBACOUNDA</b>	<b>3 communes</b>	<b>15 Villages</b>

The following text provides information on the location of the project intervention areas and demonstrates the strong agricultural potential in general with a considerable impact on the socio-economic dimension, particularly in terms of food security. This agricultural potential, which is partly the result of the high rainfall recorded in these areas, remains unexploited, however, given the decrease in agricultural yields attributable to cultivation techniques. In addition to this, there are the effects of climate change in terms of considerable variations in rainfall, thus affecting agricultural yields.

➤ *Region of Kedougou*

- The **commune of Oubadji** is located in the heart of Bassari country, in the extreme northeast of eastern Senegal, which is one of the six eco-geographic zones of Senegal. Like the rest of Senegal, it is characterized by an alternating dry season (from October to May) and a rainy season (from June to September). The climate, of the Sudano-Sahelian type, is characterized by a rainy season of four to five months and a dry season of seven to eight months. The lowest temperatures are recorded in December and January and the highest in April and May. Agriculture, practiced in all households, is one of the main activities of the commune. Rain-fed agriculture dominates the sector throughout the commune. The crops grown are groundnuts, fonio, corn, sorghum, cassava, cotton, millet, cowpeas and rice. These different crops are grown on a total area of 1,023 ha. The largest producers are located

in Ethinongo, while the small area planted in the village of Boudjine indicates the presence of a small number of farmers. Irrigated agriculture is practiced by 15 households located in the villages of Mithiou and Boudjine, and includes rice, maize and tomatoes.

Tree cultivation remains timid. In fact, fruit tree plantations have been identified on 11.25 hectares in the villages of Missirah Dalaba, Médina Boyni, Ethinongor and Bandjine. The main crops grown are bananas, mangoes and cashew nuts (Communal Development Plan, Oubadji 2018-2023).

- The **Commune of Darsalam** is located in the south-eastern part of Senegal, in the Region of Kedougou, Department of Salémata and more precisely in the Arrondissement of Darsalam. It has one of the highest rainfall totals in the country. Indeed, the rainfall index is subject to inter-annual variability, but is generally between 1000 and 1200mm. The average annual rainfall for the last ten years is estimated at 1,197mm. Agriculture is the primary sector of local economic activity in the Commune. Its development is especially favored by the enormous potential it has. Among its potentialities, we can mention the abundance of rainfall and the existence of arable land. The agricultural activity is mainly oriented towards rain-fed agriculture. The main crops are corn, peanuts, rice, millet and fonio. For the year 2017, the areas sown in the commune of Dar Salam are 428 hectares for rice and 219 hectares for corn. The commune also has an agricultural workforce because, with the support and supervision of partners, young people have been turning to agriculture, particularly rice, for several years (Communal Development Plan, Dar Salam 2018-2023).
- The **commune of Kevoye**, which covers a small area of about 450 km<sup>2</sup>, is located in the Dakatély district, Salémata department, Kédougou region. The climate is of the Sudano-Guinean type, characterized by two seasons, a dry season from November to May and a wet season from June to October when rainfall totals regularly exceed 1000 mm. The Commune has a Sudano-Guinean type of climate. It is one of the rainiest areas in the region with an average of 1307 mm/year for 82 days of rain. The rainy season lasts six months, from May to October, with a dry season of six months from November to May. It is subject to the harmattan during 07 months from October to April. However, this rainfall is characterized by great temporal variability, with August and September being the rainiest months. Its location in relation to the isohyet offers opportunities for diversification of crops and agricultural activities. The commune of Kevoye is located in the Sudano-Guinean phytogeographic zone. Such a situation gives it a very important biodiversity from the point of view of both fauna and flora. The region contains important forest resources. The vegetation is organized in dense wooded savannah, in dense and clear forests, in forest galleries along the waterways as. Several varieties of wild fruits grow there, offering immense agroforestry opportunities but remain, at present, largely under-exploited.  
Food insecurity is a real threat to the improvement of the living conditions of the population of Kevoye. Indeed, agriculture is the main means of subsistence for the population. It is based on the production of cereals such as corn, millet, rice, fonio, etc., and is highly dependent on rainfall, which is declining both in terms of the volume of water and the number of days of rain. As a result, lean periods are becoming more

persistent due to the lack of coping strategies and household resilience against food insecurity (Communal Development Plan, Kevoye 2018-2023).

➤ *Region of Tambacounda*

- **The commune of Boutoucoufara** is located in the department of Goudiry, region of Tambacounda. It covers an area of 448 km<sup>2</sup> and includes only 12 villages. It has an estimated population of 1,980 inhabitants, with an average density of 4 inhabitants per km<sup>2</sup>, one of the lowest in the department.

It is very isolated like the rest of the Diankémakhan district. Its difficult access, linked to the poor quality of the roads, hinders commercial flows and the movement of people. This enclavement does not favor better access to existing infrastructure and social facilities.

The climate is Sudanese-Sahelian, with a rainy season from June to October and a dry season from November to May. The dominant winds are the harmattan, which is hot and dry, the continental trade winds which are characterized by low temperatures and the monsoon which brings rain.

The commune of Boutoucoufara is located in the isohyet between 600 and 800 mm. Its average rainfall in recent years is 635.2 mm. The years 2000, 2001 and 2002 are those that recorded a rainfall level below the average. The highest rainfall was recorded in 1999 with 863.9 mm and the lowest in 2001 with 424 mm.

Agriculture is the main economic activity in the commune of Boutoucoufara. It employs more than 70% of the active population. It is based essentially on the cultivation of cereals, sorghum and corn. Groundnuts and market gardening are only used as a supplement to obtain monetary income and improve the diet (Communal Development Plan, Boutoucoufara 2018-2023).

- **The Commune of Dialacoto** is located in the district of Missirah, department of Tambacounda region of the same name. The climate is of the Sudano-Sahelian type, with two seasons:
  - ✓ a dry season from November to May with low temperatures that vary from 15° to 37° and high temperatures that vary from 21° to 40° and whose average is between 25° and 33°;
  - ✓ a rainy season from May to October with rainfall that varies between 800 and 1000 mm.

Three (03) types of winds sweep through the commune which are the continental trade winds, the harmattan and the monsoon. The harmattan is characterized by a hot and dry wind that often appears between February and April. During this period, evapotranspiration is high. According to climatic data from the Tambacounda station, there is an average of nearly 3,000 hours of sunshine per year. However, the duration of insolation is higher in the months of March-April and shorter in August. Relative humidity reaches a maximum of 97% during the rainy season (August to October). In the dry season, especially from January to April, the humidity drops to a minimum of 10 to 13%. Annual evaporation is estimated at 2,664.5 mm. The month of March has the highest evaporation with 378.2 mm and the minimum is recorded in September (54 mm). From January to May, evaporation is over 300 mm. The rainfall pattern is

very random (see annex). It is characterized by the abundance of rainfall, the frequency of storms (63 days of rain on average per year) more or less violent and the presence of monsoon winds. The average annual rainfall is 874 mm. The dynamics of rainfall evolution is characterized by a great fluctuation from year to year.

Agriculture is the main activity of the commune and mobilizes more than 80% of the active population. Despite its importance in the commune, agriculture is still not very productive and is far from covering the food needs of the population.

The low agricultural yields can be explained on the one hand by the lack of control over water resources and by the degradation of land and soil. On the other hand, it is noted by a lack of efficient agricultural equipment and an enormous difficulty in accessing quality inputs (seeds and fertilizers). In addition, there is a lack of infrastructure to support production, such as storage warehouses, processing and conservation units, and production tracks. There is also a lack of a marketing circuit for agricultural products (Communal Development Plan, Dialacoto 2018-2023).

- **The Commune of Missirah** is located in the district of Missirah, department of Tambacounda, region of the same name. It is located between latitudes 13°45 and 13°11 North and longitudes 13°16 and 13°45 West. In terms of climate, the Commune of Missirah is of the Sudano-Sahelian type, alternating between a long dry season from November to May with low temperatures ranging from 15° to 37° and high temperatures ranging from 21° to 40° with an average of 25° to 33°; followed by a short rainy season from May to October with rainfall varying between 800 and 1000 mm.

Three types of winds sweep the Commune: the continental trade winds, the harmattan and the monsoon. The harmattan is characterized by a hot and dry wind that often appears between February and April. During this period, evapotranspiration is high. According to climatic data from the Tambacounda station, there is an average of nearly 3,000 hours of sunshine per year. However, the duration of insolation is higher in the months of March-April and shorter in August. Relative humidity reaches a maximum of 97% during the rainy season (August to October). In the dry season, especially from January to April, humidity drops to a minimum of 10 to 13%. Annual evaporation is estimated at 2,664.5 mm. The month of March has the highest evaporation with 378.2 mm and the minimum is recorded in September (54 mm). From January to May, evaporation is over 300 mm.

The Commune of Missirah is located between the 800 mm and 1000 mm isohyets. It is covered by a rainfall station installed in Missirah: Rainfall is characterized by significant annual fluctuations. The table and graph below show that there are peaks of rainfall in 2010 and 2017. However, there are years where the amount of water that fell does not even reach the isohyet of the area. These are 2011, 2012, 2014 and 2016. This fluctuation has repercussions on the income-generating activities of the population, most of which are dependent on rainfall (Communal Development Plan, Missirah 2018-2023).



➤ *Region of Kolda*

- Located to the east of the KOLDA region in the Vélingara department, the **commune of Médina Gounass** covers an area of 592 km<sup>2</sup>. The climate is tropical Sahelian with a rainy season (July-October) and a dry season (October-June) and the temperature is relatively high, exceeding 42°C. Two main winds punctuate the commune: the harmattan, a dry and hot wind during the dry season, and the monsoon, a wet wind that brings rain. The inhabitants of the commune of Médina Gounass are farmer-breeders. They develop rice and market gardening in the lowlands. The hut fields are used to grow corn. Sorghum, millet, peanuts, and cotton, which constitute the main crops, are grown in the bush.  
Cash crops (cotton, peanuts) began to cover a large proportion of the cultivated area in the 1980s. Farmer support is limited to two main crops, groundnuts and cotton, and relates to agricultural equipment, the supply of inputs, and the establishment of marketing channels that producers consider operational. Agriculture, the main economic activity, relies on the availability of land and a physical and climatic environment that is favorable to its development. It occupies nearly 98% of the households in the local community because it is a purely agricultural area.  
This strategic position of agriculture is mainly explained by its enormous pedological potential, which allows the development of certain speculations. This explains the high use of land (PDC, Medina Gounass 2016-2022).
- **The commune of Linkéring** has 20513 inhabitants (ANSD 2013). distributed over an area of 1149 km<sup>2</sup> or a density of 45 hbts/Km<sup>2</sup>. It is administratively part of the district of Bonconto, department of Vélingara, region of Kolda. The commune is bordered to the east by the Niokolo Koba National Park, to the west by the commune of Bonconto, to the north by the commune of Médina Gounass and to the south by the commune of Paroumba and Guinea Conakry. The climate is of the Sudano-Sahelian type marked by the alternation of two seasons: - A rainy season lasting five months (June-October) with heat peaks that can reach 40°C and an atmosphere charged with humidity. - A dry season lasting seven months (November - May) with very significant temperature variations (around 20°C in December, exceeding 40°C in April - May). This season exacerbates the effects of drought due to a strong aridity with hot and dry winds, almost no humidity and a strong propensity for bush fires. Agriculture occupies almost the entire population of the Commune and provides its main food and monetary resources. It mobilizes almost the entire active population of the commune, which is either involved in cash crops or in food crops. Despite this strong mobilization, it must unfortunately be noted that this agriculture is far from covering the food needs of the population. It has been identified as a priority sector for wealth creation, and must first reduce the vulnerability of production activities, intensify and modernize agricultural production, develop irrigated agriculture, open up rural (production) areas, develop productive investments and strengthen farmers' organizations. The main crops grown are: ü Millet, sorghum, maize and rice as food crops ü Groundnuts and cotton as cash crops. Market gardening is a timidly practiced activity in the Commune because of the problem of access to water, but also and above all because the population considers it subsidiary. Supplemental crops (cowpeas, fonio): These are grown by a minority that generally does not have enough groundnut seeds. In fact, the disruption of the

commodity chain has led people to develop these types of crops, which were once little appreciated. Thus, they supplement groundnut production in various ways for consumption, marketing and fodder. The commune of Linkéring has a strong natural potential that facilitates the exploitation of various off-season crops. These include ponds, marshes, wells and a large area of soil suitable for this type of crop.

- **The commune of Sinthiang Koundara** is located to the north-east and 25 km from Vélingara, the chief town of the Department, on the National Road 6. It is part of the district of Bonconto. The commune covers an area of 700 km<sup>2</sup>. The climate is of the hot and dry Sudano-Sahelian type. It is marked by the alternation of a long dry season from November to May and a short rainy season from June to October. Based on the population's occupation calendar, the year is subdivided into 4 sub-seasons, namely the period/season known as "Thiéthiellé" (May-June) corresponding to the preparation of the fields  
the rainy season or "Ndoungou" (mid-June to October) dominated by the Monsoon, corresponding to the major crops grown in the rainy season.  
the so-called cold season or "Diawndé" (mid-October to January), which constitutes the transition between the rainy season and the dry season. In terms of occupation in the local cultural calendar, this season, during which temperatures hardly rise above 27°C, corresponds to that of the so-called off-season crops (particularly market gardening).  
Finally, the great dry season "Thiéidou" which lasts from February to mid-June. This period, dominated by the harmattan, corresponds to thermal peaks of more than 40°C. The temperatures are relatively high and vary between 20 and 40°C depending on the season. They alternate according to the periods. We have cool winds during the cool period between October and January, hot and dry winds called harmattans during the hot period between February and June. Finally, the winter period is marked by alternating hot and cold winds before and after the rain. Agriculture is the main economic activity of the Commune. It employs more than 80% of the active population and represents the primary source of income for the population. The potential in this area is significant. The main winter crops are, in order of importance:
  - Millet, which is the basis of the local diet
  - Groundnuts, which were the main cash crop
  - Rice, which is mainly cultivated by women and whose production is self-consumed
  - Maize, cowpea, sorghum, cassavaAgriculture has significant potential but faces constraints that prevent its development, particularly in terms of production, conservation, processing and marketing (PDC, Medina Gounass 2016-2022) de Sinthiang Koundara).

In summary, the project targets 9 communes, including 45 villages, in the 3 regions of south-eastern Senegal (Kédougou, Tambacounda and Kolda). The project intervenes in the peripheral communes of the Niokolokoba National Park, which is marked by the distribution and abundance of wildlife resources closely linked to the existence and types of plant formations. Climate change has had definite impacts on ecosystems and consequently on the fauna they shelter. These effects and impacts of the climate, combined with human actions, accentuate the degradation of forest and wildlife

resources. Cultivation practices (slash and burn), bush fires or abusive exploitation of forest resources (wood cutting, hunting, etc.), uncontrolled transhumance with its attendant harmful practices (abusive pruning, bush fires, degradation of forest and water resources) result in the degradation of agro-sylvopastoral systems, which leads to the vulnerability of the populations.

The project's target intervention areas are characterised, like the rest of Senegal, by an alternating dry season (from October to May) and a rainy season (from June to September). Agriculture, the main economic activity, relies on the availability of land and a physical and climatic environment favourable to its development. It occupies nearly 98% of households in the target zones. Agricultural activity depends essentially on rainfall and remains the main source of income for the population. According to the Climate Change Adaptation Action Plan of the Dar Salam commune, Kédougou, these areas are particularly vulnerable to the effects of climate change due to irregular rainfall. Increasingly, these areas are experiencing climate change-induced variations in rainfall and temperature. Climate change related to rainfall fluctuation affects natural resources in general and the agricultural activities that depend on them. The manifestations noted are a drop in the level of groundwater and a drying up of wells, early drying up of ponds, displacement of herds to the Gambia River for watering, drop in groundwater resources due to their nature (basement zone), reduction in the possibilities for market gardening activities, which is the main economic occupation of women, and a low number of water boreholes (which is the most secure way of supplying water to the population, livestock and even for off-season agricultural activities). These phenomena are amplified by anthropogenic effects, including bush fires, the wandering of domestic animals, the degradation of wildlife habitats and recurrent attacks by wild animals, particularly warthogs.

Rainfall variations have repercussions on the performance of agricultural activities and, in turn, on the income of the population. This situation strongly contributes to weakening production systems and exposes vulnerable local populations to food insecurity. Climate change is thus a threat to livelihoods.

The lack of alternative mechanisms or appropriate solutions to climate risks severely limits the ability of households to adapt to climate shocks.

The project has three major components: the establishment of a framework for exchange and awareness-raising among farmers to ensure their ownership of the adaptation and climate risk reduction processes, the dissemination of good agroforestry practices and the strengthening of livelihoods and sources of income for vulnerable people.

**Component 1:** Establishment of a framework for exchange and awareness raising among farmers for the appropriation of adaptation and climate risk reduction processes

Farmers usually learn by doing and experiment various new practices for themselves. This component aims at setting up frameworks for demonstration, exchange and sharing

of good agroforestry practices, in particular practices already observed in some places in the region. Nine agroforestry farms will be established in the intervention communes. The farms will be designed and implemented by producers opened to experience new practices for themselves, with support of the project and researchers. ISRA, an institution of applied scientific and technical research, has a strong experience in the establishment and management of these farms. It will be in charge of the technical part of the project related to the preparation (identification of potential sites, identification of target producers, carrying out of preliminary operations), to the implementation (technical operations of the farms) and to the animation of these farms. Through a scientific approach, it will carry out a baseline vulnerability study to map the climatic risks in relationship with the state of natural resources and the agricultural production techniques applied by producers. This study will give a detailed understanding of the adaptation capacities of producers, will help to identify the innovative best practices to be disseminated in each region, and to define the strategies that will be deployed in the farms to strengthen the knowledge of these producers on the mechanisms of adaptation to climate change and reduction of climate risks. In the farms, the producers will experiment a number of combinations of innovative practices to be identified among a set of 7 themes all related to agroecology and agroforestry (see details on the table of activities).

### **Component 2:** Dissemination of climate change adaptation technologies

This component, focuses on implementing a strategy to document and communicate at local, regional and broader levels, farm activities and results on best practices. The strategy aims to disseminate both local information from farms and meetings between local actors, and technical/scientific information from ISRA and the technical and scientific partners of the project. One aspect of the strategy consists in sharing knowledge and local experience for training session for producers and information for any other stakeholders in the region. Another aspect is to share widely more technical and scientific knowledge about climate smart agriculture through open online platforms.

Local dissemination strategy will be to create interest around the farms, and use farmer's experience and researchers' and facilitators' visits to produce a variety of supports for a variety of local stakeholders and situations (training sessions, local dialogues, community radios etc). This process will help producers to identify for themselves the best innovative techniques, meeting at the same time, economic and food production efficiency and adaptation to climate change and climate risk reduction. It will also help to measure the level of adoption of these agricultural technologies. These good practices will also be translated into multimedia content that will be disseminated through online knowledge sharing platforms. For instance, SOS SAHEL implements a region wide platform of non-state partners of the Great Green Wall (GGW). CSE also has a similar platform with the capacity to reach many actors. This wide dissemination allows other farmers in other regions and neighboring countries to capitalise on the experience of these farms and to strengthen their ownership of adaptation and climate risk reduction processes.

### **Component 3:** Strengthening the livelihoods and sources of income of vulnerable people

This last component aims at developing the fonio value chain. Fonio is a rustic drought resistant cereal endemic to West Africa. Not all the ethnic groups grow it, but it is more and more eaten in urban areas of West Africa, and exported. However, the culture of fonio slowly regresses because it needs important handwork, and the value chain is weak and disconnected. Producers are not organized, they cannot access seeds and technical advice, and the distribution of the production is poorly organized and economically valued. Selected producers will receive support in agricultural inputs and technical advice to increase the production of fonio. The selection of producers goes through several stages. The choice of the intervention zone was made on the basis of a diagnosis established by the PSE (Plan Sénégal Emergent). This diagnosis shows that the three intervention regions of the project have the highest poverty rates in the country (Kédougou (71.3%), Kolda (76.6%) and Tambacounda (46.7%). The prevalence of food insecurity in the regions is 39% for Tambacounda, 33% for Kédougou and 42% Kolda (Source: National Food Security Council 2017). Also, these regions are very vulnerable to climate hazards that occur on a recurring basis. If agricultural production systems do not adapt to the climate, the progress made in food security over the past few decades could be undone. The 9 communes were identified as part of a conservation project initiated by the African Union Inter-African Bureau for Animal Resources (AU-IBAR) between 2011 and 2013. A participatory and inclusive approach was used at the start of the project to select 45 villages for intervention in the Djigui Niokolo project. In each region, the partner NGO conducted several workshops with the administrative authorities (prefect and sub-prefects), technical services, local authorities and local communities to share the objective and criteria for selecting project beneficiaries. Thus, the criteria for the selection of the intervention villages focused on

- Vulnerable villages: socio-economic vulnerability is assessed in terms of lack of or poor access to drinking water, villages with no or few partners,
- Villages located in the park with environmental problems,
- Villages producing fonio or villages engaged in fonio production.

For the identification of the target producers, ISRA with local NGOs will also make the identification with local communities to respect the participatory and inclusive dimension promoted by the project. The criteria for selecting these producers are

- a producer living in the village and having his farm within the perimeter of the project village
- a fonio producer or a producer who did not produce fonio but who has a commitment to produce fonio (this will help to popularize fonio cultivation)
- a producer with a degraded plot of land
- a producer from a vulnerable household (widowed head of household, individual with a disability, household with the lowest monthly income)

SOS SAHEL has a long and efficient experience of agriculture good practices dissemination. 18 fonio's "school- fields" will be created on volunteers' farmers' land with

support of the project and the agriculture governmental local services. As well as the farms, these fonio’s “school- fields” are frameworks for the application of good technical itineraries for fonio production and for knowledge and technical skills sharing among producers. The producers will learn by doing and discussing the results of the techniques at the fonio “school- fields”. After they agree on the best practices, they decide to apply in their own fonio field. The inputs will be identified according to the standards and their adaptation to the agro-climatic contexts of the 3 regions of intervention of the project. Additionally, in another component of the project, SOS SAHEL develops activities to improve and lighten the transformation process and to strengthen the commercialization process. Long perceived as a traditional family crop for the poor, the promotion of this crop in the project aims to increase the area under fonio by 20%, the additional production of fonio by 150 tons and yields by 30%. This increase in production will push producers to market the surplus, which will in turn increase their income by 25%. The three components of the project are interrelated. The first and second components allow producers to appropriate good agro-pastoral practices. This knowledge will enable these producers to appropriate their climatic data and to restore and preserve their environments. The techniques assimilated will then be applied by the producers in their own areas. This will have a positive effect on the preservation of natural resources. In component 3, the aim will be to take advantage of this restoration and preservation of the environment. By growing fonio as the main crop, the producers will at the same time continue to preserve their environment but also generate agricultural income.

The proposed activities are aligned with the needs of the beneficiaries and will be implemented through a co-construction approach, promoting synergy between all stakeholders:

<b>General Objective:</b>	<b>Develop and promote agro-sylvo-pastoral systems that are ecologically sustainable and economically efficient</b>
<b>Specific Objective 1</b>	<b>Establish a framework for training and experience sharing on good agro-sylvo-pastoral practices</b> Strengthen awareness and ownership of adaptation and climate risk reduction processes of farmers
Expected result 1:	<b>A.1: Execute a vulnerability study and take inventory of agro-sylvo-pastoral practices</b>
Activities:	First, a vulnerability assessment at the community level will enable us to determine the risks and consequences facing communities and/or ecosystems because of climate hazards. It will also allow us to identify responses and adaptation strategies, as well as factors preventing their implementation. As a second step, taking inventory of promising practices of agronomy, forestry/agroforestry, Soil Defense and Restoration (DRS) and breeding will help prioritize key technologies while accounting for: i) sustainable improvement of agricultural productivity; ii) viability as an adaptation strategy; and iii) potential for greenhouse gas emission reduction (mitigation).

Expected result 2:	<b>A.2: Establish 9 climate-smart farms (5 ha each)</b>
Activities:	<p>In Burkina Faso, the NGO TERRE VERTE has developed, over the course of 30 years of experimentation, an original and highly elaborate technical approach to the creation of a hedgerow perimeter, bringing together several dozen producers within a network of living hedges, protected from external threats by a fence. The installation of each perimeter is technically accompanied by an associative pilot farm that provides the necessary technical support, training and equipment. Within each perimeter (100 to 300 ha), producers experiment with new agricultural practices and exchange the results of their experiences. In the Beog Puuto project, SOS SAHEL has partnered with TERRE VERTE to accelerate the establishment of pilot farms and bocage perimeters, under the authority of the national agency of the Great Green Wall and the Ministry of Agriculture. These farms are created to support producers who agree on the distribution of their land, in the installation of bocagers perimeters, that is to say networks of live hedges protecting the cultivation plots and bringing the benefits of agroforestry. These bocagers perimeters have demonstrated their efficiency to protect agriculture confronted to climate high variability and climate hazards. This experience will be utilized and inform this program across the additional 9 intervention communes in Senegal. In Senegal, the agroforestry farm model is not new, but much remains to be done before a technically efficient model is available to the greatest number of people. This is the challenge of the Djigui Niokolo project, in an approach inspired by the Beog Puuto experience.</p> <p>From an operational view, at the start of the project, the producers will collectively identify a group of approximately ten plots with different characteristics, which will then be the base for practicing technical innovations. The producers will offer their plots on a voluntary basis, supported by an awareness-raising process carried out by the commune with large village landowners to promote the granting of land to vulnerable households. The agroforestry farms provide a framework for training producers in the following seven areas:</p> <ol style="list-style-type: none"> <li>1. Use of climate forecasts and data.</li> <li>2. Choice of resilient varieties and best practices for adapting to climate change.</li> <li>3. Practice of agroforestry with short-cycle fruit trees and fodder.</li> </ol>

	<p>4. Management of natural regeneration assisted by producers.</p> <p>5. Concerted management of inter-village sylvo-pastoral areas.</p> <p>6. Planting of priority forest fruit trees in concessions.</p> <p>7. Crop diversification (e.g., maize, fonio, market gardening, watermelon, vegetables) and income opportunities connected to developing small forestry and agricultural enterprises (e.g., baobab fruit, groundnuts, fonio, poultry farming).</p> <p>The producers will learn theoretical and practical knowledge in these farms that they will duplicate in their respective agricultural perimeters. ISRA will establish a collective participatory research action protocol with these farmers and local governmental agriculture services. The farmers will be regularly visited at these farms to monitor the application of the new agroforestry techniques.</p>
Expected result 3:	<b>A.3: Organize field visits and exchanges with similar sites</b>
Activities:	<p>Through the Farmers of the Future (FF) approach, field visits and exchanges with similar sites will be organized and documented. The FF approach aims to improve adaptive capacity to the effects of climate change through the Climate Analogues tool. This concept has been developed by the CGIAR (Climate Change Agriculture and Food Security) Research Program on Climate Change, Agriculture and Food Security (CCAFS) to allow a user to identify and map spatial and temporal analogue sites.</p>
<b>Specific Objective</b>	<b>Strengthen the capacities of producers on good agro-sylvo-pastoral practices</b> <b>Increase and disseminate adaptive capacities of farmers in agro-sylvo-pastoral practices</b>
Expected result 4:	<b>A.4: Train producers in sustainable agricultural practices and agro-sylvo-pastoral models</b>
Activities:	<p>1,200 producers will be trained in the technicalities of agro-sylvo-pastoral production under the supervision of deconcentrated agricultural services. Trainings will cover the establishment of an agro-sylvo-pastoral farm, management, maintenance, processing and marketing.</p>
Expected result 5:	<b>A.5: Disseminate the best agro-sylvo-pastoral practices</b>
Activities:	<p>Finally, a dynamic environment to disseminate best practices will be established through: (i) the use of the SOS SAHEL-established platform for non-state actors supporting the Great Green Wall, developed in 2020, and (ii) periodic broadcasting of interactive</p>



	radio programs. best practices dissemination and result monitoring will be carried out by grassroots community organizations and their umbrella organizations, which will be trained and involved in the implementation of climate-smart farms
<b>Specific Objective 3</b>	<b>Support the sustainable development of the fonio value chain</b> Diversify and strengthen livelihoods and sources of income for vulnerable people in targeted areas by developing fonio value chain
Expected result 6:	A.6: Set up 18 farmer field schools dedicated to fonio
Activities:	With the support of ABL and ISRA, 18 farmer field schools will be set up to serve as a framework for training and sharing good fonio production practices. The 18 farmer field schools will be distributed throughout the project intervention zone, with two fields per commune. The production fields will be identified in consultation with local authorities and producers according to criteria relevant to the communities. Regular activities will be held in these fields to enable producers to adopt good fonio production practices. They will be able to duplicate the knowledge and practices acquired in their own farms.
Expected result 7:	A.7: To popularize and accompany the appropriation of the good practices resulting from the farmers' school fields dedicated to fonio
Activities	At the start of the project, 1,200 producers will be identified in a participatory and inclusive manner to benefit from fonio production support activities. Through the "producer field schools", producers will be trained to better understand and master fonio production techniques. To better strengthen the knowledge of producers, ABL will deploy training and support services for fonio producers. ABL will monitor the agricultural performance of producers and the expected results, and will mobilize local advisory support organizations (ANCAR and SDDR). In this sense, farmer monitoring sheets will allow regular monitoring of production from the plot preparation phase to the harvesting and post-harvest management phase. The monitoring of the producer will allow the collection of information for the monitoring of the associated indicators but also the exploitation and the analysis of these monitoring sheets will allow to make feedback to these producers to better guide them on the respect of the good cultural practices adapted to the climate change.
Expected result 8:	A.8 : Support fonio production
Activities	Producers will also be supported with quality seeds and adapted equipment to experiment the knowledge they have learned in the

"fonio school fields" in their own farming perimeters. The support will allow them to increase the area of fonio production and consequently increase the production of fonio and their farm income.

Fonio processing is currently carried out using methods that are not very efficient, resulting in products of insufficient quality and packaging that does not facilitate the development of secure marketing. This is also due to the lack of knowledge and visibility of producers on the markets, their potential and their requirements.

Based on a feasibility study, the project will initiate the establishment of Service Centers to reduce the post-harvest hardship of fonio. ABL (A Better Life) has developed a model for agricultural service centers for producers that can be adapted to the different localities of the Sahel and to the different sectors in which producers are active. These are physical centers located in rural areas that offer local services to producers according to their needs. The services delivered by the center can be the following

- Rental of agricultural equipment
- Sale of inputs
- Support and advice
- Rental of storage space
- Setting up of warrantage
- Product processing

These services will be paid for at competitive prices and incentives for the functionality and sustainability of the center. The first step of the ABL methodology for the establishment of a CSA is the realization of a study that allows to:

- Identify the value chains in which farmers are active.
- Understand the needs of farmers in these sectors
- Identify a potential location for the center

In order to ensure the sustainability of CSAs, two factors are crucial:

A viable economic model, which involves paying for services for producers. This allows both to generate enough income for the CFS to continue to operate, and to enhance the value of the services provided to the producers through the payment of fees.

Local governance and ownership of the center, which must be managed by the producers who benefit from its services. In

	<p>particular, it is this governance that will be able to set the prices of services according to the realities of the producers.</p>
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**B. Describe how the project provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project will avoid or mitigate negative impacts, in line with the Environmental and Social Policy of the Adaptation Fund.**

The project aims to improve the socio-economic conditions of vulnerable people. 1,200 producers will be selected according to their economic vulnerability and will be supported with inputs and technical supervision. such assistance will allow these producers to increase their fonio production areas and yields. As fonio is a difficult crop to harvest and process, the project will set up two agricultural service centers. These service centers will be equipped with agricultural equipment to help producers facilitate the harvest. It is expected that this will increase the harvest by an additional 150 tonnes by the end of the project. Fonio is traditionally a family crop and is used entirely for consumption. The project aims to turn this crop into a cash crop that is capable of meeting the food needs of these vulnerable people but also of generating income from the marketable surplus. These marketable surpluses will be subjected to a first transformation and a connection will be made with potential buyers of fonio in the local and international market. Fonio is increasingly coveted by the rich for its therapeutic properties. Fonio is a gluten-free cereal and therefore a food for people with gluten intolerance such as diabetics. The development of this crop allows these producers to master the techniques of production, harvesting and processing. An increase of 25% in agricultural income from the sale of fonio is expected at the end of the project. This increase in producers' income will contribute to the better provision of vital needs and the provision of secondary needs (health, education, living environment).

On the environmental level, the expected impacts are linked to the awareness of producers on the importance of adapting their production methods according to the cultivation calendar through the mastery of climatic data, the preservation and conservation of soils and natural resources, the technologies of adaptation to climate change and the reduction of climatic risks will be appropriated by the producers and applied in their own fields

**Beneficiaries:**

The project area is within 3 regions south-east of Sénégal (Tambacounda, Kolda and Kédougou) around the National Park Niokolo Koba, and more precisely in 9 rural

communities that have been identified in a former conservation project initiated by the African Union (AU-IBAR) in 2013. The objective was to identify and develop agro-sylvo-pastorales systems well integrated contributing to the conservation of biodiversity measures. It reduces deforestation, and enhances the economic stand of natural resources for a sustainable use.

Within those 9 communities (3 per region) 45 villages have been targeted, based on vulnerability criteria and prone to fonio production. The target communities are the producers living in the project intervention areas, especially those who are more vulnerable to the impacts of climate change, specifically to land degradation (develop techniques for soil restoration and maintenance of vegetation cover), climate variability (by training producers on how to adapt their techniques to the crop calendar adapted to their climatic context, promotion of climate change resilient cash crops (fonio). The activities promoted in this project will benefit a plurality of community actors (producers, breeders, beekeepers, who will be beneficiaries of the climate change adaptation activities. All these actors will be mobilized in the identification of technologies for adaptation to climate change that will be developed on the farms. Women and youth will be adequately represented in the targeting of direct beneficiaries.

Finally, 1200 producers were selected along with the local and technical partners. (mayor & team, village chiefs and relevant state services)

The project pays particular attention to gender reach and inclusion, as well as promoting expanded professional opportunities for women and youth. Within the framework of the implementation of this project, the gender dimension will be taken into account in all activities. Women and young people will be involved in decision-making and in the direct beneficiaries of the project's technical support and accompaniment. ISRA team as well as local NGOs will define mechanisms to ensure that women are representative in the number of producers targeted by activities related to agroforestry farms and support for fonio production. The inclusion of gender in the implementation of the project is visible through the indicator targeting 50% of women in the 1,200 target producers of the project. These women will thus benefit from training in agroforestry technologies deployed on the farms but also from support in terms of inputs for fonio production. Fonio is a crop traditionally grown by women. The project will alleviate the conditions of fonio exploitation to better encourage women to keep their position as dominant actors in the cultivation, processing and marketing of fonio. The project will thus seek to reduce gender disparities, reposition women in the production system and promote sustainable women's entrepreneurship for growth.

**C. Describe how the project encourages or accelerates development of innovative adaptation practices, tools or technologies and/or describe how the project helps generate evidence base of effective, efficient adaptation practices, products or technologies, as a basis for potential scaling up.**

The innovative nature of this project can be seen on three levels: (1) the project does not promote a few relevant adaptation techniques, but an integrated agro-sylvo-pastoral

approach (2) the project sets up a permanent system of rigorous experimentation, awareness raising and training of producers for the appropriation and adoption of adaptation techniques to change and (3) the project proposes a new approach for the promotion of fonio cultivation, integrating the aspects of cultivation techniques and integration into a larger agro-sylvo-pastoral type agricultural system

In Senegal, the southeastern regions and the periphery of the National Park in particular are the last charcoal production areas and host a large transhumant herd from Mauritania, Mali and northern Senegal. In response to the overconsumption of natural resources and climatic hazards, producers tend to use the resources of the national park therefore illegally degrading biodiversity. Furthermore, the decrease in available resources and climatic hazards lead to an increase in land-use conflicts between agricultural, livestock, forestry and conservation activities in the peripheral zone and in the national park

The project's intervention zones, despite their strong potential in natural resources (forest formations and biological diversity of wildlife resources), are experiencing the degradation of their natural environment, especially due to intensive exploitation of these natural resources. This trend is exacerbated by more frequent climatic hazards of increasing magnitude. Faced with increasing risks, local communities receive sectoral technical support that is not well adapted to the challenges of climate change.

In fact, in Senegal, the government's technical services are compartmentalized between the ministries and departments in charge of Livestock, Water and Forests and Agriculture. Although there are decentralized mechanisms for coordinating development programs, the technical services most often operate in separate dedicated areas, collaboration between the different services remains the exception and the technical orientations of these different services are not always compatible with each other. The project therefore proposes an approach of dialogue between these different services to design a system integrating the best practices of these different disciplines. This approach is consistent with local practices, since a large proportion of producers carry out both agricultural and livestock activities, and derive part of their resources from forests, without these being truly integrated. Agroforestry practices are still very little integrated into the good practices supported by the technical services.

Secondly, the project proposes a new type of training approach. It is an experimental and permanent approach, installed in voluntary producers. The agroforestry farms, which serve as a place for experimenting with good agricultural practices and environmental protection technologies, make it possible to place the researchers and the project's mechanism at the service of producers who so desire. In this sense, the project's mechanism allows for the validation, improvement and promotion of innovative practices observed locally, rather than the introduction of new, exogenous practices. This process of technical innovation is supervised by a research organization that gives it the rigor of a scientific process. In Senegal, ISRA has developed a similar experience only in the groundnut basin (specifically in Kaffrine, Daga Birane), which is also confronted with the same problems. With this project, producers in the target villages will be able to learn

about the climatic realities in a dynamic way and establish a real strategy for adapting agroforestry systems.

Finally, fonio cultivation is traditionally practiced in the south-eastern part of Senegal, especially in Kédougou, by the so-called poor social classes. It was also a marginal crop practiced by women on small portions of land (0.2 ha on average). The lack of technical support for production, the arduousness of harvesting and processing have made fonio a poorly developed crop in Senegal, and even a declining one. Yet fonio is recognized as a relevant response to the challenges of food security and climate change. It is a cereal that is increasingly appreciated on regional and international markets and would allow for the diversification of sources of income, as is the case in Mali today. The innovative nature of the project lies in the fact that it supports the development of fonio through support for production on the one hand - which has never been the case in Senegal - and for processing/marketing on the other hand through another component of the Djigui Niokolo project. The integration of fonio into agro-sylvo-pastoral systems is also new in Senegal. This approach is likely to take fonio out of its niche as a minor, marginal cereal and give it the status of a commercial production in which men and women play complementary roles.

The project will develop and disseminate adaptation and risk reduction technologies. Through the agroforestry farms, producers will appropriate climatic data from their areas to better adapt their production techniques to the crop calendar.

Climate change is already an undeniable reality for Senegal. In a report published on the State of the Environment by the Ecological Monitoring Centre (CSE), the following trends are noted:

- Mean annual temperature increased by 1.6 °C since 1950 with a stronger observed increase in the north of Senegal averaging 3 °C.
- A 30% reduction in rainfall between 1950 and 2000, with a strong variability from one year to another and from region to region. While precipitation trends have improved since 2000, it does not necessarily signal an end to the dry cycle.
- Higher frequency in flood events, particularly in the lower lying areas of Dakar and northwestern Senegal.
- Extreme droughts in 2002 and 2011 heightened food insecurity for over 200,000 and 800,000 people, respectively.
- Changes in the production of biomass, especially in the northern part of the country, reducing forage production for livestock activity.

Climate projections indicate:

- Temperatures continue to increase by 1.1 to 1.8 °C by 2035, and up to 3 °C by the 2060s. Warming is faster in the interior of the country than compared to the coastal areas.

- While there is uncertainty in climate models for projections on precipitation, it is expected that similar trends will continue with higher rainfall events, but fewer rainfall events overall leading to dry spells. Some climate models show an increase in precipitation (50–100 mm) in the Casamance region and a severe decrease in eastern Senegal [28]<sup>2</sup>.

. With climatic variability, producers have long been confronted with technical difficulties: plant burns due to heat or crop losses due to rainfall. The poor control of the cultivation calendar in the context of climate change is one of the biggest problems for agriculture, especially in the intervention zones where it is dependent on rainfall. Through the farms, farmers will be strengthened to develop sustainable cropping systems in the context of climate change. The project also ensures environmental sustainability through soil restoration, conservation and natural resource preservation techniques that will be deployed at the farm level and implemented by farmers on their own farms. Producers will learn about ANR techniques, crop choices adapted to climate change and the development of alternative crops to cope with climate change. In this sense, fonio is promoted by the project. This local cereal is already widely consumed in the region. As its life cycle is very short, poor households can harvest it sooner than other cereals and reduce the food shortage period. Hence it is important in food security local strategies. It is also well adapted to high climate variability and drought conditions and Senegal climate change strategy mentions fonio to diversify food systems. It is a very resistant and very rustic plant that can even grow on marginal lands, poor and degraded soils. It is a drought tolerant plant and does not need much water. Thus, it is a sustainable crop for these producers in the current context of irregular and low rainfall. The knowledge and good practices will be documented and disseminated to other producers. These producers will also be able to benefit in the long term from this knowledge and technology.

The project foresees 9 agroforestry farms, one in each commune. At first, ISRA, in collaboration with local NGOs, will carry out a series of visits and exchanges in these villages using a participatory and inclusive approach involving all community actors to present the initiative and set up an inter-village assembly in each commune. The inter-village assembly is an association that will bring together all the community actors in the villages. An inter-village committee will be set up within the assembly bringing together all the key actors representing various value chains. Its role is to identify and target different areas in the community to be invested in, the potential value chains to be developed, the groups of producers to be involved in each value chain, the promising practices and technologies, the potential partners in each value chain, etc. This inter-village assembly will facilitate the selection of volunteers who will commit to making land available to integrate the pilot farms and/or to serve as training fields

Based on the exchanges and the diagnosis established by the inter-village committees, ISRA will define the content to be developed in each farm in order to demonstrate good

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<sup>2</sup> [28] Jalloh A; Nelson GC; Thomas TS; Zougmore R; RoyMacauley H. (Eds.) 2013. West African agriculture and climate change: A comprehensive analysis. IFPRI books and research monographs. 408p. DOI: 10.2499/9780896292048

agroforestry technologies while taking into consideration climatic contexts and local anthropological realities of each commune. The innovation aspect lies in the research action to experiment and document the good agroforestry technologies co-identified. ISRA will deploy agents who will regularly conduct technical animations in these farms and commented visits to the target producers' own experiences. This will help reinforce the appropriation of these technical innovations by the project's target producers.

The role of ISRA in this project is to carry out all activities related to the establishment and animation of agroforestry farms. It will conduct a study of vulnerability factors and local adaptation practices to climate change by producers. Based on this study, local realities, consultations with local communities and local NGOs, ISRA will identify and select good agroforestry practices to be implemented in these farms. Through a rigorous scientific protocol of research-action, ISRA will supervise the process of setting up the farms (creation of a local governance framework with all the actors concerned, identification of sites and realization of the technical and physical operations of setting up the farms), animate the trainings and realize technical operations of demonstration of soil restoration, adapted agricultural technologies, information of the producers on the climatic data...). Once the systems have been set up, ISRA will organize, in coordination with the technical services and the local project teams, periodic visits to monitor and discuss the results observed on their own experiences with the producers. ISRA will set up a scientific monitoring system with a view to publishing results for research.

ISRA's presence with SOS SAHEL is essential to bring scientific rigor to an approach that remains participatory and inclusive and puts the target communities at the heart of the decision-making process for the identification of practices and technologies that strengthen the adaptive capacities of producers.

It will adopt a participatory and inclusive approach by putting the target communities at the heart of the decision-making process from the identification of technologies to their mainstreaming. ISRA is a scientific research institution that also guarantees scientific rigor in relation to the learning of good agroforestry practices.

In Senegal, ISRA conducted a climate vulnerability study in fifty (50) villages in five (5) rural communities in the Kaffrine region. Kaffrine is located in the groundnut basin, where land use and natural resource management patterns have been disrupted to the point that it goes against ecosystem resilience processes. The agricultural production systems are experiencing a gradual decline in soil fertility due to continuous cultivation. After an in-depth analysis, the village of Daga Birane was selected in 2011 to develop the concept of a climate-smart village, which is an integrated participatory approach using climate practices and/or improved contextual technologies to sustainably increase productivity and income, improve the resilience of people and ecosystems, and reduce greenhouse gases. With the selection of the village of Daga Birame, a diagnostic was conducted using the Climate Change Adaptation Capacity Planning and Monitoring Toolkit (TOP-SE CAC) based on an analysis of vulnerability and adaptive capacity to climate change. This identification of constraints and opportunities was essential to designing the climate-smart village of Daga Birame. Given the village's vision of its future, the community identified a



set of actions to be implemented to achieve the desired changes in agricultural productivity, food security, income generation, improved resilience, and sustainable environmental management in the village. These actions were structured around four components: (i) climate services and information, (ii) development of climate-smart agricultural technologies/practices, (iii) village development planning, and (iv) local knowledge and institutions. A multi-actor innovation platform in Daga Birame has been set up as a driving force and allows the population to regain control of their own development. It brings together all social strata of the village community, i.e., men, women, youth, traditional leaders and marginalized groups in Daga Birame village. It is considered the local governance institution that is leading the implementation of the community work plan for the creation of the climate-smart village. This platform has enabled the village community to launch important initiatives to ensure local development, including

- the protection of baobabs in the village;
- the creation of a protected area (fencing): During the initial diagnostic exercise
- , the local communities identified high winds, flooding, erosion and drought as the main climate risks for the village.

The technologies or practices selected are: assisted natural regeneration (ANR), domestication of fruit/forest trees and fencing. These methodologies and good practices will be capitalized and taken into account in the framework of the project.

The 9 climate-smart farms set up as part of the project constitute a bridge between the world of agricultural research and the actors in the field (agricultural producers). This connection facilitated by the project allows the co-construction with the producers of proven tools and a useful knowledge base related to the agro-sylvo-pastoral system sensitive to climate change for the 9 communes.

In the same way, the model of farmer field schools specific to fonio will make it possible to enhance local good practices and promote new production practices better adapted to climate change to significantly improve the yield and the conditions of sustainable production of fonio.

One of the major problems raised by and common to all the producers we met is the post-harvest difficulty of fonio. This is a major constraint to significant fonio production, especially for the women who are mostly active in the sector. To respond to this pressing need, in addition to the initial technical support, SOS SAHEL intends to set up local agricultural service centres to support producers with a range of paid services adapted to their needs (supply of inputs such as quality or certified seeds, organic fertilizers, rental of agricultural equipment, hullers, cowsheds, advisory support, storage, etc.)

These centres will be accompanied in their administrative and financial management so that they are profitable and sustainable. These service centres will also be hubs for aggregating and storing production, enabling them to develop the warranty system to access financing for producers. This system will allow producers to sell at better prices at a more favourable time, while having the possibility to have part of their money in advance to carry out other activities.

The agroforestry farm model is a system that allows producers themselves to experiment and demonstrate good agricultural and agroforestry practices adapted to local conditions. These good practices are themselves the result of local practices observed in the field, which is worth to be promoted and diffused. The endogenous character of the innovations to be promoted, and the local, open character of the agroforestry farms were preferred to other approaches because they encourage adoption and duplication by other people in the community, and can furthermore be adopted and adapted by other communities according to their specific context.

The scheme can be replicated at the local level in all West African countries and beyond. The conditions required for successful scaling up are the modes of documentation and communication according to the audiences. Locally, the participatory approach, capacity building through support from research and technical services must be reinforced by local communication adapted to local practices (billboards, community radio, etc.). At the regional level, SOS SAHEL favors the provision of online platforms for the exchange of information, testimonies, and scientific knowledge, in various simple formats accessible to all. For example, in Senegal, climate information is considered an agricultural input in the same way as seeds, fertilizers and equipment. This work to mainstream the use of climate information services began with ANACIM capacity building of 82 rural community radio stations in the country's 14 administrative regions to broadcast special programs on climate information services. ISRA, CSE, and SOS SAHEL each have a platform for wide-scale knowledge dissemination. During the implementation phase of the climate adaptation technologies and the guided tours to the targeted producers' farms, multimedia content (sound, text, image) will be produced and shared through all possible publication channels (computer platform, newspaper, community radio program, written publications, etc.) for a wide appropriation of these agro-climatic technologies.

A part from the 9 agro-sylvo-pastoral farms sensitive to climate change, 18 other farmer field schools focused on fonio production will be set up to train and support the fonio producers targeted by the project. These 18 fonio field schools will be identified among the 45 intervention villages of the Djigui Niokolo project. Those farmer field schools will be chosen and put into place through champions (model farmers) who in their turn will disseminate and support their fellow farmers. At least 1200 producers will be the direct target that will share the message with other across different villages.

Our ambition is to promote sustainable and resilient family farming through the development of Fonio in southeastern Senegal to meet the challenges of food insecurity and poverty. However, fonio agricultural statistics (source: ANSD) show a decline in production (-1.2%) and yields (-3.4%) despite the increase in area (2.2%). To reverse this trend, the mainstreaming and adoption of good agroforestry techniques developed in climate-smart farms will make it possible to increase yields (+30%), production (+150 additional tons), area (+20%), and the incomes of fonio producers (+25%). In addition, there is the preservation and restoration of land. All these expected benefits and the effective low-cost measures resulting from the action research will make it possible to establish a satisfactory cost-effectiveness ratio.

**D. Please confirm whether the project meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and is in line with the Environmental and Social Policy of the Adaptation Fund.**

At this stage, the project has not been subjected to an environmental assessment in accordance with the technical standards at national level in force. However, CSE, through its Environmental and Social Safeguards Unit, is committed to carrying out an environmental screening of the project prior to its implementation in order to comply with national standards and norms as well as the environmental and social policy of the Adaptation Fund.

**E. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.**

It is important to document and share the lessons learnt from positive experiences resulting from the achievement of the project objectives or the negative ones resulting from these failures. This information is a huge potential to bring crucial knowledge to the design and implementation of strategies enhancing resilience to climate change. To make sure that throughout the project steps, lessons are documented and shared; documentation of lessons learnt will be included in the monitoring-evaluation process. Such approach helps ensure that the project can be reviewed at each stage and the lessons learnt and best practices can be valued in planning the next steps. It also helps record knowledge and enters them into a common reservoir where they can be shared with other stakeholders and the sub-region level.

The project plans to capture and disseminate the knowledge produced in the climate-smart farms and farmer field schools dedicated to fonio through the CSE knowledge management system developed with the support from the Adaptation Fund.

**The process will comprise four major steps:**

1. Make an inventory of knowledge: the project managers and the Monitoring & Evaluation Team will collect information through structured or non-structured approaches (interviews and observations) by filling out "lessons learnt" cards;
2. Check and summary: the project managers check the accuracy and applicability of knowledge gained in relation with the Monitoring-Evaluation officer. The reports are then forwarded to the project coordinator who will ask experts to determine whether a lesson is specific to a particular component of the project, the entire project or the projects in general;
3. Reporting: the project coordinator will then produce a general report on the lessons learnt for the period under review;

4. Dissemination: the coordinator distributes the report internally (to the steering committee, the project managers and members of the project team) and externally (on the project website and other electronic forums). By the end of the project, a lessons-learning document will be prepared and published.

The project will work with other projects and programmes to disseminate the information with cost-effectiveness.

- F. **Provide an overview of the environmental and social impacts and risks identified as being relevant to the project. Describe how the project will engage, empower and/or benefit the most vulnerable communities and social groups, including gender considerations, in line with the Environmental and Social Policy of the Adaptation Fund.**

The project proposal includes unidentified sub-projects (SPNI), making it difficult, if not impossible, to transparently and comprehensively define the risks associated with the implementation of the sub-activities. The results of the vulnerability study will allow to effectively define the proposed solutions at the level of each of the 9 farms that will be implemented by the project. Based on this, an environmental screening will be carried out by the CSE experts to determine the environmental and social risks.

#### **Risks identified**

Potential lack of project ownership by the populations, as well as the possible lack of commitment of various stakeholders, pose a primary risk to this project. This risk will be limited by

1. creating and facilitating a dialogue framework with political/local authorities and the population (i.e., continuous communication and awareness-raising),
2. and building local decision-maker capacity to engage in participatory and inclusive consultation processes. Constant dialogue, as well as capacity building according to the needs expressed by implementing partners, will be supported by complete transparency in organization and actions. This will motivate local operators as well as the populations concerned to become actively and constructively involved in project implementation.

Despite of this, the project is classified as category C since it presents very low to non-existent adverse environmental and social risks (see environmental and social screening form) and does not require any additional impact assessment. Nevertheless, during the implementation of the project, we commit to monitor unforeseen environmental or social impacts, as well as E&S risk assessments, all of which will be notified in the PPRs. Risk categorization will also be updated during project implementation and included in the PPR.

## **G. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.**

This funding request is addressed to the AF for the implementation of various activities enabling producers to adapt their agricultural production systems but also to strengthen their resilience to climate change. Indeed, Senegal, like many developing countries, is experiencing the effects of climate change with the advance of the sea, very irregular rainfall, high temperatures and frequent flooding in urban areas. Economic activities such as agriculture, livestock breeding and fishing, which employ nearly 70% of the country's active population and are highly dependent on climatic factors, are severely affected. This situation has a negative impact on the living conditions of the population, with a drop in income, a recurrence of food and nutritional insecurity, an increase in migration and a rise in poverty. Through this project, SOS SAHEL, in partnership with the CSE, aims to contribute to the improvement of agricultural production conditions with an approach of adaptation to Climate Change (CC) in the peripheral communes of the KNP. This area is increasingly confronted with strong winds causing enormous damage, falling trees, climatic variation (alternating between heavy rainfall and a drop in rainfall, periods of high heat ...), floods that cut off access to villages ... The project aims to strengthen the knowledge of local actors and populations on climate change and the adaptation strategies to adopt. The project aims to strengthen the knowledge of local actors and populations on climate change and the adaptation strategies to adopt. It will thus set up agroforestry farms that are a framework for sharing and learning techniques for adaptation and reducing climate risks. The idea is to help producers understand and master new adaptation technologies (soil preservation and conservation, tree maintenance, choice of resilient varieties, knowledge of climatic data to adapt the cropping calendar, etc.). This production will enable them to strengthen their agricultural income and reduce their socio-economic vulnerability to climate change. Fonio is a resilient plant whose cultivation is an adaptation to climate change.

These funds will be used to support the adaptation activities of objective 2 of the Djigui Niokolo project. This project is being carried out in the same communes of intervention by SOS SAHEL with funds from AFD. The pooling of the two funds will make it possible to strengthen the effectiveness of the action and to reinforce adaptation to climate change and risk reduction.

AFD funding has already been received. The funds received from AFD have enabled the project to start and carry out the vulnerability study. This study established the inventory and prioritization of climate-smart agro-sylvo-pastoral technologies and practices to be tested on the 9 farms and then popularized for widespread adoption. The funds expected from the AF will enable the project to be carried out independently, given that the AFD funding has been finalized. AF funding is essential to build all 9 climate-smart agro-sylvo-pastoral farms, to train the 1,200 producers in best practices and finally to disseminate the adoption of best practices to a large number of producers, thus developing and disseminating adaptation and risk reduction technologies. Without AF funding, the expected results and sustainability of the project will be compromised.

## PART III: IMPLEMENTATION ARRANGEMENTS

**A. Describe the arrangements for project / programme implementation.**  
**Several institutions are involved in fighting climate change in Senegal. For the implementation needs of this project, only the main stakeholders in this project will be analyzed.**

The **Direction of the Environment and Classified Establishments (DEEC)** of the Ministry of the Environment and the Sustainable Development (MEDD) is the Designated Authority (DA) of the Adaptation Fund (AF) in Senegal; she has endorsed the current request of financing. (See letter of endorsement)

### **National Implementing Entity:**

**Centre de Suivi Ecologique (CSE)** is semi-autonomous body created in 1993 with the long-term mission of contributing to the economic development of Senegal by facilitating the participative management of natural resources and the environment by gathering, treating, analyzing and disseminating data and information about the territory and the resources. CSE covers a wide range of interventions, including the monitoring of the environment, town and country planning, decentralization, early warning, disasters management, capacity-building, costal area management, etc. Its activities, across all these areas, are based on the use of the geomatics combined with field work. CSE was accredited as National Implementation Entity (NIE), with the Adaptation Fund (AF) and with the Green Climate Fund (GCF). CSE successfully led an adaptation project in Senegal's coastal zone (Adaptation to coastal erosion in vulnerable zones). It has also recently — and successfully — submitted to the GCF a project proposal, which is one of the three first projects approved for Africa by the Green Climate Fund.

### **Executing Entity**

Founded in Senegal 45 years ago, **SOS SAHEL** is an international NGO that works to bring lasting, sustainable development to rural areas across the Sahelian belt. Their mission is to ensure food and nutritional security for communities in sub-Saharan Africa and amplify local voices on an international stage. SOS SAHEL and its partners share similar values of inclusion, sustainability, trust, respect, collaboration, innovation and responsibility. Furthermore, they share a common vision to promote entrepreneurship and innovation, built on local expertise, while working towards the Sustainable Development Goals and the African Union's Agenda 2063.

Within this region, SOS SAHEL has established and launched flagship programs such as the Green Initiative, which provides adaptive solutions to climate change and food and nutritional security for local communities. SOS SAHEL prioritizes

women's empowerment, recognizing the central role women play in producing agriculture.

Their strength lies in solidarity and collaboration with the network of partners and expertise gained from multiple generations of experience and commitment to the Sahel. SOS SAHEL brings ingenuity and innovation to all that we do, introducing modern methods of farming that respect the environment and promise sustainable development for a resilient and nourishing Sahel.

### **Delivery partners**

**A Better Life (ABL)**, is the social enterprise that helps SOS SAHEL develop the entrepreneurship components of our projects to ensure sustainability through a robust economic model that is community owned and led. ABL will then bring its technical expertise to develop this in partnership with all stakeholders

**Senegalese Institute of Agricultural Research (ISRA)** is a parapublic research organization made up of a group of specialized institutes, including the National Center for Forestry Research (NCFR), which will mainly be involved in the project to develop agro-sylvo-pastoral models through climate-smart farms. The NCFR will mobilize other institutes as needed, particularly for the supply of quality fonio seeds. ISRA has a strong research expertise on agro-sylvo-pastoral models that contribute to improving the resilience of communities and ecosystems to climate change constraints. ISRA also works in close collaboration with the international research community (IRD, CIRAD, ...). With this partnership, SOS SAHEL strengthens its expertise by investing in related fields - through research/action

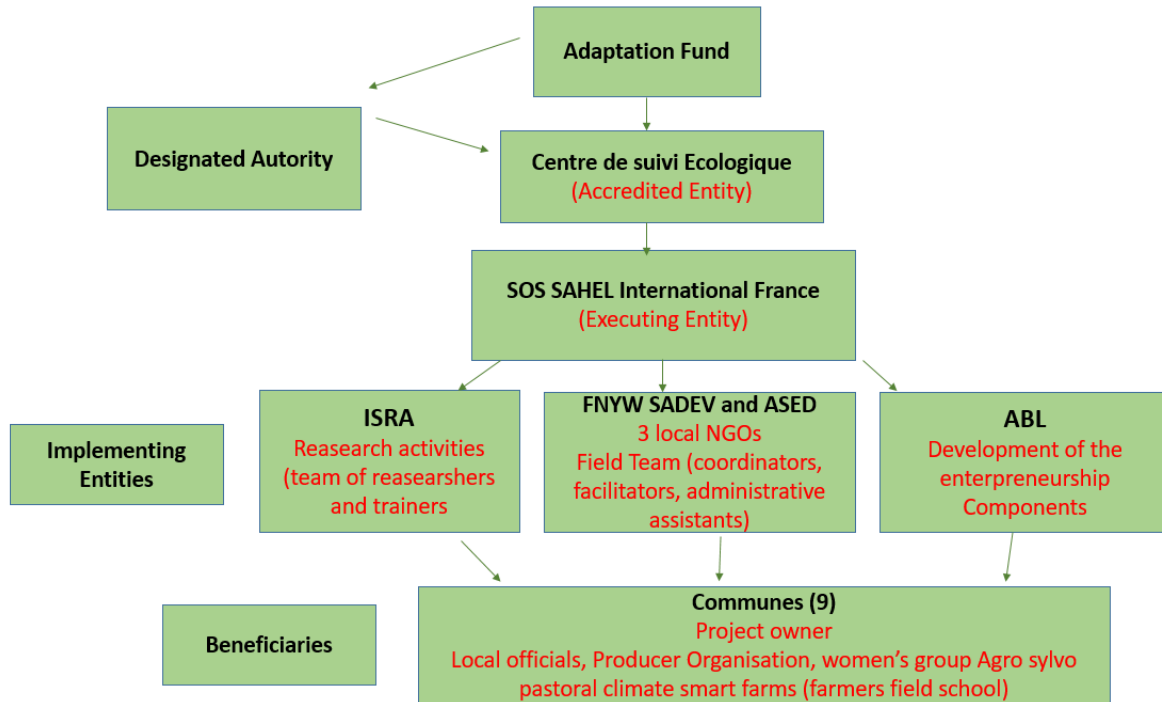
The **three local partners** implementing the project in each of the regions are as follows:

- The Fédération Yakaar Niani Wulli (FYNW) in Tambacounda
- The NGO Solidarité - Action – Développement (SADEV) in Kedougou
- The NGO Action pour le Secours de l'Éducation et le développement (ASED) in Kolda

The above entities will provide:

- 3 Regional Coordinators: In their assigned area, they are responsible for planning, preparing and supervising the operational and financial execution of project activities. They ensure project consistency across technical and methodological aspects, organize interventions by various service providers, draft narrative reports and ensure synergy with other actions. They also coordinate the facilitators;
- 9 facilitators: They supervise and accompany target groups to execute program activities, providing needed support and reinforcing their capacity. They periodically collect and record project data for the monitoring and evaluation database. They are located in the 9 communes of the intervention regions;

- 3 administrative assistants: They verify, record and file accounting documents for each partner. The accounting is done by SOS SAHEL in Dakar.



### Implementation arrangements of the project

#### **B. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.**

The Monitoring and Evaluation of the project will be made according to the procedures established by CSE and by the AF. The Results framework gives the performance indicators against which the project will be evaluated and specifies the baseline as well the objectives to be achieved. The M&E system proposed describes the main planned activities to be executed in the M&E, reporting and project analysis system (MERAS).

For this project, SOS SAHEL will ensure the monitoring and evaluation of activities in accordance with the established results framework and in parallel, the CSE will ensure the overall supervision of the activities in its role as an accredited entity.

SOS SAHEL has structured its organization to ensure monthly monitoring of project and program operations and finances. It involves the Operations Department, the Finance Department and the Knowledge Management Department (in charge of monitoring-



evaluation-capitalization) who work in symbiosis to ensure the relevance and efficiency of actions.

SOS SAHEL has a monitoring and evaluation system that integrates all the components of the project and involves the delegated project managers. This system is piloted by the project's Monitoring and Evaluation Manager who, alongside the Project Manager, organizes regular monitoring points with the coordinators of SADEV, ASSED and FYNW and feeds the project monitoring into the DELTA software every month. This software allows for a precise follow-up of the indicators (productions, results, impact) of the projects and programs of SOS SAHEL and its network of partners. The Delta software includes integrated survey and mapping tools. All the activities and indicators of the project are entered into the software with the possibility of detailed planning of the realization of the activities and the achievement of the indicators. The person in charge of monitoring carries out, according to the periodicity retained in the monitoring plan of the indicators, via the Delta mobile application or Kobo collect, data collection to inform the effectiveness of the activities and the achievement of the indicators. The software offers an interface for processing and analyzing the project's progress and the progress of the indicators. It also provides quarterly technical reports and sectoral reports. In addition to technical monitoring, to better ensure the proper use of resources and compliance with procedures, financial monitoring is carried out on a monthly and quarterly basis according to a reporting procedure and templates on which the implementing partners have been trained. The SOS SAHEL Finance team carries out regular internal controls to verify the completeness, accuracy and reality of project expenditures. This regular monitoring will ensure accurate and efficient management of the project budget.

An overall evaluation of the program is planned and may take into account the specific requirements of the donor. A final financial audit by a certified accounting firm is planned at the end of the project. The CSE will not be directly involved in executing project's activities, but will be supervising the project execution.

<b>Activities</b>	<b>2023</b>	<b>2024</b>	<b>TOTAL Dollar</b>
Project monitoring activity	1 440	1 440	2 880
ISRA producer monitoring	2 000	2 000	4 000
Monitoring CSE land restoration	4 000	4 000	8 000
Monitoring mission in charge Monitoring evaluation	3 000	3 000	6 000

**C. Include a simple results framework for the project proposal, including milestones, targets and indicators.**

	Results chain	Performance indicators			Means of verification	Timeline
		indicators	Baseline	targets		
<b>Establish a framework for training and experience sharing on good agro-sylvo-pastoral practices</b>	Execute a vulnerability study and take inventory of agro-sylvo-pastoral practices	Number of vulnerability studies of Agro Sylvo Pastoral practices carried out	0	1	01 Feasibility report is produced by ISRA	Quarter 1
	Establish 9 climate-smart farms (5 ha each)	9 climate-smart agro-sylvo-pastoral farms of 5ha are created	0	9	45 ha of agro-sylvopastoral farms are created	Quarter 2 & 3
	Organize (06) field visits and exchanges with similar sites	At least 60% of the participants in the visits learned new knowledge on good agro-sylvo-pastoral practices	0	6	06 Visit reports and random questionnaire forms	Quarter 5 & 6 & 8
	Train 12 000 producers in sustainable	1,200 producers have	0	1200	Producer training reports	Quarter 2 & 3 & 4 & 5 & 7 & 8

<b>Dissemination of climate change adaptation technologies</b>	agricultural practices and agro-sylvo-pastoral models	increased their knowledge of good agro-sylvo-pastoral practices				
	Disseminate the best agro-sylvo-pastoral practices	100% of the platform's producers have access to knowledge and good agro-sylvo-pastoral practices			Connection link to the knowledge management platform	Quarter 3 & 4 & 5 & 7 & 8
<b>Support the sustainable development of the fonio value chain</b>	Set up 18 farmer field schools dedicated to fonio	18 Farms with the "School Fields" concept are set up	0	18	Mission report	Quarter 3 & 4
	To popularize and accompany the appropriation of the good practices resulting from the farmers' school fields dedicated to fonio	Publication of good practices from the Fonio school fields	0	1	Communication support on Fonio production	Quarter 3 & 4 & 5 & 7 & 8
	Support fonio production	Increase of Fonio production in the project area to 150 t	T	T+150	Production report at the end of the crop year	Quarter 1 & 2 & 5 & 6

**D. Demonstrate how the project / programme aligns with the Results Framework of the Adaptation Fund**

<b>Project Objective(s)<sup>3</sup></b>	<b>Project Objective Indicator(s)</b>	<b>Fund Outcome</b>	<b>Fund Outcome Indicator</b>	<b>Grant Amount (USD)</b>
Improve the livelihoods of producers through the development of the fonio sector	An increase in the agricultural income of fonio producers of 25% at the end of the project 150 additional tons of fonio are produced at the end of year 3	<b>Outcome 6:</b> Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	% of households and communities having more secure access to livelihood assets	<b>91 000</b>
Strengthen the capacities of producers on good agro-sylvo-pastoral practices	1200 producers have strengthened their knowledge on good agro-sylvo-pastoral practices 60% of the participants in the visits learned new knowledge on good agro-sylvo-pastoral practices	<b>Outcome 6:</b> Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas <b>Outcome 8:</b> Support the development and diffusion of innovative adaptation practices, tools and technologies	% of targeted population with sustained climate-resilient alternative livelihoods  No. of key findings on effective, efficient adaptation practices, products and technologies generated, and/or "learning and sharing" initiatives undertaken	<b>49 000</b>

<sup>3</sup> The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

Establish a framework for training and experience sharing on good agro-sylvo-pastoral practices	1200 producers were trained on good agro-sylvo-pastoral practices at the end of the project 80% of the trained producers have mastered and applied the adapted agro-sylvo-pastoral models at the end of the project	<b>Outcome 6:</b> Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	% of targeted population with sustained climate-resilient livelihoods	<b>70 440</b>
<b>Project Outcome(s)</b>	<b>Project Outcome Indicator(s)</b>	<b>Fund Output</b>	<b>Fund Output Indicator</b>	<b>Grant Amount (USD)</b>
An inventory of producers' agricultural practices is established.	1 feasibility study of agro-sylvo-pastoral systems	<b>Output 1:</b> Risk and vulnerability assessments conducted and updated at a national level	No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks	21 948 (AFD Funding)
Creation of agro-sylvo-pastoral farms	9 agro-sylvo-pastoral climate-smart farms of 5ha are created	<b>Output 6:</b> Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability  <b>Output 8:</b> Viable innovations are rolled out, scaled up, encouraged, and/or accelerated	No. and type of adaptation assets (physical as well as knowledge) created in support of individual or community-livelihood strategies  No. of partnerships leveraged for exchange of goods or services or ideas, consultations and assistance	41 478 (AF Funding)

			between grantee and stakeholder/s	
Establishment of fonio farmer field schools	18 "fonio school fields" are set up	<p><b>Output 6:</b> Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability</p> <p><b>Output 8:</b> Viable innovations are rolled out, scaled up, encouraged, and/or accelerated</p>	<p>No. and type of adaptation assets (physical as well as knowledge) created in support of individual or community-livelihood strategies</p> <p>No. of innovators supported who can introduce an innovation</p> <p>No. of key findings generated from an innovation practice, tool, and/or technology</p>	39 250 (AF Funding)
Organization of exchange visits	6 exchange visits are made	<p><b>Output 3:</b> Targeted population groups participating in adaptation and risk reduction awareness activities</p>	No. and type of risk reduction actions or strategies introduced at local level	4 436 (AF Funding)
Training of producers	18 training sessions are organized for 1200 producers	<p><b>Output 6:</b> Targeted individual and community livelihood strategies strengthened in relation to</p>	No. and type of adaptation assets (physical as well as knowledge) created in support of	11 327 (AF Funding)

		<p>climate change impacts, including variability</p> <p><b>Output 8:</b> Viable innovations are rolled out, scaled up, encouraged, and/or accelerated</p>	<p>individual or community-livelihood strategies</p> <p>No. of learning and sharing initiatives undertaken, including communication initiatives</p>	
<p>Best practices are disseminated on the knowledge management platform</p>	<p>100% of the platform members have access to knowledge and good agro-sylvo-pastoral practices</p>	<p><b>Output 6:</b> Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability</p> <p><b>Output 8:</b> Viable innovations are rolled out, scaled up, encouraged, and/or accelerated</p>	<p>No. and type of adaptation assets (physical as well as knowledge) created in support of individual or community-livelihood strategies</p> <p>No. of learning and sharing initiatives undertaken, including communication initiatives</p>	<p>24 000 (AF Funding)</p>
<p>Producers have access to basic services to support fonio production</p>	<p>2 service centres for producers are set up</p>	<p><b>Output 6:</b> Targeted individual and community livelihood strategies strengthened in relation to climate change</p>	<p>Type of income sources for households generated under climate change scenario</p>	<p>177 416 (AFD Funding)</p> <p>59 139 (AF Funding)</p>

		impacts, including variability		
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**E. Include a budget, including a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.**

Component	Outputs	Activities	Year 1	Year 2	Total	Notes
Management fees						
		CSE Staff allowances	2500	2500	5000	
		Field supervisions	2110	2000	4110	
		Control of works	1000	1500	2500	
		Inception workshop (Contribution to execution resources)	3277	0	3277	
		Financial fees	1500	1500	3000	
<b>Total Project Management Fees</b>			<b>10 387</b>	<b>7500</b>	<b>17 887</b>	

Budget detailed:

Project Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)	AFD Co-Financing	AF Financing	AFD Co-Financing	AF Financing
Component 1: Establishment of a framework for exchange and awareness raising among farmers for the appropriation of adaptation and	<b>9 agro-sylvo-pastoral climate-smart farms of 5ha are created</b>	1200 producers have applied good agro-sylvo-pastoral practices	<b>165 913</b>	<b>124 435</b>	<b>41 478</b>	<b>75%</b>	<b>25%</b>
	Missions and consultation frameworks for the identification and securing of plots		50 588				



climate risk reduction processes	Purchase of inputs and small equipment		50 588				
	Monitoring and animation costs		64 737				
	<b>6 exchange-study visits are made</b>	At least 60% of the participants in the visits learned new knowledge about good agro-sylvo-pastoral practices	<b>8 872</b>	<b>4 436</b>	<b>4 436</b>	<b>50%</b>	<b>50%</b>
	A visit is organised in the 3 regions of intervention of the project (Kédougou, Kolda, Tamba) fonio campaign Year 1		4 436				
	A visit is organised in the 3 regions of intervention of the project (Kédougou, Kolda, Tamba) fonio campaign Year 2		4 436				
Component 2: Dissemination of climate change adaptation technologies	<b>18 training sessions are organized for 1200 producers</b>	1200 producers have strengthened their knowledge of good agro-sylvo-pastoral practices	<b>22 653</b>	<b>11 327</b>	<b>11 327</b>	<b>50%</b>	<b>50%</b>
	9 training sessions for 600 fonio producers first fonio campaign		7 167				
	9 training sessions for 600 fonio producers second fonio campaign		15 486				
	<b>Best practices are disseminated on the knowledge management platform</b>		<b>24 000</b>	<b>0</b>	<b>24 000</b>	<b>0%</b>	<b>100%</b>
	Community radio broadcasts for the dissemination of good agro-sylvo-pastoral practices		<b>4 000</b>				
	Design of multimedia content for dissemination in the good agro-sylvo-pastoral practice platforms		<b>20 000</b>				

Component 3: Strengthening the livelihoods and sources of income of vulnerable people	<b>18 "fonio school fields" are set up Yield per ha of fonio Increased</b>		<b>78 500</b>	<b>39 250</b>	<b>39 250</b>	<b>50%</b>	<b>50 %</b>
	Animation of farmer field schools, Organise fonio exchanges and deployment of technical itinerary training	80% of fonio producers have mastered and applied good fonio production techniques	50 000				
	Test and implement actions for the homologation/certification of fonio seed varieties adapted to climate change		28 500				
	<b>The exploited land of fonio with good practices is increased</b>	Fonio yield is increased by 30% The area under fonio increased by 20% at the end of the project The agricultural income of fonio producers is increased by 25%	<b>77 000</b>	<b>50 050</b>	<b>26 950</b>	<b>65%</b>	<b>35 %</b>
	Carry out action research to develop quality, certified fonio seed adapted to climate change		<b>38 500</b>				
	Organize and supervise the multiplication of approved quality fonio seed in school fields with leading seed-multiplying producers.		<b>38 500</b>				
	Support, advice and assistance to producers to improve the implementation of good fonio production	Two Agricultural Service centers are in place	<b>236 555</b>	<b>177 416</b>	<b>59 139</b>	<b>75%</b>	<b>25 %</b>


	practices adapted to climate change, through service centers.					
	Support and advice for fonio producers		93 555			
	Local support for fonio producers		143 000			
<b>6. Project Execution cost</b>					<b>19 992</b>	
<b>7. Total Project Cost</b>					<b>226 572</b>	
<b>8. Project Cycle Management Fee charged by the Implementing Entity (if applicable)</b>					<b>17 887</b>	
<b>Amount of Financing Requested</b>					<b>244 459</b>	

F. Include a disbursement schedule with time-bound milestones.

	Upon signature of agreement
Scheduled Date	June 2024
Project Funds	226 572
Implementing Entity Fees	17 887
Total	244 459

**PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY**

**A. Record of endorsement on behalf of the government<sup>1</sup>** *Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

<p>Ms. Mame Faty NIANG Designated Authority of Adaptation Fund</p> <p>Ministry of the Environment and Sustainable Development</p>	<p>Date: April, 26<sup>th</sup> 2024</p> 
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**B. Implementing Entity certification** *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (CPDN 2015, Country Programm, CDN 2020) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

<p>Dr Cheikh MBOW Director General of CSE</p>	
<p>Date: April, 26th, 2024</p>	<p>Tel. +221 77 573 05 55 Email: <a href="mailto:mbow@cse.sn">mbow@cse.sn</a></p>
<p>Project Contact Person: Aissata Boubou SALL SYLLA Tel. +221 77 685 15 90 Email: <a href="mailto:aissata.sall@cse.sn">aissata.sall@cse.sn</a></p>	

<sup>6</sup>. Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.