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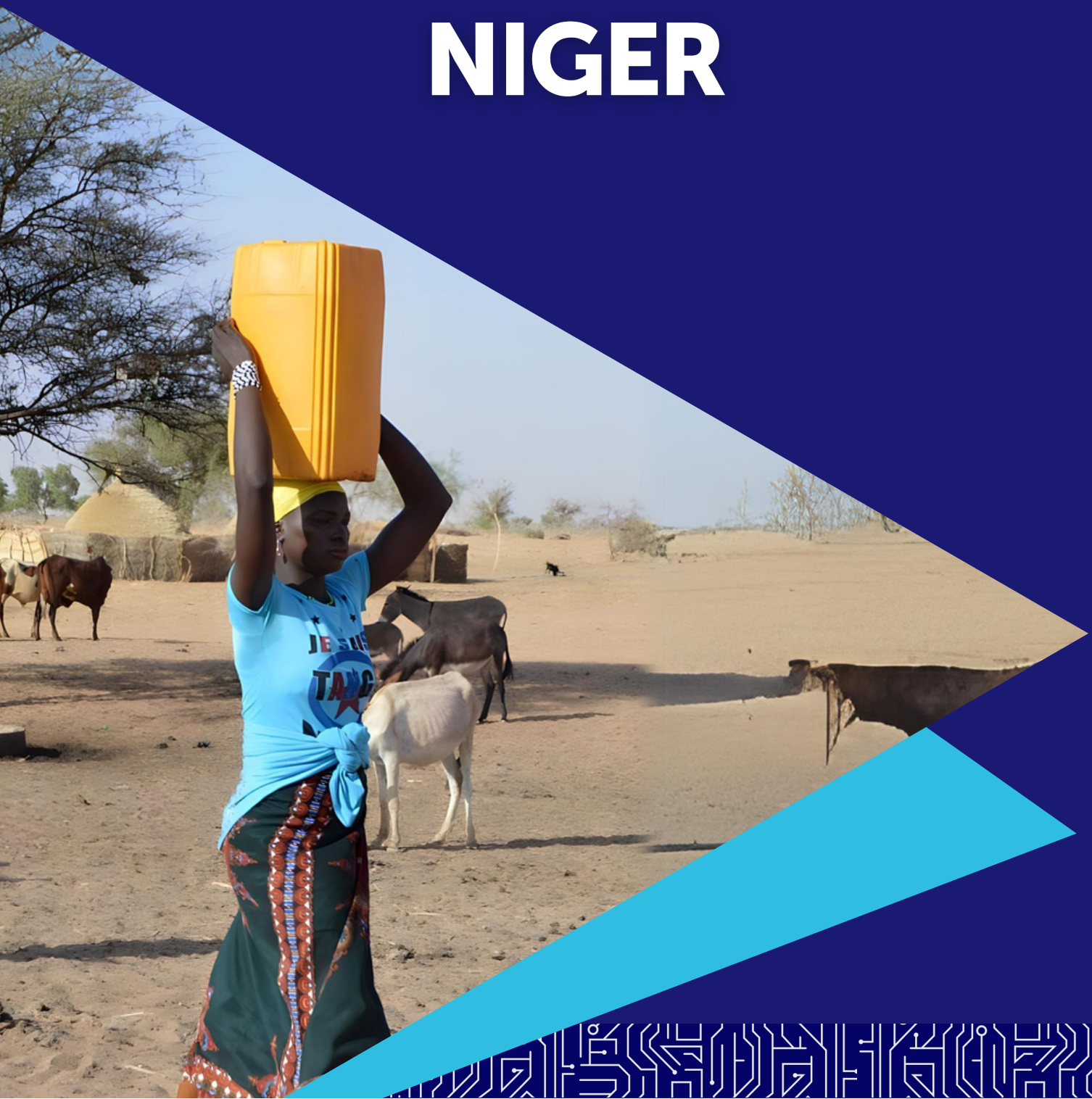
FEASIBILITY STUDY ON CLIMATE RISK INSURANCE

NIGER



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Author: Weather Risk Management Services (WRMS) and Risk Shield Consultants with substantial input and contributions from the UN Capital Development Fund team and partners.

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List of Abbreviations

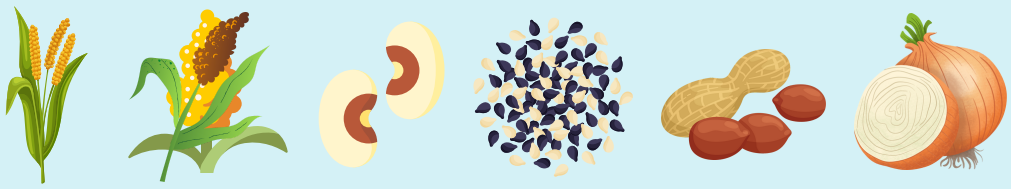
APPSN	Association of Private Seed Producers of Niger
ARCA	Autorité de Régulation et de Contrôle des Assurances
BAGRI	Bank of Agriculture Niger
CAN	Comité des Assureurs du Niger
CAREN	Compagnie d'Assurances et de Reassurances du Niger
CHIRPS	Climate Hazards Group InfraRed Precipitation with Station data
CNEDD	National Environmental Council for Sustainable Development
CRI	Climate Risk Insurance
DMN	Niger National Meteorological Department
FAO	Food and Agriculture Organization
FISAN	Investment Fund for Food and Nutrition Security
IMERG	Integrated Multi-satellite Retrievals for GPM
MCPEC	Movement des Caisses d'Epargnes et de Crédit
MFIs	Microfinance Institutions
NIA	Nigerian Insurers Association
SNAR	Société Nigérienne d'Assurances et de Réassurances
WFP	World Food Program
WII	Weather Index Insurance
WRSI	Water Requirement Satisfaction Index

1. Agriculture Sector

Overview

The agriculture sector is extremely crucial for Niger's economy, serving as a primary source of livelihood for the vast majority of the people. It employs about 85% of the population and contributes about 40% to the Nation's GDP. Agriculture in Niger is predominantly rain-dependent, with less than 10% of the cropped area under irrigation. Limited areas are served by permanent water systems, such as the Niger and Komadougou-Yobe rivers, and semi-permanent water sources like large ponds, as well as in valley or dallol areas (dallols Bosso and Maoury). Most of Niger's agriculture is based on smallholder, subsistence farming systems and occupies over 12.5 million hectares (with the area increasing annually by about 2%). However, the cultivated areas are expanding due to the development of irrigation schemes.

The major crops include millet, sorghum, cowpea, peanut, and sesame, all of which rely heavily on rainfall. The key cultivated crops are staples, with a clear predominance of pearl millet (46% of total acreage), followed by sorghum (18%), and cowpea (32%). In addition to these main crops, other crops like cassava, sweet potato, rice, maize, wheat, onion, and fonio (finger millet) are often grown under rainfed and/or irrigated conditions. Other crops such as cotton, groundnuts, Bambara groundnut and nutsedge are also cultivated in some regions, such as Maradi, Zinder and Dosso. The agricultural systems in Niger are mixed, and practically no region specializes exclusively in one particular crop.

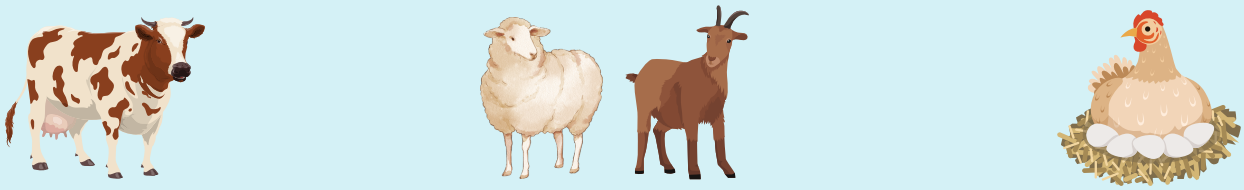


Millet Sorghum Cowpea Sesame Peanut Onion

Livestock

Livestock constitutes a vital element of Niger's value chain, encompassing cattle, goats, sheep, poultry, camels, donkeys, and horses. On average, it contributes 15% to household income, addresses 25% of the food requirements of rural populations, and accounts for nearly 25% of local authorities' budgets. Small ruminants (sheep and goats) and poultry are often the main assets of vulnerable households, providing an important source of cash and animal protein. They act as an informal "bank" for households as they can be easily sold during lean times.

Between 2005 and 2020, the national herd witnessed substantial growth, increasing from 31.04 million heads to 52.7 million heads, excluding poultry. In 2020, estimates accounted for 16.14 million cattle, 13.65 million sheep, and 18.83 million goats.



Cattle Small Ruminants Poultry

Seasons

Niger experiences extremely high temperatures throughout the year, with a lengthy and intense dry season spanning from October to May, followed by a short and irregular rainy season linked to the West African monsoon.

Area-Ecological Zones

Agricultural and pastoral activities are carried out in four distinct major agro-ecological zones namely:

- The semi-desert area in the north, which receives 0 mm to 50 mm of rainfall per year
- The sub-Saharan pastoral zone in the longitudinal East-West centre core of the country and receiving 50 mm to 200 mm of rainfall per year
- The Sahelian agro-pastoral zone extending in the central to southern part of the country and receiving 200 mm to 500 mm of rainfall per year
- The Sudano-Sahelian zone covering the southern part of the country, receiving 600 mm to 800 mm of rain per year, and being most suitable for agriculture

Women

Women play a crucial role in the production of both staple and cash crops, actively contributing to the agricultural value chain and engaging in livestock production. Despite their significant involvement, women typically face challenges, earning and producing less than men, and encountering limitations in accessing essential resources such as land, inputs, labor, and extension services. On average, plots managed by women yield 19 percent less per hectare compared to those managed by men. Notably, this gender gap tends to be widest among Niger's most productive farmers.

2. Key Risks

Agriculture in Niger is hampered by the strong intra- and inter-annual variability in rainfall (i.e. recurrent droughts). This variability is a major contributing factor to the consistently low and fluctuating crop yields at both local and national levels. Despite these challenges, farmers from Niger continue with land cultivation and crop growth. On one hand, two-thirds of the country are desert and agriculture is rainfed. On the other, the rainy season is short and irregular, while the dry season is long and hot. Climate change further aggravates these limitations, with temperatures in the Sahel rising 1.5 times faster than the global average, bringing with it persistent droughts and devastating floods

Risk Profile

Niger experiences very high temperatures throughout the year

Short and irregular rainy season linked to the West African monsoon

Flash flooding can also be a relevant risk in the rainy season months of July of September

Intense dry season from October to May

Drought is the most important agricultural risk in Niger, with high probability and severity

Other Risks

Pests and Diseases

Bushfires

Windstorms

Major Risks

Droughts are the primary climatic phenomenon affecting Niger, occurring cyclically or sometimes even spanning multiple years. These droughts not only diminish access to water but also have a detrimental impact on agriculture and livestock, further compromising the country's food resilience. They intensify water stress, heighten pasture demand, and critically cripple the livelihoods of pastoralists.

AGRHYMET's principal component analysis highlights that long dry spells (consecutive days without rainfall) and the delayed onset of rains are the foremost factors contributing to yield losses and crop failure in Niger. The country grapples with consistently high temperatures year-round, featuring an extended and intense dry season from October to May, paired with a short and irregular rainy season linked to the West African monsoon. Over the past 25 years, average annual temperatures have risen, reaching peaks of 36°C.

Emerging patterns of rainfall variability reveal an increasing number of years with above-average rainfall. However, cumulative rainfall has not reverted to pre-1960s levels. In Tillabery, for example, the multiple food crises during the period 2005-2015 were not primarily due to widespread droughts during the cropping season but rather a delayed start to the growing season or failed seedlings because of false starts to the rainy season. The reduction in the length of the growing season is a major concern for agricultural production in the region.

Flood: While generally favorable for crop production, the rise in average annual rainfall since the mid-1980s has resulted in an increased incidence of flooding. . Most flooding occurs in the rainy season months of July through September, when the main crops are under cultivation and livestock are confined to households—particularly small ruminants.

It is usually the result of heavy rainfall during a short time period, which results in flash flooding and localized flooding along the banks of the Niger River, so there is little time to prepare. Damage and losses tend to be localized but are devastating where they occur.

Niger's hot climate is characterized by a generally short and intense rainy season, with episodes of heavy rainfall that can cause localized flooding. The high inter-annual, decadal and spatial variability of rainfall in the Sahel makes it difficult to detect historical trends and project future trends. Precipitation extends over the summer season, from June to September - its duration varies from 1 to 2 months in the north to 4 to 5 months in the south.

Other factors, such as wetland degradation and detrimental land use changes – notably around the Niger River – have increased the occurrence and prevalence of flooding in intensely cultivated and grazed areas. In 2022, the rainy season affected more than 320,000 people and was one of the deadliest in Niger's history.

3. Insurance Landscape

The insurance market in Niger offers a range of domestic and international insurance products and services, including life insurance, health insurance, property insurance, motor insurance, liability insurance, and more. These services are provided by six non-life insurance companies, two life insurance companies, and seventy-two insurance brokers operating in the country. Additionally, Niger has eighty-five general agents exclusively selling on behalf of insurers.
While the insurance industry in Niger is relatively small compared to some other countries, it plays a crucial role in providing risk management and financial protection to individuals, businesses, and organizations. However, it lacks prior experience in agricultural insurance or climate risk insurance (CRI).

The insurance industry in Niger is regulated by the Autorité de Régulation et de Contrôle des Assurances (ARCA), also known as the Regulatory and Control Authority of Insurance, overseeing the licensing, regulation, and supervision of six non-life and two life insurance companies. ARCA ensures compliance with regulatory requirements and safeguards the interests of policyholders.

During the study, insurers expressed interest in partnering with microfinance institutions that finance agriculture. Some mentioned value chains for potential insurance coverage include onion growers, potato growers, and cash crops. Other stakeholders relevant to AI and/or CRI initiatives include the **World Food Programme (WFP), the Investment Fund for Food and Nutrition Security (FISAN), Comité des Assureurs du Niger (CAN), and the National Environmental Council for Sustainable Development (CNEDD).**

Government Initiatives

Since early 2019, Niger's Ministry of Humanitarian Action and Disaster Management, sectoral ministries, and technical and financial partners, have demonstrated a strong commitment to establishing agricultural index insurance in the country. This commitment led to the multiple national workshops on climate risk and agricultural index insurance from 2021 to 2023; Plans were also formulated for the creation of a national agricultural insurance institution. However, given the current political circumstances, it may be advisable to explore opportunities to continue this work directly with private-sector insurers and aggregators, rather than relying on government institutions.

Below are some of the key takeaways from Niger's major insurers:

Compagnie d'Assurances et de Reassurances du Niger (CAREN) is an insurance and Reinsurance company in Niger. The distribution of CAREN products primarily involves a network of about thirty general agents, representing approximately 60% of the turnover (including the turnover generated by the group's headquarters in Niamey), and around fifty brokers (contributing to 40% of turnover). CAREN has a representative in each region except Diffa and Tillabéri. Agents and brokers are usually located in cities, although they can open sub-agencies if they wish. CAREN has attempted to digitalize the process of underwriting and paying claims. However, mobile money compensation does not always work well due to connection difficulties and arbitrary commission systems set by the operator when sending and receiving funds. CAREN, therefore, recommends targeting funds transfer institutions (such as Al Izza, NITA or ZEYNA), some of which are very well established in the territory, rather than mobile money.

SAHAM Assurance is the fourth largest insurer on the market. They do not have approval to distribute agricultural insurance or microinsurance products. They estimate that a commission of 13-15% would be necessary to motivate agents to distribute agricultural insurance.

Nigerian Insurers Association (NIA): The distribution of NIA products is ensured 70% by brokers (of which 15 are located in Niamey) and 30% by general agents (4 in Niamey, 6 in the rest of the country with the exception of Diffa and Tillabéri). NIA estimates that a commission of around 10-15% would be necessary to encourage agents and brokers to distribute agricultural insurance products.

Experience with climate risk insurance: The three insurance companies interviewed indicated that Niger's insurance sector lacks experience in agriculture insurance, including climate risk insurance. While these products are not currently provided in the market, Niger has financial institutions, agribusinesses that have farmers as clients for other insurance products like fire cover, equipment cover, and property cover. Recognizing potential cross-selling opportunities, insurers are contemplating entering the climate risk insurance market, especially given that some of their staff members have already received training on climate risk insurance products through workshops and seminars.

However, the main barrier preventing insurers from entering climate risk insurance is the lack of capacity to develop suitable insurance products for clients. They emphasize that designing an index reflecting farmers' losses due to specific weather events requires expertise in modeling, statistical analysis, and an understanding of the local agricultural context. While this expertise is not currently present among the insurance companies, they express a willingness to offer climate risk insurance to farmers and agribusinesses working with farmers with support from insurance service providers. They also indicated that they would require support in arranging reinsurance as they think that they may face challenges in securing reinsurance capacity to underwrite climate risk insurance due to the risks associated with weather-related perils

4. Data Availability

Historical crop yield data for key crops has been collected and is accessible for future product development and pricing. Given the current political crisis, it is not recommended to rely on yield data from the Ministry of Agriculture or weather data from the Niger National Meteorological Department as the basis for the index. These datasets would be difficult to obtain on a timely and regular basis and may also not be recorded in a methodical way that is necessary for efficient index insurance product implementation.

Yield Data

Yield data is available from both the National Institute of Statistics as well as from the Ministry of Agriculture and Livestock. The data is supposed to be freely accessible through an official request from the Ministry of Agriculture. Regional and departmental level production data was made available for the three main cereal crops- millet, sorghum and cowpea, and the main cash crops- sesame and onion for 2021. 99% of production of each of the three cereals were from Maradi, Zinder, Dosso, Tahoua and Tillaberi, with Maradi accounting for 30% of millet production, 36% of sorghum production, and 28% of cowpea production.

At the department level, Tessaoua in Maradi accounted for the highest production in all 3 cereals – 8% of millet production, 10% of sorghum production, and 7% of cowpea production.

In sesame production in 2021, Zinder region accounted for 50% of production while Maradi, Diffa, Tillaberi and Tahoua made up the remaining 50%. At the department level, Magaria, Dungass, Maine Soroa, Madarounfa and Tessaoua had the highest production of sesame in the same year.

In onion production, Tahoua accounted for 68% of production, with Dosso, Tillaberi, Agadez, and Zinder making up 8%, 6%, 5% and 5% of production, respectively. At the department level, Madaoua, Malbaza, Birni Nkonni, Bouza and Tahoua, all in the Tahoua region had the highest onion production in 2021.

Niger National Meteorological Department (DMN)

The DMN plays a crucial role in providing meteorological services and information to support decision-making, disaster preparedness, and sustainable development in Niger. Its activities contribute to the overall resilience and well-being of the country's population and economy. DMN has 15 synoptic stations, 8 climatological stations, 2 agrometeorological stations, and more than 2000 rainfall stations across the country. All meteorological stations and rain gauges are spread over the 8 regions of Niger. The actual locations in terms of the GPS coordinates (Latitude, Longitude) can be shared when requested. The weather data collected at meteorological stations are precipitation, temperature, soil humidity, wind, evaporation, etc.

Satellite Data

Open-source datasets, including satellite data, can serve as the foundation for implementing index insurance in Niger. One option for establishing the drought index is the Water Requirement Satisfaction Index (WRSI), a crop water balance model from the Food and Agriculture Organization (FAO) that has been previously utilized for scaling up emergency cash transfers in Niger. Open-source satellite datasets, such as the Integrated Multi-satellite Retrievals for GPM (IMERG) and Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS) for rainfall, and ERA5 for temperature, have demonstrated relatively high skill for Niger. These datasets could be employed in the design, actuarial pricing, insurance and reinsurance placement, and claims settlement for weather index insurance products, covering risks such as drought, excessive rainfall, and heat waves.

5. Potential Distribution Channels

It is highly recommended to insure farmers through producer organizations and federations, preferably bundled with agricultural credit received from Microfinance Institutions (MFIs). Insuring farmers on an individual basis or on a purely voluntary and/or stand-alone basis is not recommended.

A key financial institution that could potentially serve as an aggregator for CRI products is the **Bank of Agriculture Niger (BAGRI)** , a public bank offering loans and credits to farmers. Three microfinance institutions— **Al Amana Financial Islamic SA** , **ASUSU SA** , and **Union des Caisses Mutuelles du Niger** — as well as a union of nine MFIs (**Movement des Caisses d'Epargnes et de Crédit (MCPEC)**), have expressed interest in bundling their agriculture loans with Climate Risk Insurance. Collectively, these various MFIs and the union of MFIs have an outreach of approximately 300,000 farmers in Niger. Thus, forming partnerships with these MFIs would be beneficial for integrating agriculture insurance with agriculture lending and for the successful distribution of suitable climate risk insurance products.

Several key private-sector agribusinesses, which should be engaged as potential distribution channels, include **AINOMA**, **La Sahelienne**, **Alhéri**, **GANDU**, **Ets HUSA'A**, **Ambouta**, and **FESA** —the main seed companies in Niger. AINOMA provides inputs, seeds, and fertilizers to farmers and international organizations such as the FAO, primarily for rainfed crops. The **Association of Private Seed Producers of Niger (APPSN)** brings together all accredited seed sellers across Niger and currently has 75 members, including AINOMA. Another potential aggregator could be ANFO, a group of organizations (cooperatives, unions, federations) with more than 53,000 members in total.

Given the current low penetration rate of mobile phones and mobile wallets, especially in rural communities, digitalization may only achieve scaling up in the medium term. However, there is potential for exploring synergies with mobile-network operators, such as Airtel and Moov Africa, as well as mobile payment service providers, such as Al Izza, for the digital payment of premiums and claims.

Mobile Network Operators

Mobile Payment Service Providers

6. Pilot Recommendations

Product Concepts

Weather index insurance (WII) covering late onset of rains and dry spells would be a highly relevant new insurance product for Niger, given that over 90% of farming is rainfed, and drought constitutes the most significant production risk for agriculture in the country. The most relevant crops to cover are millet, sorghum, and cowpeas. Drought indices—whether based on rainfall alone, a combination of rainfall and temperature, or soil moisture indices—can be utilized for insuring millet and cowpeas. Onions can also be insured based on excessive rainfall, which may lead to bulb rot. Coverage for all these crops would typically commence from June and extend until October or December, depending on the crop type and actual planting dates. Recognizing the limited capacity of producers to afford high premiums, the proposal suggests that insurance should cover the cost of inputs rather than the loss of producer income resulting from a weather shock.

Product Categories

Currently, product categories such as crop indemnity, livestock indemnity, area yield index, and livestock index insurance are not recommended due to various challenges related to data, overdependence on government sources for data, and operational complexities. Implementing these products would be very difficult, especially given the current political situation in Niger.

Potential Insurance Partners

There is an opportunity to partner with multiple insurers in Niger. Three insurers that have shown proactive interest in potentially piloting index insurance, these are: SUNU Assurance, Compagnie d'Assurances et de Réassurances du Niger (CAREN), and Société Nigérienne d'Assurances et de Réassurances (SNAR) Leyma.

Proposed Parameters By Crop

Crop	Estimated Operational Costs	Maximum Premium Costs	Maximum Compensation	Period of Coverage
Millet	50,000 FCFA/ha	5,000 FCFA/ha	50,000 FCFA/ha	June to October
Cowpea	25,000 FCFA/ha (inputs) 100,000 FCFA/ha (labor)	7,000 FCFA/ha	70,000 FCFA/ha	June to October
Sesame	20,000 FCFA/ha (inputs) 60,000 FCFA/ha (labor, if non-mechanised)	5,000 FCFA/0.25ha (20,000 FCFA/ha)	50,000 FCFA/0.25ha (200,000 FCFA/ha)	Mid-July to September
Onion	125,000 FCFA/0.25ha	20,000 FCFA/0.25ha (80,000 FCFA/ha)	200,000 FCFA/0.25ha (800,000 FCFA/ha)	June to December

Social Protection

If an application in the form of social protection were targeted, the coverage could focus on an amount that would enable a family to survive the lean season. For our calculations, the limit (maximum insurance payment) was therefore set at approximately 50,000 FCFA for millet, 70,000 FCFA for cowpea, 50,000 FCFA for sesame, and 200,000 FCFA for onion. This applies to insured areas of 1 hectare for millet and cowpea and 0.25 hectares for sesame and onion, corresponding to the areas of conventional crops.

Timelines

Given the timing of the main rainy season in Niger, it is important that the work on the CRI pilot can commence from Oct/Nov 2023 to allow enough time for regulatory approval. Additionally, there is a need to carry out the necessary awareness raising and marketing before the main rainy season begins in June 2024

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