FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

AGRICULTURAL INSURANCE

Since 2012, the expansion of agricultural insurance in the cereals sector (rice, maize, millet) and other cash crops (peanuts and cotton) has reduced the vulnerability of smallholder producers faced with climate and plant health shocks, by securing agricultural credit and protecting their investments.

2019

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INTRODUCTION

Today, agricultural insurance is becoming a powerful tool for protecting smallholder producers in Senegal. Since the 2013 crop year, the Feed the Future program for Senegal has joined the Senegal National Agricultural Insurance Company (CNAAS) and its partners in supporting the design and expansion of insurance solutions tailored to the cereals sector. Feed the Future's goal is for agricultural insurance to become an integral and financially sustainable part of cereal value chains, both in terms of profitability for producers, and of the financial viability of CNAAS.

BACKGROUND

Variations in rainfall, flooding, pest attacks, and technical failures cause significant losses for smallholder producers. They increase their vulnerability and discourage producers from investing in technologies that could intensify their production. The production system is characterized by a heavy dependence on rainfall and rudimentary agricultural practices. These high risks discourage banks from lending to smallholder producers, who have insufficient guarantees to secure reimbursement in the event of disaster.

Faced with this situation, the Government of Senegal, in agreement with the Agro-Sylvo Pastoral Orientation Law (LOASP) and with the support of private partners, created the Senegal National Agricultural Insurance Company (CNAAS) in 2009. The early years of CNAAS were marked by an effort to sensitize the rural clientele and the development of a diversified service offering with the support of several technical and financial partners. However, despite the fact that the premiums were subsidized in the amount of 50 percent by the State, the level of adoption remained low because of individual producers' reluctance to take out insurance.

Exchange Rate : Financial data originally presented in this note has been converted at the standard project exchange rate of US$ 1.00 = 500 FCFA.

PHOTO. PAGE 1
Mamadou DIAO, the president of a farmer group in Kolda. "As soon as we get a good rainfall, I tell the village to start planting. It is very important for us to be insured. If we have a bad year, we must still reimburse the bank for our loans. Now that we are covered, we will be compensated for any loss."

PHOTO. PAGE 2
The automatic rain gauge must be installed and maintained annually by specialized personnel, under the technical control of the National Civil Aviation and Meteorology Agency (ANACIM), which certifies the data transmitted to the insurers.

TECHNOLOGY DESCRIPTION

CNAAS' proposed agricultural insurance for cereal producers is divided into two separate formulas for determining disasters and calculating premiums: conventional agricultural insurance ("multi-risk") and index-based agricultural insurance. In each case, the coverage proposed by CNAAS involves an insured amount proportional to the input needs of the producer.

Conventional "multi-risk" agricultural insurance is intended for the irrigated rice value chain in the Senegal River Valley. It proposes compensation based on the advent of a disaster declared by the producer, then recognized and measured by a specialist. The risks covered are mainly attacks from birds and other pests, floods, and unseasonal rains. The coverage threshold is a percentage of the producer's seasonal credit.

Index-based agricultural insurance is adapted to the rainfed production system in central and southern Senegal, where the most critical risk factor is rainfall. The formulas developed by CNAAS include maize, millet, peanuts, rainfed rice, and cotton as well as a multi-crop index. Premiums and compensation are based on indices calculated from measurements such as rainfall and evapotranspiration associated with a baseline situation. If, for a given area, the seasonal indices deviate from this baseline situation beyond a certain threshold, all insured producers in the area concerned will be compensated. The calculation of indices by zone makes it possible to cover a large population. Two approaches to calculating and measuring indices are applied by CNAAS :

1) the ground rainfall indices are based on daily rainfall readings collected by automatic rain gauges, each covering a radius of 5 to 7.5 km; and

2) satellite-based remote sensing indices based on the capture, throughout the production cycle, of measurements such as progression of plant cover and evapotranspiration.

In both cases, compensation for a disaster is linked to rainfall deficits during the crucial phases of crop evolution: sowing, emergence of plants, flowering, etc.

CNAAS' definition and annual update of the indices is a process that integrates the contributions of agricultural research (ISRA, Senegalese Institute of Agricultural Research), of the weather forecasting service (ANACIM), and of specialized brokerage services for microinsurance (Planet Guarantee) and re-insurance (Swiss Re, etc.).

CONVENTIONAL AND INDEX-BASED AGRICULTURAL INSURANCE

CONVENTIONAL AGRICULTURAL INSURANCE	INDEX-BASED AGRICULTURAL INSURANCE
PRINCIPAL AREAS COVERED	
Senegal River Valley	Central and southern Senegal
PRINCIPAL CROPS COVERED	
Irrigated crops (rice)	Rainfed crops (millet, maize, peanuts, rice, cotton)
TYPES OF RISKS COVERED	
• Attacks from birds and other animals • Flooding • Unseasonal rains	• Rainfall • Evapotranspiration • Delayed rains • Period of drought
TECHNOLOGIES USED TO MEASURE RISKS	
• Expert assessment	• **Automatic ground-level rain gauges** with a radius of 5 of 7.5 km • **Satellite remote sensing** progression of plant cover and evapotranspiration
DISASTER ASSESSMENT	
• Declaration by the producer • Report and measurements by a specialist	• Compensation based on indices calculated from measurements: rainfall, evapotranspiration associated with a baseline situation
INSURED VALUE IN 2018	
US$ 3.4 million	US$ 35.2 million
NUMBER OF INSURED PRODUCERS	
28,000 producteurs	165,000 producteurs
SURFACE AREA INSURED 2018	
30,392 ha	186,594 ha

Data source : CNAAS

RESULTING CHANGES

CNAAS IN "GROWTH" MODE

Since 2012, agricultural insurance has come a long way. CNAAS has diversified the insurance products it offers producers, leading to an increase in the number of producers taking out insurance from 2,127 in 2012 to 193,000 in 2018. Total premiums collected by CNAAS amounted to US$ 3.2 million (1.6 billion CFA francs) for an insured amount of US$ 38.6 million (19.3 billion CFA francs), which corresponds to 238,000 ha of crops, with all insurance operations combined.

As an early partner, the cereal value chains supported by Feed the Future Naatal Mbay have gone from a test operation with 24 maize producers in rainfed areas in 2012, to 34,900 producers cultivating 41,400 ha in 2018, distributed between irrigated rice multi-risk insurance in the Senegal River Valley (24,300 producers/26,036 ha) and the maize, millet, and rainfed rice crops (10,600 producers/15,364 ha) covered by rainfall index-based insurance. A total of 7,400 women producers of rice, maize, and millet were able to access insurance and cover their seasonal credits in the context of programs supported by Feed the Future.

Since 2016, CNAAS' agricultural portfolio has grown exponentially, following the adoption of index-based insurance by cereal producers not covered by Feed the Future, by the cotton sector under the impetus of the Society for Development and Fiber Textiles (SODEFITEX) funded by the West African Development Bank (BOAD), and following the expansion of coverage for peanut producers coordinated by the Senegalese Association for the Promotion of Bottom-Up Development (ASPRODEB) and its network of cooperatives.

INSURANCE: A VEHICLE FOR TRANSFORMING AGRICULTURE

The performance of cereal value chains will have paved the way in facilitating significant qualitative changes in value chain practices through awareness raising, training, and capacity building for insurance stakeholders:

Producers agree to pay the insurance premium

Although they receive a 50 percent subsidy from the Government of Senegal, having to pay an insurance premium limits the adoption of agricultural insurance by smallholder producers. Nevertheless, the proportion of producers who paid their share of the premium, either directly or when incorporated into a loan, reached 92 percent in 2018. The remaining policy holders benefit from coverage through an integrated program focused on resilience, such as the World Food Program's (WFP) 4R initiative on agricultural work-for-insurance, covering at-risk populations and which insured 9,245 beneficiaries in 2018. Such programs represent 4 percent of CNAAS' agricultural insurance turnover.

Financial institutions are including insurance in seasonal credit

The Senegal National Agricultural Bank (CNCAS), the Senegal Mutual Credit Union (CMS), and other financial institutions (banks, and decentralized financial systems), are gradually incorporating agricultural insurance into producer credits. This practice, introduced initially for cereal crops and facilitated by Feed the Future, allows producers to improve their credit report with a guarantee against climatic risks, while respecting the prescribed deadlines for payment of premiums.

Producer networks and companies, distribution partners for CNAAS

Producer networks such as the Federation of Saloum Maize Producers' (FEPROMAS) in the center and the Federation of Self-administered Rice Perimeter Zones (FPA) in the Senegal River Valley, followed more recently by ASPRODEB and SODEFITEX, have demonstrated their ability to provide training to their membership on agricultural insurance mechanisms as well as play a key role in product distribution and business relationships with CNAAS.

Local technical capacity for developing indices

CNAAS' index-based insurance product portfolio has become more diverse. It now has formulas adapted to maize, millet, rainfed rice, cotton, and peanuts. New yield-based indices are being developed for irrigated rice in the Podor and Matam areas. To do this, CNAAS was able to rely on local specialists supported by Senegalese scientific agencies (ISRA, ANACIM). This diversification and adaptation capacity acquired in less than 10 years of activity are proof of the reliability and sustainability of agricultural insurance.

AGRICULTURAL INSURANCE IS GAINING GROUND

2018 **92%** of producers pay their premium directly or through its incorporation into a loan

INDEX-BASED INSURANCE IN SENEGAL IN 2018

165,000
Producers insured

6,100
Average net premium in CFA francs per producer

1.3
Average hectares per producer

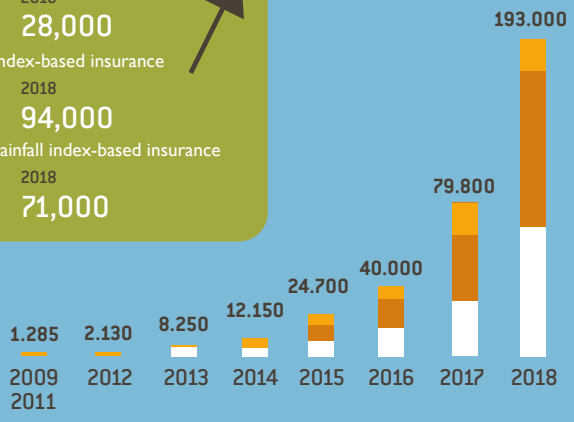
107,000
Average amount insured in CFA francs per producer

MORE AND MORE PRODUCERS INSURED

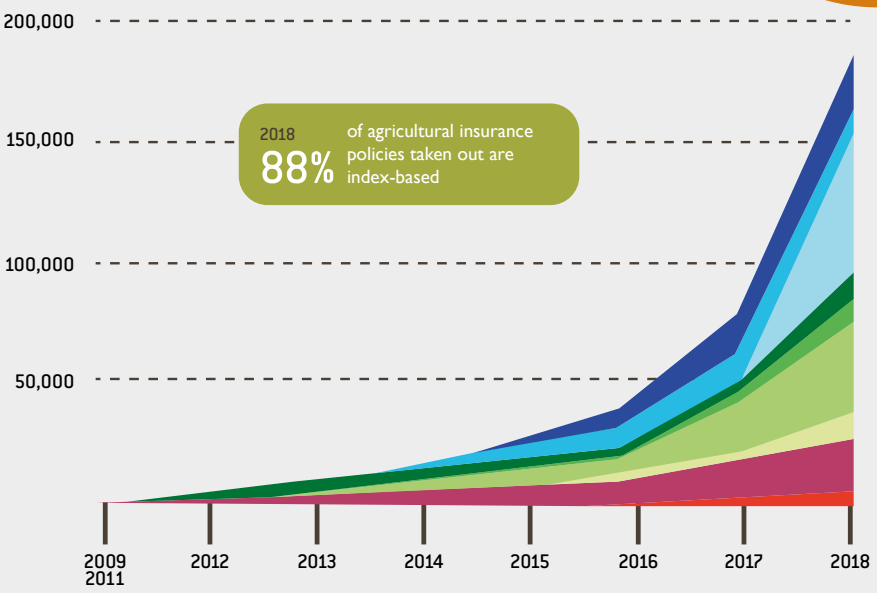
Traditional insurance
2012 1,900 — 2018 28,000

Satellite index-based insurance
2012 0 — 2018 94,000

Ground rainfall index-based insurance
2012 232 — 2018 71,000



DIVERSIFICATION OF INSURED PRODUCTS



2018 **88%** of agricultural insurance policies taken out are index-based

SATELLITE INDEX-BASED INSURANCE
- Relative Evapotranspiration (RE) (cotton and maize)
- Composite risk (peanuts, millet, maize, and sorghum)
- Peanuts RE

GROUND RAINFALL INDEX-BASED INSURANCE
- Peanuts
- Millet
- Maize
- Rice

TRADITIONAL INSURANCE
- Irrigated rice
- Tomatoes

FACILITATION APPROACH

AN ITERATIVE DEVELOPMENT STRATEGY

The successful introduction of agricultural insurance and its scaling up in the cereals sector is the result of an inclusive and iterative facilitation approach supported by Feed the Future Naatal Mbay, implemented by a multi-stakeholder framework centered around CNAAS, including ISRA, ANACIM, producer networks, banks, and microfinance institutions (MFIs). Feed the Future's support has facilitated index design, extension and promotion to producers, integration into the banking system, and the gradual expansion of the ground-level rain gauge infrastructure. From 2012 to 2018, Feed the Future supported CNAAS over the course of six successive annual programs, evolving and diversifying from one cycle to the next through critical and participatory performance review by all stakeholders during community and regional debriefings.

KEY SUCCESS FACTORS

Self-financing

The approach requires self-financing and scaling up through the spontaneous adoption of insurance by value chain stakeholders. Thus, from the beginning, CNAAS reinsured its programs on the financial market without any temporary complementary guarantee by the project to further de-risk the program, nor any direct subsidy by the project of the farmer's premiums. Feed the Future's support is limited to supporting product design and diversification, producer training, bank capacity building, and expansion of rainfall monitoring coverage during the launch phase.

Producer Network Partners

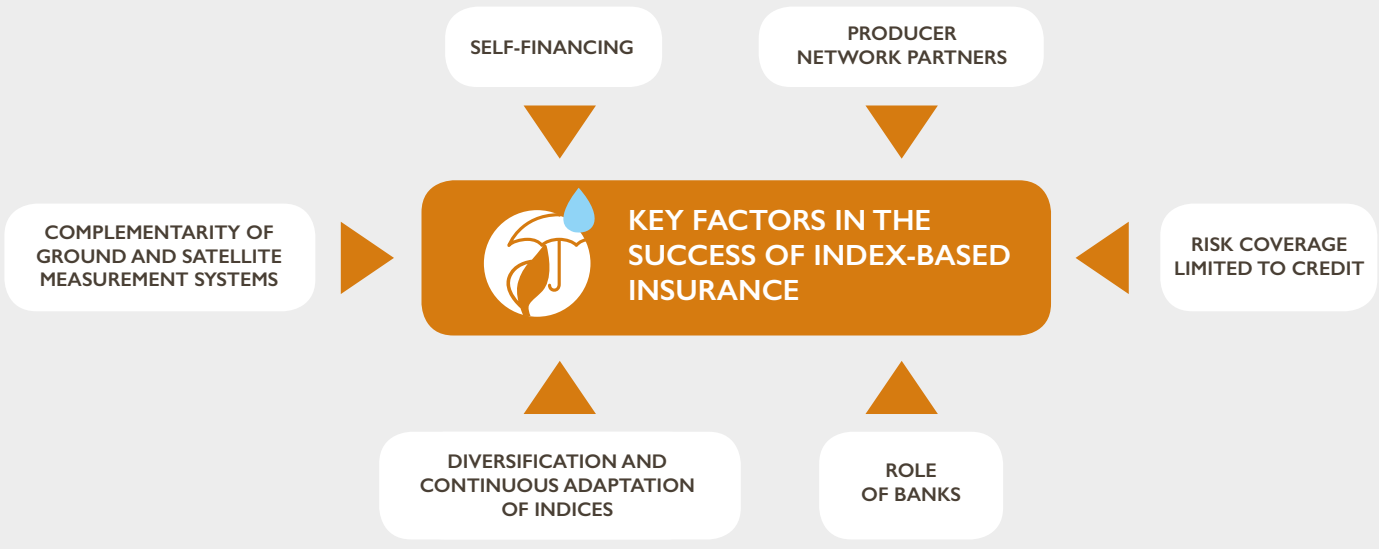
Producer networks, cooperatives, economic interest groups (GIEs), and local NGOs offer CNAAS an inclusive and economical system for promotion and distribution of its insurance products. CNAAS encourages partners to distribute insurance to their members for a commission of 10 percent of collected premiums. These intermediaries are trained and supported to carry out grassroots extension activities on aspects of the insurance. For rainfed crops, the networks received support in the form of manual rain gauges that allow them to monitor local rainfall and compare with CNAAS' criteria for determining insurance compensation trigger levels.

Limited Coverage of Credit Risk

Self-financing of insurance within a value chain context requires that producers are oriented to market their surplus crop. In order to keep premiums within an acceptable and affordable range, insurance coverage is limited to seasonal credit amounts (or savings used to purchase inputs) and does not cover the shortfall in net income should the crop fail.

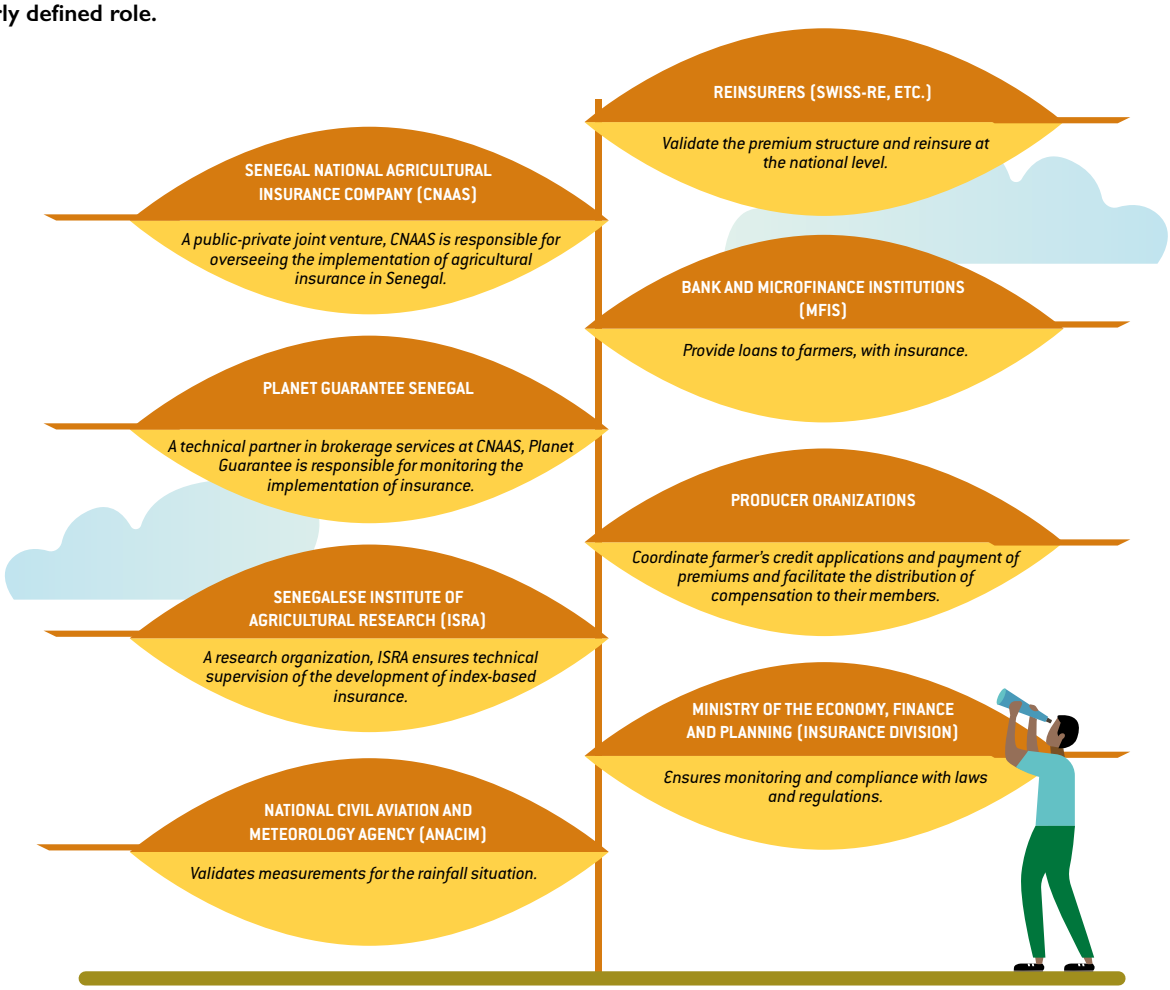
The Role of Banks

In addition to producer networks, some NGOs (FODDE, Forum for Sustainable Endogenous Development, or RESOPP, the Senegal Farmers' and Pastoral Organizations Network) and microfinance institutions (PAMECAS, Partnership for Mobilizing



STAKEHOLDERS AND THEIR ROLES

The process of implementing index-based agricultural insurance has mobilized several stakeholders, with each of them having a clearly defined role.



Savings and Credit in Senegal; ACEP, Credit and Savings Alliance for Production) also distribute agricultural insurance. The long-term goal is for agricultural insurance to be provided by credit institutions (CNCAS and MFIs). This bundling of input credit and insurance into a single package facilitates distribution of insurance coverage to existing bank clients, but will also increase the number of producers that can now access input loans due to insurance coverage.

Diversification and Continuous Adaptation of Indices

The annual adjustment of its insurance product offerings enables CNAAS to gain the support of producers by reducing the basis risk (threshold adjustments), by introducing new crops, or by adapting to new production environments (e.g. upland rainfed rice vs. lowland rainfed rice). The experience gained by CNAAS and its technical partners during this process is gradually strengthening the skills and confidence of reinsurers.

Complementarity of Ground and Satellite Measurement Systems

Index-based insurance includes a variety of technological options that are best managed in a dynamic and evolving way. The index-based insurance program for cereals began with the creation of a network of rain gauges with automatic data transmission. By coupling these stations with manual rain gauges managed by the producers, this system has made it possible to build trust between producers and CNAAS. Subsequently, with the introduction of satellite-based systems, it will be possible to develop hybrid formulas whereby ground readings make it possible to calibrate and validate satellite readings to maintain confidence in the system.

PARTNERSHIPS AND SYNERGIES

Since its beginnings in 2012, all activities of the Feed the Future Naatal Mbay project have been carried out in direct partnership with CNAAS, a structure resulting from a public-private partnership involving local insurance companies, farmer organizations, and the Government of Senegal.

The technical aspects of agricultural insurance drew on national expertise: ANACIM for the data collection and data validation system, and ISRA and its partners for the development of indices, and the rural actors for support and advice in the event of loss.

Since its inception, Feed the Future has developed synergies with other development initiatives:

Global Index Insurance Facility (GIIF) of the World Bank

The first seasonal index insurance tests on maize, peanuts, and millet were coordinated with the GIIF initiative in the framework of the ARS (Sahel Crop Insurance) project , with the creation of an initial series of indices and the joint financing of an initial set of automated rain gauges.

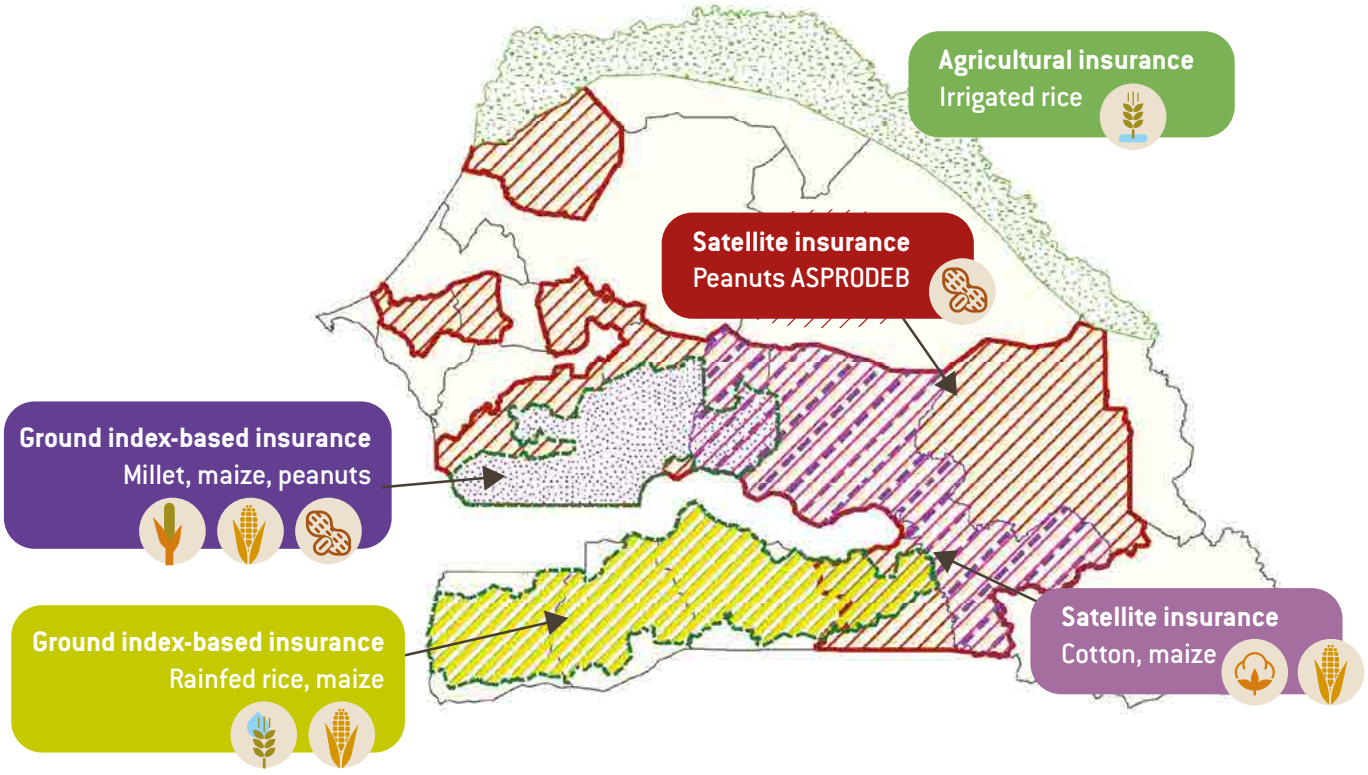
World Food Program (WFP) - R4 Program

The WFP's initiative on work-based insurance risks targets at-risk populations who are not ready to join a value chain framework. Feed the Future and WFP participated in founding the Committee for the Promotion and Development of Index Insurance (CPDAI), now chaired by CNAAS and bringing together stakeholders in the development of index insurance.

Global Affairs Canada (GAC)

In 2016, GAC signed an agreement with CNAAS for the extension of CNAAS's rain gauge network that will provide maximum coverage of the rainfed crop areas in Casamance and Southern Saloum.

DISTRIBUTION OF TYPES OF INSURANCE AND CROPS BY TERRITORY



ACHIEVEMENTS

Launched in 2009, agricultural insurance can now base its future growth on substantial achievements that make Senegal one of the leaders in West Africa.

CNAAS, a Growing Public-Private Partnership

CNAAS has acquired a proven portfolio of products and has accumulated a wealth of experience in recent years. The growth of its agricultural portfolio has allowed it to break even financially. Bolstered by this growth, it is now able to attract new strategic investors such as CNCAS and ASPRODEB, which recently acquired stakes during an increase in share capital in order to comply with the new regulatory framework of the InterAfrican Conference on Insurance Markets (CIMA).

Adoption of Agricultural Insurance by a Critical Mass of Producers

Thanks to a solid understanding of the importance of agricultural insurance, a growing share of cereal, peanut, and cotton producers have incorporated insurance into their practices and agree to pay for coverage. Training, awareness, and innovative products are the main factors that have encouraged its adoption. It is important to note the loyalty of the first policy holders, many of whom have gone through several climate shocks, that maintain their commitment to the service as demonstrated by repeat subscription.

Producer network partnerships

Through training, consolidation, and distribution of agricultural insurance products, the producer networks supported by Feed the Future have acquired solid experience, and they are now poised to promote insurance among their membership. They have become active partners of CNAAS, able to influence the design of insurance formulas. Several producer organizations are also members of ASPRODEB, which recently acquired a stake in CNAAS.

Involvement in Agricultural Insurance by Financial Institutions

By incorporating insurance into producer credit as early as 2015, first in the Senegal River Valley, then in the South for rainfed crops, CNCAS played a key role in the increase in agricultural insurance. Its leadership has ensured that the distribution of agricultural insurance by banks is an accepted and effective practice that further professionalizes the insurance system.

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INSURANCE TO PROTECT FAMILY FARMS

Souboune Mballo, 45 years old, is a mother of five children. Insurance reinforces Mrs. Mrs Mballo's standing with the bank. The compensation she receives in the event of a loss allows her to continue to pay for her loan and to sow on time each year. "Every time we have received payment, I found it fair," she said. "I prefer to have a good year, but if it's not the case, this allows us to continue."

"Now, I rely only on myself," she said. This opinion is shared by her neighbor Mrs. Baldé, a mother of six children, who says that after 12 years working in the fields, she now feels secure compared with when she began.

"The rain gauge is an instrument that I didn't know about," she said. "Now we know that with 20 millimeters of rain, we can plant." She affirms that her production has improved because of the better information on the climate.

Mrs. Baldé takes out loans for essential inputs at the start of the season. After a poor rainy season recently, the insurance plan facilitated by Feed the Future Senegal, Naatal Mbay, helped her to offset the cost of these inputs.

"It is very important for me to be able to reimburse my loan even if I have a bad year," she says.

"With part of the compensation, I can reimburse the bank, with the other, I can buy a goat and sell it at the start of school in order to buy books and clothing for my children."

CHALLENGES

Despite its successes, agricultural insurance still has several challenges to overcome before meeting the objectives set by the LOASP and reaching the broader smallholder farmer population.

Climate Change Effects on Agricultural Risk

Over the long term, climate change will force CNAAS and reinsurance companies to constantly re-evaluate indices and premiums in order to maintain the solvency of the system associated with changing climate conditions. A trend toward increasing premiums can be expected in rainfed areas, where producers' ability to pay is the most limited. In this context, increased Government support for the reduction of premiums in high risk areas may be necessary.

Greater Inclusion of Rural Populations

CNAAS' products have been able to reach a considerable number of smallholder producers. However, a sustained increase in subscriptions will require a readjustment of products and the distribution network in order to reach less privileged producers who are without access to bank loans or structured marketing networks. In addition to the association with banks to increase access to credit, CNAAS and MFIs will have to look for innovative formulas to integrate digital finance.

Integration of Technologies for Reliable Indices and Responsive Management

The shift to satellite indices and mass agricultural insurance will require CNAAS and its partners to invest in the implementation of highly efficient systems for policy distribution management, collection of premiums, compensation settlement, data collection and processing for the calculation of indices, and monitoring of farm-level impacts. This will involve digitization of all current processes involving CNAAS, its technical partners, and its customers.

HOW ASPRODEB SUCCEEDED IN ADAPTING INSURANCE TO THE PEANUT SECTOR

M. OUSMANE NDIONE,
Director of the Senegalese National Network of Seed Producer Cooperatives (RNCPS-ASPRODEB)

To avoid producers becoming indebted to their organizations because of a shortage in rainfall, ASPRODEB had signed an insurance contract with CNAAS through Planet Guarantee for two of its members that play a role in the production of certified peanut seeds. They are the RNCPS (National Network of Seed Producer Cooperatives) and the CCPA (Framework for Concerted Action of Peanut Producers).
Agricultural insurance is a novelty, the reason for which it has become necessary to teach decision-makers from the producer networks and their facilitators about the ins and outs of this product. Consequently, once the rainfall-shortage criteria had been established for the year, training and awareness-raising sessions were organized regarding the membership and compensation process in the event of a loss.
Use of agricultural insurance has made it possible to mitigate climate shocks, thereby making member producers resilient by securing their expected revenue.
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OUTLOOK

Bank Leadership in Scaling-up Insurance Coverage

Insurance provides banks with a tool to hedge agricultural risk and increase their lending portfolio. CNAAS and other banks will need to create collaborative mechanisms that ensure efficiency and transparency of transactions. Partnerships with mobile banking operators will also facilitate the scaling-up of insurance distribution and raise awareness of its value.

Professionalization of Producer Networks

Given the role networks play supporting agricultural insurance, it is important to continue raising awareness and building the capacity of their leaders and facilitators. A transition to digital finance is expected in the medium term. Producer organizations will have to quickly acquire new skills to become part of new digital practices that may be of particular interest to rural youth attending school. To promote awareness, sending messages directly to each producer may ensure better communications and ultimately facilitate adoption.

Inclusion of all producers

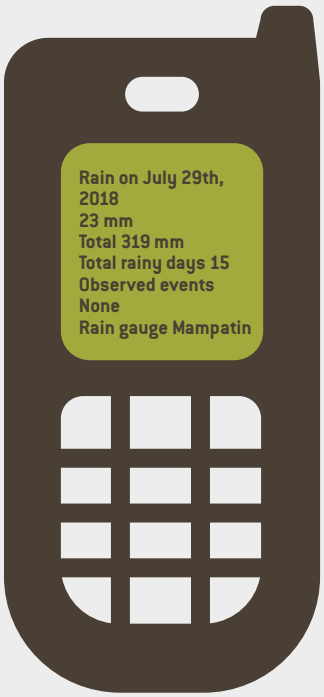
The current insurance scheme takes into account producers who farm at least 1 ha. Those working on less than 1 ha are covered by emergency programs like the World Food Program (WFP). For better inclusion, a distribution strategy with products accessible to the most vulnerable must be put in place. The use of health insurance distribution mechanisms through community health centers may open-up new opportunities for incorporating agricultural insurance.

Expansion of Index-based Insurance Using Satellites

Insurance enrollment may increase because of the complementarity between rain gauge and satellite data for the development of strong indices that will gain the support of producers, banks, and MFIs. With advances in remote sensing, communication and artificial intelligence technology, the use of satellite methods may contribute to cost reduction and to coverage of the national territory.

MÉTÉOMBAY: ACCESS TO CLIMATE INFORMATION FOR BETTER DECISION-MAKING

MeteoMbay is a service developed under Naatal Mbay that was integrated in the MLOUMA USSD platform by Amandjine Consulting to serve the central and southern areas of Senegal. It is an instant SMS alert service that transfers, in real-time, locality rainfall readings from preceding days based on the rain gauges located in the area. On the basis of ANACIM weather news releases, MétéoMbay provides forecasts of the weather specific to each area. This information allows smallholder producers to make informed decisions about their farming operations (date of sowing, weeding, and fertilizer application). Producers who have taken out an insurance policy in each locality can also find out whether they are eligible for compensation under index-based insurance. When it rains, each rain gauge controller notes the amount and immediately sends an SMS to the MLOUMA platform which instantly passes it by SMS to the mobile phones of local producers who are registered for the service. The same system allows them to quickly transmit weather warnings, before thunderstorms for example.



Example of an alert issued from a rain gauge located at Mampatin in Casamance

TO LEARN MORE

- Compagnie d'assurance agricole du Sénégal (CNASS) website www.cnass.sn
- PlaNet Guarantee Senegal website www.planetguarantee.org
- Liaison de l'assurance indicielle basée sur les indices climatiques au crédit agricole au Sénégal : une évaluation formative des contraintes et supports à la demande, 3ie Final Report – TW 13 1073, 2017
- Feed the Future Innovation Lab for Assets and Market Access: How Agricultural Index Insurance Can Promote Economic Development
- Agricultural insurance for cereal value chains integrating conventional and index-based insurance models into value chain strengthening activities in Senegal, USAID, 2015

This capitalization note and the publications mentioned are available at the following addresses :
www.usaid.gov/senegal
www.ipar.sn/chaines-de-valeur-agricoles-au-senegal

PHOTO
CNAAS is now offering Casamance rainfed rice producers specialized insurance for rice they cultivate traditionally in the lowlands.

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The Naatal Mbay project (Flourishing agriculture in Wolof), spanning four years (2015-2019), invested nearly US$ 24 million (12 billion CFA francs) to support the rice, maize, and millet cereal value chains. It has created business opportunities for inclusive growth and development of the agricultural sector in the Delta and the Senegal River Valley, in the southern portion of the central peanut basin, and in the southern regions of Ziguinchor, Sédhiou, and Kolda. Naatal Mbay was implemented in the context of Feed the Future, an initiative launched by the Government of the United States of America in 2011 to combat hunger and food insecurity in the world.

For more information :
www.feedthefuture.gov

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USAID is the United States Agency for International Development, one of the most active agencies in the world in this field. In Senegal, USAID is working in close collaboration with the Government of Senegal in the fields of health, economic growth, agriculture, education, and good governance.

For more information :
www.usaid.gov/senegal

ipar
Initiative Prospective Agricole et Rurale

The Agricultural and Rural Prospective Initiative (IPAR) is a space for reflection, dialogue, and coordinated agricultural and rural policy proposals in Senegal and in the West African region. IPAR's main research topics are: (i) structural transformation of agriculture; (ii) climate change; (iii) migration and youth employment; (iv) sustainable development objectives; and (v) governance of natural and land resources

For more information :
www.ipar.sn

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