



# FEED THE FUTURE

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



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## SENEGAL Naatal Mbay

Cereal Value Chains

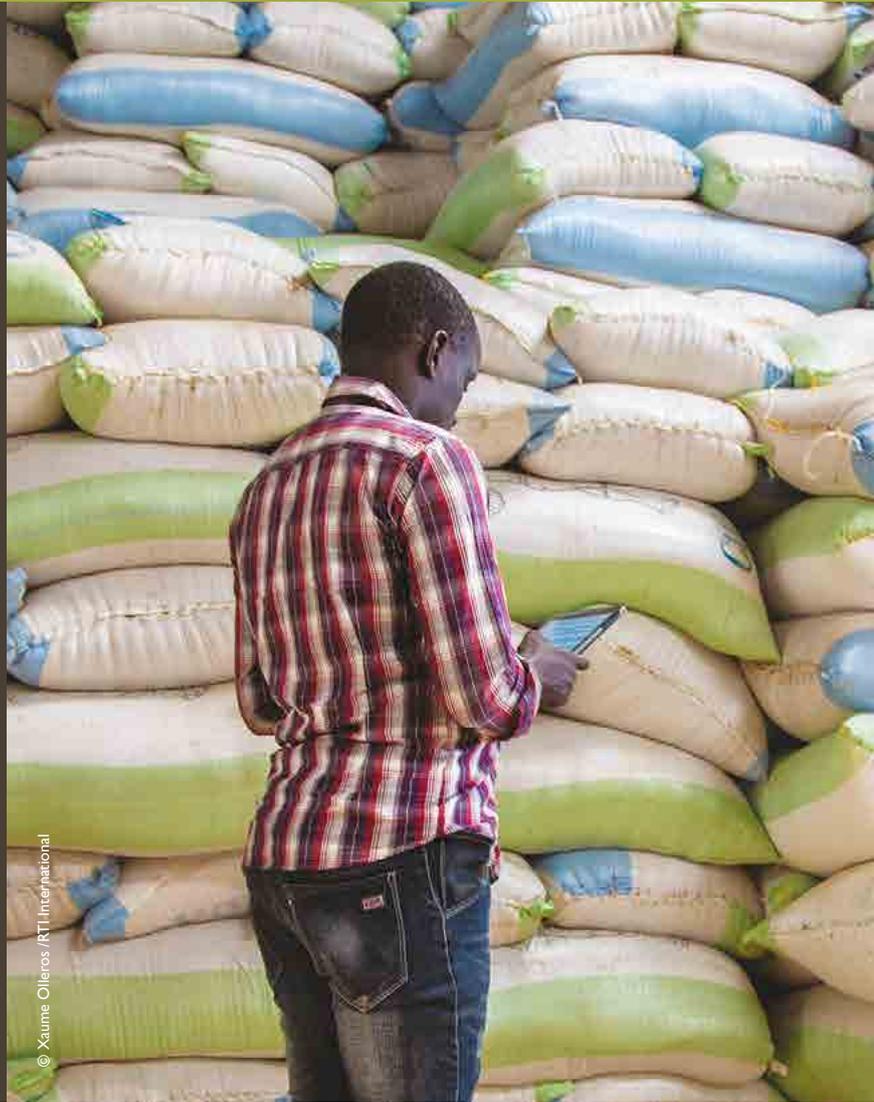
### INTEGRATED FINANCING

This innovative integrated financing model works by linking the repayment of farmer credit with the activation of credit lines for processors. This system, based on pledging and control of cereal stocks, has led to a significant increase in value chain financing, improved the loan recovery rate for banks, and strengthened the competitiveness of Senegal's rice sector in the face of imports.

2019

## INTRODUCTION

**F**eed the Future developed a partnership with financial institutions, notably the Senegal National Agricultural Bank (CNCAS), to rethink seasonal credit and marketing mechanisms available for cereal value chains and to lay the foundation for a secure and competitive financial market that fosters inclusive growth. This innovative mechanism has taken off in the Senegal River Valley (SRV) where it connects producers, rice millers, and CNCAS in a framework for valuing and pledging the paddy rice to secure loans. It has made it possible to redress the significant imbalance between local rice and imported rice in terms of the ability to mobilize short-term financial resources.



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## BACKGROUND

In Senegal, the challenge of accessing finance is a major obstacle that restricts the growth of the agricultural sector. The banks consider seasonal credit for smallholder farmers, especially for grain value chains, to be high risk. Climate variability, fluctuating prices, the lack of transparency in the informal sector, and limited or non-existent loan guarantees meant that loans for grain producers were stagnating. The fact that loans were being made despite a high rate of loan defaults was due to the strong will of the respective public authorities to support agricultural production.

In the same way, the rice millers' borrowing capacity was limited by the value of the equity guarantees they offered (mortgages on equipment and buildings, external securities). This severely limited the millers' capacity to mobilize sufficient funds to source

an adequate supply of raw materials, and negatively affected their competitiveness with imports since they could not buy enough grain to be present in the market the entire year.

Cereal imports on the other hand benefit from a trading framework that gives them a noticeable competitive advantage. The impressive port storage facilities in Dakar and the corresponding lines of credit, backed by third-party collateral arrangements, give importers a critical advantage. This arrangement allows private traders to import large volumes, using the leverage that comes from pledging cereal stocks stored in bonded warehouses as collateral, a banking technique that until now has not been available for the paddy rice stocks of the producers and the rice millers in the Senegal River Valley.

**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

*Aissatou Guèye, the owner of a rice processing mill, is one of the 14 leading companies that procure paddy rice through the integrated financing mechanism developed by CNCAS and Feed the Future.*

### PHOTO. PAGE 2

*Warehouse for the consolidation of loan repayments by the producer networks. Quality raw material and well controlled inventories make all the difference.*

## TECHNOLOGY DESCRIPTION

“Integrated financing” is the term used to describe a system introduced in 2014 by the Senegal National Agricultural Bank (CNCAS), in collaboration with Feed the Future, in the rice sector of the Senegal River Valley. This entails a sequence of bank loans structured to support the flow of transactions between value chain stakeholders. These loans are secured by the value of the stocks as they are transferred from one stakeholder to another.

### Producer Credit

Initially, banks grant credit to producer networks to finance inputs and land preparation. These loans are secured through the network’s pledge to consolidate at harvest, in a designated warehouse, a volume of paddy rice corresponding to the value of the loan reimbursement.

The final volume of paddy rice to be repaid in-kind is calculated on the basis of a reference price negotiated at harvest in order to adjust to the prevailing market situation. Negotiation sessions involving the bank, producer networks, and rice mills are chaired by the National Agency for the Development and Use of Lands in the Senegal River Delta, the Senegal River and Falémé River Valleys (SAED). These «reimbursement stocks» are monitored by CNCAS branch personnel and by a team of auditors in the field, who are mandated by the banks to validate the data provided by the warehouse managers.

### Rice Mill Procurement Lines of Credit

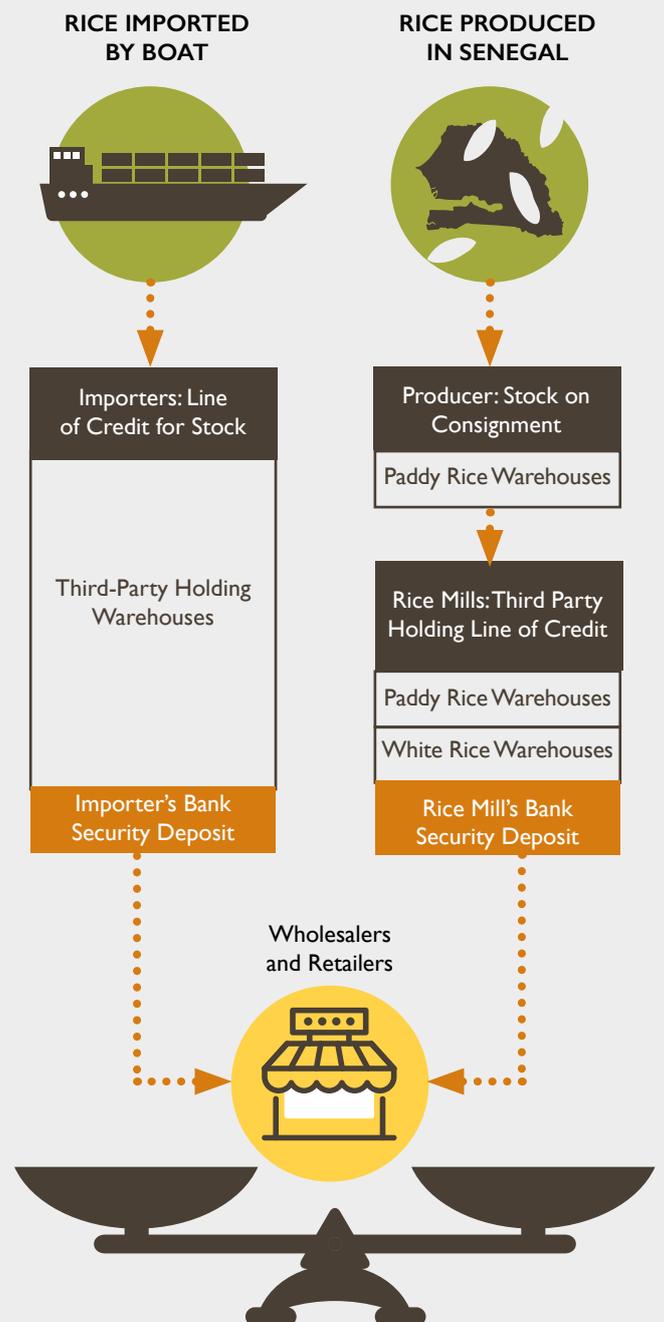
Inventories derived from producers’ in-kind repayments are acquired by rice mills who have negotiated a procurement line of credit with banks. When a rice mill signs a purchase agreement with a group of farmers, its line of credit is activated by the bank to settle the account of the producer organization. The mill’s credit is then secured through the pledge of the rice it purchased from the producer organizations.

The miller lines of credit are not limited to rice from the repayment of producer credits; the collateral system can also be used to procure additional surpluses from producer networks and individual farmers, as well as stocks held by mechanized service providers as a result of in-kind payments by farmers, or by private paddy rice consolidators. Prices are then determined during ad hoc negotiations, depending on market conditions. Invoices are settled by bank transfer, drawn on the mill’s line of credit for the benefit of the seller.

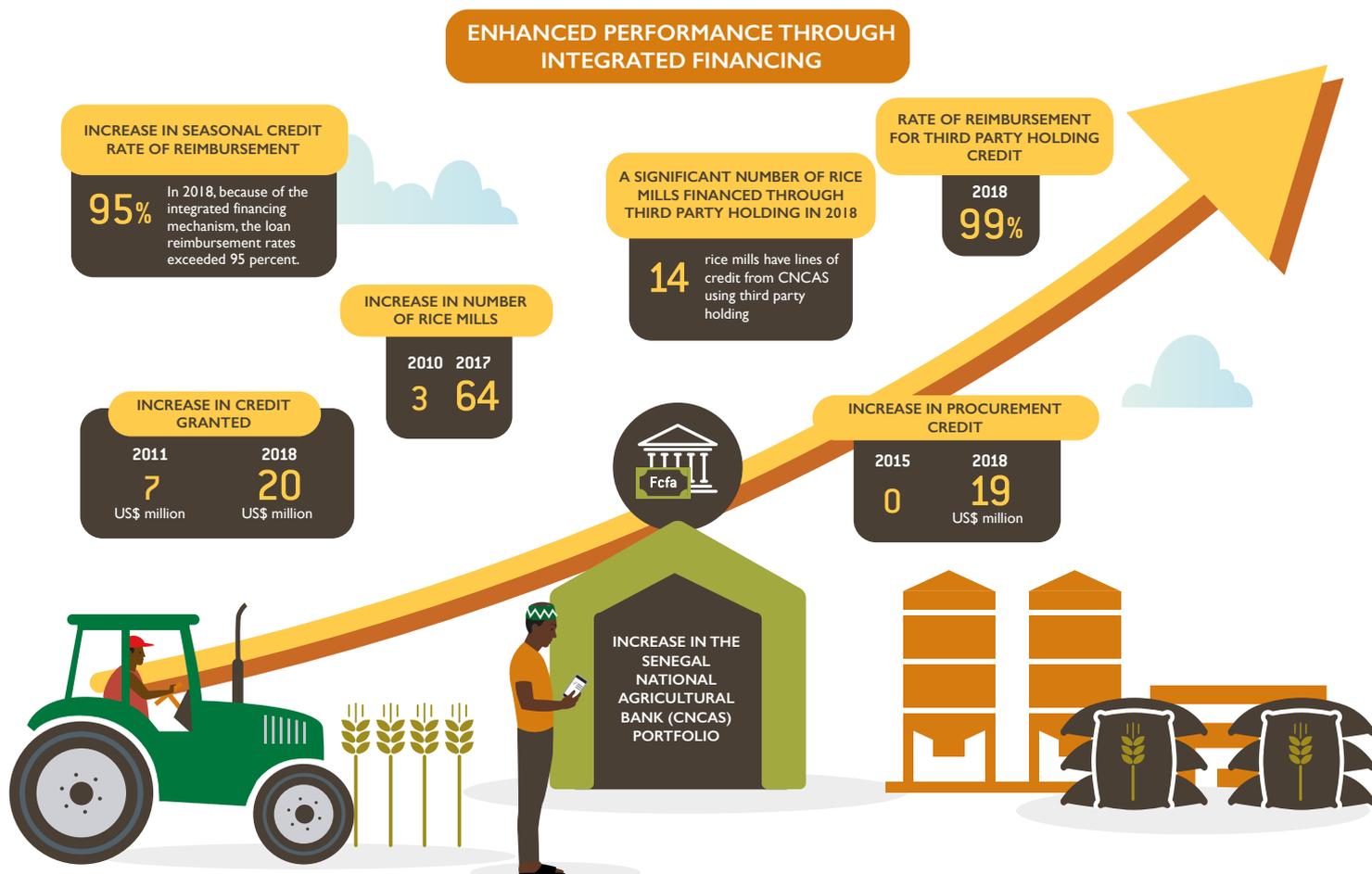
### Third Party Holding and Stock Monitoring

In the case of the industrial rice millers, a collateral management company, mandated by the bank and whose services are paid for by the mill, tracks the volume and value of the paddy and processed rice (white rice) stocks stored at the various warehouses. These figures are communicated regularly to the bank account managers, who must ensure that the value of the inventory, at all times, covers the balance of the rice mill’s line of credit. The line of credit is repaid as the finished product is sold to wholesalers and the bank receives the payments in cash or by bank drafts. These cash inflows reduce the amount of outstanding debt and give the miller the latitude to buy more raw material (paddy).

## IMPROVING SENEGAL RICE COMPETITIVENESS BY ADJUSTING BORROWING TERMS



## RESULTING CHANGES



The implementation of integrated financing has produced the following changes at the level of the different stakeholders involved:

### PRODUCER NETWORKS

#### Respect for Planning, Technical Requirements, and Quality Standards

Producers must repay the seasonal credit in-kind with paddy rice based on pre-negotiated quality standards and prices stipulated in contracts. The conditions are accepted by all stakeholders -- the producers, the rice processors, and the bank. This mechanism has encouraged producers to adopt growing and harvesting practices that comply with the contract specifications, thereby helping them to improve the quality of local rice.

#### Increase in Credit to Rice Producers in the Senegal River Valley

The credit granted to producers increased from US\$ 7 to US\$20 million (FCFA 3.5 to FCFA 10 billion) between 2011 and 2017. This increase reflects the improvement in the solvency of the producers, which has allowed them to accept more risk to produce more rice. In addition, the system facilitates the repayment of credit at a single delivery point, whereas formerly, each producer had to arrange to sell their surplus stock, sometimes in multiple transactions and at multiple locations in order to repay the loan.

#### Securing the Market and Improving Production

Integrated financing creates a secure market for producers, allowing them to sell at a stable price to customers whose solvency is guaranteed by the bank. As a result, they have changed their

practices and are now favoring the dry off-season, which, although more expensive in terms of irrigation, offers higher yields and quality.

## THE INDUSTRIAL MILLS

### Removal of Barriers to Industrial Processing

The number of active industrial-scale rice mills has gone from 3 to 64 between 2010 and 2017; this is the result of the reduction in barriers to financing and the strong supply of quality paddy rice.

### Reduction in Transaction Costs for Paddy Rice Supply

With the consolidation of stocks in warehouses, in agreement with the bank, rice mills no longer need to mobilize expensive logistics to crisscross the Valley in search of paddy. This mechanism allows rice mills to reduce their transport costs for paddy rice by tapping into a consolidated supply with trucks scheduled at full capacity on predefined routes. In the Senegal River Valley, 83 primary consolidation points were listed in 2017.

### Increased Credit to the Industrial Sector

Marketing credit from CNCAS in the Senegal River Valley, launched in 2016, reached US\$ 19 million (9.5 billion CFA francs) in 2018. Transactions between millers and producers, conducted through CNCAS, have reached an annual volume of 150,000 tons of paddy rice. This corresponds to 87,000 tons of white rice sold in markets that were once totally supplied by imports.

## THE BANKS

### Increase in the Rate of Reimbursement

This mechanism allows producers to settle their debt without having to accumulate the necessary amount through split sales. The circulation of money between the stakeholders is limited, which reduces the risk of straying from objectives. In addition, the strict third-party control of inventory movements at the milling unit level avoids management abuses and imposes discipline on mills. In 2017, repayment rates exceeded 95 percent for seasonal credit and 99 percent for marketing credit, despite an increase in the credit portfolio.

### Improved Visibility of Product Flows and Transactions

Through the third-party holder and the agents who are mandated to monitor warehouses for producer networks, the bank has reliable information on the movement of paddy and white rice stocks. Thus, it is better able to appreciate the solvency of the rice mills, which helps to secure procurement lines of credit and to direct producers to reliable buyers.

### Ownership of the Approach by Other Stakeholders

The positive results of this mechanism have encouraged the National Bank for Economic Development (BNDE) to continue its partnership with Naatal Mbay by providing financing for five industrial scale rice mills amounting to US\$ 2.6 million (1.3 billion CFA francs).

## TESTIMONY



### MR. ALIOUNE GUEYE, President of the Federation of Self-managed Rice Perimeters (FPA)

*Integrated financing has been facilitated by reinforcing the capacities of producers in good agricultural practices and contracting which has allowed producers, rice millers, and banks to implement a framework that promotes access to seasonal credit, quality improvement, and marketing of paddy rice and white rice in the Senegal River Valley. This dynamic has been made possible through the support of Naatal Mbay and the other partners. It has allowed producers to have access to inputs and to a secure market for paddy rice. A portion of the marketed production is intended for the repayment of seasonal credit accorded by the bank and the surplus is sold to the rice manufacturers at the same price, set at the beginning of the season by mutual agreement with the Interprofessional Committee of the Rice Sector.*

*The changes observed have been made possible by reinforcing the capacities of the producers on the “road to good rice” and by empowering the networks through the development of databases. Today, it allows producers to make informed, evidence-based decisions. The use of good agricultural practices has made it possible to obtain higher yields for milled rice: 60 percent for whole rice and 40 percent for broken rice. Integrated financing has encouraged the development of processing champions who use cutting-edge technology such as laser sorters to improve the quality of white rice. Integrated financing has made it possible to overcome production, quality, and marketing-related problems. Today, contracting has reached a point of no-return. Thus, it is necessary to improve it to further secure the revenues of producers.*

## FACILITATION APPROACH

The integrated financing mechanism is the result of a continuous co-creation process in partnership with financial institutions and value chain stakeholders. From the outset, the credits granted through this mechanism do not benefit from any funds or guarantees other than those already available from the financial institutions. The lack of an ad hoc securing mechanism imposed discipline and caution on stakeholders. The implementation of integrated financing has been iterative, introducing improvements from one season to another while ensuring the solvency of the system, with the level of loan repayment serving as a key indicator of success.

### Pilot Phase

Integrated financing was introduced into the Senegal River Valley on a small scale, through a collaboration between Feed the Future and a newly established industrial rice mill willing to contract with producer organizations. The Senegal National Agricultural Bank (CNCAS) saw an opportunity to secure the marketing of stocks consigned by certain producer groups. This work enabled the mill to enter into a contract for 5,000 tons of raw material (paddy rice) and to establish the principle of a seasonal purchasing price, including a premium corresponding to the value added for the buyer through the consolidation of stocks at designated sites and the setting of high quality standards.

### Adaptation and Structuring of Integrated Financing

Following the success of the first operation, the industrial mill expressed the need to scale up and opened additional credit lines with local banks. Given the amount of financing needed, collateral and third-party holding mechanisms were put in place at the rice mill level in addition to the standard guarantees. It was during this phase that the principles for integrating both credit mechanisms (seasonal credit for producers and procurement credit for millers) were developed. However, because of the higher than usual credit amounts being requested, it was necessary to obtain approval from the bank's senior leadership.

### Transformation of Paddy Rice into a Collateral Commodity

The recognition of a collateral value for paddy rice was a decisive step in the process. The large-scale adoption of quality standards for paddy rice by producers, millers, and the bank is the cornerstone of the integrated finance guarantee system. Thus, large-scale quality control capacity building has been a strategic priority in Feed the Future's support for the implementation and consolidation of the system.

### Creation of Credit Lines Specifically for Rice Millers

After an initial experience combining credit for producers and conventional marketing credit, the partnership between Feed the Future and the banks worked to develop a marketing credit formula for rice manufacturers to facilitate the acquisition of large stocks of paddy rice at the beginning of the season. This formula required the involvement of third-party holding companies that control grain flows at the rice mill level on behalf of the banks. This so-called "stock monitoring" formula was initially supported financially by the project, but gradually became more refined and was finally taken over entirely by the industrial mills on the condition that they mutually agree upon specifications and pricing.

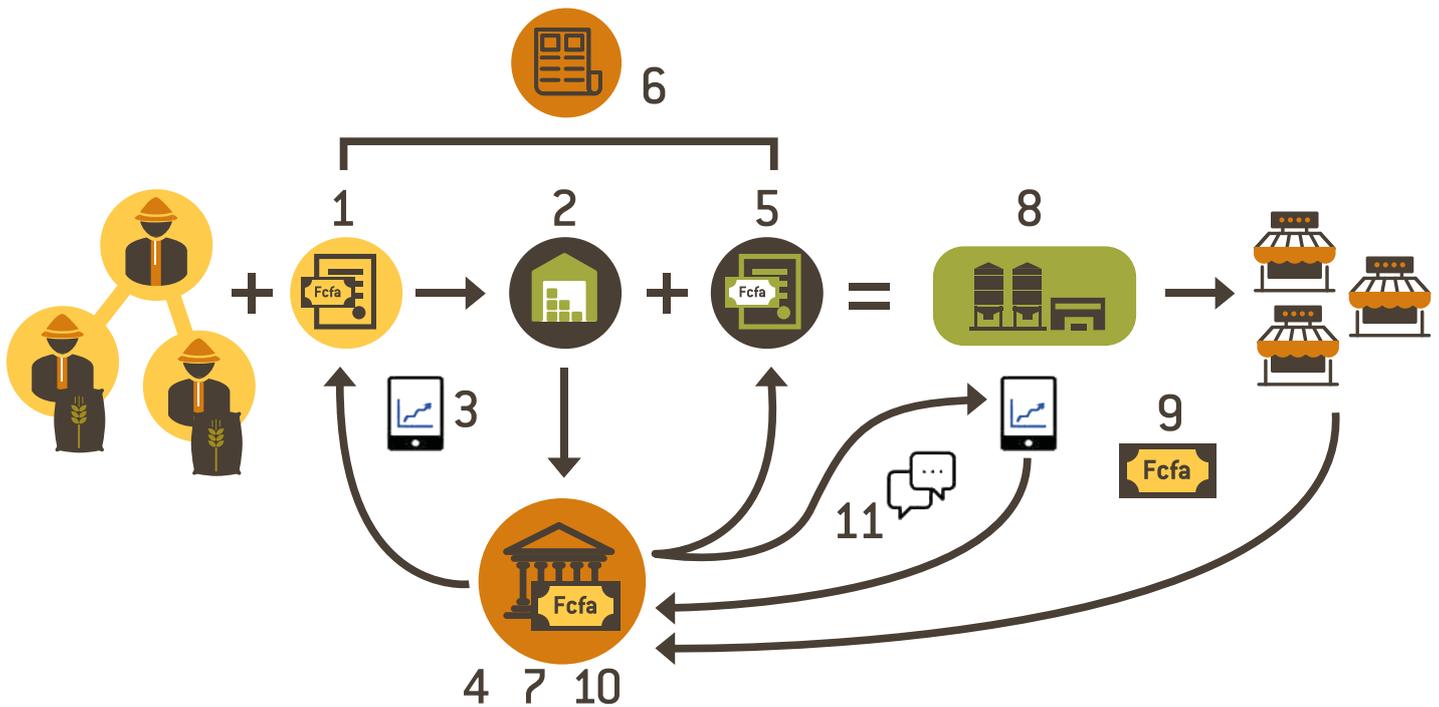
### Scaling up

With the start of the Naatal Mbay project, which extended the coverage of capacity building activities for producers and expanded stock monitoring, banks were encouraged to open-up the mechanism to rice mills interested in this new system for procuring and financing their paddy rice needs.

### Establishment of an Appropriate Information-Sharing Mechanism

With scaling-up and growth in the credits by the bank, monitoring of the movements of paddy and white rice stocks quickly became a critical issue. Feed the Future and CNCAS collaborated to develop a computerized inventory management platform to monitor the collection of in-kind reimbursements and their purchase by industrial mills.

**OPERATIONS OF THE INTEGRATED FINANCING SYSTEM**



**1.** The bank grants seasonal credit to producer groups.

**2.** The harvested paddy rice is delivered to the designated warehouse.

**3.** The warehouse manager records the in-kind reimbursement in the bank's stock monitoring platform.

**4.** The bank recognizes repayment of the seasonal credit. The producer group can request a new credit for the following season.

**5.** The bank grants a procurement credit to the mill so it can purchase paddy rice.

**6.** The mill signs a contract with the producer group at the agreed upon price.

**7.** The bank settles the group's account by debiting the account of the mill.

**8.** The third-party holding agent assigned to the mill ensures the continuous monitoring of the paddy rice stocks (raw material) and of the white rice (finished product) on behalf of the bank.

**9.** The mill sells the white rice. The buyer transfers funds to the bank which is the rice miller's designated place of payment.

**10.** The bank applies the payment to the mill's credit balance.

**11.** The bank gives the order to release the white rice for delivery to the buyer.

## PARTNERSHIPS AND SYNERGIES

**The development of integrated financing has been the result of sustained facilitation work by Feed the Future, but it could not have succeeded without the support of strong partners and convergent programs across many areas.**

Leadership by CNCAS, as a direct partner in the design and implementation of integrated financing models, made it possible to anchor the development of the system at the heart of cereal value chains. Work began on irrigated rice in the Senegal River Valley and extended to the Anambé area and other sectors such as seeds and maize.

Concurrently to the facilitation work of Naatal Mbay, the Spanish Cooperation program financed the construction of 17 high-volume warehouses (800 tons and more) which created the initial infrastructure for the consolidation of in-kind loan reimbursements by producer groups. Similar infrastructure interventions were subsequently replicated by other cooperation programs and industry leaders in the valley and supported the expansion of the credit system.

On the technical side, the program took advantage of the expertise of third-party holding firms active at the Port of Dakar. They were able to transpose their practices to the specific context of the Senegal River Valley. The project also benefited from the services of Information Technology (IT) companies and financial auditing companies to implement the monitoring framework of the pledged inventories.

The national extension system also responded to the call. The National Society for the Development and Use of the Lands of the Senegal River Delta (SAED) has played an important role in organizing the pre-season negotiation meetings during which prices are determined. The Rural Management and Economics Center (CGERV) has continued its work strengthening the financial management and reporting of producer organizations.

Finally, the growth in the volume of procurement credit to rice mills has been based on lines of credit granted to CNCAS and other banks for the refinancing of their balance sheets, in particular the facilities implemented by bilateral and multilateral lenders such as the French Agency for Development (AFD) and the West African Development Bank (BOAD).



*Between 2012 and 2016, the Spanish Cooperation Agency (AECID) financed more than 20 storage warehouses near rice production fields in the Senegal River Valley. Located at strategic points along logistics routes in the area, with a capacity of more than 800 tons per unit and sometimes with the grouping of two to three units per site, these warehouses have redefined the scale of grain storage and contributed to the rapid expansion of the integrated financing model introduced by CNCAS and Feed the Future.*

## RESULTS

### A Mature Base in the Senegal River Valley

Launched in 2014, in the Senegal River Valley, integrated financing has now gone through eight rice seasons and has reached record levels. In 2018, credits for producers and rice mills were in the vicinity of US\$ 39 million (19 billion CFA francs), i.e. almost five times the level of financing for rice growing at the start of the decade. The very high repayment rates of credit to producers and rice mills (95 percent and 99 percent respectively) and the introduction of insurance coverage of agricultural risk make it a stabilized system which is an important asset for the rice value chain and provides an example for other grain value chains.

### Existence of a Profitable Market

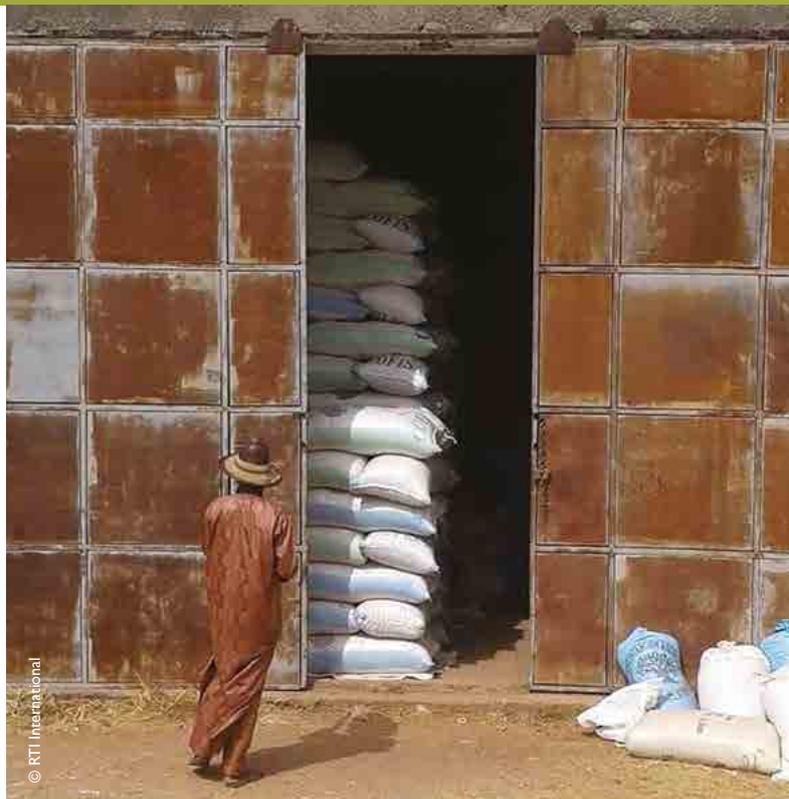
The integrated financing system has achieved its primary mission of restoring the competitive position of local rice compared to imports. As a result of efforts to improve its competitiveness and, above all, its ability to produce sizeable volumes, local rice is gaining significant market share. This is creating the conditions for accelerated and sustained growth.

### A Sustainable Transformation of Value Chain Practices

These impressive statistics must not obscure the transformation of the business and management practices of stakeholders that underlies this innovative financing approach. More rigorous quality control, better stock management, the use of grouped volume contracts, the stabilization of prices for producers, and the introduction of computerized platforms constitute significant advances in the rice value chain, all of which are linked to the introduction of integrated financing and promotes its sustainability.

### Successful Expansion Initiatives

Outside of the Senegal River Valley, the practice of integrated credit has been transposed to southern Senegal, in the area referred to as the Anambé rice-growing development project. Mechanisms based on collateral principles have also been introduced in the seed and in the maize sectors. These successful experiments are transformative achievements for cereal value chains and change the general perception that these sectors are too risky for significant investment.



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## RICE AS COLLATERAL IN THE SOUTH

Today, the Senegal River Valley model is being adopted by the producers of rainfed rice in the South, who are enjoying their first cycles of marketable surplus production. The model was launched in 2016 in the Anambé Basin in the context of a collaboration between the Federation of Producers from the Anambé Basin (FEPROBA), the Agricultural and Industrial Development Corporation of Senegal (SODAGRI), the Casamance Pole Development Project (PPDC), and Feed the Future Naatal Mbay, with the Society for Development of Textile Fibers (SODEFITEX) and its Kédougou rice mill as client. For the 2018-19 crop year, the integrated financing model was adopted not only by the Anambé networks but also those of Sédhiou and Ziguinchor, in partnership with CNCAS and other financial partners. Out of a total projected production of 24,000 tons, 3,100 tons will be marketed as in-kind reimbursement of credit and 1,180 tons will be sold directly and processed by small-scale rice mills within the producer networks.

PHOTO :

A producer from Anambé lingers in front of a paddy rice consolidation warehouse managed by FEPROBA as part of its integrated credit framework.

## CHALLENGES

### Storage Infrastructure

Credit expansion is dependent upon the storage capacity available to producers, allowing them to accumulate stocks that meet the banks' collateral requirement. The integrated credit mechanism has encouraged industrial mills to invest in increasing their own storage capacity at mill site and in surrounding production zones. While producer networks do not have the same investment capacities, they also need to have more storage centers nearby. Blended-finance support formulas are therefore necessary in the short-term to support growth and preserve their inclusion in the system.

### Rethinking Logistics

Beyond warehouses and even silos, the logistics of harvesting and of transferring stocks from the field to warehouse need to be more efficient. This will require to adapt the road system in production areas for large trucks traffic and a shift to bulk transportation and marketing.

### Integration of the Middle-Upper Valley and Rainfed Cereal Areas

The promising expansion to the Anambé area shows the potential of using integrated finance models even in predominantly subsistence production zones. However, due to the limited volumes of marketable surplus likely to be produced, the model must be adjusted to adapt to the different context.

### Expansion of Credit Within Limits Imposed by Banking Regulations

Until now, CNCAS and the other banks involved in integrated financing have been able to refinance the loans through lines of credit set up by bilateral and multilateral lenders. In the favorable context of Senegal's Plan for an Emerging Senegal (PSE - Plan Sénégal Emergent), such tools should remain accessible. However, in the long run, it will be essential for the banks to be able to secure the stocks with negotiable securities such as warehouse receipts.



### PRODUCTION, CREDIT, STORAGE AND LOGISTICS

*The growth of agricultural credit and expansion of production are today limited by a saturation of storage capacity located near production areas as well as the inadequacy of rural transport routes to tractor trailers traffic which are needed to speed up the paddy rice evacuation to the rice mill storage sites.*

## OUTLOOK

The integrated financing mechanism is a high value-added tool for promoting cereal value chains. It offers the opportunity for secure financing and markets to both producers and industrial processors. Beyond the scaling up of the practices developed by Feed the Future in partnership with CNCAS in the Senegal River Valley, this successful experience opens up several prospects for the agricultural sector.

### Anticipating the Expansion of Integrated Financing in the Agricultural Sector

The expansion of the integrated financing system beyond cereals has already been identified by CNCAS and other banks as an avenue for strategic expansion. Sectors such as grains, peanuts, onions, potatoes and other commercial crops such as cashews, integrating a process for consolidating the supply of smallholders, are being considered by banks as new opportunities to expand the model. It must be remembered, however, that the success of integrated financing in the Senegal River Valley is not due solely to banking techniques but also relies on an extensive capacity building program, the wide acceptance of quality control and contracting, public-private investment in infrastructure to a suitable capacity, and digital information flows and management platforms.

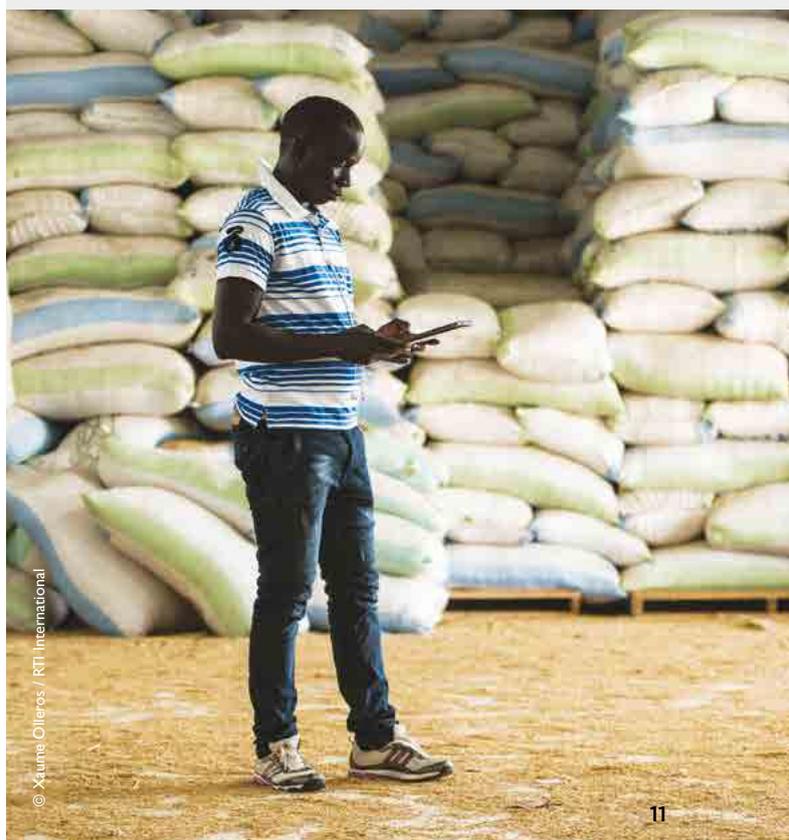
### Setting the Foundation for a Commodities Market

The consolidation of stocks and the creation of an integrated contractual framework made liquid by the banks and supported by an information system should be considered as the embryonic phase of a cereal trading system. The implementation of systems such as warehouse receipts and their integration into exchange platforms between value chain stakeholders can be expected in the future. Moreover, banks such as CNCAS have the regional connections needed to network with these national platforms and consolidate the market for commodities such as rice, maize, millet, or peanuts throughout the West Africa sub-region.

## THE INTEGRATED CREDIT SYSTEM HAS STRENGTHENED LINKS BETWEEN VALUE CHAIN STAKEHOLDERS

A large part of the success of the integrated financing model is due to the degree of system transparency it has created. With the introduction of a digital stock monitoring platform by CNCAS with the support of Feed the Future, the bank is now able to ensure contacts between the producer groups and the mills, based on virtual real-time inventory reporting. In the future, the significant volume of stocks consolidated each season will be required to adopt the new system of warehouse receipts introduced by the Ministry of Commerce and the World Bank. This will be the start of a gradual digitization of transactions in the cereals sector which will result in the creation of multi-stakeholder platforms that will simplify exchanges and circulation of products.

At this level, the banks will, of course, play a key role facilitating these systems. Nevertheless, the capacity of the producer networks to become an integral part of this digital environment is a strategic issue when it comes to ensuring that agriculture remains inclusive and competitive in the cereals sector.





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## TO LEARN MORE

- Caisse Nationale de Crédit Agricole du Sénégal (CNCAS) website [www.cncas.sn](http://www.cncas.sn)
- Traçabilité et impacts des subventions agricoles, IPAR, 2015
- LEO Report n°49: Case studies on facilitating systemic change: a synthesis of cases from Ghana, Senegal, Zambia, and Rwanda, USAID, LEO, and ACIDI/VOCA, 2016
- Managing risks to improve farmer livelihoods, Platform for Agricultural Risk Management (PARM), IFAD, 2017

This capitalization note and the publications mentioned are available at the following address:

[www.usaid.gov/senegal](http://www.usaid.gov/senegal)  
[www.ipar.sn/chaines-de-valeur-agricoles-au-senegal](http://www.ipar.sn/chaines-de-valeur-agricoles-au-senegal)

### PHOTO

*The exponential expansion of local cereals negotiated within the integrated financing framework is leading to the rapid adoption by value chains of bulk handling technologies, which are bringing new jobs to Senegalese youth.*



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](http://www.feedthefuture.gov)

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.

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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

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