



**USAID**  
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# FARMER-OWNED EXTENSION SERVICES

COMMUNITY LEVEL SERVICE PROVISION FOR SCALING  
SMALL FARMER MARKET INTEGRATION

**APRIL 2015**

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**DISCLAIMER**

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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# ACRONYMS

DISEM	Division des Semences
FEPROMAS	<i>Fédération des Producteurs de Maïs du Saloum</i>
FTF	Feed the Future
GPS	Global Positioning System
Ha	Hectare
ICT	Information Communication Technologies
ISRA	<i>Institut Sénégalais de Recherches Agricoles</i>
M&E	Monitoring and Evaluation
NERICA	New Rice for Africa
NGO	Non-Governmental Organization
PCE	<i>Projet Croissance Economique</i> , or Economic Growth Project
SAED	<i>Société Nationale d'Aménagement et d'Exploitation des Terres du Delta du Fleuve Sénégal et des Vallées du Fleuve Sénégal et de la Falémé</i>
ToT	Trainings of Trainers
USAID	United States Agency for International Development

# PREFACE

This technical note is one of a series of short papers produced by USAID/Senegal's *Projet Croissance Economique (PCE)*, or Economic Growth Project, implemented by IRG, an Engility company, from 2009-2015.<sup>1</sup> The purpose of the series is to share experiences and lessons learned with implementing partners, USAID, and the broader development community.

This paper is intended to serve as an informational tool for those wishing to engage in similar activities and who need more details on both technical aspects and implementation methodologies. As such, it is not an evaluation, though it does present important program results and discussions on impacts.

The primary goal of USAID/PCE is to promote food security by linking small cereal farmers (rice, maize, and millet) to certified seed and commercial grain value chains to boost their productivity and diversify their incomes. USAID/PCE activities support certified seed production and distribution alongside structural investments in seed processing centers and certification labs; increased agricultural processing capacity; new market linkages between producers and the private sector for distribution, processing, and storage; introduction of new quality grading and packaging standards developed at the grassroots level to foster national and regional trade competitiveness; increased access for small farmers to agricultural insurance and tailored cashflow-based financing mechanisms; policy reform; and capacity building of Government, farmer organizations and financial sector actors relative to the functioning, monitoring and governance of cereal value chains including risk reduction and response strategies.

As USAID/PCE is an integrated program, a number of broad messages apply across the series. One above all is that there truly is no "one-size fits all" approach to be applied across all sectors. In fact, the project team considers as a best practice the iterative implementation of a set of models to tailor them to the varying needs along different Feed the Future (FTF) value chains in different regions of the country.

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<sup>1</sup> Readers interested in accessing additional project reports and documentation should consult USAID's Development Experience Clearinghouse under project reference 685-1-00-06-00005-00 (<https://dec.usaid.gov/>)

# INTRODUCTION

The USAID/PCE team embraces a sustainability-focused systems approach – working through partnerships with local producer associations, the private sector, and grassroots NGOs to strengthen smallholder agriculture and promote integrated, competitive supply chains to feed local and national markets while enhancing sustainability and local ownership. The cornerstone of this approach is an extension service provision model that fosters locally tailored interventions and builds technical and organizational capacity of smallholders and rural actors while fully engaging and transferring ownership to partner networks and farmers. This approach empowers beneficiaries and encourages them to rise as leaders in their communities to promote adoption of technologies and best practices. This ensures local ownership of approaches, which will endure long beyond the project term. This system has served as the root structure through which the project has been able to quickly and efficiently disseminate and go to scale with new technologies, training content, and other tools and skill-building activities. It is also through this system that farmer networks systematically track their work and build a robust set of databases that foster information exchange and enable informed decision-making to respond to production performance trends and evolving market needs.<sup>2</sup>

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<sup>2</sup> See the paper in this series on Farmer-Owned Data Management Systems for more detail.

# CONTEXT

Agricultural extension interventions in Senegal have traditionally been comprised of project technical teams that are exclusively employed by the implementing agency imparting the technical knowledge or services. These agricultural extension services typically rely on a linear, top-down technical structure, where researchers or decision-makers deliver trainings and information to farmers through field extension workers. These extension workers travel between intervention zones visiting communities and providing trainings and other services to beneficiaries. This model depends on heavy financial support of personnel who are often based in strategic mid-points between intervention zones. Over the years, this model has demonstrated serious limitations in matters of cost efficiency and sustainable technology adoption and scaling. A major limitation of this model is that technical assistance that is financed by a project is no longer present at the local level after the project ends. Furthermore, during project implementation, the knowledge base remains with its point of origin (the extension worker) and beneficiaries must wait for the extension worker's periodic return to their zone in order to pose follow-up questions or receive additional support. Another limitation of this former approach is that farmers were not significantly involved in undertaking project activities, from conception to evaluation, and as a result the implementation was not always directly aligned to their interests, nor did they view themselves as vested implementers (but rather, passive recipients).

It was in this context that the USAID/PCE model sought to foster the emergence of locally based leaders who would be capable of disseminating the technical messages of USAID/PCE throughout the country. To foster optimal growing conditions and increase crop production capacity, USAID/PCE has introduced and disseminated proven technologies that are tailored to the particular needs of value chains across the different geographical intervention zones. As USAID/PCE is a value chain development project working to reinforce the entire value chain, the program deliberately chose to work through strategic partnerships with a variety of organizational models: NGOs, consolidation buyers, millers, farmer groups and cooperatives, women's groups, humanitarian organizations, and government extension agencies. The significance of the choice to structure PCE's work in this way should not be taken lightly, as it is the driving engine of USAID/PCE component activities that are in turn implemented through these farmer-owned extension service structures (e.g. agricultural and post-harvest best practice trainings, seed multiplication, quality control, farmer databases, rainfall tracking, bank credit, leasing, contract farming, etc.). Furthermore, faced with the objective of working simultaneously in four value chains across the country, it has been necessary to quickly and consistently innovate to reach all regions and simultaneously support varied needs of different value chain actors with differing levels of capacity. Having local systems in place running programs according to locally tailored models has enabled the program to adapt, change, and scale up activities quickly (both in geographic reach and technical rigor).

The essence and scale of the farmer-owned extension service cycle is represented in the diagram on the opposite page, which is described in further detail in subsequent sections of this paper.



**DEBRIEF**



**78 DATABASE MANAGERS**

**RESULTS, DATA, FEEDBACK**



**1,425 communities sites**

**391 FACILITATORS**





## DEFINING THE TECHNICAL PACKAGE

In developing the initial technical package(s), USAID/PCE worked with national technical partners to define the most appropriate technology combinations to meet the needs of improving productivity for farmers in all target value chains. For instance, AfricaRice was the developer and source of the successful NERICA (New Rice for Africa) seed that has been at the foundation of the rainfed rice program. Other seed varieties such as the Sahel series came from ISRA (*Institut Sénégalais de Recherches Agricoles*), and The Path to Good Rice (*“Le Chemin du Bon Riz”*) best practice package from SAED *Société Nationale d'Aménagement et d'Exploitation des Terres du Delta du Fleuve Sénégal et des Vallées du Fleuve Sénégal et de la Falémé*). The Conservation Farming activities were carried over from Engility/IRG's previous Food Security project in Senegal, USAID/Wula Naafa. Additional technologies that were added throughout the evolution of USAID/PCE implementation were developed or decided upon with different actors across value chains (such as the integration of seeders, quality control equipment, etc.), with extensive input and validation by farmers. Overall, priority was given to integrating three main categories of innovations: technology innovations (e.g. improved seeds); institutional, social and organizational innovations (e.g. structured networking of producers, better organization of input distribution channels); and knowledge and farming innovations (e.g. improved farming practices). A fourth dimension of innovation has been integrated continuously, which is the use of Information Communication Technologies (ICTs) for data tracking and transmission. In recent years, cell phones and small cameras were also used for extending the reach of lead farmers through the creation of low-cost videos. Examples of the training guides and technical sheets for these different best practice packages are in Annex 1. At the end of each season, USAID/PCE, farmers, technical partners, and other stakeholders come together for a debrief of season results, during which technical packages for the subsequent year are refined, adjusted, or built upon according to the needs and demands of farmers.

## STRATEGIC PARTNERSHIPS

Partnerships represent the foundational basis for USAID/PCE's farmer-owned extension service approach, and as such it is important to clarify our use of the term. USAID/PCE collaborates and co-funds activities with a wide range of actors in the private and public sectors at local and national scales. For this paper, the term “partnership” is used to reference a formal, signed agreement between USAID/PCE and another entity, which defines a particular exchange of services (support or otherwise) and a specific schedule of deliverables. These partnerships are also cost-share agreements, either in-kind or actual cost. USAID/PCE prioritizes partnering with farmers who have already established themselves in groups (GIE or other), and who already have some experience working as a collective. Focusing on groups that have already demonstrated a minimum organizational capacity enables USAID/PCE to build on these existing capabilities for a greater impact over the project terms. On average, these partnerships respect a one-year cycle that is aligned to the corresponding seasonal calendar of the particular crop value chain. Deliverables vary across partners based on their role in the value chain and organizational objectives and capacities. Once partnerships have been initiated, they are generally renewed in subsequent years, provided

that the local partner satisfied the requirements of the previous year’s partnership<sup>3</sup> and that they remain interested in continuing work with PCE. These inter-annual partnership agreements have also tended to evolve as implementation activities (and capacities) evolve, adding additional activities and related trainings to build on those of previous years while also increasing targets and scaling up the number of farmers reached. For the total for the life of the project (2009-2015), USAID/PCE has supported 1,775 local and national organizations under this model, through a total of 220 formal partnerships (153 of which were with farmers groups or local processors) with an average of 82 core implementing partnerships per year (up from 25 in 2011). The example below is the most commonly followed reporting structure, as it pertains to the cycle for a farmers’ network producing rainfed crops (rainfed rice, maize, and millet).<sup>4</sup>

<b>Report</b>	<b>Timeframe</b>	<b>Key elements included in deliverable report</b>
<b>Deliverable 1</b>	<b>May-June</b>	<b>Monitoring personnel, list of facilitators and lead farmers, lists of consolidation points, lists of prospective trainees, minutes of internal planning meetings with training team and monitoring personnel</b>
<b>Deliverable 2</b>	<b>June-July</b>	<b>Geo-referenced demonstration/multiplication sites, mapping of intervention zone and villages, training statistics, report on all performance indicators including contract farming in progress and insurance indemnities.</b>
<b>Deliverable 3</b>	<b>July-August</b>	<b>Implementation status for training and farming activities, including completed plot tracking sheets for all satellite and lead farmers, training statistics, and certification reports (in case of seed multiplication), and report insurance indemnities.</b>
<b>Deliverable 4</b>	<b>January-February</b>	<b>Implementation status for training, harvest, and post-harvest activities, including completed harvest data (total plus disaggregated by village and variety), and report on contract farming results and insurance indemnities.</b>

<sup>3</sup> Deliverable reports are reviewed by the USAID/PCE M&E team who manage quality assurance and control, provide technical feedback to networks, and who may request updates or corrections to the reports as necessary.

<sup>4</sup> In the irrigated rice zone in Senegal, farmers run two crop cycles per year: the natural rain season and the “dry hot season” or “contre saison chaude” (CSC), which starts in February and ends in July.

# CAPACITY BUILDING THROUGH FARMER-OWNED EXTENSION STRUCTURES

As described above, USAID/PCE's capacity building approach for trainings on best practices, quality control, and database and information system activities is founded on extension structures that emphasize building local capacity (of institutions and individuals) through small, individual local training contracts. The following describes the role and profile of each of these training extension structure actors, and the diagram on page 4 above also shows the total numbers of individuals who have served in these roles throughout the course of the project:

**Supervisor:** Coordinates all work of the network (capacity building, quality control, yield measurements, contracts, etc.). Each network has one supervisor, who is appointed by the network. In some networks, this is a separate role that is paid specifically to carry out the coordination of training; in other networks, this role is typically assumed by the president or a leadership member of the network.

**Facilitator:** Organizes and delivers all trainings for the network and provides regular follow-up. Each facilitator works with lead farmer(s) to train between 60-100 satellite farmers (members of the producer network. S/he uses standardized data collection methods (paper-based or ICT-based) to track plot-specific data including GPS of plots and application/adoption of technologies. The number of facilitators per network varies depending on the size of the network. Facilitators are chosen based on their literacy, data management skills, language skills, among other selection criteria. Some facilitators also have assistants known as "relays" or liaisons, who support facilitators with capacity building, data collection, and on-farm support to other farmers in the application of best practices.

**Database Manager:** Collects, tracks, and analyses all data (received regularly from facilitators or collected first-hand); s/he is responsible for preparing data for debriefing meetings, and serves as Point of Contact (POC) for the USAID/PCE Monitoring and Evaluation (M&E) team. Each network has one Database Manager. Database Managers are chosen based on their literacy/education level, data management skills, and minimum experience with computers, among other criteria.

**Lead farmer:** Receives the new technology (seeds, best practices, rippers, seeders, etc.) and applies it on their plot (known as demonstration sites). With the support of Facilitators and Relays, each lead farmer trains and supports between 15-30 "satellite" farmers. Lead farmers also receive trainings from USAID/PCE to produce low-cost instructional videos on their demonstration sites. Lead farmers are chosen based on level of education, position in the village, and other leadership criteria.

**Satellite farmers:** Other members of the producer network who are trained by the lead farmers (these are generally determined based on the location of their land around the lead farmer's demonstration site).

**Demonstration sites:** Though not a member of the human resource pool, demonstration sites are the key entry point for dissemination of technical knowledge and testing of new technologies and practices. As mentioned above, these are usually the lead farmers' farm plots, but in the case of quality control testing demonstrations are held at warehousing and consolidation points. In several cases where demonstrations concern certified seeds of newly introduced varieties,

demonstration sites double as seed multiplication points, where the lead farmers will be able to evolve into a small scale seed retailer.

USAID/PCE provides direct trainings of trainer (ToT) sessions to extension agents (“facilitators”), who then deliver trainings to other members of their producer network. Facilitators and lead farmers deliver trainings to “satellites,” who grow their crops around demonstration sites. Lead farmers who run these demonstration sites receive regular follow-up support and on-site training and guidance from network facilitators, and liaison agents known as “relays,” who provide training support for facilitators that support large satellite groups. This technical team also works closely with the database manager, who collects, tracks, and analyzes all data for the network (received regularly from facilitators) and serves as the main point of contact for the USAID/PCE M&E team. Their activities (and all activities of the network) are coordinated by the network supervisor.

In addition to trainings, USAID/PCE provides the following to the partner network extension teams to facilitate their work: **Network:** Quality control testing equipment (one set per network); Video camera (one per network) for filming the low-cost best practice videos (USAID/PCE trained different representatives from each network on how to film, edit, and finish an instructional video). **Facilitators:** technical guides (and visual posters) produced by USAID/PCE; low-cost instructional videos produced by USAID/PCE (some of which are also filmed by the lead producers)<sup>5</sup>; GPS devices (one per facilitator). **Database managers:** laptops or solar-powered netbook computers with excel and other software installed.

Also pictured in the diagram, the data collected by network actors on the activities of their farmer members are transmitted back along the extension structure line, to the database manager who processes the data and transmits results to USAID/PCE’s M&E team according to the deliverable requirements in the partnership contract. Once the M&E team validates the deliverables, the database manager prepares the information to be presented to network farmers at the end-of-season debriefing sessions. These meetings are strategic, key opportunities for farmers to discuss their collective production, technology performance, sales, and other key aspects related to their season. It is during these meetings that farmers decide on technologies and planning for the upcoming season. Farmer databases provide the farmer organizations with quality data on the application of the technological package and the achieved yield levels. Trainings in basic pivot table analysis enabled the groups to produce yield distribution curves for each variety and compare performances.<sup>6</sup> The USAID/PCE M&E and technical teams attend and often contribute to facilitation of these internal and sector-wide debrief workshops, and work with partners to adjust the project’s annual work planning to meet the needs and demands of farmers. As mentioned above, annual sector-wide workshops are held following the internal debriefs, for farmer networks, technical partners, and other value chain stakeholders to discuss the performance achieved through the application of various technologies (seed varieties, conservation farming and other best practices, etc.).

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<sup>5</sup> Examples of low-cost training videos that were created by farmers can be found on the USAID/PCE YouTube page at <http://goo.gl/1h2veN>.

<sup>6</sup> One area of comparison is the gender disaggregated productivity data, which has proven to be a powerful tool for advocating for women’s empowerment and inclusion in program activities. Tracking women’s participation, access to productive inputs, land areas, and productivity results has created a platform for making the economic case for women’s equitable inclusion in agriculture. Gender disaggregated data is reviewed in farmer debriefings and farmers discuss reasons between differences in yield profiles (e.g. women have less access to productive resources or trainings) and farmer groups have collectively chosen to set more ambitious targets to increase women’s inclusion in subsequent season activities.

# RESULTS AND LESSONS LEARNED

The following table outlines the value chain extension structures that drove capacity building activities on best practices ("*Le Chemin du Bon Riz*" and best harvesting practices), quality control, and cloud-based database and information systems activities.

Value Chain Extension Structure and Training of Trainers Life of Project for Irrigated Rice, Rainfed Rice, Maize and Millet								
	2012		2013		2014		Total	
	Total (#)	% F	Total (#)	% F	Total (#)	% F	Total (#)	% F
<b>Best Practices</b>								
Demonstration Sites	470		700		1425		1,425	
Supervisors	0	0%	0	0%	32	34%	32	34%
Facilitators	135	7%	160	6%	337	12%	337	12%
Lead farmers	1,279	12%	1,493	12%	1,418	25%	1,493	25%
Subtotal BP	1,414		1,653		1,787		1,862	
<b>Quality Control</b>								
QC Sites	0		38		118		118	
Supervisors	0	0%	0	0%	22	50%	22	50%
Facilitators	0	0%	70	9%	168	18%	168	18%
Database managers	0	0%	13	8%	43	9%	43	9%
Subtotal QC	0		83		233		233	
<b>Database and Information Systems</b>								
Databases (#)	27		32		68		68	
Supervisors	0	0%	0	0%	32	34%	32	34%
Facilitators	135	7%	160	6%	359	15%	359	15%
Database managers	27	7%	32	6%	67	7%	78	6%
Subtotal DB	162		192		458		469	

Several lessons have emerged from the success of USAID/PCE in identifying a scalable, sustainable, locally-driven technical support program for strengthening agricultural value chains. notably:

**Farmers’ knowledge and experience is a valuable asset**, and capitalizing on their expertise in planning activities helps ensure that interventions are applicable, appropriate, and relevant to their daily lives, which also renders them sustainable. It is essential that small farmers work together, truly understand the project-sponsored activities, and be active participants in choosing the methods and solutions that are appropriate to them, thus becoming professionals in their craft.

**Engaging a wide variety of stakeholders regularly and in the same space is key** to building consensus and designing interventions that meet multiple objectives. Clear allocation of responsibility to actors also serves to build and maintain trust, accountability, and professionalism.

By integrating the immense diversity of people and landscapes in a unified structure, we see the first steps to establishing a standardized top-bottom network to drive national agricultural development. Linking networks with local government institutions effectively leverages government investments while forging win-win partnerships with rural farmers and government agents by aligning program objectives (e.g. during annual sector debriefs).

**Communities made responsible for their own development is the means to sustainable scale:** Farmers can truly take charge of their own development with the right technical accompaniment of donor projects. New technologies and best practices tend to also be better received by farmers when they are introduced to them by their peers than by an external trainer or technical specialist. Demonstration plots play an invaluable role in this dynamic, as early adopters may convince their neighbors of the virtue of the new practices simply through the visible benefits in their crop's performance. Having local farmers at the heart of the training team also ensures more regular discussion and allows farmers to take advantage of informal learning opportunities, as a community member can seize any moment as a learning moment.

**Appropriate timing of interventions directly correlates to adoption rates:** Technology packages must be tailored to local contexts, but also introduced at the appropriate time for farmers to make use of them. For example, trainings on post-harvest treatment should be held just before post-harvest activities are scheduled to take place, so that farmers can immediately apply the new approach and learn while doing. This has also been the most appropriate time for additional monitoring and support from USAID/PCE technical team in order to ensure a standardized and consistent quality of activities. In the same vein, trainings should not be one-time events, but rather serve as part of a support package that includes planned follow up by locally-based trainers in addition to their being available to provide ad-hoc assistance.

**Inclusivity is essential for success:** The farmer-driven structure also provides a natural platform for inclusion, but as mentioned above certain checks and balances must also be in place to ensure that all able actors may benefit regardless of gender, age, social status or ethnicity. The success of women-led and women-only producers' groups has had a significant impact on the role of these women as leaders in their respective communities, many of whom have come to be known on the national level (e.g. FEPROMAS' Nimna Diayte<sup>7</sup> and Kissal Patim's Anna Gaye<sup>8</sup>). In addition to these empowered women serving as role models for other women in the agriculture sector, farmer groups are coming to recognize the business case for equal inclusion and empowerment of women in agriculture sector development. Even at the farmer debrief level, farmers analyze and discuss differences between women's and men's yield profiles, and work together to set targets to increase women's inclusion and access to productive resources in subsequent seasons, in the interest of increasing the profitability of the farmers' group as a whole. Fixing these objectives as tangible targets in seasonal partnership contracts has seen exponential growth of women's inclusion in USAID/PCE supported activities in recent years.

**Acting through grassroots organizations based in rural areas empowers** and ultimately transforms those who were once seen as "beneficiaries" into the actual extension workers and agents of change in their own communities. Compared with the traditional single field agent

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<sup>7</sup> See the following articles for stories featuring Nimna's story: <http://feedthefuture.gov/article/sharing-agricultural-success-president-obama>; <http://feedthefuture.gov/article/sharing-agricultural-success-president-obama-one-year-later>

<sup>8</sup> See the following article featuring Anna's story: <http://feedthefuture.gov/article/meeting-president-how-united-states-helping-women-farmers-senegal>

method, the USAID/PCE extension structure approach transfers ownership of proven improved technologies while building local capacity, increasing cohesion among producers, increasing amount of follow-up support provided to beneficiaries by trainers, and exponentially expands the reach of best practices in a more cost-efficient way. The PCE experience to date has not only validated the original theory of change but also proven to be more equitable and more economical than the traditional project-financed extension worker model. The modest budget that supports the work of grassroots teams pales in comparison to that which typically finances a heavy technical staff.

**Training of Trainers serves multiple purposes:** Trainings of facilitators were designed to help them acquire the skills needed to train farmers, but within this system the trainings built the knowledge base of local residents and deepened them: *theoretically*, to understand and communicate the determinants of success of a project through agronomic tracking and analyzing data on agronomic crop management; *technically*, in terms of value chain dynamics, such as the influence and determinants of grain prices, state subsidies, access to credit, etc; and *personally/professionally*, in terms of developing the personal and communication skills necessary to express themselves in groups, facilitate trainings and meetings, develop writing skills, etc. The impact resonates for farmers as well, as the goal is to train farmers to become leaders in their communities, not to qualify for a professional certification.

**Organizational capacity levels of local groups varies and requires particular attention** to ensure the stability of this model. Similarly, without the appropriately established hierarchy within a farmer network with internal checks and balances (and transparency), the system can be vulnerable to corruption or abuse of power.

**Shared financial responsibility trains local actors to leverage donor investments:** USAID/PCE's cost-share partnership model places the project as the guarantor of certain operations costs, such as facilitators trainings and materials, organization and planning of debriefing and planning workshops, provision of technologies and equipment for network training and data teams (seeds, seeders, rippers, laptops, GPS devices, quality testing equipment, etc.). Yet, through the extension structure model, farmers groups learned to manage their internal resources to leverage these contributions to meet their objectives of increasing yields, credit, and economic growth for their members.

**Farmer-driven extension is a trend to follow:** USAID/PCE's partnership approach is an example of the multiplier effect often ported by the broader development community. We welcome this USAID/PCE experience as the beginning of a development trend that transfers knowledge, skills, and responsibility to local actors, to reinforce their existing expertise to in turn offer local training programs for their communities. This will be accomplished through the new USAID/Senegal Feed the Future program called Naatal Mbay, which will work through these community level service providers to bring USAID/PCE successes to scale throughout Senegal.

# ANNEXES

1. TECHNICAL PACKAGE TRAINING SHEETS FOR TARGET VALUE CHAINS
2. DEMONSTRATION SITES AS OF FY14 FOR TARGET VALUE CHAINS





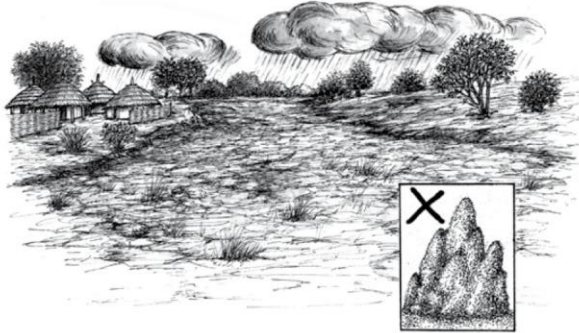






# LES BONNES PRATIQUES DE LA RIZICULTURE PLUVIALE DE BAS FOND

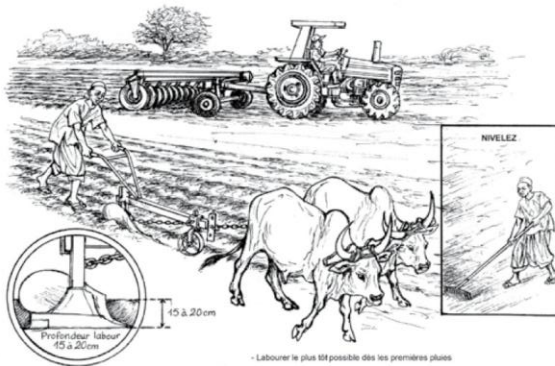
① CHOIX DE LA ZONE DE CULTURE ET DE LA PARCELLE



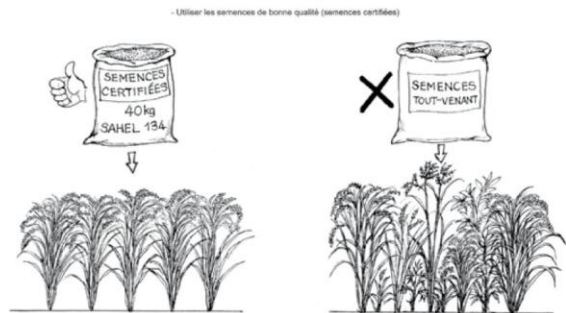
② NETTOYAGE DU TERRAIN



③ LA PREPARATION DU SOL (Labour)



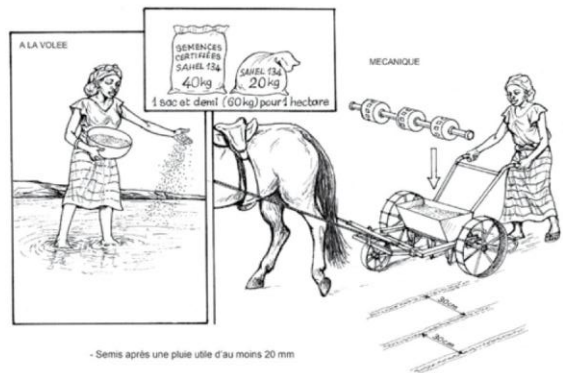
④ LE CHOIX DES SEMENCES



⑤ EPANDAGE DU FUMIER A LA VOLEE



⑥ MODE DE SEMIS



# Maize Best Practice Illustrated Chart

**1 LE CHOIX DU SOL :** Le sol deck-dior (sablo-argileux) Est indiqué pour la culture des céréales

Le sol dior (sableux) N'est pas recommandé

**2 EPANDAGE DU FUMIER**

**3 CHOIX DE SEMENCES**

SEMENTES CERTIFIÉES  
20 kg

• SEMIS : A partir de la première pluie utile  
Au plus tard le 25 juillet

• ECARTEMENT

SEMENTES MAÏS HYBRIDE  
48 trous

SEMENTES MAÏS COMPOSITE  
48 trous

**PREPARATION DU SOL EN SEC**

**LABOUR**

**4 FERTILISATION**

Au semis ou 10 jours après semis

Mats hybride : 6 à 8 sacs/ha

Mats composite : 4 sacs/ha

L'épandage à la volée n'est pas recommandé, il faut le faire en ligne

**5 APPORT**

1e apport : 20 jours après levée

2e apport : 40 jours après levée

• Composite : 3 à 4 sacs d'urée

• Hybride : 4 à 6 sacs d'urée

Faire le buttage après le 2e apport

**6 SECHAGE**

Sécher les épis avec les spatules sur les fanilles en tas pendant 10 à 15 jours

• EGRENAGE

• VANNAGE

• MISE EN SACS

• STOCKAGE

**DEMARAGE**

Il faut un pied par poquet

• SARCLAGE

**RECOLTE**



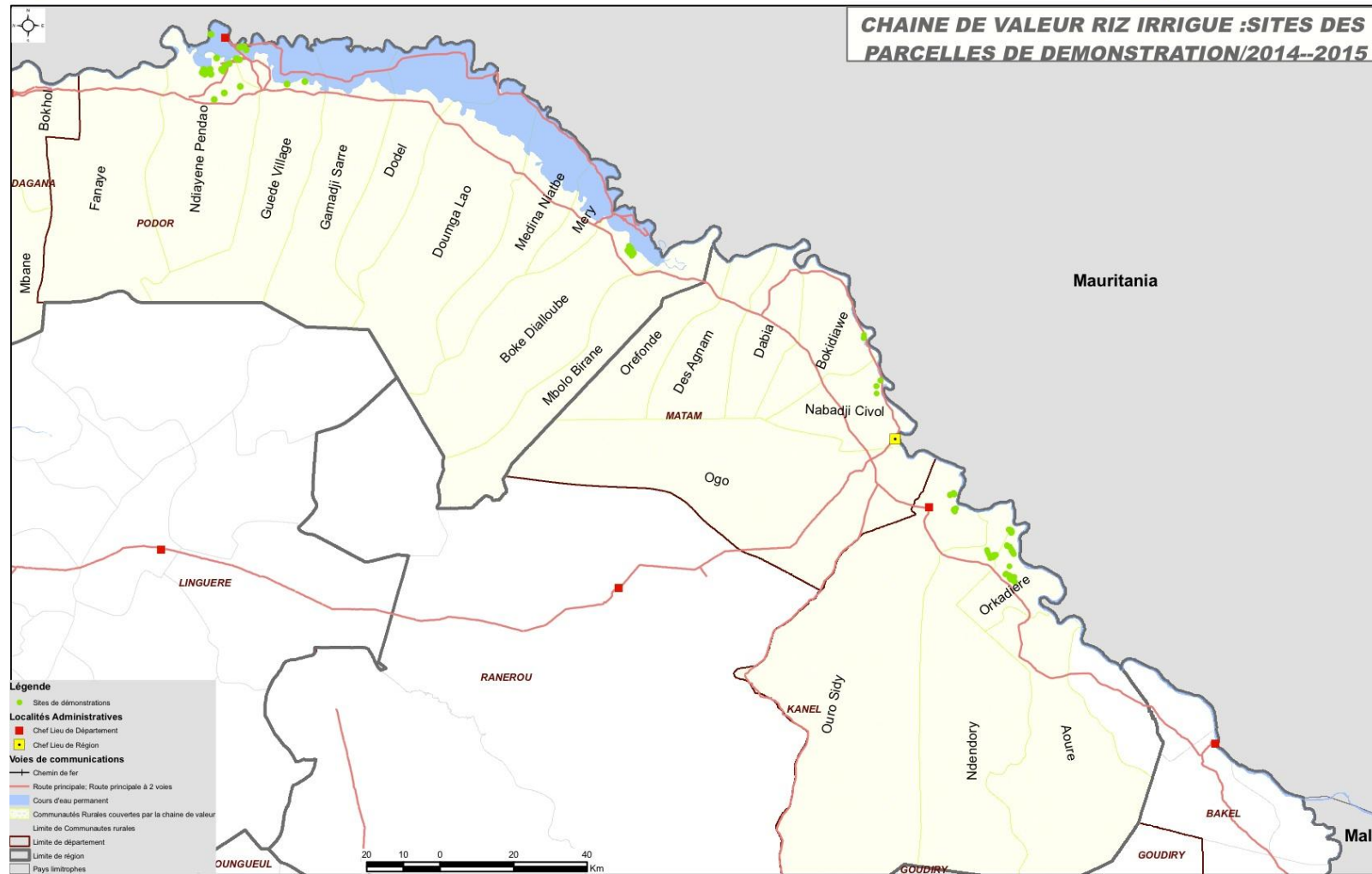
## ANNEX II: DEMONSTRATION SITES THROUGH 2015

### Irrigated Rice Demonstration Sites into FY15



PROJET CROISSANCE ECONOMIQUE  
(PCE)

CHAINE DE VALEUR RIZ IRRIGUE :SITES DES  
PARCELLES DE DEMONSTRATION/2014-2015





## Maize Demonstration Sites into FY15



## PROJET CROISSANCE ECONOMIQUE (PCE)









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