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# ANNUAL ACTIVITY REPORT SEPTEMBER 2007 - AUGUST 2008

**INTEGRATED INITIATIVES FOR ECONOMIC GROWTH IN MALI  
(IICEM)**

**Contract: EDH-I-00-05-00005-00, Order No. 05**

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# ACRONYMS

AOM	Citrus Fruits and Edible Oils of Mali
AVRCD	Asian Vegetable Research Development Center
BI	Input Stores
BICIM	International Bank for Commerce and Industry in Mali
BIM	International Bank of Mali
BNDA	National Bank for Agricultural Development
BOA	Bank of Africa
CAPAM	Mandela Agro-Pastoral Cooperative
CRRRA	Regional Center for Agronomical Research
DCA	Development Credit Authority
DNA	National Administration for Agriculture
DNCN	National Administration for Nature Conservation
DRA	Regional Administration for Agriculture
DRCN	Regional Administration for Nature Conservation
FIAS	Foreign Investor Advisory Service
FO	Farmer Organizations
IEHA	Initiative to End Hunger in Africa
IER	Institute of Rural Economy
IFDC	International Center for Soil Fertility and Agricultural Development
LOA	Agricultural Orientation Law (Loi d'Orientation Agricole)
NGO	Non-Governmental Organization
NRM	Natural Resources Management
PACCEM	Project for Assistance in Cereals Marketing in Mali
PAFA	Assistance Program for the Agricultural Sector
PCDA	Project for Agricultural Competitiveness and Diversification in Mali
PIV	Irrigated Village Perimeter
PRODEPAM	Development Program for Agricultural Production in Mali
SICA	Company for Collective Agricultural Interest
SCOFLES	Cooperative Society for the Commercialization of Fruits and Vegetables of Sikasso
UCPMY	Cooperative Union of Yanfolila Mango Planters
URCEP	Regional Union of Potato Traders and Exporters
USAID	United States Agency for International Development
WARDA	Africa Rice Center
WATH	West Africa Trade Competitiveness Hub

# RESULTS AT A GLANCE

The IICEM project achieved strong results during its start-up year. IICEM benefited from the experiences of the preceding USAID projects, PRODEPAM, TradeMali and Mali Finance, and in many respects IICEM's first year results built on the successes of those projects. In other activities, IICEM broke new ground. Whatever the area, all of IICEM's results have grown out of close collaboration with partners including NGO field agents, other projects such as the World Bank funded PCDA project and Malian government organizations such as the IER. This section provides an overview of the most exciting selected results by value chain. The body of the report discusses results more broadly and provides details on activities.

## THE MANGO VALUE CHAIN

IICEM's mango experts provided quality assurance and technical assistance in post-harvest handling for fresh mangoes exported via the PLAZA, Bamako's conditioning and chilling station, resulting in over 900 tons of mangoes exported and not a single rejection from clients. This was a marked improvement over the preceding season when exporters did not achieve targeted volumes and shipments arrived in poor condition. To fuel the supply response, IICEM also facilitated financing for 4 exporters and 22 *pisteurs* (mango consolidators), allowing them to reach record high mango export volumes. This financing was ground breaking for the Malian mango sector. Finally, IICEM facilitated financing for mango drying machines and trained producers in drying, conditioning, and hygiene techniques. Because of this assistance, the volume of processed dried mangoes increased from 2 to 8 tons, and this pilot will form the basis for greatly expanding mango drying for export in project year 2.

## THE RICE VALUE CHAIN

IICEM provided capacity building for the Regional Center for Agricultural Research in Mali that will help ensure that Mali is self-sufficient in the production and multiplication of improved rice seeds. This new self-sufficiency will contribute a sound basis for the strategic *Initiative Riz* (Rice Initiative) started by the Government of Mali during 2008 in response to rising input and import prices and the threat of a food crisis. Introduction of these new seeds will provide a sustainable boost to productivity for Malian rice producers over the medium to long term. IICEM also provided a wide range of assistance in water management, production techniques and other areas.

## THE TOMATO VALUE CHAIN

IICEM supported the dissemination of Integrated Pest Management (IPM) techniques to attack the *Tomato Yellow Leaf* virus in the 22 villages in the Baguinéda zone. IICEM's activities in the zone combined a 2-month crop-free *Host-Free Period* with the dissemination of seeds for varieties resistant to the virus. IICEM implemented with the Office of the Irrigated Zone of Baguinéda (OPIB), a Government of Mali technical support provider, and with the full involvement of village farmers. This also built on USAID funded research conducted by IER research, and succeeded in a wide scale adoption of good practices throughout the Baguinéda zone. As a result, farmers in the

Sikasso, Ségou, and Kati Basin regions are requesting IPM be applied in their zones as well. This demand will drive improvement of good agricultural practices well beyond Baguinéda.

## **THE POTATO VALUE CHAIN**

IICEM staff members focused on building the organizational foundation that will allow producers to more aggressively address marketing weaknesses in project year 2. IICEM staff facilitated the re-emergence of URCEP, improve the cohesion and capacity of the *Société d'Intérêt Collectif Agricole* (SICA), a producer organization, and facilitated the *inter-profession* (a cluster group) that has created the linkages between all the different participants in the value chain e.g. input suppliers, producers, logistics providers and others. With this base now addressing the chronic weaknesses in organization on the supply side, IICEM will be able to work with all actors to improve quality, volume and on time delivery critical to reaching sub-regional markets.

## **THE SHALLOT VALUE CHAIN**

IICEM and PCDA united forces to conduct a study on the national and sub-regional shallot markets, analyzed how to support group sales involving multiple producer organizations, and implemented institutional assessments of all the producer organizations in IICEM's target region, the Dogon Plateau. As in potato, critical organizational weaknesses make it almost impossible for producers to reach markets and address marketing problems in any meaningful way. In year 2, based on the information and technical assistance IICEM has provided in close collaboration with the PCDA, value chain actors will be in a position to attack organizational weaknesses, better address market needs and in so doing drive development of the shallot value chain. Determining whether the producers and buyers are really committed to making this work will be an important determinant of what IICEM does, and what results can be achieved, in Year 2.

# EXECUTIVE SUMMARY

## TECHNICAL APPROACH

The IICEM project applies the *value chain* approach to promoting economic growth focusing on five target commodities: Rice, mangoes, potatoes, tomatoes, and shallots. This approach fosters the development of vertical and horizontal relationships among actors involved in the value chain to improve efficiency. Activities are intended to bring about increased output more attuned to market needs, improve access to markets and finance and improve the business environment, leading to expanded opportunities and increased incomes for small holder farmers.

As part of the approach, IICEM focused on the following areas that emerged as critical in the five selected value chains:

- Expansion of area under cultivation through the rehabilitation of lowland and irrigated perimeters and improving water use as lack of water is one of the major risks facing Malian producers;
- Intensification of agricultural production through the dissemination of best agricultural production practices, facilitating access to improved seeds, and providing training in proper use of fertilizers;
- Assisting in obtaining financing to ensure farmers can acquire inputs, access to motorized pumps, and the adoption of processing technologies;
- Facilitating access to markets by improving the quality of target products, conducting market studies, and fostering strategic business alliances;
- Improving the agricultural, business, and investment environments through institutional strengthening of APEX structures, preparing them for favorable market positioning and enabling them to defend their interests through appropriate lobbying of the country's authorities;
- Developing a mutually beneficial network comprised of all value chain actors including input suppliers, producers, traders, banks, microfinance institutions and processors.

## IDENTIFYING AND ADDRESSING KEY CONSTRAINTS IN THE VALUE CHAIN

The value chain approach aims to align all activities in the value chain with market demands. Understanding and communicating market needs and ensuring access to dynamic markets is critical to making this approach work for farmers. Access to dynamic markets allows farmer organizations to generate income enabling them to meet their daily household needs as well as to reinvest in improving future production. The result is a virtuous cycle, which creates wealth, enables access to capital, and fosters investment. It is this investment, which brings about accelerated economic growth and in turn, reduces poverty.

In the shallot and potato value chains, IICEM realized early that the lack of organization among farmers was the major constraint to taking advantage of market opportunities both in Mali and in markets around the subregion. In both value chains, no representative bodies effectively united farmers to export in volume, ensure product quality, or assure that deliveries met client expectations. As a result, producers have largely failed to establish long term commercial relationships with buyers. IICEM's activities, therefore, focused on creating the strong institutional foundation necessary for producers to be able to meet market demands. These efforts have been greatly appreciated by beneficiaries in the field. In the Dogon Plateau for example, shallot producers shared that they have hoped for this type of support for almost a decade. Actors in the potato value chain, after many years of hesitation, have also agreed to put their differences aside and establish a new federation, uniting for the well-being of this value chain.

IICEM also has explored ways to identify and open new markets. IICEM staff, for instance, provided assistance to a small tomato-drying business, whose products will be targeted at high-end European retail markets. Following technical advice offered by IICEM, this company is introducing drip irrigation into the production of tomatoes in September 2008. This may in turn drive the prospect of Mali entering the tomato paste market. A market study is currently being conducted and a business plan developed in hopes to reopen a tomato paste factory in partnership with SOCAS of Senegal. This strategic partner along with SOCAS is prepared to invest almost \$4 million which would dramatically improve the dynamism of the tomato market.

## **IMPROVING AGRICULTURAL PRODUCTIVITY**

IICEM has carried out a wide variety of activities to improve agricultural productivity including dissemination of improved seeds, assistance in efficient water management, training in good agricultural practices, and assistance in the commercialization of products. IICEM is focused on improving each link of the value chain to obtain maximum productivity increases.

IICEM's efforts in water management include the rehabilitation of nearly 4 km of canals serving eight PIVs located in the regions of Tombouctou, Gao, and Mopti. These rehabilitations will reduce water losses by over 250 hectares. In addition, IICEM has trained mechanics at all sites on motorized irrigation pump management and maintenance. The training and rehabilitation will ensure that land is better irrigated while less fuel is consumed-lowering costs and improving gross margins.

IICEM has also supported adoption of improved seeds by Mali's producers. First, IICEM developed a partnership with the Regional Centers for Agricultural Research (CRRAs) for seed multiplication, which in turn has brought IICEM to play a significant role in the Government's Rice Initiative. Second, IICEM managed the large-scale dissemination of improved tomato seeds tested by IER, reinforcing activities led by a prior USAID project.

IICEM has also effectively disseminated good production practices. IICEM supported the implementation of Integrated Pest Management (IPM) techniques in 22 villages in the Baguinéda

zone to attack the Yellow Leaf Tomato virus, a wide-spread virus that has drastically reduced yields. This technique, well known among developed countries, combines the observation of a Host-Free Period and the use of improved seeds which are resistant/tolerant to the virus. To encourage adoption of this technique, IICEM mobilized village chiefs, OPIB agents, community authorities, and the Ministry of Agriculture. More than 56 hectares (95% of the land) of tomatoes, bell peppers, and pimentos were cleared for a 2 month period in order to observe the Host-Free Period. These initial activities, aimed at reducing the cases of the tomato virus, will be an important basis for future production in tomato and offer new hope to tomato producers.

In order to promote agricultural intensification, IICEM also supported training for all NGO agents and IICEM technicians by IER and IFDC experts in best agricultural practices. This enabled all field personnel to provide technical support directly to the farmer organizations (FOs) involved in the IICEM project. These agents will be a critical link to sustaining IICEM's successes in the future.

## **ACCESS TO FINANCIAL SERVICES**

IICEM established agreements with two Malian banks, the BNDA and BMS, as well as with one microfinance institution, Kafo Jiginew, to host guarantee funds to support lending to partner farmer organizations. These guarantee funds, and IICEM's relationships with these institutions, have helped IICEM's partner producer organizations and agro-entrepreneurs to better access financing necessary for inputs and equipment. IICEM assists FOs in preparing loan applications while providing a guarantee to financial institutions to minimize credit risk. Within the first year, 20 FOs in the rice value chain received financing with IICEM's support. IICEM also facilitated three medium-term loans supporting the purchase of motorized pumps. This was a critical first step in addressing availability of medium term loans, a particular weakness in Malian agricultural finance.

IICEM also assisted exporters and partner *pisteurs* in the mango value chain in obtaining over 140 million FCFA in loans which allowed them to finance the inputs necessary to produce and export nearly 1,000 tons of mangoes via the newly functioning PLAZA conditioning station. The high volume of mangoes received by PLAZA tested the station's operating capabilities and proved to be a huge success for Mali's mango industry, something that would not have been possible without this initial financing.

## **NATURAL RESOURCES MANAGEMENT**

The IICEM NRM specialist mobilized local communities to practice improved natural resource management practices on 450 hectares of land. For instance, the construction of a windbreak and stone contour lines in the Lac Horo zone of the Tombouctou region encouraged communities to complete a canal rehabilitation project, recuperating 900 hectares of previously abandoned land. Nine other activities were carried out in Sikasso, Gao and the Dogon Plateau zone including a windbreak, live fencing, sand dune stabilization, a fish-farming test, and setting up boundaries for the existing grazing trails in order to protect cultivated land.

IICEM also facilitated the finalization of six NRM plans started under the PRODEPAM project, a major accomplishment given these plans had stalled after the previous project. These plans covered the communes of Bancoumana and Bougoula in the Koulikoro region, Diomantènè and Zangaradougou in the Sikasso region, Yèrèdon Saniona in the Ségou region, and Socoura in the Mopti region. In addition, IICEM facilitated the finalization and approval of two local natural resources management conventions.

## **ENSURING ECONOMIC OPPORTUNITY FOR WOMEN**

IICEM's approach to gender is aimed at improving economic activities and reinforcing the capacities of members in partner women's groups. In addition, IICEM offers training as well as assistance in acquiring production and processing equipment.

In its first year, IICEM offered basic training in leadership, empowerment, and negotiating techniques with a focus on bringing women into the economic mainstream. IICEM also assisted women from the Sikasso, Tombouctou, and Gao regions in starting potato production. With this support, eight groups were able to gain access to land and acquire inputs, a major constraint to women's advancement in agriculture. Despite initial hesitation from the men in these areas, this activity proved to be a success. As a result, men in these communities, who were previously reluctant, are now prepared to increase the number of hectares of land made available to these women and are willing to offer support in this lucrative activity. The women's groups have also developed financial sustainability which will allow them to obtain financing directly in year 2. Finally, IICEM provided assistance to a dozen additional women's farmer organizations, including organizations that produce rice in the *bas fonds* areas of Sikasso and several women's shallot-producing groups in the Dogon Plateau zone. Building on this basis, in Year 2 IICEM anticipates expanding support to women's groups and adding training in basic literacy and accounting.

# INTRODUCTION

Integrated Initiatives for Economic Growth in Mali (IICEM) is funded by USAID and implemented by Abt Associates in partnership with ACDI VOCA, Sheladia Associates, and IBEX. IICEM seeks to achieve economic growth and in turn reduce poverty by improving the efficiency of the following five value chains: rice, potato, mango, shallot, and tomato.

This report summarizes the activities implemented during IICEM's first year from September 2007 to August 2008. The report focuses on the results achieved across all five value chains through technical assistance carried out in the target regions by IICEM staff, partner NGOs, and in collaboration with Malian government entities.

## PROJECT OBJECTIVES

IICEM's strategic objectives are as follows: 1) Expansion/Rehabilitation of irrigation systems and intensification of agricultural production in target areas, 2) Enhance access to finance, 3) Improve market access, 4) Introduce, transfer, and facilitate the adoption of improved technologies in all agricultural sectors, 5) Increase control of village associations over natural resources and the environment, and 6) Enhance the agriculture, trade, and investment environments. Across all of these objectives, IICEM has a specific commitment to promoting economic opportunity for women and building the capacity of Malian organizations and people to make assistance sustainable.

## ORGANIZATION OF THE ANNUAL REPORT

This report is comprised of the following sections:

- Executive summary
- Introduction
- Upper-level results
- Intermediate results
- Presentation of activities value chain
- Presentation of cross-cutting activities
- Preview of year 2
- Annex

# UPPER-LEVEL RESULTS

This section presents the quantitative results of upper level indicators attained in year I in relation to target results stated in IICEM's Performance Management Plan (PMP). The primary indicator below demonstrates improved producer incomes, yields, and production volumes for each value chain.

## INCREASED GROSS MARGINS FOR PRODUCERS

Table I provides an overview of increases in gross margin across the five commodities. As with many of the indicator tables in this report, we have proposed changes in the baselines and targets. When IICEM started up in August 2007, staff built baselines based on the best available information, in many cases information from the previous projects. After the first comprehensive data collection exercise conducted in project quarter three, however, IICEM staff members and partner NGOs were able to verify and refine these baselines and targets. In many cases the calculated baselines are higher than what was included in the original PMP. We believe these figures present a more accurate picture of IICEM's impact. Notes under each table explain the various changes and provide a brief explanation of why those changes were necessary. The following paragraphs provide additional detail on these improvements in gross margin by value chain.

**Table 1: IR 1 Gross Margin For Targeted Products**

Target product	Baseline value 2006-2007	Actual value 2007-2008	Variance between baseline and actual values, variance in %	Target value 2007-2008	Variance between actual and target values	% of target value achieved
<b>Lowland rice</b>	87,000 baseline * 56,509 calculated	79,318	22,809 40 %	87,000 target * 70,636 proposed	(7,682) 8,682 proposed	91 % 112% proposed
<b>PIV rice</b>	256,000 baseline * 303,496 calculated	349,406	45,910 15 %	326,000	23,406	107%
<b>Potato</b>	250,000 base * 769,800 calculated	861,500	91,700 12 %	717,500 * 846,780 proposed	144,000 14,720 proposed	120% 102% proposed
<b>Mango</b>	360,000	360,000	-	360,000	S/O	S/O
<b>Shallot</b>	190,000 baseline * 930,000 calculated	1,380,714	450,714 48 %	300,000 target * 1,162,500 proposed	1,080,714 218,214 proposed	460% 119% proposed
<b>Tomato</b>	92,000 baseline * 1,202,170 calculated	1,384,539	182,369 15 %	170,000 target * 1,322,387 proposed	1,214,539 62,152 proposed	814% 105% proposed
	<b>205,000 baseline *</b>	<b>735,913</b>	<b>132,250</b>	<b>270,000 target *</b>	<b>465,913</b>	<b>158%</b>

Average	603,663 calculated		22 %	675,000 proposed	600,913 proposed	109% proposed
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\* The baseline values and targets for lowland rice will require modifications in the PMP. The data from the PRODEPAM Survey of Households did not represent the actual situation.

\* A costs error of 400,000 CFA per hectare was found in the given potato baseline amount. The baseline and target value were increased by the same amount.

\* The baseline and target values for shallots will require modifications in the PMP. The considerable difference was caused because the 2<sup>nd</sup> farming cycle (with its large production volume) was not accounted for in the data base. The actual value mentioned above is the weighted average of the results of cycles 1 and 2.

\* The baseline and target values for tomatoes will require modifications in the PMP due to the yield.

\* The averages of the baselines and targets for the five products will require modifications in the PMP. The proposed adjustment matches the actual figures obtained in the baseline and in year one of the project.

IICEM has been largely successful in achieving desired project objectives. Producers from all value chains saw a rise in incomes, with the exception of lowland rice producers. The gross margins for PIV rice producers increased by 15% while those of shallot producers rose by 48%. In Sikasso, potato producers saw an increase in the gross margin by 40%.

### RICE VALUE CHAIN

IICEM provided support to the women's organizations of Nièna, Loutana, Nantoumana and M'Pegnesso to improve lowland rice activities. As a result of yield increases and higher prices obtained, the gross margin rose by 22,809 FCFA (40%) despite a nearly 20,000 FCFA rise in costs per hectare. The gross margin for PIV rice also increased 15%, from 303,496 FCFA to 349,406 FCFA, in the three northern regions.

### POTATO VALUE CHAIN

In IICEM's first year, assistance was primarily afforded to the URCEP union in Sikasso, and within URCEP, select potato producers who have maintained good credit histories with financial institutions by repaying their loans. The gross margin of these selected potato producers increased by nearly 92,000 FCFA. This accomplishment is the fruit of IICEM's efforts and has demonstrated that these potato producers are exceptional agents for change. In addition, potato producers who united in August 2008 for a common interest are prepared to much more rapidly expand volumes and increase incomes in project year 2.

### MANGO VALUE CHAIN

The mango value chain is the most mature of the five value chains supported by IICEM especially in marketing. A *Groupement d'Intérêt Economique* (GIE-a grouping of companies working together) is in the process of being created which will comprise mango producers, *pisteurs*, and one exporter, with intentions to supply the domestic, sub-regional, and European markets. IICEM dedicates its efforts to improving access to markets while encouraging actors to increase mango quantity and enhance quality. Refer to section *IR 1: Increased agricultural productivity* for more information.

### **SHALLOT VALUE CHAIN**

The Bandiagara area of the Dogon Plateau is IICEM's target intervention zone for the shallot value chain. Data collected in the field revealed a 450,714 FCFA increase in the gross margin; a leap from 930,000 FCFA to over 1,380,000 FCFA. This is a relief for these Dogon Plateau shallot producers who have experienced fluctuating gross margins over the past few years.

IICEM's objective going forward will be to stabilize producer incomes by improving shallot quality and by introducing better strategies for commercialization as well as adding value through small scale processing, packaging and other ways. These strategies will help avoid losses and volatility associated with the current informal marketing channels. These losses can have grave impacts on the incomes of these farmers who depend on the income in many cases to buy food. Several constraints continue to cause major concerns for the Dogon farmers, for example, soil deterioration. More detailed explanations of IICEM-led activities are provided in section *IR 1: Increased agricultural productivity*.

### **TOMATO VALUE CHAIN**

During its first year, IICEM focused its activities in the Baguinéda production area, with partner *Office du Perimetre Irrigué de Baguinéda (OPIB)*, the government entity which oversees irrigation and provides support to producers in the area. In order to benefit from in-depth USAID-funded research conducted by IER in partnership with AVRDC and select American universities, IICEM opted to join the team.

IICEM focused its activities on two important points identified in the study, the need to fight against widespread infestation of the *Yellow Leaf Curl* tomato virus, and the need to promote the adoption of tested hybrid seeds resistant to this virus. In addition, IICEM staff provided training sessions to increase the strength of cooperatives involved. According to collected data, the gross income for these tomato producers increased from 1.2 million FCFA to nearly 1.4 million FCFA, a rise of 15%. With the application of the Integrated Pest Management technique, combining the compliance to a Host-Free Period and large-scale dissemination of tolerant hybrid seeds, IICEM anticipates even greater increases during year 2. Detailed explanations are provided in section *IR 1: Increased agricultural productivity*.

## IMPROVED YIELDS

Table 2 presents an overview of the increases in yield for each of the targeted commodities. The following paragraphs provide additional detail.

Table 2: IR 1 Yield Growth of Target Products (Tons/Hectare)						
Target product	Baseline value 2006-2007	Actual value 2007-2008	Variance between baseline and actual values, variance in %	Target value 2007-2008	Variance between actual and target values	% of target value achieved
Lowland rice	1.15 base * 0.94 calculated	1.13	0.19 20 %	1.2 *	(0.07)	94%
PIV rice	3.5	4.0	0.5 14 %	4.0	-	100%
Potato	16	18.3	2.3 14 %	17	1.3	108%
Shallot	18 * 26 calculated	26	0 0 %	20 *	6	130%
Tomato	18 24 estimated *	27	3 12.5 %	20	7	135%

\* Baseline and target values for Lowland rice need modification in IICEM's PMP. Data acquired through a PRODEPAM-led household survey was not found to be accurate to measure IICEM's progress.

\* Baseline and target values for shallots need modification in IICEM's PMP. Current yield data is necessary to reinforce previous yield data.

\* The baseline value for tomato, 24 tons per hectare, is the estimated yield value provided by OPIB. It is based on the average yield found in 22 villages in the Baguinéda zone over the last five years.

### RICE VALUE CHAIN

The calculated yield value for lowland rice is 1.13 tons per hectare. This demonstrates a 20% increase from last year for the four villages involved with IICEM. A summary of activities which were carried out in order to support the development of the rice value chain are mentioned in section *IR 1: Agricultural Productivity is Increased*.

The PIV rice yield increased from 3.5 tons per hectare (according to PRODEPAM's household survey) to 4 tons per hectare, demonstrating a 14% increase. IICEM will continue to carry out activities to further improve yields.

### POTATO VALUE CHAIN

The potato yield, varying according to variety, was evaluated by conducting a sampling of partner farmer organization data. The yield information collected includes data from partner farmers in the Sikasso region only. Potatoes produced by partner organizations in the northern regions were solely for demonstration and therefore these values will not be used to calculate the yield. The potato yield was evaluated at 18.3 tons per hectare, a 14% increase from the 16 tons per hectare

yield from previous years. This increase in yield can be attributed to partner farmers' compliance to technical potato farming schedules, an activity supported by IICEM field technicians.

### **SHALLOT VALUE CHAIN**

The average shallot yield calculated by partner NGO PDCo is 26 tons per hectare. This yield varies according to village and production cycle (September or December-January). The yield can vary from 20 tons per hectare in cycle 1 to nearly 30 tons per hectare in cycle 2. 26 tons per hectare is the weighted value of cycles 1 and 2.

A detailed study of the shallot yield will be conducted during the next farming season in order to gain more accurate yield values for cycles 1 and 2.

### **TOMATO VALUE CHAIN**

Tomato yields calculated by OPIB vary according to each village. Yield data collected from four partner villages in year 1 range from approximately 23 to 29 tons per hectare. An average of 27 tons per hectare has been calculated.

In order to obtain a baseline yield value for the 22 Baguinéda villages involved with OPIB, IICEM collected yield data from 5 previous farming seasons. This yield was calculated at 24 tons per hectare. A wide-scale diffusion of hybrid seeds during the next farming season will permit IICEM to gather precise yield data. Parcels containing non-hybrid seeds will also be farmed in order to compare yields, while also permitting IICEM to validate past yield information.

## IMPROVED PRODUCTION VOLUMES

Table 3 presents an overview of the increases in volumes produced by IICEM partners for each of the targeted commodities. The following paragraphs provide additional detail.

Table 3: IR 1 Volume Of Target Products (tons)						
Target product	Baseline Value 2006-2007	Actual Value 2007-2008	Variance between baseline and actual values, variance in %	Target value 2007-2008	Variance between actual and target values	% of Target Value Achieved
Lowland rice	286 calculated	345	59 21 %	240 *	105	144%
PIV rice	3,725 calculated	4,527	802 22 %	4,816	(289)	94%
Potatoes	496 calculated	566	70 14 %	519	47	109%
Mangoes*	10,600	10,600	0 0 %	10,600		
Shallots	969 calculated	1,084	115 12 %	500 *	584	217%
Tomatoes	624 calculated	708	84 13 %	660	48	107%
<b>Total</b>	<b>16,700 calculated</b>	<b>17,830</b>	<b>1,130 7 %</b>	<b>17,335 *</b>	<b>495</b>	<b>103%</b>

\* The target values have been taken from IICEM's 2007-2008 work plan, not including the Lowland rice target value

\* The lowland rice target volume has been taken from IICEM's PMP. Data from a PRODEPAM household survey mentioned in IICEM's year 1 work plan is based on 2,050 hectares of farmland. This value is greater than the number of hectares of lowland rice calculated by IICEM field agents and partners

\* IICEM does not carry out activities which support mango production. Rather, all activities focus on mango commercialization.

\* The shallot target value will need to be modified as it does not take into account both major production cycles.

### RICE VALUE CHAIN

Lowland rice volumes produced during IICEM's first year exceeded the target value of 240 tons by 44%, for a total of 345 tons. This is primarily due to the large number of hectares engaged by IICEM's activities.

The PIV rice volume from the regions of Mopti, Tombouctou, and Gao during year I is 4, 527 tons, 289 tons less than the desired target value. Despite the high number of hectares under IICEM-led activities, initial weak yields caused production levels to remain low.

### POTATO VALUE CHAIN

Potato production surpassed its target of 519 tons and reached 566 tons, a 109% achievement of desired results. This can be attributed to the success of the potato production demonstration

activities which were initiated by IICEM to benefit women in the Tombouctou, Gao, and Sikasso regions. In addition, IICEM's efforts to diffuse a specific formula for fertilizer (Hydro Complexe Partner) which was adopted by associated farmers in the Sikasso region caused the potato yield to increase, in turn positively impacting the volume.

### **SHALLOT VALUE CHAIN**

1,084 tons of shallots were produced during year 1 of IICEM, a volume much higher than the predetermined target value of 500 tons. As mentioned in the section *Upper-Level Results*, producers from the Plateau Dogon produce shallots during two major farming seasons. In considering both production cycles, higher volumes are attained.

The baseline shallot volume of 969 tons is 115 tons less than the actual volume calculated, representing a 12% increase in year 1. A continued rise in volume will permit the revenues of Dogon Plateau producers to stabilize, a primary objective for these farmers. Activities planned for IICEM's year 2 will aim to further improve production volumes.

### **TOMATO VALUE CHAIN**

Four partner villages in the Baguinéda zone surpassed the combined baseline volume of 624 tons and reached a total of 708 tons, representing a 13 % increase. This rise is attributed to the increase in tomato yield by 3 tons per hectare. Activities, such as the introduction of the Host-Free Period and hybrid seeds, will help to significantly improve yields in year 2. In addition, IICEM plans to expand its' support to other production zones by incorporating additional villages into activities.

# INTERMEDIATE RESULTS

## IRI: INCREASED AGRICULTURAL SECTOR PRODUCTIVITY

Table 4 below presents each indicator under the IR I, results achieved during year I, and a comparison between target and actual values:

Table 4: IR 1 Increased Agricultural Sector Productivity					
Indicator	Baseline value 2006-2007	Actual Value 2007-2008	Target Value 2007-2008	Variance in Values	% of Target Value Achieved
Number of new technologies or management practices made available for transfer	0	8	8	0	100%
Number of producers who have adopted new technologies or management practices	0	858	776	82	111%
Number of processors who have adopted new technologies or management practices	0	225	116	109	194%
Percentage of plots benefiting from improved seeds	0	67%*	35%	32%	191%
Number of additional hectares under improved technologies or management practices as a result of USG assistance	0	1,153**	2,630	(1,477)	44%
Number of vulnerable households benefiting directly from USG assistance	0	2,129***	1,838	291	116%
Number of rural households benefiting directly from USG assistance	0	1,587***	2,588	(1001)	61%
Number of producer organizations, chambers of commerce, and community organizations receiving USG assistance	0	60	50	10	120%
Number of agriculture-related firms benefiting directly from USG assistance	0	44	42	2	105%
Number of public-private partnerships formed as a result of USG assistance	0	24	20	4	120%
Number of individuals who have received short-term agricultural sector productivity training	0	2,549	1,320	1,229	193%
Number of women's organizations/associations assisted as a result of USG supported interventions	0	28	15	13	187%

\* Values retained are linked to the improved seeds which were made available by the PRODEPAM project for use during year 2007-2008. Being a follow-up project to PRODEPAM with activities based in PRODEPAM's former sites, this indicator remains pertinent to the combined efforts of the two projects.

\*\* The value for the number of additional hectares excludes PRODEPAM's Northern sites, which total 839 hectares. The target value was originally calculated while taking these Northern sites into account. IICEM's PMP will be modified in order to account for this exclusion. Similarly, 1800 hectares of mango orchards will be deducted, not to be considered as under additional hectares.

\*\*\*"Vulnerable households" are by assumption (and as defined in the PMP) families from northern regions (Mopti, Tombouctou, and Gao). "Rural households" are defined as families from the Koulikoro and Sikasso regions. 50% of the total number of families who benefit from support at IICEM sites were calculated in order to retain a conservative value.

## IR 2: IMPROVED COMMERCIALIZATION OF AGRICULTURAL COMMODITIES

The commercialization of target agricultural products is among IICEM's principal objectives. As mentioned in the *Executive Summary*, the value chain approach focuses on meeting the needs of markets. Targeting markets well is the key to farmer organizations selling their products, generating revenues, reimbursing loans, and creating enough profits to support key investment in future productivity and product enhancement. This virtuous cycle drives economic growth.

In order to measure improvements in commercialization, IICEM measured the volumes and values of product sales for each of the five target products at the national (domestic), sub-regional, and international levels. Table 5 presents IICEM's results against targets and baselines for Year I. IICEM achieved results from 90 % to 213 % of targeted values. The following sections analyze these data in more detail at the national, sub-regional, and international levels.

**Table 5: IR 2 Improved Commercialization of Agricultural Commodities (tons and millions of FCFA)**

Indicators	Baseline Value 2006-2007	Actual Value 2007-2008	Variance between baseline and actual values, variance in %	Target value 2007-2008	Variance between actual and target values	% of Target Value Achieved
Volume and percent change of commodity purchases agricultural producers	5,693	11, 806	6,113 107 %	5,550	6,257	213%
Value and percent change of commodity purchases agricultural producers	924	1,427	503 54 %	949	478	150%
Volume and percent change of targeted commodity purchases intended for intra-regional exports	1,695	2,069	374 22 %	2,017	52	103%
Value and percent change of targeted commodity purchases intended for intra-regional exports	497	532	35 7 %	591	(59)	90%
Volume and percent change of targeted commodity purchases intended for international exports	3,852	4,932	1,080 28%	4,776	156	103%
Value and percent change of targeted commodity purchases intended for international exports	2,287	3,696	1,409 62 %	2,826	870	131%

## VOLUME AND VALUE OF NATIONAL SALES

IICEM was largely successful in attaining its national sales targets, which were measured by volume and value with one exception-rice. It was not possible to farm the full 2, 050 hectares of lowland fields in the Sikasso region estimated at project start up, and therefore IICEM did not meet rice sales targets. Tables 6 and 7 present the changes in volume and value for commercialization of each of the five commodities.

**Table 6: IR 2 Volume And Percent Change of Targeted Commodities Purchased From Agricultural Producers (Tons)**

Target product	Baseline Value 2006-2007	Actual Value 2007-2008	Variance between baseline and actual values, variance in %	Target value* 2007-2008	Variance between actual and target values	% of Target Value Achieved
Rice	2,221	1,327	(894) ** (40 %)	2,620	(1,293)	51%
Potato	3,254	3,502	248 8 %	2,000	1,502	175%
Mango	217	5,823	5,606*** 2583 %	300	5,523	1,941%
Shallot	0	759	759	300	459	253%
Tomato	0	395	395	330	65	120%
<b>Total</b>	<b>5,693</b>	<b>11, 806</b>	<b>6,113</b> <b>107 %</b>	<b>5,550</b>	<b>6,257</b>	<b>213%</b>

\*IICEM's PMP will be modified due to certain inaccuracies in target values.

\*\* Rice volume values are lower than expected due to the underestimation of lowland hectares in Sikasso.

\*\*\* Mango baseline values were provided by the TradeMali project. This year, for the first time, high volumes (4,369 tons) were achieved, and measured, at SCOFLES in Sikasso.

**Table 7: IR 2 Value And Percent Change of Targeted Commodities Purchased From Agricultural Producers (millions of FCFA)**

Target product	Baseline Value 2006-2007	Actual Value 2007-2008	Variance between baseline and actual values, variance in %	Target value* 2007-2008	Variance between actual and target values	% of Target Value Achieved
Rice	332	204	(128) ** (39 %)	393	(189)	52%
Potato	570	619	49 9 %	400	219	155%
Mango	22	421	399** 1,814 %	30	391	1,403%
Shallot	0	125	125	60	65	208%

Tomato	0	58	58	66	(8)	88%
<b>Total</b>	<b>924</b>	<b>1,427</b>	<b>503</b> <b>54 %</b>	<b>949</b>	<b>478</b>	<b>150%</b>

\* IICEM's PMP will be modified due to certain inaccuracies in target values.

\*\* Values will be corrected due to variances in rice and mango volumes.

## VOLUME AND VALUE OF INTRA-REGIONAL EXPORTS

IICEM reached its sales targets for potato to the sub-region, but did not reach targets related to sub-regional mango exports due to an intensive focus on international exports. Tables 8 and 9 present the changes in volume and value for exports to the sub-region. Box 1 provides an example of dried mango, a high value-added export that IICEM is helping promote for export to the sub-region. Dried mangos present an excellent opportunity for expanded sub-regional exports in project year 2.

**Table 8: IR 2 Volume and Percent Change of Targeted Products Exported to the Sub-region (tons)**

Target product	Baseline Value 2006-2007	Actual Value 2007-2008	Variance between baseline and actual values, variance in %	Target value 2007-2008	Variance between actual and target values	% of Target Value Achieved
Potato	1,264	1,603	339 27 %	1,500	103	107%
Mango	431	466	35 8 %	517	(51)	90%
<b>Total</b>	<b>1,695</b>	<b>2,069</b>	<b>374</b> <b>22 %</b>	<b>2,017</b>	<b>52</b>	<b>103%</b>

**Table 9: IR 2 Value and Percent Change of Targeted Products Exported to the Sub-Region (millions of FCFA)**

Target product	Baseline Value 2006-2007	Actual Value 2007-2008	Variance between baseline and actual values, variance in %	Target value 2007-2008	Variance between actual and target values	% of Target Value Achieved
Potato	411	521	110 27 %	488	33	107%
Mango	86	11	(75) (87 %)	103	(92)	11%
<b>Total</b>	<b>497</b>	<b>532</b>	<b>35</b> <b>7 %</b>	<b>591</b>	<b>(59)</b>	<b>90%</b>

\* This mango reference indicator is based on previous project TradeMali's annual report. The price mentioned here was 200F/kg while mangoes sold to Mauritanian buyers were closer to 20F/kg. The PMP will be modified according to propositions for the change in reference indicator and target values.

### Text Box 1: Supporting Marketing of Dried Mangos



*Thanks to support provided, more than 6 tons of dried mangoes were exported for the first time to European markets by IICEM's partner mango processors.*

IICEM will continue its support for activities which create products of high added value in the years to come.

After processing only 2 tons of dried mangoes in 2007, entrepreneur Youssouf Coulibaly came to IICEM for help. In 2008, IICEM accompanied Mr. Coulibaly in the preparation and monitoring of his loan application. The financial institution issued 10 Million FCFA, equivalent to \$25,000, to Mr. Coulibaly which he used to purchase 4 mango gas driers for his company Kéné Yiriden.

In addition, IICEM provided training to this entrepreneur and his employees in mango processing techniques and business and finance management.

During the 2008 mango season, Kéné Yiriden doubled its number of employees, a leap from 12 employees in 2007 to 26 in 2008, of whom 20 are women. By the end of the mango season, Kéné Yiriden, alone, had exported 6 tons of mangoes to the international markets.

## VOLUME AND VALUE OF INTERNATIONAL EXPORTS

Please see section *Mango Value Chain* for more information on mango exports.

## IR 3: ENHANCED FINANCIAL SERVICES

In order to improve access to financial services for partner farmer organizations and entrepreneurs, IICEM signed three guarantee agreements with three financial institutions, BNDA, BMS and Kafo Jiginew. A guarantee fund is now available at each partner financial institution to cover risks and to speed lending decisions.

Table 10 below provides data on performance in terms of number and value of loans issued. IICEM surpassed its target number of 77 loans issued, instead attaining 83 for total lending of 272, 300,525 FCFA. These were concentrated in the mango, rice, and potato value chains.

Table 10: IR 3 Enhanced Financial Services					
Indicators	Baseline Value 2006-2007	Actual Value 2007-2008	Target Value 2007-2008	Variance in Values	% of Target Value Achieved
Number of USG Supported Special funds loans issued this year	0	83	77	6	108%
Value of USG Supported Special funds loans issued this year (millions of FCFA)	0	272	280	(8)	97%

## STRATEGY EMPLOYED

IICEM focused on accompanying borrowers through the loan application process to enable them to better understand and prepare the information needed by partner financial institutions. When borrowers better understand the information banks need, they are more credible, communicate better, and are better able to obtain loans. The assistance also makes borrowers better payers through improving their financial management and their focus on managing their farms as a business.

IICEM executed this strategy in the field through the following activities (text box 2 provides an example of how the process worked for one beneficiary):

- Informing farmer organizations about how to obtain loans from partner financial institutions;
- Organizing meetings between farmers and financial institutions to define financing conditions and determine methods for obtaining repayment on previous loans in default;
- Informing financial institutions of the need to adapt services to producer needs, for example, taking into consideration the length of the farming season in the tenor of loans;
- Training farmer organizations in simplified accounting so they better assess their financial situation and manage their finances better during the loan period;
- Assisting farmer organizations in evaluating input needs and preparing loan applications. This also allowed for the analysis of the loan amount requested by borrowers, ensuring that requests were based on realistic needs. This step enables better management of risks.

## Text Box 2: Counseling and Support for Borrowers and an IICEM Guarantee Fund



***Acquiring simplified accounting skills enables farmers to become entrepreneurs.***

IICEM adopted a strategy which accompanies borrowers through the loan process, reducing the risk for financial institutions. Technical agricultural support is provided to assist farmers in each step of the value chain, from production to marketing. IICEM also offers assistance in establishing strategic relationships with suppliers, clients, and financial institutions. Combined, these activities enable an integrated development of the value chain.

During year 1, this strategy resulted in the acquisition of 272 Millions of FCFA in loans by 83 borrowers. To date, risks are being managed and very few borrowers have demonstrated difficulties in reimbursing their credits.

## SPECIFIC ACTIVITIES

The following bullets describe the main activities IICEM employed to improve access to financial services:

- Establishment of a guarantee fund at each partner financial institution after finalizing guarantee fund agreements. These agreements were discussed and developed in close cooperation with the institutions and IICEM's finance advisor. The purpose of the guarantee fund is to reduce the initial risk of lending to specific borrowers allowing the borrower and financial institution to develop a medium term relationship that will survive after the guarantee period. The amount of the guarantee starts at 50% for most loans (women borrowers receive a higher initial guarantee) and declines as repeat borrowers show their ability to pay. Table 11 below provides the amount of each guarantee fund by institution.

**Table 11: Value of Guarantee Fund Held by Each Financial Institution**

INSTITUTION	BNDA	BMS	KAFO JIGINEW	TOTAL
VALUE (in millions of FCFA)	71,609,659	63,419,698	31,709,849	<b>166,739,206</b>

- Support to mango value chain actors in preparing loan applications and establishing relations with financial institution Kafo Jiginew for the 2008 mango season.
- Organization of a meeting with Sikasso financial institutions involved in financing potato activities. IICEM helped put into place a system through which financial institutions will circulate forms to identify common indebted borrowers. Through this process, partners BNDA, BMS, and Kafo Jiginew are seeking solutions to reduce the 400 million FCFA in outstanding unpaid loans which has been a huge constraint to restarting or increasing production in the potato sector.
- Provision of advisory support to the men and women's' cooperatives of Touara and Kamaka villages which led to the finalization of loan applications to finance off-season rice farming.
- Development of a finance request form, as well as offering training to partner NGO PDCo in loan application procedures to benefit the shallot producers in the Dogon Country.

#### **IR 4: ENHANCED AGRICULTURAL ENABLING ENVIRONMENT**

Table 12 provides information on IICEM's results against baselines and targets in the area of creating an enhanced agricultural enabling environment.

<b>Table 12: IR 4 Enhanced Agricultural Enabling Environment</b>					
Indicator	Baseline Value 2006-2007	Actual Value 2007-2008	Target Value 2007-2008	Variance in Values	% of Target Value Achieved
Number of institutions/organizations who have undergone capacity/competence assessments as a result of USG assistance	0	5	5	-	100 %
Number of institutions/organizations who have made significant progress based on recommendations made via USG supported assessments	0	3	3	-	100 %
Number of individuals who have received USG supported short-term agriculture enabling environment training	0	673	750	(77)	90 %
Number of policy reforms analyzed with USG assistance	0	0	1	(1)	-

IICEM provided short term training in topics related agricultural enabling environment to 673 people. Cooperative Law is just one theme trainers focused on to assist in the organizational

development of partner cooperatives. This will help participants create active, well-organized cooperatives which will in turn foster development of the agricultural sector.

IICEM also improved the institutional capacity of several important producer organizations. Five legally recognized unions benefited from IEHA's PIVA analysis, a management tool used to identify changes and progress in the organizational development capacity of partner organizations. Three of the five unions evaluated made significant progress due to IICEM support.

The following five organizations were evaluated:

*Sikasso Region*

- URCEP (potatoes)
- Yanfolila Farmers Union (mangoes)

*Mopti Region*

- Union/FAC-GEST (shallots)
- Union of Cooperative Societies of Korientzé

*Tombouctou Region*

- Lake Horo Producers Union comprising of 29 cooperatives (rice and shallots)

Of all three organizations making significant progress, it was the Yanfolila Farmers Union who benefited most from IICEM's advisory support. IICEM will continue to provide assistance to these organizations as well as others throughout the duration of the project.

## **IR 5: ENHANCED TRADE AND INVESTMENT ENABLING ENVIRONMENT**

Table 13 presents IICEM's results against baselines and targets on activities related to enhanced trade and investment enabling environment.

<b>Table 13: IR 5 Enhanced Trade and Investment Enabling Environment</b>					
Indicator	Baseline Value 2006-2007	Actual Value 2007-2008	Target Value 2007-2008	Variance in Values	% of Target Value Achieved
Number of consultative processes with the private sector as a result of USG assistance	0	3	3	-	100%
Number of participants in trade and investment trainings	0	319	260	56	123 %
Number of workshops on gender equity held at the local level (number of participants)	0	14 (290)	8	6	175%

IICEM put into place consultative activities that created a network of actors in the potato value chain (the *interprofession*) and conducted an organizational assessment to assist with the establishment of collective shallot sales from the Dogon Plateau zone. In both cases these will have important fundamental impacts in improving value chain operations. 286 individuals participated in IICEM's various consultative activities. Future activities include a consultation concerning the distribution of vegetable seeds which will allow seed associations to become involved with IICEM during its second year.

IICEM also organized 14 workshops, which trained a total of 290 individuals, to reinforce women's skills in leadership, empowerment, and negotiation. The workshops targeted women to strengthen skills necessary to play a more active role in economic activities.

## IR 6: IMPROVED NATURAL RESOURCES MANAGEMENT

Table 14 provides IICEM's results against baselines and targets in improved natural resources Management.

Table 14: IR 6 Improved Natural Resources Management					
Indicator	Baseline Value 2006-2007	Actual Value 2007-2008	Target Value 2007-2008	Variance in Values	% of Target Value Achieved
Number of additional hectares under improved natural resources management as a result of USG assistance	0	466	440	26	106%
Number of policies, laws, agreements, or regulations promoting sustainable natural resources management and conservation that are implemented with as a result of USG assistance	0	8*	11	(3)	73%
Number of individuals receiving USG supported training in natural resources management and/or biodiversity conservation	0	70	150	(80)	47%

\* This indicator title gives the notion that only implemented conventions will be taken into account. However, the definition of this indicator, defined by IICEM in the PMP, clarifies that this indicator captures the actions and results of this project, including the completion of convention processes at the local level which had been started by the preceding project.

IICEM exceeded its year 1 target for hectares under improved natural resources management. Areas now under improved management include a forest strip in the rice plains of the Sikasso region (130 ha), a finalized protection agreement in the Mopti region (150 ha), and the construction of a wind break and stone contour lines (100 ha directly impacted with over 900 ha potentially effected). In addition, IICEM facilitated approval of six Natural Resources Management Plans (NRMP) by authorities in the various decentralized government offices.

In addition to the finalized NRMPs, IICEM ensured that two conventions were also completed. IICEM was not able to facilitate the completion of three other planned conventions for due to the following unanticipated circumstances:

- 10 hectares of land originally allocated to the Doum palm waste management convention in Bori are no longer available due to a dam project underway in Toussa. This project will displace the Toussa village and relocate it to the land previously allotted to the convention.
- The Bourgou pasture in the Tombouctou region, a site previously identified for a convention, has been legally confirmed to be part of the Barakoye Island, which is privately owned land. As a result, this convention cannot proceed.
- The village of Guirowel has refused to sign the convention protecting the Toguéré-Karbaye Forest since it is the sole area for animal grazing.

## **SPECIFIC ACTIVITIES**

The following activities enabled the attainment of IICEM's targets:

- *Finalization of Natural Resources Management Plans (NRMP).* IICEM's NRM expert, Nature Conservation Department agents, and partner NGOs worked together to finalize six NRMPs. These plans were approved by authorities of decentralized government offices and have been put into action. The districts for which new NRMPs now exist are: Bancoumana and Bougoula (Koulikoro), Diomantènè and Zangaradougou (Sikasso), Yèrèdon Saniona (Ségou), and Socoura (Mopti).
- *Finalization of Local Natural Resources Management Conventions.* With Mali's rapidly growing population and increasingly scarce natural resources, conflicts often arise among those who share land, particularly between farmers and livestock herders. As a result, preparing local natural resource conventions is a very challenging activity due to conflicting interests between implicated parties and it is often impossible to reach agreements. Despite difficulties, IICEM was able to finalize and approve two local conventions protecting Mopti's Bouberewol or Djenekila and Dogofing forests.
- *Participatory Approach for Identifying and Conducting Activities.* In compliance with IIECM's strategy for NRM, a participatory approach was used to select all activities. Beneficiaries were implicated in each step of the activities, from initial decision-making to the execution. A project file was created for each activity, containing information regarding costs, the implementation timeline, and the financial plan.

Activities include the construction of a windbreak, installation of live fencing to stabilize sand dunes, and the rehabilitation of deteriorated land.

- *Windbreak:* Many of the farming fields in Mali are bare surfaces exposed to the harmful effects, such as loss or drying of plants, of hot winds. IICEM's NRM specialist advised farmer organizations to adopt the windbreak technology, rows of trees which create a wind barrier, in order to protect their crops. However, some farmers have been reluctant to adopt this technology as it is believed to attract birds, a problem which exists regardless of the windbreak. Demonstrating the benefits of the windbreak on crop loss rate will be an important activity for promoting this technique. No special studies have been conducted in Mali which reveals beneficial effects of hot winds for crops.

When creating a windbreak, the Eucalyptus sp tree is planted in the first stage followed by the local Bouana (*Acacia Nilotica*) or grafted jujube (*Ziziphus Mauritiana*). The properly spaced and staggered lines of trees reduce wind speed significantly.

- *Live Fencing:* This technology of enclosing farming surfaces with trees is aimed at protecting crops from grazing animals. Live fencing differs from a windbreak in that the trees are planted very close together so that they intertwine to form a protection barrier.

During IICEM's first year, more than 12,500 trees were planted over 20 hectares of land to construct windbreaks and live fencing for the protection of crops.

- *Stone Contour Lines:* Over 2,000 meters of stone contour lines were built to protect farm land in the Tombouctou region from runoff water which descends from a nearby hilltop. Each year, this water causes such damage to the irrigation canal and fields in the Lac Horo area, particularly Guindigata and Bototo villages, causing farmers to abandon this land. The stone contour lines, similar to filter dikes, and existing trees will significantly reduce the speed of runoff water, in turn minimizing damage done to the peripheral canal and crops. Farmers have already begun to reclaim their previously abandoned land due to the success of this technology.
- *Stabilization of Sand Dunes:* The movement of sand dunes in the Tombouctou, Gao, and Kidal regions continues to be a major challenge for farmers. Winds cause sand dunes to shift, threatening farm land as well as urban areas. IICEM focuses on dune stabilizing activities in order to reduce the negative effects on farming.

IICEM provided technical and financial support to stabilize a dune that extends for 2 hectares along the South side of the Farawtangam PIV (Tondibi). Efforts included a mechanical fixation with the *Leptadenia Pyrotechnica* plant and a biological fixation with the *Prosopis Juliflora* plant.

- *Fish Farming:* Fishing in Mali's various water sources has proved to be less profitable over the years as the Nile Perch and Tiger fish species slowly disappear. Several factors have caused the scarcity of these fish, including the use of mesh fish nets and flooding. Moreover, catfish fishing in the canal that runs from north to south along the

Nièna plain in Sikasso has caused serious damage to the canal's embankments. In order to maximize the benefits of the canals, which were dug with IICEM funding, and protect them against degradation, fish farming activities were introduced.

The feasibility of a fish farming activity in these canals will be tested during this first year. These canals, which are not fed by a permanent water source and are threatened by the possibility of flooding during heavy rains, may not provide the conditions required by certain species. Catfish and carp, however, are able to withstand these extreme conditions. The Nièna Women's Rice Farmers Cooperative has plans to establish a convention concerning fishing in these canals.

### **Beneficiaries Trained in NRM Techniques**

IICEM applied a trickle-down approach to train a large number of farmers. With this approach, a group of core farmers were trained in techniques related to a specific NRM activity. During the execution of this NRM activity, the trained group of farmers would share these techniques with other members of the farmer organization, who would participate in the completion of this task. Training offered to farmers were, thus, always relevant to activities carried out. Themes included:

- Staking, digging, and planting windbreaks and live fencing (389 individuals were trained, of which 260 were women);
- Stabilizing sand dunes (50 individuals trained);
- Legislation text of Law 95-004 and the Pastoral Chart to inform individuals in the content stated in approved local conventions (70 individuals trained, of which 13 were women);
- Construction of stone contour lines (60 individuals trained).

# PRESENTATION OF ACTIVITIES BY VALUE CHAIN

This section analyses activities according to the value chain and to intermediate results, while emphasizing their impacts.

## THE RICE VALUE CHAIN

### IR I: INCREASED AGRICULTURAL SECTOR PRODUCTIVITY

#### **Water Management – Rehabilitation of Farm Land**

IICEM resurfaced 4,300 meters of major canals which serve eight (8) farming areas in the Tombouctou, Gao, and Mopti regions. This improvement will reduce water losses over a 250 hectare area. Table 17 in the annex provides details by site.

In addition, IICEM collaborated with the Regional Administration for Rural Engineering in Sikasso to restore the condition of the Nièna canals. This activity allowed 40 hectares land, previously abandoned due to advanced degradation of irrigation canals, to be recuperated by the 150 female rice farmers who currently farm on the plain.

IICEM provided training for 82 producers from partner cooperatives in the Mopti, Tombouctou, and Gao in motorized irrigation pump maintenance (oil changing, start-up, filter changing, record keeping of monitoring checks, etc.). This training targeted major partner sites to ensure successful farming seasons.

#### **Multiplication of Rice Seeds – Supporting the Malian Government’s Rice Initiative**

The use of improved seeds is an important factor for increasing production and the productivity of rice farmed by small holder farmers. In order to assure the availability of improved rice seeds, IICEM has begun implementing an extensive program for seed production in close collaboration with the Center for Agricultural Research (CRA) and the Regional Administration for Agriculture in Mali (DRA). The following activities have been financed by the IICEM project:

- **Rice seed production at Mali’s Agricultural Research stations** IICEM signed an MOU with the Center for Agricultural Research in Gao and Sikasso for the production of several varieties of basic rice seeds. This collaboration permitted:
  - Use of a 2 hectare station for the production of the basic rice seed, variety “Nerica LI”, in the regions of Tombouctou and Gao.
  - Use of a 5 hectare station for the production of the basic rice seed, variety “Nerica 4” in the Sikasso region.

In total, IICEM financed the production of basic rice seeds on 7 hectares of land, through the Center for Agricultural Research in Mali. An estimated volume of 25 tons of certified “Nerica LI and Nerica 4” seeds is expected.

**Text Box 3: IICEM Providing Leadership in Mali’s Rice Seed Production Efforts to Combat the Rice Crisis**



IICEM played a central role in the implementation of the Malian Government’s “Rice Initiative” Program with its rice production activities that were carried out during the 2007-2008 agricultural season.

In fact, IICEM financed the production of seeds, via collaboration with CRRA and DRA, on 28 hectares of land in the Tombouctou, Gao, and Sikasso regions, expected to produce about 114 tons of certified seeds.

In addition, seeds produced will permit farmers to cultivate **over 2200 hectares** of rice, an amount equivalent to 40-50% of seed needs in IICEM’s target zones. At medium term, **this will enable the production of thousands of tons of high-quality rice over thousands of hectares of farmland in the Sikasso and northern regions.**

As a result of rice seed production and multiplication efforts, IICEM has stepped forward as a leader in the implementation of the Malian Government’s “Rice Initiative” Program which aims to produce approximately one million tons of paddy rice to satisfy Mali’s rice needs.

- **Rice seed multiplication in farming villages** IICEM contracted with the Center for Agricultural Research in Gao and the Regional Administration for Agriculture in Sikasso for a large scale multiplication of various rice seed varieties in farming areas. IICEM financed the following activities:
  - Multiplication of rice seeds, including *Wat 310* and *Nionoka* varieties, on 13 hectares of Village Irrigated Perimeters (PIV) in the Tombouctou and Gao regions.
  - Multiplication of *Nerica 4* rice seeds on 3 hectares of land occupied by a women’s group in Sikasso.
  - Multiplication of rice seeds on 5 hectares of Sikasso’s Kléla plains. Varieties include, *Gambiaca* (3 hectares), *Kogoni* (1.5 hectares), and *Sik 131* (0.5 hectares).

In all, IICEM financed community-based seed multiplication of several rice varieties, carried out by CRRA and DRA, on 21 hectares of land in the Tombouctou, Gao, and Sikasso regions. The estimated volume is 89 tons of certified rice seeds.

- **Community-level demonstrations on new rice varieties** In addition to seed production activities, IICEM financed demonstrations to introduce new high potential, high-

yield rice varieties. IICEM, in collaboration with CRRRA and DRA, led the following activities :

- Installation of *NERICA L1 and L2* demonstration plots at 3 target sites in the Tombouctou region (Kabara, Kondi, and Lac Horo) and 3 sites in the Gao region (Tondibi, Bourem Foghas, and Tobon).
- Installation of demonstration plots, in the Sikasso region, for *Sik 398-1, Sik 353-A10, Sik 400-1, and Sik 350-A150* varieties.
- Installation of demonstration plots, in the Gao region (Tondibi and Bourèm Foghas), for *Sueta Soke* varieties.

### **Improved Access to Fertilizer and Herbicides for Women Farmers**

IICEM assisted 440 women rice producers from Nièna, Loutana, Nantoumana, and M’Pegnesso in assessing fertilizer and herbicide needs for rice production. In addition, IICEM helped partner women’s groups acquire subsidized agricultural inputs through the Malian “Government’s Rice Initiative” Program. Women partners achieved significant economies of scale, purchasing fertilizer at 12,500 FCFA per bag rather than the regular price of 22,000 FCFA per bag.

### **Dissemination of Best Rice Production Practices**

IICEM provided advisory support and on-site practical demonstrations to 97 women producers from the organizations of Nièna, Loutana, M’Pegnesso, and Nantoumana on GIFS/GIC techniques. In addition, field agents counseled the producers in line sowing, options and application methods, precautions for herbicide use, correct dosing, and fertilizer application techniques.

### **Creation of an Agricultural Support System**

IICEM organized a training session for 15 agents of partner NGOs/GIEs and 4 central rice production experts in GIFS/GIC techniques. This training was aimed at strengthening the skills of these field personnel in the following areas: (i) improved varieties and seed production; (ii) knowledge of parasitic diseases and the integrated control of diseases due to fungus parasites, bacteria, and viruses; (iii) Integrated Pest Management; (iv) integrated management of soil fertility and soil conservation; (v) water management; (vi) management and marketing of fertilizer; (vii) participatory techniques for dissemination of good practices; and (viii) gender analysis tools.

Training funded by IICEM and delivered by rice specialists from the Institute for Rural Economy (IER) enabled participants to acquire in-depth information on rice production techniques for irrigated and lowland rice. This training enabled all NGO field agents to provide adequate support to partner producers.

## IR2: IMPROVED COMMERCIALIZATION OF AGRICULTURAL PRODUCTS

Partner farmer organizations commercialized 1,327 tons of rice, valued at 204 million FCFA, during IICEM's first year of operation. Despite a generally successful commercialization year for rice, projected targets were not met due to two existing factors:

- I. An incorrect calculation of area under production in Sikasso led IICEM staff to establish of unrealistic targets. IICEM staff initially calculated there would be 2,050 hectares of land under production, but later found that estimate to be 1,750 hectares more than the actual land occupied by partner farmer organizations. This additional 1,750 hectares of land would have enabled the production of 2,000 tons of rice (yield of 1.2 tons per hectare) and in turn, an estimated commercialization of 800 tons more than the actual results.
- II. Partners also commercialized only 25% of their production, a much lower rate than the 40% IICEM had estimated during PMP development. The estimated rate was determined by calculating the minimum percentage necessary to enable reimbursement of inputs by farmers in the northern regions. However, producer groups retained more rice for household consumption than expected.

To ensure that women rice farmers receive profitable prices throughout the year, IICEM assisted women in the sale of rice through the "Crédit Stockage Vivrier" (CSV) system. Five women's groups received support in the marketing of 28 tons of paddy rice under the CSV system, bringing in 3,048,090 FCFA in sales. In addition, two women's groups from Nièna and Loutana, sold 22 tons of improved Nerica 4 rice seeds for a total value of 4,497,590 FCFA. In total, IICEM's partner women's organizations in Sikasso sold 51 tons of improved seeds for a total value of 7,545,680 FCFA.

Coordinators of IICEM's partner NGOs /GIEs from the Mopti, Tombouctou, and Gao regions received training in the establishment of the *redevance* price for rice. The *redevance* price is the fixed transfer price for in kind rice producers provide to their cooperatives in order to reimburse initial costs. In addition, IICEM trained field agents in planning and strategies for selling rice. Once trained by IICEM, these individuals transferred this knowledge to over 200 producers through organized sessions or practical counseling. The main objectives of these training were to:

- Enable producers to establish reasonable selling prices permitting improved sales in competitive markets;
- Equip producers with skills in risk management, negotiation, and putting together of sales contracts;
- Contribute to the identification of business opportunities and promote the mastery of appropriate technological tools.

Moreover, IICEM assisted in building commercial relationships between producers and traders. For instance, IICEM staff linked a cooperative in the Tombouctou region with two wholesale

traders, resulting in the sale of 33.6 tons of paddy rice and enabling the cooperative to honor its loan commitments to BNDA.

Finally, IICEM also explored the potential for bringing a high-capacity huller to add value for producer groups that have always produced and sold paddy rice. This activity revealed that the acquisition of a 6 million FCFA, high-capacity huller would not be profitable due to the low quantity of rice produced by implicated farmers. The team also found that wholesale traders were not willing to make the necessary investment given the profit margin between paddy rice and hulled rice was not significant enough.

### IR 3: ENHANCED FINANCIAL SERVICES

IICEM facilitated access to financial services for farmers groups and worked also to build a foundation that these groups can use to obtain financing on sustainable basis. With IICEM support, farmer organizations obtained 24 loans in IICEM's four intervention regions of Sikasso, Mopti, Tombouctou, and Gao, for a total of 106,758,825 FCFA in funding (Figure 1 presents the funding by region).

- In Sikasso, Kafo Jiginew financed four (4) loans to fund inputs for the Lountana, M'Pegnesso, Nièna, and Nantoumana cooperatives. The total funding value was 8,120,800 FCFA.
- In the Mopti region, six (6) cooperatives, one of which is a women's cooperative, from Touara, Sah, and Korientzé villages received financing from BNDA. Loans totaled 30,370,000 FCFA. Three loans were used to purchase motorized irrigation pumps.
- In Tombouctou, BNDA financed six (6) farmer organizations from the villages of Sibou, Iloa, Bourem Inaly, Beregoungou, and Kano. The total funding value was 60,068,025 FCFA.
- With IICEM support, the BNDA in Gao financed five (5) farmer organizations from Tondibi, Gourma Foghas, Tonditihio, and Djeflani for a total of 8,200,000 FCFA.

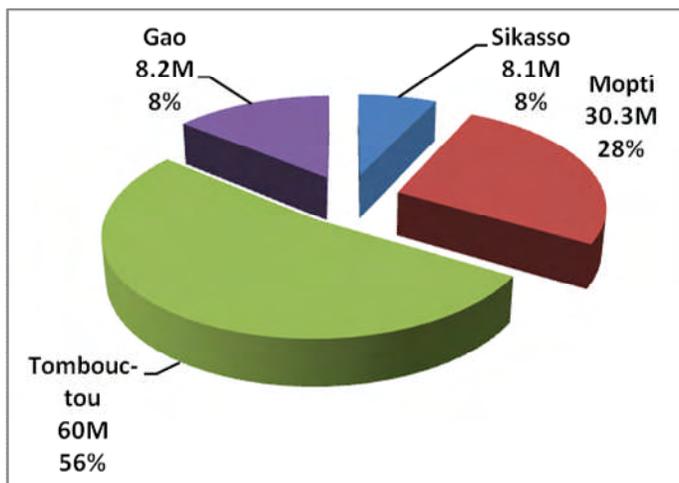


Figure 1: Funding obtain for Rice by Region (in FCFA millions)

## **SUMMARY OF IMPACT IN THE RICE VALUE CHAIN**

IICEM's activities in rice produced the following results:

- Positioning IICEM and USAID as strategic partners to the Malian Government's Rice Initiative program;
- Improvement of water management, reducing water losses over 250 hectares in the Tombouctou, Gao, et Mopti regions;
- Rehabilitation of farm lands in the Sikasso (40 hectares on the Nièna plain), Tombouctou, Gao, and Mopti (8 rice fields) regions;
- Acquisition of improved seeds, inputs, and herbicides through sufficient financing;
- Improvement of rice yields from 3.5 to 4 tons per hectare in the northern regions;
- Commercialization of 1,327 tons of rice, for a total value of 204 million FCFA.

# THE POTATO VALUE CHAIN

In order to build on the efforts of the preceding USAID projects in the Sikasso region, IICEM focused on producers from the Potato Traders and Exporters Regional Union of Sikasso (URCEP). IICEM also worked closely with a producers' cooperative, SICA and facilitated creation of the *interprofession*, a cluster grouping of all value chain actors, to increase cohesion in the value chain.

## IRI: INCREASED AGRICULTURAL SECTOR PRODUCTIVITY

In addition to agricultural advisory support provided throughout the duration of the potato farming season, NGO staff worked with partner farmers to maximize yields. IICEM focused on improving potato yields through use of high-performing seeds and appropriate application of fertilizer (see box 4 for focus on medium term investments).

IICEM worked with each partner organization to identify its needs and carried out many informational sessions to assure producers understood the importance of using the appropriate fertilizer in the appropriate amounts. IICEM's NGO agents also explained the effects of chlorine, found in certain fertilizers, which causes the rapid rotting of potatoes and creates losses for traders who export potatoes to the sub-region.

Following on to these assessments, IICEM facilitated the acquisition of 10 tons of potato seed, and more than 8.8 tons of potato-specific fertilizer by 30 URCEP producers. By placing high quantity group orders, Unions and farmers were able to negotiate better contracts with seed importers and larger fertilizer distributors. This enabled the partner producers to farm 26.3 hectares of land and produce 490 tons of potatoes.

In addition to the producers identified in the work plan, IICEM trained other producers from various cooperatives in the benefits of using the Hydro Complex Partner fertilizer instead of fertilizer formulas created for cotton or grain production. Nearly 50 producers from 17 community cooperatives, organized in a union, received training in dosage techniques in potato-specific fertilizers.

The primary goal of this activity was to inform the most possible actors in the potato value chain about the harmful effects of chlorine, which is found in cotton and grain fertilizers, on the quality of potatoes sold in the domestic and sub-regional markets. As a result, 17 member cooperatives of the Société d'Intérêt Collectif Agricole (SICA) adopted the use of Hydro Complex Partner.

### **Text Box 4: Creating the Environment for Investment in Productivity**

It is still difficult to undertake changes that require significant investment such as drip irrigation given banks are not willing to lend due to previous problems with non-payment. Much of IICEM's work is designed to build the positive relationships between actors in the potato network necessary in order to improve the existing business environment making longer term investment more attractive.

## **IR2: IMPROVED COMMERCIALIZATION OF AGRICULTURAL PRODUCTS**

IICEM targeted the Potato Traders and Exporters Regional Union of Sikasso (URCEP) as a strategic partner for potato commercialization due to the Union's experience in the traditional corridors: the Sikasso-Abidjan and Sikasso-Ouagadougou routes.

To facilitate potato commercialization, IICEM carried out activities that sought, among other objectives, to improve potato quality and promote potatoes sales with domestic and sub-regional clients. Several activities aimed to increase potato commercialization are mentioned below:

- IICEM facilitated negotiation and signing of contracts between URCEP and the Zabré Daga Association of Vendors of Local Products in Ouagadougou (Burkina Faso) which resulted in a sales contract for nearly 35 tons of potatoes bi-monthly since April. This enabled URCEP to sell and deliver 363 tons of fresh potatoes to clients in Ouagadougou, Burkina Faso at an average price of 325 FCFA per kilogram;
- IICEM organized a trip to Togo for the promotion and sale of potatoes. A direct purchase contract was signed with the largest potato importer in Lomé (Mme. Sampin) for the delivery of 40 tons of potatoes sold at 275 FCFA per kilogram;
- IICEM began the research and discussions necessary to establish a long term contract relationship with the Ivory Coast Merchandise Distribution Company in (SDTM-CI). SDTM-CI has shown interest in Mali's potatoes, especially the Spunta variety which this company currently imports from South Africa to supply the Abidjan market. SDTM-CI has shown some reluctance due to the lack of organization of the marketing process, something IICEM has already made progress on in year 1.
- IICEM worked with URCEP staff to design and print a brochure to be used as a marketing tool.

IICEM also provided technical and practical support to URCEP members for sorting, packing, and grading techniques for potatoes. 25 kilogram wire mesh bags were adopted by producers for packaging potatoes, replacing the 100 kilogram bags that were usually employed to deliver potatoes to both domestic and sub-regional markets.

This activity increased local potato sales for the Sinignèsigi Women's Cooperative, a member of URCEP. 736 tons were sold this year compared to 566 tons in 2007, demonstrating a growth of approximately 30%. In addition, global potato sales rose from 3,254 tons to 3,502 tons, almost an 8% increase.

### **IR 3: ENHANCED FINANCIAL SERVICES**

IICEM worked hard to repair relationships between the financial institution Kafo Jiginew and three member cooperatives of URCEP with 8 million FCFA in outstanding debt from past farming seasons. With much support from IICEM including the establishment of a guarantee fund, Kafo Jiginew agreed to finance four (4) cooperatives, including one women's cooperative, which gave potato producers access to a total of 22,422,500 FCFA in loans.

Three cooperatives, which are URCEP members, received loans totaling 16,822,500 FCFA to purchase inputs. Sinignèsigi, a women's cooperative, obtained a loan for 5,600,000 FCFA, which enabled the commercialization of potatoes. Overall, however, financing of actors in the potato value chain was limited because of prior non-payments. To improve the potato industry's portfolio, it was decided that financial institutions would only finance producers with a positive credit history.

### **IR 4: IMPROVED AGRICULTURAL ENABLING ENVIRONMENT**

URCEP is an organization that was created in December 2004 by six potato producer and trader cooperatives of Sikasso, including one women's cooperative. It is made up of 277 members. The primary purpose of URCEP is to facilitate member access to high-quality inputs and to consolidate members' crops for selling to domestic and sub-regional markets. Impressed with URCEP's objectives, various development programs offered support to increase member production and productivity. However, due to the financial insecurity of more than 90% of its members, lending institutions lost confidence in URCEP, making it impossible to carry out the organization's activities.

To boost its activities, URCEP sought IICEM support from the outset. IICEM reached an agreement with URCEP management to provide assistance to only creditworthy, motivated URCEP members. IICEM provided the 30 URCEP member producers and traders selected with the following assistance:

- Improved access to loans for the purchase of potato inputs;
- Support for grouped purchasing of inputs;
- Monitoring and advisory support for URCEP;
- Assistance in sub-regional market studies for improved potato sales;
- Monitoring and advisory support to ensure the satisfaction of administrative procedures when shipping potatoes;
- Providing training to individuals in financial and administrative management positions;
- Allowing the flow of over 1,500,000 FCFA by collecting fees on collectively marketed volumes.

Once fees were collected, 1 million FCFA was reimbursed to Kafo Jiginew to reduce outstanding debts. Confidence was regained between URCEP and its traditional financing partner, eventually leading to the receipt of a 30 million FCFA loan to purchase inputs for the upcoming farming season.

URCEP management has improved in important ways. The organization now holds regular meetings, creates meeting minutes, and prepares and submits its balance sheet and income statement to members. URCEP sanctions those who fail to comply with its bylaws and rules of procedure.

## **IR5: ENHANCED TRADE AND INVESTMENT ENABLING ENVIRONMENTS**

To improve the trading and investment environment, IICEM carried out a series of activities to strengthen the capacity of actors who conduct business in the sub-regional markets. The potato value chain cannot gain market competitiveness until small potato producers join forces to increase the sales capacity required for large-scale commercialization.

IICEM organized a meeting in August 2008 to establish a network of experts within Sikasso's potato value chain. Administration and management documents for this organization were developed, a general assembly was held, and management bodies were selected with technical assistance provided by IICEM's field agents.

This new organization will enable major partners and potential investors to call upon a single representative who can discuss opportunities on behalf of all interested members.

### **THE IMPACT OF ACTIVITIES ON THE POTATO VALUE CHAIN**

Encouraging results were attained as a result of the various activities carried out which were aimed at developing the potato value chain. Above all, potato sales increase by 8%, leaping from 3,254 tons to 3,502 tons.

IICEM helped pave the way for medium term success in the value chain through improving relationships among actors in the potato value chain by starting the process of debt reimbursement by farmer organizations and by helping to create the potato actors' network (*interprofession*). A well connected value chain will allow for collective commercialization of products and thus high-quantity sales. This will enable a stable economic development which favors investments and increase in productivity, and in turn, a boost in revenues.

# THE MANGO VALUE CHAIN

## IRI: INCREASED AGRICULTURAL SECTOR PRODUCTIVITY

Close to 1,636 mango producers in the Sikasso region benefited from IICEM assistance. IICEM focused on providing support to members of the following 4 cooperatives, including one union:

- The Mandéla Cooperative
- The Hérémankono Cooperative
- The Diomatènè Cooperative
- The Yanfolia Union of Producer Cooperatives (comprised of 17 cooperatives)

These 1,636 producers received training in best orchard maintenance practices and mango quality assurance procedures. This training enabled 413 Global Gap-certified producers to sell products under the Global Gap label after gaining in-depth knowledge of the quality standards required.

In the Koulikoro region and in the district of Bamako, IICEM carried out the following activities aimed at improving the production of high-quality mangoes exportable to European markets:

- IICEM trained 104 producers from the zones of Gouana and Sanakoroni in phytosanitary protection of mangoes. This training informed producers of the negative impacts of improper product use, as well as precautions to be taken prior to and after phytosanitary product application. This information is very important for producers who sell mangoes for export, which will undergo pesticide residue inspections upon arrival in Europe. Non-compliance with pesticide regulations can result in the rejection of the entire batch.
- IICEM funded training for 348 producers from villages, Dara, Falani, Maconon, M'Piébougou, Manacoroni, and Sélingué zone in best agricultural practices. The training focused on existing difficulties in orchard maintenance, market expectations, and Global Gap certification.
- IICEM staff oversaw training of 110 producers from the Sélingué zone in grafting and top working techniques for mango orchards. During this training, producers learned about exportable mango varieties which are highly demanded by markets versus certain varieties produced in Malian orchards which are not recommended for export. Production of these demanded varieties will enable increased sales and in turn producer incomes will rise.

## **IR 2: IMPROVED COMMERCIALIZATION OF AGRICULTURAL COMMODITIES**

IICEM assisted local traders in improving the domestic commercialization of mangoes. IICEM favored the development of strategic business relations between SCOFLES and AOM which would enable the mango conditioning station AOM to sell its non-exportable mangoes to SCOFLES for sales on the domestic markets, namely Mopti, Gao, and Bamako. In addition, IICEM provided training to SCOFLES members in best harvesting and mangoes packaging practices enabling SCOFLES to sell higher-quality mangoes than those of its competitors. As a result of IICEM support, SCOFLES was able to increase their volume and sales figures by over 90%, achieving 4,369 tons!

In Bamako, IICEM provided technical support in mango harvesting for 17 members of JEKABAARA Women's Cooperative. A mango maturity test which was done prior to this training allowed the women to understand the reasons which make immature mangoes undesirable for commercialization and drying. As a result of IICEM assistance, JEKABAARA has begun to develop its sales of fresh mangoes, particularly in the Nioro of Sahel market, and its processing of dried mangoes. The training was greatly appreciated as it allowed these women to recognize mango faults which can be avoided in future seasons, a skill which will help to reduce production costs.

In addition, IICEM financed a booth at the SIAGRI 2008 fair in Bamako to permit the marketing of JEKABAARA's various processed products, including dried mangoes, ginger, hibiscus, etc. In aims to increase production of processed products, JEKABAARA underwent a transition from solar drying for oven drying.

IICEM conducted a market prospection in the interior of Mali which resulted in a sales order for 650 tons of fresh mangoes for GIE Yeleni Ton. However, due to the unavailability of funds, GIE Yeleni Ton was not able to supply the desired quantity, instead, only 45 tons of fresh mangoes were delivered to the various markets.

IICEM also focused considerable energy on assisting in the export of fresh mangos to Europe via sea. Exporting mangoes by ship requires an extremely organized system where each step of the mango export process starting from production to expedition is carefully timed. This precise scheduling enables oversea shipping companies to plan the availability of containers for its clients. In order to accomplish this challenging task of organizing mango exports, IICEM visited all involved producers in Koulikoro to create mango harvest schedules for each orchard. Following these visits, IICEM staff worked with PLAZA management to determine the PLAZA conditioning station would prepare for mango harvesting seasons to begin April 24, 2008. Mango pистeurs also benefited from orchard visits as IICEM used this opportunity to inform them about techniques for scheduling their harvesting teams. In addition, advisory support was provided to pистeurs enabling them to avoid harvesting of immature mangoes which would be rejected by the conditioning station.

- **Providing Support to Mango Conditioning Stations in Sikasso** To improve the quality of mangoes from the Sikasso region and in turn enable partner exporters to respect their contracts, IICEM conducted a series of training sessions aimed to strengthen the technical skills of conditioning station agents, *pisteurs*, and harvesters. As a result, over 550 individual, of which 270 were women, received training in various themes, including best mango harvesting and packing practices, hygiene regulations for conditioning stations, sorting, packing, and palettization techniques. Conditioning agents from AOM, Fruitière du Lotio, and Yanfolila Union of Planter Cooperatives were targeted for these trainings.

In addition, 41 agents, of whom 17 were women, from two mango drying facilities in Sikasso received IICEM-led training in mango drying, packing techniques, and facility hygiene practices.

- **Providing Support to PLAZA's Mango Task Force** With aims to foster a synergetic environment among partner projects, IICEM played an active role in the mango task force to help prepare for the mango season. In addition, IICEM contributed to the financing of crates, which was a major concern for operators of the conditioning station.

Meetings organized by the mango task force resulted in the creation of a maritime export operations schedule which compiled details from mango exporters' sales contracts. This enabled mangoes to be conditioned and shipped according to client requests. This daily schedule precisely defined the receipt, conditioning, chilling, and loading of each mango shipment throughout the entire mango season.

Continued efforts are required to create a flawless fruit supplying system which enables exporters to satisfy delivery expectations of clients. IB Négoce, Sahel Fruits, SCS Sylvain, and Cofruima companies supplied Malian mangoes to Dutch client Bakker. Various other European importers developed contracts with Yaffa, FlexMali, Mali Primeurs, and Blonba Fruits.

In greater detail, the following activities were carried out to ensure the success of oversea mango shipping for the 2008 season:

- 187 individuals, of whom 81 were women, received training in harvesting and orchard-side packing techniques. The purpose was to equip harvesters with the ability to differentiate between sea and air shipped mangoes. In addition, harvesters learned techniques to distinguish the various stages of ripeness. An equally important lesson, unrelated to harvesting, was the demonstration of mango packing techniques involving crates. This knowledge enabled *pisteurs* to reduce the rate of rejected mangoes due to immaturity or transport damage.

- 120 PLAZA conditioning agents, of whom 90 were women, received training in conditioning techniques. IICEM's mango expert served as head of operations at PLAZA, supervising quality control, managing mango supply, creating employee schedules, along with various other responsibilities which led PLAZA through a very successful season.
- 50 individuals from 4 mango export companies (Yaffa, IB Négoce, Scs Sylvain, and Sahel Fruit) received training in sorting, grading, and palettization techniques. Training which strengthened skills of conditioning center agents fostered the export of high quality mangoes and thus satisfaction of market demands.
- **Providing Material Assistance to the PLAZA Task Force** IICEM put forth all efforts to ensure that the PLAZA conditioning station was fully functioning at the start of the mango season. IICEM provided 12 conditioning tables and 1 hot-water soak tank to equip an additional conditioning room at PLAZA for which prepared mangoes for export to non-Bakker European clients.

In addition, IICEM supplied 1,600 crates, to be used for transporting mangoes to the conditioning station after harvest. This assistance enabled the conditioning station to export double the amount of the projected mango volume, shipping nearly 1,000 tons rather than the originally estimated 500 tons.

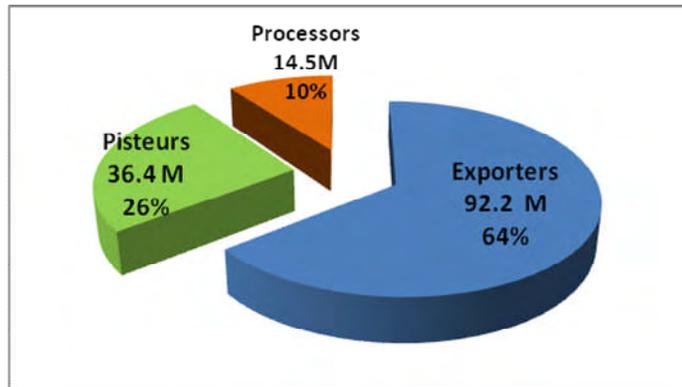
### **IR3: ENHANCED FINANCIAL SERVICES**

IICEM assisted mango exporters, processors, and *pisteurs*, to improve the quality of their loan applications, making them consistent with standards of financial institutions, therefore increasing the likelihood of receiving financing. 27 loans were issued to IICEM's mango partner exporters (3), processors (2), and *pisteurs* (22) based in Bamako and Sikasso, for a total of 143,119,200 FCFA.

IB Négoce and SCS International, two mango exporters based in Bamako, received 62,200,000 FCFA in financing from Kafo Jiginew (18 million FCFA issued) and BMS (44.2 million FCFA issued). For the first time, seven *pisteurs* received funding totaling 7,669,200 FCFA as a result of IICEM assistance (see text box 5 for an example of one *pisteur* receiving financing).

In Sikasso, IICEM's guarantee fund helped to establish trust among financial institutions. This, in addition to assistance for borrowers in preparing loan applications fostered the financing of 73,250,000 FCFA for Fruitière du Lotio, GIE AGSA, Kéné Yiriden, and 15 AOM *pisteurs*.

**Figure 2: Financing of the Mango Value Chain by Actor (in Millions of FCFA)**



To ensure that borrowers maintain positive relationships with financial institutions, IICEM will monitor the progress of loan repayment. To date, borrowers have been repaying loans satisfactorily. Two exporters from Bamako have already repaid their loans on time, totaling 62.2 million FCFA in reimbursements.

**Text Box 5: USAID Project, IICEM, provided assistance to 22 pisteurs resulting in the acquisition of first-time financing**

Pisteurs are a very important link in the mango value chain as they play an intermediary role between mango producers and exporters. The quantity of mangoes exported depends on the purchasing capacity of pisteurs who supply the conditioning stations. However, without large amounts of working capital, pisteurs are unable to purchase large quantities of mangoes offered by Mali's producers, leaving mangoes to be sold road-side for pennies. Financing of pisteurs enabled exports to reach record highs, boosting Mali's mango industry.



**Pisteurs received 36 419 200 FCFA in funding due to assistance provided by IICEM which resulted in an increase in Mali's exported mangoes, leaping from 8 521 tons in 2008 to 12 672 in 2007.**

*"God bless IICEM! Thanks to this project, I received my first loan from the bank!" -Madou Diakite. Mr. Diakite is seen in the photo above where he stands in front of crates at a conditioning station in Bamako. This entire story can be found in the annex of this report.*

## **IR4: IMPROVED AGRICULTURAL ENABLING ENVIRONMENT**

The Yanfolila Mango Producers Union is an organization that was created in 2000 by 17 community cooperatives, comprising 1,223 mango-producing members. The primary objective of this Union is to significantly improve Mali's mango production, potentially thousands of tons per year.

Since its inception, the Union has worked hard to find new market opportunities for Yanfolila mangoes. As a result of these efforts, a strategic commercial partnership was identified and an agreement was signed with the Heurt cooperative in Alsace, France. Union sales totaled approximately 40 million FCFA. This union requested assistance from IICEM for the development of its activities.

An institutional assessment showed that the union was poorly structured, internal communication was non-existent, leadership problems existed, and mango production and conditioning practices were not up to date. In order to resolve existing challenges, IICEM carried out the following activities:

- Provided training to the union's management team in cooperative laws and financial management;
- Offered training in techniques for negotiating sales contracts and change-driven leadership;
- Provided training in orchard maintenance, harvesting, and conditioning techniques;
- Provided monitoring and assistance for export-related activities.

Support provided by IICEM led to the following results:

- Internal communication among members was improved and plans to provide training for members in cooperative law were developed;
- The rejection rate of non-exportable mangoes decreased from 48% to 20 %;
- Mango sales, to exporters from member producers, increased, totaling over 400 tons, a volume equivalent to more than 250 million FCFA;
- The commercial relationship between the union and its client in Alsace was strengthened, the possibility of diversifying product sales (processed mangoes) is a new development;
- Meetings with recorded minutes are now regularly held;
- A report containing data from the 2007-2008 farming season was presented at a general assembly meeting.

## **THE IMPACT OF ACTIVITIES ON THE MANGO VALUE CHAIN**

Partner companies and cooperatives in the Sikasso region exported 3,044 tons of mangoes to France, the Netherlands, and Germany. AOM led in export sales, delivering 1,360 tons of mangoes, a volume which doubled due to funding received by *pisteurs*. TEM followed closely

behind AOM, exporting 1,255 tons of mangoes. Due to financing delays, Fruitière du Lotio exported only 400 tons. The union in Yanfolia exported 29 tons to its client in France.

In the Koulikoro region, exporters shipped over 40 containers, or 917 tons of mangoes via PLAZA. The quantity of exports by air more than doubled, taking a leap from 392 tons to 971 tons this year. 2008 proved to be a very successful year for mango exports.

In all, 4,932 tons of mangoes were exported by the various institutions which received assistance from IICEM. The estimated projection of 4,776 tons for the 2008 season was exceeded by 3% margin. When compared with export volumes from the prior year, a growth of 28% was achieved. Tables 15 and 16 provide additional information on the value and volume of mango exports in project year I.

**Table 15: Volume and Percent Change in International Exports of Target Products (tons)**

Target Product	Baseline Value 2006-2007	Actual Value 2007-2008	Variance between baseline and actual values, variance in %	Target value 2007-2008	Variance between actual and target values	% of Target Value Achieved
Mango	3,852	4,932	1,080 28 %	4,776	156	103%
<b>Total</b>	<b>3,852</b>	<b>4,932</b>	<b>1,080</b> <b>28 %</b>	<b>4,776</b>	<b>156</b>	<b>103%</b>

**Table 16: Value and Percent Change in International Exports of Target Products (millions of FCFA)**

Target Product	Baseline Value 2006-2007	Actual Value 2007-2008	Variance between baseline and actual values, variance in %	Target value* 2007-2008	Variance between actual and target values	% of Target Value Achieved
Mangoes	2,287	3,696	1,409 62 %	2,826	870	131%
<b>Total</b>	<b>2,287</b>	<b>3,696</b>	<b>1,409</b> <b>62 %</b>	<b>2,826</b>	<b>870</b>	<b>131%</b>

\* Due to difficulties in retrieving selling prices of exported mangoes from Malian exporters, selling prices for exported mangoes were estimated. The target value was determined using a price of 525 FCFA per kilogram of mangoes transported by ship and 1,200 FCFA per kilogram of mangoes transported by air. However, recent speculations say that a selling price of 4 Euros per crate (656 FCFA per kilogram) for oversea and 5.5 Euros per crate (900 FCFA per kilogram) for air are more accurate. Therefore, an average price of 749 FCFA per kilogram is determined.

# THE SHALLOT VALUE CHAIN

## IRI: INCREASED AGRICULTURAL SECTOR PRODUCTIVITY

For the first year, IICEM staff focused on capacity building and preparation of the upcoming farming season for four partner farmer organizations that will begin producing shallots in early September 2008.

To this end, each village obtained support from IICEM's partner NGO field agents, who promoted shallot activities. Assistance was aimed at carrying out post-harvest and shallot commercialization activities. In addition, 4 hectares of land was transformed into a farmable surface to increase women's shallot production. 351 women farmers were directly affected by this activity, not to mention an equal number of indirect beneficiaries.

Moreover, the women's cooperatives received training in *cooperative law* which provided information on the bylaws that govern cooperatives. This activity equipped these women with the skills to properly manage and operate their cooperatives. In addition, training in leadership, empowerment, and negotiation techniques was offered to encourage women to pursue opportunities in their communities as well as undertake new economic activities.

In order to prepare for the upcoming farming season beginning in September 2008, NGO field agents assisted farmer organizations in preparing loan applications for BNDA enabling timely acquisition of seeds and fertilizer. IICEM field agents will closely monitor and support these groups throughout the value chain process, starting from assistance in the acquisition of inputs to market research for product sales.

Finally, IICEM provided training to 30 producers from cooperatives of the UCAMHO union in Tombouctou in shallot processing technologies which would add value to shallots, in turn improving incomes of producers in the shallot value chain.

## IR 2: IMPROVED COMMERCIALIZATION OF AGRICULTURAL PRODUCTS

In addition to providing support for 4 partner cooperatives, IICEM conducted a series of activities to familiarize itself with the shallot market. Following a meeting with shallot producers, visits to Dogon Plateau's largest shallot traders were organized. Currently, village cooperatives sell directly to traders, who purchase fresh products on credit, often creating difficult situations for producers when sales are low.

In efforts to promote the sale of dried, crushed shallot products, which are sold in informal markets, IICEM established business relations between Dogon Plateau producers and a large trader in Bamako. This trader was prepared to purchase large quantities of processed shallots until

shallot producers determined that the demanded quantity was not feasible due to lack of industrial equipment.

Following the domestic market study, visits were made to the sub-regional markets of Burkina Faso, Ivory Coast, and Guinea to assess market opportunities. Results of this study showed:

- Organization at every level of the value chain is very poor. All commercialization activities are informal and producers and traders are not well organized.
- Traders have very little financial power. In addition, relations between traders and banks are non-existent, preventing the strengthening of their financial capacities
- Large quantities of shallots are exported to Guinea, while a lesser quantity is exported to Burkina Faso and Ivory Coast.

In addition to market studies, IICEM organized a shallot-related workshop in Bandiagara where processing technologies were displayed. Leaders of Tombouctou union UCAMHO showed great interest in these machines, expressing the need to purchase processing equipment in order process shallot surpluses from the Lac Horo zone. IICEM established a strategic relationship between UCAMHO leaders and CAFON, which resulted in the purchase of a motorized cutting machine valued at 500,000 FCFA.

Following the acquisition of this equipment, IICEM provided 3-day training for 30 UCAMHO member producers aimed at strengthening participants' skills in modern shallot processing techniques. More precisely, this training enabled producers to:

- Operate shallot processing equipment;
- Perform maintenance and upkeep of processing;
- Determine processing costs;
- Learn about hygiene regulations for dried shallot processing.

The introduction of this motorized cutting machine in Lac Horo, enabled UCAMHO to process 400 kilograms of fresh shallots, purchased at 75 FCFA per kilogram, into dried shallots (EST) which were later sold at the SIAGRI 2008 fair for 1,500 FCFA per kilogram.

## **IR 5: ENHANCED TRADE AND INVESTMENT ENABLING ENVIRONMENT**

In February 2008, IICEM organized a workshop which brought together all actors in the shallot value chain of the Dogon Plateau. Following this event, organizational assessments of the Local Shallot Farmers and Processors Union (ULPTE), FAC-GEST, and PDCo were conducted (July 2008). It was concluded that a major restructuring of these three target organizations was necessary, a task which could be accomplished by the establishment of an umbrella organization that would advocate for the interests of men and women farmers in the area.

Clarification of each organization's role would increase the support for shallot-related activities in the Dogon Plateau. In the end, the shallot industry can continue to grow. Today, shallot production is the leading source of income in the Dogon Plateau.

Based on the assessments, IICEM made the following recommendations:

- Restructure the Local Shallot Farmers and Processors Union and FAC-GEST organization;
- Supervise restructuring, validate changes, and promote development of the shallot industry;
- Provide support and assist in capacity building for the restructured union;
- Involve PDCo (partner NGO) in the restructuring process while determining its role and responsibilities in regard to ULPTE.

## **THE IMPACT OF ACTIVITIES ON THE SHALLOT VALUE CHAIN**

Four cooperative members of ULPTE and FAC-GEST farmers commercialized 759 tons of fresh shallots valued at 125 million FCFA with IICEM's help. The introduction of the motorized shallot cutter in the Lac Horo zone in Tombouctou enabled UCAMHO to buy 400 kilograms of fresh shallots at 75 FCFA per kilogram, which were then processed into EST. 120 kilograms of this EST was sold at SIAGRI 2008 fair for 1,500 FCFA per kilogram.

# THE TOMATO VALUE CHAIN

The tomato industry, throughout the entire sub-region, has been very unstable over the last 20 years. Two major challenges in Mali have caused these difficulties, namely: (1) the shut down of a tomato paste factory in the 1960s and (2) the decline in production due to the *Yellow Leaf Tomato Virus*. In IICEM's target area, Baguinéda, production has declined significantly and tomatoes, once produced over 200 hectares of farmland in 1996, are now only produced on 100 hectares.

## IR I: INCREASED AGRICULTURAL SECTOR PRODUCTIVITY

Before IICEM, USAID/Mali, IER and OPIB established a partnership aimed at finding a solution through research studies for the fight against the tomato virus. They identified an Integrated Pest Management (IPM) technique including the observation of a Host-Free Period in addition to the use of hybrid tomato varieties less susceptible to disease. This solution provided hope for the boost in tomato production.

IICEM established a tri-party partnership between IICEM, OPIB, and IER to disseminate the results of this four year research project. This partnership enabled IICEM to provide production support to all 22 villages in the Baguinéda zone. The Integrated Pest Management (IPM) technique was implemented in several stages:

- Diffusion of information on the tomato virus and IPM techniques through local and national radio and television stations;
- Training of the technical support team from OPIB and other technical institutions;
- Establishment of surveillance teams in the 22 Baguinéda villages;
- Monitoring and evaluation of the program by implicated parties was carried out;
- Distribution of seeds of tomato varieties which are resistant or tolerant to the tomato virus.

IICEM also established a strategic relationship between tomato producers and the seed vendor in order to create a sustainable supply system that will make the improved seeds, a critical element of IPM, available in future seasons. IICEM also provided virus-tolerant or resistant seeds to over 400 producers, in order to increase the familiarity of these specific seeds among producers. Along with the seeds IICEM funded demonstrations on best nursery management techniques and plot monitoring in the 22 villages by the OPIB, IER and AVRDC technical teams.

Finally, the 4 partner villages involved in IICEM-led activities, Mofa, Tieman, Kokoun, and Kogniba, benefited from several other training sessions which will be presented in detail later in this report.

## **IR 2: IMPROVED COMMERCIALIZATION OF AGRICULTURAL COMMODITIES**

Little support has been provided to the tomato industry over the last ten years and the commercialization systems are informal making it difficult to measure its size. IICEM, therefore, conducted a tomato market study was conducted in order to gain in-depth knowledge of commercialization and to assess the potential for tomato processing. IICEM also began identifying possible niche markets through contacts with mining and petroleum companies.

Currently, the Baguinéda tomato producers have very limited options for adding value to tomato production. IICEM also conducted a study to examine whether alternative options exist for tomato producers in the Baguinéda Irrigated Zone. The study looked at four options for adding value: (1) the production of tomato paste on an industrial scale; (2) production of handmade tomato sauce; (3) production of dried tomatoes; and (4) the production of sun-dried tomatoes. Of all options, the production of industrial-scale tomato paste would have the greatest impact on the tomato value chain, but may be the least viable economically. The study revealed production of dried tomatoes, whether using industrial or sun drying techniques, to be more viable in the short term.

Efforts to develop niche markets led to a strategic alliance between mining and petroleum companies and Malian company IB Négoce. This Malian company is now in the process of establishing a contract which would designate it as the supplier of tomatoes to most of the oil companies in northern Mali. Currently, nearly two tons of fresh tomatoes are delivered each month. As for the hotel markets, MultiChem is the supplier of the large hotels and a few mining companies. These two companies dominate the arena, supplying between 10 to 20 tons of fruits and vegetables monthly to niche markets.

In order to more fully exploit these opportunities, Malian producers will have to make significant progress on organizing production. Various surveys reveal that most farmers are unable to produce large volumes of crops demanded by certain niche markets. For example, a producer that has 0.5 hectares can produce about 10 tons of tomatoes. Even with an exclusive arrangement with MultiChem, producers would not be capable of delivering all production. This will be a possible focus for IICEM activities in year 2.

## **IR 5: ENHANCED TRADE AND INVESTMENT ENABLING ENVIRONMENT**

### **Consultation for Vegetable Seed Distribution in Mali**

On June 12, 2008, IICEM participated in a conference to brainstorm about existing problems in the distribution of vegetable seeds in Mali. After discussions, IICEM offered recommendations to the Malian government and seed manufacturing association. IICEM agents focused on a one major constraint related to the VAT tax on imported seeds in particular. These seeds are taxed at 18% of the purchase price, taxed by the customs department, and finally distributors apply taxes on

sales of seeds again. Neighboring countries, who have very relaxed policies on enforcing the community tax code, do not tax seeds. As a result, traders from Burkina Faso enter Mali and engage in unfair competition against Malian seed manufacturers. Since these seeds are outside the official system, they are not controlled or regulated, and Malian authorities cannot guarantee the quality of these seeds.

In year 2, IICEM will collaborate with Malian seed manufacturing associations to enable them to participate in advocacy activities with authorities. In order to carry out Mali's commitments to attain 7% of GDP from the agricultural sector, the VAT must be eliminated. The VAT prevents investments and discourages the use of best agricultural technologies. Mali's VAT policies need to be aligned with policies of neighboring countries.

## **THE IMPACT OF ACTIVITIES ON THE TOMATO VALUE CHAIN**

Activities carried out, particularly the Host-Free Period technique and distribution of hybrid varieties of tolerant seeds, contributed to the regaining of hope by tomato producers in the Baguinéda zone, encouraging them to continue production rather than abandoning it due to the harmful white flies. The success of these IPM activities has sparked interest among other tomato production zones, namely Kati, Niono, Sélingué et Yanfolila.

# PRESENTATION OF CROSSCUTTING ACTIVITIES

## Gender Workshops at the Local Level

In addition to the consultative processes with the private sector and producer organizations, IICEM raised awareness among partner women's groups about the opportunities and benefits of formalized associations and cooperatives. Staff have adapted this approach to the social norms in the different areas of Mali. For instance in the North, activities undertaken by women often require the consent of the male heads of household. Therefore, IICEM's approach is to equip women with the tools to discuss with their husbands the advantages that arise when women too can participate in income-generating activities. To achieve this objective, IICEM provided training in leadership, empowerment, and negotiation techniques. These topics aim to encourage women to grasp opportunities for economic activities. In total, IICEM trained 176 women and 114 men. Training will continue throughout year 2 in order to reach all partner women's groups.

## Other Activities

IICEM-led activities aimed at improving the environment for trade and investments included:

- Technical assistance provided to URCEP members in order to properly carry out shipping procedures for potatoes headed to sub-regional markets;
- Training offered to four potato trader organizations for negotiating sales contracts in compliance with administrative procedures. This was necessary for the commercialization of raw products in the WAEMU and ECOWAS zones.
- Trainings provided to several producer organizations, cooperatives, businesses, and traders in basic business accounting, encouraging partners to operate within the formal economy.

# IICEM'S IMPACT ON POVERTY REDUCTION WITHIN HOUSEHOLDS

IICEM-led activities touched 1,587 households in the Sikasso, Koulikoro, and Bamako regions, in addition to 2,129 households in the regions of Mopti, Tombouctou, and Gao, totaling 3,716 households assisted during the 2007-2008 farming season.

IICEM was able to reach such a large number of beneficiaries due to its participative approach, assisting farmers through partnerships with unions and cooperatives in addition to providing support to various other actors in each value chain.

# PREVIEW OF YEAR 2

## DIFFICULTIES IN YEAR I

IICEM faced several difficulties during its first year of implementation, which may be attributed to the poor organization of farmers and other actors in the various value chains.

Within the rice value chain, PIV producers face numerous challenges in the regions of Mopti, Tombouctou, and Gao. PIVs are divided among large numbers of farmers, resulting in the distribution of small farming plots to each individual. Low volumes of crops produced by farmers are insufficient to cover both subsistence and commercialization. Therefore, farming becomes a subsistence activity rather than an income-generating one, with no profits for production investment or repair and replacement of motorized pumps. Efforts to increase productivity are needed in order to allow farmers to build marketing surpluses and improve conditions.

Difficulties within the potato value chain include the failure of buyers in the Ivory Coast to pay Malian operators for deliveries. The absence of formal, fixed contracts between parties often result in these types of problems. In addition, the lack of sales and delivery organization among actors in Mali's potato value chain prevent Ivoirian wholesalers from entering into purchase contracts with Malian operators. This poor organization is also demonstrated by the failure of actors to reimburse over 300 million FCFA debts owed to financial institutions. IICEM's initiative to assist only credible producers and traders aims to bring about change in the traditional behavior of non-payment of loans.

Challenges found in the shallot value chain are related to institutional organization. The ULPTE union and FAC-GEST federation were largely nonfunctional due to confusion of roles and poor internal organization. Partly as a result shallot commercialization remains very informal. Without proper coordination among Dogon Plateau stakeholders, increasing shallot productivity and competitiveness will be a difficult task.

Progress in the mango value chain has been continuous over the past few years. Despite PLAZA's successful mango season in 2008, significant organizational challenges still exist. Support from development projects, Integrated Framework, PCDA, and IICEM, enabled PLAZA to overcome its shortfalls during the 2008 season, however, this is not a sustainable method for assuring PLAZA's future successes.

Difficulties in the tomato value chain revolve around getting farmers invested in improving production techniques. IICEM's success in spreading IPM was primarily due to the concerted efforts of the Ministry of Agriculture, OPIB, and IICEM, rather than initiatives of tomato farmers themselves. In addition, studies revealed that because the Bamako markets can absorb all of the tomato produced in the region, farmers are relatively less motivated to undertake formalized marketing activities.

## **CHALLENGES TO OVERCOME IN YEAR 2**

### **Rice**

The major challenge in the rice value chain to overcome in year 2 will be strengthening partnerships established during year 1 and the development of new partnerships with various producer organizations is necessary. Other ongoing challenges include continuing support in irrigation including rehabilitating canals and accessing motorized pumps for proper water management, continuing promotion of improved seeds, ensuring the adoption of soil fertility management techniques, facilitating access to financial services, and finding support for the commercialization of large quantities of crops. IICEM will also introduce new production techniques, such as the rice intensification system (SRI) promoted by the Cornell International Institute for Food.

### **Potatoes**

During year 2, IICEM will focus on developing the network of potato value chain actors which was initiated in year 1. A major challenge will be transforming this emerging concept of a potato value chain driven by cooperation into a fully functioning system. This will require IICEM's support for organizations like the Society for a Common Agricultural Interest (SICA) in addition to its traditional partner, URCEP. IICEM will provide support to this network as well as to umbrella producer and trader organizations in order to encourage collaborative relations among the various potato value chain actors. As IICEM and its partners work together to overcome these organizational constraints, especially constraints to commercialization, they will be in a position to achieve IICEM's ambitious goals for commercialization in 2008-2009.

### **Mangoes**

A challenge in the mango value chain for IICEM will be assuring continued funding of pisteurs and exporters by partner financial institutions in year 2. This will enable further growth in domestic sales as well as sub-regional and international exports. Another significant challenge will be transferring effective management skills to Malians in order to successfully manage intense PLAZA activities during the peak harvesting and packing season. This is a major risk since operators continue to resist the creation of a network among the various actors in the mango value chain. Establishing basic cooperation will be critical to encouraging Malian mango exporters to assume responsibility over the PLAZA facility.

### **Shallots**

Activities initiated by IICEM during year 1 encouraged organizational change within a few Dogon Plateau organizations, which actors have sought for more than 10 years. IICEM will oversee the development and validation of a new organizational plan and provide assistance on collective marketing that will create a more positive and professional dynamic in the value chain and raise incomes for producers. IICEM, however, will not take the place of producer and umbrella organizations. Instead, these organizations must invest time in and carry out reforms for the

development of this value chain. The major challenge IICEM and its partners face is to build this commitment among the existing organizations. IICEM's level of success in building this commitment will, in many ways, determine the likelihood for success in developing the value chain for years to come.

## **Tomatoes**

IICEM-led activities in 2007-2008 created a newfound hope for tomato production and the value chain in general around Baguinéda, building widespread interest among actors. In addition, IICEM activities are no longer managed by a select group of individuals, rather, OPIB agents have recovered their responsibilities and are actively involved in this program.

Despite this important progress in tomato production, processing and commercialization still remain challenges. IICEM's year two activities will focus on monitoring IPM activities and evaluating hybrid seed results. In addition, IICEM staff will collect and disseminate market data on prices potential markets and other areas, which will facilitate more effective commercialization. Staff will also consider what effect increased yields will have on supply and therefore on selling prices. IICEM is also planning to support the development of a market infrastructure in the Baguinéda area as well as providing assistance to test sun-dried tomatoes in order to support producers in finding higher value added outlets for their products.

# ANNEX

**Table 17: Rehabilitation Works**

REGION	PIV NAME	TYPE OF REHABILITATION	RESULTS
<b>Mopti</b>	Kamaka women's PIV	Expansion	30% of the apron dike was built in the 4-ha expansion
	Kamaka men's PIV	Resurfacing	Of the 200 m planned for the 2008 farming season, 214 m were resurfaced
	Touara women's PIV	Resurfacing	346.54 m of a total of 450 m of the main canal were resurfaced
<b>Tombouctou</b>	Bourem Inaly men's PIV	Resurfacing	970 m (two canals) were completely resurfaced
	Kessoubibi PIV	Resurfacing	600 m of the main canal were resurfaced
<b>Gao</b>	Adourourou	Resurfacing and expansion	Of the 340 m of canals, 195 m were resurfaced (main canal) in addition to 19 m (secondary canal). 8 ha were created due to the expansion.
	Ucutoha	Resurfacing	Of the 220 m of the secondary canal, 145 m were resurfaced and 20 m of sill were created
	Farawtangam	Resurfacing and development	Of 1,177 m of apron dikes, 1,100 m were built and 135 m were resurfaced in the main canal
	Gourma Foghas	Resurfacing and expansion	All of the 464 m of the main canal were resurfaced and 100 m of mud canals were built in the expansion

**Table 18: ACTIVITIES AND NRM SITES**

No.	Name	Region	Commune	Village	Site	Target areas (ha)	Comments
1	Project to build forest strips and implement fish farming in the irrigation canals	Sikasso	Nièna	Nièna	Women's rice-growing plain	130	Fish farming is practiced in the canals that IICEM built (200m <sup>2</sup> included in the 130 ha)
2	Windbreak and live fencing construction project	Mopti	Dandougou Fakala	Touara	Men's and women's PIVs	26.2	
3	Windbreak construction project		Kounari	Kamaka	VRES PIV	24.6	
4	Rehabilitation project for deteriorated soil		Bandiagara	Anakanda		2	For shallot production by the women's cooperative
5	Rehabilitation project for deteriorated soil			Golgou		2	For shallot production by the women's cooperative
6	Agreement for the protection of the Bouberewol (Djenekila) forest	Mopti	Kounari, Borodougou	Kamaka, Kanguila, Komio	Bouberewol or Djenekila forest	110	The agreement was adopted in special session by the Council of the Circle of Mopti. It is in the mayor's office for signature
7	Agreement for the protection of the Dogofing forest		Kounari	Saré-Bambara	Dogofing forest	40	The agreement was approved
8	Windbreak and stone contour lines construction project	Tombouctou	Tonka	Guindigata, Bototo	Lac Horo	100	Immediate impact on 100 hectares of the potential 900 hectares
9	Live fencing construction project		Tonka	Guindigata	Market perimeter of the Fafadoboye women's	1	

					cooperative		
<b>10</b>	Sand dune stabilization project	Gao	Taboye	Tondibi	Farawtangam PIV	26.6	
<b>11</b>	Grafted Ziziphus planting project				Gamahaw market perimeter	2	
<b>TOTAL</b>						<b>466.4</b>	

## GENDER ACTIVITIES BY VALUE CHAIN

Number of women's organizations/associations assisted						
NGO	Region	Value Chain	Organization	Village	Nature of assistance	Number of members
PEENAL	Mopti	Rice	Sté coop Nyèta femmes Touara	Touara	Technical; Financial; and Material	64
PEENAL	Mopti	Rice	Sté coop agricole femmes Kamaka	Kamaka	Technical Assistance	31
GREFA	Sikasso	Rice	(COFRN)	Niena	Advisory support: production and marketing	347
GREFA	Sikasso	Rice	Coop femmes de Loutana	Loutana	Advisory support: production and marketing	300
GREFA	Sikasso	Rice	Coop femmes de M'Pegnesso	M'Pegnesso	Advisory support: production and marketing	100
GREFA	Sikasso	Rice	Coop femmes de Nantoumana	Nantoumana	Advisory support: production and marketing	150
GREFA	Sikasso	Rice/ Potato	Coop femmes de Bamadougo	Bamadougo	Advisory support: production and marketing	44
GREFA	Sikasso	Rice/ Potato	Sinignésigi	Sikasso	Marketing support	15
PDCO	Mopti (Bandiagara)	Shallot	Coop Yangiribolo Tumo	Dandoly	Production; Processing; and Marketing	150
PDCO	Mopti (Bandiagara)	Shallot	Coop Yassegrema	Golgou	Production; Processing; and Marketing	153
PDCO	Mopti (Bandiagara)	Shallot	Coop des Femmes d'Anakanda	Anakanda	Production; Processing; and Marketing	200
CONFIGES	Gao	Rice/ Potato	Ass féminine Gamahaw	Tondibi	Production and Marketing Training	30
CONFIGES	Gao	Potato	Coop femmes maraicheres	Djidara	Production and Marketing Training	33
CONFIGES	Gao	Rice/ Potato	Coop Hinnidoboye Zkoine	Ansongo	Production and Marketing Training	38
CONFIGES	Gao	Rice/ Potato	Coop Gakussineye	Ansongo	Production and Marketing Training	25
CONFIGES	Gao	Potato	Ass féminine Banifonda	Gourma	Production and Marketing Training	20
CONFIGES	Gao	Potato	Ass féminine Ania Baria	<del>Ecolma</del>	Production and Marketing Training	20
CONFIGES	Gao	Potato	Ass féminine Alahidou	<del>Ecolma</del>	Production and Marketing Training	20
RCGOP	Tombouctou	Rice	Coop Nafagoumo	<del>Kabara</del>	Agricultural Advising and NRM	67
RCGOP	Tombouctou	Rice/Potato/Shallot	Ass femmes Fafadoboye	Guindigata	Agricultural advising, Complex Set-up, Financial support, Gender and GIFS/GIC training	205
RCGOP	Tombouctou	Rice	Ass Yar Yadda	Iloua	Agricultural Advising and Gender Training	24
RCGOP	Tombouctou	Rice	Ass Souba Nafa	Iloua	Agricultural Advising and Gender Training	35
RCGOP	Tombouctou	Rice/ Potato	Ass Naneye (d'Iloua)	Iloua	Agricultural Advising and Gender Training	25
RCGOP	Tombouctou	Rice/ Potato	Ass Alafia	Bourem Inaly	Agricultural Advising and Gender Training	112
RCGOP	Tombouctou	Rice/ Potato	Ass Yer Yadda	Bourem Inaly	Agricultural Advising and Gender Training	40
RCGOP	Tombouctou	Rice/ Potato	Ass l'An	Bourem Inaly	Agricultural Advising and Gender Training	30
RCGOP	Tombouctou	Rice/ Potato	Ass Naneye (de Bourem Inaly)	Bourem Inaly	Agricultural Advising and Complex Set-Up	20
RCGOP	Tombouctou	Rice/Potato/Shallot	Ass femmes Jiguissèmè	Tonka	Financial Support	30
<b>Actual Number</b>				<b>28</b>		

# SUCCESS STORIES