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INCREASING RURAL INCOMES AND IMPROVING FOOD SECURITY THROUGH INTEGRATED INITIATIVES FOR ECONOMIC GROWTH IN MALI (IICEM)

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ACRONYMS

ANSSA	National Agency of Food Safety and Hygiene
ARPASO	Agricultural Producers and Rice Farmers Association in Western San
AVPA	Association of Agricultural Product Vendors
BEACIL	Research and Technical Assistance Bureau for Local Initiatives
CEFIB	Center for Training and Research in Information Technology and Business
CRRA	Regional Center for Agronomic Research
CRSP	Collaborative Research Support Program
DAO	Call for Proposals
DNEF	National Forestry Service
DRA	Regional Direction of Agriculture
DRP	Regional Direction of Fisheries
E-ATP	Expanded Agribusiness and Trade Promotion, a USAID regional program
FCFA	*Francs de la Communauté Financière Africaine*
FAMSOUDOUF	*Ferme Agricole des Moribabougou*
GIE RCGOP	Economic Interest Group, Consultancy Network in Farmer Organization Management
GIS	Geographic Information System
GREFA	Group for Agricultural Research, Surveys and Training
GRN	Natural Resource Management
HFP	Host-Free Period
HIMO	High-Intensity Labor Teams
IER	Institute of Rural Economy
IF	Fund for Innovative Agribusinesses
IICEM	Integrated Initiatives for Economic Growth in Mali
INTSORMIL	International Sorghum and Millet CRSP
IPM	Integrated Pest Management
LOA	Law on the Orientation of Agriculture
M	Million
MT	Metric Ton
NGO	Non-Governmental Organization
NRM	Natural Resource Management
ODRS	Sélingué Rural Development Office
OHVN	Office of the Upper Valley of Niger
OMA	Observatory of Agricultural Markets
ORM	*Office Riz du Mopti*
OP	Producer/Farmer Organization
OPIB	Office of Baguinéda Irrigated Perimeter
PDCO	Community Development Program
PIV	Irrigated Village Perimeter
RIFAB	*Rizerie et Fabrique d'Aliments Bétail*
SAF	Strategic Activities Fund
SICA	Agricultural Collective Interest Company
SRI	System of Rice Intensification
TOT	Training-of-Trainers
UCAMHO	Union of Agricultural and Gardening Cooperatives of Horo
UCUTOHA	Tondibi and Ha Cooperative Union
UNCTAD	United Nations Conference on Trade and Development
URCEP	Potato Traders' and Exporters' Regional Union
USAID	United States Agency for International Development
USG	United States Government
WASA	West Africa Seed Alliance, a USAID regional program
YAGTU	*Yam Giribolo Tumu* (a Bandiagara-based NGO)

INTRODUCTION

Integrated Initiatives for Economic Growth in Mali (IICEM) is the USAID/Mali mission's flagship economic growth program, which spurs economic expansion to increase rural income and improve food security through increased productivity and trade in basic cereals and horticultural crops. IICEM is implemented by Abt Associates, Inc. as prime contractor, in partnership with CARANA Corporation, Sheladia Associates, Inc., ACDI/VOCA, two regional agricultural services offices, and six local implementing partner organizations (GREFA, PEENAL, CONFIGES, RCGOP, NGO AIID, and NGO BEACIL). In the past year, these partners worked in concert to orchestrate activities with over 500 Malian associations, public structures and private companies, including farmer organizations and unions, national government services and institutions, businesses, banks, input suppliers, and business development service providers.

The objectives of the IICEM program are closely aligned to the Feed the Future (FTF) strategy emerging from the President's Global Hunger and Food Security Initiative (GHFSI). Feed the Future emphasizes a commitment to tackle "the root causes of global hunger by increasing agricultural productivity and facilitating efficient market systems to meet the demand for food, increasing incomes so the poor can purchase food, and improving health and nutritional practices to reduce under-nutrition."

To better align with the newly adopted FTF strategy for Mali, program leadership and USAID/Mali modified program activities mid-year to: (1) continue to expand IICEM's focus on the key cereals sectors of millet/sorghum and rice, with limited work in maize to respond to demand of IICEM's partner traders and processors; (2) gradually phase out activities related to potato, tomato, shallot, mango and tiger nut sectors as of the end of the August 2011; 3) pursue limited activities related to horticultural products and aquaculture to diversify agricultural-based revenue for targeted cereal farming communities and improve the availability of nutritional foods in their communities; and 4) reduce IICEM's regions of intervention from 7 to 3 (Sikasso, Mopti, and Timbuktu).

IICEM employs a value chain approach as it pursues the following five core tasks: 1) improving production and productivity via expansion/rehabilitation of irrigated agriculture as well as intensification and diversification; 2) enhancing financial services; 3) increasing access to markets and trade, and improving commercialization of targeted products; 4) supporting an enabling environment for agriculture, trade and private sector development; and 5) stimulating entrepreneurship through a strategic activity fund, small business development and grants. Cutting across all of these core tasks are activities to assure more gender-equitable opportunities in value chain development and a theme of helping communities better adapt to the negative effects of climate change and variability.

Abt Associates manages offices in Bamako, Sikasso, and Sévaré to implement national- and regional-level activities, that in the course of the year managed activities in the regions of Sikasso, Mopti, Timbuktu, Gao, Ségou, Koulikoro, and Kayes, as well as the District of Bamako (phased down to Mopti, Timbuktu and Gao by year end). This annual report describes program achievements in these locations from September 1, 2011 to August 31, 2011. It follows the organization recommended by the USAID/Mali Accelerated Economic Growth office, with activity progress organized by component, or project task areas, as listed above.

EXECUTIVE SUMMARY

The Integrated Initiatives for Economic Growth in Mali program (IICEM) made significant strides this year to increase rural farmer incomes. Since starting up in January 2010, the second phase of the IICEM program and its implementing partner NGOs have increased the number of partner farmer organizations, unions, and community-based organizations working with the program from 162 as of August 2009 to 442 as of August 2011, representing 28,076 men and 10,041 women. The volume of purchases from smallholder farmers increased 80% this year over last year from 24,536 tons to 51,211 tons by August 2011, valued at $14.7M.

Regarding gross margins, which are a high-level impact indicator, the program continued increasing gross margins significantly, particularly for the key cereal crops. Since the baseline at program start-up, gross margins for lowland rice in Sikasso have increased by 69%, from 129,649 to 218,649 FCFA/ha. Gross margins for millet/sorghum increased by 244% during the same period from 61,000 to 209,781 FCFA/ha. These increases were achieved mostly by increasing farmer productivity, in the case of millet sorghum by doubling production rates with new seed varieties and appropriate use of fertilizers.

Significant accomplishments during the year also include:

- Scaling up cereals production by IICEM-assisted farmer organizations from 24,280 MT in 2010 to 42,178 MT in 2011;
- Successful, broad-scale implementation of purchase contracts between cereal producer organizations and traders/processors; and between traders and wholesale buyers, that elaborate quantity and quality specifications, restructure supply chains to better respond to raw material markets, and serve as mechanisms to improve value added opportunity and access to finance for various value chain actors;
- Establishment of 3 mini rice mills in the Mopti region that are significantly transforming the way farmers organize to supply markets;
- Reoriented local implementing partners and shifted program direction to better align with USAID/Mali's Feed the Future strategy and to strengthen field-level implementation of the market-based vision.

Beyond the direct economic impact of increasing the incomes of rural farmers, success stories have emerged this year illustrating secondary impact of IICEM's economic achievements on health and education. For example, in Finkolo-Ganadougou, increased income and increased local availability of nutritive ingredients as a result of IICEM's rice farming and vegetable gardening activities enabled women to prepare fortified meals at home to improve the health of their children. In Bagui, where IICEM introduced potato farming to the Benkadi women's cooperative, women have opted to spend their profits on farming inputs for the next season as well as birth certificates for 10 girls and 10 boys. The birth certificates are prerequisites for enrolling the children in school for the first time.

IMPROVING PRODUCTION AND PRODUCTIVITY

A significant result of the production and productivity component has been the scaling up of millet and sorghum production from zero hectares during the baseline year (as of August 2009) to 2,900 ha by August 2010, and to almost 11,000 ha by the end of August 2011. Scaling up this year was bolstered by availability of select seed assured by the USAID-funded INTSORMIL Collaborative Research Support Program.

As part of activities to extend and rehabilitate irrigated agriculture in support of rice production, IICEM supervised village-based high-intensity labor teams in the Gao region, which re-lined and/or extended a total of 6.7 km of irrigation canal networks at 11 Irrigated Village Perimeter (PIV) sites,

thus improving irrigated agriculture on 313.2 ha. Working with private enterprises on work which involved more complex engineering expertise, IICEM extended PIVs in Kouin, Barammandougou and Kouana, thereby improving agricultural infrastructure for 360 rice farmers on 90 managed hectares. IICEM also made small improvements to irrigation canals in six sites in Timbuktu and three barrages installed in the South last year.

To diversify revenues and increase availability of nutritional foods in IICEM partner communities, the program promoted improved fish farming management practices and promoted the adoption of integrated rice-fish farming. The aquaculture component made three new management practices available for transfer to producers, and directly benefitted two agricultural firms. The program also managed demonstration sites in both the North and South that proved that 1) the improved management practices promoted by IICEM, when properly managed, increase fish productivity and weights in a number of different environments; and 2) integrated rice-fish farming activities improve rice harvests in Mali, even beyond average increases specified in available literature.

Working in collaboration with the AquaFish Collaborative Research Support Program (CRSP), IICEM strengthened the capacity of nine extension agents from the government, an NGO, and a private company who provide support services to local farmers in the program's work zones. IICEM also provided technical assistance to the Tanima fish food production and hatchery facility in the Baguineda area in support of its business start-up which is targeted for support through IICEM's Agribusiness Innovation Fund (FAEI).

Supporting the productivity component, IICEMs natural resource management (NRM) activities helped facilitate signature of 20 local community-based natural resource management agreements, and trained 309 people in improved natural resource management practices - surpassing targets for both. This year, IICEM's production and NRM activities have helped 14,531 people increase their adaptive capacity to cope with the negative effects of climate change. This includes the total number of farmers and other villagers who:

- Benefitted from improved water harvesting and management, with the small dams constructed by IICEM to slow surface water run-off and make water more available for rice and vegetable farming;
- Adopted the SRI technology, which uses less water and seed and improves soil quality;
- Planted improved seed better suited for Mali's climate; and
- Improved on-farm soil management;
- Led reforestation efforts, including greenbelt tree planting;
- More sustainably manage forest and water resources through the establishment of local natural resource community management agreements to assure local protection and sustainable harvest of natural resources at the village level.

ENHANCING FINANCIAL SERVICES

This quarter, IICEM facilitated 163 loans totaling 1.1 billion (B) FCFA. Of this amount, 120 loans totaling 363M FCFA were backed by the loan guarantee funds at BNDA and Kafo Jiginew. This financing largely supported input financing for farmer organizations, but also supported input financing for cereals, tiger nut, and mango processors and for wholesale traders. Members of eight women's producer and trader organizations benefitted from 32.2M FCFA in financing backed by the loan guarantee fund. This brings the total amount of loans facilitated by partner financial institutions since project start-up in January 2010 to 278 loans valued at 1.845B FCFA (about $3.9M).

INCREASING ACCESS TO MARKETS AND TRADE AND IMPROVING COMMERCIALIZATION

IICEM's 2010-2011 programs focused on the development of market linkages, targeting the development of commercial relations between rice producers and rice millers in Mopti, and between

millet/sorghum producers and five major millet-sorghum traders in Mopti, Sikasso and Ségou, requiring that IICEM coordinate activities with over 300 producer, trade and business, and community-based organizations.

During this reporting period, the production from cooperating producer groups increased from 38,000 MT to 87,585 MT, providing a substantial increase in the quantity of commercial products, ranging from 20 - 60% of production, depending on the value chain. This accounts for the 82% increase in smallholder sales growth (from 28,510 MT to 51,211 MT) recorded for the period compared to 2009-2010. However, the program experienced a shortfall in targeted sales data attributed to IICEM-assisted partners due to the elimination of several high-value value chains, such as shallots, and the significant decrease in raw material purchases due to changes in the enterprise development strategy of certain agribusiness partners, such as COMAFRUIT.

Some of the most significant results this year include: (1) achieving gross margin targets in every value chain except for millet/sorghum, though millet/sorghum yields more than doubled from the baseline[1]; (2) increasing the value of commodity purchases from smallholders (the national market) by 71% compared to last year (20,466 MT last year, compared to 34,975 MT this year); (3) facilitating the adoption of new technologies and practices by over 11,000 farmers and processors in the last two years to help them meet quantity and quality requirements of targeted markets and thereby boost revenues; (4) generating 2,400 MT of commercial products through the adoption of new technologies; and (5) consolidating/storing approximately 5,800 MT of targeted products in warehouses built by IICEM, for future sale at better prices.

SUPPORTING AN ENABLING ENVIRONMENT FOR AGRICULTURE, TRADE, AND PRIVATE SECTOR DEVELOPMENT

This year was significant for the program's enabling environment component, as months of preparation and facilitation culminated in the first-ever cross-border trade conference for the Bamako-Dakar corridor, attended by the prime misters of Mali and Sénégal. Preparation for the conference initiated two key public-private sector consultative processes and an analysis of regulations, rules and procedures pertaining particularly to road governance and cereals trade.

Altogether, IICEM staff and implementing partners facilitated two consultative processes between the government and representatives of the private sector as well as four other consultative processes between the private sector and other actors such as the banks; trained 1,105 people, (including 394 women) in topics to support a more enabling environment for agriculture (primarily to better understand the law as a basis for lobbying for their best interests); and analyzed three policies, regulations, or administrative procedures.

IICEM also led the development of a revised procedure for seed certification in collaboration with specialists from the Malian Investment Promotion Agency, and the Institute of Rural Economy in order to make farmer-based seed certification more achievable for farmers. The new procedure has been submitted to the Ministry of Agriculture for official adoption.

STIMULATING ENTREPRENEURSHIP THROUGH A SPECIAL ACTIVITIES FUND (SAF), SMALL BUSINESS DEVELOPMENT, AND GRANTS

The financial services and business development specialists continued to coach and mentor serious-minded investors in business plan development and investment finance for start-up and expansion as

[1] The target for 2010-2011 was not weighted for the significant difference in forecasted millet and sorghum yields, and IICEM's zones contained a preponderance of hectares devoted to sorghum compared to millet.

well as in financial management following best practices. The program's Special Activities Fund (SAF) targeted five promising businesses. While a lack of renewed obligated funding as budgeted stalled full investment in, and achievement of, business plans for four targeted businesses, one investment did advance in the course of the year. The *Rizerie et Fabrique d'Aliments Bétail* (RIFAB), which is in the final stages of establishing operations, will not only be a focal point for IICEM's efforts to better organize cereals value chains, but will be the first livestock feed production business in Mopti, an area well known for livestock production. When this SAF investment is completed, RIFAB will have a production capacity of 2,000 MT of rice for human consumption and 3,000 MT of animal feed, and will create 20 new jobs.

Over 30 business operators applied for IICEM assistance following a series of public meetings to promote the Agribusiness Innovation Fund (FAEI). Of these, only four candidates met the required criteria, including a significant portion of self-financing, and continue as interesting investments for the program to facilitate. As with the SAF investments, at the end of the reporting period further assistance was on hold pending an increase in obligated funding.

IICEM's activities to stimulate entrepreneurship have predominantly benefitted women, as 3 of 4 enterprises assisted by the FAEI are women-owned; 501 of 545 micro-entrepreneurs trained in Making Cents' *MicroEnterprise Fundamentals* training are women and the accompanying training-of-trainers increased business development services provided by three institutions supporting women micro-entrepreneurs; at least three of ten businesses in the e-commerce training are women-owned; and the cereals storage facility constructed in Kayes will increase revenues for women belonging to 30 commercialization and processing associations in the area.

PROMOTING GENDER-EQUITABLE OPPORTUNITY IN VALUE CHAIN DEVELOPMENT

This year, in taking a more thoughtful approach to IICEM's activities to assure more gender-equitable value chain development, a core activity involved gender analysis for cereals value chains, starting with millet and sorghum. The gender analysis and research particularly inform the value chain development plans for millet/sorghum and rice.

Responding to gender-based constraints identified in the lowland rice sector, IICEM's work this year supported increased production of women's rice organizations from 569 MT of paddy last year to 3,871MT this year. With the few small dams constructed with IICEM assistance over the past year and a half, 2,634 women in eight organizations cultivated rice on 2,255 ha of lowlands this year, up from 422 ha the year before. Stemming from this production, these women commercialized 3,085 MT of rice. This includes 317 MT of polished, white rice in their first year of processing paddy, which added a premium of 150,000 FCFA per metric ton to the sales price.

In addition, focus group research and individual interviews conducted in villages where IICEM has been working over the past 2-3 years suggest an emergence of an improved role women are playing in the development of their communities, fostered not just by increased income, but an increased capacity to read, write, and express their ideas on the development of their communities. In Dandoly, women shallot producers and processors are proud that they can now afford to provide breakfast for their children before school for the first time ever, saying it makes them feel more valued in the household. Men in Dandoly say IICEM's activities have strengthened social cohesion between men and women, and that they talk more together about household matters.

SYNERGISTIC ACTIVITIES WITH OTHER PARTNERS

IICEM's *modus operandi* is to work through local institutions, NGOs and government partners to implement development activities. Naturally, coordination with the Regional Directions of Agriculture (DRA) in Mopti, Gao, and Sikasso regions have been strong, particularly in implementing IICEM's market-led production strategy for millet in during the 2010 – 2011 agricultural season. Other examples of synergistic partnerships included continued collaboration with the INTSORMIL

CRSP on scaling up improved productivity and processing techniques, particularly in the North where INTSORMIL collaboration provided 6,000 kg of certified millet and sorghum seed to IICEM-assisted producers and allowed for the scaling up of one new technology (use of the *Toroniou* variety with a specific fertilizer regime).

Other notable partnerships during the year included joining forces with the Malian Investment Promotion Agency to streamline regulations pertaining to agribusiness registration and start-up, starting with farmer-based seed certification procedures (the revised seed certification procedure has been submitted to the Ministry of Agriculture for approval); and collaborating with the USAID-funded program Malian Agricultural Value Chain Enhancement Network (MAVEN) to design and deliver a training course in Bougouni to develop a model of fish-pond construction using local materials to resolve percolation issues in sandy soils.

SUCCESS STORIES

In this annual report, IICEM includes a compilation of success stories submitted throughout the year, as well as three new success stories. The first new success story describes the initial impact of the program's activities strengthening linkages between farmer organizations (OP), traders, and commercial processors. Within a matter of months after bringing all partners together to better understand quality requirements of buyers, increasing efficiencies of the supply chain, and introducing formal purchase contracts, IICEM helped Koutiala trader Sidi Badyan Doumbia increase his annual income by more than $15,000.

The second new success story examines IICEM's impact in not only facilitating access to finance for 38 potato farmer and commercialization organizations without backing from a loan guarantee fund, but also explores how the technical assistance created a sustainable new model for supporting profitable loans to the potato sector following four consecutive years of insupportable levels of loan default. And finally, the third new success story submitted in this report features a motivated farmer and entrepreneur in Gao whose business serves as a model of IICEM's integrated approach, having incorporated multiple production, storage, and sales techniques in a number of subsectors.

COMPONENTS AND ANTICIPATED RESULTS

USAID's scope of work for IICEM sets an overarching mandate for the program *to enhance economic growth and rural incomes*. An additional element, following the mandate of the program's main funding agency Feed the Future, is to improve food security, achieved through not only increased incomes but also increased production, productivity and commercialization of key cereals crops.

To realize these objectives, IICEM seeks to improve and expand agriculture and agribusiness and to develop and strengthen post-harvest activities and markets, which includes developing or enhancing the investment necessary for this expansion. Therefore, the project components are results areas which focus on:

- Improving production and productivity;
- Enhancing financial services;
- Increasing access to markets and trade while improving commercialization;
- Supporting an enabling environment for agriculture, trade, and private sector devleopment; and
- Stimulating entrepreneurship using investment instruments and business development skill building.

Assuring women's participation in the broad-scale agriculture-based economic growth that IICEM pursues within this framework is a priority.

To raise agricultural production from subsistence levels to more commercial levels and to boost sustainability of program impact, IICEM implements production activities within a market-driven context at the farmer organization/cooperative/union level more so than on an individual farmer level. Increasing gross margins of these organizations signify that any combination of more efficient production systems, increased productivity and yields, more favorable prices, and increased competitiveness of products in the market has increased profitability of the farming enterprise. Therefore, to best gauge impact of program activities on increasing rural income, IICEM monitors gross margins per hectare of farmer organizations as the highest-level impact indicator of program success.

Volumes and values of purchases and sales on national, sub-regional, and internationals levels are also important impact indicators for IICEM beneficiaries, as sales drive revenue generation for stakeholders all along the value chain, from small-scale producers to processed product providers and exporters.

In the course of the year, IICEM tracked 37 outcome and output indicators disaggregated by value chain, region, sex, and a range of other factors as appropriate for each indicator. The sections below describe each component and the most significant results anticipated. Of note, due to programmatic changes, IICEM is in the process of modifying indicators and targets in collaboration with USAID/Mali to better reflect the current program priorities, which includes an increased focus on cereals crops and no longer addresses horticultural crop value chain development. Targets cited are the current proposed targets in light of these changes.

IMPROVING PRODUCTION AND PRODUCTIVITY

IICEM's component to improve production and productivity has four key elements: rehabilitation and/or expansion of irrigated agriculture; intensification; diversification; and ensuring environmental sustainability through improved natural resources management and biodiversity conservation.

Increasing adoption of new technologies such as higher producing seed varieties that are better suited for Mali's climate, or improved production systems such as the System for Rice Intensification (SRI) is a critical theme supporting all four elements.

In the past year, IICEM sought to continue rehabilitating and expand irrigated agriculture on 850 hectares in 20 sites, 15 sites in the north, and 5 sites in the south. These improvements were paired with activities to promote new technologies and improved production systems for irrigated agriculture. In the north, IICEM focused on relining over 3 kilometers of irrigation canals, while in the south, activities focused more on constructing irrigation infrastructure like small dams to slow the run-off of surface water rendering it more available for agriculture. This work primarily supports increased irrigated rice production and productivity, but also contributes to diversification goals by supporting vegetable gardening in the off-season.

The improved natural resource management and biodiversity conservation initiative includes activities to introduce improved management practices that enhance productivity and sustainability and to facilitate the establishment of local natural resource management agreements to help communities protect, monitor, sustainably profit from, and better manage their natural resources.

Some of the most significant life-of-project targets under this component include:

- Increasing production volumes to levels to support increased commercialization, trebling the volume of millet and rice production purchases from smallholder farmers from 7,900 MT at the end of project Year 1 to 23,000 MT by the end of Project Year 3.
- Increasing the number of additional hectares cultivated using new technologies to 23,500 during life-of-project; and
- Helping partner farmer or community organizations apply improved natural resource management practices on an additional 1,750 ha.

ENHANCING FINANCIAL SERVICES

Activities under this component broaden and diversify financial services to farmers and encourages investment in commercial-scale, sustainable agribusiness along any link in the value chain. Core activities include helping smallholder farmers working in targeted sectors to gain access to agricultural input credit, and improving organizational capacity for unions and cooperatives to monitor loan repayment of its membership.

IICEM facilitates access to finance for agribusinesses and agricultural associations through training and loan monitoring, a loan guarantee, or both. These actions increase the comfort level of financial institutions to issue loans. The overall outcome of this component is increased production levels and sales. An overall specific output unique to this component is to facilitate 450 loans per year valued at over $5M by project end. Of this total, IICEM targets facilitating 400 loans valued at more than $2M under the loan guarantee funds (*Number and value of special fund loans issued)*.

INCREASING ACCESS TO MARKETS AND TRADE; AND IMPROVING COMMERCIALIZATION

This component and the production and productivity component constitute the backbone of the IICEM program. Final markets in which goods or services are sold—on national, sub-regional and international levels—provide opportunities and establish the parameters necessary to ensure economic growth potential. Interventions seek to improve competitiveness of the products produced by project partners, foster success in partner agribusiness investment, and build the skills of partners to tap into existing and new markets.

At the farmer-level of the value chain, some of the most critical interventions involve strengthening business development skills to improve basic farm management, like how to calculate profitable prices that allow for input loan repayment, or the use of scales to package appropriate quantities of

quality product to meet buyer needs. At other points in a value chain, interventions are geared towards helping an agribusiness gain access to new processing technologies to improve the supply of quality, processed, value-added raw materials.

By the end of IICEM, the anticipated result is a more dynamic, capable private sector better equipped to produce and market quality products in response to demand requirements, expand sales in existing markets, generate new products, and tap into new markets. Some of the most significant indicators and targets under this component include:

- Generating a 200% increase in the value of products sold on the national market;
- Facilitating the adoption of new technologies and practices by over 11,000 farmers and processors to help them meet quantity and quality requirements of targeted markets and boost revenue; and
- Generating 10,000 tons of products on the market that are created with new technologies.

SUPPORTING AN ENABLING ENVIRONMENT FOR AGRICULTURE, TRADE AND PRIVATE SECTOR DEVELOPMENT

Activities under this component seek to create a supportive environment in which agriculture, trade, and private sector development can thrive. IICEM works with agribusiness investors along the value chain, supporting associations and NGOs, and any relevant government ministry or institution to resolve constraints and bottlenecks caused by prohibitive laws, policies, regulations or procedures. Transport and trade facilitation activities are a major focal point for this component. IICEM also takes on specific challenges as they are identified by partner farmers and agribusinesses, such as streamlining the cumbersome procedures for seed certification to enable easier seed certification for farmer-based seed production.

The most significant indicators and targets under this component include:

- Analyzing and proposing improvements to 2 policies, regulations, and/or administrative procedures and presenting 3 of those for legislation or decree during the life of the project;
- Training 2,000 people in enabling environment topics to improve their understanding of the law and strengthen the ability of the private sector, government, and civil society actors to dialogue effectively for improvement of the environment in which they do business.

STIMULATING ENTREPRENEURSHIP WITH A SPECIAL ACTIVITIES FUND (SAF), SMALL BUSINESS DEVELOPMENT AND GRANTS

Under this component, IICEM provides technical assistance, training, and coaching to enterprises as well as cooperative enterprises to diagnose constraints limiting enterprise growth and identifying opportunities for business expansion and diversification which serve as a basis for facilitating access to financing. To help agro-industrial investors and smaller-scale, innovative entrepreneurs launch investments in targeted value chains, IICEM manages a Special Activities Fund (SAF) and an Agribusiness Innovation Fund (FAEI), respectively.

This component does not have individual indicators and targets; activities under this component achieve milestones along the path towards increasing production and productivity and improving access to national, sub-regional, and international markets.

ACHIEVEMENTS

IMPROVING PRODUCTION AND PRODUCTIVITY

A key result of the production and productivity component has been in scaling up millet and sorghum production. IICEM-assisted farmers have increased the number of hectares under millet or sorghum cultivation from 0 during the baseline year (as of August 2009) before project start-up to 2,900 by August 2010 to almost 11,000 by the end of August 2011. These good results in 2011 have been in part due to a partnership with the INTSORMIL CRSP, which assured farmers access to select, quality seed.

Below is a review of IICEM's achievements this year in expanding and rehabilitating irrigated agriculture, increasing production and productivity in each sector, and introducing improved management practices in fisheries and natural resource management.

EXPANDING/REHABILITATING IRRIGATED AGRICULTURE

IICEM helps communities improve water harvesting in the north and the south by slowing down surface water run-off and increasing efficiencies of irrigation systems. In the north, the program works through village-based, high-intensity labor teams (HIMO) supervised by an IICEM engineer, in order to reline irrigation canals and construct small exchange infrastructure that channel water more quickly to parcels, reduce fuel costs for the water pumps, and increase the amount and duration of crop watering. While these activities primarily support rice production, they also have a secondary impact on diversification of revenue through supporting vegetable gardening and integrated rice-fish farming activities. Also, slowing down surface water run-off increases the water table around the dam, filling dried-out irrigation wells and, in the case of Zoloko village, supporting a resurgence of potato farming that had previously been abandoned as irrigation wells dried up.

IICEM's HIMO activities were conducted in Timbuktu and Gao. In Timbuktu, IICEM helped maintain and touch-up irrigation canals in six PIVs (Kabara, Sibonné, Mbétou, Bagadadji, Singo and Daounakeïna. In Gao PIVs, IICEM has relined and/or extended a total of 6.7 km of irrigation canal networks at 11 PIV sites improving irrigated agriculture on 313.2 ha. Canal relining activities focused on Gobi, Gounki, Agro Silvo Pastorale, Akka, Seby, and Deibata, while both extension and rehabilitation took place at Seyna, Bourra, Gassi, Tondhibi, and N'Tomatou.

Meanwhile, IICEM supervised Malian private enterprises in the North and South to extend and rehabilitate irrigated agriculture that required more complex engineering expertise. In the North, IICEM extended PIVs in Kouin, Barammandougou and Kouana, improving agricultural infrastructure for 360 rice farmers on 90 managed hectares (30 ha per site).

In the South, IICEM's engineering works were mostly to make improvements to work completed last year to improve small dam performance in the lowland production zones of Finkolo-Ganadougou, M'Pegnesso and Zoloko, based on observations made last year during their first year in use. This work extended the surface area of production by another 120 ha. In addition, the remaining small dam was completed in Gladié, which is part of the series of three started last year.

PROGRESS TOWARDS IMPROVING PRODUCTION, PRODUCTIVITY, DIVERSIFICATION AND INTENSIFICATION BY SECTOR

To scale up cereal production, IICEM coordinated four local organizations in providing technical assistance and training to members of 202 OPs in the North and South, who cultivated almost 11,000 ha in millet and sorghum. The growing season is in progress, so yields are presently unknown, though IICEM estimates a yield of approximately 16,300 MT.

MILLET/SORGHUM

This season, IICEM and its implementing partners guided farmers in the North and South to cultivate over 10,500 ha of millet and sorghum. In the South, IICEM's implementing partners AIID-SA, the Dièdougou Union, and the DRA/Sikasso provided technical assistance and training to farmers in 162 cooperatives who cultivated 7,859 ha of millet and sorghum, anticipated to yield about 11,800 MT by the end of the season. IICEM technical specialists trained 19 area DRA agents and sector chiefs on the work plan, anticipated results and technical parameters. See details per site in Table 1 below.

Table 1: Summary of millet and sorghum production in the North and South

Zone (Implementing Partner)	No. of Cooperatives	Surface Area Goal (ha)	Surface Area Achieved (ha)	Anticipated Prod. Rate (MT/ha)	Anticipated Harvest (MT)
Koutiala (AIID-SA)	140	2,500	2,038	1.5	3,057
Sikasso, Koutiala, Yorosso (DRA)	15	2,000	821	1.5	1,232
Beleco/Dioïla (Dièdougou Union)	7	5,000	5,000	1.5	7,500
Koro (DRA)	40	1,500	1,500	1.5	2,250
Bankass (DRA)		1,500	1,500	1.5	2,250
Total	162	9,500	7,859	-	16,289

RICE

Women rice cultivators assisted by IICEM in the south have achieved almost a seven-fold increase in production with improved lowland water management. With technical assistance and construction of small dams to slow surface water run-off and better manage water resources, production levels skyrocketed from only 422 ha in the 2009 – 2010 agricultural season to 2,255 hectares in the 2010 – 2011 season. The women also mastered best practices in production through technical training and coaching from GREFA and IICEM rice specialists, which boosted production rates from 1.35 MT/ha to 1.7 MT/ha and total harvests from 569 MT to 3,872 MT. This work particularly targeted lowland rice producers in Finkolo Ganadougou, Gladié, Zoloko, Kouroumasso, and M'Pegnesso.

In the North, 105 farmer organizations representing 8,813 vulnerable households directly benefit from IICEM's combined rice production, finance, and sales initiatives. While rice farming is not historically viewed as a women's activity, IICEM supports three women's rice organizations in Touara (Mopti), Kabara, and Feïndoukeïna (Timbuktu).

In regards to rice production, the total volume of paddy rice produced reached 25,015 MT. PIV producers cultivated 2,788 ha, with average yields reaching 5.46 MG/ha in Mopti, 5.78 MT/ha in Timbuktu, and 6.5 MT/ha in Gao. Lowland rice farmers in Lake Horo harvested 9,000 MT on 3,000 ha for an average yield of 3 MT/ha.

Regarding the adoption of new technologies to support improved productivity in the North, 705 producers adopted the SRI production technology with improved seed, including 233 in Mopti, 219

in Gao, and 253 in Timbuktu. This use of a technology, which uses less water, improves the soil, and features seed that is adapted for use in a hot, dry climate means that these 705 farmers have an improved capacity to adapt to the negative effects of climate change.

Supported by a new loan of 10.7M FCFA backed by the loan guarantee fund, Kouin producers are currently cultivating rice in the off-season, which will greatly boost rice production and subsequent volumes commercialized.

MAIZE

In the Sikasso area, under the plan to scale up cereals production and help OPs respond to known demand of IICEM's partner cereal traders and processors, implementing partner BEACIL provided technical assistance and training to OPs who produced 7.6 MT of maize on 2,409 ha. This work directly benefitted 1,230 rural households, 624 in the Sikasso administrative department (*Cercle*) and 606 in the Bougouni administrative department.

HORTICULTURAL PRODUCTS

IICEM pursues certain high-value horticultural activities as a means of diversifying agricultural incomes and increasing nutrition. This year, IICEM successfully completed large-scale tests in Sikasso and Sélingué to introduce new, higher-value varieties such as yellow and red pepper, various chili peppers, rainy season carrot and tomato, strawberry, grape, red cabbage, cherry tomato, cornichon and mushrooms. IICEM provided inputs and small equipment to support establishment of the demonstration plots. The horticulture specialist provided technical assistance and training, including training women in best practices in horticulture, organic production and sustainable agriculture, and traceability and product labeling to respond to an emerging clientele which values health and the environment. In addition, IICEM helped farmers better organize to supply their markets.

To improve revenue of gardeners in the ACI-2000 neighborhood around the US Embassy as well as gardeners in regional capitals of Sikasso, Mopti and Kayes, IICEM led market studies to determine high-value varieties in demand with local restaurants and vendors. As with the tests in Sikasso and Sélingué, IICEM helped provide inputs and small equipment to support the tests, trained men and women producers in production best practices and organic gardening, hosted farmer-to-farmer exchanges, helped them organize and plan for their gardening season, introduced them to sustainable organic agriculture, and trained them in advocacy to represent their bests interests as a group.

As a result, a demonstration garden was established as a teaching tool in ACI-2000, Sikasso, Mopti, and Kayes to teach gardening techniques for high-value horticultural crops that serve a clientele with evolving standards of variety and quality. New linkages between producers and clients were established, supporting a better-organized supply chain that assures quality, quantity and diversity.

POTATO

In the South, IICEM assisted 43 potato cooperatives in producing 48,230 MT of potatoes on 2,204 ha. IICEM implementing partners and technical specialists trained 102 cooperative members on the proper selection and use of fertilizers specifically for potato cultivation, as well as on best practices in harvesting.

Altogether, IICEM's potato activities in the South benefitted 2,427 rural households this year. In the South, where potato farming by men complements rice farming by women on the same or adjacent land, the aforementioned small dams constructed last year to boost rice production also rehabilitated 115 ha for potato farming. Subsequently, with a resurgence of potato farming which had been abandoned in some villages due to dried up irrigation wells, 128 producers benefiting from improved water management now have an improved adaptive capacity to cope with the negative impacts of climate change.

In the North, Timbuktu was a leader in IICEM's potato activities. Total production in the North was 361 MT on 7.5 ha (19 MT in Mopti, 317.3 MT in Timbuktu, and 24.5 MT in Gao). Potato activities in the North directly benefitted 926 vulnerable households, including almost 400 in Timbuktu.

While yields per hectare are not as high in the North, the potato in the North offers an excellent opportunity for income diversification. Yields in Mopti averaged 5 MT/ha; yields in Timbuktu reached 20.4 MT/ha; and yields in Gao were 11.5 MT/ha.

IICEM's potato production activities in the North included managing demonstration test sites to introduce cultivation techniques and varieties to farmers. Varieties used during the tests include *Spunta*, *Mondial*, and *Liseta*. The *Spunta* variety was the most appreciated by the farmers leading the demonstration tests because of harvest amounts and its large size, which is also appreciated on the market.

TOMATO

Before phasing out of work in this sector, IICEM delivered limited assistance to two organizations assisting tomato farmers (OPIB and ORDS) to build on and solidify the positive momentum IICEM generated during the first phase of the program, particularly in terms of finding solutions to challenges posed by maladies that decimate tomato harvests across Mali. To this end, IICEM focused on creating synergies with partners to promote the host-free period (HPF) in Sélingué, and work with private sector seed distributors as well as farmer end-users to assure availability of high-producing, quality, disease-tolerant seed in targeted zones. This work responds to production challenges in advance of a new processing plant being constructed in Sélingué.

Given that seeds most appreciated by tomato farmers had become too expensive and out of reach for most farmers, IICEM joined forces with USAID's IPM CRSP to introduce disease tolerant and resistant varieties by increasing the number of supply providers. Four seed distribution agribusinesses directly benefitted from this assistance. IICEM and IPM CRSP facilitated access to *Heinz* and *Shasta* varieties by the four seed vendors in Bougouni, Bamako, Sélingué and Baguineda to kick-start their ability to supply the seed at reasonable rates during the current season and earn seed money with which to purchase additional stock in coming seasons.

Farmers in Fougna, an important village for tomato production in Kita, requested IICEM's help in bringing the Host Free Period to their village, having seen its success elsewhere as a result of activities launched during the first phase of IICEM. IICEM's horticultural specialist trained 28 farmers on managing the Host Free Period, as well as best practices in production. IICEM also worked with the Green Seed company to facilitate access to *Heinz* and *Shasta* varieties.

Last year, IICEM conducted a training-of-trainers to ORDS field agents on the HFP. As a result, 22 villages under ORDS's work zone adopted the HFP. This year, IICEM supported ORDS's efforts to add 8 villages, for a total of 30 villages in the Sélingué area that have adopted the HFP.

SHALLOT

Total production of shallot by IICEM partners in the north reached 1,597 MT, including 1,525 MT by Timbuktu. Timbuktu was a particular focal point for the shallot program this year, to introduce shallot farming and/or improve varieties cultivated there. Shallot activities directly benefitted 1,309 households (141 in Mopti, 6 in Gao, and 1,162 in Timbuktu). IICEM also launched activities with the PDCO program on 70 hectares in the Dogon Plateau with 12 women's cooperatives, but given the request for IICEM to pull out of the shallot sector mid-activity, this partnership tapered off and is not included in results reporting.

In addition to continuing to provide technical advice on ongoing production in Mopti, Gao, and Timbuktu, IICEM also conducted demonstration tests to introduce shallot farming to certain sites and to test new varieties. More than 280 producers tested and adopted the new seeds, or new technologies in Timbuktu and the Dogon Plateau.

IICEM led rainy-season onion tests in the north as well as in Baguineda, Sélingué and Bamako. In the latter three locations, the season was capped off with a farmer-to-farmer exchange with the participation of over 100 farmers. Despite poor yields per hectare (6.5 MT/ha in Banguineda and 12.4 MT/ha in Sélingué), the farmers still appreciated the rainy season onion because of its low production costs and the harvest period that corresponds with the period where onion prices are the highest.

Tests of the new *Tuk Tuk* variety yielded 73 kg in Mopti, and 0.27 MT in Djeflani/Gao. A shallot seed imported from the Dogon Plateau by Djeflani producers supported production of 2.16 MT on less than one hectare. Results are not yet available from Kouin and N'Gomi, where these trials are in the final stages.

IICEM partners produced 30.28 MT of onion tested in Mopti, Gao, and Timbuktu. At two sites in Gao and five in Timbuktu, IICEM partners led demonstration tests of the onion *Prema* with production reaching 5.5 MT on 0.10 ha in Gao and 10.28 MT on 0.31 ha in Timbuktu. In Mopti region, one major producer and trader assisted by IICEM cultivated the onion on 15 MT on 0.75 ha.

TIGER NUT

Twenty tiger nut cooperatives of the Tiger Nut Producer Union assisted by IICEM's horticultural specialist produced 961 MT of tiger nut on 320 hectares with an average harvest of 3 MT/ha. These activities benefitted 470 rural households.

MANGO

IICEM-assisted mango farmers harvested a total of 23,100 MT of fresh mangoes on 3,300 ha. IICEM trained 100 producers from 12 cooperatives representing 2,892 rural households in orchard management best practices, seedling management, and improved harvest and post-harvest handling techniques.

FISH FARMING AND RICE-FISH FARMING

The IICEM program for fish farming and integrated rice-fish farming started up in the North and South just prior to the reporting year, in order to diversify producer revenues and increase availability of nutritional foods in communities where IICEM's partners reside. The fisheries component altogether contributed made three new technologies available and directly benefitted two agricultural firms. While pilfering from the demonstration test sites was common in the North and South, tests were still able to prove that 1) the improved management practices promoted by IICEM, when properly managed, do increase fish productivity and weights; and 2) integrated rice-fish farming activities improve rice harvests in the North and the South of Mali, even beyond average increases mentioned in the body of studies and literature available in the sub-region.

Overall, fisheries activities focused on training and technical assistance to introduce and disseminate new management practices at demonstration sites, strengthening the capacity of technical support services in the area, and selecting new work sites for the 2011 – 2012 project year when the program's budget constraints are resolved. Training and mentoring provided by IICEM this year included working closely with pond managers on the provision of nutritionally fortified fish food, feeding regimes, control tests to check progress, and water quality management, all to support maximum growth rates. Linkages were also made between fingerling producers and pond managers.

Another focus of IICEM in both the north and the south is training of support services in the area, particularly Regional Direction of Fisheries and NGO/private sector agents from PEENAL and GREFA who provide monitoring and training services to agriculturalists and pond owners. IICEM teamed with the USAID-funded AquaFish CRSP to train four agents from the north and five in the South, alongside men and women fish farmers, in improved fish pond management and best practices for the demonstration sites.

IICEM's aquaculture specialist also provided technical assistance to the Tanima fish food production and hatchery facility in the Baguineda area in support of his business start-up which is targeted for support through IICEM's Agribusiness Innovation Fund (FAEI) as soon as adequate obligated funding is provided to support the investment. The aquaculture specialist suggested improvements to the technical elements of the business plan and visited the site to advise on site construction and development. She also strengthened linkages between Tanima and potential buyers of Tanima's fingerlings and surplus fish food available for sale.

In the North, the new technology of integrated rice-fish farming has been made available. In the course of the year, transfer of the technology began on two demonstration sites: an off-season rice parcel in Kouakourou and a rice parcel in Korientzé. The technology is currently being spread to other rainy season production sites in Mopti, Gao, and Timbuktu.

Despite challenges posed by theft from both sites and a partner in Korientzé who did not respect the technical program calendar or management practice for implementing the test, both demonstration sites proved that integrated rice-fish farming not only provides fish in the same amount of space, but improves rice yields. At rice harvest in Kouroukoro, the demonstration site yielded rice at a rate 6.37 MT/ha against a control plot yielding 5.20 MT/ha, and in Korientzé, the yield was 5.33 MT/ha against a control plot yielding 3.13 MT/ha.

Other fisheries activities in the north included:

- A survey of species naturally available at the expansive Kouakourou seasonal lake and review of the fisheries activities already under way there to examine fingerling supply potential for the area as well as amounts of fish currently being harvested and marketed; and
- Site review for the 2011 – 2012 project year assuming program funding will return to normal budgeted levels, including Soufroulaye for fish farming (which was not found to be suitable) and the following sites for integrated rice-fish farming: Koro pond at Kouakourou, Komi, Kassem Dagan, Bargodaga 2, the women's rice farming site in Kabara, the seed production site in Timbuktu as well as other sites in Ansongo, Taboye and Bouréme; final site selection will be made during work planning.

In the South, aquaculture activities included participatory tests of new management practices with fish farmers, strengthening capacity of partners who advise fish farmers, evaluating demonstration test sites in Sikasso, supporting the creation of a demonstration site in Yanfolila in the AID-SA intervention zone as well as a site for integrated fish-livestock-vegetable farming in Morila, and identifying new fish farming sites for next year.

Fish farming activities in the South contributed to a number of IICEM's results, the most significant being:

- One new technology or management practice made available for transfer, through the introduction of 2 polyculture (fish farming with 2 or more symbiotic species) demonstration test sites; and
- One agricultural firm directly benefitting from project activities at the AID-SA Yanfolila site, where IICEM created a fish farming demonstration site that will serve as a field school for fish farmers in the area.

To research site locations in the Sikasso area and begin to forge linkages between fish pond managers and fingerling suppliers, IICEM worked with 4 sites: a 600 m² pond being created in the Banconi neighborhood that is under the supervision of the Regional Direction for Fish (DRP); a start-up site in the Tinporoko ecotourism complex, also in Banconi; a 360 m² pond being rehabilitated on the road to Bouake by a member of a local fish farming cooperative; and a site in Karangasso where a farmer has integrated *Clarias* catfish farming into his farm activities and would like to invest further in farming activities.

Similar to work in the North, IICEM helped fish farmers access inputs, fertilizers and small equipment to support training at new aquaculture sites as follows:

- At the Mamassoni polyculture demonstration site, 700kg of enriched fish food, which is composed of 80% millet husks, 10% peanut shells, and 10% fish meal;
- In Diomatènè, the purchase and installation of a tarp in an unfinished 180 m2 pond adjacent to a tilapia fingerling production test pond which facilitates the transfer of fish to better define food rations for fingerling tests;
- The acquisition of fingerling transportation equipment for extension agents to reduce loss rates during the collection and transport of fingerlings to test sites; and
- The acquisition and installation of fish farming equipment and materials for the AID-SA demonstration site in Yanfolila.

To introduce new fish farming and integrated rice-fish farming sites, technical assistance was provided to AID-SA for creation of a fish farming demonstration plot. Technical assistance was also provided to the managers of the Morila agribusiness project to help in the establishment of an integrated fish-livestock-vegetable farming site.

At the Yanfolila demonstration site, IICEM and its implementing partners supervised pond management according to best practices, installation of a reserve water tower, construction to connect the water tower to the ponds, and acquisition and distribution of materials/equipment.

In Morila, IICEM supported initial design of an integrated pond management system with further work also pending obligated funding resolution. The Morila agribusiness managers have mapped the areas to be managed and launched the competitive bid for site completion. IICEM also helped evaluate input needs for the five ponds at Morila, including material/equipment and the cost estimation for pond management, which the agribusiness manager passed along to the AID-SA board.

IICEMs irrigation specialists, the Sikasso coordinator and agents from GREFA assessed a soil percolation problem encountered by a member of a fish farming cooperative who had invested in a fish pond at Sirakoroon. The problem has halted fish farming activities in this location. To explore solutions to this common problem, IICEM teamed up with the USAID-funded Farmer-to-Farmer program, which provided an American fish farming trainer who taught a new technique in fish pond construction that is especially developed for sandy soils. Ten members of the cooperative were trained in the new pond construction technique which uses local materials.

The fisheries expert and regional staff conducted site assessments in the latter half of the year, and identified 12 potential sites containing 21 fish ponds for activities in the 2011-2012 project year, where fish farmers are ready to start as soon as IICEM has adequate funding to support further activities.

Two demonstration tests were conducted during the 2010-2011 season. These tests focused on polyculture and traditional tilapia production in ponds. The polyculture test was conducted in Mamassoni in a 600 m^2 pond using groundwater. Two species of fish (catfish and tilapia) were cultivated together. There was a challenge with harvest timing due to stakeholder availability, so the test ran for 230 days while the fortified food was only distributed for 210 days.

The demonstration test in Diomatènè focused on improving traditional methods of tilapia fry production in ponds because small producers have encountered tilapia supply problems given the high mortality rate during transport because of a lack of appropriate equipment for transporting the fish from the collection areas to the ponds as well as the absence of a local hatchery. The test was undertaken on an area of 107 m^2 with 52 breeder fish with a ratio of one male for every three females over five months.

Monitoring of the demonstration tests of fish farming in ponds was done by agents from GREFA and the regional coordination for fishing in the two regions. The final harvest from the polyculture tests and artisanal fry production took place in Sikasso in February 2011. Data reflected that farmers managing the tests successfully controlled water quality supportive of commercial fish farming (pH, temperature, dissolved oxygen concentration, nitrate and nitrite concentrations); and that fish and fingerling production at each site was successful.

In Diomatènè, farmers managing the fry tests harvested 3,260 tilapia fry, each weighing between 0 and 25 g. The six catfish placed in the pond to control a proliferation of amphibians (despite preferring a diet of small tilapia), did not significantly disrupt production.

IICEM partners monitored fish production in the Finkolo-Ganadougou dam and two other local lakes to monitor what species are locally available to support more productive water management plans and to explore the possibility to supply fry from these areas. The important species of fish found in these bodies of water are *Clarias* catfish (*manogo* in Bambara); tilapia (*n'tènbèn*); mormyrus (*Mormyridae* family, *nana*); and Alestes (sardinelles, *n'zara*).

In conclusion, despite several difficulties such as funding constraints and theft that skewed some data collection, the installed tests have attained the anticipated objectives of introducing an improved management practice. The results of the tests have been shared with the fish farmers and IICEM has confidence in certain individuals' capacity to continue activities following best practices.

The beneficiaries from the tilapia reproduction test have decided to adopt the demonstrated technologies. According to the representatives of the youth fishermen, the money gained from fish sales will be used for supplies and inputs (starter fish, food, and organic fertilizer) for the next production season in their two ponds. After the harvest of the test demonstration pond, they emptied and cured their first pond in order to eliminate several species they cultivated in the past and continue with the recommended fish farming species.

Follow-up recommendations are to help communities around the profitable fish farm sites to better organize their marketing channels, and to train fish farmers on the production of maggots and termites to improve cheap access to protein sources as substitutes for fish meal and peanut cake.

IMPROVING NATURAL RESOURCE MANAGEMENT, BIODIVERSITY CONSERVATION AND CLIMATE CHANGE ADAPTATION

Activities to improve natural resource management (NRM) were conducted in the Koulikoro, Sikasso, Mopti, Timbuktu, and Gao regions. NRM activities included the development of local conventions affecting forest resource protection and exploitation, grazing plans, fisheries, and hippo grass management areas.

To stabilize the dunes in Gobi, IICEM introduced the technique of mechanically stabilizing sand dunes by erecting a fence of *Leptadenia pyrotechnica* cuttings, biologically stabilizing the dune using *Euphorbia* cuttings, and cultivating watermelon in between. At the request of the Benkadi Cooperative in Gobi, the administration, and the communal authorities in Korombana, IICEM engaged a private enterprise that fixed 28.5 ha of the estimated 150 ha dunes threatening the community. Ninety percent of the *euphorbia* cuttings have rooted. To support this work, 200 youth received practical training on mechanical and biological dune fixation, including how to properly harvest *Leptadenia* for the activity.

IICEM also contributed to dune stabilization near Lake Horo, complementing the program's efforts to boost rice production and productivity in the area. To better stabilize the dunes situated between Echell and Maritondi and reduce the sedimentation rate of the lake, IICEM has completed maintenance on *L. pyrotechnica* dead fencing and *euphorbia* live fixation on 40 hectares.

IICEM coached 14 women's organizations and mixed-gender community groups to help complete a portion of the green belt around Diré in the context of protecting the Niger River and the basis of Saouné's socio-economic development. The program completed 25 hectares of the 40 hectares

targeted for the year, mostly constrained by the lack of a permanent water source, as the seedlings need to be watered during the hottest months of March, April and May to encourage establishment of the seedlings in the first year. All of the sites chosen that did not have a year round water source nearby were eliminated. The 25 hectares represented a manageable portion of the target, as the trees that were planted had a success rate of 95%. The community selected eucalyptus as the focal tree species for this activity due to its rapid growth and many uses.

IICEM also supported reforestation of the basin between the dune and Lake Horo to reinforce efforts to protect the lake as well as to support the dune stabilization work. The species chosen by the local population for the targeted six-hectare expanse are *Prosopis juliflora*, *Acacia senegal*, *Piliostigma reticulata*, and *Eucalyptus camaldulensis*. Given the lack of water to support establishment of the seedlings planted, the seedling survival rate was about 30%. The village of Maritondi has experienced an exceptional lack of water this year and the wells have dried up.

To improve involvement of the local populations in sustainable and rational management of nearby natural resources, IICEM provided financial and technical support for the development and establishment of 20 local agreements, protocols, or other regulatory reforms as applicable to the situation. IICEM facilitated revision and adoption of the planning and management plan for the Bougouni-Yanfolila Forest which has been approved by inter-ministerial decree. Sixteen agreements were signed in Timbuktu, including 14 agreements between local community groups and the mayor to support the management of the greenbelt around Diré as well as conventions in Sibonné and N'Gourouné. The program also facilitated two fisheries management conventions in the Korombana commune and a forestry management convention for the Samori Forest in the Mopti Region.

IICEM also has facilitated the public discussion processes in support of the Bagoé River gallery forest. The draft classification decree has been transmitted to the regional government in Sikasso and is at the stage of being published and vetted publicly prior to transmission to the government in the Koulikoro region. Once regional government approval is attained, the decree will be passed to the Council of Ministers for final adoption.

In all, 309 people received training in support of IICEM's NRM initiatives, including 36 women. To support the previous adoption of grazing rights conventions, 99 supervisors in the Baye commune and the 15 from the Finkolo-Ganadougou commune received training on relevant forestry law. In addition, 15 members of the community hippo grass management committee in Zindiga were trained in the processes for developing conventions and conflict management.

A climate change adaptation specialist from Abt led a training of 26 technical specialists at IICEM on climate change adaptation basics as well as the participatory Community-Based Risk Screening Tool (CRiSTAL) which helps community members and development planners integrate risk reduction and climate change adaptation into community development projects. Following the training, the climate change adaptation specialist and NRM specialist field-tested the tool with 33 participants in Diomatènè village. IICEM planned to implement the tool in additional villages, but was again constrained by the obligated funding issue.

ENHANCING FINANCIAL SERVICES

ESTABLISHING A MEDIUM-TERM LOAN GUARANTEE FUND

To promote entrepreneurship and investment by small and medium-sized agribusinesses, IICEM established two loan guarantee funds totaling 225M FCFA with partner financial institutions to establish medium-term credit mechanisms. The BNDA housed one guarantee fund of 150M FCFA, and Kafo Jiginew housed the other guarantee fund, valued at 75M FCFA. With these guarantee funds, IICEM facilitated access to credit for agribusinesses to expand their activities and create market opportunities for producers working in the IICEM targeted value chains. Due to difficulties in additional obligated funding to support the IICEM work plan, IICEM was not in a position to fund the banks. Therefore, no medium-term credit was extended as planned.

FACILITATING ACCESS TO FINANCE WITH A LOAN GUARANTEE FUND

IICEM facilitates access to finance in a number of ways, either through the support of a loan guarantee fund, or simply through technical assistance accompaniment, which increases the comfort level of financial institutions to lend to IICEM-assisted farmers, processors and traders. In the course of the project year, IICEM's partner financial institutions issued 163 loans totaling about 1.2B FCFA, or about $2.2M.

Of the total amount of financing facilitated by IICEM, 120 loans totaling 363,140,600 FCFA were backed by the loan guarantee funds. Of that, members of eight women's producer and trader organizations benefitted from 32.2M FCFA in financing. Regarding loans facilitated simply through technical accompaniment by IICEM staff and implementing NGOs, partner farmers, processors and traders secured an additional 43 loans totaling 756,385,000 FCFA, which were not backed by the guarantee fund.

The breakdown of all loans by value chain is detailed in the table below.

Table 2: Breakdown by value chain of all loans facilitated by IICEM

Sector	No. of Loans	Value Backed by Loan Guarantee Fund (FCFA)	Value Without Loan Guarantee Fund
Millet/Sorghum	62	96,167,900	
Rice (RIFAB, Planète Distr.)	23 2	99,356,000	228,000,000
Maize	28	77,395,500	
Shallot	3	21,971,200	
Tiger Nut	1	20,000,000	
Potato SICA URCEP	 38 3		 504,319,000 24,065,000
Mango	3	48,250,000	
TOTAL	**163**	**363,140,600**	**756,385,000**

In general, the reimbursement rate for this season is 95%, indicating that loans have been repaid without significant problem. However, five loan recipients from last season still have had problems reimbursing their loans totaling 19.4M FCFA.

INCREASING ACCESS TO MARKETS AND TRADE AND IMPROVING COMMERCIALIZATION

During the 2010-2011 period more than 7,000 MT of millet and sorghum, 8,000 MT of rice paddy and 3,000 MT of maize were purchased from smallholder producers and producer groups as part of the IICEM supply chain development program. These sales included more than 1,500 MT of coarse grain cereals and rice destined for sub-regional markets. Collectively these sale volumes represented approximately 75% of anticipated targets, but more than 2.5 times the level targeted in 2009-2010. The total value of millet and sorghum sales rose to more than 620M FCFA, exceeding the value of sales in 2009-2010 by more than 140%. In the case of rice, total sales exceeded 1.2B FCFA, exceeding 2009-2010 levels by a similar amount as noted for millet/sorghum.

During the 2010 – 2011 reporting period, IICEM's market development program capitalized on previous IICEM successes in improving crop productivity for targeted value chains, evolving to focus on exceeding household food security needs and provide an increasingly sustainable quantity and quality of product to sell in targeted markets. Product end-markets have assumed an increasing importance in prioritizing IICEM activities due to their fundamental role in driving investments in

production and in the development and adoption of improved harvest and post-harvest and product conditioning technologies. Accordingly, program interventions enhancing production have looked toward improving long-term competitiveness, but in the short term have focused on better enabling production to respond to the demand criteria of specific, targeted markets. Over time, these efforts will progressively strengthen the capacity of the production sector to respond to an increasingly more sophisticated demand required to penetrate higher-value product end-markets. The overall strategy is to use a market-based approach to begin the process of transforming subsistence agriculture into one that is increasingly capable of responding to the commercial demands of value-added, intermediate and final product markets.

This process involves the promotion of profitable investments in innovative, productivity-enhancing technologies. The objective is to better position products in relation to targeted, final market demand and to better manage risk by formalizing transactions through sale contracts. As a consequence, market access and trade development activities in 2010-2011have focused on: (1) improving awareness and knowledge of end-market demand, segmentation and competition; (2) developing commercial strategies to better position products in increasingly diversified end-markets to stimulate value-added production and processing; and (3) developing an increasingly efficient platform for market intelligence/strategic information enabling market operators to position themselves to become more successful and increasingly competitive in responding to targeted demand.

The goal of this approach is to increase private investment in value chain development, which to large measure is conditioned by quality/value addition opportunities. From down-stream (final product markets) to up-stream (raw material markets), this process involves: (1) assessing demand – quality, quantity and price trends; (2) formalizing sales through contracting to manage risk and develop commercial contract lending; (3) consolidating production, achieving economies of scale and improving logistic efficiencies; (4) identifying major production zones and producer organizations to favor contracting and (5) identification of input and financial service markets.

IMPROVING KNOWLEDGE OF END-MARKET DEMANDS, SEGMENTATION, AND COMPETITION

Improving knowledge and understanding of end-markets, particularly for traditional producers, is a basic function of value chain development, where market demand commercially links producers of either unprocessed or processed products and services. Developing the knowledge and understanding to effectively respond to this market demand is critical to being successful and acquiring the necessary skills and capacity to function in the marketplace is most effectively undertaken by working directly with commercial partners under actual market conditions. IICEM facilitates such partnerships.

Knowledge of end-market volumes, quality criteria, seasonal market fluctuations are essential if suppliers, at all levels, are going to effectively respond to demand. Being able to produce products that meet demand criteria in targeted product markets is fundamental for penetrating such markets.

Being able to do this in increasingly efficient, cost-effective ways enhances sales through improved quality control and price management, ultimately improving competitiveness.

In the millet and sorghum value chain, improving the knowledge base of end-markets is on-going, learning through doing. IICEM completed a detailed value chain analysis with the assistance of a value chain expert from Sénégal who had years of experience in both Sénégal and Mali in the millet/sorghum sectors. This provided an analytic and dynamic picture of the sector and highlighted three major opportunities to sustainably improve value-addition and increase revenues: (1) development and adoption of innovative, cost-effective technologies -varieties and agronomic practices- to improve on-farm productivity; (2) improved quality and consolidation of commercial grain; and (3) the expansion/diversification of final product markets to promote investment in the production of value-added products.

To facilitate commercial grain consolidation and provide key demand criteria necessary to promote gain sales in domestic and sub-regional markets, IICEM initiated collaborative partnerships with five, strategically selected commercial gain wholesalers to address the need for grain consolidation, for improved grain quality, for formalizing sales and for developing partnerships with credible financial institutions. These partnerships are expected over time to result in formal marketing relations between these commercial wholesalers and a wide array of producers and producer groups. Additionally, formalizing transactions at the farm gate begins the process of developing a risk management platform to encourage investment to improve on-farm grain productivity and quality. Down-stream, IICEM is working with these wholesalers to identify and develop new markets for high-value commercial grains. Such efforts involve R&D activities to develop new product markets in collaboration with commercial millers and fabricators (*Grands Moulins du Mali*, *Moulins du Sahel*, SOMAPAL) for both domestic and sub-regional markets.

In the maize value chain, efforts to better understand the operation of final product markets followed those noted above for millet and sorghum. Specifically, IICEM undertook an in-house maize value chain study and organized meetings of commercial operators. IICEM will continue efforts with major processors to develop demand in new, high-value market segments, which ultimately drive up-stream investments to improve productivity and quality.

In the lowland rice value chain, IICEM assisted eight women's organizations to increase market share in the parboiled rice market in Sikasso by strengthening their capacity to respond quality demand criteria for parboiled rice by improving parboiling and milling techniques. In addition, IICEM facilitated access to a rice mill enabling them to expand their product markets and penetrate a new market segment - that of milled white rice. As a result of improved paddy production through the use of improved varieties and improved agronomic practices (both facilitated by IICEM), these groups produced higher-quality parboiled rice, thus penetrating a new market segment for white rice.

For the lowland rice and PIV value chains in the North, IICEM led field surveys to better understand the rice markets in Gao and Bourem. Results indicated that local paddy production does not cover local demand and that additional paddy is often purchased, mainly from Office du Niger. In Mopti, data indicated that the market price for paddy was increasing due to increasing demand, expect during the month of May when many producers inundate the local market with paddy to reimburse bank loans provided for production inputs.

In Mopti, to create value-added demand for locally produced paddy and structure a more efficient raw material supply chain, IICEM is collaborating with and supporting three entrepreneurs to establish semi-industrial rice mills to produce high-quality white rice for local and export markets. It is expected that these mill owners will enter into long-term contractual relations with village producer groups to provide high-quality paddy according to specific quality criteria. Over time it is also expected that many of these producer groups will establish long-term, credible contract relations with specific millers that will create a nascent sales guarantee system to assist them in securing loans for production inputs from local banks.

To date, 39 contracts have been signed by one entrepreneur for the supply of approximately 1,700 MT of paddy to his rice mill in 2011-2012. Another miller has signed 22 contracts for the provision of approximately 2,160 MT of paddy. In addition to providing a local value-added targeted commercial market for quality paddy, the production of milled rice will provide commercially viable quantities of milled rice by-products, suitable for incorporation into animal feed. One mill operator plans to produce animal feed on a commercial scale, in addition to quality white rice. Diversifying markets in this manner broaden market opportunities for producers, integrate up-stream, compliment production sectors and diversify revenue-generating opportunities all along the value chain.

Potatoes are a high value crop. In the Sikasso region, the 43 cooperatives being trained by IICEM in the potato value chain sold more than 17,400 MT of potato in the domestic market and

approximately 680 MT in the Abidjan market, representing global sales of 4.6B FCFA domestically and approximately 140M FCFA sub-regionally. Locally produced potato provides an opportunity for import substitution, with economic multiplier effects to export crops providing significant value addition domestically. With an increasing demand, better structuring the production sector to reduce losses and inefficiencies and investing in innovative seed potato production technologies will be essential for the continued commercial development of the sector.

Actors in the fresh mango value chain sold over 3,300 MT, primarily in European markets, benefitting from an improved understanding of final market demand criteria and an improved capacity to manage raw material supplies and logistics. IICEM's commercial partners also sold over 890 MT of fresh mangoes in sub-regional markets and 13,560 MT domestically.

In the dried mango value chain the processing group supported by IICEM sold approximately 7.7 MT of dried mangos, over 7 MT domestically, reversing a trend last year where the majority of sales were in export markets. Indications are that the domestic market offers a large, diverse market for developing the dried mango value chain.

Sales of spring onions in Timbuktu achieved 1,374 MT for an estimated total value of 354M FCFA, while rainy season onion sales reached 6.58 MT for an estimated value of 1.75M FCFA.

Tiger nut sales by IICEM targeted partners were approximately 1,330 MT, 467 MT in domestic markets, 541 MT in sub-regional markets and 370 MT in European markets, particularly Spain with a total value of approximately 300M FCFA. In addition, IICEM facilitated the elaboration and signature of a contract between an exporter and the Union of Producer Cooperatives for 500 MT, destined for export.

Exploratory activities in the aquaculture sector focused on identifying five test sites for integrated rice-fish farming in the 2011 – 2012 agriculture season, assessing different low-cost fish feed formulas and providing basic production equipment to several test sites. In addition, IICEM provided limited technical assistance to a large commercial aquaculture farm and fish feed production unit.

DEVELOPING COMMERCIAL STRATEGIES TO BETTER POSITION PRODUCTS IN INCREASINGLY DIVERSIFIED END-MARKETS TO STIMULATE VALUE ADDED PRODUCTION AND PROCESSING

Diversifying final product markets into high-value segments provides new and expanding opportunities to link farmers to markets, increase incomes and promote investments in up-stream improvements in production and processing. IICEM's efforts to promote the development of new, high-value product markets have been guided by several of its commercial partners. The choice of targeted commodity sectors has been basically a reflection of the presence of credible, technology-focused agribusinesses committed to investing in value-chain development, particularly as regards the integration of the traditional production sector into a new commercial dynamic. Facilitating partnerships between these enterprises and producer organizations and providing resources to structure efficient raw material supply chains, has provided IICEM an opportunity to begin developing the production sector through commercial partners, creating from the outset a market-driven framework for future expansion and investment.

In the mango sector, IICEM has worked over the past two seasons with COMAFRUIT to help them develop their raw material supply chain as part of their efforts to establish a mango pulp value chain. COMAFRUIT intends to double or triple production in the next 2-3 years, and mango pulp has been targeted as an initial product because of an abundance of appropriate raw material. Last year, their first mango season, COMAFRUIT bought 703 MT providing producers with approximately 18M FCFA in new income for a variety of mango too delicate for fresh export and likely would have otherwise gone to waste. In 2011sales volumes increased to over 1,000 MT, providing producers approximately 35M FCFA in new income.

The millet/sorghum value chain presents unique challenges, particularly since it will be the showcase program for USAID/Mali's Feed the Future Program, and a focus of the IICEM thematic program for 2012. Millet and sorghum represent the two basic, indigenous food security foods in Mali. They are grown by the vast majority of rural producers, frequently on marginal lands and in low rainfall areas, mainly for household consumption. Yields are generally low, less than one ton per hectare for millet and less than 2 MT per ha for sorghum. Consequently, neither cereal is considered a commercial crop, and accordingly, limited investment is made on-farm to increase productivity. New, high-yielding varieties - especially for millet - are presently not available and value-added, final product markets are limited. Future investments in the millet/sorghum sector will be made based on commercially viable opportunities, and on the successful development of up-stream, on-farm technologies that will substantially increase productivity. In this regard, IICEM intends to expand its present collaboration with INTSORMIL and IER to include other partners well-positioned to develop seed markets. Such investments will likely be linked to the existence of down-stream, value-added final product markets.

Developing such markets has been a focus of IICEM's market development efforts during the past year. Working in close collaboration with several commercial (Moulins du Sahel, SOMAPAL, SOADAF) and institutional (INSORMIL, University of Purdue – Whistler Carbohydrate Research Center) partners, IICEM is coordinating and facilitating efforts to examine new technologies that can be used to create value-added final product markets for millet and sorghum-based products (bread, pasta, fortified flours). IICEM is also exploring opportunities to collaborate with the African Alliance for Improved Food Technology and with DSM, to assess opportunities for the manufacture and sale of fortified flours. IICEM is also collaborating with the Africa LEAD program to develop capacity building programs in agri-business management, technology development and management to strengthen the capacity of local agribusiness to develop effective market development strategies that will promote the R&D for the adoption of innovative technologies to diversify and add value to cereal-based final product markets in Mali and within the sub-region. These efforts will remain a focus of market development activities during 2012.

SUSTAINABLE MARKET INFORMATION SYSTEMS AND IMPROVED ACCESS TO MARKETS TO BETTER RESPOND TO MARKET DEMAND

Within Mali's major cereal sectors, a major focus of IICEM's program going forward will be on the development of partnerships at the raw material supply chain level. Supply chain development will likely serve as a major platform for demonstrating the economic advantages of market intelligence and for strengthening the capacity of collaborators to use such information to better position themselves to penetrate and/or capture increased market share. Major aspects of these efforts include formalizing transactions and sales through contracting based on a thorough understanding of end-markets, developing quality control procedures to ensure that products at the farm-gate meet market quality requirements, and strengthening linkages with financial partners where sales contracts can be leveraged to mobilize credit for investments in improved production. As noted above, wholesalers and producer groups are signing contracts that are being used to leverage credit from the BNDA, and processors are signing contracts with wholesale suppliers to provide them with the quantity and quality of raw materials necessary to meet quality standards of their processed, value-added products. Such a contracting process formalizes an operational system for the profitable use of market intelligence and provides a means for agribusinesses to strengthen their market position. Understanding the advantages of having access to market intelligence and being able to implement marketing strategies based on that information is a practical first step in enabling businesses to realize the importance of market information.

SUPPORTING AN ENABLING ENVIRONMENT FOR AGRICULTURE, TRADE AND PRIVATE SECTOR DEVELOPMENT

This year, IICEM's enabling environment component focused on three main activities. CARANA and the transport and trade facilitation specialist, following months of persistent and consistent coordination of top-level officials from Mali and Sénégal, convened the first inter-governmental, Cross-Border Trade Conference on the Bamako-Dakar Corridor. He also followed up on a study of millet/sorghum and rice logistical costs along certain trade routes. Finally, the program's quality control and business development specialists made significant headway towards development of an appropriate, new procedure for farmer-based seed certification.

FACILITATING THE CROSS-BORDER TRADE CONFERENCE TO IMPROVE TRANSPORT AND TRADE ALONG THE BAMAKO-DAKAR CORRIDOR

Following eight months of diplomatic coordination and analysis by stakeholder working groups, the program convened the first Cross-Border Trade Conference on the Bamako-Dakar Corridor from May 20 to 21 in attendance of Prime Ministers Cissé Mariam Kaidama Sidibé of Mali and Souleymane Ndéné N'Diaye of Sénégal. Prior to the conference, IICEM facilitated four working groups on livestock and meat, agricultural products, industrial products, and transportation and infrastructure to analyze and put forth recommendations stemming from stakeholder exchanges facilitated by the transport and trade facilitation specialist. At the conference, participants developed an action plan with steps to relieve transport-related constraints, streamline procedures and practices, and reduce costs for the private sector.

The action plan was incorporated into a bilateral agreement signed by both countries to open the doors to free trade flows of cereals within the sub-region; implement an interstate road transit system between the two countries that would specially mark interstate transport vehicles and transit documentation consistent with ECOWAS provisions; end illicit tax collecting along the trade corridor; and reduce the number of control outposts to three.

USAID was recognized by name and thanked in a follow-up joint communiqué issued by the two prime ministers and distributed to 32 ministries, institutions and partners. The letter clearly outlined the commitment by both parties to implement the conference recommendations.

As part of preparation and follow-up to the conference, IICEM particularly facilitated public-private consultative processes pertaining to an analysis of road governance and cereals trade rules, described below.

Malian regulations on road governance call for checkpoints on every roadway, both on the way into and on the way out of each city. One of the principles behind this is that once a vehicle has been checked upon departure, the vehicle is not subject to any other checks up to its destination. However, in practice, vehicles are stopped and checked at every single checkpoint, evidently because the authorities are interested more in taking bribes from the traders and transporters than in ensuring the free movement of goods and people.

The existing practices are contrary to Mali's regional commitments, which stipulate that a vehicle moving from one country to another may be submitted to only 3 controls: upon departure, at the border, and upon arrival at the destination. The regional rules are clear that a checkpoint on the roadway constitutes neither the departure point nor the destination point of the vehicle.

The public-private consultative process on cross-border trade along the Dakar-Bamako Corridor, which IICEM has supported, helped to clarify the gaps between Mali's present practices and the regional rules. The process also made plainly evident to all that the regional rules take precedence over the national regulations. Therefore, trucks engaged in international trade along the Dakar-Bamako Corridor should only face three checkpoints. The action plan agreed upon at the Dakar-Bamako Conference calls for establishment of a special medallion for cross-border trade, which should help reduce the barriers along the corridor in the short term. In the long term, the

checkpoints should be dismantled simply because they comprise neither the departure point nor arrival point for any transporters.

IICEM launched a consultative process on the regional rules on cereals trade leading up to the Conference on the Dakar-Bamako Corridor due to private sector complaints about export restrictions on cereals. The meetings of the agriculture working group provided the opportunity for fully understanding this practice, with the conclusion that the restrictions are contrary to both the spirit and the letter of the ECOWAS rules, which require free trade between member countries. Specifically, trade in basic staple foods, including cereals, may not be subject to any tariff or non-tariff barriers. The action plan agreed upon at the conference calls for the immediate lifting of export restrictions, and the Final Communiqué signed by both the Malian and Senegalese Prime Ministers explicitly states this as well.

STUDYING LOGISTICAL COSTS ALONG LOCAL AND SUB-REGIONAL CEREALS CORRIDORS

The transportation specialist compiled and analyzed data collected from the logistics study preformed along the millet/sorghum, maize and rice trade corridors of Bamako-Kayes-Kaolack-Dakar and Bamako-Kankan-Conakry. With this information, the specialist worked with value chain managers and the business development specialist to develop comprehensive strategies targeting specific needs of each commodity.

IMPROVING LOBBYING TO IMPROVE COMPETETIVENESS

IICEM undertook various activities and trainings to specifically meet the need of the partner organizations of IICEM: the producer's organizations, the traders, the agribusinesses (processing units for rice, mil/sorghum and mango) and other stakeholders. Given the poor level of literacy of most of Mali actors, IICEM always starts with basic training in the enabling environment of agriculture and commerce. IICEM staff regularly urges producers to participate in the dialogue about the larger market place. As such, these organizations are in a better position to defend their own interest, as they are connected to a better and predictable market.

IICEM's cereal-based value chain program is intended to be a game changer in terms of transforming Mali's cereal sector into a commercial force for sustained economic growth. To realize this vision, Mali needs to expand and diversify its markets for commercial grains and for value added cereal-based products. While the development of domestic markets for these products is important to generate income, create jobs and drive production domestically, regional markets have the potential to provide a large-scale demand-pull that will drive industrial-scale, up-stream investments in the development of millet, sorghum and rice commercial supply chains and promote future investment in processing and domestic value addition. However, the approach must be market-driven with an objective focused on providing clear incentives for private sector investment along the entire value chain.

The sub-regional export of cereals is subject to many constraints, but the "unofficial" interdiction of exports in the name of ensuring food security is one that IICEM considers important and relatively straight forward to resolve. While such interdictions do not entirely eliminate cross border trade, they do have the effect of ensuring that such trade remains "clandestine" and clearly informal. Consequently, IICEM launched a program to develop a lobbying platform, which includes both public and private sectors and international food security agencies, coordinated by an independent agency, National Employers Federation (*Le Conseil National du Patronat du Mali*). The objectives of this platform are to: (1) reduce restrictions related to cereal exports; (2) reduce transport barriers and the collection of illegal payments along major export corridors; (3) train and inform transport professionals; (4) improve the validity of export statistics for cereals and related products; and (5) position Mali's commercial cereal sector to better capture sub-regional demand for cereals and processed cereal-based products.

With total cereal production in 2010-2011 estimated by the GRM at over 5.32 M MT, Mali is well positioned to focus on being a major producer of cereals within the sub-region.[2] While the vast majority of this production is consumed domestically, significant volumes of coarse grain cereals find their way into cross border trade, particularly among Sahelian countries, most of which do not have annual production levels to meet their own food security needs. If formalized, expanded and diversified into new market segments this trade could provide significant incentives in Mali for investments in innovative technologies to improve production and processing. Moreover, formalizing these transactions reduces rent seeking, lowers overall transaction costs, facilitates the collection of viable export statistics and provides an unambiguous basis for public authorities, in collaboration with relevant private sector operators, to make informed decisions on cereal stocks, food security needs and trade and investment alternatives that could increasingly ensure future food security needs.

The IICEM program began during the last quarter of fiscal year 2010. To date, the Federation of Employees has agreed to coordinate lobbying efforts and act as an arbitrator; major relevant public sector services and agencies have agreed to participate and support sub-regional market development efforts, including the National Department for Trade Competitiveness and the Food Security Commission; and key public and private sector stakeholders have meet on two occasions and agreed on the major objectives as noted above and an action plan.

ESTABLISHING A NEW FARMER-BASED SEED CERTIFICATION PROCEDURE

In the latter half of the project year, IICEM signed a collaborative agreement with the Malian Investment Promotion Agency (API) to analyze and propose improvements to administrative procedures pertaining to agribusiness start-up and operation. IICEM's business development and quality specialists initiated a series of activities to analyze and establish a revised, more efficient and user-friendly procedure for farmer-based seed certification. Working closely with API, and consulting with other specialists such as seed certification specialists within the IER, seed vendors, and producers, the specialist identified measures to simplify administrative complications of the existing procedure to make it more practical at the farmer level, but still assure high-quality results. As of the end of August 2011, a series of new administrative procedures was submitted to the Ministry of Agriculture for approval/adoption.

SUPPORTING THE DRA WITH A MORE MARKET-LED FOCUS

Helping provide alternative options and entry points for the governmental support to private sector development in agriculture is a key element of the transformational change IICEM seeks to achieve in the environment for agriculture, trade, and private sector development. This year, for the first time, DRA agents and trainers joined forces with IICEM technical advisors to help directly implement program activities. As such, 12 DRA trainers in Sikasso and Mopti have been briefed on the IICEM work plan, and are involved in production activities that are organized to respond directly to market requirements. This implementation approach offers a different focus for state extension services that is not just centered on production, but on producing to meet market needs. IICEM acknowledges that this is only the beginning of a long-term process that will provide an example for broader-scale, transformational changes to the environment.

STIMULATING ENTREPRENEURSHIP WITH A STRATEGIC ACTIVITIES FUND (SAF), SMALL BUSINESS DEVELOPMENT, AND GRANTS

To encourage a stronger sense of entrepreneurship and help Mali's private sector acquire the skills needed to start-up and run profitable, sustainable agribusinesses, IICEM provides technical

[2] Estimates include 1,373,342 tons of millet; 1,250,868 tons of sorghum; 1,356,043 tons of maize; and 1,296,154 tons of rice.

assistance, coaching and training in drafting and refining business plans as a means of securing investment capital; manages a SAF and an Agribusiness Innovation Fund to help knowledgeable and motivated private sector partners leverage bank and independent financing to start up new agribusinesses or expand existing business operations; and facilitates linkages between entrepreneurs and other actors along the value chain, such as raw material suppliers, to improve efficiencies, increase value added, and increase capacity to respond to market opportunities at various links in the value chain.

In the course of the past year, these activities have predominantly benefitted women entrepreneurs, as: three out of four enterprises assisted by the Agribusiness Innovation Fund (FAEI) are women-owned; 501 of 545 micro-entrepreneurs trained in Making Cents' *MicroEnterprise Fundamentals* training are women and the accompanying training-of-trainers increased business development services now offered by three institutions supporting women micro-entrepreneurs; at least three out of ten businesses in the e-commerce training are women-owned; and the cereals storage facility constructed in Kayes will increase revenues for women belonging to 30 associations in the area.

SUPPORTING EXPANSION OF SUCCESSFUL AGRIBUSINESSES THROUGH A SAF

After providing technical assistance in mid-2010 to strengthen the business plan for the *Rizerie et Fabrique d'Aliments Bétail* (RIFAB), RIFAB was the sole business selected by the SAF committee during the previous project year that followed through on an implementation plan and met the personal contribution conditions required for SAF funding (of four businesses selected). RIFAB is a factory that combines rice processing and animal feed operations. In the course of the past year, IICEM's SAF and RIFAB partnered to establish RIFAB operations in Sevarré, where the company will hull and sell quality rice while using the by-products to produce animal feed by combining it with other elements such as a highly nutritional, locally available water grass.

With IICEM accompaniment, BNDA authorized up to 246M FCFA in financing for the RIFAB project. During the project year, RIFAB conducted site selection, and completed construction on the factory site and storage facilities. IICEM helped facilitate organization of the RIFAB supply chain by facilitating meetings between farmer organization leadership, collectors, and RIFAB management. The introduction and signature of purchase contracts that outline specific quality and quantity requirements of RIFAB are presently underway. RIFAB's processing units will be in the production phase after paddy harvests, at the beginning of 2012.

RIFAB will be a key purchaser of quality raw material produced by a circuit of IICEM's partner rice farmers. By the end of the SAF investment, which is in its final stages, the processing unit will have a production capacity of 2,000 MT of rice and 3,000 MT of animal feed.

At the outset of the reporting year, IICEM identified four additional agribusinesses ready for investment in Project Year 2: *Ferme Piscicole Tanima*, *Bonne Industrie Laitière*, PROSEMA, and *Produits du Sud*. The four were selected for their important role in their respective business sectors, as described below:

- *Ferme Piscicole Tanima* is an aquaculture project that includes a fish hatchery, fresh fish farming, and fish food production. Through the SAF, they would like to buy state-of-the-art equipment to expand their fish production activities, including the construction of additional fish ponds.
- *Bonne Industrie Laitèrie* is a dairy with a production capacity of 2,000 liters of milk per day. The firm intends to invest in new, modern technologies for milk processing.
- PROSEMA, SA, is a firm currently involved in the production and marketing of sesame that seeks to expand its activities to include conditioning and processing. The firm has targeted the exportation of more than 3,000 MT of treated/processed sesame seed to Europe and Asia during its first year of SAF assistance.
- *Produits du Sud, SA* is a firm that exports gum Arabic to Europe and seeks to establish a gum Arabic and *Sterculia* gum processing and packaging factory in Mali.

After a competitive bidding process, IICEM identified business service provider CATEK as the local organization to help SAF candidates develop their business plans. CATEK had just completed development of the business plans for TANIMA and *la Bonne Industrie* when work under the SAF was halted due to budget challenges stemming from USAID's inability to increase obligated funding.

Despite the lack of SAF funding, IICEM still provided some technical and facilitation assistance to keep these projects moving forward until the obligated funding issue can be resolved. The program put Tanima in contact with a major aquaculture actor in Nigeria, Durente Aqua Fish, which hosted visit and established a technical advisory partnership.

While awaiting SAF funding, the Tanima operator launched the expansion project by constructing and equipping the fish food production facility that is fully functional. The majority of specialized tanks are completed, and pond construction and enclosures are being constructed. The proprietor has nearly exhausted his personal investment commitment, in excess of 400M FCFA, and cannot continue until the SAF commitment is obligated.

PROSEMA started operations to launch its sesame conditioning unit investment. To date, the operator procured and installed equipment in Fana.

Each of the above-mentioned investors signal that they are waiting on IICEM to fulfill its commitment that launched their personal investment so they can either complete or start-up and develop their expanded/new business lines. Investors can benefit from technical and business development services, financing assistance and facilitating access to financial services, and strengthening organizational development and management capacity. IICEM plans to include these activities in the Y3 work plan.

FOSTERING BUSINESS INNOVATION

Since the SAF was designed to target large, agro-industrial projects, the needs of small-scale businesses with innovative ideas, or businesses working in IICEM's targeted sectors, were not being sufficiently addressed. Therefore, the IICEM program established the Agribusiness Innovation Fund.

Over 30 business operators applied for IICEM assistance following a series of public meetings to promote the Agribusiness Innovation Fund. Of those, only four candidates met the requested criteria and continue as interesting investments for the program to facilitate. These included:

- The *Unité de Transformation et de Conditionnnement des Denrées Alimentaires* (UCODAL), a cereals processor that seeks to increase its daily *fonio* production capacity from 400 kg to 1,000 kg for an annual production of 240 MT, which would strengthen its ability to respond to current demand for pre-cooked *fonio*.
- The *Unité de Production et de Séchage de Viande,* (UPROSEV), seeks to expand its product line with the installation of processing equipment to produce 200,000 liters of mango-based vinegar per year, which would compete with imported vinegar.
- Aqua Bambadi wants to install two fish ponds to start production of 6.3 MT of catfish and 1.2 MT of carp.
- Woman-owned small business Danaya seeks to relocate to an industrial zone and expand production capacity of quality processed cereals, particularly millet/sorghum. Following expansion, IICEM will facilitate linkages to the millet/sorghum supply chain.

As with the investments submitted for SAF assistance, IICEM's Agribusiness Innovation Fund initiatives were halted due to the lack of renewed obligated funding to support the work plan. Therefore, work completed in partnership with these businesses essentially consisted of business plan development. The businesses did not receive financing and planned capacity building activities were not implemented. Nonetheless, as with the SAF, IICEM plans to pick up these investment opportunities with the development of the new project work plan, assuming obligated funding is forthcoming.

BUILDING THE CAPACITY OF SMALL BUSINESSES

Coaching and technical assistance in business planning. As described elsewhere in this section as well as the section Enhancing Financial Services, a core business development activity—and a key activity to seal financing to support agribusiness investment—is helping partner agribusinesses and commercial associations to develop or improve business plans. This is a basic first step to assure feasibility of the businesses supported by IICEM, screen out entrepreneurs who show no follow-through on these basic first steps, and increase the chances of success for entrepreneurs who persevere through the detailed business planning process.

Increasing capacity of women micro-entrepreneurs and supporting institutions. Beginning in March 2010, IICEM began training facilitators from the organizations AMASSA/Afrique Verte and Layidu Wari microfinance institution to deliver basic microenterprise management skills training to its membership and clients. The Making Cents *MicroEnterprise Fundamentals* curriculum and toolkit served as the basis of the training-of-trainers (TOT). IICEM's Malian training specialist pursued Master Trainer certification in the *MicroEnterprise Fundamentals* course, and along with IICEM's business development specialist, monitored the first training implemented by the new facilitators of illiterate and semi-literate women micro-entrepreneurs.

Between September 2010 and August 2011, IICEM hosted a refresher TOT for the original group of trainees, plus an additional TOT for Layidu Wari, AMASSA/Afrique Verte, and two additional organizations, the Association for the Promotion of Women (APROFEM) and the USAID ProMali Nord project. The inclusion of ProMali Nord's business development specialists extends the reach of the training into Timbuktu and Gao. Following the TOTs in December and January, IICEM hosted additional training of women micro-entrepreneurs in the Making Cents curriculum.

As of the end of the project year, 26 trainers have been certified as *MicroEnterprise Fundamentals* trainers: 11 from Layidu Wari; 5 from AMASSA/Afrique Verte; 4 from APROFEM; and 6 from ProMali Nord. The 26 facilitators then trained 545 beneficiaries, including 501 women. Making Cents also certified the IICEM training specialist as a Certified Master Trainer, capable of delivering the TOT to future trainees, assuring in-country support of this very practical and useful module.

Completing a business diagnostic of cereals wholesale traders. As part of IICEM's work in increasing access to markets for the millet/sorghum value chain, emphasis has been placed on the wholesale trader link to facilitate product consolation and quality control. IICEM facilitated a meeting to strengthen relationships between traders, *Moulins du Sahel*, and BNDA. As part of a partnership with *Moulins du Sahel*, IICEM is providing technical assistance in business development to explore innovative technologies and market efficiencies, which will pull up commercial cereals production and revenue potential at the farmer level.

A business diagnostic of five potential partner grain wholesalers in the 3rd quarter last year, concluded that the targeted wholesale businesses have encouraging potential for market growth and enterprise development, and a tremendous capacity for consolidating large quantities of grains. The diagnostic also concluded that while target markets are promising, export is greatly hampered by difficulties in obtaining export licenses and other red tape.

The objective of this work was to create market opportunities by better organizing supply chains of quality cereals markets and putting farmer organizations in direct relation with wholesale traders. IICEM's partner wholesale traders have signed purchase contracts with IICEM-assisted maize and millet/sorghum farmer organizations.

Strengthening women's cereals commercialization capacity. Following a feasibility analysis and business plan development for a women's federation of associations led by the IICEM business development specialists, IICEM supported the construction of a 600 MT cereals storage facility in Kayes. The storage facility will consolidate activities of 30 women's associations active in the cereals sector and a coordinating body from the women's associations of agro-foods processors. The

business plan assured that the activity was feasible and supported access to a line of credit needed to start storage activities.

Improving business capacity in e-commerce. To improve the ability of agro-processing businesses to tap into sub-regional and international market opportunities, IICEM joined forces with the Center for Training and Research in Information Technology and Business (CEFIB) to design and deliver an e-commerce training. Ten businesses started the program in October 2011, receiving technical assistance and training from IICEM's business development specialist to assure their business strategy and plans established a solid foundation for e-commerce endeavors. To help assure product quality and preparedness for e-commerce, IICEM's quality control specialist organized and delivered training on international quality, organic, and traceability requirements relevant to agro-foots exports.

After preliminary business training, a representative from the businesses started the e-commerce course, which will result in each business establishing a website that allows for purchases via secure, electronic transactions from anywhere in the world. The ten businesses who originally participated in the e-commerce initiative included: COGETRAM (maize); SINYUMAN (millet and sorghum); Nako (jams, fruit juice, syrups, and more); Yango (fruit nectar and syrups); Bella Industrie (teas); AID-SA (honey); ONG ACOD/Cooperative Siby (soap and shea butter); Djiguiyaso (art and textiles); Mam Cocktail (fruit juice); and Enterprise BI DALI (cotton). Five of these businesses have since dropped out of the class because either the representative no longer works for the company, or they were too busy to participate. The duration of the training was increased from 9 months to 12 months to accommodate the schedules of CEFIB's Canadian volunteer teachers.

MONITORING & EVALUATION ANALYSIS

Progress against targets for each of the 37 indicators tracked by IICEM is featured in the table starting on the following page. The table and following M&E analysis are organized by component.

Overall, IICEM is meeting or exceeding targets where programmatic changes made in consultation with USAID/Mali have not impacted the type of data collected for certain indicators (values of purchases from smallholder farmers, number of new technologies or management practices made available for transfer, training-related indicators, etc.). High-level impact data related to gross margins of rural farmer organizations shows that IICEM had an even more positive effect on rice and millet gross margins than anticipated for 2011. Gross margins for lowland rice in Timbuktu and irrigated rice in the North experienced some of the greatest increases, up 62% and 20% over last year, respectively. Gross margins for potato in the south continue to be the most significant margins of any IICEM-targeted crop, bringing farmers $7,882/ha, which is significantly greater than the highest margin for any cereal crop, which is $1,432/ha for irrigated rice in the north.

As explained in detail in the January 2011 revised work plan and the May 2011 quarterly report, changes to the USAID/Mali Feed the Future strategy, as well as USAID's inability to increase obligated funding to budgeted levels, led to programmatic changes including reduced assistance to fostering/expanding agribusinesses and a reduced number of value chains on which IICEM focused.

As a result of those changes developed in partnership with USAID/Mali, IICEM will not achieve certain life-of-project targets established at project start-up. For example, by narrowing the program's value chain focus to millet, sorghum and rice while phasing out high revenue-generating value chains such as dried and fresh mango, potato and shallots, the program's original targets for the volume and value of products sold on sub-regional and international markets are no longer realistic. Pulling out of shallot value chain development also negatively affects gender-related disaggregation, as 95% of the shallot producers, traders and processors assisted by IICEM were women.

Due to these programmatic shifts, IICEM leadership is currently in discussions with USAID/Mali to modify the indicator and life-of-project targets list. For the time being, the table on the following page corresponds with the PMP still in place.

IICEM 3 Year (Life of Project) Indicators, Targets and Results

Indicator	Baseline[1]	9/09 – 8/10 Result	9/10 – 8/11 Target	9/10 – 8/11 Result as of end Aug 2011	9/11 – 8/12 Target	9/11 – 8/12 Result	Life of Project Target (PMP)[2]	Life of Project Result as of end Aug 2011
Task Area 1: Agricultural Sector Productivity Improved								
Number of new technologies or management practices made available for transfer as a result of IICEM assistance	12	11	10	21	10	-	30	32
Number of additional hectares under improved technologies or management practices as a result of IICEM assistance	2,778	10,609	12,500	11,322	14,500	-	37,000	21,931
Number of vulnerable households benefitting directly from IICEM assistance	7,817	5,735	11,000	13,846	12,000	-	32,000	19,581
Number of rural households benefitting directly from IICEM interventions	4,757	10,268	12,500	11,619	15,000	-	37,500	21,887
Number of producer organizations, water user associations, trade and business associations, and community-based organizations receiving IICEM assistance	162	393	500	442	600	-	600 C	442
Number of agriculture-related firms benefitting directly from IICEM-supported interventions	15	14	30	31	40	-	90 C	31

IICEM 3 Year (Life of Project) Indicators, Targets and Results

Indicator	Baseline[1]	9/09 – 8/10 Result	9/10 – 8/11 Target	9/10 – 8/11 Result as of end Aug 2011	9/11 – 8/12 Target	9/11 – 8/12 Result	Life of Project Target (PMP)[2]	Life of Project Result as of end Aug 2011
Number of public-private partnerships formed as a result of IICEM assistance	19	3	10	1	10	-	25	4
Percent change in volume of purchases from smallholders of targeted commodities as a result of IICEM assistance (MT, %)	24,536	28,510 16.2% from baseline	75,000	51,211 109% from baseline	90,000	- -	90,000 267% from baseline C	51,211 109% from baseline
Percentage change in volume of intraregional trade of targeted agricultural commodities (MT, %)	3,853	4,122 7% from baseline	7,000	4,915 28% from baseline	10,000	-	10,000 160% from baseline C	4,915 28% from baseline
Percentage change in volume of international trade of targeted agricultural commodities (MT, %)	3,414	4,679 37% from baseline	15,000	3,739 9.5% from baseline	25,000	-	25,000 632% from baseline C	3,739 9.5% from baseline
Number of individuals who have received IICEM-supported short-term agricultural sector productivity training	3,520	1,913 (291 women, 1,622 men)	2,000 (700 women, 1,300 men)	1,949 (281 women, 1668 men)	2,300 (805 women, 1,495 men)	-	6,000 (2,100 women, 3,900 men)	3,862 (572 women, 3,290 men)
Number of women's organizations/associations assisted as a result of IICEM assistance	61	57	70	52	80	-	80 C	52

IICEM 3 Year (Life of Project) Indicators, Targets and Results

Indicator	Baseline[1]	9/09 – 8/10 Result	9/10 – 8/11 Target	9/10 – 8/11 Result as of end Aug 2011	9/11 – 8/12 Target	9/11 – 8/12 Result	Life of Project Target (PMP)[2]	Life of Project Result as of end Aug 2011
[Program Element 8.1: Enhanced Natural Resources and Biodiversity]								
Number of hectares under improved NRM as a result of IICEM assistance	476	221	1,000	1,279	2,500	-	2,500	1,279 C
Number of hectares in areas of biological significance under improved management as a result of IICEM assistance (B)	0	4,000	10,000	10,000	15,000	-	15,000	10,000 C
Number of policies, laws, agreements, or regulations promoting sustainable natural resource management and conservation that are implemented as a result of IICEM assistance	15	3	10	20	10	-	30	23
Number of people receiving IICEM supported training in NRM and/or biodiversity conservation	198 (45 women 153 men)	223 (69 women, 154 men)	200 (70 women, 130 men)	309 (36 women, 273 men)	200 (70 women, 130 men)	-	600 (210 women, 390 men)	532 (105 women, 427 men)
[Program Element 8.2: Clean Productive Environment]								
Number of people with increased adaptive capacity to cope with the impacts of climate variability and change as a result of IICEM assistance	-	18,767 (6,767 women, 12,000 men)	1,000	14,531 (2,941 women, 11,590 men)	2,000	-	3,000	33,298 (9,708 women, 23,590 men)
Task Area 2: Enhanced Financial Services								
Number of IICEM-supported special fund loans issued this year	164	104	150	120[3]	200	-	450	224

IICEM 3 Year (Life of Project) Indicators, Targets and Results

Indicator	Baseline[1]	9/09 – 8/10 Result	9/10 – 8/11 Target	9/10 – 8/11 Result as of end Aug 2011	9/11 – 8/12 Target	9/11 – 8/12 Result	Life of Project Target (PMP)[2]	Life of Project Result as of end Aug 2011
Value of IICEM-supported special fund loans issued (projected targets $1 = 500 FCFA) [3]	673M CFA $1.346M	478M CFA $956,000	700M CFA $1.4 M	363M FCFA[3] $ 0.73M	800M CFA $1.6M	-	2B CFA $4M	841M FCFA $1.7 M
Task Area 3: Enhanced Access to Markets and Trade, and Improved Commercialization of Targeted Commodities								
Gross margin per unit ($/ha) [4]								
Millet/Sorghum	122	-	328	420	586	-	586	420
Lowland Rice (Sikasso)	259	438	365	398	420	-	420	398
Lowland Rice (Timbuktu)	0	569	540	924	540	-	540	924
PIV Rice	1,050	1,198	1,154	1,247	1,260	-	1,260	1,247
Maize	35	531	366	225	532	-	532	225
Potato	4,496	7,743	4,940	7,989	5,250	-	5,250	7,989
Shallot (Mopti)	4,807	11,594	4,726	-	4,726	-	4,726	-
Shallot (Timbuktu)	2,163	6,851	2,160	6,534	2,160	-	2,160	6,534
Tiger Nut	297	682	441	668	441	-	441	668
Number of farmers who have adopted new technologies/practices	7,523	7,758	9,000	3,476	10,000	-	27,000	11,234
Number of processors who have adopted new technologies/ practices (baseline depends heavily on shallot VC, maintaining baseline is a challenge)	856	304	160	91	220	-	460	395
Volume of new products produced with new processing techniques	0	1,380	5,000	1,024	6,000	-	15,000	2,404

IICEM 3 Year (Life of Project) Indicators, Targets and Results

Indicator	Baseline[1]	9/09 – 8/10 Result	9/10 – 8/11 Target	9/10 – 8/11 Result as of end Aug 2011	9/11 – 8/12 Target	9/11 – 8/12 Result	Life of Project Target (PMP)[2]	Life of Project Result as of end Aug 2011
(metric tons)								
Value of purchases from smallholders of targeted agricultural commodities (by commodity)	$6,884,000	$9,908,000 44% from baseline	$8,600,000	$14,668,000 113% from baseline	$3,000,000	-	$12,300,000 79% from baseline	$24,576,000 257% from baseline
Percent change in value of intra-regional exports of targeted agricultural commodities as a result of IICEM assistance	$1,748,000	$3,498,000 100% from baseline	$2,812,500	$2,540,000 45% from baseline	$4,210,000	-	$2,462,000 41% from baseline	$6,038,000 245% from baseline
Percent change in value of international exports of targeted agricultural commodities as a result of IICEM assistance	$6,234,000	$7,148,000 15% from baseline	$15,282,000	$ 3,923,120 -37% from baseline	$22,471,000	-	$16,237,000 160%	$11,071,120 78% from baseline
Volume of targeted commodities	30,895	38,167	60,000	87,576	80,000	-	140,000	125,743
Volume of targeted products entering IICEM-supported storage facilities (GFSR - added 2010)	0	188	4,850	5,799	6,150	-	6,150	5,987
Usage of price and market information systems (hits)[5]	0	0	1,000	0	2,500	-	3,500	0[5]
Task Area 4: Agricultural Enabling Environment								
Number of consultative processes with the private sector as a result of IICEM assistance	5	4	5	2	6	-	15	6

IICEM 3 Year (Life of Project) Indicators, Targets and Results

Indicator	Baseline[1]	9/09 – 8/10 Result	9/10 – 8/11 Target	9/10 – 8/11 Result as of end Aug 2011	9/11 – 8/12 Target	9/11 – 8/12 Result	Life of Project Target (PMP)[2]	Life of Project Result as of end Aug 2011
Number of participants in trade and investment trainings	1,968 (787 women and 1,181 men)	563 (530 women and 33 men)	500 (175 women and 325 men	563 (229 women and 334 men)	550 (193 women and 357 men)	-	1,250 (438 women and 812 men)	1,126 (759 women and 367 men)
Number of institutions/ organizations undergoing capacity/competency assessments as a result of IICEM assistance	3	3	4	3	3	-	10	6
Number of institutions/ organizations making significant improvements based on recommendations made via IICEM-supported assessment	4	4	2	3	4	-	7 (C)	3
Number of individuals who have received IICEM-supported short-term agricultural enabling environment training	212 (38 women and 174 men)	688 (190 women and 498 men)	1,000 (350 women and 650 men)	1,105 (394 women and 711 men)	1,200 (420 women and 780 men)	-	2,500 (875 women and, 1,625 men)	1,793 (584 women and 1,209 men)
Number of policy reforms/ administrative procedures/ regulations analyzed with IICEM assistance	1	0	2	3	2	-	6	2
Number of policy reforms/ administrative procedures/ regulations presented for legislation/decree as a result of IICEM assistance	1	0	1	0	2	-	4	0

[1] From the last year of the first phase of the IICEM program (September 2008 – August 2009), which approximately conforms to the agricultural season. Subsequent years follow the same periodicity.

[2] Currently under revision with USAID/Mali following programmatic changes including reduction in the number of value chains being developed by IICEM and phasing out of activities in shallots, potato, mango, tiger nut, tomato, sesame, etc.
[3] Per the USAID AEG indicator guide, this indicator tracks the number and value of loans uniquely stemming from "special funds" (the Loan Guarantee Fund). As described in detail in the "Achievements" section of this report, IICEM has facilitated a total of 163 loans at a total value of 1.12B FCFA. This includes 43 loans at a value of 756M FCFA that were facilitated simply through IICEM's technical assistance and not via the Loan Guarantee Fund.
[4] A consolidated gross margin target was included in the contract, but is in fact meaningless; gross margin information is only meaningful when disaggregated by product, as presented here.
[5] The prerequisite work by other USAID-funded partners has not yet been put in place to allow for this element of IICEM's original work plan.

ANALYSIS

IMPROVING PRODUCTION AND PRODUCTIVITY

IICEM's results under the production and productivity component largely exceeded targets, with a few exceptions where the program focus has been shifted in consultation with USAID/Mali to increase emphasis on cereals, such as millet and sorghum.

In the course of September 2010 to August 2011, IICEM partners cultivated 11,322 additional hectares using new technologies or management practices such as improved seed, improved production techniques, or improved soil management in new work zones. This represents a four-fold increase over the 2009 baseline. New technologies introduced include the System for Rice Intensification (SRI), millet and sorghum seed varieties, new soil management practices for cereals production (millet and maize), potato seed varieties, a rainy season onion variety, organic tiger nut production to help producers meet buyer requirements, and integrated rice-fish farming.

To pursue program activities in cereals and horticultural products, IICEM coordinated work with 442 producer organizations, trade and business associations, and community-based organizations. Of that number, 52 are uniquely women's organizations, plus women also participate in mixed men's and women's cooperatives counted in the 442 organizations.

Program activities in partnership with farmer organizations benefitted a total of 25,465 households. The number of total households is broken down as 13,846 households in the North classified as "vulnerable," which conforms to a Feed the Future indicator definition based on northern households' increased susceptibility to the negative effects of drought; and 11,619 households in the South. While in effect all 25,465 households are rural, IICEM made this distinction at the beginning of the first IICEM program in consultation with USAID/Mali to avoid duplication of total households counted. We continue this practice in IICEM 2 for consistency of data from the baseline year.

IICEM activities directly benefitted 31 agribusinesses. Ten agro-foods processors began participation in the CEFIB e-commerce training, strengthened business planning through development of an e-commerce strategy, and were trained in international quality and organic standards. Also included in the 31 agribusiness are six dried mango processors and exporters; seven cereals traders; three potato traders and input suppliers; and five additional agribusinesses targeted by the special funds activities who have benefitted from IICEM's business planning and access to finance activities.

Results in improving natural resource management practices, biodiversity conservation, and climate change adaptation for the year were largely on target. Last year, due to delays caused by the harvest period at the end of the project year, only 3 of the 10 community natural resource management agreements targeted were fully executed. This project year, IICEM not only facilitated signature of the 10 agreements targeted for the year, but made up for the shortfall from last project year, facilitating 20 local agreements as well as one key policy.

Results that deviated by at least ten percent under or over annual targets are listed below:

- The *number of new technologies or management practices* exceeded the yearly target by 110%. This was mainly due to an increased emphasis on cereals this year, whose production requires the use of improved seed varieties and soil management practices. IICEM also introduced twice as many potato varieties as originally anticipated.
- The *number of vulnerable households benefitting directly from IICEM activities* surpassed annual targets by 25%, mostly due to an increased emphasis on millet in the north under the revised Feed the Future strategy, that was greater than planned at project start-up. IICEM's work with millet and sorghum farmer associations reached over 2,200 additional households in the north.

- The *number of producer organizations, water user associations, trade and business associations, and community-based organizations receiving IICEM assistance* fell short of the target of 500 by 12%; and the *number of women's organizations assisted as a result of IICEM* assistance fell short of the target by 26%. The number of producer organizations, which makes up the majority of these target values, is simply reflective of the number of trusted, capable producer organizations who have partnered with IICEM to achieve the targeted number of hectares under cultivation of targeted products. In the case of women's organizations, there are a limited number of women's organizations working in cereals production. We work with the greatest number of women's organizations possible in the work zone that are involved in the targeted products.
- The *number of public-private partnerships* should be deleted from the PMP, as IICEM's approach is not focused on building public-private partnerships according to the strict USAID definition. While IICEM works with both public and private entities to resolve bottlenecks for private sector advancement and to strengthen the environment in which the private sector operates, this work is often not conducted through an established formal agreement or elaborate process.
- The *percentage change in volume of purchases from smallholders* and *percentage change in volume of intraregional and international trade of targeted agricultural commodities* fell short of their targets by more than 10%. This is largely due to the shift in value chain focus. For example, IICEM was requested to phase out of fresh mango and shallots in the latter half of the year, which were significant contributors to the intraregional and international target values.
- The *number of hectares under improved natural resource management* exceeded targeted values by 28% largely due to the success of the agreement that protects the Samori forest from human and animal exploitation and established a community-based monitoring brigade, which is functional. This work improved natural resource management in 1,000 ha.
- The *number of people receiving IICEM-supported training in MRM and/or biodiversity conservation* exceeded the 2011 target of 200 by 55%, yet fell short of the gender disaggregation target by 50%. The *number of people receiving training in NRM and/or biodiversity conservation* are simply a reflection of training needs to support the number of hectares under improved management, so in effect, IICEM was requested by partner communities to train more people than originally anticipated in order to provide adequate support to the expanse under improved management. Meeting the disaggregation target is challenging, because communities perceive work such as monitoring by brigades as men's work, so women are not put forth by the communities as training participants.
- *Number of people with increased adaptive capacity to cope with the impacts of climate variability and change* significantly exceeded targets set at project start-up. IICEM's activities to improve production also increase their adaptive capacity to cope with impacts of climate variability in change. IICEM activities help people manage water resources more efficiently, incorporate growing techniques that conserve natural resources and improve the soil structure, and increase their use of drought tolerant seeds. This indicator's definition, as well as the meaning of climate change adaptation and the link between IICEM activities and climate change adaptation was not fully understood by staff members and implementing partners when the targets were established, so established targets are unrealistically low for the breadth of IICEM's impact (climate change adaptation training has since been held and this gap has been filled). In fact, the number of people who currently employ improved water harvesting techniques with the new small dams and more efficient irrigation systems; the number of people who used improved seed; and the number of farmers using SRI this year, exceeded 14,500 people in 2011.

ENHANCING FINANCIAL SERVICES

IICEM met its target of facilitating at least 150 loans last year, although not all of those loans required backing from the special funds portfolio of the Loan Guarantee Fund, which is what these indicators track. As explained in the footnote to the data table, IICEM facilitated a total of 163 loans valued at 1.12B FCFA (about $2.2M). Of the 163 loans, 120 were supported by the loan guarantee fund valued at 363M FCFA. Detail of these loans appears in the Achievements chapter of this report.

INCREASING ACCESS TO MARKETS AND TRADE AND IMPROVING COMMERCIALIZATION

IICEM's results under the increasing access to markets and trade and improving commercialization component have achieved targets, with a few exceptions where the program focus has been shifted in consultation with USAID/Mali to increase emphasis on cereals, such as millet and sorghum.

In the course of 2010 – 2011, IICEM partners' production increased from 38,000 tons to 87,585 tons. This significant increase in production allowed a certain percentage to be commercialized, around 20 - 60%, depending of the value chain. This is the main reason why the percent change in volume of purchases from smallholders of targeted commodities achieved an 82% growth rate. Most of IICEM's efforts last year targeted a market-led approach, helping producers and traders/buyers meet and develop business relationships. The main goal of the IICEM approach was to connect rice producers to rice mills in Mopti and to link partner millet/sorghum producers with five major mil/sorghum traders in Mali. To pursue program activities, IICEM coordinated work with 442 producer organizations, trade and business associations, and community-based organizations.

Some of the most significant results achieved under this component include:

- Achieving the entire gross revenue margin indicator per value chain except for millet/sorghum (comments below);
- Increasing the value of commodity purchases from smallholders by 71% (the national market) compared to last year (20,466 MT last year to 34,975 MT this year);
- In the last two years, facilitating the adoption of new technologies and practices by over 11,000 farmers and processors to help them meet quantity and quality requirements of targeted markets and boost revenue;
- Generating 2,400 MT of products on the market from the adoption of new technologies;
- Approximately 5,800 MT of targeted products were consolidated and stored for sale in warehouses built by IICEM; and
- Facilitating two consultative processes with the private sector, helping producers and traders to cope and lobby for an improved environment for trade.

GROSS MARGIN ANALYSIS

Overall, the percent change in gross margins per hectare from the previous year ranged from 76 - 177 % across all value chains. The producers that benefitted from USG help through the IICEM program saw their gross income margins per hectare significantly increase in the rice and potato value chains compared to those of 2009-2010. Gross margins per hectare for millet/sorghum and maize, however, decreased.

For PIV rice, the gross margin achieved of 560,509 FCFA/ha represented 97% of the 577,000 FCFA/ha target. The relative stability in PIV rice gross margins resulted from a significant increase in yields, from 5.3 to 5.9 MT per hectare; however, the average market price felled from 160 to 133 francs CFA per kg. This price drop was due to increased volumes of paddy being sold for loan reimbursements during the period from the 31st of May to 30th of June, resulting in a decrease in market price compared to that in July or August. Also, IICEM's data collection process did not allow for data in July or August to be collected when the average prices were around 200 francs CFA per kg.

For lowland rice of Sikasso, the calculated gross margin of 218,649 FCFA/ha surpassed the target of 182,500 FCFA/ha, at 120% of the target. The increase in the Sikasso lowland producers' gross income margins primarily comes from the nearly 30% increase in paddy prices, from 150 to 192 FCFA per kg, due to increased demand from processors as a result of the six rice de-hullers acquired by the women with IICEM assistance and with the larger quantities of parboiled rice being sold on local markets.

Potato producers achieved a gross margin of 4M FCFA/ha compared to a target of 2.5M FCFA/ha, or 160% of the goal. The explanation of this major increase is due more to an adjustment in the way gross margin is calculated than to a substantial increase in gross margin itself. When compared to last year's result of 3.87M FCFA/ha, the gross margin calculated for 2010 represents an increase of only 103%. In fact, potato producer margins basically remained unchanged during the year. The 10% increase in price, from 245 to 263 FCFA per kg was offset by an increase in cost of imported seed. Also of relevance has been the continual increase in price for locally-produced potatoes in the Bamako market over the past three years, despite increased pressure from imports. This is mainly due to better organization of the apex organization URCEP as they began to develop contracts with Bamako traders and as a result of better logistics (in part through the large number of potato warehouses built by IICEM and its partner communities).

Millet and sorghum producers achieved a gross margin of $420 compared to a target of $549, or 76% of the 2010-2011 target. This difference is mainly due to the yield target of last year of 2.35M MT/ha, while actual yields averaged only 1.87 MT/ha. When establishing the PMP targets, IICEM applied a value of 2.2 MT/ha which was derived from INTSORMIL results concentrated around the village of Garaso; however, this figure is not, in the end, representative of average yields for other villages around Koutiala where IICEM works.

Maize producers achieved a gross revenue margin of $113 per hectare compared to a 2010-2011 target of $220, a shortfall of 49%. This is mainly a factor of yield, as the producers achieved a yield of 1.92 tons per hectare, compared to a target yield of 2.5 MT per hectare. In fact, even with certified seed delivered by IICEM, the germination rate was poor. This is the main factor lowering the gross revenue margin in 2010-2011.

Overall, gross margins for the dried cereals in 2010 – 2011 are twofold the gross margins for the baseline year. This is mostly due to the fact that since the baseline year, IICEM has promoted the use of improved seeds and new cultivation practices including fertilizers. The baseline year was achieved without the use of improved seeds and fertilizers. Further growth potential to be achieved by the combined efforts of IICEM and INTSORMIL fully justifies USAID's continued involvement in these value chains.

INCREASING VOLUMES AND VALUES OF NATIONAL, SUB-REGIONAL AND INTERNATIONAL SALES

As for sales, in general, the producer cooperatives supervised by IICEM have been able to sell their targeted production. Volumes sold vary depending on product and region, and in some cases, product sales are lower, reflecting the higher household consumption of crops produced. For example, in the North, in the regions of Mopti, Timbuktu and Gao, the marketed production of PIV rice is only 18%, and in Lake Horo, the marketed production of lowland rice is 23%. These low percentages of commercialized production illustrate the importance of this crop for the food security needs of these populations. As a matter of fact, these farmers sell only what is necessary in order to reimburse input credit.

For millet/sorghum, the percentage sold of total production is about 35%. In the South, producers also use the majority of production for household consumption, illustrating the basic food security role of these dried cereals.

Change in value of purchases from smallholders of targeted agricultural commodities. The value of purchases from smallholders of targeted commodities this year is 7,334,113,005 FCFA (about $14.67M) for 51,211 MT. This is a 48% increase over last year's result of 4,929,629,335 FCFA (about $9.91M), and a definitive overachievement towards attaining the life-of-project goal of $12.3M, even if the volumes represent only 40% of IICEM's ambitious goal of 75,000 MT on the year.

The main explanation for lower volumes is in the reduction in the number of value chains, as IICEM was asked by USAID/Mali to phase out activities in shallots, tomato, soybean and sesame. Moreover, at the beginning of the contract, IICEM thought that the pulp mango factory, COMAFRUIT, would

achieve its capacity production level of 15,000 to 20,000 tons the second year of operation. They chose to move the plant closer to their production areas, thus delaying scaling up until next year, and resulting in an exceptionally low value of 1,000 MT actually purchased from growers this year. Finally, as mentioned before, the percentage of cereals volumes sold on the market was lower than expected, in part a reflection of the highly variable response of producers to these basic food security crops. As IICEM is now focusing only on millet/sorghum and rice value chains, these factors are being taking into consideration in the aforementioned revised proposed PMP presently under discussion.

The overall result is nonetheless good when compared to last year volume of 28,510 MT. A growth from 28,510 MT to 51,211 MT represents an increase of 82%. This was achieved through the introduction of the millet/sorghum value chain for 7,054 MT valued at 628M FCFA; and the maize value chain for 3,034 tons valued at 315M FCFA. The rice value chain also had a significant growth in volume, from 5,299 MT last year to 8,049 MT this year (a growth of 52%) and in value, from 857M FCFA to 1.22B FCFA this year (a growth of 42%).

Finally, the potato sector is worth mention as the main contributor to this indicator. The potato sector under technical assistance, through the SICA union, went from 13,209 to 17,424 MT this year (a growth rate of 32%), representing a jump from 3B FCFA last year to 4.5B FCFA this year (a growth rate of 50%). IICEM is clearly reaping the investment of the previous years into this value chain.

Change in value of intra-regional exports of targeted agricultural commodities. Overall, producers and merchants collaborating with IICEM exported within the sub-region close to 4,915 MT of product for a value of 1.27B FCFA, 793 tons more than last year, but a reduction in the value of 439 FCFA (about $958,000). This represents a volume increase of 19% compared to last year and a decrease of 26% in value; however, compared to the target volume of 6,625 MT, this represents 1,710 MT less than the targeted volume, or 74%.

The target value for the 2010 – 2011 season was 642.5M FCFA. IICEM doubled that amount, achieving an increase of 97%. Different factors explain the discrepancy between a shortfall in volume targets while exceeding value. First of all, it is worth noting the good performance of IICEM's partners in the cereals sector. The most significant volume came from the new value chains, millet/sorghum and maize (value of 90M FCFA to regional markets). In addition, IICEM helped women processors and Mopti traders export rice to sub-regional markets, increasing exports from 55 to 275 MT this year (at an average price of 321 FCFA/kilogram for a total value of 88M FCFA). Also, tiger nut sub-regional exports increased from 175 tons to 541 tons.

The good performance of dried cereals was counter balanced by a poor performance of potato sector exports. The potato export sales were less than the previous year, with only 680 MT sold compared to a target of 2,625 MT (valued at 221M FCFA compared to the target of 1.4 billion FCFA). This difference of 1,945 MT or nearly 1.2 B FCFA in value, accounts for most of the difference between the program's intra-regional volume and value targets versus achievements. This is in part due to the non-competitive position of Malian potatoes in the Abidjan market as a result of barriers at the border that block transport and the importation of cheaper potato from South Africa and the Netherlands. This year all exports went to Burkina Faso, nothing to Ivory Coast. Malian producers obtained a better price for their potatoes in the Bamako market, though this market has seen intense competition from imported European potatoes over the past months. Finally, the volumes of mango exported within the sub-region were a little lower than last year, after two good previous years.

Change in value of international exports of targeted agricultural commodities. Partner traders exported 3,369 MT of mango and 370 MT of tiger nuts to international markets. This is a significant decrease of 940 MT from last year's achievement, representing only 40% of the targeted 9,163 MT. This resulted in sales of nearly 2B FCFA (about $3.9M) compared to a target of 2.85B FCFA (about $5.7M), an achievement of only 25% of the initial target of $15.3M.

International sales primarily stem from the mango sector, and have been an important export for several years. IICEM has focused on only a handful of exporters are still assisted by IICEM, mostly through facilitation of financing. Per USAID's request, IICEM smoothly phased out of assistance to the mango sector, among others as aforementioned. Nevertheless, this year traders IICEM assisted early in the project year exported 2,899 MT of fresh mango to the EU. And, for the second year, COMAFRUIT SA, continued refining supply systems for pulp processing, this year processing 1,000 MT of fresh mangos to make 500 MT of finished mango pulp, exporting it to European and North American markets. The factory, which has a capacity to process 20,000 MT annually, planned on processing 5,000 MT of fresh mango for their second year, which they were unable to achieve as noted above. This illustrates both the potential and the challenges involved in establishing well-structured and managed supply chains capable of responding to the raw material supply requirements of an enterprise such as COMAFRUIT SA.

SUPPORTING AN ENABLING ENVIRONMENT FOR AGRICULTURE, TRADE, AND PRIVATE SECTOR DEVELOPMENT

IICEM's work this year in enabling environment stems from two overall pursuits: preparation and follow-up surrounding the Cross-Border Conference on the Dakar-Bamako Trade Corridor, and its efforts to encourage producers to participate more in the broader dialogue about the business environment in which they operate. As explained in greater detail in the enabling environment section of the Achievements chapter of this report, two leading consultative processes launched by IICEM in the past year included bringing government and private sector actors together to review and address issues pertaining to road governance and cereals trade rules.

Results that deviated by at least ten percent under or over annual targets are listed below:

Number of consultative processes. IICEM facilitated a number of consultative processes with the private sector involving other value chain actors to resolve big-picture constraints faced by the private sector. For example, IICEM facilitated three meetings between producers, traders, input suppliers, and banks to resolve financing constraints in each of the millet/sorghum, rice, and maize value chains. IICEM also tackled major challenges when implementing partner BEACIL in Bougouni brought together input suppliers, traders and farmers to discuss challenges and solutions to the problem of a lack of quality herbicides on the market as well as the organization of maize sales between producers and traders to resolve financing issues.

However, given that this indicator by USAID definition seeks to track consultative processes stemming from government interaction with private sector and civil society actors, to demonstrate a more effective process for improving the trade and investment environment, these "big-picture" consultations amongst private sector actors without the involvement of government do not respond to what this indicator tracks. Therefore, only the two transport-related processes mentioned above count towards the 5 processes targeted this year.

Number of participants in trade and investment trainings. IICEM staff trained 563 people in trade and investment, 334 men and 229 women. As the target was 500, IICEM exceeded the target by 13%. Most of the training was under the rice and mil/sorghum sectors. Rice was particularly a focal point, as IICEM led a number of trainings for producer organizations on understanding contracting rules and regulations to support its work in organizing supply for traders and agribusiness. Due to the large number of women benefitting from IICEM's rice work, IICEM exceeded its gender disaggregated target of 175 women by 54, training a total of 229 women.

Number of individuals who have received IICEM-supported short-term agricultural enabling environment training. IICEM staff trained 1,105 people in short-term agricultural enabling environment, 711 men and 394 women (again surpassing the gender disaggregated target of 350 women). With a target of 1,000 persons trained, IICEM exceeded this indicator by 11%. This is mostly due to the new organizations in the mil/sorghum value chain, where NGOs and IICEM staff helped the producers better understand the context of the new framework law on agriculture (*Loi d'Orientation Agricole*).

As IICEM stopped working in most value chains except cereals, IICEM stopped activities that feed into on the *Number of institutions/organizations undergoing capacity/competency assessments as a result of IICEM assistance*, and the *number of institutions making significant improvements* based on recommendations made via IICEM-supported assessment. These PIVA-related assessments had mostly targeted cooperative unions and association federations pertaining to horticulture value chains.

GENDER-EQUITABLE OPPORTUNITY IN VALUE CHAIN DEVELOPMENT

To support IICEM's goal of promoting gender-equitable opportunity in activity development and implementation, IICEM's gender specialist focused this year on conducting research in villages to deepen IICEM's treatment of gender activities in cereals value chains. She also examined the effect of past IICEM activities on social dynamics and roles of men and women in order to tighten activity focus and ensure that activities respond to specific challenges within a sector that prevent more gender-equitable opportunity.

A particular focus this past year has been on developing and improving a gender analysis for the millet/sorghum value chain. After presentation and discussion with IICEM technical specialists, the gender specialist conducted additional field research to ensure a clear coherence between observations and recommended activities.

As an example of this research and activity tweaking, In April, the gender specialist met with men and women from the Union of Maize Producer Cooperatives of Beleko in Dioïla, who will be key partners for IICEM in scaling up millet/sorghum in the south during the 2010 – 2011 agricultural season. The women produce millet and sorghum, and lead about 43% of the union's commercialization activities. Due to lack of basic education and cultural practice, men help them with key tasks such as gaining access to land and negotiating bank credit on their behalf. Because they cannot read and write, they are not elected as members of the management committee. [Of note, since the gender specialist's first visit, the union president recruited and hired a woman from microfinance institution Kondo Jiguima who will address opportunity gaps and foster stronger participation and leadership by women in union and cooperative activities.]

As a result of interviews and focus group discussions with over 40 men and women, the specialist concluded that the women's opportunity in this organization can be expanded and strengthened through literacy and numeracy programs that support the women's ability to conduct and record sales transactions. In addition, training programs on basic financial concepts as well as cooperative legislation will help them be more capable candidates to not only manage their respective cooperatives, but also participate in union management. Research with organizations in other targeted work zones will strengthen the draft gender analysis for the value chain.

In the South, the production and commercialization of lowland rice assumed a priority focal point. Despite the economic opportunities offered to women in this value chain, they are faced with tremendous challenges in value-added production. Constraints identified include: significant reduction in surface water availability commonly attributed to climate change or variability; difficulties accessing finance to purchase equipment and materials, limited use of improved seed and inorganic fertilizers to achieve commercial-levels of production; and a lack of production infrastructure, particularly for water management and warehousing.

To help women increase income in this sector, over the past year and a half, IICEM has responded by guiding the construction of small dams and other activities to improve water-harvesting and make more water available to support increased production and productivity of women's rice cooperatives; introduced improved cultivation techniques with SRI and improved varieties such as *Nerica 4*; facilitated a stronger relationship between women's organizations and the BNDA to finance

agricultural inputs; and facilitated access for four women's organizations to rice hulling machines to introduce women to sales of processed white rice in place of paddy rice.

These particular lowland rice activities in Sikasso involved 2,634 women in eight women's organizations, representing 1,828 rural households, particularly those in Finkolo-Ganadougou, Gladié, Zoloko, Kouroumasso, and M'Pegnesso. With the few small dams constructed with IICEM assistance, women cultivated 2,255 ha in the 2010 – 2011 agricultural season, up from 422 ha the year before. Production and productivity improved, as production increased from 569 to 3,871 MT and yields increased from 1.3 MT/ha to 1.7 MT/ha for the same period. Women rice farmers in the south commercialized 3,085 MT of rice. This includes 317 MT of polished, white rice in their first year of processing paddy, which added 150,000 FCFA/MT to the sales price (117,000 FCFA/MT for paddy rice to 272,000 FCFA/MT for hulled rice).

Particularly in the North during the past year in regards to creating more equitable opportunity, IICEM has noted a more transformational change taking place in villages where it has been working over the past two years in terms of more equitable participation of men and women in their communities. For example, in Dandoly, where IICEM provided women with leadership training and technical assistance, there is a significant increase in incomes from shallot production and processing, and both women and men voiced their satisfaction with the IICEM program in helping women be more active members of their community's development. Traditionally, children had never eaten breakfast before school because the families did not have the means to provide it. Now, with profits from shallot production, processing and sales, women provide breakfast to their children. Women commented that this has made them feel more useful to the household and their husbands consult them more about household economic matters. The men agreed, saying that IICEM's work has helped strengthen social unity between women and men in the village and as a community they are much stronger now than they were 3 years ago.

Also in the North, IICEM and its partner women's cooperatives saw an opportunity to pursue potato farming, which is traditionally viewed as men's work. IICEM has helped 34 cooperatives introduce potato farming to their villages, of which 26 are women's cooperatives. Implementing partner NGO PEENAL reports that in Bagui, as a result of IICEM introducing potato farming activities with the Benkadi women's cooperative, the women opted to set aside half of their 2010 profits to cover next year's input costs and half to cover birth certificate prerequisites and school fees to send 20 children to school. They selected 10 girls and 10 boys. This not only validates previous research conducted worldwide that supports the idea that women's success benefits their broader communities, but also demonstrates a shifting belief in the importance of generating equitable opportunity within the village, as illustrated by IICEM's work with the Benkadi women.

Other examples of IICEM's activities to improve gender-equitable opportunity in value chain development include:

- Constructing a millet/sorghum warehouse in Kayes benefitting a federation of 30 women's associations and allowing women to increase incomes through their involvement in cereals commercialization;
- Assisting millet and sorghum farmers in the north, 1,308 of 2,992 are women, who benefit from activities to improve access to finance for input purchases, access to improved seed, and technical assistance to improve cultivation practices.

SYNERGISTIC ACTIVITIES WITH OTHER PARTNERS

To leverage funding, coordinate with similar donor and government initiatives, and strengthen the sustainable impact of IICEM initiatives, program leadership places a strong emphasis on developing synergies with partners. Details of these partnerships appear throughout this report. Examples include:

- Continued collaboration as reported in past quarters with the USAID-funded INTSORMIL Collaborative Research Support Program (CRSP) to scale-up improved varieties and cultivation techniques of key cereals crops, and also to find innovative, appropriate processing technologies to boost quality and commercial-scale operations in Mali.
- A formal partnership with the Malian Investment Promotion Agency to provide technical assistance in streamlining regulations pertinent to agribusiness registration and start-up, starting with farmer-based seed certification procedures. The streamlining and eRegulation initiative was launched by the United Nations Conference on Trade and Development (UNCTD), but does not have implementation resources. Given the importance of improving the seeds sector, IICEM took the initiative to fill this gap.
- Coordination with the USAID-funded program Malian Agricultural Value Chain Enhancement Network (MAVEN) to design and deliver a training course in Bougouni to develop a fish farming pond model using local materials to address a problem with soil percolation. MAVEN brought in an American volunteer who worked closely with the IICEM aquaculture specialist, regional government officials, and local fish farmers to finalize and deliver the training;
- IICEM's horticultural specialist attended the Integrated Pest Management CRSP training on how to identify types of damage from mites and how to deter infestations with organic and chemical methods, then incorporated elements of the training into IICEM's work with Bamako's peri-urban gardeners, who have been experiencing problems with mites reducing or destroying eggplant, potato, and tomato production;
- The chief of party and gender specialist attended UN World Food Program's Purchase for Progress annual meeting. Women small holder farmers were a particular focus of the meeting. The program is conducting a gender study in Burkina Faso and is particularly looking at intercropping activities involving women. IICEM will stay abreast of the results of the study to see if there are interesting opportunities involving intercropping with IICEM partner farmer organizations; and
- A collaboration with the National Agency for Food Safety (ANSSA) to deliver a training on basic principles of quality, different elements of international standards and certifications pertaining to production, hygiene and sanitation, and packaging. Participants included representatives of the partner agribusinesses who have received support from the Agribusiness Innovation Fund to launch or expand their agribusinesses, plus the agribusinesses that are currently taking the e-commerce course and developing a website with support from IICEM and the local vocational training center CEFIB.

PROBLEMS/CHALLENGES

OBLIGATED FUNDS

As explained in greater detail in the May 2011 quarterly report, the IICEM program did not receive the expected obligated funding renewal for the fiscal year starting October 1, 2010. At the end of the second year of a three-year contract, obligated funding and spending levels should have been around 70% of the total contract; however, as of August 31, 2011, it remained at only 44% of the total contract value ($19,685,942 obligated out of the $44,727,298 ceiling).

As a result, by the end of January 2011, the program submitted a revised work plan to assure continued support to key Feed the Future priorities in the approaching agricultural season, such as the scaling up of millet and sorghum production initiatives, but to significantly cut back certain other activities of lower priority. The most significant impacts included elimination of the medium-term guarantee funds to facilitate access to finance for more significant agribusiness investment; suspension of the REDD+ activity addressing climate change adaptation; stopping work with all Regional Centers for Agronomic Research and Regional Directions of Agriculture regarding the rice seed sector in Mopti, Timbuktu and Gao; and stopping work with all other value chains except millet/sorghum and rice other than certain intercropping and revenue diversification activities [see May 2011 Quarterly Report for a detailed list of repercussions].

SEEDS

The lack of availability of sufficient quantities of quality, improved seed varieties, particularly in the millet and sorghum sector, continues to plague Malian farmers. IICEM is tasked not only with increasing productivity and margins, but by doing so chiefly through an increase to the number of hectares being cultivated with new technologies, which includes the use of improved seed. This past year, IICEM's partner OPs were challenged at sourcing ample quantities of quality, improved seed to meet target surface area under cultivation and harvest projections. Many OPs were only able to apply new management and cultivation practices, but were forced to use lower-producing varieties. As a result, harvests were slightly better, but not where they need to be in order to support increased, commercial-scale agriculture. IICEM's work this year at revising the seed certification procedures with the API and IER, which is currently at the Ministry of Agriculture for approval, will help ease the complicated farmer-based seed multiplication process, but more attention needs to be focused on assuring sufficient quantities of high-quality seed.

LIMITATIONS TO THE NUMBER OF AGRIBUSINESSES SUPPORTED BY IICEM SAF AND FAEI

In addition to a lack of renewed obligated funding which prevented advancement of agribusiness investments targeted for SAF and FAEI assistance, the number of entrepreneurs truly motivated and ready to invest with their own capital limits the number investments these funds can support. Since IICEM's objective is to support only serious entrepreneurs with feasible business plans, IICEM's SAF and Agribusiness Innovation Fund (FAEI) have specific and detailed partnership criteria each entrepreneur must meet. This restricts the number of credible agribusinesses who funnel through the screening process, as the majority of applicants ultimately do not follow the requisite criteria. IICEM does not recommend easing the application criteria, as this would ease the sustainability of IICEM's work with the agribusiness, but notes it as a challenge to ramping up SAF or FAEI intervention.

SUCCESS STORIES

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SNAPSHOT

Access to Finance Is No Small Potatoes

Simple solutions generate sustainable approaches for financing southern Mali's potato sector

Photo: Karen Jung, Abt Associates, Inc.

Potato seed distributor Harouna Konaté (left) discusses varieties and prices with a potato farmer. This conversation would not have taken place in 2011 without USAID's work to bring banks, technical experts, farmers, traders and input suppliers together to create a new approach to finance and investment in the potato sector.

Technical advisory services and loan repayment monitoring assured access to $1.6M in input financing for 39 potato farming and sales organizations in 2011, establishing a sustainable structure for potato sector finance and investment.

Telling Our Story
U.S. Agency for International Development
Washington, DC 20523-1000
http://stories.usaid.gov

"What USAID's economic growth program did to bring the bank, technical experts, farmers and traders together rescued the potato value chain in Mali," declared potato seed supplier Harouna Konaté. Potatoes generate some of the largest gross margins per hectare for farmers and are therefore vital to southern Mali's rural economy. Potato gross margins in the south are $7,800 per hectare excluding labor costs, compared to $400-420/ha for cereals and $668/ha for tiger nuts.

However, despite these attractive margins, loan defaults of 40% every year for the past 4 years pushed Malian banks to steadily reduce lending to potato farmers and traders. Lending was too risky. From 2007 – 2010, the National Bank for Agricultural Development (BNDA) reduced input financing for potato sector actors from about $1M to $600,000 per year. After reducing its exposure, BNDA's loan default rate increased to 45% in 2010, so BNDA decided to withdraw from potato financing altogether.

USAID's *Integrated Initiatives for Economic Growth in Mali* program (IICEM) intervened to address three of the biggest risk factors for the bank: over-estimations of input needs leading to larger loans than necessary, a culture of non-repayment, and a lack of technical support services to help farmers respond to new challenges. The program guided technical experts from the company Group for Agricultural Research, Surveys and Training (GREFA) to help farmers better calculate input needs and monitor loan repayment. With this technical support, BNDA agreed in late 2010 to finance the sector one more time, and to date farmers and traders have repaid their loans 100%.

Farmers also needed guidance in responding to new challenges posed by climate variability. Early rains in 2010 drowned potato crops in a dozen villages, leading to loan default. The Malian government intervened to bail out the bank. With IICEM support, GREFA worked with villagers and GPS tools to identify less risky production zones at higher elevations.

As a result of this assistance, BNDA financed $1.6M in the 2010 – 2011 season. Recognizing the profitability of the sector and the importance of access to finance, BNDA and the farming and sales cooperative are negotiating to build GREFA's technical guidance into the loan structure without USAID assistance, creating a sustainable structure for future financing.

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SNAPSHOT
Cereals Trader Increases Income

Purchase contracts increase quality and income for farmers and traders in Koutiala, Mali.

Photo: Karen Jung, Abt Associates, Inc.

Sidiki Badian Doumbia (bottom left) supervises the loading of a truck that will deliver a cereals order to a large mill in Bamako.

Purchase contracts increase cereal trader's income by $15,000.

The traditional cereals trade in Mali has been haphazard. Farmers have produced cereals uncertain of market characteristics, with little regard to the percentage of impurities, humidity, and other factors affecting quality. Collectors have dictated prices paid on the village level and major buyers have ended up with inconsistent lots of poor-quality grains that largely do not satisfy their needs.

The USAID Integrated Initiatives for Economic Growth in Mali program (IICEM) is changing that, to make cereals farming, trading and processing more profitable at each level. By introducing purchase contracts and strengthening communication between farmer organizations, traders, major wholesalers and processors, each group is becoming more aware of the value-added benefits of planning and reorganizing to better meet quality and quantity requirements of buyers.

Following the meeting with IICEM partners, Koutiala trader Sidiki Badian Doumbia purchased grains from a cluster of IICEM-assisted farmer organizations for delivery to the large mill in Bamako, *Grands Moulins du Mali*. By knowing the buyer's quality requirements, price and contract terms, Doumbia paid the farmer organizations a pre-negotiated price for raw materials meeting quality standards, then made transportation arrangements with confidence to deliver the quality product to *Grands Moulins*, knowing the buyer would accept the goods and pay promptly according to contract terms. Selling 2,400 tons of maize and sorghum in the first few months of implementing the new purchase contract system promoted by IICEM, Doumbia earned $15,000 in new income.

"This is the first time major buyers have been put in touch with the millet, sorghum, and maize farmer organizations," Doumbia explains. "We just started this new system, but with what has been accomplished in only a few months, I can say what we are pursuing now is transforming the way we do business and it will be better for us all, from farmers to the end market."

Doumbia is currently investing in a new 1,200-ton storage facility and is procuring another 800 ton facility with office space in order to expand his operations. He plans to double last season's sales to 5,000 tons of maize, millet and sorghum.

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FIRST PERSON
Gao Farmer Does It All

Motivated farmer in Gao Region implements integrated initiatives and creates a new future.

Photo: Maimounatou Touré, Abt Associates

"With the arrival of USAID's economic growth program, it is as if new blood has been injected into my veins. I was at the point of abandoning agriculture and now I have over $12,600 of products to sell in my storage facilities and I cover my own input financing. I am totally independent."

—Salif Maiga, Gao farmer and school teacher

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Salif Maiga is a model farmer for USAID's Integrated Initiatives for Economic Growth program (IICEM) in the Gao Region. He founded the *Societé Cooperative de Djeflani* with 29 other farmers who tended 10 ha along the Niger River. For more than 10 years, the cooperative's parcel was managed by the Malian government. Eroded earthen irrigation canals did not deliver water efficiently to parcels of rice, vegetables and tree crops, which led to high input costs. Each year, farming became more and more unprofitable and a third of the farmers lost interest. To supplement rice farming activities, Maiga tried to support his family with a series of short-term positions teaching jobs.

Then USAID's IICEM program introduced a number of integrated interventions to help the cooperative quickly regain profitability. With IICEM assistance, the cooperative re-lined over 1 km of irrigation canals, gained access to a new motorized water pump, and implemented sustainable financial management to assure long-term viability and maintenance of the irrigation system. The new irrigation system supported a resurgence in rice farming and vegetable gardening.

Maiga and other cooperative members learned about the System for Rice Intensification and began using improved seed and cultivation practices introduced by IICEM, such as the application of organic fertilizer. Rice harvests doubled from an average of 3.5 metric tons per hectare (MT/ha) to over 7 MT/ha. Maiga diligently applied all aspects of the new technique increasing his yields to 9 MT/ha. "Before IICEM, we did not know about organic fertilizer. We learned about it with SRI training," explains Maiga, "And as for rice seed, since the arrival of IICEM, I produce my own seed. I don't pay for seed any more - in fact, I sell it to other villages."

Maiga also learned about potato farming and rainy season onion through IICEM. To manage his new profits, he applied financial management training and can accurately calculate production costs and profit from each crop. In 2009, Maiga planted a typical variety of onion on 0.50 ha earning $1,000 in gross revenue. This season, he planted the same 0.50 ha with a new rainy season onion promoted by IICEM and anticipates a harvest of 11.5 MT which he will sell at 84 cents/kg for a gross revenue of more than $9,600. His plans for expansion include buying 2 new water pumps and 2 vegetable storage facilities.

LESSONS LEARNED

FOR PRODUCTION TO BE A DRIVER OF INVESTMENT IT MUST BE SOLD FOR A PROFIT

Focusing agribusiness development on market-led growth at all levels in a targeted value chain has provided the IICEM team with a clearer vision on priorities and responsibilities when developing and implementing activities with clients, partners and collaborators. It provided a results-based context for assessing enterprise development initiatives and a management-based tool for implementing partners to use in designing and tailoring field activities to meet the needs of client groups, while at the same time ensuring that activities remained focused on IICEM objectives and purpose. Moreover, focusing efforts on fewer value chains provided opportunities to work more effectively in-depth with partners and clients to identify and address pertinent constraints and obstacles to developing their businesses and establishing market-based strategies to orient and promote future enterprise development efforts focused on targeted demand, market diversification and competitive advantage.

While these concepts are often relegated to the level of industrial-scale enterprises, producing for markets is a concept applicable at every level in value chain development. Traditional producers, especially those in food staple sectors, need to increasingly manage their production units as a business, adopting innovative new technologies to increase their productivity and their profitability. A key factor promoting on-farm investment is profitability, ultimately determined by the ability of a producer to meet targeted market demand at less cost. The adoption of a targeted market approach towards developing traditional production in an effort to make it more productive and profitable has highlighted the need to reduce the risk of agricultural lending, formalize commercial transactions, adopt technologies based on meeting targeted demand at least cost, and developing new, high value products to diversify and segment existing final product markets and provide profitable margins for all value-added actors in a value chain to invest in innovative technologies in order to become more productive, efficient and increasingly competitive.

This market-led approach has also made it increasingly clear the importance of sub-regional and regional markets in developing Mali's cereal sector. The vast majority of rain-fed cereal production is presently destined for relatively low-value, high volume gain markets, and it is sub-regional coarse grain markets that will quickly enable Mali to secure the economies of scale necessary to support up-stream investment. In these cases, profitability is more a factor of volume of produce commercialized than of high unit value. Presently the development of Mali's cereal sector is basically depends on increasing on-farm productivity to achieve the economies of scale necessary to justify the adoption of productivity enhancing technologies for high volume, relatively low value markets. This is not to say that commercial grain markets cannot be profitable, but rather that the development of high-margin final product markets will likely be the result of developing increasingly efficient raw material supply chains that are able to achieve economic efficiencies through improved product quality management and improved logistics in high volumes. Such supply chains will be the precursor of industrial-scale processing which requires high quality, homogenous raw material supplies on a regular basis to ensuring profitable operation. In the interim, developing semi-industrial processing focused on quality, competitive pricing and capturing increasing market share provides a market-driver for the sale of limited quantities of high quality raw materials on a "pilot basis." Here the objective is to demonstrate the economic and financial success of a market-led model that can then be replicated on a larger scale.

The large-scale production of high quality raw materials begins with being able to penetrate and increase market share in commercial grain markets. Achieving efficiencies in consolidating raw material supplies, ensuring quality control and formalizing transactions both up- and down-stream are necessary in order to become competitive in such markets, while building confidence with

suppliers, final product buyers and financial partners. IICEM's market-led strategy has, and will continue, to provide a road map for ensuring sustainable commercial and economic development of Malian agriculture, though not all agricultural commodity sectors presently have the same capacity to respond to evolving market opportunities.

USAID has selected three cereal commodity sectors, i.e. millet, sorghum and rice, to focus its new Feed the Future program in Mali. Rice production has historically been commercially driven and investments in new productivity-enhancing technologies have been encouraged and economically supported by increasing market demand for quality white rice. In addition, the rice sector is clearly segmented, enabling producers and processors to target specific high-value segments and make investments accordingly.

Such is not the case with millet and sorghum. Nonetheless, IICEM's market-led approach clearly defines what needs to be done to transform Mali's millet and sorghum cereal sector into one that increasingly supports the development and adoption of productivity-enhancing technologies from the farm to the final consumer. The task is to increase smallholder production to the point where the majority of harvests results in net profitable sales, not home consumption. Household consumption of family production does not pay a profit, nor does it value quality, at least monetarily. If quality is not monetarily valued then investments in value-addition have little economic basis.

Coarse grain commercial markets, for example, do value quality and most have very clear quality requirements in terms of foreign matter, humidity, and some even specify variety. Working back from these markets and their demand criteria, IICEM and its partners develop the means such that producing for these markets becomes increasingly profitable. In this regard, IICEM assumes a certain risk in partnership with entrepreneurs and financial institutions for financing the adoption of new, innovative technologies, facilitating access to credit for production enhancing investments, and brokering commercial relationships between sellers and buyers to supply targeted markets. In essence, IICEM helps "jump start" the investment process so that credible businessmen can become credible investors. This requires that IICEM operate in a business environment where profitability is both the short and long term objective. In addition, the long term objective is also to translate short term profitability into economies of scale that improve efficiencies, increase margins and encourage further investment.

ANNEX 1

Significant technical documents produced during the reporting period:

IICEM and Climate Change Adaptation by Emilie Cassou

Millet/Sorghum Value Chain Analysis

Etude d'Options Stratégiques de Développement de la Chaine de Valeur Riz a Mopti

Maize Value Chain Analysis