



USAID | **MALI**
FROM THE AMERICAN PEOPLE

ACCELERATED ECONOMIC GROWTH

Strategic Planning for the Development of a Multi-Year Plan for Feed the Future



JUNE 2010 DRAFT FINAL

Cover photos by USAID/Mali staff members and implementing partners: Restoration of irrigation canals for rice production at Touara by Baou Diane; Fattened steers at Niamana market in Mali by Jay Angerer; Catch from fish pond at Baguineda caught on the day of the pond's inauguration by Yacouba Santara; Sorghum test plot at ICRISAT by Yacouba Santara.

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June 23 – 24, 2010

Summary Report – Draft Final

The USAID Mali economic growth team has had a long history of collaboration with partners. Government partners, funded partners, other donors and USG agencies are all among those with whom we work in partnership. Since December of 2009, the team has been working towards this past month's partners meeting to help frame, inform and design programs that are larger and more integrated in order to fundamentally develop local capacity within all activities. For two days over 100 people came together and were fully committed to discussing how best to do this. This meeting, in addition to supplementary analytical information, will help frame the multi-year strategy and guide us in our final decisions for Feed the Future programming.

Mali was one of five countries selected to receive funds under the Global Food Security Response (GFSR) in 2009 enabling us to program funds quickly and effectively to increase irrigation and focus on expanding staple crop productivity. We are building on the initial ramping up and the successes of last year. We are looking to work more strategically with additional USG agencies in addition to developing with and for the Government of Mali programs that will help the government monitor its own progress in reducing hunger and poor nutrition. We are helping them to build the economy based on agricultural transformation.

In itself the meeting was a notable collaborative effort, led by two expert facilitators from the Training Resources Group (TRG), Jawara Lumumba, and Dick Wall.

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USAID/Mali Accelerated Economic Growth Team

GOALS AND OBJECTIVES OF THE MEETING

Goal: Develop a common set of options for economic growth and food and nutrition security

Objectives (Wednesday)

- Analyze and discuss current progress in Mali in agriculture and economic growth
- Have an overview of USAID/Mali's portfolio for economic growth
- Develop a shared understanding of the concept of scaling-up
 1. Focus on needs and priorities as identified by the Government of Mali
 2. Identify priority value-chains for Mali
 3. Identify issues associated with scaling-up Mali's programs for increased food security and economic growth using USAID's predominant capability

Objectives (Thursday)

1. Identify potential programs in economic growth including agriculture if money were no object
2. In order to sustain progress identify the next steps needed to consolidate the lessons learned from this meeting

PARTICIPANTS (approximately 100)

- Implementing Partners
- Government of Mali
- Private Sector Representatives
- Representatives from the donors working group (PTF)
- Represented U.S. Government Agencies: USAID/Mali, USAID/Washington, Millennium Challenge Corporation, Peace Corps, USDA/APHIS

PRESENTATIONS

“Recent Performance of Malian Agriculture and What is at Stake for the Future,” John Staatz and Nango Dembélé (Michigan State University)

- A. Context: Mali is a large, geographically diverse, democratic country in West Africa with open borders and markets, climatic challenges and risks, and an agricultural sector that highly implicates women
- B. Snapshot of the Economy (Land area, population, GDP, income per capita)
- C. Evolution of Mali's GDP: In 40 years, the agriculture sector has dropped from making up 70% of the economy to now just under 40% (37% in 2007) with services and industry/mining/energy sectors growing
- D. Agricultural sector growth rate: 3.7% (2002-2006)
- E. Evolution of Sub-Sectors
 1. Cereals: Millet, sorghum, corn, rice, and peanuts all expanding
 2. Livestock: Growing numbers; milk production and suburban poultry up; limited use of fish farming
 3. Vegetables: Expanding at urban perimeters
 4. Wild products: Incomplete management
- F. Resources available to agriculture (Irrigable land, seed, fertilizer)

- G. Challenges to the Agricultural Sector
 - 1. Climate change
 - 2. Growing urban food insecurity
 - 3. Land tenure reform
 - 4. Rural job creation
 - 5. Research and policy analysis
 - 6. Project design
 - 7. Size and landlocked nature of Mali
- H. Questions/Comments/Concerns raised by Participants:
 - 1. How to maximize water resource management
 - 2. How to attract youth to agriculture
 - 3. Improve agricultural education at all levels
 - 4. Climate change
 - 5. Constraints of regional markets
 - 6. Technology dissemination and access
 - 7. Development of improved seeds and access to them
 - 8. Coherence of strategy with government policy and the CAADP/National Priority Investment Plan
 - 9. Role of local governments
- I. Analytical Papers and Key Documents (see annexes):
 - 1. **Mali's Agricultural Sector: Trends and Performance.** Duncan Boughton and Valerie Kelly. Michigan State University. 2010.
 - 2. **Achieving Food Security in Mali: Key Issues and Investment Needs.** Duncan Boughton, Nango Dembélé, Valerie Kelly and John Staatz. Michigan State University. 2010.
 - 3. **Opportunities and Investment Strategies to Improve Food Security and Reduce Poverty in Mali through the Diffusion of Improved Agricultural Technologies.** Jeremy Foltz. University of Wisconsin-Madison. 2010.
 - 4. **Mali's Food Security Challenges: An Overview.** Duncan Boughton, John Staatz and Nango Dembélé. Michigan State University. 2010.
 - 5. **Tourism and Food Security in Mali.** Robert B Richardson. Michigan State University. 2010.
 - 6. **National Priority Investment Plan of Mali 2011-2015.** National ECOWAS Unit. Republic of Mali. 2010.

USAID/Mali Accelerated Economic Growth (AEG) Portfolio, Jean Harman (AEG Team Leader) and Gaoussou Traoré (AEG Agricultural Production Component Manager)

Agricultural Productivity Group

- Abt Associates/Initiative Intégré de Croissance Economique au Mali (IICEM)
- Oregon State University/Aquafish CRSP
- Colorado State University/Adapting Livestock Systems to Climate Change CRSP (new)
- Sorghum, Millet and Other Grains (INTSORMIL) CRSP
- Winrock International/Farmer to Farmer
- Virginia Tech/Integrated Pest Management (IPM) CRSP
- Institut d'Economie Rural/Unité de Semence de Base
- Soil Ridge Tilling (grant to government)
- Intercropping with *jatropha* (grant to government)

PL 480 – Title II (Humanitarian Assistance)

- “Projet Nema” with Catholic Relief Services, Helen Keller International, and Save the Children
- Timbuktu Food Security Initiative with Africare

Markets and Trade Group

- Abt Associates/Pro Mali Nord
- US Department of Commerce/Intellectual Property Rights
- Market Based Food Security Activities – Peace Corps PAPA
- ICAS/World Bank: Improving the Investment Climate in Mali
- Trickle Up
- West Africa Seed Alliance
- Michigan State University/PROMISAM: Food Security III

Natural Resources Management Group

- AED/Global Sustainable Tourism Alliance
- Near East Foundation/Global Climate Change

Integration and Coordination within the AEG Portfolio: The “Anchor” Graphic (see next page)

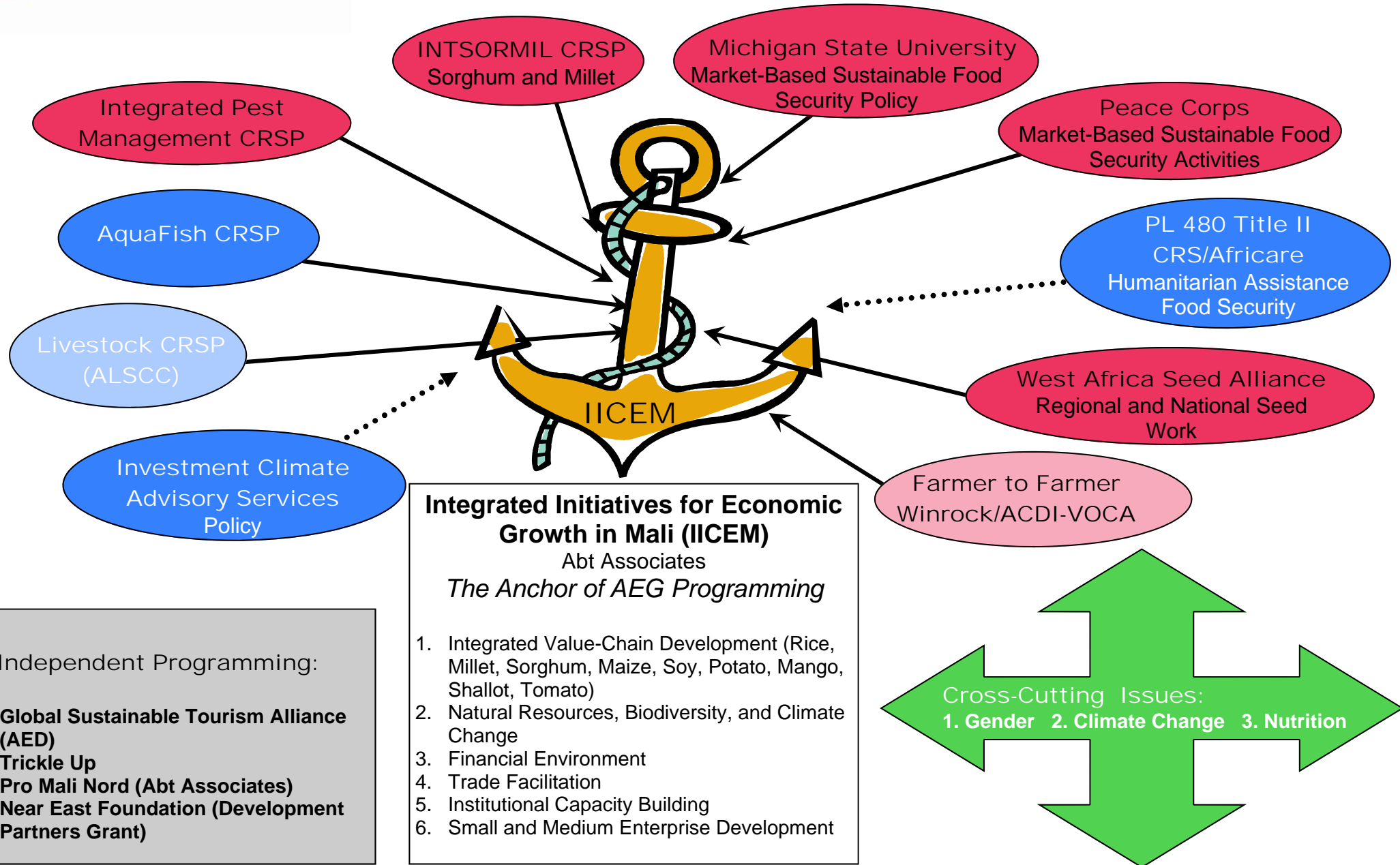
- IICEM “anchors” the portfolio providing linkages between funded programs
- Transversal themes of the portfolio include gender, climate change and nutrition



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Accelerated Economic Growth Portfolio 2010

1. Increased rural household income in target areas
2. Increased percentage of the population no longer classified as poor in target areas
3. Sustainably reduce poverty and hunger



Geographic Information Systems, David Jackson, AEG Program Assistant

- Brief introduction to Geographic Information Systems
- Presentation of maps created by AEG and the information used to create them
- Utility of maps

GROUP WORK SESSIONS

Experiences in Agriculture and Economic Growth

Questions to be discussed:

1. What are some of the key lessons learned about agricultural and economic growth in Mali?
2. An effective agricultural and economic growth strategy should combine a thematic approach (strengthening research and/ or extension services), a sub-sectoral approach (financing investments in particular sub-sectors such as fish or dairy) and a geographical approach (production systems). How can these 3 approaches be used and still maintain a focus on key strategic investments rather than having a program that tries to do everything for everybody?
3. What are other critical issues facing Mali's agricultural and economic growth programs (ex. encouraging land tenure reform to attract private investment, avoiding public and private duplication, or increasing urban food security)?
4. What are strategies for addressing those issues?

Summary of Report-Out:

- A. Experiences:
 - Participants feel there is an imbalance between investment in construction and infrastructure and investment in human capacity building (training, education, extension services etc)
 - Within the rural areas, producers, processors, and shopkeepers/tradesmen have benefited from training and better organization but need more emphasis on not only the capacity of producers but also within institutions and local government
 - Technology transfer has had little success and few technologies are adopted once introduced (difficulties in behavior change)
- B. Effective economic growth strategy: Support growing sub-sectors/value-chains in government-identified geographic areas to ensure sub-sectors are linked to production zones
- C. Problems:
 - Poor project design, too short term, and lack of learning from and improving past projects
 - Lack of protection of land rights or poorly implemented land tenure reforms
 - Multiple intervening parties and weak coordination between them
- D. Solutions:
 - Modernize agriculture (use new technology, improve access to financing, develop jobs...)
 - Create linkages between research and extension
 - Diversify sources of energy
 - Attract private investment (land tenure reform, fiscal policy, etc)
 - Soil conservation and management
 - Reduce transport costs through improved policies and greater efficiency

- Adapt training and education to the needs of the community
- Reinvigorate extension services
- More people need to be involved in the decision making process at all levels
- Reinforce the capacities of civil servants and create/support accompanying institutions in order to improve implementation

Scaling-Up

Small-Group Exercise:

- Rank the following value chains of the AEG portfolio in order of importance and briefly explain your reasons for doing so
- Discuss the choices. Then list and prioritize your choices (Limit to top five and bottom five)

Value Chain	Donors	Specific USAID Focus	Impact
Potatoes	US, World Bank, Swiss, Canada	increased volume production; market infrastructure development (full value chain)	increase market opportunities; increased incomes
Shallots /onions	US, World Bank, Canada, Italians	increased volume production; new market development (full value chain)	increase income (particularly women); local capacity development
Tomatoes	US	increased volume production; new market development (partial value chain)	increase income (particularly women); local capacity development
Mangoes	US, World Bank, Swiss, Cadré Intégré (AFD PNUD)	increased processed production; new market development (partial value chain)	increased volume of exports; broad based increased incomes
Tiger nuts (pois sucré)	US, Spaniards	sub-sector development; development of new markets (moving toward full value chain)	income generation
Tourism	US, Dutch, World Bank, Germans, French	improve benefits of tourism for the local population while protecting biodiversity; increased natural resource management	broad based increased incomes in an area where agricultural production is on marginal lands
Cattle	US, Belgians, World Bank	productivity and market development	broad based economic growth and income generation
Small ruminants	US	poverty reduction through technology transfer and market development	broad based increased incomes for women; poverty reduction among the most impoverished
Poultry	US	sub-sector wider development	broad based economic growth and income generation
Fisheries	US, Japan, European Union, BAD	technology development and transfer	broad based increased incomes; improved nutrition; adoption of new technology
Seeds	US, Japan, BAD	technology development and transfer	very broad increased income; poverty reduction and access to improved technology
Rice	US/MCC, Dutch, Japanese (policy), World Bank, European Union, Germans, Swiss, BAD, France	Focused on small scale irrigation systems in geographic areas where the heavy irrigation systems do not exist; technology development and transfer; most elements of the value chain	Broad based increased incomes; reduce production risk; local capacity building
Corn	US	market development; technology development and transfer (full value chain)	Broad based increased incomes; reduce production risk; local capacity building
Millet/sorghum	US	new cultivar development and transfer; market development (full value chain)	Broad based increased incomes; reduce production risk; local capacity building
Soy	US	sub-sector development; development of new markets (moving toward full value chain)	potential for broad based increased incomes
Fonio	US	sub-sector development; development of new markets; targeting women and the most impoverished	broad based increased incomes

Summary of Report-Out:

A. Identified Selection Criteria

- Importance of the commodity to food security
- Comparative advantage (Potential, results, conservation capacity...)
- Economic factors (contribution to economic growth, income generation)
- Gender considerations
- Degree of impact on population

B. High Priority (*Ranked from highest to less high priority. Point totals reflect consolidated results from small groups*)

- Millet/Sorghum (29 points)
- Rice (21 points)
- Seeds (16 points)
- Small ruminants (15 points)
- Cattle (15 points)
- Poultry (15 points)
- Corn (12 points)
- Fisheries (8 points)
- Potato (4 points)
- Shallots/Onions (3 points)
- Tomatoes (2 points)
- Mango (1 point)

C. Low Priority

- Fonio
- Tiger nuts
- Soy

D. Follow-up Discussion

- The selection of value chains was made based the objectives we are trying to reach: increased incomes, reduced poverty and increased food and nutrition security
- Are there other value chains that aren't on the list that should be? Why?
- The selection was based on studies and opportunity
- The logic behind our planning is to achieve better results

“Blue Sky” Brainstorming Exercise

Scenario: Imagine a situation where programs could be designed for Mali without funding constraints. Brainstorm possibilities of how to use these funds to produce a sustainable impact on the most number of people in order to reduce hunger and increase economic opportunity.

Summary of Report-out:

- Two groups identified the transversal approach as best (establish development building blocks, all value chains)

- One group argued for focus on most beneficial value chains, in certain geographic areas, and with specific themes (only expand on what we are already doing)
- Only one group discussed private sector development
- Most cited priority focus areas:
 1. Literacy and education (x5)
 2. Small-scale dams and other methods to improve irrigation (x4)
 3. Improve rural roads to facilitate transport of products (x4)
 4. Modernize and develop infrastructure to process and store produce to be sold in local and international markets (x4)
 5. Money transfer and financial services (x4)
 6. Access to credit (x3)
 7. Improve capacity of agriculture extension agents (motivation, training, include gender concepts) (x3)
 8. Renewable energy (small or large scale) (x3)
 9. Reinforce market information systems (x3)
 10. Improve the management capacity of state structures (x3)
 11. Healthcare and health education (x3)
 12. Nutrition education (x3)

CONCLUSION (Jean Harman)

- A. We met our objectives as a result of profound and animated participation of all of our partners:
 - Used the expertise gathered here to identify needs for the development of Mali
 - Reinforced collaboration with other partners that have a sustainable and responsible approach which leads to stronger engagement in economic development
- B. Looking forward:
 - Substantively and fundamentally coordinate activities to maximize impact of our work
 - Comments and feedback will be taken into consideration over the next three months we will be digesting and processing the info we take away
 - We ask for informal or formal feedback on the studies given to you electronically or in hard copy
 - Take time to understand gender analysis
 - Please read over these analytical papers, we need your input to make future programming more vibrant

FEEDBACK FROM PARTICIPANTS

- A. John Staatz: MSU
 - Very useful meeting (speaking for all US universities, esp land grant universities)
 - Scientific collaboration—finding practical solutions to the problems Mali faces
 - Outreach (those who use research)
 - Teach and build capacity
 - We look forward to strengthening engagement and partnership
- B. Jean-Francois Guay (Director of IICEM)
 - The meeting was very advantageous for all of us

- Adopt a more common vision and see where we can collaborate
- Must continue the market based approach: Introduce appropriate technologies and be more productive and more integrated into markets

C. Fousseini Mariko (Ministry of Agriculture – Rural Development Statistics and Planning Unit):

- We are and will continue to coordinate with USAID/Mali on the CAADP process
- The vision we can see here with the value chain approach will reinforce the partnership with USAID/AEG but also with other development structures that will be supporting us in the implementation of the Investment Plan for Agriculture (PNISA)
- Thank you to each one of the participants for your input

D. Positive Feedback:

- The realization that most ideas and priorities were similar which leads to increased synergy and therefore a feel that we share a global vision (x10)
- Good to identify the stake holders and priorities for the expansion of USAID activities and economic growth in Mali (x9)
- Shows the importance to support agricultural production and the value chains (x4)

E. Recommendations for Strategic Development:

- Pay close attention to the linkages among different funded programs and facilitate collaboration (x5)
- Consider more seriously a cross-sector approach (health, education, and governance); ex. A livelihoods approach where health/family planning + agricultural expansion/intensification are paired
- Consolidate what has been learned from existing programs and reinforce successful activities/value chains before adding additional value chains to the portfolio
- Highlight risk management and how the different value chains could be supported
- Should focus on animal raising and livestock, especially necessary inputs, to improve the different animal bi-products value chains for development and potential export (Ex. Powdered milk consumption represents a great loss to the milk production value chain in Mali) (x6)
- Try to address the problem of research and technology dissemination
- Focus on the need for infrastructure development and facilitation of investment through land tenure reform (x2)
- Emphasizing the potential of non-farm value chains and their roles in advancing food security in Mali (e.g. natural resources, tourism, artisans, etc.)
- Factor in responding to urban demand for increased quality and faster preparation as one means of improving value chains
- Pay extra attention the role of climate change when planning future programming
- Focus on land improvement and hydro-agriculture (emphasis on irrigation)
- Improve monitoring and evaluation and the study of impact

CLOSING REMARKS: Ambassador Gillian Milovanovic

ANNEXES

USAID Mali, Office of Economic Growth Partners Meeting on Strategic Brainstorming – Scaling Up Bamako, Mali, June 23-24, 2010

Mali’s Agricultural Sector: Trends and Performance by Duncan Boughton and Valerie Kelly¹

I. Introduction

This selective brief on Mali’s agricultural sector trends and performance focuses on cereal, livestock and fisheries production. We also review recent developments in the fertilizer sector given the importance of sustainable intensification to reduce pressure on natural resources. We begin with a thumbnail sketch of Mali’s agricultural sector.

Mali’s land resource inventory includes 46 million hectares of land suitable for agricultural use (broadly defined), of which one quarter is suitable for crop production and two thirds as pasture, the remainder being forest and wildlife reserves. Mali’s 2004 agricultural census identified 8.9 million people, or 78% of the estimated total population, with livelihoods based on agriculture. Amongst the 805,000 farm households 75% practice mixed farming, 10% cultivate only crops, 10% livestock only, with the remainder involved in fishing (PNIA, 2009). The average farm size for crop-based farming is 4.7 hectares, with one third of households farming less than one hectare. Fewer than 5% of households have landholdings more than 20 hectares. Land preparation is carried out using animal traction for more than 70% of cropped area compared to just 1% using mechanized power. Around 40% of households had access to agricultural extension, but the information was provided by women extension workers in only 2% of cases.

2. Trends in cereal production

Over a 15-year period cereal production grew from 1.9 million tons (three-year average 1990/1 to 1992/3) to 3.3 million tons (three-year average 2004/5 to 2006/7), an average annual growth rate of 3.9%. Table 1 presents information on changes in area, yield and production for each of the main cereals over time, as well as groundnuts (the major oilseed).

Growth in cereal production has been driven primarily by increases in the production of rice, maize and millet. Rice and maize production have grown rapidly (6.4% and 7.6% annual growth respectively). In the case of maize, productivity levels have been dependent in part on the rise and fall of cotton production since the devaluation of the CFA franc in 1994, as maize benefits from residual fertilizer nutrients applied to cotton, as well as direct applications of fertilizer obtained on credit. Growth in millet production has come primarily from increases in area cultivated, while the area planted to sorghum has declined. The yield growth for both cereals has averaged 1.2% per annum.

¹ The authors thank USAID Mali for financial support through the PROMISAM II project.

Table 1: Trends in area, production and yield of major food crops 1990/1 to 2005/6**Table 1a Area Trends**

Crop	Mean Area (ha) 1990/1 – 92/3	Mean Area (ha) 2004/5 - 06/7	% change 1990/1 - 2006/7	% annual Growth
Millet	1,116,202	1,388,220	24.4%	1.6%
Sorghum	816,379	746,082	-8.6%	-0.6%
Maize	182,423	363,219	99.1%	5.0%
Rice	230,948	379,144	64.2%	3.6%
Fonio	44,950	40,260	-10.4%	-0.8%
Total cereals	2,392,134	2,920,019	22.1%	1.4%
Groundnuts	195,422	264,063	35.1%	2.2%

Table 1b Yield Trends

	Mean Yield (kg/ha) 1990/1 - 92/3	Mean Yield (kg/ha) 2004/5 - 06/7	% change 1990/1 - 2006/7	% annual Growth
Millet	661	786	18.8%	1.2%
Sorghum	797	945	18.6%	1.2%
Maize	1,181	1,676	41.9%	2.5%
Rice	1,641	2,381	45.1%	2.7%
Fonio	617	628	1.9%	0.1%
Total cereals	816	1,140	39.8%	2.4%
Groundnuts	856	909	6.2%	0.4%

Table 1c Production Trends

	Mean Prod (tons) 1990/1 - 92/3	Mean Prod (tons) 2004/5 - 06/7	% change 1990/1 - 2006/7	% annual Growth
Millet	736,400	1,087,085	47.6%	2.8%
Sorghum	634,577	687,630	8.4%	0.6%
Maize	215,295	600,221	178.8%	7.6%
Rice	382,244	905,715	137.0%	6.4%
Fonio	27,724	24,167	-12.9%	-1.0%
Total cereals	1,945,811	3,312,257	70.2%	3.9%
Groundnuts	163,796	238,142	45.4%	2.7%

Source: CPS Database

Approximately 325,000 hectares, just over 7% of the total cultivated area, has irrigation infrastructure in place. Only one third of the country's irrigated area has full water control, however, and only approximately half the area with irrigation infrastructure is utilised. Almost half the total irrigated area, 46%, is located in the region of Segou. With the majority of the country's cereal supply coming from rainfed agriculture, variability in production due to rainfall patterns is to be expected given the high inter-annual and spatial variability in rainfall.

In addition to human consumption maize is very important for the poultry subsector and, to a lesser extent, the emerging dairy subsector. These livestock subsectors are important potential sources of growth for agribusiness as well as child nutrition over the medium and long term. In the CMDT zone, where 60% of Mali's maize is produced, the full impacts of the collapse of the cotton sector have yet to be felt because of the extension of the fertilizer subsidy program to include maize as well as rice. For farmers to be able to produce intensive maize for the market on a sustainable basis they need a source of credit for fertilizer purchases as well as the means to manage yield and price risk. Careful attention also needs to be given to underpinning the growth of the maize subsector through soil fertility management practices and water conservation techniques adapted to different soil types that will improve productivity (and hence reduce the unit cost of purchased inputs) and reduce drought risk.

3. Trends in livestock production

The national cattle herd increased from 5.1 million head in 1990 to 7.8 million in 2006, while the sheep and goat population doubled over the same period from 11 million to 21.5 million. Non-poultry meat production was estimated at 109,000 tons in 2006, of which 52% came from beef, 36% from sheep and goats, and 10% from camels. Hides and skins are an important byproduct, with 195,000 cattle and 310,000 sheep and goat hides marketed annually.

Milk is a very important product with an estimated 1.4 billion liters produced annually. Less than 2% of this production passes through formal markets and processing capacity, notably the large-scale processing plants in Bamako, is under-utilized. Changes in the European Union's Common Agricultural Policy that resulted in much lower export subsidies for dried milk, combined with increased demand for fresh milk with rising incomes, has encouraged the rapid growth of small peri-urban dairies in recent years in Segou, Sikasso, Mopti and other towns.

Reliable estimates of egg production are difficult to come by, but the DNSI estimates annual growth in production by intensive and semi-intensive units to be 6%, amounting to approximately 200 million eggs in 2006. Both demand and supply are likely to be relatively elastic. The main drivers of the egg subsector will be the rate of growth of the urban population and median urban income levels on the demand side, and the price of maize feed and effective disease control on the supply side. Reliable estimates of poultry production are unavailable, although local chicken production is presently the major source, even for meeting demand in urban areas.

4. Fisheries and fish farming

Accurate series on the evolution of inland fishery production, estimated at about 3.5% of GDP, are hard to come by. In the short run production is pro-cyclical with rainfall and flood levels, but more importantly there has been a steadily growing gap between demand and supply of fish protein over time due to over-exploitation and environmental degradation. Given the level of poverty in urban areas, where daily family expenditures on the non-cereal component of meals may be little more than a dollar a day, few households can afford to eat meat or poultry except on rare occasions. Consequently dried fish, often in the form of ground fish heads, is a major source of protein included in the sauce that accompanies the daily cereal ration.

The high demand for fish protein in turn provides a large potential market for fish farming, which is considered to be an under-exploited resource for income generation and food security. Fish farming has the advantage of being able to use existing by-products from cereal processing and livestock production for fish feed. Infrastructure costs are significant, similar to irrigation on a per hectare basis, but potentially more scalable. An increase in the availability of fish protein could be a significant lever on nutrition indices for both the urban and rural populations, as well

as a significant source of income for women who dominate the marketing and processing stages of the value chain.

5. Development of Mali’s fertilizer sector

Fertilizer is a key input subsector because it allows for increases in food production through intensification rather than just area expansion. Increases in land and labor productivity achievable through the use of fertilizer provide opportunities for diversification of crop activities as well as diversification into non-farm activities. Fertilizer supply in Mali has been liberalized and privatized since the early 1990s. The Malian market for inorganic fertilizers has an estimated value of US\$ 85 million per year at present with a volume of approximately 200,000 metric tons—all types of fertilizer combined (http://www.maliagriculture.org/camp_agr/intrants/index.htm).

Although the sector has been liberalized and privatized for many years, it remains highly influenced by the not-yet-liberalized cotton sector, which has accounted for as much as 70% of national fertilizer use in some years. The next largest share of the market consists of demand by irrigated rice producers in the Office du Niger and Office Riz Ségou. The remaining share of the market (roughly 10-15%) serves the growing demands of fruit and vegetable producers and sugar cane growers.

Figure 1 shows the evolution of the import value of fertilizer over the period of 1990 to 2007. These FAO statistics on values of imports suggest that total demand grew slowly over time from \$4.8 million in 1990 to \$16 million in 2004. Demand, represented in import value, then increased significantly to \$47 million in 2005, and subsequently declined to \$31.2 million in 2007 but remained well above 2004 levels.

Figure 1. Evolution of the import value of fertilizer ('000 US\$)

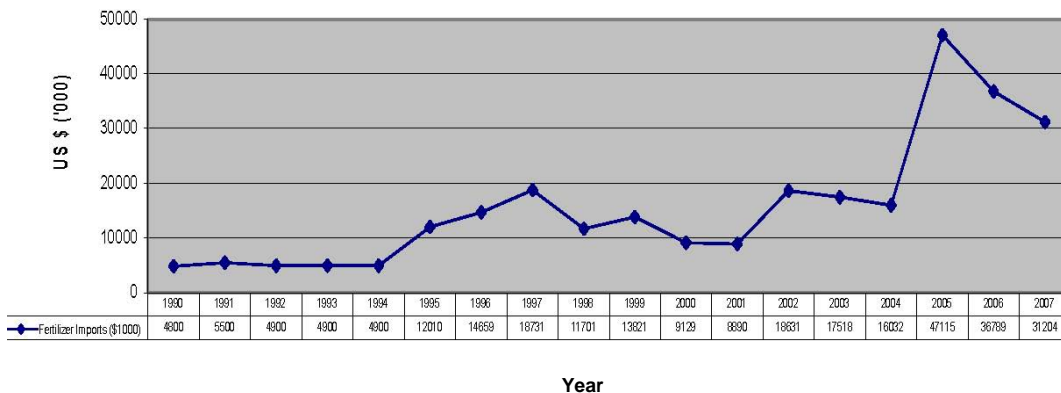


Table 2 presents the geographic distribution of fertilizer use by region for 2006/07, showing that the preponderance of the demand (67%) is in the Sikasso cotton producing region. Despite declining farmer interest in cotton production in 2007/08, a still sizeable 51% of the estimated 187,229 tons demanded for the 2007/08 campaign was attributed to the cotton zone (CPS website: <http://www.maliagriculture.org>).

Table 2: Anticipated fertilizer use by region: 2006/07

	Metric Tons
Kayes	8 540
Koulikoro	7 086
Sikasso	89 016
Ségou	25 680
Mopti	150
Tombouctou	2 778
Gao	7
Total	133 256

Source : CPS, Ministry of Agriculture, Bilan de la campagne agro-pastorale 2005-2006 et perspective de la campagne agro-pastorale 2006/2007, Marche 2006

Growth in fertilizer demand has been accompanied by growth in the number and capacity of fertilizer suppliers and distributors, though it is fair to say that the sector is dominated by four principal actors: Yara Mali (an affiliate of Yara Norway), La Cigogne associated with SCPA IVEX International, Datong Enterprises with Chinese ties, and Toguna AgroIndustries—the only firm with a Malian origin and the only one with a bulk blending operation in Mali. In addition to these firms, which are well integrated into the international fertilizer markets, there are a number of other firms that tend to participate in tenders more because they have the financial and transport resources to order and deliver fertilizer in large lots than because they have any particular expertise in the fertilizer sector per se. These firms include transporters (Agri2000, SAD/SAT), cereal traders (Grand Distributeur Céréaliier du Mali, GDCM), or specialists in agricultural chemicals (Partenaire Agricole). These firms are all linked in some way to one or more of the four major importing firms. In addition, the sector includes several distribution firms located outside Bamako such as SOMADECO-Niono, Cnoumani-Niono, and Faso Jigi-Ségou.

Despite this fairly strong and consistent growth in fertilizer sector capacity and fertilizer use by farmers, the Government of Mali became concerned about the possible consequences of sharply rising commodity prices (rice and fertilizers in particular) experienced in 2007 and 2008. This resulted in a decision to subsidize rice production through a variety of means, including a very hefty subsidy on fertilizer which was sold to rice farmers in 2008 at 12,500 FCFA per 50 kg bag while government paid suppliers 16,000/sack for urea and 22,000/sack for DAP. The program was put into place rapidly and was strongly criticized by fertilizer suppliers in general because a

single firm, Toguna, was awarded the entire market for the subsidy. There were also complaints from producer organizations and NGOs that had already placed their fertilizer orders when the subsidy was announced as it was not clear that their farmers would be able to benefit.

The GOM decided to continue the subsidy in 2009, keeping the subsidized price at the 12,500 level again but expanding the crops covered to include maize, cotton, and wheat in addition to rice. Plans are currently underway for a third year of subsidy, with the eligible crops expanding (e.g., inclusion of cowpeas). Without getting into the details of the benefits and costs of the program (a topic the GOM has not yet tried to address in a rigorous manner), it is fair to say that there are a number of implementation problems that merit attention.

- The GOM opened up participation in the subsidy program to a broad range of fertilizer suppliers in 2009, yet there was still a lack of transparency in the way the markets were allocated
 - ○ no formal bidding process
 - ○ no public information on how the price that the government pays to suppliers is determined
- The system of allocating subsidy vouchers to farmers and monitoring where the fertilizer goes and who is submitting vouchers to the government for repayment is open to numerous opportunities for fraud (kickbacks to government officials as well as diversion of fertilizer from those for whom it was intended).
- Many of the suppliers have not yet been paid for the subsidy share of their 2008 deliveries.

Several suppliers have agreed to contribute 1% of their subsidy sales to a fund that would support the introduction of an improved voucher program proposed by Accor Services, specialists in prepaid vouchers. The program uses high quality vouchers that cannot be counterfeited, tracks all movements of vouchers and fertilizers electronically to reduce the incidence of false claims and diversions, and guarantees payment of the subsidy portion of the voucher to suppliers within 4-6 weeks of voucher submission. To date, the GOM has not taken Accor Services or the suppliers up on their offer.

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Achieving Food Security in Mali: Key Issues and Investment Needs
by
Duncan Boughton, Nango Dembélé, Valerie Kelly and John Staatz¹

1. Introduction

A key role for USAID and its partners is to identify how their resources can best contribute to increasing the capacity of the private and public sectors in Mali to scale up their investments, and increase the impact of those investments, in relation to the food security dimensions of availability, access, utilization and stability. To fulfill this role will involve identifying opportunities presented in the Malian agricultural sector investment plan (PNISA) to address critical needs in each of these dimensions, the types of investment that will best address the needs, and the set of resources and skills that will enable Malian organizations and entrepreneurs to implement those investments successfully and at scale. Even with increased resources, however, it is critically important that the USAID mission make strategic choices about where to focus resources. The scale and depth of rural poverty, and the complex nature of malnutrition, means that resources must be focused to have measureable impacts. The question is for whom, where and how should those resources be focused in the context of Mali's CAADP compact and investment plan? To stimulate discussion of these questions we first highlight some key challenges and the nature of choices about resource allocation priorities, and then highlight the central role of information to achieve food and nutrition security objectives. We conclude with thoughts on two specific issues: graduating from fertilizer subsidies to free up resources for other investments, and the implications of smallholder heterogeneity for development strategies.

2. Challenges and Priorities

Decisions about how USAID can best utilize its resources in support of Mali's CAADP investment plan involve choices about sectoral, geographical and thematic priorities. To what extent should USAID support Mali's CAADP through a thematic approach (e.g., strengthening research and extension services), or through a subsectoral approach (financing investments in particular subsectors such as fish or dairy), or through a geographical (production systems) approach? Or should it be purposive combinations of subsectors, production systems and themes that provide most leverage on food security and nutrition outcomes in the short and long run?

Consistent with the aspirations of the Loi d'Orientation Agricole for Mali to become a regional grain basket, the primary focus of government efforts to date has been on increased food availability (production) and price stability (storage and trade policy), with relatively less fully developed investments that target the access and utilization dimensions of food

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security. This is understandable given the political imperative of feeding a large, poor, urban population. Indeed, the vulnerability of large numbers of urban poor to food availability and food price shocks, and the social instability that can result if such shocks are not avoided, make food security an issue of national security. It is therefore a political reality that in the near term Mali's investment program will need to increase productivity in both production and marketing systems to reduce the real cost of food to the urban population. Identifying efficient ways to do this is important to be able to balance resource allocations with the need to improve utilization. This has important implications for choices about whether to promote additional food production in commercially oriented systems in irrigated or high potential areas versus less productive areas? We return to this question in section 4.2 below.

A key factor in managing urban food security over the medium and long term is to slow down the rate of exodus from rural to urban areas. According to the RuralStruc study (2010), an additional 1.5 million people will join the rural labor force between now and 2020. They can be accommodated neither in overcrowded cities nor in subsistence agriculture, but instead will need to find gainful employment in off-farm service sectors (e.g., tourism), and/or value added agricultural service sectors (e.g., processing).

3. The Central Role of Information in Building Bridges across the Dimensions of Food Security

When thinking about what kinds of intervention can have the highest impact and how best to scale them up, a key resource for strengthening all the food security dimensions is access to and the ability to use relevant information on the part of different actors. This in turn requires both human capacity to identify and package information and organizational capacity to disseminate information to users. While development practitioners often see the answer as obvious – more extension – the multi-dimensional nature of food security, and the need for gender specificity, presents real challenges in terms of content, delivery and coordination, as illustrated by the following:

- For sustained increases in food *availability*, for example, strengthening the agricultural research system, especially the human resource base and incentive structure, will be critical for Mali to be able to maintain crop and livestock productivity gains in the face of pressure on the natural resource base and climate change (see Foltz, 2010 for a more detailed discussion);
- To strengthen the *access* dimension of food security more emphasis may be needed on developing and disseminating information with and for farmer associations, agro-processors and traders to improve efficiency in marketing systems (including storage);
- To strengthen the *utilization* dimension of food security, FTF resources may need to help the public sector and civil society strengthen their capacity to package and deliver information for women, both as farmers/farm business operators and as those directly engaged in child bearing and child feeding;
- To strengthen the *stability* dimension, FTF resources may need to invest in improved information for improved coordination in private and public grain stock management.

Thus for each dimension there is a need for capacity to identify the set of information needed by different types of actor, to identify the best way to organize the packaging and dissemination of that information, and the monitoring systems and incentive structures to promote accountability.

If the centrality of information to resolving food insecurity and poverty is accepted then this raises the question of how best to support Mali's extension services. To what extent should nutrition be incorporated into agriculture *and* health extension versus coordination between agriculture and health extension services with complementary content? Achieving consensus on this issue in turn has implications for the number and training of women agricultural extension agents (almost negligible as a proportion in agricultural extension at present). As the government rapidly recruits new (but inexperienced) agents to reinforce depleted extension cadres (one hundred new agents per year over the last two years) to what extent are there economies of scope in the training of extension agents by drawing on PVO capacities? To what extent should extension services for small businesses (value added processing) and farmer associations be contracted privately even if partially paid for by government? Could a model be envisioned, perhaps through service centers, that links farmers and traders not only to technical information but also to market information and the institutional support services (e.g., help with preparing a business plan, obtaining credit, etc)?

Changes in the kinds of information provided and information delivery systems to address 21st century food security issues will require upgrading Mali's agricultural education system and building stronger linkages between research, extension and teaching. Government will also need to be able to draw on expanded capacity for policy and investment analysis on an ongoing basis, especially for complex questions such as land tenure that are important to encourage private investment.

In addition to identifying the types of information needed by different actors in the food system, and different individuals within a family, there is the question of who should be responsible for what part of the information value chain. For example (and simplifying for purposes of illustration), what should be the role of central government and what should be the role of local government in providing information and services related to clean water and sanitation? Tefft et al (2003) demonstrate that local government has a critical role to play in ensuring the mobilization, organization and delivery of the set of public services necessary to improve nutritional outcomes. But local governments, in turn, will need to be empowered to raise and administer local taxes to be able to carry out their functions. Local government fiscal administration is the type of necessary information set that may not be immediately be perceived as crucial to improved utilization of nutrients by children.

The recognition that information delivery is central, multi-dimensional in content, diverse in type of actor, and requiring organizational capacity building at different levels, requires strategic focus in order to both ensure and be able to monitor and evaluate impacts. Partial approaches risk failure due to missing components and/or difficulties of attributing results to investments.

4. Specific challenges and issues to be addressed in designing a successful investment program

4.1 Graduating from fertilizer subsidies: finding a balance between short-run and long-run increases in food availability

In the short run, increased availability of cereal production through fertilizer subsidies facilitates lower financial unit costs of production which in turn make cereals more accessible to low-income urban households. At the same time the Malian government is very conscious of the fiscal implications of fertilizer and related input subsidies, and the need to ensure that increases in availability are sustainable in the long term. To focus additional resources on the

access and utilization dimensions of food security for the poorest segments of rural society it will be important to identify and transition to more efficient ways of increasing staple food availability than depending on large-scale fertilizer subsidies.

Although the Rice Initiative and accompanying fertilizer subsidy may represent a well-intended response to what was looking like a potential crisis in 2008, there is a need for the GOM and its partners to carefully evaluate the program both in terms of implementation procedures and in terms of the benefits and costs of the program relative to other options for improving agricultural productivity and incomes. Among the alternative investments that might be beneficial as complements to or in lieu of the fertilizer subsidy, we note:

- Research on fertilizer formula/doses and soil quality in the Office du Niger where yields continue to decline despite relatively high levels of fertilizer use;
- Research and extension to ensure that fertilizer is used as efficiently as possible in rainfed zones, many of which are experiencing lower rainfall and higher temperatures than previously (e.g., micro-dosing and SWC methods that enhance fertilizer response);
- Incentives to stimulate the growth of viable networks of rural fertilizer distributors and retailers by
 - building private sector business capacity through training and access to credit (currently the approach being implemented by CNFA/AGRA) or
 - building capacity of rural cooperatives to hire appropriate staff and build their own input supply networks (an approach under consideration by Syngenta Foundation and one tested by IFDC's MIR project with FasoJigi in Segou); and
- Experimentation with alternative fertilizer procurement procedures in an effort to phase out the large, complex, and costly tendering processes currently used in the cotton sector and replace them with lower-cost options that will be easily adapted to the anticipated division of the CMDT into four local monopolies.

4.2 Heterogeneity in smallholder farming in Mali

Most development practitioners recognize that a “one-size-fits-all” approach to smallholder development is dangerous. But the diversity in smallholder farming circumstances in Mali, not only in terms of agro-ecological factors but even among households in the same zone, is truly challenging. Table 1 illustrates this by

Table 1 Cereal Production and Marketing Profiles by Agro-ecological zone and Land Endowment**Table 1a Cereal Production and Marketing Profiles Low Potential Rainfed Cereal (Tominian)**

Land Area Quartile	Mean Cultivated Area (ha)	Mean HH Size	Cereal Production per capita (kg)	% HHs buying grain	% HHs selling grain	% households net sellers	Mean HH sales per capita (kg)	Mean HH purchases per capita (kg)
1	11.5	17	281	28.6	14.3	14.3	53	19
2	6.7	14	190	54.1	18.9	13.5	26	22
3	4.4	10	229	40.0	25.0	20.0	21	28
4	2.4	10	128	60.4	14.6	12.5	23	31
Mean (n=139)	5.0	12	189	49.6	18.7	15.1	25	27

Table 1b Cereal Production and Marketing Profiles Medium Potential Rainfed Cotton-Cereal (Koutiala)

Land Area Quartile	Mean Cultivated Area (ha)	Mean HH Size	Cereal Production per capita (kg)	% HHs buying grain	% HHs selling grain	% HHs net sellers	Mean HH sales per capita (kg)	Mean HH purchases per capita (kg)
1	13.6	20	417	23.5	63.2	60.3	58	14
2	7.0	12	375	40.9	68.2	63.6	58	18
3	4.7	12	308	29.2	50.0	45.8	23	21
4	1.8	8	260	45.5	54.6	45.5	42	73
Mean (=148)	9.2	15	374	31.3	61.9	59.0	52	23

Table 1c Cereal Production and Marketing Profiles High Potential Irrigated Rice (Macina)

Land Area Quartile	Mean Cultivated Area (ha)	Mean HH Size	Cereal Production per capita (kg)	% HHs buying grain	% HHs selling grain	% HHs net sellers	Mean HH sales per capita (kg)	Mean HH purchases per capita (kg)
1	13.7	20	1334	61.5	84.6	76.9	360	41
2	7.1	16	1077	53.6	92.9	92.9	366	41
3	4.7	14	1078	60.5	88.4	88.4	350	41
4	1.9	10	710	76.6	89.4	85.1	231	63
Mean (n=144)	5.9	14	1004	64.6	87.5	86.1	315	50

Source: preliminary results IER-MSU study of cereal production and marketing patterns 2008/9 (HH = household)

comparing cereal production, sales, purchases and net position for three different agro-ecological zones of Mali. Within each zone households are ranked in terms of land area cultivated and then divided into four equal groups. Some patterns that emerge are predictable but others less so. A predictable pattern, for example, is that cereal production is highest in the irrigated rice zone (Table 1c) and lowest in the low potential rainfed zone (Table 1 a). The proportion of households that are net sellers (volume of grain sold greater than volume purchased) follows the same pattern.² But among households within the same zone there are very wide differences in cereal production on a per capita basis, which may explain in part why malnutrition indices can be high even in high potential zones.

In section 2 we raised the question of how to prioritize investments spatially, thematically and in terms of subsectors. What are the implications of the cereal production and marketing patterns in Table 1 for these choices? Should resources be focused on areas where food availability per capita is lowest like Tominian (Table 1a) but where agro-ecological potential is also low? Or should the focus be on sustaining the productive capacity of a higher potential zone but vulnerable to natural resource degradation like Koutiala (Table 1 b)? Or should the focus be on land tenure, crop diversification and outmigration in the over-populated irrigated areas (Table 1c)? Or should the focus be on the areas of current rapid settlement in the southern border zones to provide infrastructure and land tenure programs to ensure sustainability and harness productivity before land degradation and social conflict becomes established? One option might be to focus on increasing marketed supply in the high potential systems to keep the real unit cost of additional production as low as possible, while in low potential areas seeking to diversify income opportunities (farming tourists rather than soil) and stabilizing production through soil and water conservation investments.

Regardless of any geographical targeting, farmers in the same agro-ecological zone but with different resource endowments will need different pathways out of poverty and food insecurity.

For USAID to see significant and measureable changes in malnutrition indicators from its investment in Mali's CAADP geographical targeting may be desirable to be able to address all dimensions of the problem and ensure effective measurement of results.

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² Note that being a net seller does not indicate food security even in regard to the dimensions of availability and access. Sales often occur shortly after harvest when prices are low, whereas purchases often occur in the hungry season when prices are high.



*Opportunities and Investment Strategies
to Improve Food Security and Reduce Poverty in Mali
through the Diffusion of Improved Agricultural Technologies*

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For

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*Opportunities and Investment Strategies
to Improve Food Security and Reduce Poverty in Mali
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Executive Summary

This document reviews the potential agricultural technologies that exist or can feasibly be produced to help promote poverty reduction and food security in Mali in the next 5 to 10 years. Overall there are a plethora of good technologies either available, in the pipeline, or feasible with a small amount of research effort. In many cases succeeding in poverty reduction and increasing food security will not be about choosing the exact right technology, but about helping farmers access and know about a panoply of available technologies from which they can choose the right one to maximize their future potential.

Mali has seen significant agricultural growth in the last 20 years, with increases both in areas cultivated and yields in almost all sectors and large increases in livestock production. The next decade could be a key moment when the country turns the corner from self-sufficiency toward a producer of quality food for its people and major agricultural exporter to the region and internationally or one in which it slides back toward subsistence production. The generation, adaptation, adoption, and diffusion of new agricultural technologies will be a key ingredient in determining which of these two directions becomes a reality.

A number of forces external to the agricultural sector are likely to have a significant effect on the ability of the agricultural sector to grow in the next decade. The Malian economy is likely to continue growing at a reasonably fast pace (3-5%) with new mineral and oil discoveries as well as a likely future up-tick in remittances pushing the economy forward. This mineral export led growth will likely produce increased competition with agriculture for labor and combined with international migration and an increased emphasis on schooling for children, will produce labor shortages and higher labor costs in rural areas. That said, persistently high levels of population growth will continue to demand agricultural production. If economic growth continues as predicted, wealthier urban populations will start demanding higher quality and higher protein foods, fish and livestock products, for which Mali has great as yet mostly untapped potential.

The predictions for climate change are for increased volatility of weather patterns although they are unclear on whether that means less or more rain on average. Since Malian farmers are already well versed in how to deal with a stochastic environment this may not affect Malian agriculture as much as it would other places in the world. Climate change, however, will likely make it harder for farmers to specialize in types of production or crops, which is often a result of adopting modern techniques. We should expect climate change to push Malian farmers to keep their diversified risk-reducing portfolio of activities, making technological change based on intercropping and multiple production processes more attractive whereas mono-cultures and specialization will become more difficult. This may also increase demand by farmers for soil and water

conservation (SWC) technologies, although this effect may be mitigated by labor shortages.

With the continuation of road building and airport and airline service improvements, Mali is likely to have improved access to the world economy at lower costs than currently available, which can help open up export markets. But it will still be a high cost place for all types of transport. We expect world commodity prices to stay reasonably high for most commodities produced by Mali (corn, wheat, sorghum, rice) with a smaller likely rebound in cotton due primarily to a stronger dollar. Meanwhile input costs especially fertilizer are likely to maintain their current relatively high levels.

Mali will continue to have imperfectly operating land, credit, labor, and insurance markets. Innovations in some of these markets, especially credit markets have the potential to help foster new technology adoption, but we are not optimistic on this front. Further there seems very little likelihood of an agricultural insurance scheme having any positive effect on poor rural producers.

1. The Needs of Malian Agriculture

Agriculture provides two related benefits to the people of Mali. First and foremost it provides rural and peri-urban people with their own livelihood in terms of partial (or full) self-sufficiency and security in food. Second it provides a source of income to farmers, traders, and a source of foreign exchange for the government. The choice of new technologies should take into account these dual roles (food security and poverty alleviation) and provide new technologies that address one or both of these concerns.

We divide potential technologies along these lines into those that can improve agricultural production intended to provide food security, self-sufficient livelihoods, and those that can provide significant income benefits. Malian farmers readily make these distinctions in their own choice of technology (planting one variety of sorghum as a cash crop and another as a subsistence crop), so are likely to appreciate and adopt new technologies based on how they respond to one or both of these needs.

Before reviewing the most promising technologies it is worth noting that there are a great deal of promising technologies to increase Malian agricultural production, profitability, and sustainability. It would be a mistake to take too narrow a view and choose only one or two as the best, because while each of these is individually promising the uncertainties associated with each one are high. It is likely that promoting a diversity of technologies for a range of farmer needs and capabilities as well as varying ecological niches will have the greatest impact on food security and poverty throughout the country.

2. Food Security: More productive, robust, and safer self-sufficiency production.

In improving the individual food security of Malian farmers there are three promising strategies both of which inject improved technologies into production systems farmers already know and use. The first is to improve the genetic material used in production of crops and livestock. The second is to intensify the intercropping that farmers already engage in for risk reduction by making it more productive as a food and income source. Third is to improve cultivation techniques to conserve soil and water.

In terms of genetic improvement, three areas stand out: improved millet/sorghum varieties, improved fonio varieties, better livestock genetics. With 73% of Mali's cereal land planted in sorghum and millet and that land producing 51% of Mali's cereal output and much of that land likely to continue to be in low input risk averse agriculture, technologies that improve that land's productivity without changing practices have great adoption and diffusion characteristics. Promising technologies here, in terms of both farmer acceptance and overall effect on food security for the poor, are ICRISAT millet and sorghum varieties with better genetics that can increase yields 20% for open pollinated (OPV) and 30% for hybrid varieties without farmers changing their agronomic practices. A potential 10-15% increase in cereal production nationally is possible with this technology.

Fonio is a highly valued crop for its low labor needs, early season production, drought resistance, and women are its primary producers. Unfortunately fonio yields are low and this has reduced the acreage devoted to fonio despite its evident benefits and high prices in the market. More research is needed to provide women farmers with higher yielding fonio varieties and better agronomic techniques.

Recent livestock research has shown a number of promising genetic improvements that can be used by livestock holders at all scales. These genetic improvements can improve the productivity, weight gain, without significantly changing herder practices or risk profiles. These include improve breeds of cattle, goat, sheep, and crosses of Rhode Island Red chickens with local varieties. This last one has the potential to greatly improve backyard chicken raising; an important income generation activity for women. More effort on getting these genetically improved varieties out into the general livestock population would be useful. There are also significant improvements in feeding practices, forage production, conservation and use that could increase livestock production.

A second important line of intervention is to push intensification of intercropping systems that have long since been developed in Mali. Better planting and fertilization techniques applied to intercropping of millet/sorghum with cowpea/soy/sesame/peanuts can increase farmer yields of both grains and legumes while reducing their risk profiles in terms of both climate and market risk as well as reducing the need to purchase expensive fertilizers. These techniques are well tested and can go directly to pilot extension programs. A second type of intercropping that shows great promise is the addition of fish raising to irrigated rice ponds. Adding fish can produce up to 1.5 tons of fish per hectare and at the same time maintain the same or better rice yields. With the correct control of

water, fish farming in rice fields could be more lucrative than rice farming. Intercropping of fish and rice will require both research and extension efforts.

A third line is to help farmers reduce their risks, through improving their planting, soil conservation, and water retention techniques. Integrated pest management also shows much promise where small changes in farmer practices; e.g., changing planting schedules by a few weeks, can reduce or eliminate pest damages. Most of these improvements require only an investment of time and change of technique from the farmer end, but a lot of investment in extension by the government and partners is necessary to bring the necessary information to farmers. Rather than focus on one or two technologies, this kind of work should provide farmers with a menu of planting, soil, and water conservation and integrated pest management techniques. This portfolio approach is especially important because in many parts of Mali farmers are still rotating their land through fallow periods, which severely reduces the incentives to invest in soil and water conservation techniques.

3. Cash Crops: More productive, less risky, and more lucrative cash crops

Malian farmers need new more productive, less risky, and more lucrative cash crops, in order to improve their incomes and step out of poverty.

A first way to provide this is to improve cash crops that are also consumable within the household such as corn, millet/sorghum, rice, wheat, and fish. Promising technologies include new seed varieties of drought resistant, fertilizer responsive crops such as corn. For women, intensifying their home corn-fields (*champs de case*) with hybrids and fertilizer represents an avenue for more extension work. Better varieties of rice for bas-fond, dry-land, and irrigated areas, which are more disease resistant and fertilizer responsive (e.g., NERICA). Improved rice and wheat farming techniques, such as the SRI (rice) and SBI (wheat) programs, show promise in raising yields through better techniques; but levels of farmer acceptance are still low and need further work. In addition the fertilizer responsive sorghum and millet varieties produced in the INTSORMIL program and used also by Sasakawa Global, show promise as a cash crop version of a subsistence crop.

Along with increased production of cash crops, better training and diffusion of simple methods to store grains could yield great dividends on the marketing end. Currently losses to pests and spoilage are very high for stored grain and simple improvements in storage techniques using existing facilities and equipment could reduce these losses and lower storage risks.

New cash crop potential exists in sesame and soybeans, especially where one can intercrop them with existing subsistence crops such as sorghum and millet. Both of these are likely to be technologies available and beneficial for women farmers. Another new crop with intercropping potential is *jatropha-curcas*, which can provide farmers with a steady source of income and potential fertilizer from the *jatropha* press-cake. More

research is needed on testing which crops are best for this intercrop. Women are likely to be involved in collecting and maintaining jatropha and it has a lot of potential around women's garden plots.

Mali is poised for large expansions in dairy production, something that should bring a steady income stream to rural households and women in particular within 20 km of a paved road. Most of the development can be done with the existing cow stock and technologies; key requirements are training, organization, and some minor infusions of technology. Further efforts to help push dairy development include better forage production, selection, and storage as well as improving local milk preservation and conservation techniques.

Increased development of fish farming also shows promise, both as an intercrop with rice and as either the stocking of existing local ponds or of specifically built fish-ponds. Mali has a perfect environment to expand fish farming where water is available. With a potential production of 9 tons/hectare worth 9 million CFA, the returns to fish farming are well above those of other crops, although the investment costs will be prohibitive for all but the most wealthy. Cooperatives may be able to alleviate some of these costs.

In terms of the export crops that comprise the USAID value chains such as onions, mangoes, garlic, potatoes, the biggest need is to start testing international quality versions of the crops grown here. It is not too soon to start testing to see how well the key varieties of these crops that sell internationally would potentially grow in Mali.

4. Labor saving technology

As set out in the introduction, the future of Malian agriculture will be increasingly determined by labor constraints. Herbicide use in Mali has doubled in the last 5 years in part in response to labor constraints and is likely to increase substantially in the future. Herbicide use has very positive spillover effects on women's time and ability to work on their own crops or collect karité nuts. More extension work and agribusiness training is needed, along the lines of USAID's IPM CRSP's work in pesticide literacy and safety, to ensure safe and effective use of herbicides, In addition Mali needs research work testing the safety and long-term consequences of increased herbicide use in a savanna environment.

Increased use of plows, multiculteurs, and tractors will likely also be warranted to face the lack of rural labor supply. Research and extension on the best use of tractors and multiculteurs in Mali in terms of soils, crops, and profitability is warranted. Further expansion of use of multifunctional platforms for grinding, threshing, and other post harvest chores is another area worthy of donor investment, because of the potential benefits in freeing up women's time.

5. Improving Ecological system services

Malian rural areas have a symbiotic relationship with their forests, grasslands, and tree-parklands in their fields. Increased mechanization of farming, the use of herbicides, and climate change has the potential for negative effects on the productivity and regeneration of these spaces. Relatively little is known about this and therefore more research is needed into how to maintain and regenerate the productivity of these spaces. Aside from natural regeneration, IER and ICRAF have done some promising research into making more productive, faster growing tree species that have yet to be diffused. In addition there is clearly a larger quantity of karité and other wild fruits that could be collected. Barriers to doing so include women's access to appropriate transport devices, market access, and creation of markets for locally eaten, but rarely sold local fruits.

6. Gender specific technologies

Among the various technologies described above a number are likely to have the largest impact on improving women's income and food security.

All labor saving technology, such as herbicide, is likely to have a gender impact not as much in women directly using it, but in it freeing up women's time for more lucrative activities. For example increased use of herbicide would free up women's time during the key time of year when they collect karité nuts, July-August, potentially engendering an increase in the production of karité butter and better women's incomes. Multi-functional platforms also provide a large labor savings for women, which can help income and food generation.

Improvements in fonio seeds and cultivation techniques would go directly to addressing women's income, especially in the dogon plateau and southwest Mali where fonio is grown extensively. Better fonio cultivars could also extend the reach of fonio cultivation into other areas where it was formerly grown.

More efforts at extending existing techniques for intensifying intercropping of cereals and legumes can also have significant income and food security benefits for women. This could also help women in forage production or provide forage for their own livestock raising activities.

Dairy development is likely to also have strong income and food security benefits for women. In addition moving more productive Rhode Island red and local chicken crosses out to more households is likely to help women's income and food security.

Finally women are the major collectors and beneficiaries of the ecological system services of forests, grasslands, and in the field tree parklands. Efforts to regenerate and make these areas more productive can have significant benefits to women.

7. Key constraints to success

A number of key constraints stand in the way of the effective creation and diffusion of the new technologies cited above. They are: (i) imperfect input, credit, and output markets, (ii) the lack of an effective extension system, (iii) problems in the incentives for researchers in IER and elsewhere to connect to the diffusion of their technologies, (iv) transport problems including poor roads, trucks and high costs and levels of corruption, (v) donor incentives and desire for short-term measurable outcomes rather than more nebulous but potentially more important research outcomes, (vi) high levels of weather and health risk that cannot be easily mitigated by insurance products or credit, (vii) fragmentation of efforts across sectors, value chains, and actors which can lead to a lack of coordination.

(i) Imperfectly operating input, credit, and output markets will continue to be a problem in Mali. Most important of these is the lack of a developed seed market. The private seed sector is a vital cog in the diffusion of new seed varieties and despite some signs of growth it is currently a long way from the ability to provide seeds to farmers who need them. Continued effort in the seed sector by multiple actors is a necessary pre-requisite to the diffusion of most seed varieties in Mali.

Agricultural credit is also not available in Mali at the levels necessary. The access to credit situation is likely to get worse before it gets better with the dissolution of CMDT. Some possibilities of amelioration come from recent efforts to sell farmer cooperative grains under contract with credit given as part of the deal. However, this will still not reach most of those most in need of credit. Creative efforts to find new solutions to the agricultural credit problem are warranted, such as mobile and cellphone banking and commitment savings devices for fertilizer purchase.

A non-competitive fertilizer market also poses challenges to the adoption of fertilizer responsive crops, by often raising the cost of fertilizers and making access a function of connections rather than need. This sector would most likely be helped by the government reducing its interventions, since most of the evidence seems to point to government efforts to subsidize fertilizer as one of the causes of the lack of competition and supply problems. Continued efforts in improvement on the marketing side are also warranted.

(ii) The lack of an effective extension system is one of the key constraints that is currently and will in the future hold Malian agriculture back from its potential. The solution is quite simple, greater monetary investments to hire more personnel. Nothing will substitute for more personnel out in rural areas. If new people are hired, more effort can be made to increase the density of extension agents and more effort needs to be done in better training of agents. There are also not enough female extension agents. Efforts to hire more female agents and place them in rural areas are a necessary condition for the successful diffusion of a number of the gender specific agricultural technologies listed in this report.

(iii) Along with the problems in the extension system, the research system is as disconnected from the extension system as the extension system is disconnected from

farmers. Researchers often lack the incentives to produce easily adopted packages for farmers and if they do there is no help for them to extend them, thus PhD scientists end up doing the extension work. Some revision of the incentives within IER will be necessary to help push technologies out the door.

In addition, while the trained personnel in the Malian research establishment are hard-working and well trained, there need to be many more people in the system. Certain areas are clearly undermanned as for example in socio-economic analysis where there is not a critical mass of well-trained economists.

(iv) Problems in transport and logistics remain key constraints particularly to the production of cash crops and the integration of markets. The Malian government is investing heavily, with donor support, in new transport infrastructure including roads and airport improvements. This should help, but more needs to be done. More effort in reducing corruption on import and export fees and petty corruption on the roads of Mali and neighboring countries is also important.

(v) Most of the key donors who would finance the necessary research tend to have overly short-term thinking in their funding strategies. Often there is a preference for measurable and short-term outcomes rather than a number of the outcomes that the technologies listed above are likely to produce. They will tend to be long-term high value outcomes, but often progress in reaching them will not be measurable in convenient metrics such as number of hectares, seeds, trainings, etc. Success in the creation and diffusion of the technologies in this report hinges on donors who are willing to make long-term investments in people, research laboratories, research projects, extension systems, seed marketing infrastructure, and innovative credit schemes. Short-term goals measuring hectares of new varieties or numbers of fish-ponds will not achieve the goals of poverty reduction and food self-sufficiency.

(vi) Malian farmers face high and not easily mitigated weather and health risks. Financial market insurance schemes (e.g., index insurance) as risk reduction technologies can at best account for one of the risks that farmers face, low rainfall, and current efforts to do so have run into major institutional constraints (imperfect/corrupt regulatory structure, poor collection of weather and yield data) that could delay implementation for decades. This lack of insurance markets and potential climate change means that successful technologies will have to help farmers diversify their risk portfolio rather than specialize it.

(vii) Finally these technologies need efforts across the whole system in order to be successful rather than a fragmentation of efforts across sectors, value chains, and actors.

USAID Mali, Office of Economic Growth Partners Meeting on Strategic Brainstorming – Scaling Up Bamako, Mali, June 23-24, 2010

Mali’s Food Security Challenges: An Overview by Duncan Boughton, John Staatz and Nango Dembéle¹

1. Introduction

Mali has a high incidence of malnutrition. The fourth Demographic and Health survey reports that in 2006 the incidence of wasting, stunting and underweight children under 5 years of age was 13.8%, 37.9% and 24.5% respectively in rural areas, and 12%, 24% and 25% respectively in urban areas. While malnutrition is found in all regions of Mali, the regions of Timbuktu and Sikasso have higher than average levels for all three indicators, while the region of Kidal has high levels of wasting. For a detailed analysis of food security indicators see Ward (2010).

In this overview paper we analyze the different dimensions of food insecurity in Mali today, examine the linkages between food insecurity and poverty, and look at dynamic factors that must be taken into account to ensure that food security is sustainable. We conclude by summarizing the implications for the design of strategies and programs to resolve Mali’s food security challenges.

2. Key dimensions of food insecurity in the Malian context²

A broadly accepted definition of food security is the following: “Food security exists when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (Staatz et al., 2009). Failure to achieve food security for an individual or a household can be either temporary or sustained in nature: the former situation is usually described as “transitory” food insecurity and the latter “chronic” food insecurity. To diagnose the causes of transitory and food insecurity in a given context it is helpful to look at the dimensions of availability, access and utilization. The US Government’s “Feed The Future” Strategy Guide makes explicit a fourth dimension of stability. This framework is consistent with the CAADP Pillar 3 goals of increasing food supply (thereby improving availability), reducing poverty (thereby improving access), improving nutrition (utilization), and improved emergency preparedness and management (stability). Table 1 illustrates the correspondence between dimensions of food security and CAADP Pillars through illustrative types of intervention. Food *availability* is obviously a necessary condition for food security but it does not automatically guarantee access by all individuals. Food can be made available through national production, trade, food aid, or a combination of these sources. People clearly need to have physical access to food, and ensuring physical access can pose problems on a seasonal basis in remote zones, due to impassable roads for example, or during natural calamities.

¹ The authors thank USAID Mali for financial support through the PROMISAM II project ² For a more detailed discussion of the different dimensions of food security, and policies and programs to help improve food security, see Staatz et al., 2009.

Table 1 Food Security Dimensions, Interventions and CAADP Pillars

Food Security Dimension	Strategies/illustrative interventions	CAADP Pillars
Availability	<p>Increased Adoption of Improved Agricultural Technologies</p> <p>Diversification of agricultural production • Among crops (grains, oilseeds, horticulture) • Integration of livestock and fish • Mitigating seasonality in availability of certain food groups</p> <p>• Strengthening linkages between livestock feed sector and farmer organizations</p> <p>Increased access to extension and inputs</p>	<p>Pillar 4</p> <p>Pillar 4 and 2</p> <p>Pillar 2</p> <p>Pillar 4</p>
Access	<p>Increased efficiency of marketing systems</p> <p>Increased employment through value added processing</p> <p>Food or cash for work</p>	<p>Pillar 2 Pillar 2 Pillar 3</p>
Utilization	<p>Nutrition education</p> <p>Health linkages</p> <p>Water and Sanitation</p>	<p>Pillar 3 Pillar 3 Pillar 3</p>
<p>Stability</p> <p><i>Production</i></p> <p><i>Price</i></p>	<p>Irrigation infrastructure</p> <p>Land tenure to promote investments in conservation measures</p> <p>Food/cash/assets for work to help fund conservation measures</p> <p>Trade policy</p> <p>Coordination between private and public sectors in grain stock management</p>	<p>Pillar 1</p> <p>Pillar 1</p> <p>Pillar 3</p> <p>Pillars 3 and 2</p> <p>Pillars 3 and 2</p>

Often more challenging than physical access to food, in the Malian context, is economic *access*. Since most Malian households do not produce all their own food all the time they need to be able to purchase food from neighbors or from the market. Market purchases are the main source of food staples for urban populations, but are also extremely important for rural populations in areas that are not suitable for crop production. Even in areas that are suitable for crop production the majority of households are often net cereal purchasers. In addition to food staples, market purchases of protein sources and fruits and vegetables are also important to achieve an adequate diversity of food types. Thus economic access, the ability to purchase food (referred to as *effective demand*), is a critical dimension of food security for rural and urban populations in Mali.

Household access to food does not necessarily guarantee access to all individuals in the family. Children and women have different nutritional needs at different stages of life than men. Nutrition during pregnancy and from birth to two years is critically important for long-term development. But children do not control access to food within the household and women often have partial control. Recent analysis of a sample of 750 Malian households found that different children *within the same household* have different nutritional outcomes, and that these outcomes are correlated with the expenditure patterns of mothers (Allen, 2010). This has important implications for targeting nutrition education and interventions.

In low-income countries, where food can often account for 70% of a household's income, the price of food is a critical determinant of real income. Hence seasonal increases in prices can often oblige households to cut down on non-food expenditures that compromise food security in the short or long-term, and when seasonal prices are particularly severe they may reduce the number of meals and/or the amount and quality of food consumed in each meal. Seasonal variation in prices depends critically on marketing and storage costs. Therefore, just as increases in productivity at the farm level are important for bringing down the cost of food, so too are increases in productivity in the off-farm components of the food system that make food physically accessible to consumers where they live on a year-round basis. Attempts to bring down the price of food to consumers through short-term measures which do not bring down the real costs of production and marketing (including storage), such as cereal export bans, often undermine incentives for the private sector and hence aggravate the problem in the medium and long term.

For access to food at the individual level to result in adequate nourishment the food must be effectively utilized by the body. *Utilization* depends in part on knowledge to select a balanced diet appropriate to the age of the person, in part on the method of preparation, access to clean drinking water, and also on the health of the individual. The lack of a balanced diet, for example, inhibits the absorption of certain key vitamins, and lack of key vitamins prevents the body from effectively utilizing other nutrients. Children during the weaning phase, children recovering from malaria, and women during and after pregnancy, are especially vulnerable to poor nutrition. Lack of access to clean water or appropriate conservation methods frequently results in diarrhea, compromising the efficient utilization of available food. Lack of effective utilization is one of the main reasons why increased incomes among cotton farmers in Sikasso are not statistically associated with improved nutrition outcomes (Tefft et al., 2003). Another reason is that women's incomes in the cotton zone are low compared to women in other areas (McGlinchy 2006). Education and sensitization are critical investments for improved utilization of food by all members of society.

3. Food Insecurity and Poverty Linkages

The incidence and severity of poverty is a major factor hindering *access* to available food. The incidence of poverty measured in terms of the cost of access to a daily norm of 2450 kcal/day fell slightly for the urban population between 2001 and 2006, but for the rural population remained stubbornly high at almost 80%. In other words, for four out of five rural Malians, their income as

estimated through consumption expenditure (or value for consumption of own-produced food) was inadequate to assure access to a normal calorie intake year round. Rural poverty levels this high do not map directly into malnutrition statistics in part because people may sacrifice non-food expenses first (Camara, 2006), and because the consequences may manifest themselves as disease rather than nutrition problems.

Although the incidence of urban poverty was slightly lower than rural poverty, almost two out of every three urban dwellers did not have sufficient income to access a normal calorie intake. This level of urban poverty has two practical implications for food security strategies. First, because food is such a high proportion of urban household budgets, it puts enormous political pressure on the government to keep food prices from rising beyond an acceptable level. Second, the majority of urban dwellers lack effective demand to pay for value added food products that could create employment opportunities in the agro-processing sector, or even grain prices high enough to induce intensification at farm level. The lack of diversification and value-added food consumption in urban food consumption baskets in turn renders cereal prices more volatile in response to supply shocks due to lack of substitution options.

In addition to not having income to purchase adequate food in under normal circumstances, the rural and urban poor are the most vulnerable to food price shocks such as the global commodity price spikes of 2008. With food accounting for two thirds or more of their income, poor households have no margin to manage food price shocks by reducing consumption of non-food items. The available tools for government to assist poor consumers are also fraught with difficulty. For example, using trade bans and similar untargeted approaches to keep domestic food prices low end up depressing producer and trader incentives and hence undermine the supply side. Another alternative is to target vulnerable households, but this is fiscally challenging when much of the population is poor. And socially it is hard to exclude some from receiving subsidies. This is one argument for trying to find self-targeting mechanisms (e.g., cash- or food-for work at low wages or self-targeting foods). The latter is not easy when you have a lot of people who are calorie deficient, as for many people there are few foods that are perceived as undesirable.

It goes without saying that households who cannot afford to meet their normal calorie intake will have little to invest to raise their stock of productive assets, including human capital, in order to escape poverty. Thus, stimulating rural economic growth to raise incomes (and hence effective demand for food) is critical to the overall success of any food security strategy.

4. Food Security for the Long Haul

In developing investments to improve food security it is important to address not only current problems but also to take account of long-term challenges (and opportunities) arising from demographic, climatic, or political processes. Rapid population growth clearly increases the challenge of food security because growth occurs most rapidly in the most nutritionally vulnerable age group - children under the age of 5 – who are also unable to provide additional labor to increase food availability. The fact that urban population growth is significantly faster than the overall population growth rate will accentuate the political challenges discussed earlier, especially if growth occurs primarily through migration of people with low literacy and educational levels who have no alternative but to seek employment in the already saturated informal service sector.

While rapid population growth increases the requirement for food, the degradation of natural resources threatens to undermine the supply of it. The degradation of natural resources is in turn closely related to climate change. The progressive reduction in rainfall levels, for example, has undermined productivity in the central and northern parts of the CMDT cotton zone, encouraging rapid migration to the southern areas bordering Guinea-Conakry and Ivory Coast. Political

instability in those countries as accelerated the influx still further, with rapid land clearing and conflicts between recent migrants and original settlers, and between cattle owners and cultivators. Similar interactions between climate change and natural resource degradation are affecting the transhumant pastoral system. The expansion of cropping in the Delta region is reducing the availability of summer grazing for transhumant herds at the same time as increased rainfall variability is leading to increased demand for that grazing. The net result is accelerated natural resource degradation and higher frequency of social conflict, in turn undermining necessary investments to prevent degradation.

5. Implications of Mali's food security challenges for development strategies

A summary of the main implications of Mali's current food security challenges, and demographic and climate trends, for development strategies to improve food security would include the following:

- Access, utilization, and price stability are key dimensions of food security that need to be emphasized in the near term to bring down acute levels of malnutrition;
- Rural economic growth to raise rural incomes is important to increase access to food and reduce the rate of rural outmigration and allow time for human capital accumulation and hence off-farm employment opportunities;
- The already large urban population, and high proportion of net food staple buyers in rural areas, calls for increases in productivity in both the farm and off-farm components of the food system to make food more affordable;
- Strategies to reduce natural degradation through improved soil and water conservation methods, as well as incentives to invest in natural resource management through land tenure, are an essential component of food security strategies to ensure availability in the longer-term;
- Open and expanded regional trade is an important component of ensuring price stability in the short and long term, although it is sometimes perceived as a threat by policymakers;
- The multi-dimensional nature of food security (health, nutrition education, agriculture, trade policy) implies the need for strong coordination among different sectoral ministries and between different levels of government.

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Tourism and Food Security in Mali

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Many developing countries have managed to increase their participation in the global economy through development of international tourism. Tourism development is increasingly viewed as an important tool in promoting economic growth, alleviating poverty, and advancing food security. This briefing note aims to review the relationship between tourism and poverty reduction, and to explore the role for tourism development in advancing food security in Mali.

The potential of tourism development as a tool to contribute to economic growth and poverty reduction is derived from several unique characteristics of the tourism system. First, tourism represents an opportunity for economic diversification, particularly in marginal areas with few other export options. Tourists are attracted to remote areas with high values of cultural, wildlife and landscape assets. The cultural and natural heritage of developing countries is frequently based on such assets, and tourism represents an opportunity for income generation through the preservation of heritage values. Therefore, tourism enables communities that are poor in material wealth but rich in history and cultural heritage to leverage their unique assets for economic development. Tourism is the only export sector where the consumer travels to the exporting country, which provides opportunities for the poor to become exporters through the sale of goods and services to foreign tourists. Tourism is also labor-intensive and supports a diverse and versatile labor market; it provides small-scale employment opportunities, which also helps to promote gender equity. Finally, there are numerous indirect benefits of tourism for the poor, including increased market access for remote areas through the development of roads, infrastructure, and communication networks.

Several strategies for tourism development have been found to be effective in creating employment and income opportunities for vulnerable groups and communities. Tourism projects that have been most effective at contributing to poverty alleviation include those that promote training and employment in tourism (particularly for non-educated women), promote the establishment of small tourism enterprises, promote the supply of goods and services to tourism businesses by enterprises that are owned by or employed by the poor, involve partnerships that fund road construction, communication networks, rural schools, sanitation or health improvements, and facilitate voluntary donations and support from tourism enterprises and tourists.

Economic benefits of tourism include the expansion of business opportunities for the poor, expansion of employment and wages by ensuring commitments to local jobs and training of local residents, and the development of collective community income. Non-economic benefits include capacity building, training, improved access to services and infrastructure (such as health care, telecommunications, water supplies, and transportation), and mitigation of environmental impacts and natural resource conflicts. Many of the physical and environmental benefits may have been motivated by tourism development, but they indirectly benefit local communities. The overall economic impact of tourism is maximized through enhancing linkages with other local economic sectors. Strong economic linkages with tourism and other sectors (such as agriculture and small enterprises) will enhance the multiplier effect, thus contributing to increased revenue retention and creation of employment opportunities for local people.

There have been several initiatives strengthen the link between tourism and food security in Mali. The United Nations World Tourism Organization (UNWTO), through its Sustainable Tourism–Eliminating Poverty (ST-EP) initiative, implemented a project to help protect the health of female

artisans in Djenné by raising awareness of the risks of inhaling toxic smoke from plastics, improving working conditions, and providing protective equipment and tools. The Netherlands Development Organization (SNV) is presently conducting a value-chain analysis for tourism in Pays Dogon to map where the rural poor participate and to identify opportunities for increasing the benefits for the poor.

The Global Sustainable Tourism Alliance (GSTA) has been working in Pays Dogon to provide training for local guides, to build capacity among employees in the campements, and to develop marketing materials to promote tourism in the region. This group has also developed projects to promote biodiversity conservation and support reforestation. They have engaged communities in the region to collect and plant euphorbia cuttings to stabilize the sand dunes and reduce wind erosion, and they have developed small tree nurseries that sell seedlings to communities for tree planting projects. These initiatives could be replicated in other regions throughout Mali to achieve greater benefits.

Tourism in Mali is presently based on its endowment of cultural assets, including four sites inscribed by the United Nations Education, Scientific and Cultural Organization on the World Heritage List. They include the Old Towns of Djenné, Timbuktu, the Cliff of Bandiagara (the Dogon cliffs), and the Tomb of Askia. In addition to these designated World Heritage sites, there are nine other cultural properties submitted for consideration for the World Heritage List, which may provide future potential for tourism development. The cultural uniqueness of Mali among its neighbors provides the basis for a comparative advantage for tourism development in the region. Mali has promoted tourism by structuring the nation’s cultural heritage as the engine of economic and social development. There are many festival events throughout the year, including the Dogon mask festivals, the Deegal cattle crossing festivals, the Festival on the Niger in Segou, and the Festival in the Desert near Timbuktu.

Among the food security plans of 685 rural communes, 103 report tourism assets, and only 13 include tourism as part of their food security planning (see Table 1).

Table 1: Rural communes with tourism assets

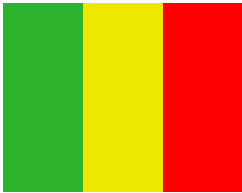
Category	Count	% of rural communes
# communes with undeveloped tourism assets	70	10.2%
# communes where tourism exists	33	4.8%
Total # of communes with tourism assets	103	15.0%
# of communes where tourism is part of food security plan	13	1.9%

According to data from the World Travel and Tourism Council, international visitor arrivals to Mali more than doubled during the decade of 1997 to 2007, and has now reached approximately 200,000. The contribution of the travel and tourism economy (including direct and indirect impacts) to GDP is expected to rise from 4.9% (US\$523 million) in 2010 to 6.1% (US\$1,090 million) by 2020. The contribution to employment is expected to rise from 80,000 jobs (3.9% of total employment or 1 in every 25.6 jobs) in 2010, to 129,000 jobs (4.8% of total employment or 1 in every 20.8 jobs) by 2020.

The combination of cultural assets with high economic value, abundant labor resources, a bright outlook for tourism growth, and critical development challenges provides Mali with an opportunity to integrate tourism into its strategy for economic growth and poverty reduction. A tourism policy that builds upon the existing foundation of cultural heritage, respects social and cultural traditions, minimizes economic leakages, and adheres to pro-poor tourism development strategies is likely to produce economic benefits that contribute to food security in Mali. There are significant opportunities for capacity building in tourism, including the development of national tourism marketing materials and information and strengthening of economic linkages between tourism and other sectors.

REPUBLIQUE DU MALI

Un Peuple- Un But- Une Foi



NATIONAL ECOWAS UNIT

**NATIONAL PRIORITY INVESTMENT PLAN OF
MALI- 2011-2015
(PNIP)**

EXECUTIVE SUMMARY

JUNE 2010

FRONT COVER: The Malian Flag (vertical broad stripes of green-yellow-red) and The Arms of Mali. The Arms of the Republic of Mali are circular. The background is a deep blue sky. At the center, there is the Mosque of Djenné in gray clay. Above the Mosque is the Legendary Vulture soaring in dark gray. Below, the rising sun is in yellow gold. In front of the sun there are two opposing bows stretched by black arrows. And along the periphery, the top reads "Republic of Mali" and the bottom reads, "One People, One Goal, One Faith" in black block letters.

Why a Priority National Investment Plan?

Faced with huge climatic and ecological challenges, Mali, which has an enormous agricultural potential, has made Agriculture the backbone of its economic development strategy.¹ Thus, Agriculture is viewed as the engine of economic growth and the vehicle for poverty reduction, given its importance as a source of employment and income generation, and its capacity to make Mali the granary of West Africa, thus supplying the regional market and meeting the needs of the growing urban population of the country. In addition, the development of Agriculture is a central question of national security, as a nation that is incapable of feeding its population and creating enough productive jobs will find itself in a situation of permanent instability.

The Agricultural sector generates at least partial employment for 85% of the workforce and represents 33% of GDP. Agriculture represents 58% of the GDP from the primary sector, of which 13% derives from the rice subsector and only 5% from cotton, in contrast to 28% from the livestock subsector.

Malian Agriculture, however, suffers from numerous weaknesses that constitute impediments to the modernization of the sector: production systems that are only weakly intensive, low use of improved seeds, predominance of manual methods of cultivation that use large amounts of low-productivity labor, etc. In addition, the levels of production are still highly dependent on the vagaries of weather (droughts, floods), but also on pests, livestock diseases, and involuntary bush fires. All these factors result in strong fluctuations in GDP and an increased pauperization of the population.

To capitalize on its enormous potential, Malian Agriculture needs to undergo fundamental qualitative transformations in order to base its growth on the intensification of production and to orient the sector towards a commercial agriculture destined to satisfy the needs of the population in terms of food security, employment, and income generation.

In this context, the Government of Mali has elaborated, in collaboration with the private sector, civil society, ECOWAS, and its development partners; a National Agricultural Sector Investment Plan (known by its French acronym, PNISA) aimed at attaining the MDG 1 goal by 2020. The PNISA is built around the following elements:

- Increasing the productivity in key agricultural sectors that touch the lives of the large majority of Malian citizens having low incomes. This effort, which will address all stages of the process from production up to the final consumer, will particularly emphasize those activities that generate income for women.

¹ In this document, "Agriculture" (with a capital A) includes not only crop production but also livestock, aquaculture, and fisheries activities as well as marketing and processing activities for these products, within a value-chain perspective.

- Strengthening the capacity of local governments and local farmer organizations in order to allow them to take charge of agricultural development, improvement in nutrition, and the implementation of well-targeted food security safety-net programs.
- The stimulation of agricultural research and agricultural education with a view to developing new technologies and new expertise capable of improving Mali's agricultural policies while at the same time allowing it to respond to the challenges generated by climate change.
- Investment in water control, including improved systems of irrigation and better management of rainwater in non-irrigated zones in order to reduce the large weather risks that Malian farmers face.
- Promoting a better business environment and strengthening rural infrastructure in order to encourage investment aimed at modernizing agriculture through, in particular, processing products, and to develop trade in agricultural products at the national level as well as within Africa and internationally.
- The rational use of natural resources and the preservation of the environment, in line with a crucial element of the agricultural policy, namely assuring sustainable development.

In sum, the modernization of Agriculture will permit the preservation of the environment and stimulate agricultural research and technological innovation, while simultaneously assuring the success of poverty-reduction programs in the rural areas.

The PNIP constitutes the first actions to implement the PNISA, within a 5-year framework. It allows starting a series of investments, beginning in 2011, in order to respond to the challenges identified above while the full elaboration of the PNISA continues, via a participative process, until the end of 2011. The PNIP therefore plays the same role, at the national level in Mali, as the mobilizing and federating programs of ECOWAS play relative to ECOWAP.

Mali built its agricultural development strategy around a vision centered on the strengthening of sub-regional economic integration. Thus, the PNIP fits completely within the framework of the Comprehensive Africa Agriculture Development Programme (CAADP). Derived from Mali's Plan to move from a project approach to a sector-wide approach, the PNIP fully integrates the principles underlying the efficiency of aid, namely: a) the ownership by the State of the development policies, programs, and strategies; b) the alignment of the TFP regarding national procedures and programs; c) the harmonization of the different development partners; d) results-based management, and e) mutual responsibility.

Definition, Scope, and Guiding Principles of the PNIP

The PNIP is designed as a 5-year investment plan covering the period 2011-2015. It aims, on the one hand, to significantly reduce the poverty rate in order to reach the MDG 1 by 2020; and on the other hand, to stimulate agricultural growth in 5 value chains while at the same time stressing a multi-sectoral program of nutrition education.

The PNIP fits within the framework of the plan to move from a project approach to a sector-wide approach. It permits, in the spirit of the Paris Declaration, to which Mali has subscribed, the aligning and harmonization of procedures and the synergy among the multitude of projects and programs supported by various technical and financial partners. The proposed actions deal with all the different stages in the value chains of the chosen products, i.e., production, processing, preservation, transport and distribution as well as consumption. These stages represent the main sources for improving the revenues of the population and for poverty reduction.

The PNIP does not cover all the anticipated agricultural investments of Mali during the 2011-2015 period. For example, the actions to expand large-scale irrigation, which have been underway for several years (MCC, CEN SAD, etc.) will continue during this period, but they are not included in the PNIP. The PNIP thus constitutes a program of supplementary investment aimed at increasing Agricultural production, employment, and food security in several promising value chains that do not constitute part of the large-scale irrigation programs.

The PNIP was designed around the following guiding principles:

- The activities and the value chains/subsectors chosen correspond to those that are capable of contributing significantly to the strengthening of food sovereignty and nutrition in Mali. Food sovereignty is based on three key elements, namely: (a) encouraging local production of the principal agricultural commodities in order to reduce import dependence; (b) increasing the availability and the economic accessibility to food through increased productivity, the reduction of marketing costs and raising incomes for the participants in these value chains; (c) the improvement of the nutrition of the population through the production of key nutrients and better nutrition education.
- The value chain/subsector approach used in the programs takes into consideration all the stages of the Agricultural process, from input supply through farm-level production, marketing and processing, all the way up to the stage of consumption. Thus, the capacity-strengthening activities included in the PNIP will be implemented at different levels throughout the food system.
- The approaches adopted in the PNIP aim, simultaneously, at improving productivity and protecting natural resources.

- The strong involvement of the private sector and civil society in the definition of the plan and their involvement through the strengthening of public-private partnerships.
- Recognition of gender in the choice of activities. For example, the program stresses certain key value chains such as those for milk and fish where women are dominant in all the post-production stages. Through its value-chain perspective, the PNIP stresses the improvement of productivity in non-agricultural activities such as retail trade and processing in which women are heavily involved.
- The choice of investments was made in a sub-regional perspective so that the Malian PNIP is compatible with the broader ECOWAP policy of ECOWAS. This will allow Mali to exploit its comparative advantages within the sub-region.
- The PNIP foresees the implementation of a monitoring-evaluation system to track progress in terms of measurable results.
- The plan is realistic, on the one hand, in terms of proposed financing that is compatible with the country's absorptive capacity and, on the other hand, in terms of recurrent costs that the country can support.

Description of the PNIP's Programs

The specific objectives of the PNIP are the following:

- Increasing cereal production (maize, millet/sorghum, rice) through the intensification and modernization of the production and marketing systems;
- Increasing production of animal products (meat/milk/fish) through improving the resources and intensifying pastoral and aquaculture production systems;
- Improving producer revenues through adding greater economic value to marketed surplus;
- Improving nutritional status through Information, Education, and Communication activities (IEC).

The PNIP has thus focused on the following five principal value chains: rice (outside of the large-scale irrigation programs), maize, millet/sorghum, livestock/meat/milk, and fishing/aquaculture. Simultaneous to its support of production and marketing, the priority program will undertake cross-cutting nutrition education activities in the areas where it is implemented.

These value chains were selected because of their real potential to grow, the large number of the poor involved in them, and their importance for food and nutritional security. In addition, these value chains are also those that are the focus of particular

attention by the Government of Mali as well as being at the heart of the regional ECOWAP mobilizing programs ever since the crisis brought about by soaring food prices in 2007/2008. Lastly, these value chains offer the best chances for reaching the CAADP objectives.

Each of these five value chains includes the following five common components: capacity strengthening, investments, production and competitiveness, research and training, and food security.

By 2015, the PNIP aims to attain a growth rate of 6% in the Agricultural sector.

The program will reach about 5 million producers in the five different value chains. The agricultural, livestock, and fish production generated by the end of the priority program will reach 1,220,485 tons of maize, 538,894 tons of millet, 804,148 tons of sorghum, 257,309 tons of rice, 98,487 tons of meat, 369,464 liters of milk, and 47,560 tons of fish from fishing and aquaculture.

The Maize Value Chain

The production of maize has great potential given the favorable climatic conditions and large potential for exports within West Africa. Among other things, it is, simultaneously, an important source of animal feed and an important alternative source of income diversification to compensate for the current cotton crisis. From 1996 to 2009, the cultivated area increased from 22,363 hectares to 367,263 hectares.

The anticipated actions focus on the expansion of production through improving the systems for production and input distribution (especially for improved seeds, fertilizer, and herbicides) and the strengthening of the capacity of support services, whether it be in terms of advising local governments, visits to share experiences, study tours, or support to all the stakeholders in the subsector, and particularly, women and youth.

An important concern will be improving work conditions, improving equipment of both individual and collective technical support structures, and the good functioning of support services. Particular attention will be given to the underprivileged elements of the population, especially women involved in processing, preservation, marketing and exporting of maize.

The total amount of anticipated investments is 45.35 billion FCFA (85.6 million US dollars).

The Millet and Sorghum Value Chain

Investments related to the millet and sorghum value chain will consist mainly of bolstering and expanding current intensification efforts for the following reasons:

- Sorghum is cultivated throughout Mali (Soudanian, Sahelian and Saharan zones) during both the primary and secondary agricultural production seasons.
- As the country's most widely consumed cereals, millet and sorghum contribute strongly to food security.
- Cultivars exist (for sorghum in particular) that respond well to intensification techniques (such as the application of manure); sorghum yields can reach 1 to 3 tons per hectare.
- Sorghum is grown in some regions as livestock feed.
- There exist market outlets for sorghum and millet in Mali and in neighboring countries (Mauritania, Burkina Faso, Côte d'Ivoire).

The anticipated activities in the PNIP for the millet and sorghum value chain are focused primarily on the following: advisory services, particularly for the intensification of the production of new sorghum varieties; improving storage systems; processing and marketing. The PNIP will likewise promote access to improved seeds and other inputs necessary for yield improvement and the expansion of cultivated areas using sustainable production practices. Lastly, the expansion of varieties used as fodder will also be encouraged.

The total anticipated investments amount to 25.617 billion FCFA (48.3 millions de dollars US).

The Rice Value Chain

Rice (approximately 5 percent of GDP) remains a major asset for the Malian economy and the driving force of the country's agricultural sector. Rice production is continually expanding. Thus, between 1990 and 2006, the area cultivated grew from 196,631 hectares to 468, 239 hectares. Since 2008-2009, the Government has been implementing the Rice Initiative, whose goal, through the rehabilitation and expansion of irrigated areas and the development of community-level irrigation plans, is to position Mali as the agricultural powerhouse of West Africa by 2012/2013, capable of producing annually 10 million tons of grain (of all types). The PNIP will contribute to this goal through additional production that will reach 258,000 tons of paddy rice by 2015.

The total anticipated investments in the PNIP for this component amount to 168.51 billion FCFA (317.9 million US dollars).

In the rice sector, the PNIP focuses its investments on medium-scale irrigation perimeters and, particularly, on community-level irrigation. The latter is defined as: "all irrigation area management plans identified and carried out with the assistance of local communities, with the goal of creating productive, profitable and sustainable

agricultural zones by the program beneficiaries themselves.” The areas considered include the lowland inland swamps (“bas fonds”), flood plains, ponds, village-level irrigated perimeters, horticultural perimeters, dry riverbeds (wadis) and oases. The Program plans to support the development of 27,027 hectares of such areas over the next five years.

As in the other value chains, these infrastructure investments will be accompanied by a series of supporting activities in order to:

- Strengthen the capacities of farmers and other value-chain participants (for example, through the structuring and organization of a rice value-chain participant council and the development of fully integrated private service centers to support rice cooperatives in the areas of input supply and marketing of their members’ production);
- Increase the productivity and competitiveness of the value chain through improvements in the production, processing and marketing systems; and
- Strengthen research and training to assure a continuous increase in the productivity of the value chain.

The Livestock/Meat/Milk Value Chain

With over 8 million cattle and 20 million goats and sheep, livestock production involves at least 80% of the rural Malian population and is the primary source of income for more than 30% of Malians. Mali’s livestock production and marketing potential is strong not only on the domestic front (in terms of supplying the population with livestock, meat, and related products) but also externally (in terms of exports within sub-region and to other emerging destinations).

The activities foreseen in the PNIP will focus on: a) strengthening the capacities of milk and meat producer organizations as well as state and para-governmental service providers; b) improving processing and marketing structures in order to achieve food safety objectives as well as to assure the market competitiveness of the products; c) increased production through the development of pastureland and watering points as well as their management systems; d) the expansion of fodder crop production, of oilseeds (whose seeds provide the primary protein source for animal feed), and cereals (maize, sweet sorghum) used in dairy cattle feed; and e) genetic improvement of the animals.

The total amount of anticipated investments is 71.741 billion FCFA (135.4 million US dollars).

The Fish/Aquaculture Value Chain

The fish/aquaculture value chain holds a preponderant place in the national economy in terms of food security and job creation. This value chain is particularly targeted because of its role in meeting the animal protein needs of low-income populations and in generating women's incomes. Its contribution to the national economy is estimated at more than 90 billion FCFA, or 4.2% of GDP.

As a result of the very modest levels of past investment in this value chain, the PNIP must focus particularly on research (such as the evaluation of fisheries stocks; the improvement of fish-raising techniques in fish-farming and aquaculture; the improvement of fish processing and packaging techniques; and research on fish nutrition and feeding practices), but also on advisory services to fish farmers and fishermen/women concerning production, processing and marketing.

The PNIP foresees important investments in the development of ponds and aquaculture basins; the development of small and medium sized aquaculture stations in both streams and rice production perimeters; the construction and installation of fish cages; and the integration of agriculture and aquaculture production in irrigated agricultural zones, including the establishment of 150 fish farmers in the various irrigated rice areas of the country. The program also plans to strengthen the structures providing support services to producers and market information.

The volume of anticipated investments totals 73.7 billion FCFA (139.1 million US dollars).

Cross-cutting Nutrition Education Activities

The identification and implementation of income-generating activities for the poor and economically vulnerable (women, children, young unemployed degree holders) make up an important component of the development of each of the five value chains presented above. In order to convert these revenues into improved nutritional status of the beneficiaries, information sharing, education and communication activities will be undertaken. Improved dietary habits and food safety practices are to be promoted en-masse through social marketing campaigns and local media. In-kind gifts could be awarded to encourage participation, such as land titles and/or agricultural production equipment awarded to collective organizations, particularly, the best women's groups.

The budget for these activities amounts to 3.433 billion FCFA (6.5 million US dollars) for the five years.

Funding

The total budget of the PNIP for the five years equals 388.351 billion FCFA (733 million U.S. dollars), 37% of which will be provided by Mali. The funding gap is 246 billion FCFA (465 million U.S. dollars). The PNIP is the first phase of the Comprehensive Plan for Investment in the Agricultural Sector (PNISA) covering the period 2011-2020, which

will require increasing the annual government expenditure on Agriculture from 225 billion FCFA (425 million U.S. dollars) to 388 billion FCFA (732 million U.S. dollars) in order to reach the Millennium Development Goal no. 1. One of the major objectives of the PNIP will be to create conditions enabling significant growth in national absorptive capacity in order to allow appropriate management of the PNISA during the period 2011-2020.

Institutional framework for implementation

The various programs contained in this Plan have as their goal to support local and regional development by allowing, in particular, the transfer of competencies and resources to local governments. These programs will be implemented through the following mechanism:

- identifying areas of intervention with the technical services, on the basis of agro-ecological potential;
- Selection of areas of intervention with local authorities;
- Management of funds on the basis of national procedures;
- Participation of all stakeholders in monitoring and evaluation of programs: the beneficiaries, technical services, local governments, professional organizations, civil society organizations, the private sector and the financial partners.

Political-administrative measures supporting the implementation of the Plan are organized around the following points:

- The adoption of fiscal incentives;
- Reducing barriers to subregional trade;
- The development of the domestic market for agricultural products, essentially by facilitating stakeholders' access to credit, improving marketing infrastructure, information systems, standardization of products, etc.;
- The strengthening of land-tenure security;
- The establishment of a fund for compensation for loss of production due to natural and /or climatic reasons.

Similarly, it will be necessary to undertake several accompanying measures to ensure the success of the chosen priority actions, particularly in the following areas: (a) institutional strengthening; (b) improved communication and outreach; (c) enhancement and diversification of outreach themes; (d) creation of an attractive business environment, principally by developing new land-tenure arrangements; (e) improved understanding of value chains and of the knowledge of stakeholders involved in agricultural development; (f) promotion and encouragement of technical invention to unleash the spirit of creativity among Malians by establishing a national award for agricultural invention.

Risks

Several risks, however, may threaten the success of the PNIP. These include the following:

1. The worsening of the phenomenon of climate change, which could disrupt the basic assumptions underlying the design of the program components, due to lowering of water levels and a reduction in available water flow;
2. A low level of a sense of ownership among the producers regarding the land improvements undertaken by producers; this could lead to low production levels and a very limited life of such improvements;
3. Cumbersome administrative procedures may cause delays in the implementation of actions and non-compliance and/or insufficient compliance of producers to the intensification and modernization of the production systems;
4. The absence of alternative funding sources for the programs;
5. The national structures' capacity to absorb financial assistance.

Next steps

After presentation and discussion of the PNIP at the ECOWAS Meeting in Dakar (from 14 to 17 June 2010), the program will be refined by taking into consideration the comments received. A financial review of the program with the TFP is planned for July. Meanwhile, the PNISA as a whole will continue to be finalized and validated with all stakeholders from now through the end of 2011.

Living Standards Measurement Survey-Integrated Surveys on Agriculture (LSMS-ISA)

a presentation by

Gero Carletto, Senior Economist

Poverty Reduction and Statistics Division, World Bank Group

June 22, 2010

Audience: Donor Community and Government Partners

Introduced by Jean Harman who explained that USAID/Mali will work with the Ministries of Economy and Finance and Agriculture to introduce the Government of Mali to the methodology.

Objectives:

1. Improve the availability, quality and relevance of agricultural data for policy and research in Sub-Saharan Africa
2. Measure the level of poverty at the household level. LSMS-ISA was financed by multiple countries to collect agricultural statistics with the idea to reinforce agricultural surveys. The LSMS approach is integrated and includes political analysis to encourage discussion of the type of approaches
3. Understand the history and characteristics of past projects

Coverage: 100-150 countries

Motivation:

- Agricultural statistics lack quality, pertinence, and timeliness
- Need to figure out how to measure quality of life
- Most surveys concentrate on production, whereas farmers are actually trying to increase productivity
- No data to be able to measure diversification
- Agricultural households have infrastructure that is not uniquely agricultural (health for example).
- Distribution of the results but in general limited worldwide awareness

Components of LSMS/ISA:

- Household survey data production
- Methodological validation/research
 - Improve methodology to better measure indicators
 - Improve the collection of data
- Capacity building
 - Reinforce capacities and the distribution of information
 - Establish a system of sustainable self-sufficiency
- Dissemination
 - Share information and the policy of free access to these data (best to way to assure that data will be properly used)

Initial Focus Area: Tanzania, Uganda, Malawi, Nigeria, Niger, Ethiopia

Main features of method LSMS:

- Establish a panel to determine frequency of survey, tracking
 - o Tracking includes follow-up of households underestimated and individual follow-up
- Establish number of households to visit (population-based frame)

- Tracking includes follow-up of households underestimated and individual follow-up
- Establish number of households to visit (population-based frame)
 - Sample depends on time available for survey
- Integrated approach
 - Global Strategy for Agriculture and Rural Statistics
 - Multi-topic survey instrument (Agriculture plus non-farm, poverty, nutrition...)
 - Build on existing/planned surveys
 - Improved links to other data sources
- Establish means to attract funding
- Data collection
 - Computer Assisted Personal Interview (CAPI)
 - Open access data policy
- Governance structure and partners
 - Steering Committee
 - Technical Advisory Board
 - Technical Working Group in each country
 - On-going collaborations with FAO, WFP, IFAD, WFC, ARD/ILRI, WFC, CMAAE...

Steps being taken in Mali...

- Working with current household survey system
- Finding solutions to key methodological issues/policy questions
- Identifying main stakeholders
- Establishing the frequency of data collection
- Determining sample size; how to include pastoralists

Questions:

1. There are many surveys conducted in parallel. Data is collected—so how can we integrate these data into the established system?
 - a. In Mali, the food security survey, the sample was too large. We do collaborate with other institutions to determine where integration of certain data is possible once data has been verified. The sample size is very important when considering integration of data.
2. CPS/Rural Devt: Mali has many diverse problems. For example, slaughterhouses have an inordinate number of animals butchered during holidays but this is not the case all year round. How, with problems so numerous, can Mali reach the level of other countries?
 - a. Each country presents a handful of problems to overcome when setting up agricultural surveys. Mali and Niger have the similar problem of capturing herdsmen in one household unit. We are undergoing the preparatory process with the government of Mali. We have learned from the experience of other countries where innovations discovered may also be applicable to Mali's case. We will find the best approach for Mali.

**Final Thoughts from the
Strategic Planning and Multi-Year Options
June 23 – 24, 2010**

How this Meeting Facilitates Strategic Development:

1. The realization that most ideas and priorities were similar which leads to increased synergy and therefore a feel that we share a global vision (x10)
2. Good to identify the stake holders and priorities for the expansion of AEG activities and economic growth in Mali (x9)
3. Shows the importance to support agricultural production and the value chains (x4)
4. Developing a strategy to which all can be held responsible
5. The meeting gave an opportunity to ascertain relevance and demand-driven nature of USAID programs and gather additional information for better planning of future strategies

Recommendations for the AEG team:

I. Broad suggestions for AEG Programming

- Pay close attention to the linkages among different programs and facilitate collaboration (x5)
- Consider more seriously a cross-sector approach (health, education, and governance); ex. health/family planning + agricultural expansion/intensification (x2)
- Support local initiatives, NGOs, producer organizations and partners (not hand-outs but in ways which will help them help themselves) (x2)
- Focus on the projects that aid the most vulnerable populations (x2)
- Consolidate what has been learned from existing programs and reinforce successful activities/value chains before adding additional value chains to the portfolio
- Develop successes and use them as models
- Define key value chains and areas of work for USAID/Mali over the next few years
- Take into account the living situations and abilities of the beneficiaries
- It's easier (from a program implementation standpoint) to separate the side effects – and this can hamper the ability to solve problems in a holistic and integrated way
- More facilitation for the access to financing in the framework of expansion
- Work on the sustainability of actions
- To increase production, diversify focus commodities
- Need more priority setting to focus on crucial aspects that can lead to the achievement of MDG I
- Looking at an integrated geographical approach of focusing efforts on specific value chains where they are most productive and then evaluating a strategy of integration
- A synthesis of the objectives tied with the priorities of the American Congress and lists of the value chains in our work
- Need to talk about individual production and the improvement of the capacities of producers to produce quality goods to meet the demands of international and regional markets
- Maintain the diversity of value chains while addressing geographic needs and continuing to increase the collaboration between implementers who integrate thematic, sub-sectoral, and geographic approaches
- Give the opportunity to ministerial departments to take over USAID projects and programs by naming qualified cadres as head of projects
- Analyze what research has been completed each year and then adapt programming based on most effective innovations discovered

- In developing the strategic plan, we recognized the wonderful opportunity for advanced training (MS, PhD) offered by the CRS; these degree programs can be easily built around the trained human resource needs of nearly all projects associated with agricultural development
- Accountability is one of the most important aspects of encouraging change within development
- Highlight risk management and how the different value chains will be supported in case of unexpected disturbances
- Productivity needs to be improved while managing environmental degradation
- Take into account the analysis of political dialogue and reinforce the Malian government priorities

2. Specific sub-sector concerns

- Should focus on animal raising and livestock, especially necessary inputs, to improve the different animal bi-products value chains for development and potential export (Ex. Powdered milk consumption represents a great loss to the milk production value chain in Mali) (x6)
- Try to address the problem of research and dissemination
- Focus on the need for infrastructure development and facilitation of investment through land tenure reform (x2)
- Emphasizing the potential of non-farm value chains and their roles in advancing food security in Mali (e.g. natural resources, tourism, artisans, etc.)
- Factor in responding to urban demand for increased quality and faster preparation as one means of improving value chains
- Pay extra attention the role of climate change when planning future programming
- Focus on land improvement and hydro-agriculture (emphasis on irrigation)
- Support the transportation and commercialization of quality agriculture products
- Talk more about the access to agricultural related credit
- Could also focus on the oil-production value chain and the investment in infrastructure and human capital
- See to it that tourism remains in the AEG portfolio
- Focus on capacity building and income generation activities for young people
- Talk about education, functional literacy and research and development
- Reinforce the private sector through funding, training and access to inputs
- Engage in national policy making
- Put more emphasis on agro-forestry
- Put more emphasis on ecotourism
- Hold accountable the strategic plan of IER or their collaborating structures
- Could use more talk on aquaculture

3. Information sharing/M&E

- Improve monitoring and evaluation and the study of impact; the promotion of information and results are crucial to their development (x3)
- The presentation on “indicators” was disappointing and served to create more confusion rather than answering my questions (x2)
- Regular monitoring and evaluation integrated into the strategic plan for the different partners (x2)
- Improve synergy of programs in place to avoid repeating the same interventions and to reach a measurable impact in the field (x2)
- Put more emphasis on improving the availability and quality of information on the agricultural sector and sub-sectors and on strengthening an information system to monitor and evaluate the impact of USAID and other donor interventions in agriculture

- Quickly develop indicators to guide the elaboration of the program
- Take charge of/collect agricultural information (stats, prices, costs, etc.) and bridge the gaps between the value chains
- AEG should share studies and information collected more often
- Continuation of activities through an online median (e.g. blog); somehow get communication without heavy US government intervention in process
- Put the producers in the network to access this shared information

4. Follow-up to the Meeting

- Create a summary or “think piece” for circulation summarizing the ideas that have come out of this meeting to raise questions for future analysis, encourage feedback, and then implement, where possible, the recommendations (x13)
- Circulate the strategic plan once completed to involve government and partners (x4)
- Do another meeting(s) that focuses on synergy and collaboration between the different partners so they can share information and their studies (x4)
- Consider having more workshops but with just the actors from the same zone of intervention (x3)
- Should be a multiannual AEG process (x3)
- Put collaboration, synergy, and partnership into action (x2)
- Actors in sub-sectors outside of AEG, yet still within the economic growth sector, should be included in the discussions (x2)
- Take into account the positions of farmers (x2)
- Ensure that recommendations of this workshop are complementary to the Plan National d’Investissement Prioritaire pour L’Agriculture (x2)
- Give opportunities for partners to reinforce their capacity to attain their objectives (x2)
- Use the information that has been accumulated during the meeting to expand economic growth programming
- Use meetings like this to catalogue contacts
- Have a partners meeting that focuses on the diversification of themes
- Would like more information on market systems and follow-up on the food security situation
- That the principle organizations that were present at the meeting meet regularly to discuss the same issues; and that maybe each organization pick a representative to do this
- Need to take into account the consensus that is built in the discussions and focus on them as a whole
- It would be good to be kept up-to-date on the progress of the different projects (this might cause us to see the connections to our own projects)
- AEG should put in place a small advisory group help analyze and target the results + combine them with other information to help come up with it’s new strategic plan
- Be judicious when analyzing the information collected at the meeting and focus on the idea of capacity building
- Show how funded projects relate to various value chains
- Follow-up dialogue with programs that include the private sector
- Give a lot more details on the grand initiative – Feed the Future
- It would be useful to brief participants on the broad interpretation of food security and the various means by which it can be affected
- Don’t know how to scale-up until we (USAID partners) know where our program is currently situated