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BEST Project

Bellmon Estimation Studies
for Title II (USAID-BEST)



USAID OFFICE OF FOOD FOR PEACE MADAGASCAR USAID-BEST ANALYSIS

JULY 2013

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Front cover: (Left) Different varieties of beans, lentils, maize, maize flour, and rice for sale at an urban market in the capital, Antananarivo, Madagascar, May 2013.

(Right) A rice vendor pauses for a moment from the day's work to pose with her child. Rice is the main staple crop consumed by all Malagasy, Mahajanga, Madagascar, May 2013.

Back cover: A vendor smiles as she arranges her stock for display, Fianarantsoa, Madagascar, May 2013.

Photos by Fintrac Inc.

PREFACE

During the months of May-June 2013, the Bellmon Estimation Studies for Title II (USAID-BEST) team undertook a study of the current state of agricultural markets in Madagascar to inform USAID food assistance programming decisions.

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ACRONYMS AND NOTES

ADRA	Adventist Development and Relief Agency
BEST	Bellmon Estimation Studies for Title II
CARE	Cooperative for Assistance and Relief Everywhere
CDSO	Crude Degummed Soybean Oil
CFW	cash-for-work
CFR	Cost and Freight
CFSAM	Crop and Food Security Assessment Mission
CFSVA + N	Comprehensive Food and Nutrition Security and Vulnerability Analysis
CIF	Cost, Insurance, Freight
COMESA	Common Market for Eastern and Southern Africa
COMTRADE	Commodity Trade Statistics Database
CRS	Catholic Relief Services
CSB	Corn Soy Blend
CSI	Coping Strategy Index
EFSP	Emergency Food Security Program
EPM	National Household Survey (Enquête Périodique auprès des Ménages)
EU	European Union
FAO	Food and Agriculture Organization
FCS	Food Consumption Score
FEWS NET	Famine Early Warning System Network
FFA	food-for-assets
FFE	Food for Education
FFP	Food for Peace
FFPr	Food for Progress
FFW	food-for-work
FISP	Farm Input Subsidy Program
FOB	Free on Board
FY	Fiscal Year
GAM	Global Acute Malnutrition
GDP	Gross Domestic Product
GoM	Government of Madagascar
GMO	Genetically Modified Organism
ha	hectares
HF	high-frequency
HH	households
HIPC	Heavily Indebted Poor Countries
HRV	Hard Red Winter
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
IPP	Import Parity Price
ISPS	International Ship and Port Facility Security
IY	Implementation Year
JICA	Japan International Cooperation Agency
kgs	kilograms
kms	kilometers
LMM	Les Moulins de Madagascar
LRP	Local and Regional Procurement
MCHN	Maternal and Child Health Nutrition
MGA	Malagasy Ariary
MGFSC	Madagascar Food Security Consortium

MICTSL	Madagascar International Container Terminal Services Ltd.
MT	Metric Tons
MYAP	Multi-Year Assistance Program
NEPAD	New Partnership for Africa's Development
NFRA	National Food Reserve Agency
NGO	Non-governmental Organization
OFDA	Office of US Foreign Disaster Assistance
PEPFAR	President's Emergency Plan for AIDS Relief
PM2A	Preventing Malnutrition in Children Under 2 Approach
PPP	Purchasing Parity Power
PVO	Private Voluntary Organization
QMM	Qit Madagascar Minerals
RC	Commune Road
RN	National Road
RP	Provincial Road
SADC	Southern Africa Development Community
SALOHI	Strengthening and Accessing Livelihoods Opportunities for Household Impact
SMMC	Conventional Merchandise Handling Company (Société de Manutention des Marchandises Conventionnelles)
SO	Strategic Objective
SPAT	Independent Management Company of Toamasina Port (Société du Port à Gestion Autonome de Toamasina/Tamatave)
sq. m	Square Meters
TEU	Twenty-Foot Equivalent Units
TOP	TIKO Oil Production
UN	United Nations
US\$	United States Dollar
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USG	United States Government
VAC	Vulnerability Assessment Committee
WB	World Bank
WSB	Wheat Soy Blend

Exchange Rate Used in this Report: US\$1 = 2,000 MGA.



CHAPTER I

EXECUTIVE SUMMARY

Regional preferences and availability shape demand for rice throughout the country. Varied qualities of rice offer customers a choice depending on their means. Atsinanana Region, Madagascar, May 2013.

Photo by Fintrac Inc.

1.1. INTRODUCTION

This executive summary is a synopsis of the full USAID-BEST Analysis, which provides an overview of local markets, overview of food security programs in Madagascar, recommendations for future program design, an analysis of the feasibility of monetization, and an overview of the adequacy of ports, inland transport, and storage. The executive summary is a condensed version of these topics as detailed findings from research and field work are covered in subsequent chapters.

1.2. OVERVIEW OF LOCAL MARKETS

This section provides a brief summation of the national food deficits, characteristics of local markets, and structure, conduct, performance analysis for main staple commodities, all discussed in greater detail in Chapter 2.

1.2.1 National Food Deficits

Rice is the main staple food in Madagascar, and food security is generally tied to rice availability and access across the country. Total annual consumption (milled rice equivalent) is estimated at two million metric tons (MT). (Per capita consumption, approximately 115 kilograms (kg) per year, is among the highest in the world.) Although Madagascar is considered self-sufficient in rice production in normal years (i.e., years with no cyclones or other natural disasters), there is still annual national rice deficit estimated between 100-200,000 MT. Variation in rice

consumption can be partially explained by the lack of supply resulting in high prices, natural disasters, difficulty mobilizing rice from remote areas, and limited private company imports to serve the poorest areas in the country.

For households that cannot afford to purchase rice, especially during the lean season, maize and cassava act as substitutes. (Per capita consumption of cassava is approximately 117 kg per year, and maize is 21 kg per person per year.) One exception is in southern regions, where most farmers grow maize and cassava, and households generally eat rice during certain seasonal periods and in limited quantities.

Low productivity of staple crops is a major issue contributing to food insecurity in Madagascar. Heavy dependency on subsistence agriculture, limited use of improved agricultural inputs (e.g., seeds and fertilizers), lack of infrastructure (e.g., irrigation), risks associated with climatic events, and land use and tenure all contribute to exceptionally low agricultural productivity.¹

Additionally, price seasonality coupled with natural disasters, low crop quality, and limited availability in local markets, negatively affect food access. Rice imports can act as a buffer to meet consumption requirements, but domestic consumers prefer local varieties and have very limited purchasing power. For other crops, domestic trade is the most important way to combat price seasonality.

¹ WFP, 2010, *Comprehensive Food and Nutrition Security Analysis (CFSVA+N)*.

Government Policies. After the 2009 coup, the transitional government ceased most of the existing agricultural programs. Furthermore, the inflow of funds available to agricultural projects was severely cut because of decreased international assistance. Typically, the Government of Madagascar (GoM) does not intervene in rice imports and distribution. However, in 2010, the transitional government initiated the *Vary Mora* program under which the presidential administration supervised rice sourcing and importation while government staff supervised its distribution in designated locations.

Traders interviewed during the field visit noted that they only have access to *Vary Mora* rice in November and December, and shipments are not delivered on a regular schedule so supply is uncertain. The *Vary Mora* rice is also of lower quality and consumers only receive a limited ration size for this rice.

1.2.2 Local Food Deficits

The interaction of high poverty levels, limited food availability, and food preferences, particularly for rice, results in differentiated food security scenarios at the local level. Moreover, although at the national level Madagascar can be considered self-sufficient in staple food production (including rice), food deficits at the local level are becoming more persistent. In addition, the effect of natural disasters such as repetitive cyclones, inundations, and drought, affect coastal areas disproportionately. While some areas in the north and central regions (e.g., high plateau) typically produce a rice surplus, the extra volume of rice is not easily traded with deficit regions in the south. In particular, the eastern and southern coastal areas are rice deficit regions and face particularly high poverty rates due to a higher incidence of natural disasters, reliance on rice as the primary staple, and a high dependency on markets for food purchases. Access to food in markets is particularly complicated during lean season when prices tend to be much higher due to limited food availability.

1.2.3 Findings For Market Sites

USAID-BEST visited 23 markets during the May 2013 field visit: 11 coastal markets along the east and west, and 12 interior markets in the north, central, and southern parts of the country. The team observed the following main characteristics in all markets visited:

Standard measurements. Every market visited used the *kapoaka* as a standard measure. The *kapoaka* is a small cup which has the following conversion rates: 1 kg represents 3.5 *kapoakas* for rice and 4 *kapoakas* for pulses and maize.

Small-scale wholesalers (i.e., semi-wholesalers). These small-scale wholesalers are traders who sell in bulk but also retail. Although they can handle all kinds of products, they tend to specialize in one crop (e.g., rice, maize). Small-scale wholesalers did not face restrictions to operate in formal markets, and they did not face unfair competition from other traders to operate in markets.

Physical infrastructure. Most formal markets have some infrastructure (e.g., tables where traders sold products and/or a roof). Commune authorities have some formal control over these markets. In most markets, entry for new traders is challenging mostly due to space limitations.

Storage. Despite many markets having a market building, adequate storage is almost nonexistent. Large-scale wholesalers generally own their storage rooms, whereas small-scale wholesalers (semi-wholesalers) either rent spaces or store in their households.

Other observations. The team did not observe any sorghum during market visits. This absence of sorghum on the market may have been because sorghum is a relatively new commodity traded, and because it was not in season during the field work.

1.2.4 Commodity Markets

Rice. Regional preferences and availability shape the demand for rice throughout the country. In coastal areas most consumers prefer local rice. Imported rice is usually seen as poorer quality. There are also distinct preferences in rural versus urban areas across the country. In some rural areas consumers purchase imported rice because it is the only rice they can afford. In the south, households complement their rice consumption with cassava and maize from July-March. During this period rice is mostly consumed for breakfast and sometimes in the evening.

Supply. Locally produced milled rice is generally available throughout the year because some surplus areas (Tsiroanomandidy, Interior Central) can harvest three times a year and large-scale wholesalers who own storage units are able to store production for sale throughout the year. In southern areas along the coast, locally produced rice is not available year round. Vulnerability to natural disasters still represents a major barrier to increasing production. In the south, the locust invasion has caused important supply reductions.

Annual imports arriving during the lean season (November to mid-March) intend to meet local rice deficits. While very poor households can only afford to buy imported rice, as soon as they improve their purchasing power they likely switch to local varieties. In the south, traders did not view food aid rice as a competitor.

Value chain. The local rice value chain is characterized by numerous traders along the chain. Despite the number of actors, the flow of production from surplus to deficit areas is relatively well coordinated at the local level. The value chain for imported rice is slightly different depending on the region. In all markets, traders cited market location, rather than trader's market power, as a barrier to entering the market. For all traders interviewed, transportation posed the most expensive cost, although traders incur other marketing expenses as well.

Market performance. During lean season, locally produced rice prices increase in all regions across the country, but stay relatively stable in the capital primarily because of import availability in this market. Increasing prices create incentives for traders to move products from surplus to deficit areas. USAID-BEST found that in all markets visited traders were making profits. However, the profit margin was variable depending on the area.

Significant price seasonality for rice benefits collectors and wholesalers rather than farmers. Producers sell most of their rice production at a low price in the harvest season when rice is abundant. Collectors and wholesalers, who have the ability to store the commodity, retain some stock to sell closer to the lean season when rice prices increase. Local retail prices also fluctuate considerably depending on the variety and the market. Besides some markets in the south, rice markets can be considered integrated across the country.

Cassava. Cassava is the second most important food crop after rice in terms of volume produced. It is the main staple food in the South and South East. During seasonal food shortages, rural and urban households throughout the country rely on cassava availability so cassava is a key product for food security.

Supply. Small-scale and subsistence farmers mainly grow cassava in marginal land. Farmers follow traditional cultivation practices and do not use any fertilizer to increase yields. In addition, farmers consider cassava an insurance crop, meaning that farmers leave it on the ground in case of food shortages or in case they need some liquidity. Thus, very minimal volumes actually reach markets.

In Toliara, Fianarantsoa, and Ihoay (Interior South), the main cassava growing regions, the primary harvest season runs from May-October; traders indicated collecting around 10-16 MT per market daily during this time. This stock usually lasts until February.

Bad road conditions during rainy season create difficulties for the transportation of cassava from production areas to deficits areas, particularly to Interior Central regions. Currently, the GoM does not intervene in the cassava market to mitigate production and/or price fluctuations.

Value chain. Similar to the rice value chain, a great number of farmers, collectors, wholesalers and small-scale wholesalers, and retailers participate in the cassava market. Fresh cassava is used to supply the nearest market of the region while dry cassava is transported from production zones to deficit areas. Although cassava has traditionally been used in animal food (especially for pig feed), the demand for cassava has declined as demand for animal feed continues to decrease.

Market performance. Producers do not have adequate storage capacity to sell cassava during lean season when the demand is higher. For traders, profit margins are generally low. Cassava markets are generally not integrated, and prices are very

seasonal in nature.

Maize. Following rice and cassava, maize is the third most important crop in terms of volume produced and consumer preferences. The animal feed industry dominates maize markets because maize flour and bran are generally used as feed for poultry and swine (100,000 MT total; poultry alone demands around 40,000 MT per year). Despite the growing opportunities to market maize for animal feed, total demand has been decreasing since 2009, due to political instability.²

The government does not intervene in any way in the maize sector. There is no current policy to help develop the maize subsector, nor does the GoM support research or producers organizations to promote maize growth.

Supply. Although maize is grown all over the country because it easily adapts to different climatic and soil conditions, main production areas are concentrated in the Middle West, the Highlands, and the Southwest. Maize is generally harvested in April, May, and June, and is available until December. Despite maize availability in most surplus production areas, bad road conditions caused by rains limit its movement to deficit markets. Constraining the current availability of maize is limited production caused by Cyclone Haruna in March 2013. As a result of this natural disaster, some traders indicated that supply to markets was reduced by approximately 50 percent. The locust invasion does not seem to have had an effect on production as maize was already harvested by the time of the swarms that started in 2013.

Value chain. The maize value chain is better organized than that for cassava and rice because it is driven by the agribusiness industry. Maize wholesalers tend to specialize in sales of maize flour and bran and will work with other traders to source maize. Currently, only three companies dominate the market for feed: Livestock Feed Ltd., Sabma, and Agrifale. The number of agribusinesses have been reduced as a result of political instability; consequently, there is less demand for animal feed.

Market performance. Maize markets seem competitive as a large number of producers and sellers participate. Regular seasonal changes (seasonality of production and weather) and shocks (e.g., cyclones and pests) affect overall production and contribute to a high degree of variability. Despite better local value chain coordination, at the regional level, most maize markets are not integrated. Only Fianarantsoa and Antsirabe markets appear integrated with one another.

Edible oil. Households use oil to prepare sauces, and street food vendors generally use oil to fry potatoes or other vegetables. Groundnut oil is the most consumed because it is produced around the country. After 2009, when the markets for imported oil were liberalized, imported palm oil became available in all urban and rural markets year round. Local varieties face difficulties competing against the low price and

2 Vidal-Mbarga, Helene, David-Benz, H., et al, May 2011, *Marches Agricoles a Madagascar Contraintes et Opportunités Etude de Cas: Mais.*

year round availability of imported edible oils.

Antananarivo and Toamasina are the main source markets for imported oil. Generally, traders buy in bulk (20 liter drums) and divide it into small packages of 50 milliliters (ml), 100 ml, and 250 ml to serve consumers with limited purchasing power limits consumer demand for oil.

Market performance. In general, prices for imported oil showed little variation from market to market, indicating that the market for imported oil is well integrated. The domestic oil market is less integrated across the country.

Dry beans. Compared to other staple crops (rice, cassava, and maize), dry beans are relatively less consumed. However, they still constitute a complement when other crops are not available. In all market visited, local white beans were the most preferred and available. Dry beans are generally available from February-October and supply is more limited from November-January.

Production of dry beans is mostly for household consumption and limited volumes reach the market. Despite increasing demand from agribusinesses, moving beans from surplus to deficit areas is expensive and especially difficult during the rainy season.

Market performance. Certain dry bean varieties are currently exported and the demand from specialized traders and companies represent an important market for producers. However, large-scale sourcing from agribusiness is very specific to certain varieties. At the local market level, the team observed lack of coordination to supply deficit areas, which also suggests that dry bean markets may not be well integrated.

Implications for Title II and Complementary Market-based Programming

Poverty and limited food access are the most important factors in Madagascar food insecurity. Well-targeted in-kind food aid is likely reaching consumers who would not be buying much food on the market. Future development food assistance program should take in consideration the following items:

- **Rice**, from transoceanic sources, would compete with locally produced rice, cassava, and maize. Due to Madagascar's overdependence on rice and localized food insecurity in some coastal areas in the south the distribution of rice is highly discouraged. This also includes rice that would be procured locally.
- **Sorghum** included in a Title II ration should continue and because it does not have a negative effect on production or local markets.
- **Pulses** for inclusion in a well-targeted Title II ration should be investigated, primarily pinto beans.
- **Refined vegetable oil** is appropriate to continue including in the ration for several reasons listed in the chapter.

- **CSB** is appropriate to continue including in the ration, particularly for nutritional support.

There is scope for **complementary market-based programming** in Madagascar. USAID may consider the use of cash and/or vouchers in areas where markets are physically accessible to beneficiary populations. USAID-BEST believes the use of cash is feasible and appropriate depending on seasonal market and production variations.



Photo by Fintrac Inc.

People bustling to and from markets cross the designated pedestrian section of a bridge. Brickaville, Madagascar, May 2013.

1.3. OVERVIEW OF FOOD SECURITY PROGRAMS

This section summarizes the programmatic trends in food security programming and the overview of food security programs in Madagascar later discussed in detail in Chapter 3.

1.3.1 Programmatic Trends

WFP and USAID are the primary actors in distributing food aid. In 2012, USAID-funded development food aid equaled roughly 21,000 MT. Food aid tonnages are expected to continue at roughly the same levels for the next few years, and numbers could increase if serious shocks were to occur (e.g., cyclones, flooding, drought, and/or continued problems with locusts and other pests).

WFP purchased locally small volumes of food in 2012, and expects that local purchases will increase in the coming years,

pending any major quality concerns associated with the local commodities. Although the local procurement of food could become more common practice for donors, a significant decline in production due to locusts or other shocks is likely to delay any increase in local procurement.

Cash-based programs, funded by the World Bank and WFP, were recently implemented in Madagascar. The donor community appears interested in further experimentation with this type of activity and should draw on lessons learned from the current pilot to inform future interventions. The team is unaware of any voucher programs in Madagascar.

1.3.2 USAID Title II Program

SALOHI is a five-year program that runs from FY09-14 with US\$17 million per year in funding to target chronic and transitory food insecurity in eastern, southeastern, south central highlands, and southern Madagascar. The program currently targets approximately 640,000 vulnerable people (around 98,500 households) in 592 communities, which include 112 rural communes and three urban centers.³

The main programming sectors include maternal and child health and nutrition (MCHN), livelihoods, and disaster risk reduction (DRR); secondary activities include social protection, gender, and local governance.

1.3.3 World Food Programme

WFP/Madagascar currently operates a Protracted Relief and Recovery Operation (PRRO). The PRRO aims to 1) reduce acute malnutrition in children under five in targeted populations; 2) improve food consumption for targeted emergency-affected households; and 3) restore livelihoods of food-insecure households.⁴

The PRRO complements a separate Country Programme (CP) under WFP/Madagascar that implements programming to support basic primary school education, natural disaster mitigation, environmental protection, prevention of malnutrition through seasonal blanket feeding, and treatment of moderate acute malnutrition in children, tuberculosis patients, and people living with HIV/AIDS.⁵ WFP expects to reach almost one million beneficiaries in 2013 through the CP, the PRRO, and expanded emergency response activities.⁶

1.3.4 Local and Regional Procurement

In recent years, WFP/Madagascar purchased locally maize, beans, and, to a lesser extent, sorghum for distribution in its programs. During 2012, local procurements equaled approximately 16

percent of WFP/Madagascar's overall purchases for the entire year. WFP/Madagascar reports that its goal is to source approximately 20 percent of its overall purchases locally in 2013.⁷

1.3.5 Cash Transfers

WFP/Madagascar initiated two pilot cash-for-work (CFW) programs in spring 2013. Beneficiaries for the pilot projects are expected to earn roughly US\$45 per person for the two months worked.

The World Bank in Madagascar initiated the Community Development Project in 2001.⁸ One implementing agency for this long-term World Bank project is the Intervention Fund for Development (FID, *Fond D'Intervention pour le Développement*), which funds social protection activities that have utilized CFW to target poor communities by improving community infrastructure via road or irrigation canal construction.

DISCLAIMER

Evolving government policy on genetically modified organism (GMO) content may pose challenges for the importation of Title II commodities, including Corn Soy Blend (CSB), and crude and refined vegetable oil.

During the May 2013 field visit, the team was informed of a ministerial directive from the Ministry of the Environment (MoE) that forbids the importation of genetically modified goods for products that could enter directly into the agricultural value chain or processed products for consumption, such as edible oil, maize, soybean meal, and soybean-fortified foods. Although, as of June 2013, this bill banning GMOs sits before parliament, the uncertain political environment in Madagascar has blocked any efforts at an actual vote. Consequently, the directive on GMOs is only vaguely enforced and implemented (if at all) by both the MoE and the Ministry of Agriculture (MoA) through the Quarantine and Frontier Control Service.⁹

For this draft report, the team has outlined its recommendations based on market conditions alone, assuming the GMO policy is a possibility but not at all certain. Should the GoM codify the GMO policy before the final report is submitted, even if it is unevenly enforced, the team will be unable to recommend the monetization of commodities that are composed of or include GMO products. USAID-BEST recommends that USAID and awardees monitor this evolving situation and base their commodity choices appropriately.

7 Personal communication with WFP staff, May 2013.

8 World Bank, 2009, World Bank Madagascar Implementation Completion and Results Report-Community Development Project.

9 A phytosanitary inspector interviewed in Toamasina provided information concerning GMOs that conflicted with what the team was told by the national director of the inspector's office. The national director confirmed that GMOs are not to be permitted in the country, even if there is currently no law that has been passed by parliament.

3 CRS, 2012, SALOHI MYAP Midterm Evaluation Report.; CRS/Madagascar, and FFP/Washington DC, August 2013.

4 WFP, 2010, WFP Protracted Relief and Recovery Operation (PRRO 200065).

5 WFP, 2010, WFP Protracted Relief and Recovery Operation (PRRO 200065).

6 WFP, 2013, WFP Madagascar. <http://www.wfp.org/countries/madagascar/operations>, accessed June 2013.

I.4. RECOMMENDATIONS FOR PROGRAM DESIGN

I.4.1 Overview of Targeting Challenges

The food aid distributed by the SALOHI program (average 5,500 MT per year over the FY09-14 period) appears to cause minimal Bellmon concerns. Assuming proper targeting of a new cycle of Title II development food assistance, it is fair to expect minimal Bellmon concerns.

I.4.2 Geographic Targeting

The current SALOHI program coverage appears to effectively balance various regional needs from the disaster-prone east coast, the arid and marginalized deep southern areas, and the Central/Southern Highlands where stunting rates are highest nationally.

In addition to continuing to coordinate with USAID/Madagascar anti-malarial programs, future programs should coordinate any activities conducted by different stakeholders and donors that focus on food security activities and other related development activities.

I.4.3 Seasonal Targeting

Current food-for-assets (FFA) activities under SALOHI are generally targeted in accordance with field preparation and maintenance and harvest times. At both the design and implementation stage, PVOs need to be mindful of potential conflicts resulting from these scenarios for the next development food assistance cycle.

Seasonality is not applicable for 1,000 days programming since the food-based assistance is based solely on the age of the child under 2 and the status of the pregnant/lactating mother.

I.4.4 Household / Individual Targeting

Individual and household targeting appears to have been generally appropriate for activities under the current SALOHI program. Implementing PVOs need to carefully ensure that the program is well-targeted towards the neediest within communities and on a national level, in areas that are particularly food-insecure and prone to various shocks.

I.4.5 Activity Type

SALOHI currently implements the same activities in all areas, even though the program is implemented by different PVOs and spread out across five zones with very different geographic, economic and agro-ecological areas. For the next Title II cycle, USAID should consider permitting the awardee(s) to specialize program activities by area.

I.4.6 Commodity Selection

If the GoM bans the importation or consumption of foods that may possess genetically-modified organism (GMO) content, this would put at risk the importation of Title II CSB and vegetable oil. Assuming such a policy is not codified:

- **CSB** is appropriate to continue including in a ration that is intended to provide nutritional support.
- It is appropriate to continue including **refined vegetable oil** in the ration as a nutritional support.

In addition, the team recommends the following:

- Title II partners should investigate inclusion of **pulses** in a well-targeted program. A pulse could better balance the overall nutritional value of a ration.
- **Sorghum** should continue to be included in a Title II ration as it is a less preferred staple, and perhaps swapped for the rice that is currently used in FFA activities.
- The team recommends against the use of **rice**, the preferred staple, in a Title II ration.

The USAID-BEST team is concerned that a family ration could lead to increased rates of food assistance leakage onto local markets and, therefore, recommends that educational messages to beneficiary families be reinforced.

I.4.7 Local Food Procurement through Donor Purchases, Cash, or Vouchers

Local procurement. The next cycle of Title II development programming in Madagascar could consider local purchase for distribution, depending on the actual areas targeted and other factors such as quality and availability. Prospective awardees would need to monitor local markets to ensure that there is an adequate supply of pulses, and that these potential local purchases do not compete with WFP or other donor purchases on Madagascar markets.

Cash. PVOs will need to conduct additional assessments to determine whether the next Title II cycle for Madagascar can and should incorporate complementary cash programming. A review of the evaluation of WFP's pilot (once available) should be a minimal requirement to assess existing or completed cash programming.

Vouchers. The team is unaware of the use of vouchers in Madagascar for food security programs. If PVOs consider programming using cash or vouchers, they should also explore the potential use of mobile money transfer technology for future development and/or emergency programming in Madagascar.

1.4.8 Additional Considerations for Program Design

Current good practices for SALOHI should be continued and expanded in the next Title II development food assistance cycle in Madagascar such as the 'green phone line', agricultural interventions (linked to VSL), and social protection centers. The program balance between FFW and 1,000 days programming should be re-visited to determine the most appropriate balance under a new Title II cycle.

1.5. MONETIZATION FEASIBILITY ANALYSIS

This analysis (discussed in further detail in Chapter 5) considers wheat and edible oil for monetization to fund future Title II activities in Madagascar. As the monetization lead for the current SALOHI consortium, Land O' Lakes has monetized refined vegetable oil (RVO), crude degummed soybean oil (CDSO), and wheat grain for programming needs.

1.5.1 Edible Oil

Market demand for edible oil currently stands at 66,700 MT. Imports of primarily crude and refined palm and soybean oils account for 75 percent of in-country oil supply. Domestic oil processing capacity does exist; the refining company *Huilerie Industrielle de Tamatave* (HITA) commands this sector at 60-70 percent of the edible oil market. HITA solely processes imported crude palm and soybean oil because domestic oilseeds are too expensive and inconsistent in volume and quality. Other domestic oil refiners exist, but they are much smaller in scale. Furthermore, domestic production of oilseeds is generally poor in quality, artisanally produced, and limited to availability in remote and rural areas where imported oil is not easily transported.

Title II partners monetized 7,300 MT of RVO in FY10 and 3,180 in FY11. Partners monetized 2,350 in FY12 and are currently monetizing 5,210 MT of RVO for FY13.

1.5.2 Wheat

Market demand for wheat grain currently stands at approximately 158,000 MT of wheat grain for 2012, and has averaged 146,000 MT over the three-year period since the political crisis of 2009. Urban and peri-urban consumers typically demand wheat-based products such as baguettes, biscuits, and pastries; these products have increasingly replaced rice as a part of the diet in urban areas. In-country wheat production is insignificant and essentially all demand for wheat is satisfied via imports of wheat grain and wheat flour. There is only one currently active domestic wheat miller, *Les Moulins de Madagascar* (LMM), which satisfies about 15-20,000 MT of demand. Remaining demand is satisfied through the import of wheat flour.

Title II partners monetized 17,000 MT of Hard Red Winter (HRW) wheat in FY12, 7,000 MT of which arrived in 2011 and 10,000 of which arrived in 2012. HRW wheat is not being

monetized in FY13.

1.5.3 Recommendations

Wheat Grain. USAID-BEST recommends monetizing up to 14,613 MT¹⁰ of wheat grain to fund Title II programming activities. Sales of this volume at the Import Parity Price (IPP) for June 2013 of US\$352.50 would yield US\$5,151,080 in proceeds.¹¹

The sale of wheat grain will not represent a significant disincentive to local production because of the insignificant amounts produced in-country. Additionally, the little production that does exist is not incorporated into the value chain for marketed wheat products. Further, monetization will not pose a significant disincentive to domestic marketing because 1) the only milling company in the country only has between 12 and 20 percent of the domestic wheat flour market; 2) past monetization sales have been close to fair market value; and 3) recommended volumes for sale are ten percent of estimated import market volumes, which is assumed to not represent a significant portion of the commodity market. Key informants in the wheat flour importing sector also expressed that monetizing wheat grain would not have a significant impact on the market.

Wheat Flour. Monetization of wheat flour is also an option. Numerous market actors expressed interest in purchasing monetized US wheat flour and none of the market actors contacted during field work felt that a monetization of US wheat flour would negatively affect the market (although some expressed doubt that it would arrive in sufficient condition to be sold). If awardees are able to monetize 10,000 MT of wheat flour¹² at the price for Turkish flour (\$480 CIF as of July 2013), they should be able to generate US\$4.8 million. The price and therefore revenue excludes any duties, tax and fees for wheat flour¹³, an assumption that may not be realistic depending on the terms of sale.

Challenges to monetizing wheat flour include: 1) the inexact date of the commodity departure from the US; 2) uncertainty as to whether awardees would try to save money on shipping by lumping shipment of wheat flour with shipment of goods for another country; 3) undefined date of arrival; and 4) uncertainty about storage conditions in the shipping process.

10 10 percent of the total estimated commercial import market, based on average annual imports of wheat grain plus flour (converted to wheat grain equivalent at 75 percent conversion rate). Total commercial imports are estimated to be 146,130 MT for the period 2010-12 (used because of the evolving nature of the Malagasy commercial market).

11 Based on the June-August 2013 commodity calculator, sales at this price would achieve 68 percent cost recovery.

12 This represents approximately 10 percent of the wheat flour market, considering both wheat flour imports and domestically milled wheat grain imports.

13 Which, combined, total approximately 40% of CIF: 5% duty, 20% VAT, and approximately 15 percent total for unloading, handling, storage and shipping (source: communication from key stakeholder in wheat flour sector, October 2013).

Given the high amount of risk that monetizing a large volume of wheat flour would pose, awardees should consider monetizing wheat flour in small volumes first to test the market, such as 20-100 MT (from one-five containers' worth). Awardees may also consider using a third party expert to help facilitate the monetization process for wheat flour.

CDSO. USAID-BEST recommends against monetization of CDSO to HITA. Although sales have achieved 96 percent of IPP, and consequently have been fair against estimated prevailing market prices using CFR prices as the yardstick, HITA appears to benefit from a legal full waiver on taxes and duties for its imports. The company has been using this advantage to gain market power and push other actors out of the market. Further monetizing to HITA would contribute to the consolidation of market power by a single large industrial player and therefore diminish market competition. This consequence is a concern under Bellmon requirements.

However, if the situation changes and HITA ceases to receive its exoneration on duties, the company has proven itself to be a willing and interested buyer with a history of payment. Awardees could sell up to 10 percent of the import market volume (approximately 5,300 MT) at the current IPP based on US\$1,020 (CFR), which would yield US\$5.4 million.

RVO. Although the sale of RVO would not generate as much as CDSO, numerous market actors, such as DRAMCO, Amazone, and Fiotanzantoa expressed interest in a monetization sale. Selling 10 percent of the import market volume of RVO on the market (1,590 MT) at the current parity price for refined palm oil (ex-Malaysia) of US\$854, would generate approximately US\$1.36 million in funding if sold CFR. RVO should be broken into smaller lots of 250 or 500 MT to ensure that buyers can purchase volumes appropriate for their storage and handling capacity. Sales should be announced via open tender, and awardees should resist the temptation to sell all lots available to a single buyer.

1.6. ADEQUACY OF PORTS, TRANSPORT, AND STORAGE

1.6.1 Ports

The Port of Toamasina is the primary port for Madagascar. According to GoM data, it handles 64 percent of conventional cargo for the country, and 86 percent of containerized cargo. Currently, Title II programming under the SALOHI MYAP primarily uses the Port of Toamasina for receiving and transporting commodities to distribution sites, and secondarily uses the Port of Ehoala at Taolagnaro. Historically, Title II partners have transported 75 percent of food aid commodities through the Port of Toamasina, and the other 25 percent of goods through the Port of Taolagnaro (Ehoala). USAID-BEST recommends this practice continue in the next Title II cycle.

The Port of Toamasina is also the primary port for the receipt of goods for monetization. Monetized food aid should continue

to be transported to the Port of Toamasina since the principal buyers of bulk commodities are located at this port. The majority of interested buyers for containerized goods are located either in Toamasina or in Antananarivo.



Photo by Fintrac Inc.

Madagascar has four separate rail lines but they do not reach many parts of the country. Antirabe, Madagascar, May 2013.

1.6.2 Inland Transport

The road network in Madagascar is based on a hub and spoke system, where most major roads pass through Antananarivo. Primary routes are in good to very good condition and they have effectively handled commodity movements for SALOHI, but certain routes in and around the capital become congested depending on the time of the day or season. In the northern part of the country, roads are generally in good condition although they quickly become congested in some areas; in the southern part of the country, near the port, they are in good condition immediately near the port, but are very poor throughout the region. Frequent use and overloading by transporters and trucks working for the mining companies are causing some roads to deteriorate quickly, including along the heavily traveled National Road (RN)2 between Toamasina and Antananarivo.

The rail network is actually four separate lines, and does not travel through many parts of the country. Only the line from Toamasina to Antananarivo to Antsirabe would be appropriate for Title II shipments.

CRS and its sub-grantees have used a system of trucking and storage to transport goods to programming sites in generally more remote locations. These sites extend from Mananara Avaratra region in the northeast to sites along the east and southeast coast, the south central highlands, as well as the regions of Anosy and Androy in the deep south. Roads do occasionally become impassable due to rains, cyclones, floods, mudslides, and/or general deterioration; Title II partners should be prepared to use alternative means of transportation such as boats and rail to move food aid.

I.6.3 Storage

Current awardees generally store goods within towns where they operate, instead of in the capital. Specifically, CRS uses sites in Toamasina, located close to the port, for easy receipt, storage, and distribution of goods. CRS' sub-grantees use a variety of storage and trucking access options depending on where the food is to be distributed; many sub-grantees use facilities provided by local partners and can readily access additional local storage sites if needed.

Conditions in these facilities appear good, but conditions at some of the smaller and more remote locations are not ideal. Humidity at some facilities affects commodity shelf life. Other locations face problems due to high winds from cyclones, and poor roads leading to the storage site. Despite these conditions, awardees seem to have successfully adjusted their operations.

Commercial storage is generally available throughout Antananarivo and other larger towns throughout the country, although conditions often vary considerably. As noted above, congestion quickly becomes a problem in the capital so it is understandable that awardees want to transport goods to locations closer to where they are distributed.

I.6.4 Implications for Title II Programming

Overall, the awardee(s) for the next Title II cycle could potentially better oversee transport of food commodities depending on what areas of the country would be covered and whether such an approach would be cost-effective. One possible efficiency that could be put into place would be for CRS to deliver food from Toamasina to Ambositra and then hand over responsibility to sub-grantees ADRA and Land O' Lakes at warehousing in the distribution location. However, the increased management burden and potential liability of this method would have to be factored into these types of potential programmatic consolidations.

Storage in Amboasary should also be explored for cost-effectiveness and program efficiency if new Title II programming were to continue in Anosy and/or Androy regions. WFP rents a warehouse on the far western side of town with a capacity of 3,000 MT that possessed significant excess capacity as of May 2013. Renting storage in Amboasary may be more cost-effective than sites in Taolagnaro, especially when factoring in seasonal conditions of roads. Additionally, the Amboasary site could be closer than Taolagnaro to expected future sites for program implementation.

USAID and Title II partners should be aware of the continuing challenge that corruption poses for efficient management and operations. As much as possible, awardee(s) should strive to put systems in place that allow for strong management and oversight of activities.



CHAPTER 2 OVERVIEW OF LOCAL MARKETS

Beans sit ready for purchase at a retail/wholesale market. Compared to other staple crops (rice, cassava, and maize), dry beans are relatively less consumed. Toamasina, Madagascar, May 2013.

Photo by Fintrac Inc.

2.1. INTRODUCTION

This chapter provides an overview of national food deficits, an analysis of local markets, and a detailed account of the markets for the main staple commodities (rice, cassava, maize, edible oil and dry beans) to inform future Title II programming.

In undertaking this analysis, USAID-BEST conducted desk research, interviewed key government officials, donors, and commercial stakeholders, and visited 23 local markets across the country during May 2013. The chapter concludes with implications for future Title II in-kind and complementary market-based food assistance programming.

2.2. NATIONAL FOOD DEFICITS

This section presents a summary of national food consumption, crop production, and main government institutions and policies directly and indirectly affecting national food security.

2.2.1 Food Consumption

As rice is the main staple food in Madagascar, food security is intimately tied to rice availability and access across the country. Total annual consumption (milled rice equivalent) is estimated at 2.0 million metric tons (MT). Total consumption varies greatly depending on production conditions in rural areas and price levels in urban areas. In 2011, it was estimated that almost 80

percent of national production was retained for household consumption and only 20 percent reached markets.¹⁴

Madagascar per capita rice consumption, approximately 115 kilograms (kg) per year, is among the highest in the world. However, it has remained relatively unchanged for more than 20 years. In 1993, per capita consumption was estimated at 107 kg per year; and despite reaching 114 kg in 2004, by 2007 annual per capita consumption had declined to 107 kg.¹⁵

Variation in rice consumption can be partially explained by the lack of supply resulting in high prices, particularly during the lean season when rice stocks are low and road infrastructure is worsened by rain. Although most households store limited rice surpluses throughout the year, usually in a room inside their house, the shelf-life of stored rice under these conditions is only two to three months at the most. In addition, natural disasters, difficulty mobilizing rice from remote areas, and limited private company imports constrain rice availability and perhaps account for the lower per capita consumption observed in recent years.

In rural areas, among poor households, cassava and maize serve

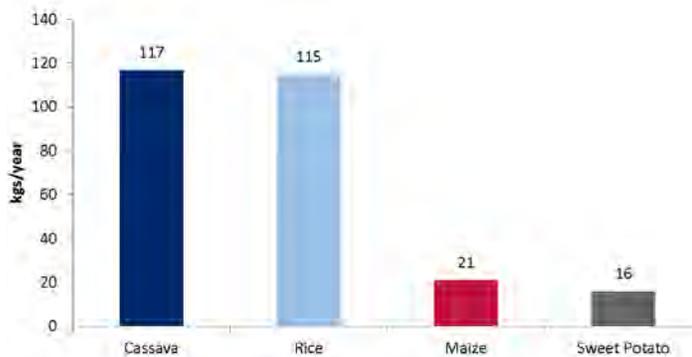
¹⁴ Carimentrand, Aurelie, David-Benz, H., et al, May 2011, *Marches Agricoles a Madagascar Contraintes et Opportunités Etude de Cas: Riz*.

¹⁵ WFP, 2010, *Comprehensive Food and Nutrition Security Analysis (CFSVA+N)*; IIRI, 2013, Which countries consume the most rice? http://www.irri.org/index.php?option=com_k2&view=item&id=12109&lang=en, accessed June 2013.

as substitutes for rice mostly because many households cannot afford to purchase rice, and especially so during the lean season. Rice consumption is as low as 40 to 42 kg per person per year in these areas.¹⁶ In southern regions where most farmers grow maize and cassava, households generally eat rice during certain seasonal periods and in limited quantities. In Sandrakely-Ambalavao (Fianarantsoa Province), rice is reportedly eaten for only two months (June and July) during a normal year. In Andranovory-Sakaraha (Tuléar Province) people reportedly eat rice from April-July, and consume maize and cassava throughout the rest of the year. Both areas are among the biggest cassava-producing zones.

People buy cassava and maize, usually from November-March, when rice is generally not available. As the figure below shows, per capita consumption of cassava is approximately 117 kgs per year, which is much higher than maize (21 kgs per person per year). Another important staple crop in Madagascar is sweet potato; the approximate per capita consumption is 16 kgs per year. The traditional diet also includes vegetables and animal proteins (primarily fish, but also some beef and poultry) but they are not commonly consumed.¹⁷

Figure 1. Per Capita Main Staple Consumption (kgs/year), 2010



Source: Created by USAID-BEST, using data from WFP, CFSVA+N, 2011.

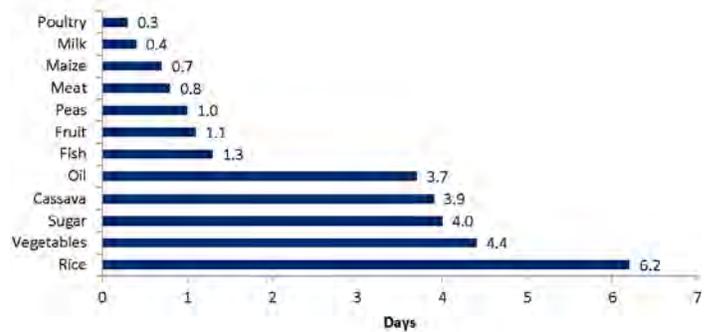
Figure 2 provides additional information regarding the average number of days certain food items are typically consumed by households, as reported by the 2010 Comprehensive Food and Nutrition Vulnerability Analysis and Nutrition (CFSVA+N).¹⁸

¹⁶ Information based on USAID-BEST field visits, May 2013.

¹⁷ WFP, 2010, *Comprehensive Food and Nutrition Security Analysis (CFSVA+N)*.

¹⁸ For methodological clarification, the CFSVA+N was conducted in August-September 2010. This time of the year was selected because it is neither a harvesting nor a lean season period. Thus, the answer to the number of time items were consumed would likely fall into a “normal” period. WFP, 2010, *Comprehensive Food and Nutrition Security Analysis (CFSVA+N)*.

Figure 2. Frequency of Food Consumption (Days per Week) by Type of Food, September 2010



Source: WFP, CFSVA+N, 2011.

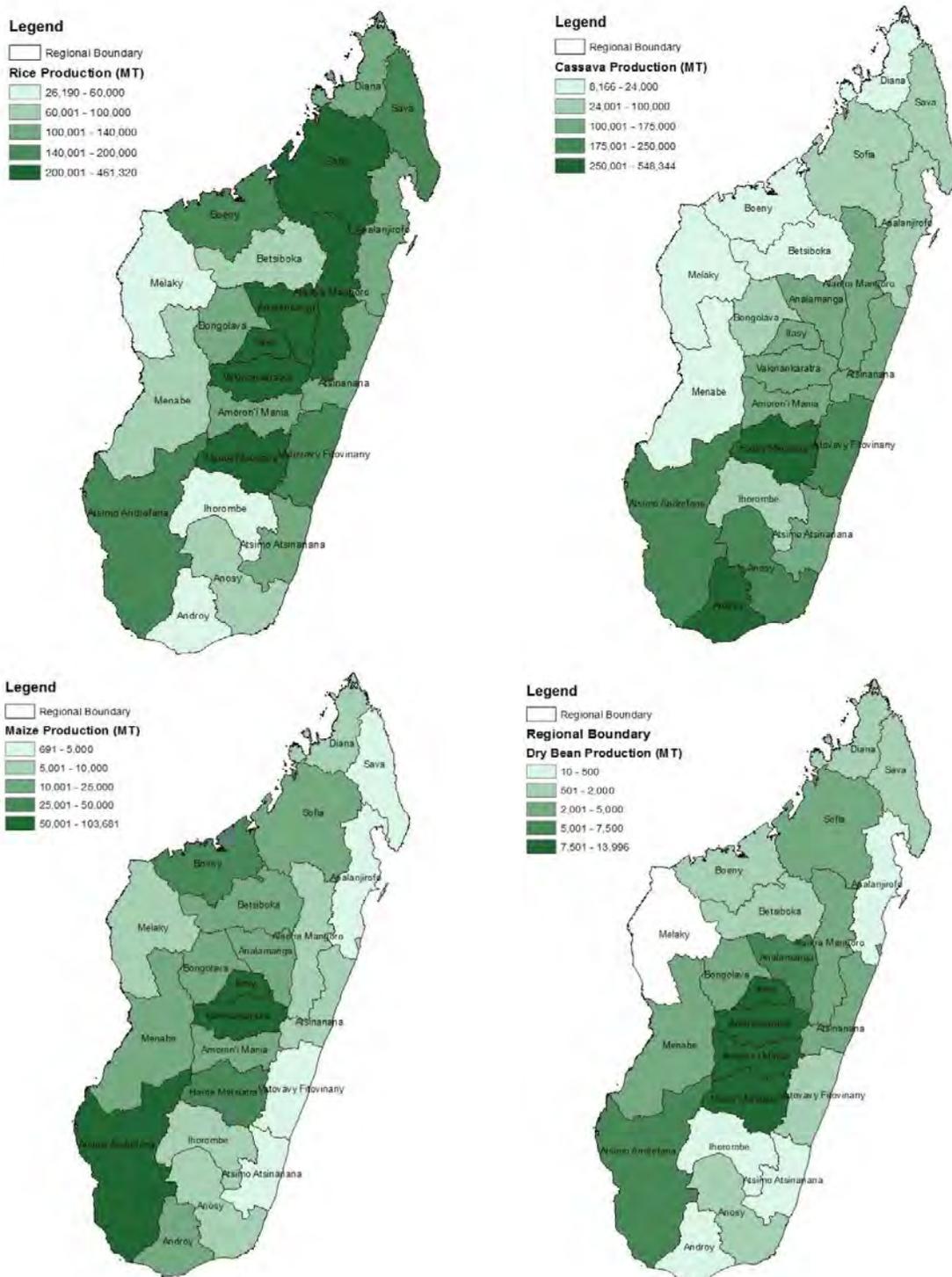
2.2.2 Crop Production

Countrywide, more than 80 percent of households practice agriculture.¹⁹ Cassava is cultivated by approximately 74 percent of households nationwide, while rice follows in popularity at 50 percent of households, and then maize by 11 percent of households. Similar to consumption patterns, crop production varies depending on the region. For instance, in the southern part of the country (Androy, Anosy, and Atsimo Andrefana regions), cassava dominates production compared to rice and maize.²⁰ The maps on the next page illustrate main production areas by select staple food production volumes.

¹⁹ INSTAT and Ministère D'Etat Charge de L'Economie et de L'Industrie, August 2011, *Enquete Periodique Aupres des Menages 2010 Rapport Principal*.

²⁰ WFP, 2010, *Comprehensive Food and Nutrition Security Analysis (CFSVA+N)*.

Figure 3. Select Crop Production Volumes (MT) by Regions, 2010

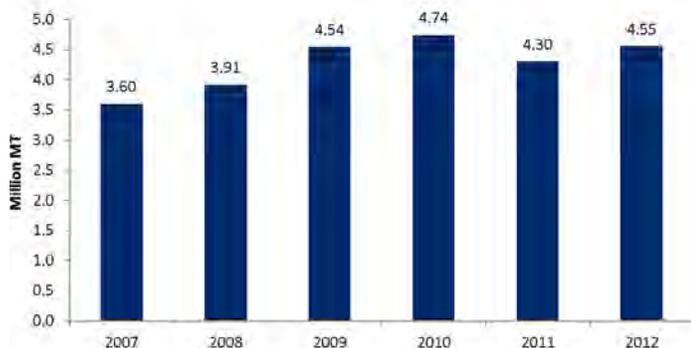


Source: INSTAT/Service de la Statistique Agricole.

In volume terms, rice is the most produced crop in Madagascar. Rice production reached 3.6 million MT in 2007 and has since increased to 4.55 million MT in 2012, according to government data. Although Madagascar is considered self-sufficient in rice production in normal years (i.e., years with no cyclones or other natural disasters), there is still an annual rice deficit estimated between 100-200,000 MT. One of the main issues is year-round

rice availability, especially during the lean season in net consumption areas that are physically remote and/or affected by widespread poverty. Total production estimates are presented in the figure on the next page.

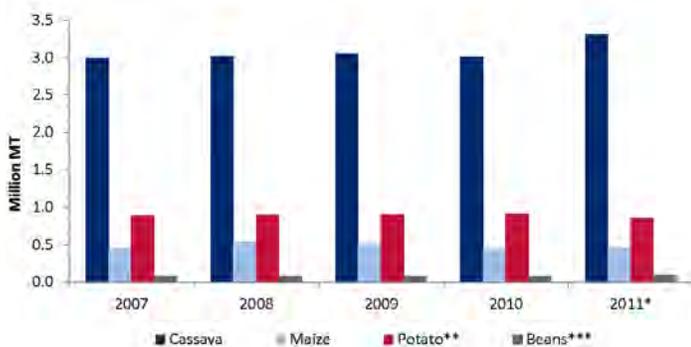
Figure 4. Rice Production (Million MT), 2007-12



Source: INSTAT/Service de la Statistique Agricole.

Cassava has the second largest production volume. Currently, total production is estimated at around three million MT. This volume for cassava has remained relatively constant from 2007-10.²¹ In this same period, maize production remained above 400,000 MT. Potato production (i.e., Irish and sweet potato combined) and bean production have also remained relatively unchanged at approximately 900,000 MT and 99,000 MT, respectively. Madagascar is not only self-sufficient in maize, potatoes, and beans, but reports small export volumes (e.g., white beans exported to Mauritius and Comoros and butter beans, known as *pois de cap* in French, exported to South Africa). The figure below presents information on select staple food production for 2007-11.

Figure 5. Other Staple Food Production (Million MT), 2007-11



Source: INSTAT/Service de la Statistique Agricole.

*Data source FAOSTAT.

**Potato production estimates from FAOSTAT and includes sweet potatoes.

***Beans production estimates from FAOSTAT and refers to dry beans.

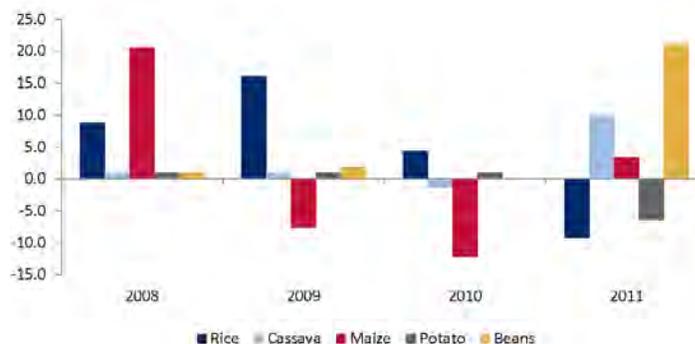
Regarding cash crops, most households cultivate sugarcane and groundnuts. For small-scale producers, maize, vegetables, and fruits such as bananas, are also very important crops for sale. Export crops include vanilla, coffee, clove, litchi, and sunflowers. In recent years, sisal production has gained important ground, particularly for investment purposes.

Production of main staple crops has been relatively stable with relatively small year-on-year variations. Although rice production

21 Production data for all other crops besides rice has not been regularly collected and reported. All information is based on available estimations and key informants interviews.

increased from 2008-09 (4.5 million MT total in 2009), it started to decline in 2010, and by 2011 production decreased to 4.3 million MT of paddy rice. Given the current locust infestation, production will likely remain low. Cassava production remained practically unchanged until 2011 when it increased by approximately 10 percent above 2011 volume. The most variable crops from 2008-10 were maize and beans. The figure below compares the year-on-year percentage variation in production of major staple crops.

Figure 6. Major Food Production Year-on-Year Variation (%) by Crop, 2007-11



Source: INSTAT/Service de la Statistique Agricole.

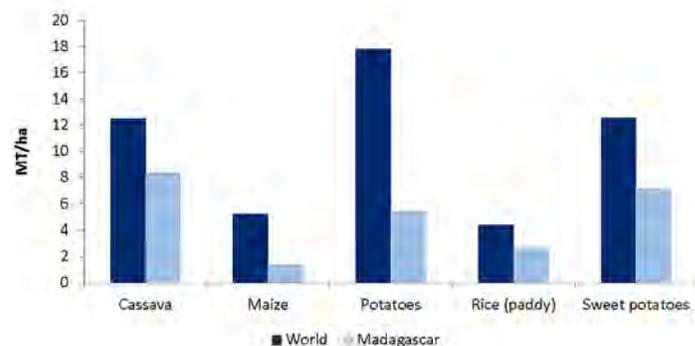
*Data source FAOSTAT.

**Potato production estimates from FAOSTAT and includes sweet potatoes.

***Beans production estimates from FAOSTAT and refers to dry beans.

Low productivity of staple crops is a major issue contributing to food insecurity in Madagascar. In comparison to average global yields, the cassava and rice yields in Madagascar are more than 50 percent below the average; maize and potato yields are more than 200 percent lower; and sweet potato yields are around 75 percent lower. The figure below compares select staple crop yields in Madagascar to the average global yields.

Figure 7. Average World and Madagascar Select Crop Yields (MT/ha), 2010



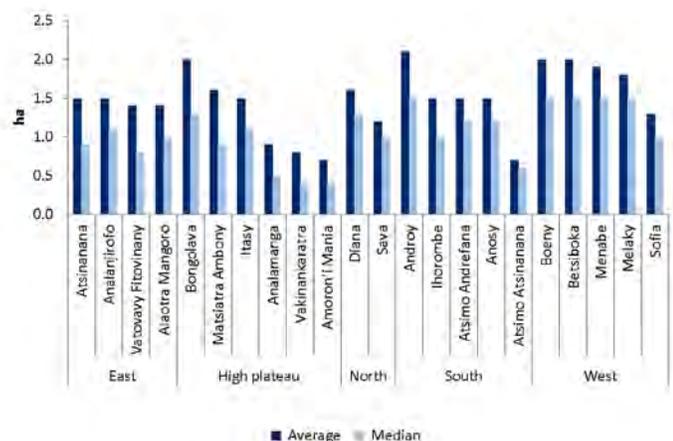
Source: Created by USAID-BEST, using data from INSTAT/Service de la Statistique Agricole and FAOSTAT.

Of the several factors contributing to the exceptionally low agricultural productivity in Madagascar, heavy dependency on subsistence agriculture is the primary reason. These types of farmers typically have limited access to rural financing and

improved agricultural techniques; are more vulnerable to seasonal and natural disasters; and are disproportionately affected by land tenure issues.

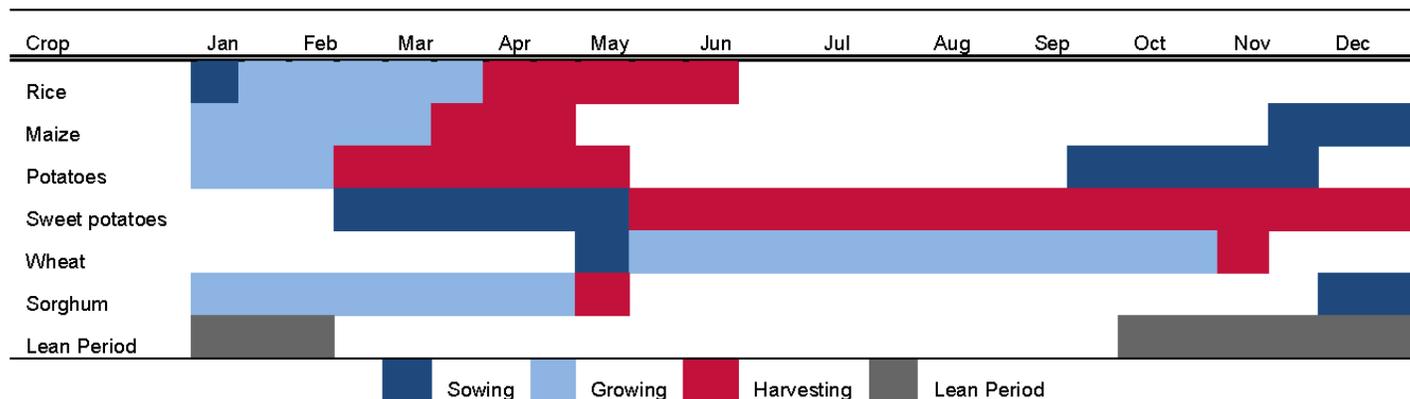
More than 70 percent of farm holdings cultivate less than 1.5 hectares (ha).²² The median farm size is only one ha. Small-scale landholders produce only about 30 percent²³ of their total food consumption in normal years, and become dependent on market purchases for the remainder.²⁴

Figure 8. Average and Median Landholdings (ha) by Region, 2010



Source: INSTAT/Service de la Statistique Agricole.

Figure 9. Seasonality of Production by Commodity



Source: FEWS NET.

22 WFP, 2010, *Comprehensive Food and Nutrition Security Analysis (CFSVA+N)*.

23 INSTAT and Ministère D'Etat Charge de L'Economie et de L'Industrie, August 2011, *Enquete Periodique Aupres des Manages 2010 Rapport Principal*.

24 Normal years in this context refers to years in which no significant climatic or agronomic condition affects production. For example, this year a major locust infestation will make it an abnormal year.

Limited use of improved agricultural inputs (e.g., seeds and fertilizers) and infrastructure (e.g. irrigation), primarily due to cost constraints and poorly developed markets, pose additional challenges. For example, the USAID-BEST team observed that the retail price for improved seed was four to five times higher than the price of rice.²⁵ Additionally, the increased cost of fertilizer as a result of the fertilizer subsidy that ended following the political crisis in 2009 has led to a marked decline in its sales.²⁶

Despite availability of irrigation schemes in most rice producing regions, in most cases rice cultivation continues to be rain fed; current irrigation schemes (e.g., water held in reservoirs and irrigation schemes) do not provide enough water to ensure good yields, especially in areas along the perimeter of irrigated fields. Irrigation infrastructure is generally either too old and/or poorly maintained.²⁷

Subsistence agriculture carries more risk to climatic variations, such as those occurring every year (lean/dry season) or those occurring irregularly such as cyclones, floods, and droughts.²⁸ The figure below presents the seasonality of production by crops in normal years. For the most part, food is largely available starting in mid-February until the end of June. Sweet potatoes are available for a longer period. From October-February (lean season) domestically produced food is either limited or non-available on local markets.

Due to its location, Madagascar experiences cyclones and tropical storms rather frequently. Regardless of their strength, these natural phenomena have devastating consequences for crop production and infrastructure (roads, schools, houses). The east coast is most exposed to cyclones, while the southeast and west are more prone to inundation. In addition, the ongoing locust infestation alone is estimated to damage more than a million acres of crop this season, and its negative effects for crop production are likely to increase. The table below summarizes the main natural disasters from February 2012-March 2013.

Table 1. Main Natural Disasters Affecting Madagascar, 2012-13

Type	Date	Affected Population	Infrastructure	Areas
Locusts	March-13	13 million	1.2 million acres of crops or more	Southwestern and western regions
Tropical Cyclone Haruna	February-13	40,000	13,791 ha of crop actually flooded	Southwestern coast of Madagascar;
Tropical Storm Felleng	January-13	1,000	393 houses flooded and 4 major roads cut	Eastern coast of Madagascar
Tropical Storm Irina	March-12	70,000	3 main roads flooded; undisclosed crop losses	Ifanadiana district in the southeast of Madagascar
Tropical Cyclone Giovanna	February-12	50,000	60 percent of homes and main roads in very important urban areas.	Antananarivo, Toamasina and Vatomandry.

Source: Compiled by USAID-BEST using data from OCHA, Relief web, and USAID.

Land Tenure. Finally, access to land for cultivation remains an obstacle to increased food production as the issue of land use and tenure remains highly controversial. Land tenure reform, initiated in 2005, aimed to provide farmers improved land rights and ownership. However, due to several factors, this effort actually complicated and hindered proper land registration and titling, and increased competition between production for investment versus production for food.

While at the community level the farmer is considered the owner of the land, the farmer usually does not own the title of that land. Typically, the land is registered under the names of the farmer's grandparents in a cadaster, for which the ownership has not transferred to the farmer, but the community recognizes an agreement that the farmer is the heir to the land. From the investment side, this situation creates uncertainty for producers and limits farmers' ability to use their land as an asset to increase production (e.g., as collateral for farm credits or inputs). To actually apply and submit applications for a title is difficult, time consuming, and costly. Complex land legislation deters farmers from registering their land for fear of additional taxes.²⁹

²⁹ During the CSFVA+N surveys, people reported similar problems. WFP, 2010, *Comprehensive Food and Nutrition Security Analysis (CFSVA+N)*.

At the government office level, bureaucracy, limited capacity from government officers to process title requests (e.g., inadequately trained personnel in charge of titles), and lack of basic resources (e.g., office supplies) all delay and complicate land registration and titling. This situation exposes farmers to the risk of being ejected from their land until they have a document showing ownership.

The last issue around land tenure is a continuing debate between agriculture for food and agriculture for investment.³⁰ For example, in Amboasary District in Anosy, large-scale investors who produce sisal for export and small-scale farmers who produce food crops share farmland for two different production purposes. The expansion of natural fiber markets created incentives for investors to acquire more land and increase production. However, small-scale farmers saw this situation as potentially reducing their farming area and likely increasing the risk of food insecurity in the area. On the other hand, some supporters of these investments point out that investors have created more salaried jobs in the surrounding area. In addition, supporters also assert that when investors adopt a community approach, they build roads, hospitals, and schools. In some cases, these large-scale investors have facilitated the use of improved seed varieties by purchasing the seeds and recovering the cost at the harvest time; furthermore, they have provided technical assistance to farmers to help them increase production. During field visits, the USAID-BEST team was not able to confirm these developments.

In 2005, Madagascar abolished universal state ownership of land and recognized private land property (Law 2006-031 and Law 2005-019). The new system also allowed decentralized authority (communes) to recognize land ownership and gave communes power to provide land certificates (different from land title). The main objectives were to help farmers secure land use rights and to access this right through local authorities. To accomplish these objectives, communes established land offices tasked with giving farmers land certificates, managing land registrations in their areas, and providing farmers a one-stop point for information. Since the land reform, around 460 communal land offices were established nationwide and 76,028 land certificates were distributed for a total area of 60,384 ha. Although peasants and small-scale farmers were able to access land rights and engage in production more securely, this system also allowed for the establishment of large-scale investment farms.

Private investors looking to establish large-scale production units (from about 10,000 ha to one million ha) also applied for land registration and titling. However, government officials and communes were not prepared to receive and process this type of request which resulted not only in technical problems (e.g., measuring the boundaries) but also created social and environmental tensions between investors and local communities (the most famous case being the Daewoo

³⁰ Burnod et al (2011) provide a summary of land rights interactions and overlapping as well as a historic accounts. Burnod, Perrine, Gingembre, M., et al, August 2011, *From international land deal to local informal agreements: regulations of and local reactions to agricultural investments in Madagascar*.

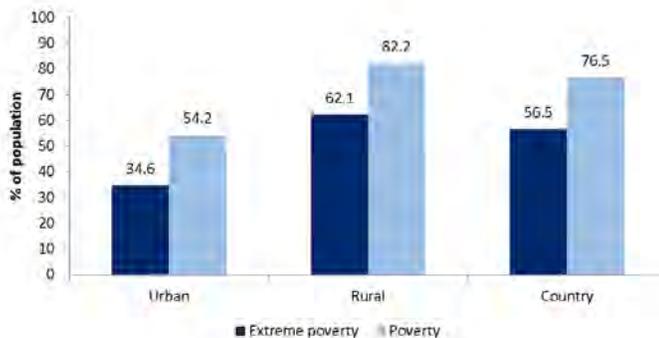
investment plan from South Korean investors). Currently, four agricultural investment leases have been granted for a total land area of 50,000 ha.

2.2.3 Food Access

Food accounts for 60 percent of all household expenditure nationwide; in rural areas, food purchases represents more than 70 percent of households expenditures.³¹ Several factors hinder food access and the following section discusses some of these causes.

Inadequate access to food has its main root in the pervasive poverty across the country. The 2010 National Household Survey (EPM, *Enquête Periodique aupres des Menages 2010*) reported that 76.5 percent of the entire population lived below the poverty threshold with an annual income of less than US\$224, and 56.5 percent lived in extreme poverty with an annual revenue of less than US\$157.³² Despite some variation across regions and areas, poverty indicators are very high everywhere in the country. The figure below presents poverty and extreme poverty indicators by strata and regions.

Figure 10. Extreme Poverty and Poverty (% of Population), 2010



Source: INSTAT, EPM 2010, August 2011.

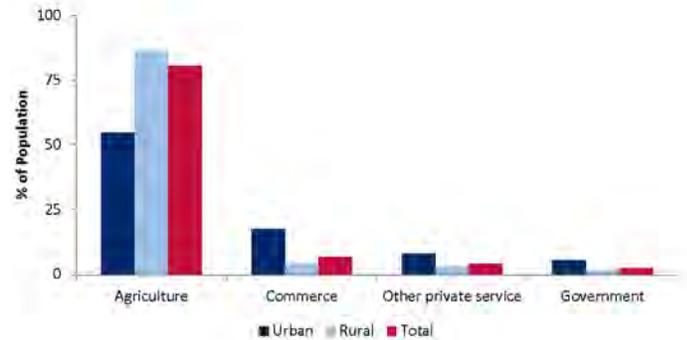
Reliance on subsistence agriculture contributes to already limited food access. First, more than 80 percent of the population rely on agriculture as main source of employment, and a high percentage relies on subsistence agriculture, but subsistence agriculture generates very low incomes. As the two figures below show, less than 10 percent of the total population is employed in other industries such as commerce, private services, and the government (all of which usually offer better salaries). Agricultural salaries are on average 106 percent lower than the national average salary (1,388 MGA).³³

31 INSTAT and Ministere D'Etat Charge de L'Economie et de L'Industrie, August 2011, *Enquete Periodique Aupres des Manages 2010 Rapport Principal*.

32 The survey classified "poor" as those with consumption below 468,800 MGA (equivalent to US\$215.5 in 2013) per year. Extreme poor were those individuals unable to access to a minimum diet of 2133 Kcal per day or 328,162 MGA per year (equivalent to US\$151 in 2013).

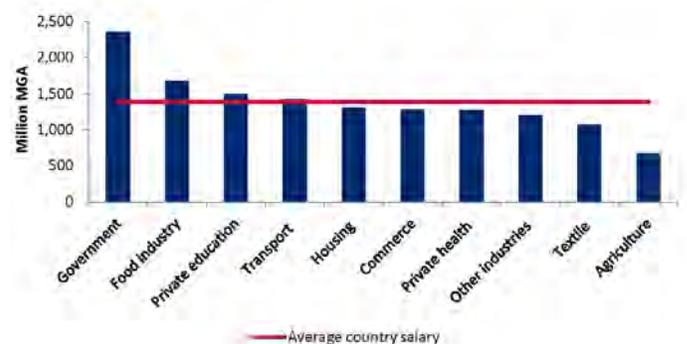
33 INSTAT and Ministere D'Etat Charge de L'Economie et de L'Industrie, August 2011, *Enquete Periodique Aupres des Manages 2010 Rapport Principal*.

Figure 11. Employment (% of Population) by Industry and Area, 2010



Source: INSTAT, EPM 2010, August 2011.

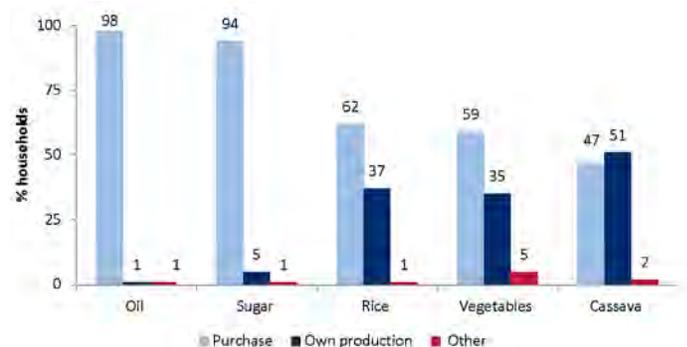
Figure 12. Average Annual Salaries (Million MGA) by Industry Type, 2010



Source: INSTAT, EPM 2010, August 2011.

Besides low wages, subsistence agriculture does not produce enough to satisfy households' own food needs, particularly to sustain households during lean periods. Thus, households must rely on markets to access food. According to the 2010 CFSVA+N, in September 2010, almost 70 percent of all food consumed was purchased in the market, and around 30 percent was from households' own production; hunting/fishing and gifts contribute around 2 percent each to total food consumption. During May 2013 market visits, the team observed that people in rural and urban areas were selling different products to purchase food. Thus, it is fair to suggest that markets remain indispensable to source foods.

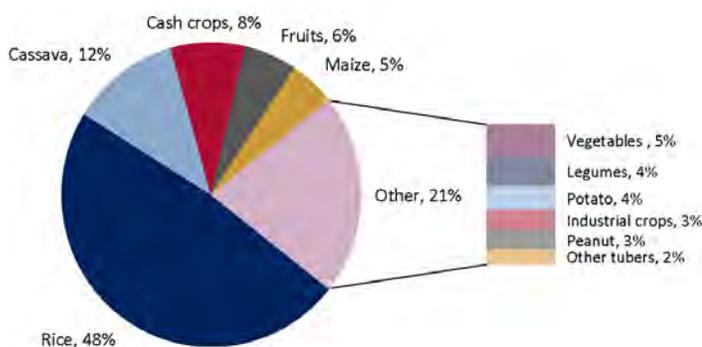
Figure 13. Source of Food Items (% households), September 2010



Source: WFP, CFSVA+N, 2011.

For most producers in Madagascar, rice is not only the most important staple food because of its consumption in both rural and urban areas but also the most important income source. An estimated 54 percent of rice produced by households is consumed in-house with 25 percent sold during harvest time. Rice sales represent 48 percent of agricultural income, followed by cassava (12 percent). Cash crops represent only about 8 percent of agricultural income. During market visits in May 2013, some respondents indicated they were selling more rice than what they usually consume, which is considered abnormal for this time of the year. Respondents further explained that most households were struggling to store rice for use in lean periods, hence the need to purchase other items with revenues from rice sales.³⁴ The figure below presents a breakdown of average household agricultural income.

Figure 14. Household Agricultural Income (%) Structure by Main Crops, 2010



Source: INSTAT, EPM 2010, August 2011.

To summarize, price seasonality coupled with natural disasters, low crop quality, and limited availability in local markets, negatively affect food access. For some crops, such as rice, imports can act as a buffer to meet consumption requirements, although domestic consumers prefer local varieties and have limited purchasing power. For other crops, domestic trade is the most important way to combat price seasonality. A more detailed analysis of price seasonality is provided in Annex 2 of this report.

2.2.4 Government Policies

This section reviews a few of the most important policies affecting agricultural production and food security since the new transitional government took power in 2009. Annex 2 of this report includes more information on agricultural programs before 2009.

Following the 2009 coup, the transitional government ceased most of the existing agricultural programs. Furthermore, the inflow of funds available to agricultural projects was severely cut because of decreased international assistance. Only the International Fund for Agricultural Development (IFAD) and the

³⁴ INSTAT and Ministère D'Etat Charge de L'Economie et de L'Industrie, August 2011, *Enquete Periodique Aupres des Manages 2010 Rapport Principal*.

Government of France continued supporting their respective projects in the aftermath of the coup. By 2011, the acting president ordered that all government expenses surpassing US\$100,000, including for agriculture, must obtain presidential approval before their disbursement. The bureaucracy attached to this decree only exacerbated the already minimal support provided for agriculture.

The current mishandling of the locust infestation shows how limited funding for agricultural production has aggravated this outbreak. Prior to 2009, the Ministry of Agriculture would establish a management plan and receive the corresponding budget requirements for its implementation, but now insufficient funds mean poor management and consequently a more severe outcome. For example, in 2009, when the locust infestation started, there were seven swarms throughout the country; by 2011 the total number of swarms increased to 30. Although the FAO funded a locust operation plan for approximately US\$9 million in 2010, the Ministry had to completely rely on the government for their budget after FAO funding ended, which meant receiving only 10 percent of the necessary funds to effectively handle the locust outbreaks.

Despite limited fund availability, the Ministry of Agriculture, with support from the *Centre de Coopération Internationale en Recherche Agronomique pour le Développement* (CIRAD) and the Japan International Cooperation Agency (JICA), was able to support some rice research. Consequently, the National Agronomic Research Center released seven new improved seed varieties in May 2013 that are expected to help increase rice yields. However, even with this advancement, the Ministry continues to struggle with adequate funds and this financial situation could lead to worrisome impacts on agricultural growth.

Uncoordinated government market interventions negatively affect food availability and access. Typically, the GoM does not intervene in rice imports and distribution; the private sector determines rice imports based on international and local prices and available domestic stocks. However, the GoM has not been entirely absent in the rice supply chain. In 2010, the transitional government initiated the *Vary Mora* program under which the presidential administration supervised rice sourcing and importation, while government staff supervised its distribution in designated locations. The objective of the initiative is to support vulnerable households by selling rice at a lower price during the lean season.³⁵ However, specific details about the program remain vague, particularly regarding the origin of the imported rice, the total amount purchased, and the identity of the private operators who collaborate with the government to import rice. By 2011, the GoM had imported 12,000 MT of rice for this program.

Vary Mora is a controversial program. Retailers interviewed during the field visit noted that they only have access to *Vary*

³⁵ Although the GoM does not directly subsidize prices for consumers, the fact that they exempt private importers from paying duties and other fees makes prices extremely cheaper for consumers.

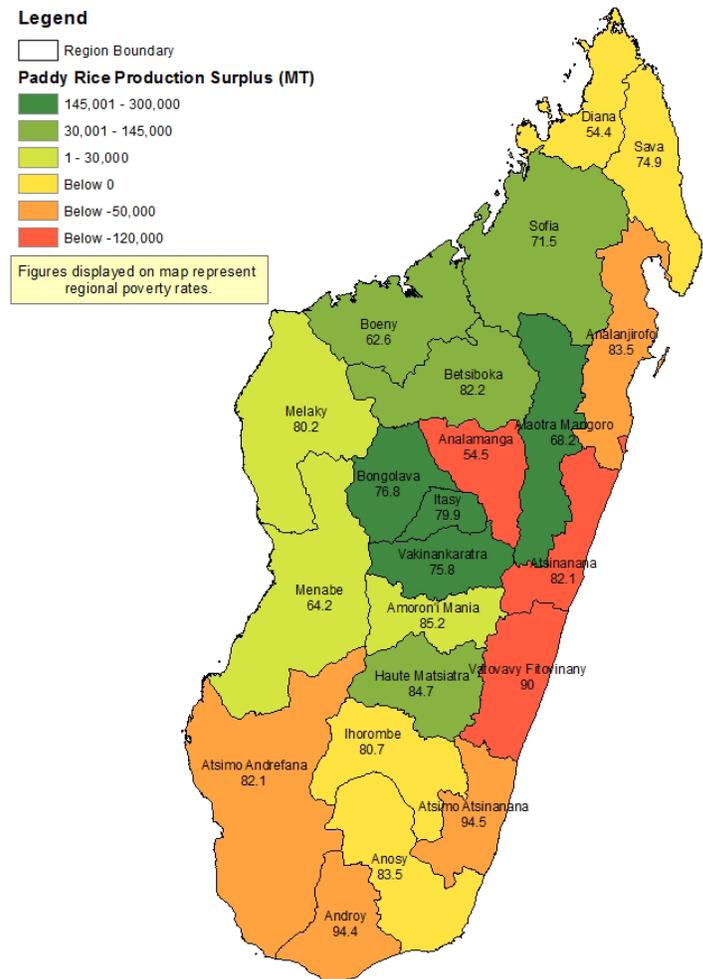
Mora rice in November and December, and shipments are not delivered on a schedule so supply is uncertain. The lower quality of the *Vary Mora* rice (usually up to 25 percent broken) creates a product differentiation issue as poorer households tend to purchase this type of rice, because they are cheaper than locally produced better quality rice. A limit of 5 kgs of *Vary Mora* rice is also placed on consumers. Moreover, although sales of rice at low prices may help poor households for two months, it does not provide a permanent solution to the rice deficit problem. However, as rice is a strategic commodity that could create social disturbances, strikes, and political instability if prices rise or supply depletes, the government recognizes the importance of intervention and may continue the *Vary Mora* program.

2.3. LOCAL FOOD DEFICITS

Although at the national level Madagascar can be considered self-sufficient in staple food production (including rice, for which Madagascar registered almost 100,000 MT of surplus in 2012), food deficits at the local level are becoming more persistent. This section examines these local deficits for the two main staple crops in the country: rice and cassava. USAID-BEST also conducted an analysis of price seasonality for each of these commodities by comparing retail prices provided by the Rice Observatory (OdR, *Observatoire du Riz*). For each region, a representative market was selected as follows: Mahajanga (North), Antananarivo 4ème Arrondissement (Central), Toliara (South), Antsirabe (Interior), and Toamasina (Coastal).³⁶

While some areas in the north and central regions (e.g., high plateau) produce rice surplus, the extra volume of rice is not easily traded with deficit regions in the south. In particular, the eastern and southern coastal areas are rice deficit regions and face particularly high poverty rates due to a higher incidence of natural disasters, reliance on rice as the primary staple, and a high dependency on markets for food purchases. For example, in the coastal regions of Atsinanana and Vavovavy-Fitovinany, rice deficits are higher than 120,000 MT and poverty rates are around 82 and 90 percent, respectively. The map to the right presents paddy rice production surplus and poverty rates by region.

Figure 15. Paddy Rice Production Surplus/Deficit in 2012 (MT) and Poverty Rate (%) in 2010

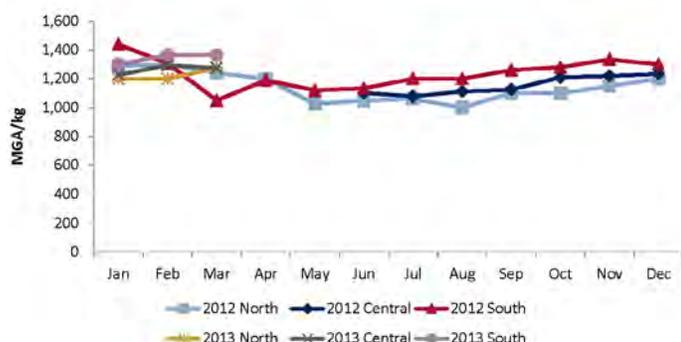


Source: Created by USAID-BEST, using data from INSTAT, EPM 2010, August 2011 and INSTAT/Service de la Statistique Agricole.

As for price variations, surplus area prices in the northern and central markets seem to be trending according to seasonal variations. However, the pattern is less predictable in the south as prices seem to be around 30 percent higher in March 2013 compared to March 2012. Prices will likely increase in this region throughout 2013 because of limited rice availability as a consequence of the locust infestation.

36 Other crop prices are presented in Annex 4.

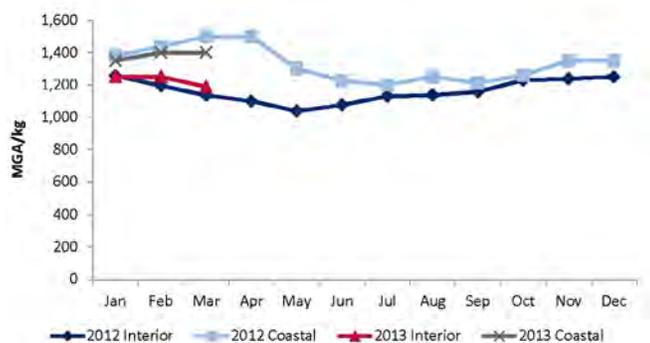
Figure 16. Local Rice Retail Price Variation (MGA/kg) in Northern, Central, and Southern Markets, January 2012-March 2013



Source: Created by USAID-BEST, using data from OdR.

Prices also vary depending on the proximity to the coast. Perhaps the effect of natural disasters such as repetitive cyclones, inundations, and drought, affect coastal areas disproportionately. However, overall prices were consistent with seasonal production variations.

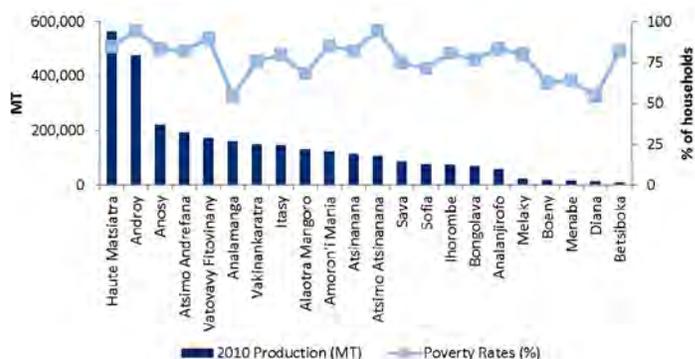
Figure 17. Local Rice Retail Price Variation (MGA/kg) in Coastal and Interior Markets, January 2012-March 2013



Source: Created by USAID-BEST, using data from OdR.

Poverty rates are also relatively higher in regions of greater cassava production and consumption. Nationally, Haute-Matsiatra region ranked number one in cassava production in 2010 (563,540 MT) and had the highest poverty rate of 84.7 percent, followed by Androy (478,045 MT) with poverty rate of 94.4 percent. The figure below presents a comparison of total regional cassava production in 2010 and poverty rates.

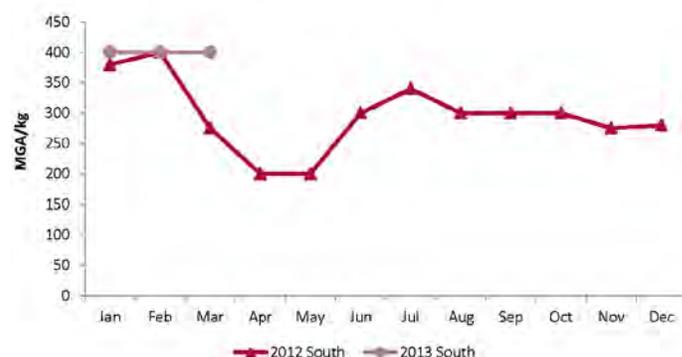
Figure 18. Cassava Production (MT) and Poverty Rates (% of households) by Region, 2010



Source: INSTAT, EPM 2010, August 2011 and INSTAT/Service de la Statistique Agricole.

Cassava prices in the south vary depending on whether it was dry or fresh.³⁷ In the case of dry cassava, until February 2013 prices were almost the same as 2012. However, while prices in 2012 decreased by March, prices remained high in March 2013, largely due to the flooding of 13,800 ha in southern Madagascar caused by Cyclone Haruna. The figure below illustrates trends in dry cassava prices in 2012 and 2013.

Figure 19. Dry Cassava Retail Price (MGA per kg), January 2012-March 2013

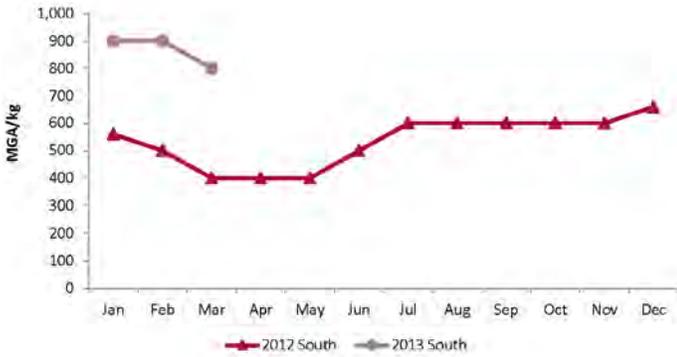


Source: Created by USAID-BEST, using data from OdR.

Fresh cassava prices increased by 61 percent from January 2012 to January 2013. Although prices are slowly decreasing, they have remained around 50 percent higher from March 2012. The figure on the next page illustrates retail price trends in the south. Particularly in the southwest region affected by Cyclone Haruna, limited cassava production led to a rush-gathering of dry cassava by collectors and less product for sale.

37 We only compared two markets because of limited data availability for other markets.

Figure 20. Fresh Cassava Retail Price (MGA per kg), January 2012-March 2013



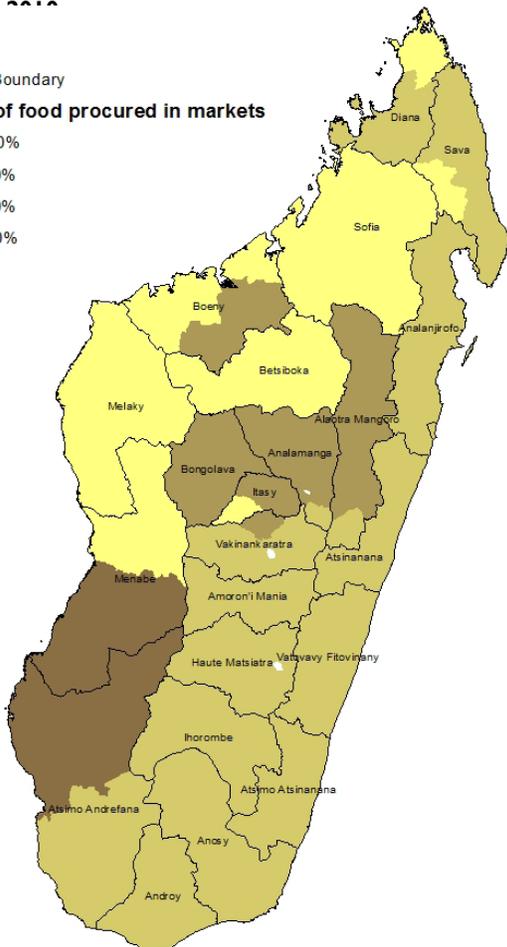
Source: Created by USAID-BEST, using data from OdR.

While all areas in Madagascar are highly dependent on markets for food purchases, southern areas and areas along the eastern coast show relatively higher market dependency. Access to food in markets is particularly complicated during lean season when prices tend to be much higher due to limited food availability. Access to food is also complicated when natural disasters such as cyclones isolate areas in the country. The map below illustrates the percentage of food purchased based on information from the most recent CFSVA report published in 2011.

Figure 21. Proportion of Household Food Procured in Markets (%) 2011

Legend

- Region Boundary
- Percentage of food procured in markets**
- Above 80%
- 71% - 80%
- 61% - 70%
- Below 60%



Source: Created by USAID-BEST, using data from WFP, CFSVA+N, 2011.

The interaction of high poverty levels, limited food availability, and food preferences, particularly for rice, results in different food security scenarios at the local level. Although Madagascar can produce enough food crops to satisfy its domestic demand, production is highly localized, demand for specific staple foods (e.g., rice and cassava) continue to be disproportionately high, and movement of products from surplus to deficit areas is constrained.

2.4. FINDINGS FOR MARKET SITES

This section discusses the key findings for the 23 markets visited during the USAID-BEST field work. The team interviewed traders and local business managers, and used available secondary data as a complement.

2.4.1 The Choice of Market Sites

The USAID-BEST team selected markets for site visits based on market size and the volume of the two main staple crops (rice and cassava) produced and sold. Other products observed during market visits were maize, sweet potato, potatoes, pulses, sorghum, and edible oil.

The market selection sought to cover the coastal regions and the interior region, as well as areas covering the north, central, and southern parts of the country. In this report, coastal markets are those in geographical proximity to sea shores and/or influenced by the proximity to coastal communities. Interior markets are those markets located in regions without sea shores.

The table on the next page provides information by market sites visited, the city or town where the market was located (in some cases the nearest town is the reference point), the region in which markets were located, and the two categorizations specific to this report: Coastal or Interior markets, and North, Central or South markets.



Photo by Fintrac Inc.

A farmer prepares a flooded rice paddy. Antananarivo, Madagascar, May 2013.

Table 2. USAID-BEST Markets Visited, May 2013

First categorization	Second categorization	Markets	City/Town	Region
Coastal	North	Fenerive Est	Fenerive Est	Analanjirofo
Coastal	North	Marolaka	Mahajanga	Boeny
Coastal	Central	Bazarikely	Toamasina	Atsinanana
Coastal	Central	Vatomandry	Vatomandry	Atsinanana
Coastal	South	Ambovombe	Ambovombe	Androy
Coastal	South	Amboasary	Amboasary	Anosy
Coastal	South	Bazary Be	Toliara	Atsimo-Andrefana
Coastal	South	Sakamaha	Toliara	Atsimo-Andrefana
Coastal	South	Namahora	Morondava	Menabe
Coastal	South	Bazary Be	Morondava	Menabe
Coastal	South	Tanambao	Manakara	Vatovavy-Fitovinany
Coastal	South	Manakara	Manakara	Vatovavy-Fitovinany
Interior	North	Tafia	Marovoay	Boeny
Interior	North	Anjijia	Marovoay	Boeny
Interior	Central	Anosibe	Antananarivo	Analamanga
Interior	Central	Antsampanimahazo	Tsiroanomandidy	Bongolava
Interior	Central	Tsiroanomandidy	Tsiroanomandidy	Bongolava
Interior	Central	Miarinarivo	Miarinarivo	Itasy
Interior	Central	Sabotsy	Antsirabe	Vakinankaratra
Interior	South	Sabotsy	Ambositra	Amoron'i Mania
Interior	South	Andranovory	Toliara	Atsimo-Andrefana
Interior	South	Anjoma	Fianarantsoa	Haute Matsiatra
Interior	South	Sandrakely	Fianarantsoa	Haute Matsiatra
Interior	South	Tanambao	Ihosy	Ihorombe

Source: Created by USAID-BEST.

The map on the next page presents a spatial view of the locations for each of the local markets visited.

2.4.2 Coastal Markets

The team visited 11 coastal markets along the east and west of Madagascar.

Fenerive Est. This market is located inside of a building in Analanjirofo region (North East) in the central part of town. Wholesalers and retailers sell all types of grains, vegetables, and other products; additional retailers (mostly informal retailers) line the streets of the town. Wholesalers generally transport goods from Toamasina for distribution to retailers in this town.

Marolaka. This market is located in Boeny region, and is the northernmost market visited. Main products available in this market during the visit included rice, maize, and dried fish. Fresh cassava is usually available starting in May or June. Potato, sweet potato, and dry cassava are available from October-December.

Bazarikely. This large open market in Toamasina is located in Atsinanana region. Vendors sell a wide variety of goods, from grains to vegetables to household goods. Wholesalers from

neighboring districts travel here for price discovery and to purchase supply of different staple food to neighboring towns.

Vatomandry. This market is located in Atsinanana region. It includes formal and informal structures along the main road in the center of town. The primary staples traded are rice (imported and local), dry grains (e.g., maize and pulses), vegetables, fruits, and fish. Large wholesalers from Toamasina and Antananarivo supply this market, and they directly sell rice to around 11 retailers in town. This market also receives goods by small boats.

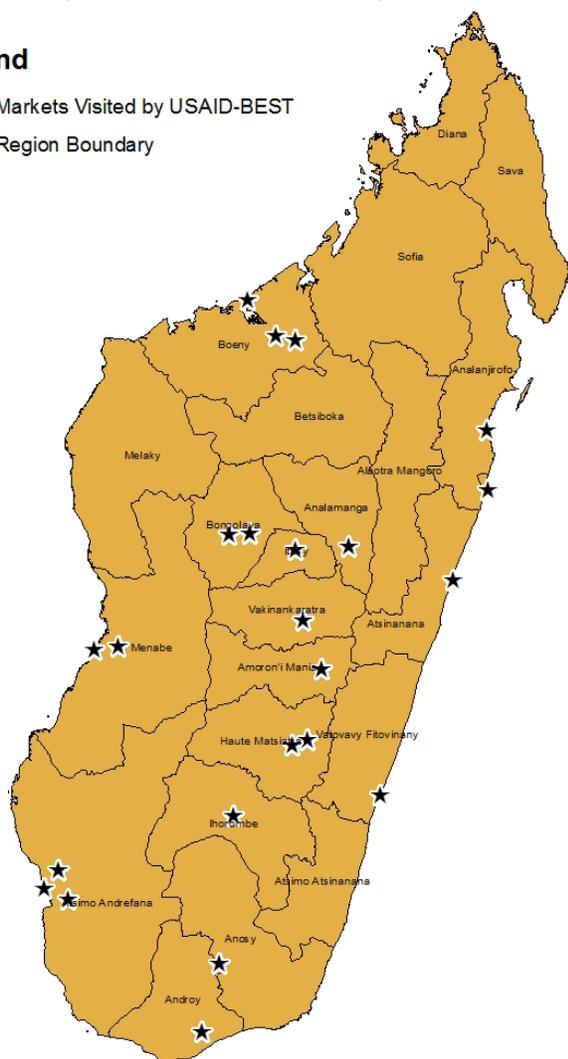
Ambovombe. The main products traded at this market in Androy region are rice (imported and local), cassava, maize, vegetables, and fruits. Around five mostly small-scale wholesalers operate at this market. Ambovombe does not have direct access to the ocean for the transport of goods. Access to this town from Taolagnaro can be difficult during the rainy season.

Amboasary. This market next to the Mandrare River is located in Anosy region. Main staples traded are rice (imported and local), cassava, maize, vegetables, and fruits. Two small-scale wholesalers operate permanently at this market. This market is also located around sisal plantations, which influences the cash availability in the area.

Figure 22. Map of Market Sites Visited, May 2013

Legend

- ★ Markets Visited by USAID-BEST
- Region Boundary



Source: Created by USAID-BEST.

Bazary Be (Toliara). This market is located in the Atsimo-Andrefana region (southwest) and sells fresh and dried fish, fruits, and vegetables. During market visits, the supply of rice and maize was limited.

Sakamaha. This market in the southwest part of the country is located in Atsimo-Andrefana region and primarily sees the trade of rice, maize, and beans.

Namahora. This market in the Menabe region has been recently renovated to add a covered area. This market is a wholesale market for fruits, vegetables, and dried fish. Cassava is sold outside the covered building.

Bazary Be (Morondava). This market in the Menabe region (South West) specializes in rice, maize, and fresh and dried fish.

Tanambao. This market in the Ihoay region operates in an open area where mostly informal traders gather to sell their products near the main market building. The main staples traded

are rice, dry grains, vegetables, fruits, fish, and some seasonal cash crops (e.g., coffee, cloves). This market also receives goods by small boats.

2.4.3 Interior Markets

The team visited 12 interior markets in the north, central and southern parts of the country.

Tafia. This market in Boeny region (North West) is mostly a collection market where producers usually sell rice, maize, groundnuts, and shrimps to collectors and brokers (*commissionaires*). Approximately 20 collectors operate from this market. Small boats called *botry* and *pirogue* boats transport products using the Vavaranon'i Marovoay stream. However, fluvial transportation is generally difficult due to sandbanks and shallow areas along the river.

Anjijia. This open wholesale and retail market in Boeny region (North West) specializes in rice, maize, beans, lentils (*lojy*), and cattle trading. Around 40 wholesalers were operating in this market during the visit, and the market is organized by commodity/product traded. The market is located approximately 11 km from the main national road (RN 4). The market proximity to the commune main administration office allows authorities to better control the flow of products entering or leaving the market area.

Anosibe. This market is located in the capital city of Madagascar in the Analamanga region (Central). It is the most important market and distribution center in the country where traders of all types (e.g., wholesalers, retailers, brokers) gather to sell rice, maize, beans, and other products year round. Traders from around the country source products from this market.

Antsampanimahazo. This spot market in Bongolava region is six kilometers away from Tsiroanomandidy town. Collectors usually set up stall/stands/spots among the national road (RN) 1 to buy paddy rice from producers who bring their harvest to this market.

Tsiroanomandidy. Local authorities manage this formal market in Bongolava region that primarily sells legumes, dried fish, rice, and dry grains.

Miarinarivo. This market in Itasy region mostly sells vegetables and fruits. Grains, including rice, were in limited supply during market visits. The market is in a covered area, and opens during the week. The main market day is usually Wednesdays.

Sabotsy (Antsirabe). This market in Vakinankaratra region sells fruits, vegetables, and grains.

Sabotsy (Ambositra). This market is located in Amoron'i Mania region (South). Small-scale wholesalers and retailers of vegetables dominate this market.

Andranovory, Toliara. This open market is located in the

Atsimo Andrefana region (South West). Producers brought cassava and maize into this market, and brokers and/or collectors collect the products.

Anjoma. Traders at this market in Haute Matsiatra region (South) specialize in legumes and dry grains.

Sandrakely. This rural market in Haute Matsiatra region (South) extends along RN 7. The main commodity traded is dry cassava, including but not limited to *Sary gasy* and *Beambony* varieties.

Tanambao. Small-scale wholesalers and retailers operate at this market in Ihorombe region, and sell mostly fruits, vegetables, rice, and grains. Of all the markets visited, only this market did not seem to adopt the use of standard measurements.

2.5. MARKETS SHARED CHARACTERISTICS:

The team observed the following main characteristics in all markets visited.

Standard Measurement. Every market visited used the *kapoaka* as a standard measure. The *kapoaka* is a small cup which has the following conversion rates: 1 kg represents 3.5 *kapoakas* for rice and 4 *kapoakas* for pulses and maize. The team did not observe any tampering of cups, or any other practice that would suggest traders take advantage of customers by modifying scales. Other traders, such as collectors, use standard scales and buy products from producers usually in kilograms.

Small-scale wholesalers (i.e., Semi-Wholesalers). These small-scale wholesalers are traders who sell in bulk but also retail. Although they can handle all kinds of products, they tend to specialize in one crop (e.g., rice, maize). Small-scale wholesalers did not face restrictions from other traders to operate in markets. However, competition with other wholesalers and with informal traders was stiff and represented the main barrier for small-scale wholesalers to continuing buying and selling products.

Market infrastructure. Most formal markets have some infrastructure (e.g., tables where traders sold products and/or a roof). These types of markets are in buildings, and commune authorities have some formal control over them (e.g., a fee to establish a booth, cleaning). In most markets, entry for new traders was challenging mostly due to space limitations. Traders selling in these market structures (formal traders) usually pay fees to the market authorities (commune manager) and taxes to the GoM.

Storage. Despite many markets having a market building, adequate storage is almost nonexistent. Large-scale wholesalers generally own their storage rooms, whereas small-scale wholesalers (semi-wholesalers) either rent spaces or store in their households.

Other Observations. The team did not observe any sorghum

during market visits. This absence of sorghum on the market could be because sorghum is a relatively new commodity traded, and because it was not in season during the field work. In some areas in the north traders confirmed that they were not trading sorghum and were not planning to source it this season. In some areas in the south, traders explained that consumers believe sorghum is difficult to cook.



Photo by Fintrac Inc.
The sun shines over flooded rice paddies. Alaotra-Mangoro Region, Madagascar, May 2013.

2.6. COMMODITY MARKETS

This section describes markets for rice, cassava, maize, edible oils, and dry beans using a SCP framework to analyze the ability of the private market to meet food needs through production and marketing alone without support from the GoM or donors.

2.6.1 Rice

Demand. Rice is the main staple crop consumed by all Malagasy. Regional preferences and availability, however, shape demand for rice throughout the country. In coastal areas in Amboasary, Ambovombe, Morondava, Toamasina, Fenerive Est, Toliara, Vatovandri, and Manakara there is also a clear distinction between demand for local vs. imported rice. Most consumers prefer local rice; imported rice is usually seen as poorer quality (e.g., broken grain up to 25 percent that sometimes has a strong smell due to the storage pesticides used). Across the country, there are also distinct preferences in rural versus urban areas. In some rural areas (e.g., local tribes in Antandroy) where households have low purchasing power and primarily produce cassava and maize, consumers purchase either rice imported by the government (i.e., buffer stock) or cheap rice from Pakistan that puffs when cooked. As an example of the difference in price between imported and local rice, vendors at Sakamaha Market in May 2013 sold imported rice at 1,140 MGA per kg while local Vary Bory rice sold at 1,300 MGA per kg.

In interior regions such as Fianarantsoa, and Ambositra in the south, households complement their rice consumption with cassava and maize from July-March. During this period rice is mostly consumed for breakfast and sometimes in the evening. In other southern areas, rice is generally eaten only on Sunday and cassava and maize represent the main staples (e.g., Antandroy tribes). In cassava and maize producing areas, households utilize

the revenue from the sale of these two commodities to purchase rice. However, specific food habits differ from one tribe to another. In Toliara, households from the High Plateau tribe (Betsileo) consume rice as their main staple food while the Atandroy tribes prefer cassava and maize.

Supply. Rice production spans all regions in Madagascar but there are important production belts categorized as follows:

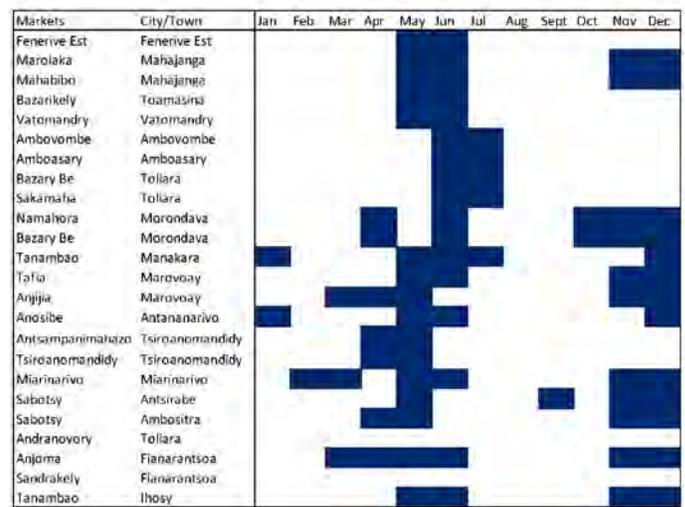
- Mid East: Alaotra-Mangoro Region - Amparafaravola and Ambatondrazaka areas (Lake Alaotra),
- High Plateau South: Vakinankaratra Region - Betafo area, Haute Matsiatra Region - Fianarantsoa I larea,
- Middle West: Itasy Region - Miarinarivo area,
- North West: Boeny Region - Marovoay area, and
- High Plateau North: Soafia Region - Bealanana area.

Paddy production reached 4.55 million MT in 2012 and represented around 2.95 million MT of milled rice (considering a 65 percent milling rate). Large proportions of annual production are destined for own household consumption, and approximately 700-800,000 MT of milled rice (25 percent of total milled production) reaches markets in urban and rural areas throughout the country. Urban areas are the main production deficit zones. Annual imports of 100,000-200,000 MT account for the remainder of the rice supply.

Locally produced milled rice is generally available throughout the year because some surplus areas (Tsiroanomandidy, Interior Central) can harvest three times a year and large-scale wholesalers who own storage units are able to store production for sale throughout the year.

Rice availability and varieties differ depending on the regions and the seasons. The normal season (Vary Be) is usually in May, the Vary Antanety season (rainfed rice) in the hillsides is usually from March-April, and early season rice Vary Aloha is harvested from November- January. In Tafia, Marovoay (Interior North), different rice varieties are also available depending on the season. Long grain rice produced during the Vary Jeby season is available in November and December, and the round grain rice cultivated through the Vary Asara season is generally available in May and June. The figure below presents rice harvest season by market visited in May 2013.

Figure 23. Rice Seasonality by Markets, May 2013



Source: USAID-BEST, based on field interviews.

In southern areas along the coast, locally produced rice is not available year round. Markets in Amboasary and Ambovombe source rice from as far as Betroka and Soanala (more than 100 km). In Morondava, farmers can produce rice three times a year in areas irrigated through the Dabara dam (April, June, and October-December). However, in 2013, insufficient water quantity through the Dabara dam, as well as locust attacks, limited production and caused rice prices to increase.

Vulnerability to natural disasters still represents a major barrier to increasing production in all areas in Madagascar. In Anjoma, Fianarantsoa (Interior South) the locust invasion caused important supply reductions. For example, in Maromana (30 km to the west of Fianarantsoa) traders reported that rice supply was around 60 MT per week in May 2012; however in May 2013, supply to markets was already reduced to 15-20 MT per week. In Ambalavao supply went from 40 MT in 2012 to 8 MT per week in 2013 (approximately 80 percent reduction from the same time a year ago).

Imports. Pakistani rice (Aigle) and Indian rice (Rhino) were commonly available during market visits in May 2013. Annual imports arriving during the lean season (November-mid-March) intend to meet local rice deficits. In the coastal market of Marolaka (North) and in the central market of Sabotsy, Antsirabe, rice shortages occur from February-mid-April, and during this time imported rice is available to consumers. In the markets of Amboasary and Ambovombe (Coastal South) imported rice (buffer stock and Pakistani origin rice) is available year round.

According to traders, imported rice is generally bad quality with a broken grain ratio of 25 percent and does not compete with local varieties. While very poor households can only afford to buy imported rice, as soon as they improve their purchasing power they prefer to buy local varieties. In the south, traders did not observe food aid rice as a competitor. However, in one market in the south, a trader indicated that some households would self-monetize distributed rice to traders to repay for the

credit they received from the retailer.

Although the GoM is not directly involved in importing rice or determining market price for imported rice, it does exempt rice importers from duty taxes and VAT which dampen imported rice prices. During lean season, imported rice indirectly benefit consumers because its availability in local markets prevents large seasonal price variations. However, tax benefits for importers, such as the elimination of import duties and VAT, drives down the price of imported rice and subsequently creates disincentives for farmers to increase rice production. Given Madagascar's potential self-sufficiency in rice production, donors and government programs should use imported rice as a complement to local rice.

Value chain. Farmers generally sell paddy rice to small-scale collectors (*touts*). These collectors then transport the rice to spot markets installed along the national roads close to production areas. Usually, collectors gather in these areas from May-October and sell the rice in 80 kg bags. Brokers, who in many cases receive advances from larger-scale collectors, purchase this rice at the spot markets. They deliver the paddy rice to the collectors that same day or store the rice for a later delivery if the collector is located in another region. Paddy rice is weighed again at delivery, and brokers receive a commission of 20 MGA per kg. However, big collectors that have already established loyal relationships with producers collect the paddy rice directly at the production zone without going through brokers. Collectors sell paddy rice or milled rice to wholesalers. These wholesalers supply the small-scale wholesalers and retailers who sell rice on the market to consumers by kilo or by *kapoaka*.³⁸

Significant price seasonality for rice benefits collectors and wholesalers rather than farmers. Producers sell most of their rice production at a low price in the harvest season when rice is abundant. Collectors and wholesalers, who have the ability to store the commodity, retain some stock to sell closer to the lean season when rice prices increase.

At a national level, the lack of infrastructure and storage capacity limits the movement of rice. Nevertheless, despite the number of actors, the flow of production from surplus to deficit areas is relatively well coordinated at the local level. Deficit areas are mostly composed of the urban districts such as Antananarivo, Fianarantsoa, Antsirabe, and Mahajanga. Antananarivo is supplied by the zone of Marovoay, Miaryarivo and Tsiroanomandidy. Fianarantsoa I is supplied by Fianarantsoa II and Ambalavao. Antsirabe is supplied by the zones of Betafo, Faratsiho, Malaimbandy, and Ambohimahasoa. Mahajanga I is supplied by the zone of Marovoay.³⁹

The value chain for imported rice is slightly different depending on the region. In Anosibe market (Antananarivo), imported rice is sourced in the Port of Tamatave and sold almost exclusively

38 1 kg = 3.5 kapoaka.

39 Chapter 6 of this report provides more detailed information regarding availability of storage and road infrastructure in Madagascar.

wholesale in 50 kg bags. In the Interior South markets (e.g., Sabotsy, Amboisitra and Tanambao, and Manakara), wholesalers truck imported rice from the Port of Toamasina during November-March. In Sakamaha, Toliara, an import destination market, rice is usually distributed year round to the communes of Miary, Manoroky, Sakaraha, and Ankiloake. In coastal markets in the south, such as Amboasary and Ambovombe wholesalers purchased products in Fort Dauphin from importers located in Antananarivo. Here, rice arrives by boat in 50 kg bags and wholesalers distribute these bags to other areas via truck.

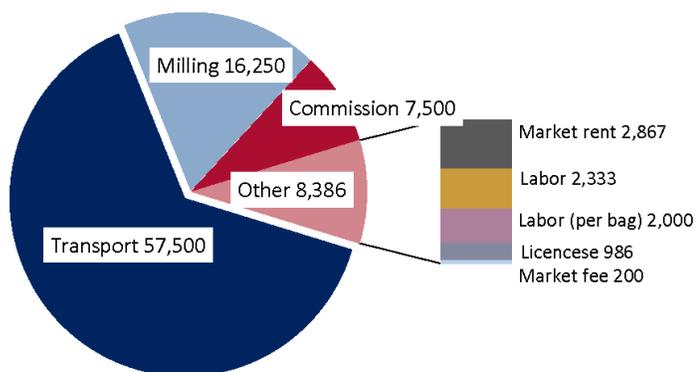
Trader characteristics. In all markets, USAID-BEST interviewed experienced traders (i.e., more than 10 years of experience) and relatively new traders (i.e., less than two years of experience). Traders cited market location, rather than trader's market power (e.g., one trader who controls supply in a market), as a barrier to entering markets. Moreover, collaboration among traders of all sizes was a common practice. For example, in Amboasary and Ambovombe (South) wholesalers and small-scale wholesalers established working relationships to supply markets. In some cases, such as in Sabotsy, Antsirabe, traders were part of the same family, but this was not a necessary condition to establish partnerships. Another important characteristic observed was that rice collectors and wholesalers were not specialized in rice trade, but they were also buying and selling cassava, beans and other crops.

Wholesalers buy and sell larger volumes versus small-scale wholesalers. In some places, such as Tsiroanomandidy (Interior Central) and Anjoma Fianarantsoa (South), wholesalers source directly from producers in large quantities. For example, a wholesaler in Tsiroanomandidy reportedly collected 12 MT of paddy rice in two-three days while in Anjoma another wholesaler collaborated with 10 different producers to source rice. Wholesalers usually own milling facilities as well. In Miaryarivo, Itasy (Interior Central) a wholesaler reported that he would mill rice and keep the rice bran as a form of payment. Wholesalers also own storage units. In interviews in Sabotsy, Antsirabe (Interior Central) and Tafia, Marovoay (Interior North), wholesalers explained they store rice until they observe a price increase and then they will start selling milled rice. Finally, wholesalers are likely to own transportation and can provide credit for other traders.

Not only do small-scale wholesalers handle a smaller volume than large wholesalers, they generally own limited storage capacity so they must purchase rice daily. Small-scale wholesalers typically utilize brokers to source their products. In one market (Bazary Be Morondava (South)), USAID-BEST found producers milling paddy rice in their localities and then delivering it to small-scale wholesalers in the market. In all other markets, producers sell paddy to collectors who in turn arrange for milling.

For all traders interviewed, transportation posed the most expensive cost, although traders incur other marketing expenses as well (see figure on the next page).

Figure 24. Sample Daily Marketing Costs (MGA) for Traders



Source: Calculated by USAID-BEST, based on field visit interviews in interior markets (Anosibe Tsiroanomandidy, Tafia, Sabotsy and Tanambao Markets).

Market performance. During lean season, locally produced rice prices increase in all regions across the country, but stay relatively stable in the capital primarily because of import availability in this market. Increasing prices create incentives for traders to move products from surplus to deficit areas. USAID-BEST found that in all markets visited in May 2013 traders were making profits. However, the profit margin was relatively variable depending on the area.

The lowest profit margins for local rice were in Antsampanimahazo (775 MGA per 50 kg bag) and Anosibe (775 MGA per 50 kg bag). The highest local rice margin was reported in Tsiroanomandidy (8,750 MGA per 50 kg bag). Attaining a sizeable profit from selling local rice is difficult considering the numerous transaction costs incurred from inadequate infrastructure, abundance of players along the value chain, uncertainty about production volumes, limited storage capacity,

and unfair competition with imported rice.

Farmers who generally sell paddy rice earn even lower profit margins than traders. Only retailers receiving paddy rice directly from producers and brokers, and able to mill the rice before selling, make a higher profit margin. The table below presents a summary of prices and profit margins reported by traders in selected markets.



Photo by Fintrac Inc.

A fruit vendor organizes her stock in anticipation of customers. Southeast Madagascar, May 2013.

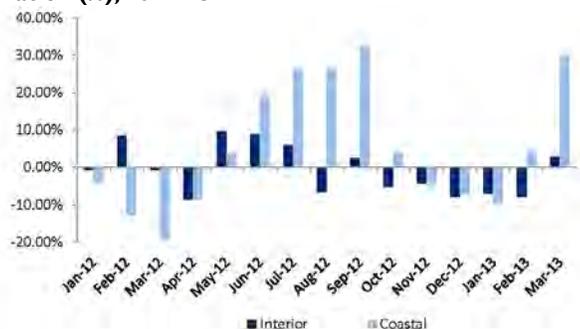
Table 3. Prices and Profit Margin (MGA per 50 kg bag) by Select Markets, May 2013

Area	Markets	Region	Selling prices	Buying prices	Profit margin	Type of rice
Coastal	FeneriveEst	Analanjirifo	55,000	52,500	2,500	
Coastal	Marolaka	Boeny	64,000	62,000	2,000	Taia
Coastal	Marolaka	Boeny	75,000	73,000	2,000	Tsipala
Coastal	Vatomandry	Atsinanana			1,000	
Coastal	Sakamaha	Atsimo-Andrefana	57,000	56,500	500	Imported
Coastal	Sakamaha	Atsimo-Andrefana	61,000	60,000	1,000	Makalioka
Coastal	Sakamaha	Atsimo-Andrefana	65,000	62,000	3,000	Vary bory
Coastal	Bazary Be	Menabe	51,000	50,000	1,000	Vary Mifangaro
Coastal	Bazary Be	Menabe	52,000	51,000	1,000	Vary Tsipala
Coastal	Tanambao	Vatovavy-Fitovinany	60,000	63,000	3,000	
Interior	Anosibe	Analamanga			775	
Interior	Antsampanimahazo	Bongolava	29,000	28,500	500	Paddy rice
Interior	Tsiroanomandidy	Bongolava	51,500	42,750	8,750	
Interior	Miarinarivo	Itasy	47,500	43,000	4,500	
Interior	Sabotsy	Amoron'i Mania	62,500	60,000	2,500	Tsipala
Interior	Sabotsy	Amoron'i Mania	60,000	57,500	2,500	Vary Gasy
Interior	Sabotsy	Amoron'i Mania	58,000	56,000	2,000	Imported

Source: Calculated by USAID-BEST, based on field visit interviews.

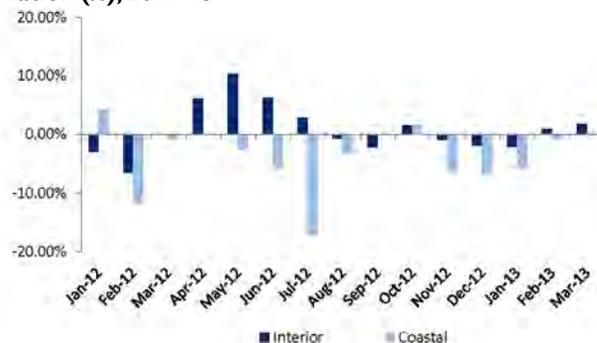
In addition to seasonal variations, local retail prices fluctuate considerably depending on the variety and the market. The table below shows the year-on-year percentage variation for the local variety Vary Gasy. Year-on-year percentage variation in coastal areas reflected important increases (26 percent) from June 2011 compared to June 2012, reaching 30 percent by September 2012. Prices in October 2011 compared to prices in October 2012 declined by almost 10 percent in coastal areas. However, the most important price spike was observed in March 2013, when prices increased suddenly by 30 percent when compared to prices in March 2012.

Figure 25. Year-on-Year Local Rice (Vary Gasy) Retail Price Variation (%), 2011-13



Source: Calculated by USAID-BEST, using price data from Observatoire du Riz.

Figure 26. Year-on-Year Local Rice (Makalioka) Retail Price Variation (%), 2011-13



Source: Calculated by USAID-BEST, using price data from Observatoire du Riz.

For the most part, rice markets can be considered integrated across the country.⁴⁰ The majority of markets show high correlation coefficients.⁴¹ However, some markets, particularly in the south, appear less well integrated (see table below). The following pairs have correlation coefficients below .5: Sambava and Antsiranana (0.49), Antsirabe and Sambava (0.42), Tsiroanomandidy and Sambava (0.46), Toamasina and Sambava (0.49), Fianarantsoa and Sambava (0.45), Manakara and Sambava (0.39).

Table 4. Local Rice (Vary Gasy) Price Correlations, July 2007-March 2013

	Antsiranana	Sambava	Antanarivo Atsimodrano	Antanarivo Avaradrano	Antsirabe Interior Central	Tsiroanomandidy Interior Central	Mahajanga Coastal North	Marovoay Interior North	Toamasina Coastal Central	Fianarantsoa Interior South	Manakara Interior South	Morondava Coastal South
Antsiranana	1.00											
Sambava	0.49	1.00										
Antanarivo Atsimodrano	0.85	0.57	1.00									
Antanarivo Avaradrano	0.77	0.53	0.92	1.00								
Antsirabe	0.64	0.42	0.81	0.87	1.00							
Tsiroanomandidy	0.69	0.46	0.86	0.91	0.82	1.00						
Mahajanga	0.76	0.68	0.78	0.79	0.71	0.72	1.00					
Marovoay	0.75	0.58	0.77	0.75	0.67	0.69	0.90	1.00				
Toamasina	0.71	0.49	0.83	0.82	0.65	0.74	0.63	0.69	1.00			
Fianarantsoa	0.60	0.45	0.78	0.82	0.90	0.76	0.64	0.62	0.68	1.00		
Manakara	0.54	0.39	0.72	0.77	0.78	0.68	0.49	0.46	0.58	0.83	1.00	
Morondava	0.71	0.51	0.83	0.85	0.84	0.83	0.71	0.74	0.74	0.82	0.76	1.00

Source: Calculated by USAID-BEST, using price data from Observatoire du Riz.

The scenario changes when analyzing the local variety *Makalioka*, which, as of March 2013, has not experienced significant swings in prices, although a big price decrease was observed in July 2012 (see figure below). Program implementers need to pay special attention to price differences observed by markets, varieties, and seasonality, since an increase in rice prices could signal that a specific rice variety is not available in the market.

⁴⁰ Integration is defined in this report as a set of markets that share common long-run price information: that is, the degree to which price changes in one market are reflected in another market. Gonzalez-Rivera, Gloria and Helfand, S. M., 2001, "The Extent, Pattern, and Degree of Market Integration: A Multivariate Approach for the Brazilian Rice Market", *Amer. J. Agr. Econ.*, 83.

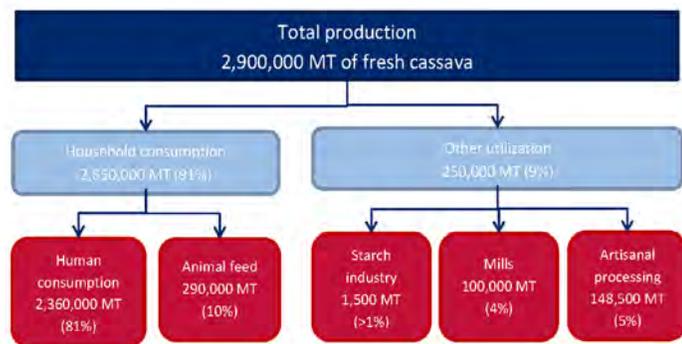
⁴¹ For the purposes of this report, a correlation coefficient above 0.5 is considered to signify high integration. Conversely, a coefficient below 0.5 is considered to signify poor integration.

2.6.2 Cassava

Demand. Cassava is the second most important food crop after rice in terms of volume produced. It is a main staple food in the South and South East parts of the country. Consumers generally buy non-peeled dry cassava. During market visits in the south, two varieties were available: *Sarygasy* and *Beambony*. In June-July when it coincides with the rice harvest, cassava is eaten with rice. Cassava is also mixed with milk, beans, meats, or maize. When prices for cassava increase, consumers use potatoes as a substitute. Usually people buy cassava by *toko*, which is about five-six tubers.

During food shortages, rural and urban households throughout the country rely on cassava availability so cassava is a key product for food security. Out of total production, more than 90 percent of cassava is retained for household consumption either as food (80 percent) or feed (10 percent). Around 10 percent of total production goes to the commercial processing industry (e.g., local feed mills and small-scale processing), and the starch industry.⁴²

Figure 27. Cassava Utilization Flow, 2011



Source: Razafimandimby, Simon, David-Benz, H., et al, May 2011, *Marches Agricoles a Madagascar Contraites et Opportunités Etude de Cas: Manioc*.

Supply. Small-scale and subsistence farmers mainly grow cassava in marginal land (cassava can grow all over Madagascar). Farmers follow traditional cultivation practices and do not use any fertilizer to increase yields. In addition, farmers consider cassava an “insurance crop,” meaning that farmers leave it on the ground in case of food shortages or in case they need some liquidity. Thus, very minimal volumes actually reach markets.⁴³ In recent years, producers have started to keep cassava in the ground using a better cultivation technique called “breadbasket,” which allows producers to preserve the root on the ground for longer periods.

Main cassava production areas include:

- High Plateau South area which includes Vakinankaratra region (Ankazomiriotra, Mandoto) and Haute Matsiatra region

⁴² Razafimandimby, Simon, David-Benz, H., et al, May 2011, *Marches Agricoles a Madagascar Contraites et Opportunités Etude de Cas: Manioc*.

⁴³ Razafimandimby, Simon, David-Benz, H., et al, May 2011, *Marches Agricoles a Madagascar Contraites et Opportunités Etude de Cas: Manioc*.

(Ambalavao district, Ankaramena, Ambinanirao and Andonaka)

- South Coastal areas which includes Androy (Ambovombe and Tsihombe), Anosy (Betroka) and Atsimo Andrefana regions
- Middle West area in the Itasy region (Analavory, Miarinarivo)

In Toliara, Fianarantsoa and Ihosy (Interior South), the main cassava growing region in the country, the primary harvest season runs from May-October; traders indicated collecting around 10-16 MT per market daily during this time. This stock usually lasts until February. In coastal areas in the south (Amboasary, Ambovombe, Namahora) cassava is available throughout the year when seasonal climatic conditions are favorable (e.g., enough rain). Retailers and wholesalers agree that locally produced cassava in the coastal south areas is available from April-June. After June, cassava from other areas such as Andranovory and Soanala supply the markets. In interior markets, such as Sabotsy (Antsirabe) and Anosibe (Antananarivo), cassava is available from October-February, and it is a substitute for rice during rice lean season. After December, potato usually substitutes for cassava.

Bad road conditions during the rainy season create difficulties for the transportation of cassava from production areas to deficits areas, particularly to interior central regions. Currently, the government of Madagascar does not intervene in the cassava market in any way to mitigate production and/or price fluctuations. The figure below presents a summary of main cassava harvest seasons by markets visited in May 2013.

Figure 28. Cassava Harvest Season by Market, 2013

Markets	City/Town	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Fenerive Est	Fenerive Est					■							
Marolaka	Mahajanga										■	■	■
Mahabibo	Mahajanga												
Bazarikely	Toamasina					■							
Vatomandry	Vatomandry												
Ambovombe	Ambovombe								■	■	■	■	■
Amboasary	Amboasary								■	■	■	■	■
Bazary Be	Toliara										■	■	■
Sakamaha	Toliara										■	■	■
Namahora	Morondava										■	■	■
Bazary Be	Morondava										■	■	■
Tanambao	Manakara		■	■	■	■	■						
Tafia	Marovoay												
Anjilja	Marovoay												
Anosibe	Antananarivo						■	■	■	■	■	■	■
Antsampanimahazo	Tsiroanomandidy												
Tsiroanomandidy	Tsiroanomandidy												
Miarinarivo	Miarinarivo												
Sabotsy	Antsirabe												
Sabotsy	Ambositra												
Andranovory	Toliara												
Anjoma	Fianarantsoa												
Sandrakely	Fianarantsoa												
Tanambao	Ihosy												

Source: Created by USAID-BEST, based on field interviews.

Exports and imports. Around 10 MT of cassava products are occasionally exported to the Comoros, Réunion, and Mauritius. All the cassava-based products that Madagascar cannot produce

such as glucose for processed foods (e.g., beverages, chocolate, and confectionery).⁴⁴

Value chain. Similar to the rice value chain, a great number of farmers, collectors, wholesalers and small-scale wholesalers, and retailers participate in the cassava market.

Usually, producers dry their cassava before taking it to local markets mostly because dry cassava is better suited for transport to distant markets. Fresh cassava is used to supply the nearest market of the region while dry cassava is transported from the production zones to deficit zones. For example, Ambalavao production is transported to the south and Antsirabe. Production from interior regions on the eastern side of the country supply the Highlands and the South. Dry cassava from the Atsimo Andrefana region is transported to the market of Antananarivo. Minimal volumes of fresh cassava produced in Lokomby and Ifanadiana supply the Manakara market. Similarly, farmers in Itasy region supply fresh cassava to the market in Antananarivo, farmers in Betafo supply to the city of Antsirabe, and farmers in Fianarantsoa II Ambalavao supply to the city of Fianarantsoa. The table below summarizes main production sources for selected markets.

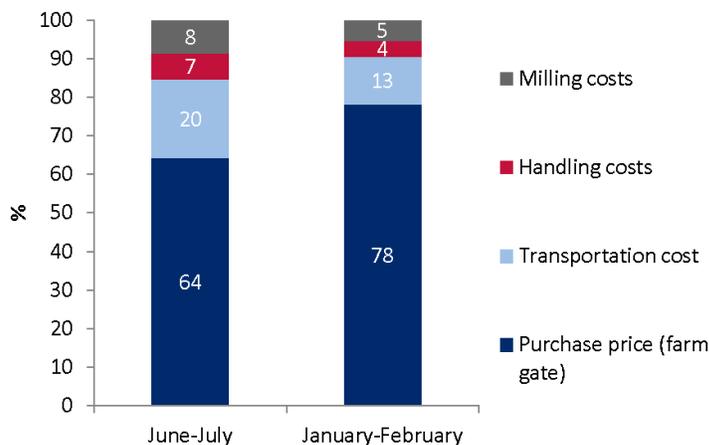
Table 5. Dry Cassava Source by Select Markets, 2013

Market	City/Town	Source
Anjoma	Fianarantsoa	Andonaka, Ankaramena and Betroka
Anosibe	Antananarivo	Mahasolo (Bongolava) and Ampefy (Itasy Region), Toliara
Namahora	Morondava	Analaiva and Betsipotika
Sabotsy	Antsirabe	Ankazomiriotra to Mandoto (June to July); Betroka, Andonaka, Sakaraha, Ihosy et Ankaramena (August to September)
Sandrakely	Fianarantsoa	Ambinaniroa
Tanambao	Manakara	Mijilo (along the national road to Irondro next to the commune of Ambila); Bekatra (along the secondary road to Lokomby); Sahasinaka and Fenomby (by train)
Tanambao	Ihosy	Betroka

Source: Created by USAID-BEST, based on field interviews.

During the field visit, traders indicated that cassava was being sold at normal price ranges for the season. However, in Morondava, prices were slightly higher than the previous years due in part to limited rainfall during the growing season. In normal years, prices increase up to three times the price during the lean season. From December onward, prices also increase due to bad road conditions which affect the movement of cassava. The next figure presents an example of marketing costs incurred by traders as reported during the May 2013 field visit.

Figure 29. Marketing Cost Structure, Fianarantsoa, May 2013



Source: Created by USAID-BEST, based on field interviews.

Market performance. Producers do not have adequate storage capacity to sell cassava during the lean season when demand is higher. For traders, profit margins are generally low. Some brokers noted that the high cost of drying cassava contributes to decreased profitability. Collectors and wholesalers capable of storing up to 200 MT of dry cassava a year are the ones making the biggest profit margins by selling the commodity at the time of the lean season. Profit margins during the normal season range from 50-100 MGA per kg while it goes up to 200 MGA per kg in the lean season. Cassava from the Androy, Atsimo Andrefana, and Haute Matsiatra regions are sold at a greater quantity compared to that of the Vakinankaratra region because of its lower price (150 MGA per kg versus 300 MGA per kg).

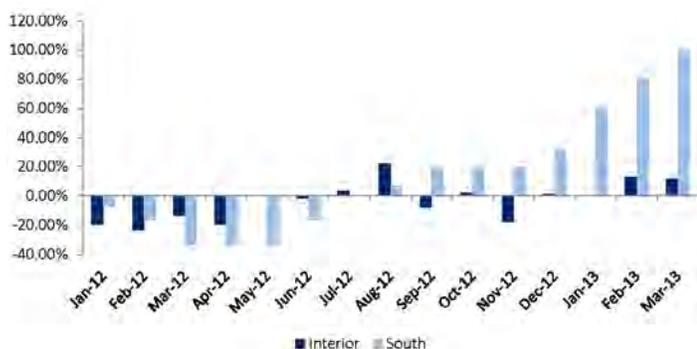
Traders did not mention cassava for animal feed purposes as one of their main markets. In recent years, the demand has declined due to extremely low purchasing power of producers, the decline of the pig population caused by swine fever, and the decline of consumer demand for products such as milk and dairy. In addition, the closure of the TIKO Group, the single largest purchaser of cassava-based cattle feed, also contributed to reduced demand.⁴⁵

Although most traders indicated that prices fluctuate according to seasonal expectations, an analysis of year-on-year price variations show greater changes than what traders reported. Dry cassava prices in the south were around 100 percent higher in March 2013 compared to March 2012, and are likely to increase, particularly this year that farmers observe production problems as a consequence of the cassava mosaic virus. In other areas, such as in interior regions, variations were less dramatic. The figure below compares dry cassava variations in an interior market and in the south from 2011-13.

44 Razafimandimby, Simon, David-Benz, H., et al, May 2011, *Marchés Agricoles a Madagascar Contraintes et Opportunités Etude de Cas: Manioc.*

45 Razafimandimby, Simon, David-Benz, H., et al, May 2011, *Marchés Agricoles a Madagascar Contraintes et Opportunités Etude de Cas: Manioc.*

Figure 30. Year-on-Year Dry Cassava Price Variation (%), 2011-13



Source: Calculated by USAID-BEST, using price data from Observatoire du Riz.

Cassava markets are generally not well integrated. However, if prices in the south continue to increase, they will affect prices around the country. As presented in the table below, correlation coefficients are mostly below 50 percent. Only two markets show correlation coefficients higher than 0.9 (Antananarivo Atsimondrano and Sambava; Antananarivo Avaradrano and Sambava).

Table 6. Dry Cassava Price Correlations, July 2007-March 2013

	Antsiranana	Sambava	Antananarivo Atsimondrano	Antananarivo Avaradrano	Antsirabe	Tsiroanomandidy	Mahajanga	Marovoay	Toamasina	Fianarantsoa	Manakara	Morondava
Antsiranana	1.00											
Sambava		1.00										
Antananarivo Atsimondrano	0.38	0.92	1.00									
Antananarivo Avaradrano	0.17	0.94	0.40	1.00								
Antsirabe	0.20	0.62	0.05	0.25	1.00							
Tsiroanomandidy	0.39	0.78	0.26	0.44	0.34	1.00						
Mahajanga	-0.13		-0.06	-0.10	-0.10	-0.34	1.00					
Marovoay	-0.04		0.23	0.34	0.00	0.15	-0.10	1.00				
Toamasina	0.24		-0.48	0.16	0.18	0.30	0.03	-0.38	1.00			
Fianarantsoa	-0.06	0.69	-0.22	0.19	-0.01	-0.22	0.29	-0.13	0.36	1.00		
Manakara	0.21	1.00	0.55	0.20	0.51	0.30	-0.36	0.20	-0.32	-0.34	1.00	
Morondava	0.21	0.72	-0.03	0.18	0.36	0.12	0.03	-0.23	0.38	0.34	0.06	1.00

Source: Calculated by USAID-BEST, using price data from Observatoire du Riz.

2.6.3 Maize

Demand. Following rice and cassava, maize is the third most important crop in terms of volume produced and consumer preferences. Maize represents a substitute to rice during lean periods, and is food for laborers during the soil preparation and transplantation operation. In some tribes, such as the Antandroy and Sakalava tribes in the south, maize is the main staple food. Most households prefer milled maize, but maize grain is also part of a typical diet. Yellow maize is preferred, but white maize is also accepted.

The animal feed industry dominates maize markets because maize flour and bran are generally used as feed for poultry and swine (100,000 MT; poultry alone demands around 40,000 MT per year). According to most recent estimates, households utilize 90 percent of production for human consumption and animal feed. The remaining 10 percent goes to the market mostly for industrial use. Despite the growing opportunities to market maize for animal feed, total demand has been decreasing since 2009.⁴⁶ The government does not intervene in any way in the maize sector. There is no current policy to help develop the maize subsector, nor does the government support research or producers organizations to promote maize growth.

⁴⁶ Vidal-Mbarga, Helene, David-Benz, H., et al, May 2011, *Marchés Agricoles a Madagascar Contraintes et Opportunités Etude de Cas: Mais*.

Supply. Total area planted to maize production is approximately 264,000 ha. Although maize is grown all over the country because it easily adapts to different climatic and soil conditions, main production areas are concentrated in the Middle West, the Highlands, and the South West.

Maize is generally harvested in April, May, and June, and is available until December. For traders, the best months for sales are August-November. Despite maize availability in most surplus production areas, bad road conditions caused by rains can limit its movement to deficit markets. In general, supply is limited. The manager of a major agribusiness company confirmed that although the supply of maize to meet company needs is available in Madagascar, if the company sources a year of supply then there is almost nothing left for other companies or regular consumers.

Constraining the current availability of maize is limited production caused by Cyclone Haruna in March 2013. As a result of this natural disaster, some traders indicated that supply to markets was reduced by approximately 50 percent. The locust invasion does not seem to have had an effect on production as maize was already harvested by the time of the swarms.

Value chain. The structure and number of traders in the maize value chain at the local level is similar to rice and cassava. Generally, producers deliver their products to collectors, who work with brokers (*commissionaires*). In some instances, brokers also receive money from collectors to source maize from distant production areas. Brokers then receive payments based on the volume of maize sourced. Wholesalers receive the product from collectors and store maize in their own storage facilities.

The maize value chain is better organized than that for cassava and rice because it is driven by the agribusiness industry. Maize wholesalers tend to specialize in sales of maize flour and bran and will work with other traders to source maize given the high demand from the agribusiness sector. Currently, only three companies dominate the market for feed: Livestock Feed Ltd. (LFL), Sabma, and Agrifale. The number of agribusinesses have been reduced as a result of political instability.

The source of maize is different depending on the markets. For example, urban markets in Fianarantsoa are supplied by production from Ambalavao, Ankaramena. Antananarivo markets are supplied by Ambato-Boeny (Port-Bergé), Analavory, Miarinarivo, Tsiroanomandidy, Sakaraha, and Andranovory. In Antananarivo, maize grain is also available from the South West (Sakaraha and Betsioky Atsimo) to supply feed mill companies (e.g., LFL and Sabma). The next table presents a summary of maize sourcing areas by main markets visited in May 2013.

Table 7. Maize Main Sourcing Areas by Market, May 2013

Market	City/Town	Source
Interior		
Andranovory	Toliara	Commune of Andranovory – Village of Maroata and Katsadava.
Anjijia	Marovoay	Anjijia, Ambato-Boeny and Andranomamy
Anjoma	Fianarantsoa	Andonaka (Along national road to the South), Ankaramena, Befeta (along the road to Ikalamavony, Solila (Ikalamavony) and Ambalavao.
Anosibe	Antananarivo	Middle West region (Analavory, Tsiroanomandidy, Mahasolo) Soafia region (Ambato-Boeny Port-Bergé), South West (Toliara), and Morondava (Menabe).
Antsampanimahazo	Tsiroanomandidy	Antanisoa/Ankerinavaratra, Fierenana, Bemangoroka, Ambohimiarina and Tsaratanana.
Miarinarivo	Miarinarivo	Anosibe/Antananarivo (milled maize); Analavory, Mahasolo and Tamponala.
Sabotsy	Ambositra	Ambohipotsy, Ambatofinandrahana, Manandriana, Morondava.
Tsiroanomandidy	Tsiroanomandidy	Anosibe(milled maize).
Coastal		
Bazary Be	Morondava	Analaiva (via road), Beloha sur Mer and Manja(via sea).
Marolaka	Mahajanga	Anjijia, Antambao/Andranolava, Ambato-Boeny, Manerinerina, Mitsinjo/Namakia

Source: Created by USAID-BEST, based on market visits, May 2013.

The highest marketing cost incurred by traders is transportation. Depending on the markets, traders reportedly pay between 20-50 MGA per kg for maize delivered to Miarinarivo, Andranovory, and Bazary Be (Morondava) markets. In Anjijia Market, traders pay from 60-100 MGA per kg for maize. Commission fees were around 20 MGA per kg in almost all markets visited. Lack of milling facilities also increase marketing prices. In Miarinarivo and Tsiroanomandidy markets, two important maize production areas, millers do not find it profitable installing a facility in the area. Thus, according to traders in these areas they have to source milled maize in Anosibe (Antananarivo), which in addition to already high transportation costs, doubles retail prices to consumers because the product is milled in other areas.

Market performance. Maize markets seem competitive as a large number of producers and sellers participate. Regular seasonal changes (seasonality of production and weather) and shocks (e.g., cyclones and pests) affect overall production and

contribute to a high degree of variability in price. According to traders, prices significantly increased from 2012-13. However, the variation was different depending on the market. For example, in Toliara, some traders experienced increases as high as 125 percent over the previous year, whereas in Marianarivo, prices increased by approximately 13 percent.

The difference between buying and selling prices was relatively similar in all markets visited. As expected, milled maize had higher percentage variations as opposed to maize grain. Overall, based on prices collected during market visits and interviews with traders, maize profitability seem relatively low. The table below summarizes milled and grain prices collected during market visits in May 2013.

Table 8. Milled and Grain Maize Buying and Selling Prices (MGA per kg) by Select Market, May 2013

Market	City/Town	Buying	Selling	Difference (%)
Andranovory	Toliara	540	560	4
Anjijia	Marovoay	470	620	32
Anjoma	Fianarantsoa	527	688	31
Anosibe	Antananarivo	550	660	20
Miarinarivo	Miarinarivo	535	725	36
Sabotsy	Ambositra	500	600	20
Sabotsy	Antsirabe	590	650	10
Tsiroanomandidy	Tsiroanomandidy	800	1,050	31
Bazary Be	Morondava	525	600	14
Marolaka	Mahajanga	550	700	27
Sakamaha	Toliara	600	640	7

Source: Created by USAID-BEST, based on market visits, May 2013.

Based on analysis of price data from the *Observatoire du Riz*, most maize markets around Madagascar are not well integrated. The correlation coefficients presented in the table below indicate that most markets have coefficients of less than 0.5. Only one market pair Fianarantsoa-Antsirabe exhibited a correlation coefficient higher than 0.8.



Photo by Fintrac Inc.

Prices are clearly displayed for customers in this wholesale market stall. Antananarivo, Madagascar, May 2013.

Table 9. Grain Maize Price Correlations, July 2007 to March 2013

	Antsiranana	Sambava	Antananarivo Atsimondrano	Antananarivo Avaradrano	Antsirabe	Tsiroanomandidy	Mahajanga	Marovoay	Toamasina	Fianarantsoa	Manakara	Morondava
Antsiranana	1.00											
Sambava	0.12	1.00										
Antananarivo Atsimondrano	0.32	0.40	1.00									
Antananarivo Avaradrano	0.00	0.06	0.29	1.00								
Antsirabe	0.00	0.12	0.49	0.35	1.00							
Tsiroanomandidy	0.13	0.20	0.56	0.61	0.72	1.00						
Mahajanga	0.17	0.11	0.56	0.35	0.76	0.53	1.00					
Marovoay	0.25	0.41	0.60	0.27	0.62	0.61	0.58	1.00				
Toamasina	0.32	0.01	0.12	-0.22	-0.25	-0.02	-0.06	0.06	1.00			
Fianarantsoa	0.08	0.13	0.60	0.42	0.85	0.60	0.75	0.53	-0.36	1.00		
Manakara	-0.32	-0.01	0.35	0.27	0.46	0.45	0.28	0.35	0.00	0.45	1.00	
Morondava	0.07	0.31	0.55	0.39	0.59	0.37	0.58	0.42	-0.24	0.59	0.13	1.00

Source: Calculated by USAID-BEST, using price data from Observatoire du Riz.

2.6.4 Edible Oil⁴⁷

Overview of demand and supply. Households use oil to prepare sauces and street food vendors generally use oil to fry potatoes or other vegetables. The most consumed oil is derived from groundnuts, which is produced around the country. Although groundnuts are pressed at local artisan presses in production areas, groundnut oil availability in local markets is limited. After 2009, when the markets for imported oil were liberalized, imported palm oil became available in all urban and rural markets year round. The low price and year round availability of imported edible oils represented a hard competition for local varieties.

Antananarivo and Toamasina are the main source markets for imported oil. Generally, traders buy in bulk (20 liter drums) and divide it into small packages of 50 milliliters (ml), 100 ml, and 250 ml. Limited purchasing power limits consumer demand for oil.

The main brands found during market visits were Rajah Oil, imported from India and packed in Tamatave, and Viking Oil from Indonesia. These two brands are widely consumed because of their low prices. Until recently, only one local company produced groundnut oil, but now they have switched to only producing cotton oil.

Market performance. In general, prices for imported oil showed little variation from market to market. The table below shows some observed retail prices by brand in different local markets.

Table 10. Imported Oil Wholesale Prices by Selected Markets, May 2013

Market	Price per 20 Lt.
Amboasary	75,000 (Rajah and Viking)
Fenerive Est	65,000 to 70,000 (Viking)
Antarandolo	61,000 (Rajah and Viking); 84,000 (Hina)
Toliara	62,500 (Rajah and Viking); 20,800 (Oki; 18 Lt)

Source: Created by USAID-BEST, based on market visits, May 2013.

Imported oil markets appear integrated across the country. Observing price correlation coefficients, few market pairs fell below 0.5 in its correlation points: Toamasina and Antsinana (.29), Toamasina and Sambava (.45), Toamasina and Antananarivo Atsimodrano (.47), Toamasina and Marovoay (.44), Toamasina and Fianarantsoa (.45), and Toamasina and Morondava (.48). Morondava and Tsiroanomandidy also showed relatively low market integration. These market pairs are important to note given that they are not integrated with the market in Toamasina which is an important source for imported oil.

Table 11. Imported Oil Price Correlations, July 2007 to March 2013

	Antsinana	Sambava	Antananarivo Atsimodrano	Antananarivo Avaradrano	Antsirabe	Tsiroanomandidy	Mahajanga	Marovoay	Toamasina	Fianarantsoa	Manakara	Morondava
Antsinana	1.00											
Sambava	0.84	1.00										
Antananarivo Atsimodrano	0.87	0.89	1.00									
Antananarivo Avaradrano	0.87	0.83	0.90	1.00								
Antsirabe	0.83	0.85	0.92	0.91	1.00							
Tsiroanomandidy	0.69	0.82	0.83	0.72	0.79	1.00						
Mahajanga	0.75	0.85	0.77	0.87	0.79	0.61	1.00					
Marovoay	0.85	0.89	0.91	0.81	0.86	0.80	0.76	1.00				
Toamasina	0.29	0.45	0.47	0.50	0.63	0.31	0.59	0.44	1.00			
Fianarantsoa	0.81	0.85	0.92	0.88	0.92	0.88	0.72	0.88	0.45	1.00		
Manakara	0.67	0.76	0.73	0.69	0.71	0.63	0.72	0.78	0.50	0.72	1.00	
Morondava	0.70	0.65	0.61	0.75	0.66	0.39	0.82	0.62	0.48	0.51	0.54	1.00

Source: Calculated by USAID-BEST, using price data from Observatoire du Riz.

⁴⁷ Chapter 6 of this report reviews the edible sector in more detail.

2.6.5 Dry Beans

Overview of demand and supply. Compared to other staple crops (rice, cassava, and maize), dry beans are relatively less consumed. However, they still constitute a substitute when other crops are not available, and are generally given to agricultural laborers as part of their daily meals. In all market visited, local white beans were the most preferred and available. People generally consume different size and color beans such as *rotra fotsy* (bigger size white bean) and *fotsy kely* or *botrakely* (small size white bean), white butter beans, and red beans.

Dry beans are generally available from February-October and supply is more limited from November-January. The table below summarizes main sourcing areas for dry beans by markets visited in May 2013.

Table 12. Dry Beans Main Sourcing Areas by Market, May 2013

Market	City/Town	Source
Anjijia	Marovoay	Anjijia, Ambato-Boeny and Andranomamy.
Anjoma	Fianarantsoa	Andonaka and Ankaramena.
Bazary Be	Morondava	Befasy (Mahabo), Analaiva and Manja
Marolaka	Mahajanga	Marolaka market area
Sabotsy	Antsirabe	Antsirabe and Miandrivazo.
Sakamaha	Toliara	Toliara area
Tanambao	Ihoso	Antsirabe, Miandrivazo, Ranomafana, Camp-Robin
Tsiroanomandidy	Tsiroanomandidy	Analavory
Bazary Be	Morondava	525
Marolaka	Mahajanga	550
Sakamaha	Toliara	600

Source: Created by USAID-BEST, based on market visits, May 2013.

Production of dry beans is still mostly for household consumption and limited volumes reach the market every year. Despite increasing demand from agribusinesses, moving beans from surplus to deficit areas is expensive and especially difficult during the rainy season.

Value chain. The dry bean structure and number of traders is similar to all the other staple crops. However, certain dry bean varieties are currently exported and the demand from specialized traders and companies represent an important market for producers in select markets where the varieties demanded are grown.

In Morondava and Toliara, white butter beans are highly regarded and collected in bulk by Indo-Pakistani traders for exports to Mauritius and South Africa. In Marolaka, the firm SOPAGRI negotiated with six wholesalers to source up to 12 MT per week of white beans. However, most traders responded that they face limited supply and commodity availability during the year (e.g., white butter beans are only available in

September). In addition, large-scale sourcing implies that for local consumers white butter beans are generally not available and the limited supply offered in the market is of lower quality. Another indirect effect for traders of relying on few large scale exporters is uncertainty about demand. For example, in Sabotsy (Antsirabe) low exported volumes in the last two years increased the amount of available beans in the market, decreasing prices for producers and other intermediaries. The lack of coordination to supply deficit areas also suggests that dry bean markets are not well integrated.

2.7. IMPLICATIONS FOR TITLE II AND COMPLEMENTARY MARKET-BASED PROGRAMMING

As discussed, local markets for staple foods in Madagascar based on smallholder, mostly subsistence, agriculture, are highly competitive with numerous small-scale traders, are heavily influenced by local trade, and are greatly influenced by seasonal and random climatic effects. With the exception of rice and imported oil, staple food markets are not well integrated. Low levels of infrastructure investment result in high transportation costs and this financial constraint poses one of the main barriers for most local traders to move products around different markets.

Poverty limiting food access is the most important factor in Madagascar food insecurity. Overall, traders are capable of moving food from surplus to deficit areas, but they lack the incentives to do so at prices that poorer consumers could afford. Therefore, well-targeted in-kind food aid (especially rations provided during the lean season) is likely reaching consumers who would not be buying much food on the market.

These aspects of local markets and food security have implications for future Title II programming, and more specifically for in-kind distributed food aid and other complementary market-based activities. Given these circumstances a future development food assistance program should take in consideration the following:

- **Rice**, from transoceanic sources, would compete with locally produced rice, cassava, and maize. Due to Madagascar's overdependence on rice and localized food insecurity in some coastal areas in the south the distribution of rice is highly discouraged. This also includes rice that might be procured locally.
- **Sorghum** included in a Title II ration should continue because it does not have a negative effect on production or local markets. Although sorghum is not widely grown, people are willing to include it in their diets in areas where it is grown.
- **Pulses for inclusion** in a well-targeted Title II ration should be investigated, primarily pinto beans. The small, but slowly growing, export sector demands white beans, but people also eat red varieties, such as pinto beans.
- **Refined vegetable oil** is appropriate to continue including

in the ration for several reasons: 1) oil consumption is very low, and well below the WHO recommended amount for a healthy life; 2) vegetable oil is relatively expensive for most consumers and high prices are among the reasons why consumers do not increase the use of oil in their diet; and 3) the vegetable oil available currently available on the market is of low quality, and very likely not fortified.

- **CSB** is appropriate to continue including in any ration intended to provide nutritional support because 1) the maize markets are competitive, and 2) current maize demand is mostly destined to animal feed.

There is scope for **complementary market-based programming** in Madagascar. USAID may consider the use of cash and/or vouchers in areas where markets are physically accessible to beneficiary populations. In addition, the competitive nature of markets for staple foods, and the fact that most staple crop production is smallholder based, suggest that the positive effect of a shift to cash and/or vouchers will benefit smallholder farmers and small- and medium-scale traders, rather than the largest market actors. USAID-BEST believes the use of cash is feasible and appropriate depending on seasonal market and production variations.



CHAPTER 3

OVERVIEW OF FOOD SECURITY PROGRAMS

Bags of rice are displayed for sale at the wholesale market. Toamasina, Madagascar, May 2013.

Photo by Fintrac Inc.

The chapter presents programmatic trends in food security programming and an overview of food security programs in Madagascar. The chapter includes program summaries of the USAID Title II development program, and major programs supported by other international donors and the Government of Madagascar (GoM), including those that involve local procurement, cash, and vouchers.

3.1. PROGRAMMATIC TRENDS

World Food Programme (WFP) and USAID are the primary actors in distributing food aid. In 2012, food aid distributions through these two organizations equaled roughly 25,000 MT. Food aid tonnages should be expected to continue at roughly the same levels for the next few years, and numbers could increase if serious shocks were to occur; i.e., cyclones, flooding, drought, and/or continued problems with locusts and other pests.

WFP purchased maize, beans, and sorghum from local suppliers in 2012, for use in their food aid distribution programs. WFP expects that its local purchases will increase in the coming years, pending any major quality concerns associated with the local commodities. Although the local procurement of food could become more common practice for donors, any significant decline in production due to locusts or other shocks is likely to delay any increase in local procurement.

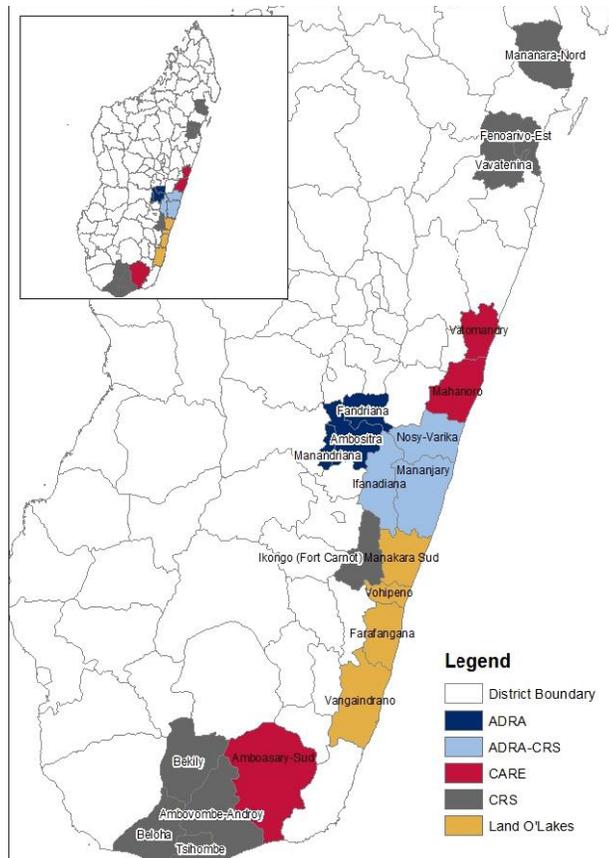
The donor community appears interested in learning and

experimenting with cash based programs. Cash based programs, funded by the World Bank and WFP, were recently implemented in Madagascar. There should be many lessons learned from these programs to inform future interventions.

Although vouchers have not been used in Madagascar, donors could implement pilot projects to determine potential strengths and the longer term viability of such a program. Pilot voucher projects would need to involve appropriate background education for potential beneficiaries, study of local and regional markets, areas of potential interventions, duration and timing of programming, and other factors before implementing any activities to increase the likelihood of overall program effectiveness.

3.2. MAP OF PROGRAMS

Figure 31. Geographic Coverage of Title II SALOHI Program



Source: Created by USAID-BEST, using data from USAID/Madagascar.

The map above represents the districts where the USAID-funded Title II MYAP, Strengthening and Accessing Livelihoods Opportunities for Household Impact (SALOHI), which is implementing activities from 2009-14. Currently, Catholic Relief Services (CRS) is the grant holder, with three international non-governmental organizations (NGOs) as sub-grantees (Adventist Development and Relief Agency (ADRA), CARE, and Land O' Lakes) and five local NGO partners (BDEM, CARITAS, FITEA, ODDER, and ODDIT).⁴⁸ The SALOHI program and partners are working in five zones:

- East coast (CRS and CARE)
- Southeast coast covering two zones (ADRA, CRS, and Land O'Lakes)
- South central highlands (ADRA and CRS)
- Deep south (CARE and CRS)

WFP, SALOHI, and other food security actors have focused programming primarily on food security challenges related to improving agricultural production. Contributing factors to low productivity include outdated farming techniques, poor

48 The five local partners of CRS work as follows: CARITAS works in Fenerive East, Vavatenina and Mananara North; BDEM works in Mananjary and Nosy Varika; FITEA works in Ikongo and Ifanadiana; CRS partners ODDER and ODDIT implement health/nutrition activities in CARE zones.

infrastructure, limited access to agriculture extension services, and poor physical access to many areas of the country.⁴⁹

3.3. USAID TITLE II PROGRAM

SALOHI is a five-year program that runs from FY09-14 with US\$17 million per year in funding to target chronic and transitory food insecurity in Eastern, Southeastern, South Central Highlands, and southern Madagascar. The program currently reaches 98,500 vulnerable households in 592 communities, which include 112 rural communes and three urban centers.⁵⁰ Main programming sectors include maternal and child health and nutrition (MCHN), livelihoods, and disaster risk reduction (DRR); secondary activities include social protection, gender, and local governance.

SALOHI has three strategic objectives:

- Health and nutritional status of children under-five improved;
- Livelihoods of food insecure households improved; and
- Community resiliency to food security shocks strengthened.

Representative activities for health and nutrition include growth monitoring and promotion; the rehabilitation of moderately malnourished children using the Positive Deviance/Hearth⁵¹ model; pregnant and lactating women support groups; the integrated management of childhood illnesses using community health volunteers and home visits; essential nutrition actions; and; and behavior change communication campaigns. Livelihoods activities include farmer field schools, agribusiness promotion, and village savings and loan associations. Resilience and disaster risk reduction activities include disaster prevention and mitigation plans, sustainable land use plans, food-for-asset and food-for-training projects, community-based early warning systems, promotion of good governance principles, and the integration of SALOHI plans and activities into commune-level development plans.⁵² The program aims to integrate these activities as much as is feasible to maximize long-term impact. The internal mid-term evaluation notes the success of these integration efforts (e.g., integrating village savings and loan into agriculture).⁵³

Table 13. USAID/Madagascar Distributed Food Aid Tonnages (MT), FY08-13

FY 08	FY 09	FY 10	FY 11	FY 12	FY 13*	Total
3,770	3,640	12,670	9,764	7,283	1,350	38,477

Source: USAID* projected.
Note 3,810 MT of food aid in FY11 and 5,630 MT of food aid in FY10 were provided for emergency use; yearly tonnages may vary with other reported yearly tonnages due to differences in FY versus SALOHI implementation year (IY).

49 WFP, 2010, *WFP Protracted Relief and Recovery Operation (PRRO 200065)*.

50 CRS/Madagascar, 2013

51 "Positive Deviance Approach in Development: adoption of an approach that helps a community and its members find existing, sustainable solutions to a community problem by understanding the behaviors of positive deviant individuals within the community." See http://www.positivedeviance.org/pdf/hearth_book.pdf for further details, accessed June 2013.

52 CRS/Madagascar, 2013 and FFP/Washington DC, August 2013.

53 CRS, 2012, *SALOHI MYAP Midterm Evaluation Report*.

Emergency and development food aid from USAID averaged approximately 6,500 MT per year over the past six years (see table above). The table below shows that SALOHI on average distributes around 5,500 MT per year of food aid, and tonnages are expected to decline significantly during the last implementation year from July 2013 to June 2014. Further, CRS and ADRA provided for roughly 2/3 of total food aid delivered over the course of the five-year program.

Table 14. SALOHI Distributed Food Aid by PVO (MT), Implementation Year (IY) 09-13

NGO	IY09	IY10	IY11	IY12	IY13*	Total
ADRA	1,276	2,410	1,760	2,772	707	8,925
CARE	739	970	920	2,477	0	5,106
CRS	770	2,560	3,340	1,402	803	8,875
LOL	855	1,110	1,080	1,179	0	4,224
Total	3,640	7,050	7,100	7,830	1,510	27,130

Source: CRS/Madagascar.
Note: IY09=5/09-6/10; IY 10=7/10-6/11; IY 11=7/11-6/12; IY 12=7/12-6/13; and IY13=7/13-6/14,*projected.

The table below shows actual and projected commodities programmed by the SALOHI partners from IY09-13.

Table 15. SALOHI Distributed Food Aid by Commodity (MT), IY09-13

	IY09	IY10	IY11	IY12	IY13*	Total
CSB	720	1,025	830	1,040	615	4,230
Vegetable Oil	170	245	330	380	115	1,240
Rice	2,610	5,220	5,160	5,280	620	18,890
Sorghum	140	560	780	1,130	160	2,770
Total	3,640	7,050	7,100	7,830	1,510	27,130

Source: CRS/Madagascar.
Note: IY09=5/09-6/10; IY 10=7/10-6/11; IY 11=7/11-6/12; IY 12=7/12-6/13; and IY13=7/13-6/14,*projected.

3.4. TITLE II MONETIZED FOOD AID

To support its Title II program, SALOHI partners have monetized crude and refined vegetable oil and wheat grain (see table below).

Table 16. Title II Monetized Food Aid (MT), FY10-13

Commodity	FY10	FY11	FY12	FY13	Total
Vegetable Oil*	7,300	3,180	2,350	5,210	18,040
HRVWV	0	7,000	10,000		17,000
Total	7,300	10,180	12,350	5,210	35,040

Source: CRS and Land O'Lakes.
*Refined vegetable oil was monetized in FY10 and FY11, and CDSO was monetized in FY12 and FY13.

3.5. ADDITIONAL USAID/MADAGASCAR PROGRAMS

USAID/Madagascar funds health and malaria programming in Madagascar. USAID has provided roughly US\$26 million in FY13 for anti-malarial activities that include insecticide-treated nets, indoor residual spraying, intermittent preventive treatment for pregnant women with sulfadoxine-pyrimethamine⁵⁴, and rapid diagnostic tests/artemisin-based combination therapy treatment.⁵⁵ Since malarial prevalence is highest on the eastern coast, SALOHI development activities in this region complement anti-malarial interventions to increase overall programmatic impact and specifically improve food security utilization through decreased health burdens.

3.6. USDA

USDA funded a McGovern-Dole International Food for Education (FFE) project in FY09. In recent years, USDA has not funded any further activities in Madagascar.

The FY09 USDA FFE project was implemented through CARE, and food aid was distributed to students, tutors, and teachers in the Atsinanana region along the eastern coast of Madagascar. As the table below shows, CARE included Corn Soy Blend (CSB), rice, vegetable oil, and beans in school meals and supplementary take home rations. In addition to the feeding component, CARE initiated projects to renovate school structures, promote health and nutrition, generate income (via gardens, woodlots, and fish ponds), and build up community capacity.⁵⁶

Table 17. USDA Food for Education Food Aid Commodities (MT), FY 09

Commodity	FY 09	Total
CSB	424	424
Rice	1,007	1,007
Vegetable Oil	464	464
Beans	235	235
Total	2,130	2,130

Source: USDA.

3.7. WFP

WFP/Madagascar currently operates a protracted relief and recovery operation (PRRO). This transitional two-year program started July 2010 and was scheduled to end June 2012, but has been extended to the end of 2013.⁵⁷ The PRRO aims to 1) reduce acute malnutrition in children under five in targeted populations; 2) improve food consumption for targeted emergency-affected households; and 3) restore livelihoods of

54 An anti-malaria drug.

55 USAID, 2013, *USAID Madagascar President's Malaria Initiative, Malaria Operational Plan-FY 2013*.

56 USDA/Washington DC email correspondence, April 2013.

57 WFP, 2010, *WFP Protracted Relief and Recovery Operation (PRRO 200065)*.

food-insecure households.⁵⁸ Activities under these objectives include general food distributions, food-for-work (FFW), and supplementary feeding of moderately malnourished children from 6-59 months old and pregnant/lactating women.⁵⁹

The PRRO used additional information from a June 2009 food security survey that reconfirmed the most vulnerable regions for relief and long-term recovery activities; these regions include southern Androy and Atsimo Andrefana, southeastern Vatovavy Fitovinany and Atsimo Atsinanana, and southwestern Menabe.⁶⁰ These areas covered by WFP include some overlap with SALOHI activities, and also include areas most affected over the past two years by locusts in southwestern Madagascar.

The PRRO complements a separate country program under WFP/Madagascar that implements programming to support basic primary school education (priority given to deep southern Madagascar, and peri-urban Antananarivo), natural disaster mitigation/environmental protection, the prevention of malnutrition through seasonal blanket feeding (with CSB and vegetable oil),⁶¹ from October-December for pregnant and lactating women and infants 6-24 months of age, and treatment of moderate acute malnutrition (MAM) in children between 6-59 months old⁶², tuberculosis patients, and people living with HIV/AIDS.⁶³ WFP currently expects to reach almost one million beneficiaries in 2013 through its country program, the PRRO, and expanded emergency response activities.⁶⁴

The table lists the food aid tonnages programmed over the past five years for the country development program and the PRRO.

Table 18. WFP/Madagascar Food Aid Tonnages (MT), CY08-12

Commodity	CY08	CY09	CY10	CY11	CY12	Total
Pulses	1,340	3,025	2,382	2,600	2,020	11,367
Maize	1,396	6,431	6,281	10,550	9,338	33,996
Rice	8,978	8,091	6,068	2,756	4,431	30,324
Sorghum	0	2,760	0	3,718	27	6,505
Vegetable Oil	552	860	511	587	497	3,007
Fortified Food	426	2,298	1,579	1,773	828	6,904
Biscuit	43	0	22	0	44	109
Total	12,735	23,465	16,843	21,984	17,185	92,212

Source: WFP/Madagascar.

3.8. NATIONAL GOVERNMENT

Given the current unrecognized government in Madagascar and its strained relations with the international community, many government and donor-supported food security initiatives in the country have been delayed or are otherwise on hold. The presidential and parliamentary elections scheduled for 2011 and 2012 are now set to take place in July 2013, but may be further delayed (as of June 2013). The political environment may significantly affect future short- and long-term donor-supported food security initiatives.

3.9. OTHER DONORS

European Union (EU). The EU is supporting a five-year, €34 million food security project that intends to improve food availability and accessibility for vulnerable households. The German Society for International Cooperation (GIZ, *Gesellschaft für Internationale Zusammenarbeit*) leads this project, which started in 2013. The project, Improved Food Security and Increased Agricultural Revenues (ASARA, *Amélioration de la Sécurité Alimentaire et Augmentation des Revenus Agricoles*), will target Androy, Anosy, and Atsimo Atsinana regions in the 200-kilometer (km) zone surrounding Taolagnaro in southern Madagascar. The project aims to 1) improve agricultural yields; 2) minimize post-harvest losses; 3) diversify income-generating projects tied to agriculture; 4) reduce transport costs; 5) improve access to fertilizer; and 6) increase agricultural commercialization. ASARA will collaborate with the GoM at decentralized, local levels, and coordinate its interventions with other donors active in this southern zone, including the World Bank, the International Fund for Agricultural Development (IFAD), the United Nations Development Programme (UNDP), USAID, and Qit Madagascar Minerals (QMM).⁶⁵

The EU is also funding the Agronomists and Veterinarians Without Borders (AVSF, *Agronomes et Vétérinaires Sans Frontières*) project in southwestern Fanantenana. This four-year €1.1 million project (2012-16) targets agro-pastoralists in the Mahafaly Plateau, which includes the districts of Betioky and Ampanihy. The project aims to: 1) promote better agro-economic practices such as permanent cover cropping systems, soil protection/

58 WFP, 2010, *WFP Protracted Relief and Recovery Operation (PRRO 200065)*.

59 WFP, 2010, *WFP Protracted Relief and Recovery Operation (PRRO 200065)*.

60 WFP, 2010, *WFP Protracted Relief and Recovery Operation (PRRO 200065)*.

61 MCHN (modified 1,000 days) rations are typically provided to PLW and infants 6-24 months for a 3-4 month period during the lean season, but this may vary depending on the partner, and the needs for a particular area. MCH and FFA activities and rations were linked in the first two IYs, but then de-linked for IY4 to allow more program flexibility.

62 These areas for MAM treatment in south and southeast of Madagascar will be defined as areas with a GAM prevalence of above 8 percent and aggravating factors, such as cyclones, floods, drought, and overall increased vulnerability. Additionally, the country program funds the blanket supplementary feeding while the PRRO funds supplementary feeding for moderate malnutrition.

63 WFP, 2010, *WFP Protracted Relief and Recovery Operation (PRRO 200065)*.

64 WFP, 2013, WFP Madagascar. <http://www.wfp.org/countries/madagascar/operations>, accessed June 2013.

65 GIZ, 2012, *GIZ/EU Amélioration de la Sécurité Alimentaire et Augmentation des Revenus Agricoles (ASARA)*.

hedging, and agroforestry; 2) advocate wetlands development and micro-irrigation; 3) build the capacity of local GoM Animal Health branches; 4) improve access to water and forage; and 5) enhance the technical capacity of local rural organizations in livestock and agricultural practices specifically adapted for the Mahafaly Plateau.⁶⁶ The project intends to reach 43 rural organizations and 2,100 agro-pastoralists over its four-year programming cycle.⁶⁷

IFAD. IFAD will provide US\$86.1 million for the Vocational Training and Agricultural Productivity Improvement Programme (FORMAPROD, *Programme de Formation Professionnelle et d'Amélioration de la Productivité Agricole*) in the course of the next 10 years, with US\$64 million as the first tranche of funding. Despite a planned start date in 2012, activities have been delayed and initial preparations began earlier in 2013. IFAD collaborates directly with the GoM to support the overarching goals of: 1) vocational training of young, rural populations; 2) continuing education efforts with smallholder farmers; and 3) improvement of agricultural production and productivity.⁶⁸

The program aims to reach 20 percent of the rural population (2.7 million farmers' households) over the decade of program implementation.⁶⁹ The three specific program components are: 1) support the development and implementation of the GoM National Strategy for Agricultural and Rural Training (SNFAR, *Stratégie Nationale sur la Formation Agricole et Rurale*); 2) implement the regional system of rural and agricultural training and ongoing vocational training (including the National Council for Agricultural and Rural Training); and 3) increasing overall agricultural productivity in the targeted developmental axes/poles.⁷⁰ IFAD expects to target 13 regions along six to twelve proposed development corridors selected, based on agro-climatic and socioeconomic criteria.⁷¹ The five centrally-located regions of Analamanga, Amoron'i Mania, Atsinanana, Melaky, and Menabe will be targeted for initial activities in the first phase of FORMAPROD, from 2013-14.

Food and Agriculture Organization (FAO). The FAO office in Madagascar is a major coordinating body in handling the current locust outbreak. As of February 2013, FAO/Madagascar was requesting US\$41.5 million⁷² for a three-year campaign from 2013-16 that would combat this locust infestation. The areas most affected (as of May 2013) include southern, southwestern, and central parts of Madagascar. These same areas were hit by cyclone Haruna in February 2013. The strong winds pushed the locusts west and north from the

coastal areas between Toliara north to Morombe and further inland. This expanded the areas affected and impacted by the locusts. The added rainfall from the cyclone also enhanced locusts' breeding rates. Reports as of mid-June 2013 indicate that the locusts are spreading northward into central areas of Madagascar, and an updated FAO report and assessment is expected in June 2013.

FAO is also leading the Integrated Actions for Nutrition and Feeding (AINA, *Actions Intégrées en Nutrition et Alimentation*) project in Madagascar. Initial preparations for this nutrition and food security program began June 2013 and the project is scheduled to end in 2016. The project will target the deep south, the southeast, and the Amoron'i Mania region in the central highlands. A consortium that includes the *Association Inter-coopération Madagascar* (AIM), CARE, FAO, IFAD, Group for Research and Technology Exchanges (GRET, *Groupe de Recherche et D'échanges Technologique*), Interchurch Organization for Development Cooperation, WFP, and German Agro Action (*Deutsche Welthungerhilfe*) will implement the various activities under this project. Funding of €12.5 million over the three years will come from the EU. AINA aims to improve agricultural productivity and nutrition through interventions in seeds, technical/cultural practices, infrastructure, commercialization/value chain promotion, and nutritional education.⁷³



Photo by Fintrac Inc.

A local market vendor proudly displays the different varieties of rice available at her stall. Antsirabe, Madagascar, May 2013.

66 AVSF, 2012, AVSF Project Fanantenana Southwest.

67 AVSF, 2012, AVSF Project Fanantenana Southwest.

68 IFAD, 2011, IFAD: Vocational Training and Agricultural Productivity Improvement Programme (FORMAPROD).

69 IFAD, 2011, IFAD: Vocational Training and Agricultural Productivity Improvement Programme (FORMAPROD).

70 IFAD, 2011, IFAD: Vocational Training and Agricultural Productivity Improvement Programme (FORMAPROD).

71 IFAD, 2011, IFAD: Vocational Training and Agricultural Productivity Improvement Programme (FORMAPROD).

72 As of May 2013, the funding had not been issued yet.

73 FAO, 2013, AINA-Actions Intégrées en Nutrition et Alimentation.

3.10. LRP AND CASH PROGRAM INVENTORY

Local and Regional Procurement. WFP/Madagascar does not have a Purchase for Progress (P4P) program, but does purchase commodities locally under appropriate conditions. WFP purchased locally 1,613 MT of maize in 2010, 3,349 MT of maize and 106 MT of beans in 2011, and 2,516 MT of maize, 205 MT of beans, and 27 MT of sorghum in 2012. During 2012, local purchases equaled approximately 16 percent of WFP/Madagascar's overall purchases for the entire year. WFP reports that its goal is to source approximately 20 percent of its overall purchases locally in 2013.⁷⁴ Independent observers stated that this may be a real challenge for WFP, however, because of quality concerns with local purchases.⁷⁵

Cash. WFP/Madagascar initiated two pilot cash-for-work (CFW) programs in spring 2013. CFW participants are expected to work 20 days per month, or 40 days total (both pilots are expected to last for two months).⁷⁶ Participants work five hours per day, in accordance with GoM national standards for FFW/CFW schemes. Beneficiaries for the pilot projects are expected to earn roughly US\$45 per person for the two months worked in Farafangana and Ambanisarika. WFP report that minor programming adjustments may be made if projects last longer than two months, or if food availability on local markets near projects is lower than expected.

The first project targets Ivandrika commune near Farafangana on the southeastern coast. The project is implemented by German Agro Action and targets 3,450 individuals to rehabilitate 13 kilometers (kms) of irrigation canals and 2 kms of evacuation drains. The project was implemented from March-May 2013, and paid participants 2,500 Malagasy Ariary (MGA) per day worked.

The second pilot targets Ambanisarika commune near Ambovombe in southern Madagascar. Under the direction of a local NGO, Avotsaina, this program targets 1,000 individuals to build 3 kms of roads and plant 10 kms of trees in rows as windbreaks to protect 600 hectares of land parcels. The project was implemented from April-June 2013, and also pays participants 2,500 MGA per day worked.

World Bank. The World Bank in Madagascar initiated the Community Development Project in 2001.⁷⁷ One implementing agency for this long-term World Bank project is the Intervention Fund for Development (FID, *Fond D'Intervention pour le Développement*), which funded US\$12.7 million for social protection activities from 2010-13, and expects to disburse an additional US\$7.5 million from 2013-16.⁷⁸

Social protection activities have utilized CFW to target poor communities within Madagascar for activities such as improving

community infrastructure via road or irrigation canal construction. Beneficiaries are paid 2,500 MGA per day for five hours of work, and projects usually last from 30-50 days. The local NGO *Agence D'exécution* (AGEX) is an implementing partner and helps choose beneficiaries, in collaboration with committees specially tasked with targeting; these committees are composed of eight individuals who live in a *fokontany* (roughly equivalent to a village). People that are eligible for this program must be between 18-60 years of age, and women typically make up 60-70 percent of beneficiaries. Payment is typically provided after approximately two weeks, and is designed to meet roughly 50-70 percent of daily household food needs.

In 2012, there were 59,800 beneficiaries, completing 1.9 million person-days of work on 412 micro-projects. This averages out to 32 days of work per person and 145 people per micro-project. The program operates in all 22 regions of Madagascar. FID notes that the cash payments are often used by household heads to pay off loans for food incurred previously. FID reports that beneficiaries prefer cash because of its flexibility, and that because projects are typically small-scale and a short duration of time, they do not compete with longer-term, formal labor opportunities for community members.⁷⁹

74 Personal communication with WFP staff, May 2013.

75 Personal communication with key informant, agricultural sector, May 2013.

76 Personal communication with key informant, Antananarivo, May 2013.

77 World Bank, 2009, World Bank Madagascar Implementation Completion and Results Report-Community Development Project.

78 Personal communication with key informant, Antananarivo, May 2013.

79 Personal communication with key informant, Antananarivo, May 2013.



CHAPTER 4

RECOMMENDATIONS FOR PROGRAM DESIGN

An expanse of rice paddies line Route Nationale 7, near Ambatolampy, Antananarivo Province, Madagascar, May 2013.

Photo by Fintrac Inc.

4.1. INTRODUCTION

Proper targeting of food assistance is the key to effective programming. By reaching those most in need, and in a form in which assistance is needed, proper targeting simultaneously maximizes the efficiency and impact of the resource and minimize possible market distortions.

This chapter presents recommendations to mitigate potential negative impacts of distributed food aid and local procurement on local markets in Madagascar for the next expected Title II development cycle, from Fiscal Year (FY) 14-19. Material presented in this chapter should aid in the design of new programming for the next development food assistance cycle, including targeting based on geography, seasonality, and household/individual identification.

Findings and recommendations are based on background research, field data collected in-country by USAID-BEST in May 2013 via various stakeholders within the SALOHI program, other food security and development programs in-country, and further correspondence, interviews, and information collection after the field work was completed.

CRS, three sub-grantees (ADRA, CARE, and Land O'Lakes), and five local partners implement the SALOHI program. The program's three strategic objectives are as follows:

- Health and nutritional status of children under-five improved

- Livelihoods of food insecure households improved, and
- Community resiliency to food security shocks strengthened.

Food aid is provided under the SALOHI program through food-for-asset (FFA)/food-for-training (FFT) activities, 1,000 days preventive Maternal Child Health and Nutrition (MCHN) programming, and through social protection centers. Under the assumption that similar activities will be included in the next expected Title II cycle in Madagascar, this chapter reviews findings and recommendations related to these specific food-based activities.

4.1.1 Overview of Food Insecurity

Food security is commonly understood to consist of access, availability, utilization, and stability; all four of these components are key to understanding food insecurity in Madagascar. Madagascar has a population of 22 million and produces on average over 8 million MT of rice, cassava, maize and sweet potatoes annually.

The WFP/Madagascar Vulnerability Analysis and Mapping (VAM) unit reported an overall deficit of 311,000 MT of cereal equivalent nationally in 2011.⁸⁰ The GIEWS/Madagascar Country Brief reports that 171,000 MT of rice were imported into Madagascar from January-November 2012, to complement the

80 WFP, April 2012, *Madagascar Food Security Monitoring System Quarterly Bulletin*.

estimated 2012 domestic rice harvest of approximately 4 million MT.⁸¹ The lean season generally runs from October-February, with variations depending on growing season and shocks that may affect a specific region or zone.⁸²

The 2011 Comprehensive Food and Nutrition Security and Vulnerability Analysis (CFSVA+N) (data were collected in 2010) reports that households spend an average of 66 percent of expenditures on food, with 32 percent spent on rice alone.⁸³ One-third of the population was classified as food insecure,⁸⁴ with almost half of the country characterized as vulnerable to food insecurity, according to data collected for that same survey.

There is need throughout the country to improve overall food security, especially since the 2009 crisis, and rural areas generally have more need than urban areas. At the national level, 35 percent of rural households were food insecure, according to the 2011 CFSVA+N. The areas of greatest food insecurity were: Atsimo Andrefana (76 percent), Atsimo Atsinanana (71 percent), Sofia (66 percent), Androy (63 percent) and Anosy (53 percent) regions, according to the same survey. Four of these five above regions are located in southern Madagascar.

Based on observations during the field visit, food insecurity has increased in Madagascar as a result of the current locust outbreak. However, precise cereal losses from the May-June 2013 harvest, and the geographic distribution of those losses, are still being assessed at the time of report writing (June 2013).

4.1.2 Overview of Targeting Challenges

In Madagascar, the USAID-BEST field team heard evidence of both inclusion and exclusion errors for current food aid programming. Inclusion errors occur when too many beneficiaries are chosen for food assistance, and exclusion errors happen when too few beneficiaries are chosen for food assistance. If the most food insecure populations receive food assistance, it generally increases their food consumption overall. However, if food assistance is not targeted properly, it could displace normal market purchases for that individual or family, which could drive down prices and harm local markets.⁸⁵

Although the very small quantities of SALOHI food aid (average 5,500 MT per year over the FY09-14 time period) appear to cause minimal Bellmon concerns, the correct metric is the effect of the volume (however small) on the local markets in which the food aid is distributed. If the new cycle of Title II

81 FAO, 2013, *GIEWS Country Brief Madagascar*.

82 FEWS, 2012, *FEWS Madagascar Desk Review*.

83 WFP, 2011, *Comprehensive Food and Nutrition Security and Vulnerability Analysis (CFSVA+N)*.

84 The food insecure households have the lowest monthly per capita expenditures (11,298 Ariary, US\$ 5.6) and the highest percentage of households in the poorest wealth quintile (35 percent). This is a clear indication of poverty and low purchasing power. In terms of consumption, they have the lowest FCS (mean value is 28.5 and 25 percent have a poor consumption) and very frequently employ stressful coping mechanisms to access food (Reduced CSI = 27.1).

85 Barrett, Christopher, 2002, *Food Aid Effectiveness: "It's The Targeting, Stupid"*.

development food assistance remains at similar levels, one could expect there would be minimal Bellmon concerns assuming the targeting is properly undertaken.

DISCLAIMER

Evolving government policy on genetically modified organism (GMO) content may pose challenges for the importation of Title II commodities, including Corn Soy Blend (CSB), and crude and refined vegetable oil.

During the May 2013 field visit, the team was informed of a ministerial directive from the Ministry of the Environment (MoE) that forbids the importation of genetically modified goods for products that could enter directly into the agricultural value chain or processed products for consumption, such as edible oil, maize, soybean meal, and soybean-fortified foods. Although, as of June 2013, this bill banning GMOs sits before parliament, the uncertain political environment in Madagascar has blocked any efforts at an actual vote. Consequently, the directive on GMOs is only vaguely enforced and implemented (if at all) by both the MoE and the Ministry of Agriculture (MoA) through the Quarantine and Frontier Control Service.⁸⁶

For this draft report, the team has outlined its recommendations based on market conditions alone, assuming the GMO policy is a possibility but not at all certain. Should the GoM codify the GMO policy before the final report is submitted, even if it is unevenly enforced, the team will be unable to recommend the importation of Title II commodities that are composed of or include GMO products. USAID-BEST recommends that USAID and awardees monitor this evolving situation and base their commodity choices appropriately.

4.2. GEOGRAPHIC TARGETING

Effective geographic targeting is a key for effective Title II development programs. Common indicators used to determine chronic food insecurity levels include stunting and poverty incidence.

GEOGRAPHIC DIVISIONS

Madagascar is the fourth largest island globally, and its geography is divided into 22 regions, 119 districts (107 rural and 12 urban), 1,579 municipalities, 17,485 fokontany (roughly equivalent to a county) and 121,679 localities.⁸⁷ Madagascar has also been divided into nine livelihood zones, as used in the 2011 CFSVA+N, and these livelihood zones have been updated and divided into 24 smaller, more specialized zones by FEWS NET in April 2013 (see Annex 4 for maps of both livelihood zone classifications).

86 A phytosanitary inspector interviewed in Toamasina provided information concerning GMOs that conflicted with what the team was told by the national director of the inspector's office. The national director confirmed that GMOs are not to be permitted in the country, even if there is currently no law that has been passed by parliament.

87 FEWS, 2012, *FEWS Madagascar Desk Review*.

4.2.1 Stunting

Rural stunting rates for Madagascar are reported at 49 percent by the 2011 CFSVA+N.⁸⁸ They were reported to be 51 percent by the 2008-09 Madagascar Demographic and Health Survey (DHS).⁸⁹ UNICEF *State of the World's Children* report indicates that Madagascar's stunting rate is tied with Malawi for the fifth-highest rate in the world. Areas of stunting that are higher than the national average (using livelihood zones) are found in the Central and Southern Highlands zones, and along the eastern and southern coasts. Using regions rather than livelihood zones, the highest stunting rates were found in Amoron'i Mania (61 and 71 percent/CFSVA+N and DHS respectively) and Matsiatra and Haute Ambony (61 and 63 percent CFSVA+N and DHS respectively), both located in the south-central highlands. Please see Annex 4 for further details on stunting by both region and livelihood zone.

The stunting data are a bit dated, and should be used with some caution because of the significant deterioration in national socio-economic indicators since 2009. Nonetheless, data clearly indicate areas where the prevalence of stunting are higher than national averages in certain rural areas. These areas generally are in the Central and Southern Highlands, and paradoxically correlate to areas with higher agricultural production. This contradiction between improved agricultural production but higher stunting rates needs to be further studied. Key informant interviews listed as contributing factors: poor diet, early birth/low birth weight, maternal anemia, underage mothers, weak breastfeeding and poor supplementation practices, and alcohol use among mothers.⁹⁰

Food consumption scores (FCS) are commonly calculated to understand food consumption patterns in food insecure countries. A FCS captures the frequency with which households consumes various food groups, and therefore acts as a proxy for both availability and access. Food consumption scores were calculated in Madagascar during the for the 2011 CFSVA+N. Nationally, 12 percent of households were deemed to have poor food consumption, with more than half of households in the Southern Livelihood Zone reporting poor food consumption.⁹¹ The livelihood zones with the next highest percentages of households with poor FCS were the West-Southwestern zone (19 percent) and the High-Frequency Cyclone East Coast zone (12 percent). Using regions as the geographic unit, with the poorest food consumption rates in the regions of Atsimo Andrefana (21 percent), Androy (27 percent) and Vatovavy Fitovinany (28 percent), all in southeastern or southern Madagascar.

Chronic malnutrition, indicated by stunting prevalence and high percentages of households with poor FCS, is somewhat

88 WFP, 2011, *Comprehensive Food and Nutrition Security and Vulnerability Analysis (CFSVA+N)*.

89 ICF Macro and GoM, 2008, *Madagascar DHS*.

90 Personal communication with key informants, Madagascar, May 2103.

91 WFP, 2011, *Comprehensive Food and Nutrition Security and Vulnerability Analysis (CFSVA+N)*.

widespread but is generally geographically concentrated in areas where current SALOHI programming is implemented.

4.2.2 Poverty

One indicator of poverty, the UNDP human development index for 2012, ranks Madagascar at 151 out of 187 ranked countries.⁹² Drilling down from national levels of poverty, the 2011 CFSVA+N reports that the poorest area is the Southern Livelihood zone, where the poorest two household wealth quintiles make up 71 percent of that zone's total population.⁹³ The next poorest areas are the West-Southwestern zone (44 percent), the Southern Highlands (43 percent), and the High-Frequency Cyclone East Coast zone (42 percent). The poorest households are typically female-headed, have experienced a recent death within the household and/or have a higher percentage of dependents, and often consist of either casual laborers or small-scale farmers, according to the same survey.

4.2.3 Vulnerability

The entire country is susceptible to cyclones, but the eastern coast is especially affected.⁹⁴ Cyclones may also affect other coastal and inland areas of the country, with damage from rain, wind, and mudslides.

Although all of Madagascar is also susceptible to drought, the southern region is especially vulnerable.

Flooding affects the whole country as well, either from cyclones or simply from heavy rainfall. Highland and coastal areas are especially vulnerable, as are transport routes linking these areas.

Locust swarms are currently affecting Southwest, West and Central areas of the country, with crop loss and resulting food insecurity. This has been a cyclical problem that has worsened over the past three years due to inadequate government response. Madagascar is also vulnerable to damage from various pests and insects, which contributes to post-harvest losses.

In summary, Madagascar is prone to natural disasters and climatic events, making households all the more vulnerable to food insecurity.

In summary, the current SALOHI program coverage appears to effectively balance various regional needs from the disaster-prone east coast, the arid and marginalized deep southern areas, and the Central/Southern Highlands where stunting rates are highest nationally.

92 <http://hdr.undp.org/en/reports/global/hdr2013/>, accessed June 2013.

93 WFP, 2011, *Comprehensive Food and Nutrition Security and Vulnerability Analysis (CFSVA+N)*.

94 WFP, 2011, *Comprehensive Food and Nutrition Security and Vulnerability Analysis (CFSVA+N)*.



Photo by Fintrac Inc.

A SALOHI beneficiary shares a personal story. Vatondry, Madagascar, May 2013.

4.3. SEASONAL TARGETING

The following section covers seasonal targeting for potential beneficiaries. The cropping season for the main staple, rice, is generally defined as from November to May-June, and the lean season is generally defined as from October to February. The seasonal calendar varies however, depending on agro-ecological variations, and other factors that cause changes to the basic unimodal rainy season. Please see Chapter 2 for details on the performance of local markets.

Households depend on markets to access rice an average of 6.8 months of the year. According to the 2011 CFSVA+N,⁹⁵ Livelihood zones where households are most dependent on markets are Southern (where households rely on markets to access rice an average of 10.2 months per year) and West-Southwestern (8.7 months per year). To access cassava, households rely on the market an average of 5.6 months per year, nationally; the highest average number of months is again found in the Southern (9.0 months) and West-Southwestern (8.6 months) livelihood zones.

Rice prices generally fluctuate with a seasonal intra-annual variability of +/- 30 percent from the peak of the harvest to the peak of the lean season, with variations based again on agro-ecological variations.⁹⁶ Prospective awardees should design and implement activities for the next development food assistance cycle in Madagascar with this seasonality in mind.

Current FFA activities under SALOHI programming are generally targeted in accordance with field preparation and maintenance and harvest times, with the intention of avoiding conflicts with farmers' own production cycles. At both the design and implementation stage, PVOs need to be mindful of potential conflicts resulting from these scenarios for the next development food assistance cycle.

Seasonality is not applicable for 1,000 days programming since the food-based assistance is based solely on the age of the child under two and the status of the pregnant/lactating mother.

4.4. HOUSEHOLD / INDIVIDUAL TARGETING

The key to effective targeting is reaching the appropriate households or individuals with an appropriate quantity and type of food assistance to minimize any potential negative market impacts.

SALOHI activities that involve direct distribution include FFA, FFT, 1,000 days, and Social Protection Centers. SALOHI generally uses a combination of community-based and direct targeting for its food assistance programs, depending on community leadership, the number of eligible members within a community, the scale of the project, and/or the length of time for the activity.

⁹⁵ WFP, 2011, *Comprehensive Food and Nutrition Security and Vulnerability Analysis (CFSVA+N)*.

⁹⁶ FEWS, 2012, *FEWS Madagascar Desk Review*.

4.2.4 Program Overlap and Coordination

Within the SALOHI program, the Program Coordination Unit (PCU) is the body for coordination between CRS (the sole Title II awardee), and the other partners. The PCU reportedly works well in terms of providing a forum for SALOHI partners to efficiently coordinate programming and discuss any significant challenges, even though partners report that meetings can be time-consuming, even if necessary for such a broad consortium of one lead organization, three international sub-awardees, and five domestic partners. If the new development food assistance cycle involves a similar-sized consortium, this coordination model should be replicated in order to maintain coordination and communication.

The current SALOHI program geographically overlaps with USAID/Madagascar anti-malarial programs, which prioritizes the eastern coastal areas. Overlap of programs contribute to development synergies between food security programming and anti-malarial efforts. The next Title II program should coordinate with other food security programming from international donors and the GoM, in addition to continuing to coordinate with USAID anti-malarial programs. Such coordinated programs should include any related sectoral programming from the stakeholders detailed in Chapter 3, including GoM, World Bank, EU, IFAD, and NGOs that focus on food security activities and other related development activities such as agriculture, health, education, environment/conservation, or cash/voucher programming.

FFA criteria for selection includes anyone in a targeted SALOHI community between 18-60 years old. Work consists of five hours per day for 20 days per month. FFT criteria is similar, with the additional condition that individuals must qualify for a particular training, e.g., the community health worker receiving training is qualified. The targeting criteria for 1,000 day programming is straightforward: pregnant/lactating mothers and infants between 6-23 months old. For the Social Protection Centers (CRS) the targeting criteria includes those deemed vulnerable and in charge of at least five additional family members. They must also live in the urban zones of Antananarivo, Fianarantsoa, or Toamasina, and they must be identified and verified by the center heads and further checked by CRS.

Individual and household targeting appears to have been generally appropriate for activities under the current SALOHI program. SALOHI partners report that beneficiaries generally understand and accept the criteria for the various activities, and report that the program is well-targeted towards the neediest within communities, and on a national level targets areas that are particularly food-insecure and prone to various shocks.⁹⁷

Targeting practices should be reviewed and revisited for a future development food assistance program.

4.5. ACTIVITY TYPE

To inform recommendations for the next development food assistance program cycle, this section discusses some of the activities under SALOHI, and outlines some of the targeting issues that have ramifications for local markets.

As outlined in section 4.1, SALOHI program has three SOs that relate to health and nutrition, livelihoods, and resilience and disaster risk reduction. Activities under each SO are as follows:

- **SO1 activities:** growth monitoring and promotion, rehabilitation of moderate malnutrition, pregnant and lactating women support groups, integrated management of childhood illnesses using health volunteers and home visits; campaigns focused on essential nutrition actions, and behavior change communication (BCC).
- **SO2 activities:** farmer field schools, agribusiness promotion, cooperative and farmers associations, and village savings and loans groups (VSL).
- **SO3 activities:** disaster prevention and mitigation plans, sustainable land use plans, FFW/FFA/FFT, and promotion of good governance.

Integration of activities. The internally conducted SALOHI Mid-Term Evaluation Report in June 2012 recommended that the programming broadly focus on building community capacity, improving communication among stakeholders, increase program integration, strengthen governance programming, and improve data quality and commodity management systems, and

97 Personal communication with SALOHI partners, May 2013.

other steps.⁹⁸

SALOHI partners noted the successes include the VSL associations, conservation agriculture, basket composting (increased cassava yields), and the social protection centers.

SALOHI currently implements the same activities in all areas, even though the program is implemented by different PVOs and spread out across five zones with very different geographic, economic and agro-ecological areas.

For the next Title II cycle, USAID might want to allow for program specialization. For example, in the deep south, awardees might include activities targeting rainwater harvesting, livestock activities, and the promotion of sunflower production for edible oil and cake production. Other activities could include improved seed quality and distribution, increased vegetable production, and postharvest management. Rainwater harvesting and livestock activities might be considered for drier, agro-pastoral regions in southern Madagascar. Social protection centers, which target urban, very vulnerable female-headed households with at least five dependents, might be undertaken by additional partners in urban areas.

4.6. COMMODITY SELECTION

This section will discuss current and future commodity selection issues for development food assistance programs in Madagascar.

As background, the table below, replicated from Chapter 3, shows Title II commodities distributed under the SALOHI program in Madagascar over the past five implementation years.

Table 19. SALOHI Program Total Distributed Food Aid (MT), by Implementation Year 09-13

Commodity	IY09	IY10	IY11	IY12	IY13	Total
CSB	720	1,025	830	1,040	615	4,230
Vegetable oil	170	245	330	380	115	1,240
Rice	2,610	5,220	5,160	5,280	620	18,890
Sorghum	140	560	780	1,130	160	2,770
Total	3,640	7,050	7,100	7,830	1,510	27,130

Source: CRS/Madagascar.

As additional background, the following rations are currently used under SALOHI:

- FFA for the South (Androy and Anosy) only: CRS provides 2.5 kg sorghum/1 kg rice/100 ml vegetable oil per day worked; CARE provides 2.5 kg sorghum/1 kg rice⁹⁹/100 ml vegetable oil per day worked;
- FFA for other parts of the country: 2.5 kg rice and 100 ml vegetable oil per day worked;

98 CRS, 2012, SALOHI MYAP Midterm Evaluation Report.

99 Note CARE followed the same ration as CRS in the South for the first three years of SALOHI, and only added the rice in the fourth year of program implementation in response to beneficiary concerns about increased firewood use and decreased water availability for cooking the sorghum.

- FFT for all parts of the country: 2.5 kg rice and 100 ml vegetable oil per day worked;
- 1,000 days: pregnant/lactating mothers receive 10 kg. CSB and 500 ml vegetable oil/month and infants receive 4 kg. CSB and 1 liter vegetable oil/month with no additional family ration;
- Social Protection Centers in urban areas only: family rations of 20 kg rice and 20 kg CSB and 0.5 liter vegetable oil per month.

FFA programming is usually limited to 20 days worked per month.

These rations generally seem appropriate, with the following caveats:

- If the GoM bans the importation or consumption of foods that may possess genetically-modified organism (GMO) content, this action would put at risk the importation of Title II CSB and vegetable oil.
- **CSB.** CSB is appropriate to continue including in a ration that is intended to provide nutritional support.
- **Pulses.** Title II partners should investigate inclusion of pulses in a well-targeted program. A pulse could better balance the overall nutritional value of a ration.

Refined vegetable oil. It is appropriate to continue including vegetable oil in the ration as a nutritional support and since beneficiaries are generally not able to purchase on the market.

Sorghum. Sorghum should continue to be included in a Title II ration as it is a less preferred staple. The distribution of sorghum does not have a negative effect on production or local markets. Sorghum is cultivated in small quantities by households, mostly in the deep south. During visits to local markets the team confirmed that its main use has been for human consumption.¹⁰⁰

Ration quantities may need to be adjusted for the next program cycle so that the value in MGA does not significantly exceed daily wage rates, which currently are around 2,500 MGA/day worked; if the **value of the FFA/FFT ration (in cash equivalent)** does exceed daily wage rates, these projects may potentially pull labor away from regular labor/farm activities.

Rice is the national staple and development food assistance should not undermine local production; while the small quantities programmed under SALOHI (less than 4,000 MT per year) should not serve as a disincentive to local rice production, the team recommends against the use of this preferred staple in a Title II ration.

There was some discussion during USAID-BEST field interviews whether to include an additional, protective **family ration** during the lean season months to protect 1,000 days rations that specifically target infants between 6-23 months and

¹⁰⁰ In other parts of Africa, sorghum is also used for animal feed and brewing beer. However, in Madagascar sorghum appears to be used primarily as an alternative food crop.

pregnant/lactating mothers. The USAID-BEST team is concerned that such a family ration could lead to increased rates of food assistance leakage onto local markets and, therefore, recommends that educational messages to beneficiary families be reinforced; this approach should help ensure that targeted infants and mothers would be most likely to consume the full rations provided to them, in which case an additional family ration may not be needed.

The USAID-BEST team did not see any Title II food being sold on local markets visited during the May 2013 field visit.¹⁰¹ However, the team did hear anecdotes about small quantities of Title II commodities being sold by beneficiaries. The team also heard stories on the southeast coast of some instances where FFA beneficiaries apparently obtain loans of cheap rice from vendors as an advance, and then pay back the vendor with the higher-quality Title II rice once the work is completed, usually a few weeks later. It was unclear how often or frequently this practice occurs, but this practice appears to be linked to cases where rations were promised or expected on a certain date, but then were delayed, causing the household to seek the 'food loan.'

4.7. LOCAL FOOD PROCUREMENT THROUGH DONOR PURCHASES, CASH, OR VOUCHERS

Local food procurement through donor purchase, cash or vouchers can support local markets by providing a stimulus to increase production and/or the marketing of staple goods. This section outlines

Local procurement. WFP/Madagascar locally purchased over 2,700 MT of maize, beans and sorghum in 2012, or 16 percent of its overall purchases for the country (please see Chapter 3 for more details). WFP aims to increase its local purchase tonnage and percentage of overall purchases in 2013.

The next cycle of Title II development programming in Madagascar could consider local purchase for distribution, depending on the actual areas targeted for the next Title II cycle, and other factors such as quality and availability. Prospective awardees would need to monitor local markets to ensure that there is an adequate supply of pulses, and that these potential local purchases do not compete with WFP or other donor purchases on Madagascar markets.

Cash. Cash programming in Madagascar has been undertaken through the World Bank's Intervention Fund for Development (FID, *Fond d'Intervention pour le Développement*) and WFP's cash pilot programs in Farafangana and Ambovombe. Both organizations' programs provided 2,500 MGA per day as a wage rate for infrastructure rehabilitation/repair. Market impact was also reported to be negligible because of the typical small size of the interventions (~100 beneficiaries in a small village), and that in a number of cases, cash was used by beneficiaries to reimburse loans of food from neighbors or commercial

¹⁰¹ Plumpy'Nut distributed through UNICEF is reportedly viewed as not such a desirable commodity, and is being sold on markets in southern Madagascar.

retailers.¹⁰² The WFP cash programming pilot activities in Farafangana and Ambovombe were undertaken in the spring of 2013, and evaluations are not available at the time of writing (as of June 13, 2013).

Although FID program staff reported that beneficiaries are happy to receive cash because doing so allows more choice by individuals for food purchases in markets, USAID-BEST interviewed SALOHI beneficiaries at Andranafolo who all expressed a preference for food over cash. These beneficiaries noted their preference for in-kind food over cash was based on several factors: the relative reliability of food, perceived lower risk associated with food, and the fact that food arrived in their village which saved them from having to travel to the closest sizable market, which in the case of this village was approximately 18 kms away.

At present, there is a paucity of information on cash program outcomes; therefore, PVOs will need to conduct additional assessments to determine whether the next Title II cycle for Madagascar can and should incorporate complementary cash programming. At minimum, potential awardees should review the evaluation of WFP's pilot (once available), assess any other existing or completed cash programming within the country, and conduct community-level assessments in planned program areas.

Vouchers. The team is unaware of the use of vouchers in Madagascar for food security programs. DG ECHO apparently funded a voucher program for water in Madagascar; the team has been unable to obtain an evaluation of the program to glean lessons learned. A number of key informants expressed skepticism about this modality; beneficiary unfamiliarity with the process and/or a lack of shops/store outlets in smaller, more remote villages were the primary reasons cited. Based on the team's assessment of the availability of foodstuffs on the local market, and the lack of dietary diversity in many potential program areas, vouchers (particularly those restricted to certain foodstuffs), potential awardees could consider a pilot voucher program to determine its overall effectiveness for future food security programming.

If PVOs consider programming either cash or vouchers, they should also explore the potential use of mobile money transfer technology for future development and/or emergency programming in Madagascar. The USAID-supported SHOPS project, implemented by Abt Associates, reportedly used mobile money technology in Madagascar to successfully target women for maternal child health in both urban and remote, rural areas.¹⁰³ Awardees should consult with USAID, its implementing partners, and major UN agencies in-country to assess the latest capacity of potential partners. At the time of writing, Telma, Air-Tel, and Orange are the three carriers, and Orange has the widest coverage but is also the most expensive, charging 20 percent as its fee of the overall transaction value.

¹⁰² Personal communication with key informant, Madagascar, May 2013.

¹⁰³ http://madagascar.usaid.gov/sites/default/files/Using%20mobile%20finance%20to%20reimburse%20SRH%20vouchers%20in%20Madagascar_0.pdf

4.8. ADDITIONAL CONSIDERATIONS FOR PROGRAM DESIGN

A number of current good practices for SALOHI should be continued and expanded in the next Title II development food assistance cycle in Madagascar. These initiatives would include the 'green phone line' used by ADRA, where individuals can phone in comments/critiques/compliments on current program initiatives. All partners in the next cycle of Title II programming should implement this measure to solicit feedback from beneficiaries and community members to improve overall programming.

The integrated programming under SALOHI should be continued and strengthened to increase and maximize programmatic impact, as presented in the mid-term evaluation and reported from various stakeholders in the field. Agricultural interventions (linked to VSL) such as conservation agriculture/ basket composting and SRI for rice intensification through Farmer Field Schools (FFSs) and motivated farmers should be expanded at scale to increase overall impact. Social protection centers should also be continued and/or expanded as necessary, continuing to target very vulnerable urban/peri-urban households with at least five dependents.

Overall, 87 percent of SALOHI in-kind food aid went to FFA/ FFT activities, and 13 percent went to 1,000 days programming, in FY12. This program balance between FFW and 1,000 days programming should be re-visited to determine the most appropriate balance under a new Title II cycle, particularly if there are new areas of intervention/implementation. Of course, the use of in-kind food aid should be driven first and foremost by the program's strategic objectives. Additional factors that should be considered include the continued need for rehabilitation or repair of infrastructure in a particular area, along with GoM capacity in that particular area, labor demand in the particular targeted communities, and the need or number of potential beneficiaries for 1,000 days programming in a particular area.



Photo by Fintrac Inc.

A group of beneficiaries smile as they meet to talk about SALOHI program participation. Vatomaniry, Madagascar, May 2013.



CHAPTER 5 MONETIZATION FEASIBILITY ANALYSIS

Bulk edible oil is often repackaged into smaller bottles. Here, re-packaged palm oil is ready for sale at a retail/wholesale stall. Toamasina Madagascar, May 2013.

Photo by Fintrac Inc.

5.1. INTRODUCTION

This chapter examines the feasibility and appropriateness of monetization in Madagascar in Fiscal Year (FY) 14. It covers four critical inquiries:

- How appropriate is monetization for Madagascar under any new Title II development food assistance program in FY14?
- If monetization is appropriate during this period, which commodities are the most appropriate to monetize?
- What is the approximate maximum tonnage feasible for monetization for each commodity?
- Are there special considerations (e.g., sales platform or timing of sales) that should be taken into account when considering/undertaking monetization in Madagascar?

At the time of writing in May 2013, Madagascar remains in the midst of a political crisis which has affected many aspects of its economy. To inform program design, private voluntary organizations (PVOs) and USAID should closely monitor the development of the political context and market conditions as they are likely to have evolved since the USAID-BEST field visit.

5.2. INITIAL COMMODITY SELECTION

Based on desk review of available trade statistics, previous market analyses, other relevant country reports, and interviews with key informants during a March 2013 field visit, USAID-BEST identified an initial set of commodities for study in this report. Additionally, each of the chosen commodities is examined for possible recommendation according to six “tests”:

1. Eligibility for export from the US;
2. Eligibility for import to Madagascar;
3. Significance of domestic demand;
4. Whether domestic supply shortfalls are filled through commercial imports;
5. Presence of adequate competition for the commodities; and
6. Expectations that fair market prices can be achieved.

Test 1: Eligibility for export from the US. All the commodities discussed in this report are in the Food for Peace (FFP) commodity list for FY13.

Test 2: Eligibility for import.

DISCLAIMER

Evolving government policy on genetically modified organism (GMO) content may pose challenges for the importation of Title II commodities, including Corn Soy Blend (CSB), and crude and refined vegetable oil.

During the May 2013 field visit, the team was informed of a ministerial directive from the Ministry of the Environment (MoE) that forbids the importation of genetically modified goods for products that could enter directly into the agricultural value chain or processed products for consumption, such as edible oil, maize, soybean meal, and soybean-fortified foods. Although, as of June 2013, this bill banning GMOs sits before parliament, the uncertain political environment in Madagascar has blocked any efforts at an actual vote. Consequently, the directive on GMOs is only vaguely enforced and implemented (if at all) by both the MoE and the Ministry of Agriculture (MoA) through the Quarantine and Frontier Control Service.¹⁰⁴

For this draft report, the team has outlined its recommendations based on market conditions alone, assuming the GMO policy is a possibility but not at all certain. Should the GoM codify the GMO policy before the final report is submitted, even if it is unevenly enforced, the team will be unable to recommend the monetization of commodities that are composed of or include GMO products. USAID-BEST recommends that USAID and awardees monitor this evolving situation and base their commodity choices appropriately.

Test 3 and 4: Significance of domestic demand and deficit in Madagascar. Local dietary preferences and available market information must strongly suggest that a commodity is consumed in significant amounts (i.e., there is significant demand), and that national production is insufficient to meet the demand (i.e., there is insufficient national supply to meet demand) to warrant importation and sale of monetized food aid. National demand is estimated based on the latest five-year overall supply trends, which is equivalent to the sum of domestic production and net trade. One common rule of thumb, adopted for the present analysis, is that monetized food aid should not exceed ten percent of average yearly commercial import volumes.

Of the products listed in the next table, only four commodities have average import values over US\$10 million from 2007-11. This market analysis therefore considers rice, edible oils, wheat derivatives (such as wheat flour and bran), and wheat grain for possible monetization in FY13-14.

¹⁰⁴ A phytosanitary inspector interviewed in Toamasina provided information concerning GMOs that conflicted with what the team was told by the national director of the inspector's office. The national director confirmed that GMOs are not to be permitted in the country, even if there is currently no law that has been passed by parliament.

Table 20. Average Annual Commercial Import Volume (MT) and Value for Select Commodities (US\$), 2007-11

Commodities	Average Volume of Imports (MT)	Average Value of Commercial Imports (US\$)
Rice	151,505	65,804,673
Edible Oils	67,412	62,763,903
Wheat Flour	57,319	25,239,699
Wheat Grain	43,621	17,622,538
Dairy	1,822	5,675,801
Maize Grain	3,472	1,905,901
Maize Derivatives	1,724	1,088,296
Lentils and Pulses	1,315	1,072,032
Sorghum	2,199	927,586
Oilcake	1,460	759,014
Oilseeds	1,488	619,427

Source: Comtrade, accessed March 2013.

The table below summarizes each of the first four tests.

Table 21. Initial Selection of Commodities Based on Test 1-4

Commodity	Eligibility of export from the US	Eligibility for import to Madagascar	Significance of domestic demand	Deficit in Madagascar
Rice	Yes	Yes, but is sensitive	Yes	Primarily surplus but seasonal deficits in some areas; situation exacerbated for 2013/2014 season because of locusts
Edible Oils	Yes	Likely no, because of evolving GMO policy	Yes	Yes
Wheat Flour	Yes	Yes	Yes	Yes
Wheat Grain	Yes	Yes	Yes	Yes

Rice is not recommended for monetization because it is the primary staple in Madagascar and the country is nearly self-sufficient in its production. Moreover, imported rice receives subsidies from the government and appears to unfairly compete with local varieties. Therefore, monetized rice on the market could further distort prices for local rice and affect producers and traders.

Test 5 and 6: Competition and fair prices. Local markets' absorptive capacities, as well as recommended volumes, will stem from critical analysis of market competition (which must be adequate, according to test 5) and prices (which must be fair, according to test 6). Excluding rice, the following analysis covers edible oils, wheat flour, and wheat grain and takes into consideration existing GoM policies, regulations, and practices that may complicate the importation and monetization of these commodities. On this basis, USAID-BEST will provide

recommended volumes for monetization.

5.3. EDIBLE OIL

5.3.1 Demand and Supply Overview

Demand. At approximately 3.5 kilograms (kg) (or 3.82 liters) per person per year, consumption of edible oil is very low in Madagascar.¹⁰⁵ Market size is approximately 71,800 metric tons (MT) (2010 and 2011 average, both crude and refined). Consumption has slightly decreased over the past five years, mostly because of weakening purchasing power caused primarily by the poor economic conditions brought on by the political crisis of 2009. There has been a modest increase in imports and supply from 2010 according to trade statistics, and the primary oil refiner in-country, *Huilerie Industrielle de Tamatave* (HITA), states that the size of the market is increasing even if purchasing power remains low.

There are some preferences for variety of oil, which vary primarily according to geography and purchasing power. Households in those rural areas favorable to the production of groundnuts consume locally produced groundnut oil. Consumers in the colder, higher altitudes prefer soy-based oils in part due to climactic conditions: palm oils can solidify or crystalize in colder temperatures, whereas soybean oil remains liquid. However, given the very low purchasing power, consumers prefer affordable oil over quality oil and more consumers are purchasing palm oil. This buying habit appears to be consistent throughout the country.

The edible oil market divides into three value chains and there is little overlap among them:

- The **luxury imported oil market** sells higher end oils to supermarkets that cater to upper classes with disposable income. The various high quality, imported oil for sale at supermarkets are the most expensive on the market and they sell for a minimum of 6,000-7,000 Malagasy Ariary (MGA). This segment of the market accounts for about 1 percent of total demand.
- Almost 90 percent of marketed oil is available at **urban and semi-urban markets**. These locations sell imported palm and soybean oil at mid-range prices (4,000-5,000 MGA).
- **Rural markets** sell a relatively unrefined oil produced primarily from groundnuts (although other varieties exist) and processed at the local level. The oil generally has a strong odor, is of poor quality, and may cause health problems, but it is cheaper at approximately 3,700 MGA. About 80 percent of the population purchase this type.¹⁰⁶

105 Based on USAID-BEST market size estimation for 2011; 2011 national population estimation by World Bank (<http://search.worldbank.org/data?qterm=madagascar%20population&language=EN>); specific gravity for oil at Engineering Toolbox (http://www.engineeringtoolbox.com/specific-gravity-liquid-fluids-d_294.html). The World Health Organization recommends approximately 21 kg per capita per year consumption of oils and fats to maintain a healthy life.

106 Personal communication with key informants, edible oil sector. Antananarivo, May 2013.

Given consumer price sensitivity, traders are reportedly responding by supplying exceptionally low quality oil that can be sold at a profit at the price levels that poor consumers can afford. For example, traders are importing highly saturated oil that would normally be solid or partially solid at room temperatures and mixing in additives to render these oils liquid. USAID-BEST did see numerous examples of partially solid oil on the market, although the team could not confirm levels of saturated fat in the products observed.

Supply. Prior to the political crisis of 2009, the conglomerate TIKO, owned by former President Marc Ravalomanana, supplied the vast majority of edible oil in-country. When TIKO essentially folded¹⁰⁷ and fell out of the market, some importers took advantage of this vacuum and rose to meet demand by importing cheap palm oil into the market.

Currently, imports of soybean and palm oil in crude and refined states account for the majority of edible oil on the market. Local oil supply is seen as an expensive artisanal good and is available in remote areas that are not easily connected to urban and semi-urban markets. Additionally, although there is a substantial amount of domestic oil processing, these industrial plants utilize imported crude oil.¹⁰⁸

Donors import small volumes of refined vegetable oil (RVO) for food aid and current Title II partners monetize crude degummed soybean oil (CDSO) to fund their activities.¹⁰⁹

107 The company ceased importing and processing oil, but remains active and poised to re-enter the market should the right conditions present themselves (one such condition being should Ravalomanana's wife succeed in running for and winning the presidency. She has made clear that should she win, her husband would re-enter the country from his exiled location of South Africa and occupy himself with the operations of TIKO. L'Express de Madagascar, 2013, Lalo Ravalomanana : «Quand je serai présidente, lui (Marc Ravalomanana) s'occupera de la gestion de Tiko». http://www.lexpressmada.com/1-breves/582-lalao_ravalomanana_quand_je_serai_presidente_lui_marc_ravalomanana_s_occupera_de_la_gestion_de_tiko_.html, accessed June 2013.

108 Personal communication with key informants, edible oil sector; May 2013.

109 Information around the GMO policy has been poorly disseminated and current SALOHI partners continue to import RVO and CDSO without issue.

Table 22. Domestic Edible Oil Supply, MT, 2007-2011

Type	2007	2008	2009	2010	2011	2012*	Average, 2009-11
Imports	56,740	56,892	101,743	50,118	56,541	49,078	64,407
Commercial Imports	55,788	55,616	101,159	49,976	56,246	48,201	63,805
Monetized food aid**	4,010	0	0	7,300	3,180	2,350	2,898
Distributed food aid (refined vegetable oil)***	952	1,275	584	141	295	877	602
Exports	315	334	113	649	753	809	433
Net Trade	55,473	55,282	101,046	49,327	55,493	47,392	63,372
Production	19,688	20,690	18,814	19,191	19,391	19,291	19,555
Supply	75,161	75,972	119,860	68,518	74,884	66,683	82,927

Sources: Comtrade, FAOStat, TradeMap, USDA PSD, USDA GATS, GoM, USDA, awardees, WFP Madagascar.

*2012 is an estimate - import and export figures are from Customs GoM Customs Agency data only; production data for 2012 is estimated based on the average for 2010 and 2011.

** Monetized food aid volumes are included in the figure for Commercial Imports; additionally CDSO was monetized in 2007 and 2012; Refined Vegetable Oil was monetized in 2010 and 2011.

*** Note that USDA figures are by fiscal year (October - September), SALOHI figures are from July - June, and WFP's figures are by calendar year.

Domestic production. As noted above, production of domestic oilseeds tends to stay in remote or rural locations, and accounts for 28 percent of total supply. The varieties of local oils include: coconut, groundnut, palm, and cottonseed. See table below for specific production figures of these types.

Table 23. Production of Edible Oil (MT) in Madagascar, by Oil Variety, 2007-11

Type	2007	2008	2009	2010	2011	Average, 2007-11
Total Production	19,688	20,690	18,814	19,191	19,391	19,555
Ground Nut Oil, total	5,950	6,559	5,191	4,941	4,941	5,516
Palm Oil, total	3,841	4,131	4,021	4,100	4,100	4,039
Cottonseed oil	3,100	3,150	2,750	2,800	3,000	2,960
Coconut (copra) oil	6,098	6,098	6,120	6,600	6,600	6,303
Palm Kernel Oil	699	752	732	750	750	737

Source: FAOStat, USDA PSD.

Typically, artisanal oil refiners and small-scale oil refiners collect and process **groundnuts** for own consumption or sale in rural areas.¹¹⁰ The extraction rate is about 30 percent. However, the quality of this oil cannot compete with imported varieties in terms of quality and price if the two are available at the same markets.¹¹¹ Since supply for groundnuts is dependent on the harvest (April-June) there is substantial price variation throughout the year. Following the political crisis, yields and production fell,¹¹² and poor availability of quality seeds continues to hurt local production, both in terms of volume and quality,

which has had an impact on the price of groundnuts as well.¹¹³

To increase profits, the local cotton fiber sector uses cotton byproducts to produce **cottonseed oil**. Small refiners of oil in-country such as DRAMCO, *Société Industrielle du Boina* (SIB), and INDOSUMA, are investing in the cottonseed sector by providing seeds, fertilizer, pesticides, and training to local producers to increase production. Additionally, these companies are focused on the production of cottonseed oil because of cheaper costs than working with domestically produced groundnuts. The extraction rate for cottonseed is 12-14 percent.¹¹⁴

Both **palm oil and coconut oil**¹¹⁵ are produced locally, but their production generally targets the export market.

Although TIKO had been purchasing local **soybeans** for domestic oil production, the cessation of their operation in 2009 initially led producers to sell their product to the animal feed industry. Since then, the majority of soybean producers have abandoned soy for crops and production is minimal.¹¹⁶

Imports. The oil import market currently stands at about 56,000 MT per year. Prior to 2009, imports were primarily crude vegetable oil. During the crisis in 2009, opportunistic importers brought in a large volume of refined vegetable oil. These imports of refined vegetable oil fell in 2010 as the largest domestic oil processor, HITA, improved its capacity (although they remain above 2008 levels). Stocks at the end of 2009 were so high that imports for the next two years remained low - around 30,000-40,000 MT per year.¹¹⁷

¹¹³ Personal communication with key informant, edible oil sector. Antananarivo, June 2013.

¹¹⁴ Personal communication with key informant, edible oil sector, June 2013.

¹¹⁵ Produced from the kernel of the coconut.

¹¹⁶ FAO, 2011a, *FAO Production, Consumption, Commercialisation et Chaîne de Valeur des Filières Oleagineuses a Madagascar*.

¹¹⁷ CRS/Madagascar, November 2013, *Pipeline and Resource Estimate Proposal (PREP), Fiscal Year 2013 (Year 5)*.

¹¹⁰ FAO, 2011a, *FAO Production, Consumption, Commercialisation et Chaîne de Valeur des Filières Oleagineuses a Madagascar*.

¹¹¹ Personal communication with key informants, edible oil sector. May 2013; FAO, 2011b, *FAO Production, Consumption, Commercialisation et Chaîne de Valeur des Filières Oleagineuses a Madagascar*.

¹¹² FAOStat data, accessed June 2013.

Table 24. Percentage of Crude vs. Refined Edible Oil Imports, 2007-11

Variety of Oil	2007	2008	2009	2010	2011	Total
Crude	96.8	94.5	31.3	70.0	69.5	65.6
Refined	3.2	5.5	68.7	30.0	30.5	34.4

Source: Comtrade, accessed March 2013.

In terms of volumes, soybean and palm oil appear to have almost exchanged places. Whereas soybean oil (both refined and crude) comprised about 70 percent of all imports, now crude and refined palm oil comprise about 75 percent of all imports; this shift is largely due to the relative low cost of palm oil sourced from southeast Asia over the period.¹¹⁸

Table 25. Oil Imports (MT), 2007-11

Type	2007	2008	2009	2010	2011	Average, 2007-2011
Imports	55,709	57,047	98,698	50,090	55,785	64,407
Soybean Oil, total	38,806	39,521	21,341	19,493	10,426	26,568
Ground Nut Oil, total	5	5	12	1	2	4
Palm Oil, total	13,623	12,824	69,723	20,527	37,598	31,256
Sunflower/Safflower Oil, total	144	252	1,668	3,793	1,536	1,483
Cottonseed Oil	251	251	251	251	1	211
Coconut (copra) Oil	2,424	3,150	3,051	3,669	3,357	3,140
Palm kernal Oil	0	21	1,643	241	64	394
Canola/rapeseed/colza/mustard Oil	17	17	16	31	2,024	424
Linseed Oil	3	3	2	6	0	3
Maize Oil	3	0	14	1	1	4
Sesame Oil	3	5	5	2	8	5
Other Vegetable Oils	429	1,000	972	2,075	768	916

Sources: Comtrade, FAOStat, TradeMap, USDA PSD, GoM Customs Direction General des Douanes, Ministère des Finances et du Budget, 2013, Import Data, 2007-2012..

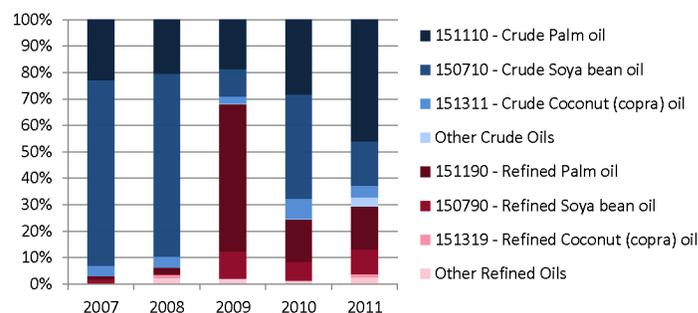
Table 26. Variety of Oil as Percentage of Total Edible Oil Imports, 2007-11

Type	2006	2007	2008	2009	2010	2011
Soybean Oil, total	55	69	69	21	40	22
Ground Nut Oil, total	0	0	0	0	0	0
Palm Oil, total	39	25	23	71	41	63
Sunflower/Safflower Oil, total	3	0	0	2	8	3
Cottonseed Oil	0	0	0	0	0	0
Coconut (copra) Oil	2	4	6	3	7	6
Palm kernal Oil	0	0	0	2	0	0
Canola/rapeseed/colza/mustard Oil	0	0	0	0	0	4
Linseed Oil	0	0	0	0	0	0
Maize Oil	0	0	0	0	0	0
Sesame Oil	0	0	0	0	0	0
Other Vegetable Oils	0	1	2	1	3	1

Source: Comtrade, FAOStat, USDA PSD, Direction General des Douanes, 2013.

With the absence of TIKO, refined oil has found a major foothold among imports in Madagascar. This can be seen in the following figure, comparing those oils depicted in blue versus those oils depicted in red. Note the increased importance of palm oil in supply, both crude and refined.

Figure 32. Percentage of Imports of Edible Oil, Crude vs. Refined Oil (2007-11)



Source: Comtrade, accessed March 2013.

Note: Other crude oils include: 151411 - crude Low erucic acid rape/colza oil, 151321 - crude Palm kernel oil, 151211 - crude Sunflower/safflower oil; other refined oils include: 151329 - refined Palm Kernel, 151319 - refined Coconut (copra) oil, and 15190 - Fixed vegetable fats and oils

HITA is currently the main actor responsible for processing imported crude oils. Following TIKO's exit from the market, HIT A greatly expanded its refining capacity, growing from 3,000 MT in 2008 to 35,000 MT in 2012. Management claims to currently satisfy 60-65 percent of market demand.¹¹⁹ The

¹¹⁹ Though according to import statistics from Comtrade and Customs, it appears this figure is closer to 70 percent.

¹¹⁸ As of this writing, crude palm oil is selling for US\$790/MT FOB Indonesia, and refined palm oil is selling for US\$802/MT FOB Malaysia. In comparison, soybean oil FOB Argentina is currently selling for US\$999/MT (and US\$1141/MT FOB US Gulf) (Oilworld No. 20, Vol 56, May 2013).

remaining 30-40 percent of imports, which are refined oil varieties, are filled by what appear to be primarily opportunistic importers who enter and exit the market when the opportunity to make a profit arises and disappears.

Foreign producers appear to have a comparative advantage over domestic producers. Management at HITA noted that Madagascar could produce the necessary oilseeds to satisfy demand, but relatively high domestic production costs (relative to crude oil producers abroad) make it unprofitable. Additionally, the inconsistent supply and quality of domestic oilseeds poses challenges both in terms of supply and refining. In the near future, HITA expects to continue to meet their demand for crude oil via imports.

The primary sources for imported edible oil include Malaysia, Indonesia, and Singapore, which source primarily varieties of palm oil. Primary sources for soybean oil include Singapore, Switzerland, US, Egypt, and Brazil. Details are noted in the following tables.

Table 27. Initial Selection of Commodities Based on Test 1-4

Country	2010	2011	Grand Total
Malaysia	25.4	53.2	40.6
Singapore	38.4	0.4	17.6
Indonesia	0.3	16.7	9.3
Egypt	10.5	6.3	8.2
USA	0.4	9.3	5.3
United Arab Emirates	10.9	0.0	4.9
Switzerland	9.9	0.0	4.5
Brazil	0.0	6.2	3.4
Argentina	0.0	4.9	2.7
Other 20 Source Countries	2.1	2.8	2.5
South Africa	2.2	0.0	1.0
Grand Total	100.0	100.0	100.0

Source: Comtrade, accessed March 2013.

With the exception of refined palm oil from Malaysia, sources for oil swing from one source country to another depending on market prices, as displayed in the following table.

Table 28. Palm and Soybean Oil Imports (MT) by Source Country, 2010-11

Commodities/Source Country	2010	2011	Grand Total
151110 - Palm oil, crude [...]	26.2	45.5	36.8
Malaysia	2.2	30.7	17.8
Singapore	23.8	0.0	10.8
Indonesia	0.1	14.8	8.1
Mozambique	0.0	0.0	0.0
151190 - Palm oil, other than crude [...]	14.7	16.2	15.5
Malaysia	12.9	10.2	11.4
Egypt	1.1	1.6	1.4
Indonesia	0.2	1.9	1.1
India	0.0	1.0	0.5
Mozambique	0.0	0.6	0.3
Next 6 Importers	0.5	0.9	0.7
150710 - Soya bean oil, crude, whether/ not degummed, not chemically modified	36.5	16.5	25.5
Singapore	12.0	0.0	5.4
United Arab Emirates	10.7	0.0	4.8
Switzerland	9.9	0.0	4.5
Brazil	0.0	6.2	3.4
Argentina	0.0	4.9	2.7
USA	0.0	3.7	2.0
Malaysia	1.8	1.6	1.7
South Africa	2.1	0.0	1.0
150790 - Soya bean oil, other than crude, & fractions thereof, whether/not refined but not chemically modified	6.6	9.2	8.0
Egypt	3.5	2.9	3.2
USA	0.3	5.2	3.0
Malaysia	1.7	1.0	1.3
Next 8 Importers	1.1	0.0	0.5

Source: Comtrade, accessed March 2013.

Exports. Whereas imports have shifted from soybean to palm oil over the past five years, exports have consistently been crude palm oil. From 2007-11, exports of crude palm oil more than doubled. Exports consist primarily of organic palm oil that is grown specifically for the export market. The price commanded for this oil on the international market make it uneconomical for domestic sale.¹²⁰

Madagascar also exported approximately 1,000-2,000 MT of groundnut seeds from 2007-11 to neighboring countries in the Indian Ocean (Mauritius, Comoros, and the French overseas department of Mayotte).

¹²⁰ Personal communication with key informant, edible oil sector, Toamasina, May 2013.

Table 29. Edible Oil Exports (MT), 2007-11

	2007	2008	2009	2010	2011	Grand Total
Edible Oils	314	335	105	592	758	2,104
151110 - Palm oil, crude	308	330	100	548	740	2,026
151590 - Fixed vegetable fats & oils	4	3	4	43	13	67
151319 - Coconut (copra) oil, other than crude	1	1	0	1	4	7
151511 - Linseed oil, crude	0	0	1	1	0	2
151311 - Coconut (copra) oil, crude	1	0	0	0	0	1

Source: Comtrade, accessed March 2013.

Food aid. Title II partners currently monetize CDSO to fund development programming. Distributed food aid has primarily come from USAID and WFP, although USDA provided some assistance in 2009 via a Food for Education program.

Table 30. Distributed Food Aid (MT), FY08-FY13*

Commodity	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	Total
USDA	0	464	0	0	0	0	1007
USAID-SALOH		170	245	330	380	115	1,240
WFP	552	860	511	587	497	n/r	3,007

Sources: USDA, CRS, WFP.

* Note that USDA figures are by fiscal year (October - September), SALOH figures are from July - June, and WFP figures are by calendar year.

In total, 11 donors have provided assistance to Madagascar from 2007-11, including the European Economic Community (EEC) and the United Nations (UN). Following the political events of 2009, all but the US have ceased activities.

Table 31. Major Donors of Food Aid to Madagascar (% of Total Donations), 2007-11

Donors	2,007	2,008	2,009	2,010	2,011	Grand Total
Non Monetized Food Aid	21	100	100	4	7	21
USA	15	72	58	4	7	16
UN	0	8	41	0	0	2
Saudi Arabia	0	8	0	0	0	1
France	2	2	0	0	0	1
Finland	0	7	0	0	0	1
Canada	2	0	0	0	0	1
Germany	2	0	0	0	0	0
EEC	0	0	1	0	0	0
Norway	0	1	0	0	0	0
Netherlands	0	0	0	0	0	0
Slovenia	0	0	0	0	0	0
Monetized Food Aid	79	0	0	96	93	79
US	79	0	0	96	93	79
Grand Total	100	100	100	100	100	100

Source: WFP Interfais.

The variety of monetized oil is noted in the following table.

Table 32. Volume of Edible Oil Title II Monetized Food Aid (MT), FY10-13

	FY10	FY11	FY12	FY13
RVO	7,298	3180	0	0
CDSO	0	0	2350	5210*

Source: AMEX International, Land O' Lakes.

* Via two sales. A sale of 2,490 MT of CDSO is still being negotiated as of the time of writing of this report.

5.3.2 Government Policy

Taxes. GoM policy favors processing crude edible oil in-country as it only imposes a 5 percent duty for imports of crude oil versus a 20 percent duty for refined oil. Additionally, all oil imports receive a 20 percent value added tax (VAT). HITA, however, benefits from a waiver of duties and taxes, and pays no taxes at all.

Since Madagascar is a member of the Common Market for Eastern and Southern Africa (COMESA) and the Southern African Development Community (SADC), imports from SADC and COMESA countries currently enter duty and VAT free.

Phytosanitary regulations. As previously discussed, a directive from the Ministry of the Environment forbids the importation of GMOs, but this policy has not been formally enacted and is not widely known.

There are numerous other phytosanitary regulations in place to ensure agricultural goods that come through the port comply with the plant health standards for Madagascar. Importers must meet certain criteria to clear their goods through customs:

- Have a proper import permit filled out;
- Have a phytosanitary certificate from the country of origin;
- Ensure goods are well packed; and
- Fumigate goods before departure.¹²¹

These regulations are generally not a problem for importers,¹²² but the phytosanitary inspector in the port city of Toamasina noted that Catholic Relief Services (CRS) has previously been unable to acquire a phytosanitary certification for its imports of CSB because USDA will not certify a processed good. Additionally, the same inspector in Toamasina noted that one shipment of rice imported by CRS in 2011 had not been fumigated at the port of departure.

Aflatoxin contamination does not appear to be an issue in Madagascar. Agro-processors are generally well experienced, particularly on groundnut production, and during factory visits and in conversations with industry leaders, aflatoxin was not mentioned as an issue. Additionally, there have been no reports of contamination in recent years.

5.3.3 Competitive Environment

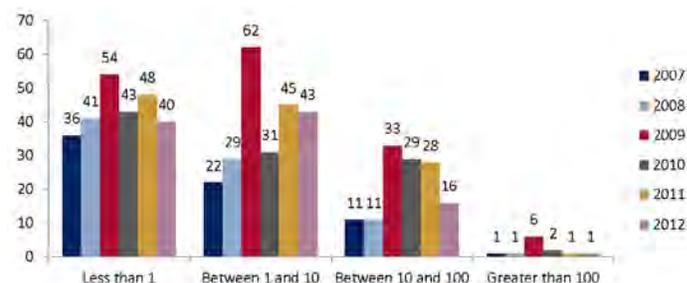
Former President Ravalomanana's company TIKO commanded the large majority of the market in the years immediately preceding the political crisis in 2009, with very little competition. Since their exit from the market in 2009 however, the situation in the edible oil market has been very fluid. Initially, apparently due to a lack of market information, importers purchased volumes of edible oil in excess of market demand, to the point that stocks remained until the following year (when import levels dropped). This oil was primarily refined palm oil because of its relative low cost on the world market compared to soybean oil, which had been the traditional primary oil in Madagascar.

The import market seems to be characterized by opportunistic players who enter and leave the market when advantageous. As the chart below illustrates, customs data list 155 importers in 2009; however, nearly 1/3 dropped out of the market in 2010 (the number falling to 105). There was a slight resurgence in 2011 (rising to 122), but the number continued to fall into 2012 (to 101). Many importers are relatively small in size, and the market is very competitive. These market operators make up 1/3 of the market; HITA commands the remaining 2/3.

¹²¹ The phytosanitary service recommends 2 grams of PH3 per cubic meter when in container, or 4 - 5 grams per cubic meter for bulk goods.

¹²² The inspector suggested that two weeks prior to the arrival of goods, importers deposit three documents at his office to speed the clearing process: 1) Import Permit, 2) Phytosanitary Certificate, and 3) Fumigation Certificate. Provided documents are in order, goods should be cleared in two days. However, the inspector did note one case of goods being turned away because of disease detected in hybrid seed from China.

Figure 33. Number of Importers Represented by Approximate Numbers of Containers of Edible Oil Imported, per Volume Reported in Customs Data, 2009-12*

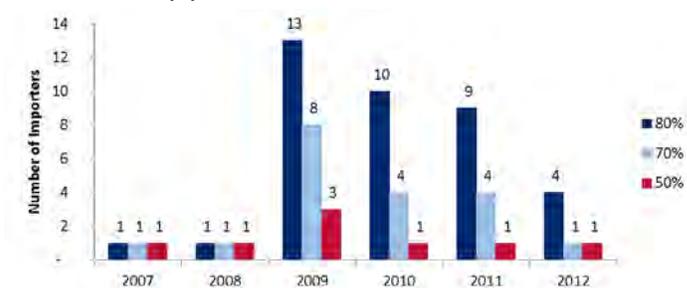


Source: Direction General des Douanes, 2013.

*Container volume is assumed to be 20 MT (though this will vary in actual practice).

As illustrated in the chart below, following an opening up of the market in 2009, market power is again consolidating among an ever smaller number of importers. HITA has snapped up a significant portion of the market in the absence of TIKO and is edging out competitors.

Figure 34. Trends in Number of Oil Importers by Level of Market Share (%), 2007-12



Source: Direction General des Douanes, 2013.

Note: Former President Ravalomanana's company, TIKO, commanded over 80% of the market in both 2007 and 2008. With the cessation of TIKO operations, many importers entered to fill the gap; in 2009, 13 importers together enjoyed the 80 percent market share TIKO had previously enjoyed alone.

HITA. HITA is the largest oil refining company in Madagascar with a daily capacity of 200 MT. Its processing output quickly rose from 2,800 MT in 2008 to 28,000 MT in 2009, and appears to have leveled off at approximately 35-36,000 MT per year in 2011 and 2012.¹²³ As of May 2013, the company was operating 24 hours a day, an average of six days a week,¹²⁴ and at about 80 percent of installed capacity. Company management stated that its machinery is not able to meet market demand, but they need to receive some return on their investment before seeking additional capacity. The refining rate varies between 94-98 percent for a mixture of crude palm and CDSO.¹²⁵ Their facilities have a storage capacity of 6,500 MT via five tanks at the Port of Toamasina and 8,000 MT via eight tanks at its refining plant.¹²⁶

¹²³ Personal communication with key informant, edible oil sector, Antananarivo, May 2013

¹²⁴ Management states that they break about 4-5 days per month for maintenance.

¹²⁵ Conversation with key informant, Toamasina, May 2013.

¹²⁶ Conversation with key informant. Toamasina, May 2013

HITA sells its oil on the market, labeled, in the form of 200 liter (L) barrels; HITA also sells to wholesalers in 200 L barrels, who then repackage under different brand names, and who then sell in 20 L, 5 L, and 1 L bottles. Because of the very low purchasing power of some consumers, retailers will further repackage these into various sizes, down to single-serving sachets containing one or two tablespoons of oil.

Numerous informants complained that HITA is using its market power to undercut other local processors. Since the company possesses 60-70 percent of the market, HITA is able to sell its goods at a lower price than even the world market price.

SIB. Of the companies that produce oil from domestic oilseeds, SIB is the largest. SIB refines about 2,800 MT of groundnut oil per year, and about 1,250 MT of cottonseed oil per year. Company management says that it is only working at 5 percent of installed capacity given a lack of inputs on the market for its products. The company owns a boiler, four presses, and a refining unit.

DRAMCO. DRAMCO is a smaller operation than SIB. It refines about 350-400 MT of cottonseed oil annually. DRAMCO has produced cotton for three years, primarily for export. It produces oil to draw further profit from its inputs. Currently, DRAMCO has about 3,000 hectares (ha) of area under contract for the production of cottonseeds. In the past, the company also processed groundnuts, but groundnut oil production is no longer competitive because of high costs.

Indosuma. Located in Tuléar, Indosuma has an installed capacity to extract oil from 50 MT of grain per day (although current electricity delivery problems constrain processing capacity to only 25 MT of grains or up to 10-15 MT of oil per day). The high purchasing price of groundnuts has rendered the production of groundnut oil non-competitive for Indosuma. Consequently, the company is investing in the production of the cotton sector. Given its contracts with local producers, Indosuma expects to purchase between 10-15,000 MT of cottonseed this year to produce approximately 1,500 MT of oil. The company has its own distribution channels in the the provinces of Atsimo-Andrefana and Haute Matsiatra.¹²⁷

Corruption. Certain market actors avoid paying import duties and fees so they are able to sell their goods at a low price, which is sometimes lower than the purchase price of other companies. The methods used to avoid paying duties and fees include the following:

- Claim refined oil as crude oil, rice, or another commodity with lower duty. This practice seems the most common.
- Claim source country is within COMESA or SADC, which enter the country duty free.
- Change company name every two-three years, which is approximately how long it takes for the government to track down and register companies so that they can make

¹²⁷ Whose capitals are Toliara and Fianarantsoa, respectively.

companies pay duties and fees. This practice could explain part of the large fluctuation seen in the companies entering into and leaving the import market every year.

A review of Customs data for the 2007-12 period revealed that HITA has benefited from a waiver¹²⁸ on its customs duties since 2008 - all of its imports since 2009 have received the same waiver. Including its costs for refining, HITA appears able to sell at a price below import parity (IPP) for refined vegetable oil and is thus forcing other importers out of the market. Monetizing to HITA would contribute to greater consolidation of market share.

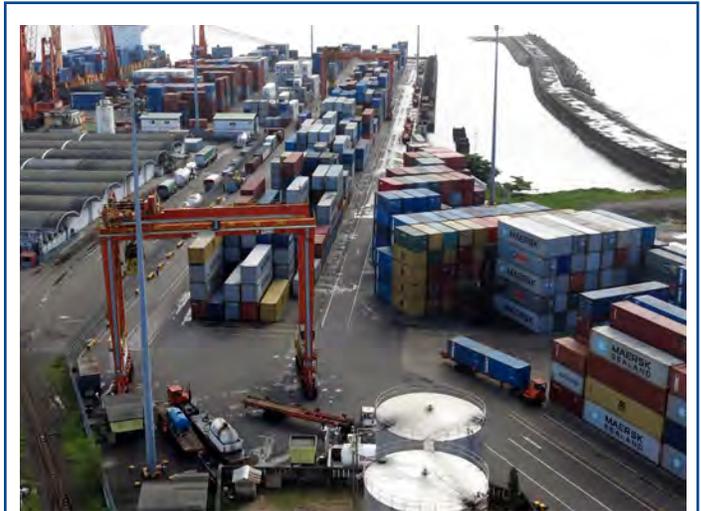


Photo by Fintrac Inc.

The container yard at the port of Toamasina, Madagascar's primary port. Toamasina, Madagascar, May 2013.

5.3.4 Monetization Past Process and Performance

For the Title II Strengthening and Accessing Livelihoods Opportunities for Household Impact (SALOHI) program, Land O' Lakes has monetized both RVO and CDSO in Madagascar. These commodities have been imported via the Port of Toamasina.

Past process for monetization. In 2010 and 2011, Title II partners monetized RVO and sold it in 208 L drums. In 2012, awardees shifted to CDSO. (Hard Red Winter (HRW) wheat was sold with RVO and CDSO in 2011 and 2012, respectively.) Commodities are sold cost and freight (CFR, also sometimes referred to as C&F or CNF) Toamasina. The buyer assumes all duties and fees associated with clearing.¹²⁹

For goods such as RVO, where there are multiple potential buyers, CRS placed tenders in local media so interested partners could submit a bid. An opening bids committee, which includes representatives from the different SALOHI partners (CRS, ADRA, Land O'Lakes), as well as the SALOHI program coordination unit, award lots to the highest bidder.

¹²⁸ Referred to as a «Franchise Exceptionnelle prise en conseil du gouvernement»

¹²⁹ Personal communication with key informant, Antananarivo. May 2013.

Buyers must put forward a performance bond of ten percent of the entire value of the bid within two days of signing the contract. Depending on the negotiations with the buyer, the value of the performance bond may be increased (up to 30-40 percent of the contract value), and buyers must obtain a letter of credit issued by an accepted banking institution within 10 days after the signature of the contract. The remaining percentage of the value of the contract, regardless of the value of the performance bond, is to be paid upon receipt of the bill of lading and other documents once the goods arrive at the port.

For CDSO, where there is only a single potential buyer on the market (i.e., HITA), the awardees approach the potential buyer and negotiate prices and contract terms with that potential buyer directly.

Land O' Lakes coordinates monetization sales, although CRS, as the project lead, signs the actual contracts. Buyers pay CRS directly, and CRS distributes funds to consortium partners via a quarterly wire transfer to each a local bank account for each non-governmental organization (NGO).¹³⁰

Land O'Lakes receives a fee of approximately 2 percent of the monetization sales value from the consortium partners participating in the monetization.¹³¹ The fees collected fund the salaries of Land O'Lakes staff who oversee the monetization (the Monetization Specialist in-country as well as a portion of the salary for the Monetization Manager in the home office), and other operational expenses. If the budget is unused or is insufficient, country directors either agree to share the extra proceeds among partners (except CARE, who does not receive funds from monetization in Madagascar), or increase the total volume of goods sold.¹³²

Past performance of monetization. In 2010, the SALOHI consortium sold one lot of 7,300 MT of refined soybean oil in 208 L drums to HITA for US\$961 per MT. The consortium received bids from SEMIR, DRAMCO, Sunworld Company, and HITA.

In 2011, the consortium sold 3,180 MT of refined soybean oil in 208 L drums (17 lots of 180 MT each). HITA, DRAMCO, Amazone, and COCIMA put in bids but HITA offered the best price, US\$1,111 per MT, for all 17 lots.

130 Personal communication with key informant, Antananarivo. May 2013.

131 This does not include CARE, which does not accept proceeds for monetization in Madagascar.

132 Personal communication with key informant, Antananarivo. May 2013.

Table 33. Details of Title II Monetization Sales (MT), FY10-13

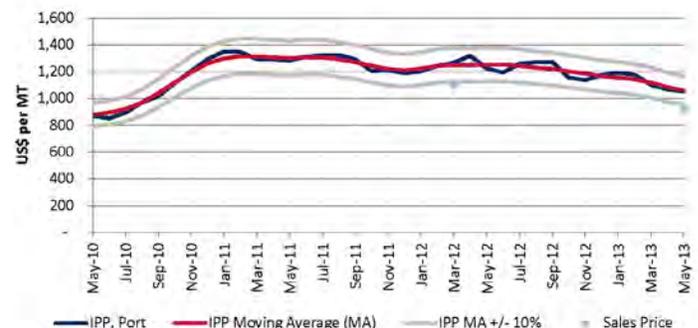
USAID FY	Sales Date	Commodity	Quantity (MT)	Sales Price CFR Toamasina (US\$/MT)	Proceeds (US\$)
2010	June 2010	RVO in 208 L Steel Drums	7,300 MT	961	7,015,300
2011	March 2011	RVO in 208 L Steel Drums	3,180 MT	1,111	3,532,980
2012	March 2012	CDSO in Bulk	2,350 MT	1,101	2,587,350
2013	May 2013	CDSO in Bulk	2,720 MT	920	2,502,400
2013	Still in Negotiation	CDSO in Bulk	2,490 MT	920*	2,290,800

Source: Land O' Lakes.

*Tentative as sale is still in negotiation (as of June 2013).

CDSO. In 2012, the consortium sold 2,350 MT of CDSO to HITA. The final sales price, negotiated directly with HITA (the only available buyer), was US\$1,101 per MT. The consortium also completed a sale of CDSO to HITA for US\$920 in May 2013. These sales both achieved 87 percent of estimated IPP, US\$1,266 and US\$1,053, at their respective times of sale.

Figure 35. Monetization Sales Price Historical Performance vs. IPP (US\$/MT), May 2010-May 2013



Source: Land O' Lakes, MINAGRI, IGC.

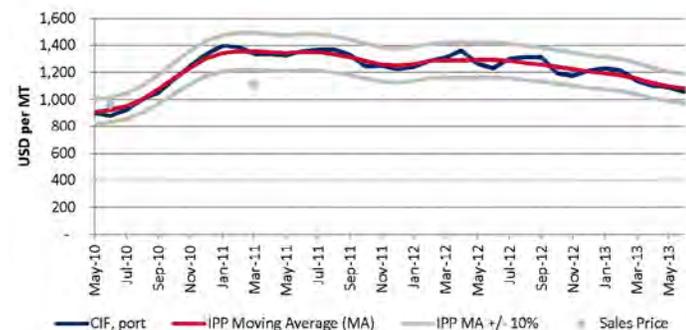
Although sales have performed well versus IPP, certain actors in the private sector complained that monetized oil was not paying the proper taxes and duties and therefore competing unfairly against smaller industrial oil producers. Two market informants asked if it would be possible for awardees to clear the monetized goods through customs and then sell them, including the costs associated with clearing in their sales prices. They believe that doing so would ensure all market participants purchasing monetized oil pay the same price for the oil.

RVO. HITA was the high bidder in the monetization for RVO and purchased all of the lots available. Cost recovery in 2010 started out poor (72 percent) and worsened as the monetization of RVO continued through 2011 (ending at 46.5 percent of actual cost). However, performance versus IPP was relatively good; the

June 2010 monetization performed at 109 percent of IPP, and the March 2011 monetization performed at 83 percent of IPP. Overall, monetization sales achieved 96 percent of IPP.

Several informants noted during field work that HITA declared the monetization of RVO in 2010 as CDSO; however, customs data do not show any imports declared by CRS prior to 2012 (so it remains unclear if monetizations were declared at all).

Figure 36. Monetization Sales of RVO vs. IPP (US\$ per MT) 2010-2013



Sources: Land O' Lakes, Oil World, IGC.

5.3.5 Recommendations

As noted in the disclaimer in section 5.2, USAID-BEST is basing its recommendations regarding CDSO on market conditions only; because the soybeans pressed into CDSO are from genetically modified (GM) seeds, any recommendations are subject to change should GoM policy change in the near term. Awardees need to monitor the evolving GMO policy in deciding whether to continue monetization of edible oils, either refined or crude.

CDSO. USAID-BEST recommends against monetization of CDSO to HITA. Although monetization could feasibly support competition in the market, the awardees' need to generate increased funding via the sale of goods has meant taking the highest bid, and HITA consistently offers higher prices than other bidders. Although sales have achieved 96 percent of IPP, and so have been fair against estimated prevailing market prices using CFR prices as the yardstick, HITA appears to benefit from a legal full waiver on taxes and duties for its imports and subsequently the company has been using this advantage to gain market power and push other actors out of the market. Further monetizing to HITA would have a negative impact on the market as it would contribute to the consolidation of market power by a single large industrial player and therefore diminish market competition. This consequence is a concern under Bellmon requirements.

However, if the situation changes and HITA ceases to receive its exoneration on duties, the company has proven itself to be a willing and interested buyer with a history of payment. Awardees could sell up to 10 percent of the import market volume (approximately 5,300 MT) at the current IPP based on US\$1,020, CFR, which would yield US\$5.4 million.

The smaller scale refining company SIB has expressed interest in purchasing CDSO, but would prefer to do so CFR Mahajanga (not Toamasina), and would prefer to do an initial purchase of a small lot to confirm the shipment would meet its needs for quality and timeliness of delivery.

RVO. Although the sale of RVO would not generate as much as CDSO, numerous market actors, such as DRAMCO, Amazone, and Fiotanzantoa, expressed interest in participating in a monetization sale. Selling 10 percent of the import market volume of RVO on the market (1,590 MT) at the current parity price for refined palm oil (ex-Malaysia) of US\$854, would generate approximately US\$1.36 million in funding if sold CFR. RVO should be broken into smaller lots of 250 or 500 MT to ensure that buyers can purchase volumes appropriate for their storage and handling capacity. Sales should be announced via open tender, and awardees should resist the temptation to sell all lots available to a single buyer.

5.4. WHEAT GRAIN AND WHEAT FLOUR

5.4.1 Demand and Supply Summary

Demand. Wheat is not the primary staple in Madagascar, but consumers in urban and semi-urban areas are turning to bread and bread products such as biscuits and pastries to form the basis of their meals. Wheat products are seen primarily as fast foods that consumers can eat on the run. A typical breakfast for an urban Malagasy consumer is a baguette in the morning with a cup of coffee at a *gargotier*, one of the many shops in urban areas that serves food and drinks on the street. Market actors feel demand in the market is increasing because of population growth and the growth of urban and semi-urban centers.

Several informants noted that consumers in the capital area prefer light, airy breads; however, consumers in other areas, such as Toamasina, prefer bread that is slightly more dense and holds up better to being dipped in coffee or tea. Consumers in rural areas demand bread products that will last two or three days before turning stale.

Many bakers appear to favor domestically produced wheat flour, but Mauritius in particular makes a very high quality wheat flour that is considered better than local varieties.¹³³

Domestic supply. Wheat imports have fluctuated with the governance of Madagascar, dwindling in years prior to the political crisis and spiking immediately just before 2009 to nearly supply the entire market. TIKO formerly dominated domestic wheat production through its imports of wheat grain. Most, if not all, marketed wheat products utilize imported wheat grain (milled domestically) or imported wheat flour. Although there are reports of domestic production of wheat grain in the area surrounding Antsirabe (Vakinankaratra region), these accounts seem overstated and it does not appear that local wheat grain, if grown, makes it into the commercial wheat value chain.

¹³³ Personal communication with key informants, Antananarivo, Toamasina, May 2013.

Table 34. Supply of Wheat Grain (MT) in Madagascar, 2007-12

Type	2006	2007	2008	2009	2010	2011	2012*	Average 2010-2012**
Total Imports	103,178	135,368	102,064	94,073	135,010	144,764	158,916	146,230
Wheat grain	37,775	92,576	96,143	24,821	0	18,394	20,602	12,999
Wheat flour	65,403	42,792	5,921	69,252	135,010	126,370	138,314	133,231
- Commercial Imports	103,178	135,368	102,064	94,073	134,710	144,764	158,916	146,130
Wheat grain	37,775	92,576	96,143	24,821	0	18,394	20,602	12,999
Wheat flour	65,403	42,792	5,921	69,252	134,710	126,370	138,314	133,131
Monetized grain***	6,159	15,910	12,388	0	0	7,000	10,000	5,667
Monetized flour***	0	0	0	0	0	0	0	0
- Food Aid Imports	0	0	0	0	300	0	0	100
Distributed grain	0	0	0	0	0	0	0	0
Distributed flour	0	0	0	0	300	0	0	100
Exports	0	0	0	0	0	0	0	0
Net Trade	103,178	135,368	102,064	94,073	134,710	144,764	158,916	146,130
Production	26	26	26	26	26	26	26	26
Supply	103,204	135,393	102,090	94,098	134,736	144,790	158,941	146,155

Sources: Imports - Comtrade, TradeMap, FAOStat, USDA PSD, USDA GATS, Direction General des Douanes, 2013; Food Aid - WFP Interfaï, IGC, AMEX International, Awardees, USDA; Exports - Comtrade, TradeMap, FAOStat, USDA PSD, USDA GATS; Production - FAOStat, USDA PSD.

*2012 imports and exports based solely on GoM Customs data.

** Average of 2010-2012 is provided (and not the usual 5 year average) because of the great changes the market has seen in recent years.

Domestic production. As noted, reports of domestic production in country appear to have been overstated.¹³⁴ Management at *Les Moulins de Madagascar* (LMM) confirm they are not currently purchasing locally produced wheat grain for its production of wheat flour,¹³⁵ and they have no plans to do so in the immediate future.

FAOSTAT and USDA PSD both estimate insignificant annual production of wheat grain at less than 40 MT (see table below).

Table 35. Estimates of Production of Wheat Grain (2006-2012, MT)

Type	2006	2007	2008	2009	2010	2011	2012	Average,
2007-2011								
Production	26	26	26	26	26	26	26	26
FAOSTAT	12	12	12	12	12	12		12
USDA PSD	39	39	39	39	39	39		39

Source: FAOSTAT, USDA PSD.

According to import data, importers purchased 4,000 MT of wheat seed, and another 250 MT in the first quarter of 2013.¹³⁶

¹³⁴ As reported from Seaboard via the 2013 SALOHI prep. CRS/Madagascar, November 2013, *Pipeline and Resource Estimate Proposal (PREP), Fiscal Year 2013 (Year 5)*.

¹³⁵ Interview with Abdallah Khaldoune, Chef Meunier, Les Moulins de Madagascar. Monday 13 May, 2013.

¹³⁶ Direction General des Douanes, 2013. It seems likely that these data are off by a factor of 10, or perhaps more. Key informants consistently stated that production of wheat grain was negligible. It is also possible that these imports were incorrectly coded as wheat seed and not wheat grain for

LMM operates at approximately 50 percent of its installed capacity; it mills 6,000 MT of wheat grain monthly. Company management noted they are producing approximately 220 MT of flour per day. Due to the high cost of electricity from 6 p.m.-10 p.m., its mill only operates 20 hours per day.

LMM produces five varieties of wheat flour. The primary flour it sells, accounting for 80 percent of all flour produced,¹³⁷ is *Farine Triomphe*, a type 55 flour used by industrial and semi-industrial bakers to make French baguettes.¹³⁸ The company also produces *Farine Parfait* (a type 45 flour suitable for pastries), *Farine Complète* (a type 110 flour used to make traditional and whole wheat breads), *Farine le Cheval*, and *Farine Boulangère* (Bakers' Flour).

LMM management stated there is significant variation in its blending ratios from one week to the next. Whereas a particular variety of wheat flour might require a blending ratio of 80:20 HRW wheat to French bread wheat, the next week it might only require 50:50. Wheat blends are constantly in flux, and LMM sample their flour every hour to ensure that it meets company-set standards for quality.

There are complaints that quality is inconsistent for LMM products. Another market informant in Toamasina complained about LMM raising their prices higher than imported wheat flour from Egypt and Turkey. However, other informants

milling.

¹³⁷ Personal communication with LMM Chef Meunier, Abdallah Khaldoune. 13 May, 2013.

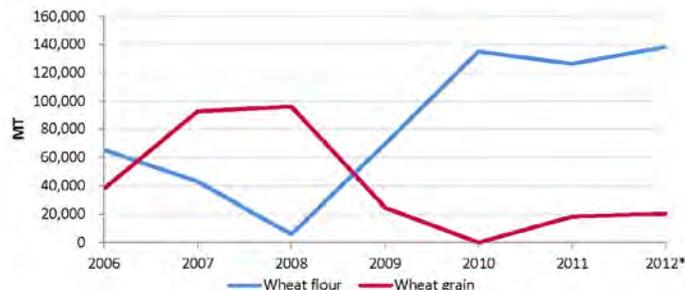
¹³⁸ The "type" number in French breads is based on the ash content that remains within flour after milling. The lower the number, the lower the ash content. Flours of this variety do not appear to have an exact equivalent among flours commonly produced in the US.

expressed that LMM could take more of the market in the coming years because its quality is superior to that of wheat flour from Egypt and Turkey.

Imports. Imports currently meet almost all demand for wheat products. However, just prior to the political crisis of 2009, the TIKO-operated mill commanded the market and wheat flour imports were minimal. With the ransacking of TIKO facilities following the coup, milling operations ceased. Opportunistic importers swooped in and filled the market with wheat flour imports from Turkey, Egypt, Mauritius, and France. Wheat flour met the entirety of market demand in 2010. LMM has managed to claim some market share for domestically milled wheat flour after its re-entry into the market in 2011, but by its own estimations, it currently only possesses 20 percent of the market.¹³⁹

The following figure illustrates the dramatic rise and fall of wheat grain and wheat flour imports.

Figure 37. Imports of Wheat Grain and Wheat Flour (MT) in Madagascar, 2006-12



Sources: Imports - Comtrade, TradeMap, FAOstat, USDA PSD, USDA GATS, Direction General des Douanes, 2013

*2012 imports and exports based solely on GoM Customs data.

Wheat grain. France, Argentina, Australia, and the US are currently the main source countries for wheat grain. Bulgaria and Sweden have previously exported large quantities to Madagascar.

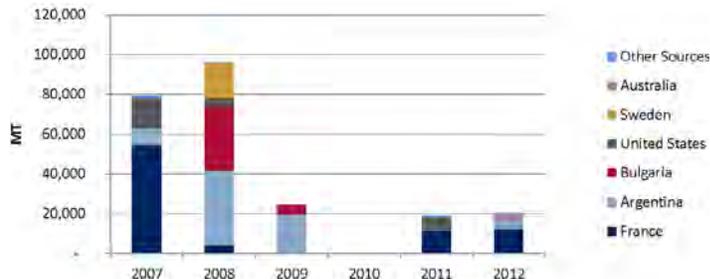
Table 36. Supply of Wheat Grain (MT) in Madagascar by Source Country, 2007-12

Country	2007	2008	2009	2010	2011	2012
France	54,775	4,291	0	-	11,900	12,600
Argentina	8,000	37,180	19,883	-	250	4,000
Bulgaria	-	32,677	4,800	-	-	-
United States	15,440	4,000	-	-	6,403	-
Sweden	-	17,978	-	-	-	-
Australia	-	-	-	0	-	4,000
Other Sources	1,239	17	-	0	508	2
Total:	79,454	96,143	24,683	0	19,061	20,602

Source: FAOSTAT, USDA PSD.

¹³⁹ According to import statistics, Seaboard's market share is closer to 12 percent (Customs data).

Figure 38. Wheat Grain Imports (MT) by Source Country, 2007-11



Source: Direction General des Douanes, 2013.

Wheat flour. Imports of wheat flour from Turkey and Egypt currently dominate the import market; each account for one-third of the market. Other primary source countries include Mauritius and France. Wheat flour from Turkey is reportedly heavily subsidized by the Turkish government, and imports from Egypt and Mauritius are free of duties and VAT because of membership in COMESA (and the Indian Ocean Committee (IOC) in the case of Mauritius).

Flour imported from Mauritius is generally considered the best, and Egyptian and Turkish flour are considered lower quality than both Mauritian and LMM flour.¹⁴⁰

A listing of the volume of trade for primary source countries follows.

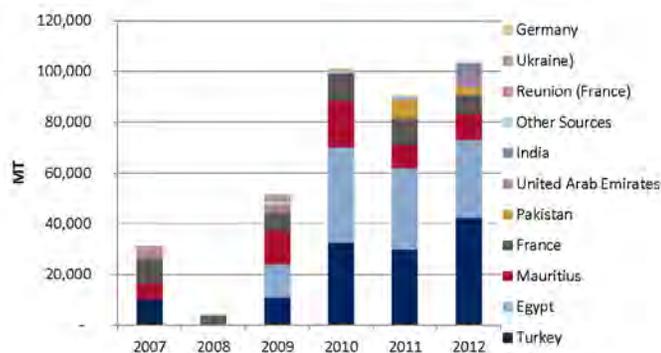
Table 37. Imports of Wheat Flour (MT), 2007-11

Country	2007	2008	2009	2010	2011	2012
Turkey	10,246	240	10,980	32,737	30,006	42,572
Egypt	-	-	13,162	37,521	31,921	30,615
Mauritius	6,618	161	13,245	18,350	9,254	10,210
France	8,996	3,746	7,165	10,598	10,340	7,502
Pakistan	60	1	-	-	7,338	3,349
United Arab Emirates	3,288	2	2,980	415	433	3,507
India	0	-	0	-	397	5,561
Other Sources	406	254	1,340	644	697	396
Reunion Island	1,650	-	440	220	-	-
Ukraine	-	-	2,138	89	-	-
Germany	0	0	485	853	119	24

Source: Direction General des Douanes, 2013.

¹⁴⁰ One market informant described the product from Egypt as "unusable."

Figure 39. Imports of Wheat Flour (% of Total Volume Imported), 2007-12



Source: Direction General des Douanes, 2013

Exports. Exports of wheat flour have averaged less than one MT for 2011 and 2012, according to Customs data. There are no reported exports of wheat grain from Madagascar.

Food aid. Neither wheat grain nor flour has been used for direct food distribution, however USAID has monetized wheat grain. Title II awardees monetized 7,000 MT of HRW wheat grain in 2011 and 10,000 MT in 2012 for the SALOHI program. USDA and the Japan International Cooperation Agency are not monetizing at this time.

5.4.2 Government Policy

Membership in regional trading blocs such as COMESA, SADC, and the IOC allow for COMESA member countries such as Egypt and Mauritius (two of the top three source countries) to export wheat flour to Madagascar free of duties and VAT.

Those countries outside of the trading blocs mentioned above must pay a 10 percent duty for wheat flour. Imports of wheat grain are not subject to a customs duty. However, both wheat and flour face a 20 percent VAT.¹⁴¹

Domestically, the wheat market is liberal. There are no governmental controls on the price of wheat grain or flour.¹⁴² Market actors can freely enter and leave the market.

5.4.3 Starch Substitution

Consumers in urban and semi-urban areas are consuming greater amounts of wheat products in place of rice. LMM noted that there is no plan to introduce locally produced products such as cassava flour into their bread flour, and bakers noted that there is no market demand for them to do so. Furthermore, producers felt the slightly bitter flavor of cassava and lack of gluten produces poor quality bread.

¹⁴¹ Management at LMM sounded very confident they would be able to negotiate away this tax on wheat by the end of 2014.

¹⁴² Conversation with LMM Managing Director, Christophe Bardy, 14 May 2013.

5.4.4 Competitive Environment

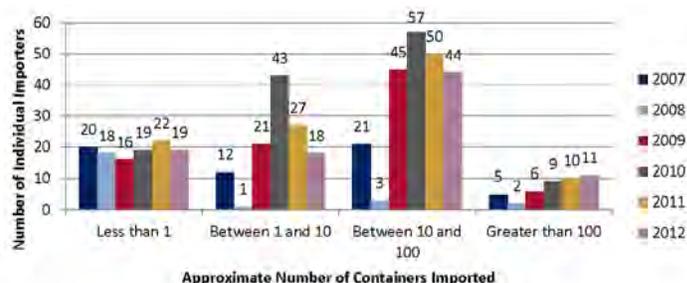
Domestic milling. Prior to the 2009 political crisis, there were two wheat mills in country: TIKO and LMM. The American conglomerate Seaboard entered the market in 2006 by creating LMM, which leases and manages the facilities previously owned by Kobama, a former state enterprise that was privatized in 1995. However, TIKO and its owner¹⁴³ reportedly used unfair market practices to force LMM out of the market in 2008.¹⁴⁴

After the coup, TIKO facilities were ransacked and domestic milling in-country ceased until LMM re-entered the market in 2011. Between 2009-11, the entirety of market demand was met by imports of wheat flour brought in by opportunistic importers. LMM has slowly been re-establishing itself in the market but it still competes primarily against the many importers of wheat flour. Furthermore, LMM faces internal problems and disputes with customs authorities that hinder the production process for milling wheat flour.

Importers of wheat flour. Since the fall of TIKO in 2009, the import market for wheat flour has been very fluid and competitive as opportunistic importers rushed in to fill the vacuum.

The number of importers bringing in smaller volumes of flour has decreased since 2010, and the number of importers purchasing large volumes of flour has increased slightly. The figure below notes the number of importers bringing in goods at different levels.

Figure 40. Number of Importers Represented by Approximate Number of Wheat Flour Containers Imported, per Volume Reported in Customs Data, 2009-12



Source: Direction General des Douanes, 2013.

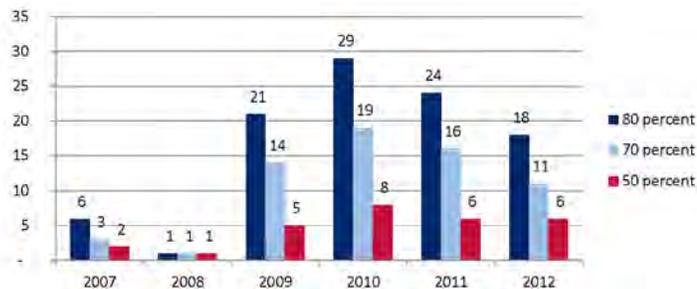
*Note that this estimates a container's worth of goods to be 20 MT.

¹⁴³ Ex-President Ravalomanana. Voahangy, Bodo, 2013, Madagascar: De la Kobama aux LMM. <http://fr.allafrica.com/stories/201304240847.html>, accessed June 2013.

¹⁴⁴ It appears there were multiple instances of unfair practices against LMM. First, government regulators closed LMM's silo at the port under the pretext of uncleanliness and not being up to current cleanliness standards. Second, the beginning of 2008, TIKO stopped paying customs duties on their imports, which gave them a financial advantage over LMM. Finally, the Ministry of Finance later opened a *redressement fiscale* (tax adjustment or tax reassessing procedure) against LMM for 200 million MGA. Given this hostile environment, LMM left the market. Voahangy, Bodo, 2013, Madagascar: De la Kobama aux LMM. <http://fr.allafrica.com/stories/201304240847.html>, accessed June 2013.

Similarly, the number of importers needed to command the wheat flour import market at various different percentage levels has shrunk year on year from 2010 (see figure below).

Figure 41. Trends in Number of Wheat Importers by Level of Market Share (%), 2007-12*



Source: Direction General des Douanes, 2013.

Note: Former President Ravalomanana's company, TIKO, commanded approximately 88 percent of the market in 2008. With the closure of TIKO's mill operations, many importers entered to fill the gap; in 2010, 40 separate importers together enjoyed the 88 percent market share TIKO had previously enjoyed alone.

*Figure includes wheat grain and wheat flour importers. Wheat grain converted to wheat flour equivalent at 75 percent conversion factor.

Corruption. Those importers with more influence on political actors were able to better work the system in their favor and out-play other actors in the market. As with edible oil, sometimes flour importers declare the flour as a different commodity to receive a lower duty rate. Sometimes importers illegally declare goods as being from a country within COMESA, SADC, or the IOC, even when they are not, so that they can avoid taxes and duties. Importers may pay off officials so that their goods are not declared at all. Additionally, to take advantage of a program designed to encourage investment, some companies go out of business every three years and reregister with the state to take advantage of low taxes on new businesses; however, these companies still need to pay VAT and import taxes.¹⁴⁵

Market actors will go as far as selling their products at a loss in order to gain market share. Some importers are leaving the market because they are not able to game the system against others who employ such tactics. Unfair market players are likely partially responsible for some of the great fluctuations in importers from one year to the next.

One informant spoke of increasing harassment from authorities, with authorities trying to confiscate her company's supplies in public. She resisted and stopped the illegal seizure, but she noted that such attempts are becoming more common.¹⁴⁶

5.4.5 Monetization Past Process and Performance

Monetization Past Process. In 2011 and 2012, the SALOHI consortium monetized HRW wheat to LMM via negotiated sales. As with the monetization of vegetable oil, buyers must put

¹⁴⁵ Personal communication with key informant, wheat sector, Antananarivo, 2013.

¹⁴⁶ Source: Key informant in wheat sector, Toamasina, May 2013.

forward a performance bond of 10 percent of the entire value of the bid within two days of signing the contract. The remaining 90 percent of the value of the contract is to be paid upon receipt of the bill of lading and other documents received after arrival of the goods at port. Note that depending on the negotiations with the buyer, the value of the performance bond may be increased by up to 30-40 percent of the contract value, and buyers must obtain a letter of credit issued by an accepted banking institution within 10 days after the signature of the contract. Regardless of the value of the performance bond, the remaining balance is paid upon presentation of the shipping documents to the buyer after the arrival of goods at the port.¹⁴⁷

Where there is only one potential buyer on the market, Land O'Lakes approaches the potential buyer directly to negotiate prices and contract terms.

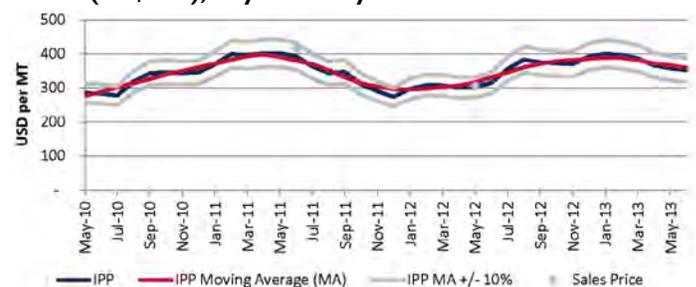
Monetization Past Performance. There were no monetizations of wheat grain in 2009 and 2010. The SALOHI Consortium sold 7,000 MT of HRW wheat to LMM in 2011 at US\$415 per MT, and 10,000 MT of HRW wheat at US\$305 per MT to LMM in 2012. These prices appear to run approximately 106 percent and 101 percent of IPP for their respective periods, and 103 percent overall.

Table 38. Supply of Wheat Grain (MT) in Madagascar by Source Country, 2007-12

USAID FY	Sales Date	Commodity	Quantity (MT)	Sales Price CFR Toamasina (US\$ per MT)	Proceeds (US\$)
2011	6/2011	Hard Red Winter Wheat, Bulk	7,000	415	2,905,000
2012	3/2012	Hard Red Winter Wheat, Bulk	10,000	305	3,050,000

Source: Land O' Lakes.

Figure 42. Monetization Sales Price Historical Performance vs. IPP (US\$/MT), May 2010-May 2013



Source: Land O' Lakes, MINAGRI, IGC.

It does not appear that monetization has negatively affected the market for a number of reasons:

Generally, sales price performed relatively well versus IPP. Assuming that IPP is an accurate reflection of prices in-country,

¹⁴⁷ Personal communication with key informant, Antananarivo, May 2013.

then sales performed at or near IPP should not have an impact on domestic market prices. Additionally, although imports of wheat grain are increasing, they have not kept pace with imports of wheat flour in-country. Thus, it appears that local flour importers are out-competing LMM even though it is purchasing monetized wheat.

Wheat grain has been monetized below 10 percent of market volume. USAID-BEST assumes that monetization of less than 10 percent of market volume should not have a significant impact on local marketing or trade, provided they are done at or near IPP.

Major importers of wheat flour have not complained of a negative impact on the market from wheat grain monetization.¹⁴⁸

5.4.6 Recommendations

It appears possible to monetize wheat grain and wheat flour in the Malagasy market without creating significant negative disincentives to production or marketing of these commodities. The recommendations that follow are thus based on the total estimated aggregate for the wheat sector, which includes both wheat grain and flour.

In the estimate for wheat grain, wheat flour is converted at a conversion rate of 133 percent (1 MT of wheat flour was milled from 1.33 MT of wheat grain). In the estimation of market volume for wheat flour, wheat grain is converted to wheat flour at a 75 percent conversion rate (1 MT of wheat grain produces 750 kg of wheat flour).

Wheat grain. Given that recent Title II wheat grain monetization does not appear to have had a negative impact on the market, monetization of HRW wheat (11.5-12 percent protein) via direct negotiation to LMM is recommended for future Title II programming. Monetizing 14,613 MT,¹⁴⁹ at the IPP (based on CFR) for June 2013 of US\$352.50, would yield US\$5,151,080 in proceeds. LMM has sufficient storage to receive shipments of up to 20,000 MT, so a single shipment is best; however the buyer has noted it may prefer to procure the entire volume via two to three shipments throughout the year. Specific terms should be negotiated.

Wheat flour. Monetization of wheat flour appears feasible in Madagascar at this time. None of the market actors contacted during field work felt that a monetization of US wheat flour would negatively affect the market; indeed, numerous market actors expressed interest in purchasing monetized US wheat flour. The former head miller for the TIKO wheat mill felt very strongly that US monetized wheat flour on the market could increase market competition if done in a transparent manner via

¹⁴⁸ Personal communication with key informants, wheat sector, Antananarivo, May 2013.

¹⁴⁹ Ten percent of the total estimated commercial import market, based on average annual imports of wheat grain plus flour (converted to wheat grain equivalent at 75 percent conversion rate). Total commercial imports are estimated to be 146,130 MT for the period 2010-12 (used because of the evolving nature of the Malagasy commercial market).

public tender open to all bidders.

If awardees are able to monetize 10,000 MT of wheat flour¹⁵⁰ at the price for Turkish flour (\$480 CIF as of July 2013), they should be able to generate US\$4.8 million. The price and therefore revenue excludes any duties, tax and fees for wheat flour¹⁵¹, an assumption that may not be realistic depending on the terms of sale.

Several conditions should be met to ensure that the wheat flour remains in good condition for sale on the market: 1) it needs to be transported with less than 14 percent humidity; 2) it must be fumigated and pest-free prior to departure from port of origin; and 3) several parts per million of ascorbic acid (vitamin C) should be added to the flour at time of milling to help avoid oxidation of the product.¹⁵² Provided that the flour is shipped under these conditions, that shipment does not encounter delays,¹⁵³ and that paperwork has been properly filled out,¹⁵⁴ there should not be a problem with the condition of the wheat flour for sale.¹⁵⁵

However, monetization of wheat flour poses risks. CRS noted a sale of wheat flour in 2002 was refused by the buyer on arrival.¹⁵⁶ The case went to court and awardees were left financially responsible for the value of the goods. Additional challenges include: 1) the inexact date of departure of the commodity from the US; 2) uncertainty as to whether awardees would try to save money on shipping by lumping shipment of wheat flour with shipment of goods for another country; 3) undefined date of arrival; and 4) uncertainty about storage conditions in the shipping process.

Given the high amount of risk that monetizing a large volume of wheat flour would pose, awardees should consider monetizing wheat flour in small volumes (if at all) first to test the market, such as 20-100 MT (from one-five containers' worth). Awardees may also consider using a third party expert to help facilitate the monetization process for wheat flour. The former head miller of TIKO offered his expertise and contacts throughout the sector if they could be of assistance. Whether awardees hire him and his company or utilize another consultant to facilitate the process, it could greatly ease the task of monetizing the goods.

¹⁵⁰ This represents approximately 10 percent of the wheat flour market, considering both wheat flour imports and domestically milled wheat grain imports.

¹⁵¹ Which, combined, total approximately 40% of CIF: 5% duty, 20% VAT, and approximately 15 percent total for unloading, handling, storage and shipping (source: communication from key stakeholder in wheat flour sector, October 2013).

¹⁵² Personal communication with key informants, wheat sector, Antananarivo, May 2013.

¹⁵³ According to USAID FFP Washington, normal shipment time to Madagascar is approximately 47-50 days via Maersk or MSC.

¹⁵⁴ According to a key market informant, clearing of containers of wheat flour generally takes three-four days provided that paperwork is properly filled out.

¹⁵⁵ Personal communication with key informant in wheat sector, Antananarivo, May 2013.

¹⁵⁶ Personal communication with key informant, June 2013.

THIRD COUNTRY MONETIZATION

A third country monetization (TCM) occurs when commodities are sold in one country and the proceeds are used to support the implementation of a Title II program in a different country, usually within the same region.

Third country monetization (sometimes referred to as “regional monetization”) can offer a legally compliant alternative for awardees operating in a country where 1) commodity markets are less than fully competitive; 2) commercial markets are relatively limited in size, therefore limiting scope for monetization; and 3) host government policies constrain the ability of USAID implementing partners from meeting sufficient funding needs through in-country monetization.

Third country monetization provides awardees with the option of selling into a market where sufficient competition among buyers increases the likelihood that bids will be at or near IPP, which is the best measure of a fair market price. With competition, there is increased assurance that the monetization will not distort the market and will generate higher revenues than if the monetization is conducted in a domestic market with limited or no competition. Third country monetization can generate greater revenue for food security activities and thereby increase the efficiencies of the Title II program. It also provides awardees with a fallback position if a commodity that was initially recommended for monetization becomes unviable at a later date due to changing market or policy conditions.

A third country or regional market is appropriate if awardees can expect to receive a price that reflects international market prices. As the final destination of the commodities sold is indeterminate, the relevant reference to ensure that the Bellmon market conditions are satisfied is to ensure that the final negotiated price is comparable to the import price for that market. In addition, the port facilities of the selected market platform need to physically accommodate the commodities. This condition requires that a Bellmon analysis be conducted in both the recipient country and the country in which third country monetization takes place.

Preferably, the monetization will happen in a relatively large port city because the buyer will assume inland freight and other costs. The offer would specify the preferred currency of the transactions.

If third country monetization is selected, a widely circulated competitive procurement using newspapers, Internet, and radio is recommended. Advertisement should be explicit regarding commodity specifications, delivery time range, transaction locations, payment terms, and required currency. An auction process using a commodity exchange should be considered. Finally, both the USAID Mission Director of the third country monetization country and of the Title II development country must endorse the monetization.

5.5. THIRD COUNTRY MONETIZATION

5.5.1 Potential Countries and Commodities for Consideration

Given limited options for monetization within Madagascar, and given the particular constraints within each of those markets, Third Country Monetization may be an attractive option.

Monetizing in a third country has the added benefit of sending goods to countries with more common ports of call, so shipping will not cost as much (which will have a positive impact on cost recovery for awardees). Among the highest value commodities sold regionally are edible oils, wheat grain, milled rice, and maize grain. Data are noted below.

Land O’ Lakes has previously monetized via TCM in Mozambique. The 2013 Malawi USAID-BEST Analysis notes that awardees have sold between 3,500-4,500 MT of CDSO per year at prices providing cost recoveries of 73-75 percent.¹⁵⁷ Additionally, the SALOHI consortium has considered regional monetization as an option; they considered monetizing CDSO in Mozambique and wheat in Kenya or Malawi. The consortium

asked a potential buyer to submit an offer for monetization of CDSO in 2012 and 2013, but offers were not competitive so the award did not go to the bidding company.

¹⁵⁷ USAID-BEST, June 2013, 2013 Malawi USAID-BEST Analysis.

Table 39. Import Values (US\$) for Select Commodities in Kenya (Average of 2008-10), Mozambique (Average of 2008-11) and Tanzania (Average of 2008-11)

Commodities	Kenya	Mozambique	Tanzania
Edible Oils	3,522,997,848	926,942,569	1,906,548,323
Wheat Grain	1,706,129,286	1,014,456,578	2,867,427,021
Milled Rice	441,597,363	1,336,869,421	83,080,568
Maize Grain	1,066,116,688	223,503,996	103,332,173
Wheat Flour	122,741,050	14,096,379	144,170,435
Nonfat dry milk	35,617,156	170,830,351	3,695,511
Soybean Flour and Meals	79,574,975	63,027,177	11,075,831
Beans - various	98,930,351	20,982,015	8,327,804
Peas	111,211,693		4,031,034
Grain Sorghum	67,810,392	4,776,027	4,432,040
Grand Total	7,252,726,802	3,775,484,513	5,136,120,740

Source: Comtrade, accessed June 2013.

Note: HS Codes used for commodities: 040210 - NFD; 071310 - Peas (*Pisum sativum*); Beans - various: 071331 - Beans of the species, 071331 - Beans (*Vigna mungo* (L.), etc), 071332 - Small red (Adzuki, etc.), 071332 - Small red (Adzuki) beans, 071333 - Kidney beans, 071339 - Beans (*Vigna* spp., etc.), 071339 - Beans (*Vigna* spp., etc.); 100190 - Wheat other than durum; 100590 - Maize (corn), other than seed; 100630 - Semi-milled/wholly milled rice; 100700 - Grain sorghum; 110100 - Wheat/meslin flour; Soybean Flour and Meals: 120810 - Flours & meals of soy, 230400 - Oil-cake & oth. Solid; Oils: 150710 - Soya bean oil, crude, 150790 - Soya bean oil, other; 150810 - Ground-nut oil, crude, 150890 - Ground-nut oil, other, 151110 - Palm oil, crude, 151190 - Palm oil, other than crude, 151211 - Sunflower seed/safflower (crude), 151219 - Sunflower seed/safflower (other than crude), 151321 - Palm kernel/babassu oil, 151329 - Palm kernel/babassu oil, 151521 - Maize (corn) oil, crude, 151529 - Maize (corn) oil, other than crude.

Table 40. Country Specific Information Required for Monetized Commodities

	Kenya	Mozambique	Tanzania
Low Income Food Deficit Country	Yes	Yes	Yes
Port City	Yes	Yes	Yes
Adequate Port Facilities	Yes	Yes	Yes
Convertible Foreign Exchange	Yes	Yes	Yes
Does Not Present Significant Security Issues	Yes	Yes	Yes

Source: Created by USAID-BEST.

Note: Per FFP policy, only countries that are classified as LIFDC or Least Developed Countries are eligible for TCM.

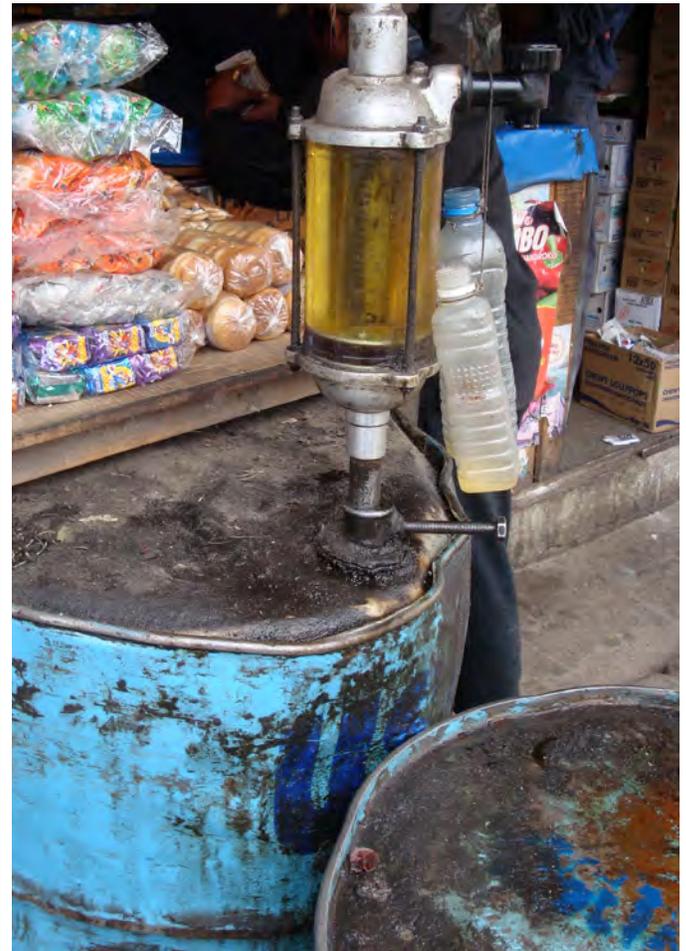


Photo by Fintrac Inc.

After 2009, when the markets for imported oil were liberalized, imported palm oil became available in all urban and rural markets year round. Here, oil is for sale in a central market in the capital, Antananarivo, Madagascar, May 2013.



CHAPTER 6 ADEQUACY OF PORTS, TRANSPORT, AND STORAGE

A bridge bombed during the political instability of 2002 still lays collapsed along Route Nationale 7. Fatihita, Madagascar, May 2013.

Photo by Fintrac Inc.

6.1. INTRODUCTION

This chapter analyzes the adequacy of ports, inland transport, and storage in Madagascar for current and future Title II development programs. Madagascar is the fourth largest island in the world, and is located in the Indian Ocean, east of Mozambique and southeast of the African continent (see map on the next page). The two ports used for Title II programming are the Port of Toamasina (Tamatave), midway along the east coast, and the Port of Taolagnaro (Fort Dauphin), on the southeast tip of the island. Other ports of note include the Port of Toliara (Tulear) on the southwest coast, the Port of Mahajanga on the northwest coast, and the Port of Antsiranana, on the northern tip of the island.

As for inland transport, current Title II Multi-Year Assistance Program (MYAP) partners (Catholic Relief Services (CRS), Adventist Development and Relief Agency (ADRA), Cooperative for Assistance and Relief Everywhere (CARE), and Land O' Lakes) utilize primary, secondary, and tertiary routes, as well as some canal transport for their programs. The chapter offers recommendations for food aid routes in the next Title II cycle by taking into consideration future programming sites. Finally, the chapter concludes with an examination of the storage capacity for all MYAP partners, WFP, the Government of Madagascar (GoM), and the private sector. Overall, despite

challenges such as geography, infrastructure, exposure to damage from natural disasters, and corruption, Title II partners are still able to adequately utilize the ports, inland transport, and storage in Madagascar for delivery of food aid.

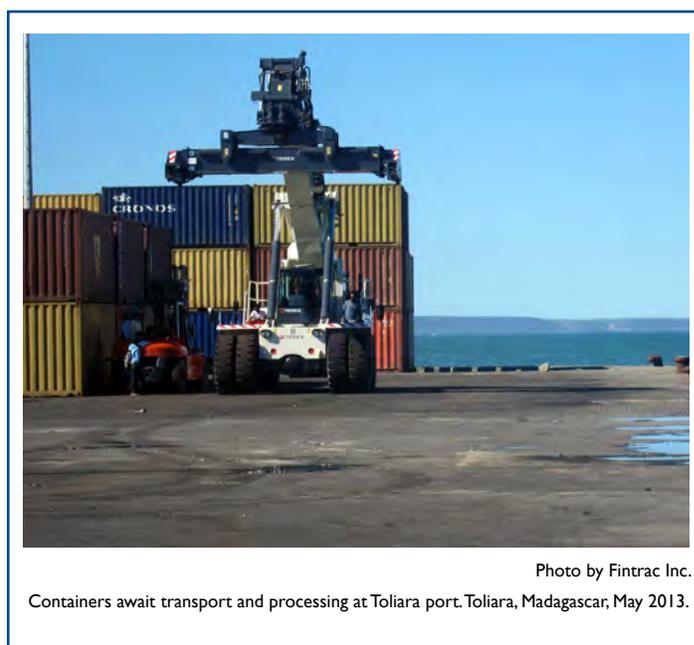


Photo by Fintrac Inc.

Containers await transport and processing at Toliara port. Toliara, Madagascar, May 2013.

Figure 43. Provinces, Major Routes, and Cities in Madagascar



Source: United Nations.

6.2. PORTS

For current Title II programming (Strengthening and Accessing Livelihoods Opportunities for Household Impact (SALOHI)), approximately 75 percent of commodities arrive at Toamasina and 25 percent of commodities arrive at Taolagnaro.

6.2.1 Port of Toamasina

Location. Toamasina is on the eastern coast of the country. A rail line connects the port to the inland capital of Antananarivo.

Capacity. As of 2012, the Port of Toamasina handled 807,000 metric tons (MT) of cargo and 131,580 containers.¹⁵⁸ This quantity represents a significant decrease over a six-year period, as the port was handling 1.75 million MT of cargo in 2007 (typical for Toamasina port operations, approximately 70 percent of that amount was containerized).¹⁵⁹ Government instability and the resulting decrease in economic activity have contributed to this decrease. However, cargo loads in 2012 were an improvement over previous years, and are expected to increase

158 Port Toamasina (Tamatave), 2013, Port Toamasina (Tamatave). www.port-toamasina.com, accessed April 2013.

159 WFP, 2008, *WFP Madagascar LCA*.

further if the GoM receives official recognition by the international community after expected elections later in 2013 because of resulting gains in economic trade for the GoM and the private sector.¹⁶⁰

The port possesses 123,800 square meters (sq. m) of storage, and also has two silos specifically for the storage of cereals (capacity of 32,000 MT and 20,000 MT, respectively).¹⁶¹ The port handles an estimated 14,000 Twenty Foot Equivalent Units (TEUs) and 150,000 MT of cargo per month. Port officials stated during the May 2013 USAID-BEST field visit that the port is currently operating at close to full capacity.¹⁶²

Specifications. The Port of Toamasina is International Ship and Port Facility Security (ISPS) certified. The three main public/private partners at the port are: the Independent Management Company of Toamasina Port (SPAT, *Société du Port à Gestion Autonome de Toamasina/Tamatave*), the Madagascar International Container Terminal Services Ltd. (MICTSL), and the Conventional Merchandise Handling Company (SMMC, *Société de Manutention des Marchandises Conventionnelles*).¹⁶³ The GoM owns 80 percent of SPAT. In 2004, SPAT assumed responsibility for managing the infrastructure at the port. MICTSL handles the container terminal operations, and took on these responsibilities in 2005 under a 20-year contract as a public-private partnership with SPAT. As of 2008, MICTSL could discharge 800 short containers per day, and its facility could store up to 14,000 containers.¹⁶⁴ SMMC, under the GoM, commenced its activities in 2008 and oversees non-containerized cargo.

Overall, port management can improve and become more efficient.¹⁶⁵ A senior SPAT official commented that the Port of Toamasina was currently operating at capacity, but could increase its operational cargo handled by increasing laborers' speed and streamlining administrative demands for incoming and outgoing cargo. A December 2011 World Bank study also commented that planned reforms to enable private sector management of port operations "is paralyzed."¹⁶⁶ Specific bottlenecks mentioned during fieldwork in May 2013 included the storage of containers at the port rather than at storage sites in Toamasina and lengthy administrative procedures. For SALOHI programming, a SPAT official noted there have been no problems in importing vegetable oil for HITA, wheat for monetization sales, or any commodities for direct distribution.¹⁶⁷

The Port of Toamasina covers 63 hectares. Dredging has allowed the port to accommodate vessels up to 60,000 MT in size, and

160 Personal communication with key informant in transport sector, May 2013.

161 WFP, 2008, *WFP Madagascar LCA*.

162 WFP, 2008, *WFP Madagascar LCA*.

163 WFP, 2008, *WFP Madagascar LCA*.

164 USAID-BEST, 2008, Madagascar USAID-BEST Analysis.

165 Personal communication with key informant in transport industry, May 2013.

166 World Bank, 2012, *World Bank Madagascar Interim Strategy Note*. p.7.

167 Personal communication with key informant in transport industry, May 2013.

water depth is 14 meters (m.) in the ocean harbor and 12 m. at quays.¹⁶⁸ Further dredging is planned annually (40,000 cubic m.) for general maintenance, and a larger dredging operation planned for 2015 will clear an additional 223,000 cubic m. to maintain overall port efficiency.¹⁶⁹ The draft in the section of the port that unloads to the wheat silos of *Les Moulins de Madagascar* (LMM) is nine m.¹⁷⁰ Discharge rates for wheat to warehousing are roughly 2,000 MT per day for bulk wheat, and 1,500 MT for bagged wheat. These same rates of discharge also apply when loading directly on to trucks.¹⁷¹ It should be noted that the TIKO wheat mill has not operated at the Port of Toamasina since the 2009 coup because of significant physical damage at the time. (See Chapter 5 for further details.)

Port fees are approximately €175.14 per 20-foot container and €297.20 per 40-foot container;¹⁷² storage charges are incurred after eight days, and cargo is also subject to various additional port and government fees.¹⁷³ Trucking fees from the port to the capital of Antananarivo were US\$43 per MT, and the generally slower rail service varied from US\$30-50 per MT.¹⁷⁴

The timing of port operations and clearing varies. SALOHI commodities typically take one-two weeks before being cleared and unloaded. Rain and cyclones also slow down operations at the port, and the rainy season in Toamasina can last throughout all twelve months of a year.¹⁷⁵ The busiest months at the port tend to be from October-February; the lowest levels of activity are reported from July-September.¹⁷⁶ Since the Port of Toamasina is currently operating at close to capacity, a significant increase in commodities, necessitated by an external shock, may be a challenge to receive and unload expeditiously. However, the capacity of the port to handle an influx of shipments would be dependent on, among other things, the time of year and the quantity of commodities.

6.2.2 The Port of Taolagnaro (Ehoala)

Location. Taolagnaro contains two port facilities: 1) the older port on the northern side of the town; and 2) the newer and much larger Port of Ehoala in the southwest that is further from the town, and extends off the Ehoala peninsula. The older port still functions for Taolagnaro, but the newer Port of Ehoala, completed in 2009 through Rio Tinto/Qit Madagascar Minerals

168 WFP, 2008, *WFP Madagascar LCA*.

169 Personal communication with key informant in transport industry, May 2013.

170 Personal communication with key informant in transport industry, May 2013.

171 WFP, 2008, *WFP Madagascar LCA*.

172 Personal communication with key informant in transport industry, May 2013.

173 WFP, 2008, *WFP Madagascar LCA*.

174 Personal communication with key informant in transport industry, May 2013.

175 Personal communication with key informant in transport industry, May 2013.

176 Personal communication with key informant in transport industry, May 2013.

(QMM) and World Bank funding, now dominates import and export cargo to and from Taolagnaro and greater Anosy and Androy regions.

Capacity. The Port of Ehoala is a new and efficient port that handles primarily containers, and reportedly has ample unused capacity.¹⁷⁷ In 2011, the port handled 4,642 twenty-foot equivalent units (TEUs), and in 2012 it handled 1,032 TEUs, with total cargo tonnage handled in 2011 at 524,968 MT and in 2012 103,006 MT.¹⁷⁸ NGOs report that clearing and unloading goods is reported to be quick and efficient, and can often be completed in several days, provided there are no conflicts with QMM mine activities.

Two new storage warehouses of 1,000 sq. m at the Port of Ehoala allow for the de-stuffing of containers received at the port site. For commodities received at this port for SALOHI programming in Anosy and Androy regions, CARE uses storage sites in Taolagnaro town, and CRS holds its shipments in Ambovombe, which is roughly 110 kilometers (km.) west of Taolagnaro. WFP storage sites are primarily in Amboasary, which is 75 km. west of Taolagnaro.

Specifications. QMM, a subsidiary of Rio Tinto, developed the newer Port of Ehoala primarily for the export of ilmenite and zirconium to make titanium dioxide for industrial use. QMM provided US\$247 million to develop the port, and the World Bank provided an additional US\$35 million. The port is a private/public operation, but it primarily serves mining operations. Subsequently, infrastructure has been upgraded between the Mandena mine and the port. The new deep-water port opened in 2009, and allows ships with a 14 m. draft. There are three wharves, and the port possesses ISPS certification. Port fees at Ehoala for unloading are €110 per 20 foot container.

QMM and the GoM authorities plan to further invest in the Port of Ehoala facilities to increase trade and tourism.¹⁷⁹ However, even with these plans for increased activity, the significant excess port capacity should adequately support the next five-year cycle of Title II programming for Taolagnaro and southern Madagascar. Port officials also reported potential increased activity at the port in November-December due to annual naval training exercises, but congestion is not a problem during this event or throughout the year. Additionally, if southern Madagascar experiences any shocks, the Port of Ehoala would likely be able to easily handle significant increases in food aid

177 Personal communication with key informant in transport industry, May 2013. Ehoala port officials emphasized how much unused port capacity was available to import and export goods.

178 Personal communication with key informant in transport industry, May 2013; Note that the reason for the decline in activity from 2011 and 2012 is mostly due to Rio Tinto/QMM still completing port and port facilities for mine operations at Mandena in 2011. Figures for 2012 should be seen as more accurate in reflecting regular economic activity of Taolagnaro and Anosy/Androy region (unrelated to the new mine facility at Mandena).

179 Personal communication with key informant in transport industry, May 2013.

commodities.¹⁸⁰ However, given the poor road infrastructure in southern Madagascar, Title II awardees need to consider the exact destination, the season, and the viability of bringing goods through the Port of Ehoala, the Port of Toliara, or on roads such as National Road (RN) 10 or RN 13 from south central Madagascar.

6.2.3 Other Ports

The Port of Toliara. Title II partners do not currently use the Port of Toliara in southwest Madagascar, but WFP receives commodities at this port for its programming in the Atsimo Andrefana region. The Port of Toliara has a capacity for general cargo of approximately 45,000 MT per month and operates at roughly 5 to 7 percent of the usage level of Port of Toamasina, as measured by cargo tonnage handled per year.¹⁸¹ The port provides basic services, and it costs approximately US\$242 to unload a 20-foot container, plus additional fees.¹⁸² If future Title II programming targets accessible areas in southwestern Madagascar, or if a regional locust response necessitates importing goods via boat, then USAID should consider this port.

Depending on the regions targeted, Title II partners could use the Ports of **Antsiranana** and **Mahajanga** in the northern half of the island. However, given the location of these ports and the geographical scope of food security issues, USAID programming linked to either of these ports seems unlikely. Additionally, the Pangalanes Canal runs for 630 km along the east coast from Toamasina to the town of **Farafangana**, but the full length of the waterway is not operational for commercial transport despite some rehabilitation efforts.¹⁸³



180 Personal communication with key informant in transport industry, May 2013.

181 WFP, 2008, *WFP Madagascar LCA*.

182 Personal communication with key informant in transport industry, May 2013.

183 WFP, 2008, *WFP Madagascar LCA*.

6.3. INLAND TRANSPORT

6.3.1 Roads

The following map shows Madagascar and its national network of main roads. Central Antananarivo Province has the highest proportion of paved roads.

Figure 44. Madagascar's National Road Network



Source: United Nations.

Capacity. The road network in Madagascar is adequate in many areas, but decreased maintenance and investment over the past four years has led to a deterioration in overall conditions. Primary routes are in good to very good condition and they have effectively handled commodity movements for SALOHI, but certain routes can be congested depending on the time of the day or season. Heavily used, steep, and windy routes, such as RN 2 between Antananarivo and Toamasina, can slow truck transit times.

The table below further details the main national roads within Madagascar, with all but one (RN 5) originating from the capital, Antananarivo. All of the roads are generally in good to very good condition.

Table 41. Major Routes, Summary of Kilometer Distances, and Conditions

	Route	Kms.	Condition
RN1	Antananarivo-Tsiroanomandidy	218	Very good
RN2	Antananarivo-Toamasina	369	Good, except poor at PK 170, 270 due to landslides
RN3	Antananarivo-Anjozorobe	91	Very good
RN4	Antananarivo-Mahajanga	578	Good, except poor between PK 450-550
RN5	Toamasina-Soanierano	150	Adequate, except poor between PK 25-50
RN4/RN6	Antananarivo-Antsinanana	1,133	Good
RN7	Antananarivo-Toliara	929	Good, except poor between PK 330-400
RN7/RN35	Antananarivo-Morondava	703	Good

Source: WFP/Madagascar LCA 2008, and USAID-BEST fieldwork, May 2013.

Table 42. Network of National Roads by Province, Summary of Kilometer Distances, and Percent Paved

Province	Total Kms.	% Paved
Antananarivo	1,477	68
Antsiranana	971	61
Fianarantsoa	2,328	49
Mahajonga	2,590	35
Toamasina	1,696	45
Toliara	2,703	22
Total	11,765	43

Source: WFP/Madagascar LCA 2008.

Challenges. The main road system in Madagascar is a hub and spoke model, with the capital Antananarivo at the center. Although primary roads are paved and generally in at least good condition, there is a significant drop off in quality for lesser-used secondary and tertiary roads because of less funding for maintenance.¹⁸⁵ Furthermore, geographical, climatic, ecological, and economic reasons hinder improvements.¹⁸⁶ For example, heavy rains and cyclones, soil erosion, and mudslides pose annual obstacles for road conditions.¹⁸⁷

Trucking on roads can also be expensive. During the May 2013 USAID-BEST field visit, transporters stated general trucking rates of roughly 60 Malagasy Ariary (MGA) per kilogram.¹⁸⁸ Some inland shipping routes are allegedly operated through formal and informal cartels, which would increase actual trucking prices. SALOHI partners and WFP both reported efforts to increase competition for transport tenders to reduce overall trucking costs for commodity movement. WFP rewards those transporters with whom it has a long and trusted relationship by offering them greater volumes so that they can subcontract the load to other companies.¹⁸⁹

Finally, the map on the next page from the Government of Madagascar's Madagascar Roads Authority (ARM, *Autorité Routière de Madagascar*) shows the conditions of main routes, as of December 2012. Although the map is of less than ideal quality, it does illustrate the varying conditions of major routes throughout the country (see key in note next map). These conditions can change significantly, as noted earlier, from cyclones, the rainy season, and damage associated with heavy rainfall. The USAID-BEST team experienced different conditions during May 2013 field work as compared with conditions illustrated in the next map.

¹⁸⁵ Personal communication with key informant in transport industry, May 2013.

¹⁸⁶ WFP, 2008, *WFP Madagascar LCA*.

¹⁸⁷ WFP, 2008, *WFP Madagascar LCA*.

¹⁸⁸ Personal communication with key informant in transport industry, May 2013.

¹⁸⁹ Personal communication with key informant in transport industry, May 2013.

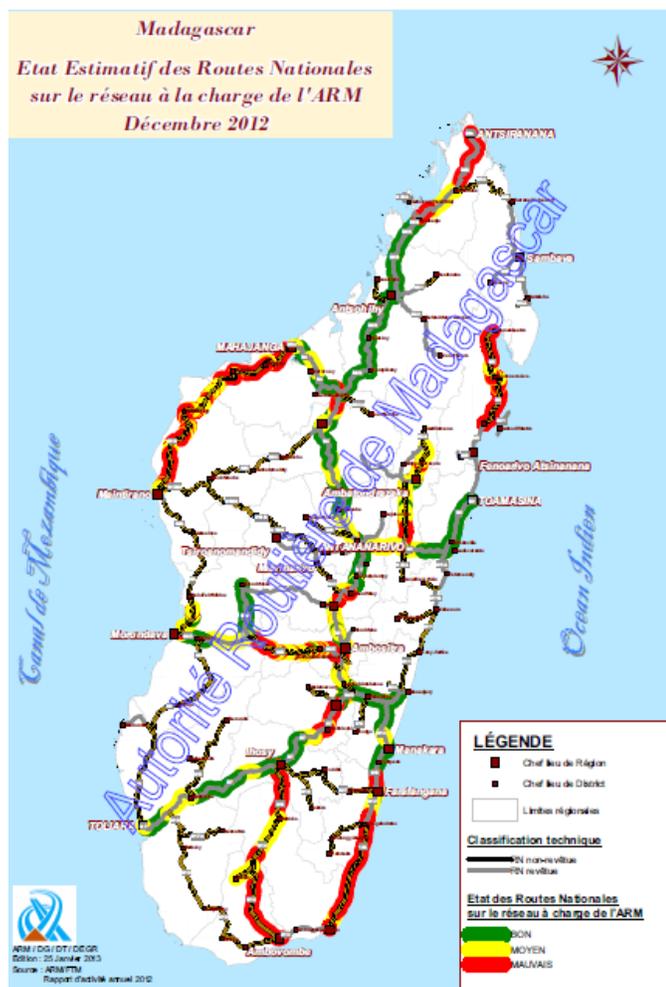
Specifications. Transport divides into RN, provincial roads (RP, *routes provinciales*), and commune roads (RC, *routes communales*). Of the total 49,638 km of roads, 5,289 km (11 percent) are paved, and the secondary (RP) and tertiary (RC) roads are unpaved, usually not well-maintained, and more prone to damage from various climactic events (e.g., cyclones, flooding, and mudslides).¹⁸⁴

Major investment in mining activities in Madagascar in recent years has negatively affected road infrastructure. There are two significant mine sites in-country: 1) Mandena mine (Anosy region), operated by QMM/Rio Tinto; and 2) Moramanga mine, (Alaotra Mangoro region) for the Ambatovy mine project, operated by Sherritt International and other partners. Although certain infrastructure improvements have taken place to support the expansion of these and other smaller mines, the increased trucking use on roads necessitates more frequent repairs. Additionally, trucking availability may also decrease at times so the cost of inland shipping increases. Demand for services at the port may increase as well, also possibly causing delays in importing or exporting goods.

The table below further shows the density of roads by province, and the percentage paved for those roads. Note that Antananarivo Province is reported to have the highest density of paved roads (68 percent) and southwestern Toliara Province has the lowest density of paved roads (22 percent).

¹⁸⁴ WFP, 2008, *WFP Madagascar LCA*.

Figure 45. Condition of Major Transport Routes



Source: Autorité Routière de Madagascar.

Note that color coding in map signifies general condition of the route: green = good, yellow = moderate, red = poor.

6.3.2 Rail

The national rail system consists of four railway lines that total 836 km. The lines operating in the northern part of the country are run under a 25-year concession to the private company Madarail. The Fianarantsoa-Manakara line is run by a parastatal. See the table to the right for details.

Capacity. Rail transport is generally slower than truck transport because of poor physical condition and management.¹⁹⁰ Costs on the railway system are roughly equivalent to trucking costs, but the rail has limited coverage. LMM uses rail as its primary means of shipping wheat grain from the port to its mill in Antsirabe and reported general satisfaction with its performance. Although Madarail does not possess any rail cars specifically designed for the bulk shipment of grains, it has retrofitted about 40 wagons for the shipment of wheat grain along the line. LMM noted that the supply of wagons for the

¹⁹⁰ Personal communication with key informant in transport industry, May 2013.

Table 43. Madagascar Rail Lines

	Kms.	Stations
Antananarivo-Toamasina (TCE)	372	22
Antananarivo-Antsirabe (TA)	159	5
Moromanga-Lake Alaotra (MLA)	142	5
Fianarantsoa-Manakara (FCE)	163	-
Total	836	-

Source: WFP Madagascar LCA, 2008; USAID-BEST interviews during May 2013 fieldwork. Note: There are no real stations on the Fianarantsoa-Manakara (FCE) line; the line passes through very small villages between the two endpoint towns.

shipment of wheat grain is sufficient, but that the supply of locomotives is sometimes insufficient, causing some delays.¹⁹¹

Challenges. Delays in deliveries, inadequate national coverage, the potential for theft and other losses, and the overall low efficiency of the national railway system poses usage constraints. Depending on specific routing, the cost of rail is comparable to trucking. If particular roads are especially difficult, then rail could offer an alternative.

6.3.3 Recommended Food Aid Routes

Anticipated Title II programming will need to take into account the limited capacity of secondary and tertiary roads in more remote programming areas. Moreover, mining and manufacturing operations may also increase infrastructure usage (and degradation) in a particular area or zone. The railway system remains a secondary alternative to trucking for Title II partners when transporting food commodities from the Port of Toamasina to the capital and to other distant points. However, the national railway system would be expected to only minimally meet the needs for future Title II programming in Madagascar because of insufficient coverage and general inefficiency.

ADRA does currently use some rail transport from Toamasina to Antsirabe for Title II SALOHI commodities. However, it still must truck those commodities from Antsirabe to its sub-office in Ambositra, and then on to smaller sites for distribution and programming. ADRA also reported the loss of a full rail car of commodities. Rail could only feasibly be used along the Toamasina-Antananarivo-Antsirabe route. The FCE line from Fianarantsoa-Manakara does not function reliably and has low capacity.

Currently, Title II programming under the SALOHI MYAP primarily uses the Port of Toamasina for receiving and transporting commodities to distribution sites, and secondarily uses the Port of Ehoala at Taolagnaro. CRS and its sub-grantees have then used a system of storage and trucking to reach programming sites at generally more remote locations. These sites extend from Mananara Avaratra region in the northeast to

¹⁹¹ Personal communication with key informant in transport industry, May 2013.

sites along the east and southeast coast, the south central highlands, and the deep south in Anosy and Androy regions. If roads become impassable due to rains, cyclones, floods, mudslides, and/or general deterioration, then Title II partners can opt for boats (and rail) as alternatives to move food aid. Awardees have generally handled these frequent challenges through adjustments and flexibility such as providing monthly rations.

6.4. STORAGE FACILITIES

CRS uses sites in Toamasina town, located close to the port, for easier unloading and receiving of commodities. For delivery of the food aid, CRS' sub-grantees use a variety of storage and trucking access options depending on distribution location, use of local partners and/or related local storage sites, and any necessary adjustments from particular shocks. The USAID-BEST team visited storage sites for sub-offices of ADRA, CARE, and Land O' Lakes during field work and they were all substantial and in relatively good condition. Storage at smaller locations for local partners and at distribution sites was also good. However, some smaller storage sites in more remote locations were reported to be not as physically secure because of inferior building materials and poor maintenance, which also exposes the sites to the risk of theft.

The table below shows main storage sites for the four SALOHI partners. The sites are spread throughout eastern, central, southeastern, and southern Madagascar, and with their significant capacity, could serve as a good storage option for disaster response activities.

Table 44. SALOHI Primary Storage In-Country (MT)

SALOHI Partner	Storage Capacity (in MT)
CRS-Toamasina	2,000
CRS-Antananarivo	600
CRS-Fianarantsoa	310
CRS-Ambovombe	300-400
CRS-Tsiombe	300
CRS-Mananjary	200
CARE-Vatomandry	1,000
CARE-Taolagnaro	850
ADRA-Ambositra	500
Land O' Lakes-Manakara	850
Total	6,910-7,010

Source: SALOHI partner field visits, May 2013.

6.4.1 CRS

Location. CRS possesses warehouses in Toamasina, Antananarivo, Fianarantsoa, Tsiombe, Mananjary and Ambovombe. Warehousing in Antananarivo is currently used for non-food items (NFI) separate from SALOHI programming, but

could be used for commodities if needed.

Capacity. The capacity of the CRS warehouse in Toamasina is 2,000 MT, in Antananarivo it is 600 MT, in Fianarantsoa it is 310 MT, in Tsiombe it is 300 MT, in Mananjary it is 200 MT and the two sites in Ambovombe town equal 300-400 MT. This total storage represents roughly half of current SALOHI storage capacity.

Specifications. The Toamasina site can face problems with humidity due to its location at sea level and the nearby Indian Ocean. The Mananjary site is managed by local partner BDM. The Ambovombe sites have a video camera to improve overall security.

6.4.2 CARE

Location. CARE has two warehouses for storage in Vatomandry, on the east coast, and two other warehouses in Taolagnaro, along the southern coast of Madagascar.

Capacity. The two warehouses in Vatomandry have a total capacity of 1,000 MT, and their two warehouses in Taolagnaro have a capacity of 850 MT.

Specifications. Both sites would need to guard against humidity and moisture. The Vatomandry site would also be prone to damage from cyclones. Additionally, CARE staff mentioned that new storage at Amboasary could improve the efficient delivery of Title II commodities, if the new program cycle continues to program in Androy and Anosy regions.

6.4.3 ADRA

Location. ADRA programming covers central Madagascar and specifically the areas of Ambostira, Fandriana, and Manandriana. ADRA also partners with CRS in zones east of these three areas and has a warehouse in Ambositra town specifically for these programming areas, but this storage site could potentially be used for other ADRA activities.

Capacity. The ADRA warehouse in Ambositra has a capacity of 850 MT.

Specifications. The warehouse in Ambositra keeps bags of sand on its roof to protect against damage from high winds during cyclone season. Road conditions complicates accessibility to the site for larger trucks.

6.4.4 Land O' Lakes

Location. The main warehouse in Manakara reaches the areas of Manakara, Vohipeno, Farafangana, and Vangaindrano along the southeast Madagascar coast.

Capacity. The warehouse in Manakara has a capacity of 850 MT.

Specifications. The warehouse is prone to damage from

humidity because it is at sea level and not far from the Pangalanes Canal and the Indian Ocean.

6.4.5 WFP

Location. The three sites of Toamasina in the east, and Toliara and Amboasary in southern Madagascar account for almost 90 percent of WFP’s primary storage. The additional sites (listed in the table below) are all in southern Madagascar.

Capacity. The national capacity for WFP is 11,500 MT.

Specifications. WFP’s six sites were reported to be in good condition. The USAID-BEST field team visited two sites, at Toamasina and at Amboasary. Both of these sites were in very good condition, clean, well maintained, with adequate management and ample storage capacity.

Table 45. WFP Madagascar Storage Capacity, (MT)

Location	Amboasary	Ampanihy	Bekily	Toamasina	Toliara	Tsihombe	Total
Storage Capacity (MT)	3,000	1,000	250	3,500	3,500	300	11,550

Source: WFP/Madagascar.

6.4.6 GoM/Commercial

Commercial storage in Toamasina includes the following sites and capacities: Melvino (1,500 MT), SDV (1,500 MT), and TAMA Distribution (3,500 MT). Additionally, SALOHI partners do not use storage sites in Antananarivo, but CRS has access to a diocesan site that is currently being used for NFIs. If needed during the next Title II cycle, commercial/government storage is generally available but of variable condition in Antananarivo and other larger towns.

6.5. IMPLICATIONS FOR TITLE II PROGRAMMING

The awardee(s) for the next Title II cycle could potentially better oversee transport of food commodities dependent on what areas of the country would be covered and whether such an approach would be cost-effective. For example, under current SALOHI programming, CRS as the awardee could control food movements from Toamasina to Ambositra, and then hand over responsibility to sub-grantees ADRA and Land O’ Lakes at warehousing in Ambositra. However, increased management burden and potential liability would have to be factored into these types of potential programmatic consolidations.

Storage in Amboasary should also be explored for cost-effectiveness and program efficiency if new Title II programming were to continue in Anosy and/or Androy regions. WFP rents a warehouse on the far western side of town that has a capacity

of 3,000 MT that possessed significant excess capacity during the May 2013 USAID-BEST field visit. Renting storage in Amboasary may be more cost-effective than sites in Taolagnaro, especially when factoring in seasonal conditions of roads. Additionally, the Amboasary site could be closer than Taolagnaro to expected future sites for program implementation.

Large mine facilities at Moramanga, Mandena near Taolagnaro area, and other smaller, current mine sites as well as future mining developments can affect related infrastructure that could conflict with the logistics for the next Title II program cycle. Consequently, for example, roads could experience greater damage from the consistent use of heavy-load trucks and the resulting conditions would hinder transport of Title II commodities.

Lastly, Title II partners should be aware of the continuing challenge that corruption poses for efficient management and operations. As much as possible, awardee(s) should seek improved management and greater oversight of activities.

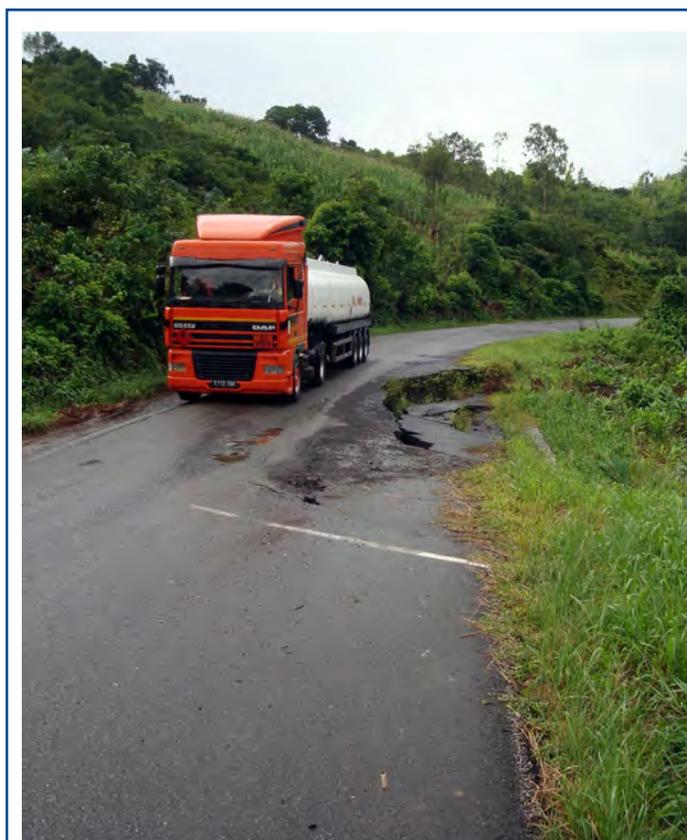


Photo by Fintrac Inc.

A truck passes by a badly damaged section of road on (RN) 2 from Toamasina heading toward the capital. Toamasina, Madagascar, May 2013.

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