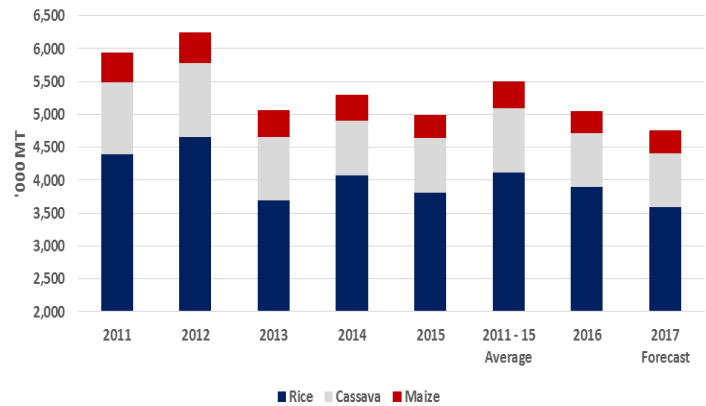


**Madagascar**

**KEY MESSAGES**

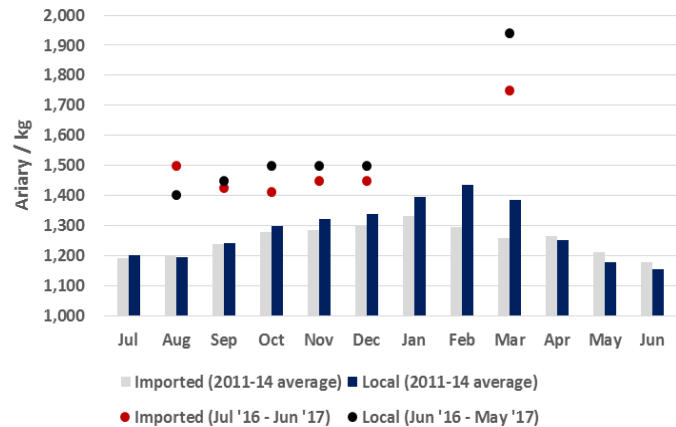
- Madagascar’s 2017 staple food production is expected to remain below average levels. The ongoing main rice harvest will be less than 90 percent of 2016 levels as unexpected early season dryness resulted in a late start to the planting season. Maize and cassava production will see a modest recovery but similarly remain below average (Figure 1). Rice imports will continue to play an important role in staple food supply over the coming months.
- In March, Cyclone EWANO hit northeastern Madagascar and traveled almost the entire length of the Island, flooding agricultural fields, damaging household food stocks, and disrupting trade corridors. Households in the most severely affected areas of Antalaha, Maroantsetra, and Brickaville are increasingly dependent on markets, as supply of key staples remain limited.
- In southern Madagascar, staple food prices remain atypically high following three consecutive years of drought, and are expected to maintain above average levels in the near term. In Antananarivo, local and imported rice prices have been particularly high in recent months with local rice prices peaking at close to 2,000 Ariary per kilogram in March 2017 (Figure 2).

**Figure 1.** Rice, maize and cassava production (2011-2017)



Source: Author’s calculations based on Ministry of Agriculture 2011-2017 data.

**Figure 2.** Local and imported rice prices, Antananarivo



Source: Author’s calculations based on OdR 2016-2017 data.

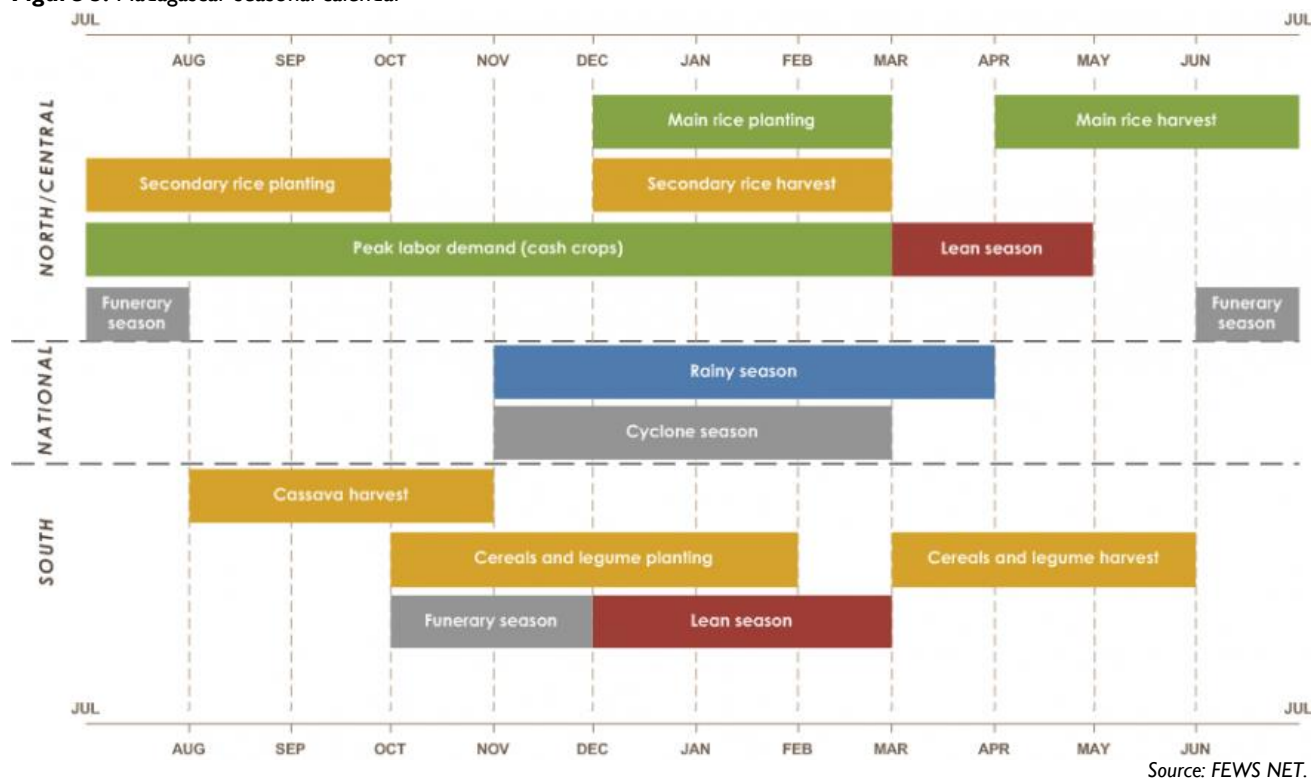
**ABOUT THIS REPORT**

The Famine Early Warning Systems Network (FEWS NET) monitors trends in staple food supply and price trends in countries at risk of food insecurity. The Supply and Market Outlook report provides a summary of staple food availability, surpluses and deficits during the current marketing year, projected price behavior, implications for local and regional commodity procurement, and essential market monitoring indicators. FEWS NET gratefully acknowledges partner organizations, national ministries of agriculture, national market information systems, regional organizations, and others for their assistance in providing the harvest estimates, commodity balance sheets, as well as trade and price data used in this report.

**TYPICAL MARKET AND PRICE TRENDS IN MADAGASCAR**

- Madagascar’s main staples include rice, cassava, and maize with maize and cassava serving as the main substitutes for rice. The country depends on imported rice and maize to meet domestic requirements, particularly during the lean seasons, which run from December through February in the south and from March through May in north and central Madagascar (Figure 3). Imported quantities, though important, are generally small in relation to locally produced quantities (Table 1). Madagascar’s major commodity exports and foreign exchange earners include minerals like nickel and agricultural commodities such as vanilla and cloves.
- Madagascar’s marketing calendar runs from July to June with the main rainy season occurring between November and March (Figure 3). Cereal production is dominant in the northern half of the country while tubers are mainly produced in the south. The major rice harvest occurs from April through June each year and supplies 80 percent of annual production while the secondary rice harvest from December to March accounts for 15 percent of national production. Irrigated rice fields account for 5 percent of total rice production and allow for a third rice season. Other staple foods like sweet potatoes are harvested during the second rice harvest in many parts of Madagascar.

**Figure 3.** Madagascar seasonal calendar



- Rice is the dominant staple for Madagascar in terms of both total area cultivated and consumption per capita. The country is typically 90 - 95 percent self-sufficient in rice production with surplus producing regions largely concentrated in the north, west, and central regions (Table 1). The south and eastern regions are typically deficit rice producers. Rice production is highly localized with poor road infrastructure and storage capacity constraining the flow of rice and other staples to deficit regions in Madagascar.
- On average, Madagascar imports 300,000 metric tons of rice each year to meet local demand preference and localized gaps in rice production. Imported rice volumes are most significant from November through March

and typically enter the country through the main ports of Toliara and Toamasina. India and Pakistan supply close to 80 percent of the imported rice in Madagascar.

- There is a certain level of co-movement in the price for local and imported rice. While imported rice prices tend to be lower on average, local rice prices drop significantly and are lowest during the main harvest from April through June (Figure 2). Rice is also an important source of household income, and fluctuations in rice prices can influence household food availability and access significantly.

**Table 1.** Madagascar commodity balance ('000 MT), 2011/12 – 2015/16 average and 2016/17<sup>1</sup>

	2011/12 - 2015/16 Average			2016/17		
	Rice	Maize	Cassava	Rice	Maize	Cassava
<b>Production</b>	4,128	400	971	3,907	325	817
<b>Imports</b>	294	9	-	198	18	-
<b>Total Supply</b>	4,423	409	971	4,104	343	817
<b>Domestic</b>	2,701	495	834	2,934	537	906
<b>Exports</b>	0.11	3	-	0.88	3.10	-
<b>Total Demand</b>	2,701	498	834	2,934	540	906
<b>Domestic Balance</b>	1,721	(89)	137	1,170	(197)	(89)
<b>Import share of total supply</b>	7%	2%	0%	5%	5%	0%

Source: Author's calculations using Ministry of Agriculture, Direction des Douanes and UN COMTRADE data.

- Cassava is the second most important staple with an average annual production of 3 million metric tons.<sup>2</sup> Madagascar is typically self-sufficient in cassava production with the southern regions of Haute Matsiatra, Androy and Anosy contributing close to 50 percent in annual production. Cassava production has however declined recently following three consecutive years of drought in southern Madagascar. Cassava is harvested throughout the year across major producing areas and prices are lowest from April through June when local markets are relatively well supplied with other key staples such as rice, maize and sweet potatoes.
- Maize is the third most important staple and the second most consumed cereal in Madagascar with annual production averaging 400,000 metric tons per year in cereal equivalent terms (Table 1). Production of maize is largely concentrated in parts of west and central Madagascar and has been mostly stable in recent years owing to limited changes in growing practices and area planted. The main maize harvest runs from March through May and can supply local markets through the end September. Typically, maize grain prices are at the lowest and stable from May through September. Prices begin to increase in October with the start of the main planting season and peak between January and February.
- Madagascar is a deficit maize producer and imports primarily from South Africa and the U.S. to meet local consumption requirements. South Africa on average supplies close to 80% of maize grain and maize meal imported into Madagascar. Maize imports from South Africa dropped from an average of 80 percent to 60 percent in 2016 following two years of drought in southern Africa. The gap in maize imports was largely met by imports from the U.S, which grew from an average of 10 percent to about 34 percent in 2016.

<sup>1</sup> All values are in cereal equivalent terms using a conversion factor of 1.0238 for milled rice, 1.0266 for maize and 0.3108 for cassava.

<sup>2</sup> This corresponds to a little under one million metric tons in cereal equivalent terms.

- Given the major production zones and the state of road networks, Madagascar can be divided into five main marketing basins, which include; the North Basin (Diana, Sava, Sofia and Analanjirifo), Central Basin (Alaotra Mangoro, Analamanga, Bongolava, Itasy, Vakinankaratra and Atsinanana), North West Basin (Boeny, Betsiboka and Melaky), South West Basin (Atsimo Andrefana, Androy, Anosy and Menabe), and the South East Basin (Amoroni I Mania, Haute Matsiatra, Ihorombe, Atsimo Atsinanana and Vatovavy Fitovinany) (Figure 4).

- The North, North West and Central Basins cover the main rice producing regions while the South West and South East Basins cover the major cassava producing regions. Maize production is largely concentrated in the North West Basin and in Central and South East Basin.

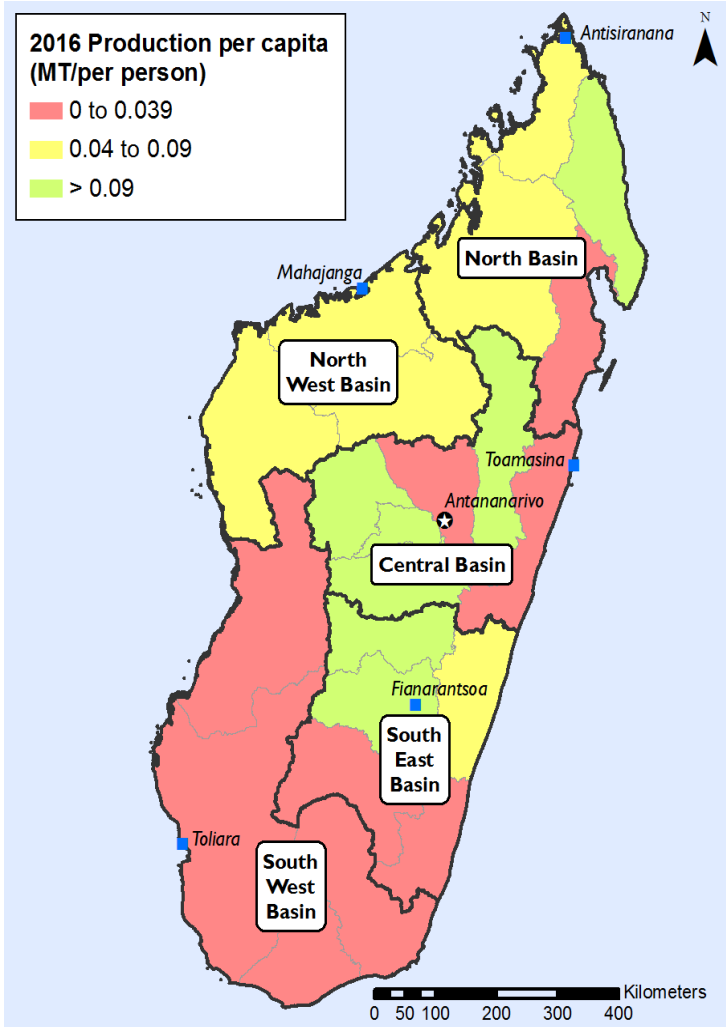
- Production in per capita terms is on average higher in north and central Madagascar and typically lower in the South (Figure 4).<sup>3</sup>

- Antananarivo** and the main port city of **Toamasina** are the key reference markets in the central marketing basin. As the main urban market, Antananarivo is supplied by imports arriving through the port of Toamasina and from key surplus producing areas throughout the country.

- The north marketing basin includes some of the major rice producing regions in Madagascar, which supply the key reference market of **Antsiranana**. The northwest marketing basin covers both rice and maize surplus producing regions, which supply the key reference market of **Mahajanga**.

- The port city of **Toliara** is a key reference market for the southwest basin and is a main source for imported commodities that flow through this region. **Fianarantsoa** is a key reference market for the southeast marketing basin, which covers some of the main rice, maize and cassava producing zones.

Figure 4. Madagascar's main marketing basins

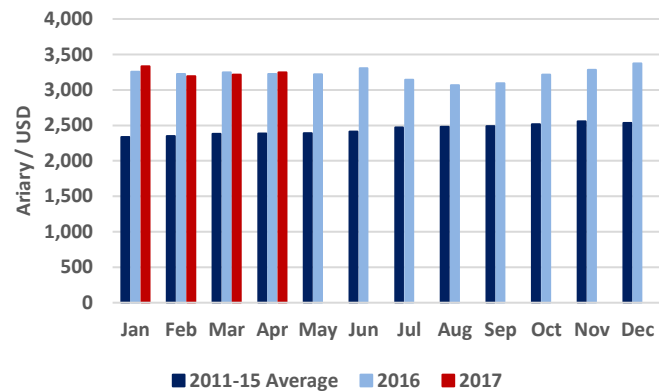


Source: Author's calculations based on Ministry of Agriculture production data and 2016 UN population estimates.

<sup>3</sup> Per capita production is calculated in cereal equivalent terms as the sum of 2016 rice, maize and cassava production divided by the 2016 UN population estimate for each of Madagascar's 22 regions.

- The Malagasy economy grew at an annual average rate of 3 percent between 2011 and 2015. The Ariary was largely stable against the U.S. dollar during this time, following a period of political instability (Figure 5).
- Madagascar’s 2016 economic growth rate is estimated at 4 percent, while inflation rates were moderate and stable for the same period due to improved rice production and relatively stable energy prices (Word Bank). In 2016, the Ariary depreciated by roughly 30 percent against the U.S. dollar but remained stable in month-to-month terms (Figure 5).

**Figure 5.** Malagasy Ariary to USD exchange rates (January 2011 – April 2017)

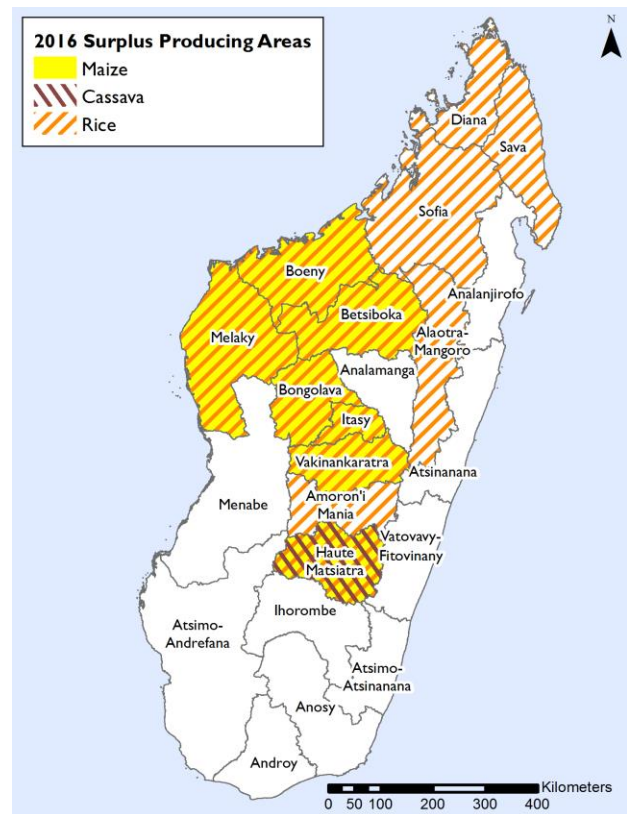


Source: Author’s calculations based on OANDA data.

**CURRENT SITUATION<sup>4</sup>**

- Total staple food production for the 2016/17 marketing year is well below average levels but remains slightly above 2015/16 levels owing to a modest recovery in rice production. Rice production from the main 2016 April to June harvest was 3 percent above previous year levels but remained 5 percent below average. The main 2017 April to June harvest, which is currently underway is expected to continue through July as early dryness resulted in a late start to the season (FAO). Maize and cassava are significantly below average levels and respectively 4 percent and 2 percent below previous year levels (Table 1).
- Following three consecutive years of drought in the south, supply of key staples for the 2016/17 marketing year has been concentrated in the surplus producing north and central Madagascar. There was relatively less disruption to typical local maize and rice flows owing to historically surplus producing regions being located in north and central Madagascar. Cassava, however, saw significant disruption in flows as Haute Matsiatra was the only surplus producing region in 2016. Typically, the regions of Vakinankaratra, Haute Matsiatra, Androy, Anosy, Atsimo Andrefana and Itasy are Madagascar’s main surplus cassava producing areas.

**Figure 6.** 2016 surplus producing areas.

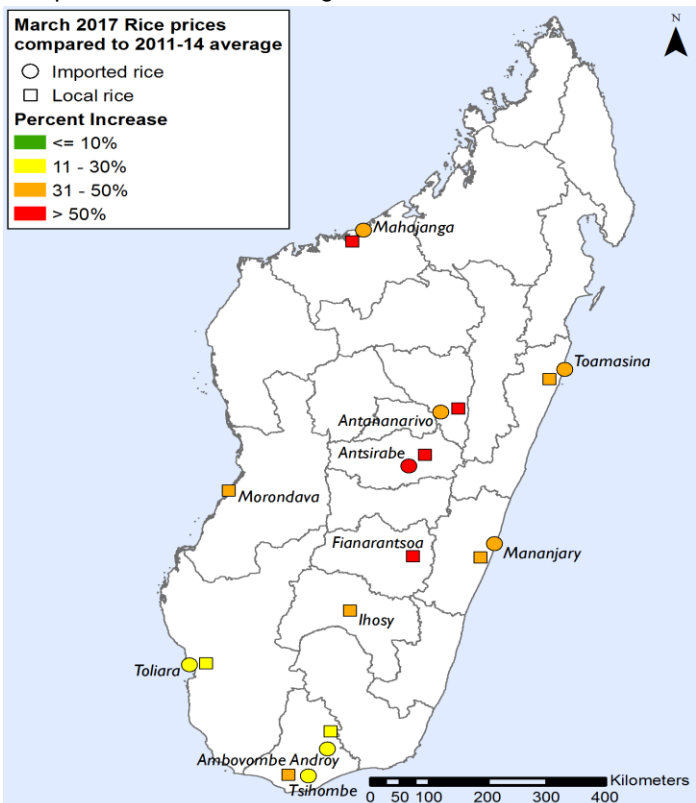


Source: Author’s calculations based on Ministry of Agriculture production 2016 data.

<sup>4</sup> The current situation considers market and supply conditions from the beginning of the current marketing year in July 2016 through April 2017.

- The depreciation of the Ariary in 2016 increased the relative price of imports and weakened Madagascar’s capacity to meet higher import needs given below average domestic production levels (FAO). There was, however a moderate appreciation of the Malagasy Ariary relative to the U.S. dollar in the first quarter of 2017 (Figure 5).
- On March 7, 2017, tropical cyclone ENAWO made landfall in northeastern Madagascar as a Category 4 storm flooding agricultural fields and destroying significant portions of household seed and food stocks. The storm which covered nearly the entire length of the island, affected households in the north, south, east, and central regions before exiting the southeastern region of Anosy on March 10, 2017. Cyclone ENAWO made landfall during the lean season when staple food prices are typically high and markets poorly supplied. In the most affected districts of Antalaha and Maroantsetra in the northeast and Brickville in the east, markets remain largely functional but availability and access to staple foods are severely restricted.
- The cyclone resulted in severe disruptions to local rice flows in Maroantsetra and Antalaha, owing to flooding of rice fields in the key source market of Andapa. Prices in both areas increased by 30 to 40 percent, as traders have to source rice much further in Toamasina. A six-day port closure immediately after the cyclone further constrained availability and access to rice and other imported commodities in Antalaha. In Maroantsetra where household rice fields are typically between 3 to 9 acres, an April 2017 assessment by the Food Security and Livelihoods Cluster found 76 percent of rice fields were damaged by floods and sandblasting.
- In Brickville, the cyclone resulted in less disruption to typical staple food flows. A rapid market assessment in April 2017 showed local rice from Ambatondrazaka continued to supply Brickville while imported rice came as usual from Toamasina. However, rainfall deficits at the end of 2016 and in early 2017 reduced rice production in Ambatondrazaka. Local rice prices have increased significantly in Brickville with the main harvest now expected to be well below average. Poor household are beginning to replace local rice with substitutes such as imported rice, maize, cassava and breadfruit.
- For the 2016/17 marketing year, rice imports are slightly lower than average owing to a modest recovery in this sector while maize imports remained well above average levels (Table 1). Madagascar’s Direction des Douanes data for the first two months of 2017 shows rice import levels were almost 50 percent higher compared to the same period in 2016. Further destruction of rice stocks by cyclone ENAWO has tightened local supplies and kept import needs high.
- Rice prices remain atypically high in key reference markets across Madagascar. In March 2017, prices for both local gasy and imported rice were at least 30 percent above average levels in the surplus producing areas of north and central Madagascar (Figure 7).

**Figure 7.** March 2017 local gasy and imported rice prices compared to the 2011-14 average.



Source: Observatoire du Riz and SISAV bulletin (2017).

- Maize prices in the key reference markets were on average 11 to 30 percent higher for February 2017 compared to February 2016 levels. Cassava prices have mostly been stable for the majority of markets. Maize and cassava prices have, however, began to ease with the main cereal and legume harvest in southern Madagascar but remain above 2016 and average levels respectively.
- In southeastern Madagascar, severe dryness from January to early February 2017 delayed the start of the cropping season, particularly for rice. Prospects for the upcoming March through June harvest has been downgraded as poor crop performance was further exacerbated by flooding from the recent cyclone.
- Cyclone ENAWO affected the eastern vanilla producing regions of Andapa, Antalaha and Sambava, compromising export earning opportunities at a time when global vanilla price are soaring ([World Bank](#)). Early estimates suggests the 2017/18 vanilla crop could be up to 30 percent lower than previous year levels due to the cyclone. Overall performance of this sector will affect casual labor income opportunities for households typically employed to work in vanilla fields.

### PROJECTED MARKET TRENDS THROUGH THE REMAINDER OF THE 2016/17 MARKETING YEAR<sup>5</sup>

- Localized severe dryness and crop damages are affecting Madagascar's broader economic outlook and are expected to result in weaker export earnings and higher import requirements. The exchange rate will remain weak relative to average levels. Inflation is expected to remain firm while fuel prices will be stable as global oil prices stay below average levels.
- The main 2017 April to June rice harvest is expected to be less than 90 percent of 2016 levels as early season moisture deficits resulted in a late start to the main rice-planting season in the surplus producing north, central highlands and southeastern forest corridor of Madagascar (Figure 9). Additionally, rice fields in the northeastern region were flooded in early March as cyclone ENAWO made landfall. Maize and cassava production are expected to improve slightly in 2017 because of beneficial rains, but will remain below average levels.

**Figure 8.** Rice, maize, beans and dried cassava on display in Andrahavoangy Market, Antananarivo



Source: FEWS NET, May 2017

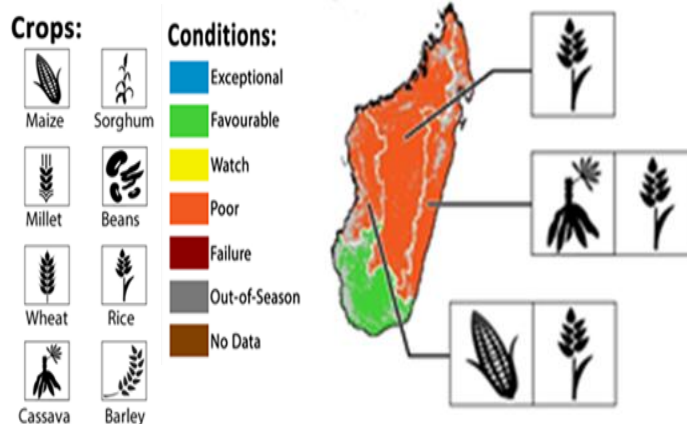
- Imports will continue to play an important role in covering any projected shortfalls in local production, particularly for rice given current expectations for lower 2017 production. Rice prices, which are already significantly above average levels will follow seasonal patterns and decline as the main rice harvest progresses

<sup>5</sup> Projected market trends cover the market and supply outlook through June 2017, corresponding to the end of the current marketing year.

through June 2017 (Figure 8). The weak Ariary is expected to keep import costs up and rice prices will continue to remain well above average levels through the end of the 2016/17 marketing year.

- In southern Madagascar, improved rainfall in recent months largely eliminated previous moisture deficits from a late start to the rainy season (Figure 9). However, cropped areas were slightly below normal levels as farmers had depleted their seed stocks following three consecutive years of El Niño-induced drought. Additionally, there have been reports of caterpillar and rat damage to an estimated 5 percent of crop in south and southeastern Madagascar. Seed distribution by humanitarian organizations, though significant, was not able to cover existing gaps in seed supply. Favorable rains mean crop yields will be higher than last year's levels, particularly for legumes, maize and cassava.

**Figure 9.** Madagascar crop conditions over main growing areas, May 2017



Source: Adapted from GEOGLAM Crop Monitor for Early Warning (2017).

- For southern Madagascar, maize prices will follow seasonal trends and ease slowly through June 2017 but will continue to remain above average levels. Any decrease in maize prices will however be moderated by the combined effect of below average area cropped as well as the extent of damage from pests. Cassava prices will follow seasonal trends and continue falling through June 2017.
- There will be higher than usual market dependence in Antalaha, Maroantsetra and Brickaville, where staple food availability will continue to be limited and prices will remain atypically high through June 2017. Household purchasing power is expected to remain weak in the near term, as losses to the vanilla and rice crops limit casual labor income opportunities.
- In Antlaha trader stocks fell significantly immediately following the cyclone and are expected to remain at low levels through June 2017. On average, 71 percent of rice traders reported having some level of stock before the cyclone but this number dropped to 59 percent immediately following the storm. Similarly, there was limited availability of maize grain in markets. For cassava, which is typically stored in the fields, supplies will remain limited following crop loss from post cyclone flooding in some areas.
- Trader expectations regarding stock duration remain dampened because of the cyclone. For Antlaha, April rice stocks, which were expected to last 2.5 months prior to the cyclone, is now expected to last 1.8 months. Pre-cyclone ENAWO stock levels for beans and vegetable oil were expected to each last 2 months but are now expected to last 1 month and 2.1 months respectively. The more rapid depletion of bean stocks is due to its increasing use by consumers as a meat substitute during difficult times and particularly as an accompaniment for rice.



**FACTORS THAT MIGHT CHANGE THE OUTLOOK**

Possible events for the remainder of the 2016/17 marketing year that could change the most likely scenario.

Indicator	Justification
Significantly below average rice harvest in surplus producing areas in the north and central highlands of Madagascar	<p>Below average rice harvest in typically surplus producing areas can significantly weaken both household income levels while further tightening market supply.</p> <p>Lower than expected household incomes could result in a prolonged lean season in parts of north and central Madagascar as purchasing power weakens further.</p>
Below average cereal and legume harvest in southern Madagascar	<p>Favorable seasonal forecast expected to result in higher yields relative to previous year levels. However, cropped areas were below normal levels following three consecutive years of drought while there are ongoing reports of pest damage to the maize crop in the southeast.</p> <p>Net impact on overall availability and access at the market level will depend on factors like the extent to which higher yields are able to compensate for the lower than normal area cropped for key staples like maize.</p>
Intensification of food assistance	Humanitarian assistance (both cash and in-kind) in areas affected by cyclone ENAWO could result in higher demand for local staples and consequently further increase prices if supply continues to be insufficient.

**MARKET MONITORING INDICATORS FOR 2016/17 MARKETING YEAR**

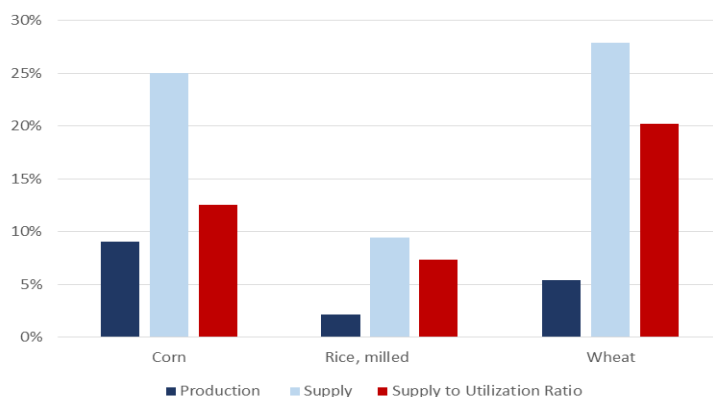
The following key indicators are recommended for ongoing monitoring that may affect the evolution of markets in Madagascar over the coming months.

Indicator	Justification
Currency fluctuations	<p>Unexpected fluctuation of the Malagasy Ariary vis-à-vis major currencies will influence import and export flows.</p> <p>Currency fluctuation against the USD may influence import parity prices for key imports such as rice and fuel, while fluctuations vis-à-vis the Euro may influence export parity prices for vanilla and minerals destined for Europe.</p>
Global commodity price levels	<p>Recent cuts in crude oil production by both OPEC and non-OPEC member countries have led to modest increase in crude oil prices. This could potentially affect the cost of imported commodities in coming months should this trend continue.</p> <p>Global vanilla prices have been high in recent years and will continue to support Madagascar's export earnings. The extent of this benefit will depend on the quantity of exportable vanilla crop available in the aftermath of cyclone of ENAWO.</p>
Cereal and tuber price levels in the southern region	<p>Given anomalous market behaviors in the past three years, the following "areas of concern" will continue to be monitored for atypical price movements, even as harvests progress:</p> <ul style="list-style-type: none"> <li>- Ampanihy district in the region of Atsimo Andrefana</li> <li>- Beloha, Tsihombe and Ambovombe districts in the region of Androy</li> <li>- Amboasary Atsimo district in the region of Anosy</li> </ul>
Humanitarian assistance in southern Madagascar and areas affected by cyclone ENAWO	Access to humanitarian assistance (both cash and in-kind) will continue to be important for certain parts of the south that are still recovering from three consecutive years of drought as well as in areas more recently affected by cyclone ENAWO.

**Annex I. Global Staple Food and Fuel Market Supplies and Price Trends**

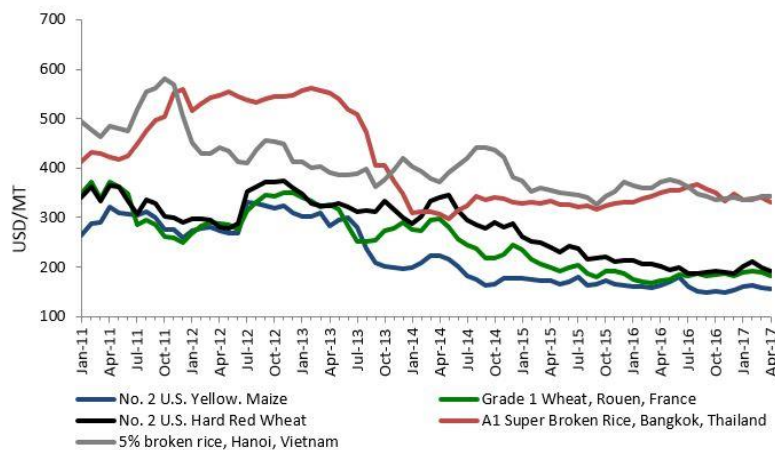
- Global commodity markets are currently well supplied with rice, wheat and maize (Figure 10). Grain prices rose steadily in the first half of 2016 but remain well below their respective 2015 and five-year average levels. There was a slight uptick in global grain prices during the first quarter of 2017 owing to shortfalls in U.S. maize and wheat output. (Figure 11). Early assessments for the current season point to good crop conditions with expectations for adequate supplies of most commodities (World Bank). For India and Pakistan that are the main suppliers of imported rice to the Malagasy market, the FAO’s tentative forecasts point to an overall increase in 2017 production relative to 2016 levels (FAO).

**Figure 10.** Global Market Indicators, 2016/17 compared to 2011-2015 average



Source: Authors’ calculations based on USDA, 2015 and World Bank, 2015.

**Figure 11.** Global Commodity prices (USD/MT) January 2010 - April 2017



Source: Authors’ calculations based on USDA, 2015 and World Bank, 2015.

- Global crude oil prices were generally stable in 2016 and remained on average 15 percent below 2015 levels. Crude oil prices, however, increased by 8 percent during the first quarter of 2017 on lower production by the Organization of Petroleum Exporting Countries (OPEC) and non-OPEC producers (World Bank). Oil prices are projected to be 26 percent higher in 2017 compared to 2016 levels but export prices are not expected to reach their respective 2014 or early 2015 levels in the near term (World Bank).
- FEWS NET will continue to monitor the global commodity situation in the coming months as global 2017 commodity supply estimates by the USDA, International Grains Council (ICG), the FAO, and AMIS are updated.