COUNTRY SNAPSHOT

Population: 23,812,681
- Urban: 8,358,251 (35%)
- Rural: 15,454,430 (65%)

Rice Availability (g/c/d): 281
- Urban: 131-283
- Rural: 283-420

Rice market: Imported: likely long-grain white rice; domestic varieties long or short-grain and variable in appearance

Production: USDA, 2016 2.368 MMT
- FAO, 2013 2.408 MMT

Domestic industrial rice milling: None

Regional trade: Estimates are unavailable.

IMPORTS

Number of importers: Approximately 30 countries reported by Customs to have imported rice. Top 11 importers comprise 67% of the market.

Mode of imports: 100% containers

Total imports: USDA, 2016 400,000 (MT)
- UNC, 2014 365,996
- FAO, 2013 395,000

Type & Origins

<table>
<thead>
<tr>
<th>Type</th>
<th>MT (% of imports)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown rice</td>
<td>431 (0.1%)</td>
</tr>
<tr>
<td>Broken rice</td>
<td>34,708 (9.48%)</td>
</tr>
<tr>
<td>Pakistan</td>
<td>24,313 (70.1%)</td>
</tr>
<tr>
<td>India</td>
<td>10,109 (29.1%)</td>
</tr>
<tr>
<td>Semi/wholly milled</td>
<td>330,743 (90.37%)</td>
</tr>
<tr>
<td>Rice</td>
<td>Pakistan</td>
</tr>
<tr>
<td></td>
<td>168,986 (51.09%)</td>
</tr>
<tr>
<td></td>
<td>India</td>
</tr>
<tr>
<td></td>
<td>149,276 (45.13%)</td>
</tr>
<tr>
<td></td>
<td>Thailand</td>
</tr>
<tr>
<td></td>
<td>6,802 (2.06%)</td>
</tr>
<tr>
<td></td>
<td>Viet Nam</td>
</tr>
<tr>
<td></td>
<td>4,509 (1.4%)</td>
</tr>
</tbody>
</table>

Sources: 1 CIA Factbook 2015 2 Overall estimate is FAO 2013; Urban/rural availability is FFI estimate assuming the urban population consumes 100% of imported rice and the rural population consumes 100% of the domestically grown. As it’s likely some domestically grown rice reaches the urban consumer, the range represents the calculations and the average FAO availability as the upper or lower boundary 3 UN Comtrade 2014; only country sources with at least 1% are presented; Abbreviations: MMT = million metric ton, MT = metric ton, USDA = United States Department of Agriculture, FAO = Food and Agriculture Organization, UNC = UN Comtrade.

Harvesting rice in Madagascar. Photo: Masika Sipa/MADA Magazine
REPUBLIC OF MADAGASCAR

EXECUTIVE SUMMARY
Rice at 283 grams daily per capita is the most important cereal grain in Madagascar. About 90% of domestic rice is husked by small mills or hand-pounded and accounts for over 85% of rice consumption. A few semi-industrial mills produce branded, packaged rice for sales in a limited number of supermarkets. The number of semi-industrial rice mills has actually declined in the last 20 years due to high competition of small husking mills operating informally.

Multiple rice importing companies source rice from India and Pakistan by the container. Imported rice is considered low-quality and inferior to domestically grown rice. Rural consumers are unlikely to consume any imported rice, and the urban consumer likely supplement imported rice with local rice.

It is unlikely that either imported rice or domestically grown rice can be fortified in Madagascar. Domestically grown rice is milled in a fragmented and informal industry, while the imported rice industry also features multiple players sourcing possibly from several different mills in India and Pakistan with unknown feasibility to blend fortified kernels.

Table 1: Demographics and annual rice availability (milled equivalent)

<table>
<thead>
<tr>
<th>Population</th>
<th>Urban</th>
<th>Availability (MMT)</th>
<th>Imports (MMT)</th>
<th>Exports (MMT)</th>
<th>G/c/d</th>
<th>Production (MMT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.8 M</td>
<td>35.1%</td>
<td>2.35</td>
<td>0.400</td>
<td>0</td>
<td>281</td>
<td>2.368</td>
</tr>
</tbody>
</table>

2011-2016 trend

+2.6%/year | +4.7% | -0.78% | +39.8% | -- | -- | -2.34% |

G/c/d: grams per capita per day; MMT, million metric tons
1 CIA Factbook
2 FAO Food Balance Sheets, 2013
3 USDA, 2016

GRAIN CONSUMPTION AND FORTIFICATION STATUS
Average per capita daily consumption is estimated at 281 grams. Rice is the key cereal grain consumed in Madagascar, but starchy roots are also a key source of carbohydrates at 429 g/c/d. Comparison between 2003 and 2013 FAO estimates show limited changes in the consumption of wheat, maize, and rice in Madagascar.

There is no mandatory grain fortification program in Madagascar. The only wheat mill operating in the country (Seaboard-owned) does not fortify.

Table 2: Cereal grain consumption/availability and fortification status

<table>
<thead>
<tr>
<th></th>
<th>FAO 2003 g/c/d</th>
<th>FAO 2013 g/c/d</th>
<th>Mandatory?</th>
<th>% Industrially milled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>20</td>
<td>23</td>
<td>No</td>
<td>100%</td>
</tr>
<tr>
<td>Maize</td>
<td>46</td>
<td>49</td>
<td>No</td>
<td>Unknown</td>
</tr>
<tr>
<td>Rice</td>
<td>272</td>
<td>283</td>
<td>No</td>
<td>0%</td>
</tr>
</tbody>
</table>

G/c/d: grams per capita per day
1 FAO Food Balance Sheets
2 FFI Database
Urban
Madagascar’s population is just 35% urban, and concentrated in the capital of Antananarivo (2.61 million residents, or 60% of the urban total). Without a food consumption survey or other data to describe regional food patterns, it is assumed that city and rural dwellers consume about the same amounts of rice on a daily basis. However, the urban population is likely to consume a higher proportion of imported rice and wheat-based products, including bread and pasta. In the countryside more cassava and other starchy roots are consumed alongside domestically grown rice.

If the urban population consumed the entirety of the 400,000 tons of imported rice, per capita availability of imported rice alone would be 131 g/c/d. As rice is grown close to, or even in, the capital city¹, it is likely that the urban population also consumes domestically grown rice.

Rural
Rice is the main food of the rural population in all parts of the country except the far south, where there is insufficient rainfall for rice, and maize is more important. Given low quantities of rice imported, it is unlikely that any of the rural population consumes imported rice. If the rural population consumes 100% of the domestically grown rice, then average per capital per day availability of rice could be 420 g/c/d.

Rice varieties and quality
Rice has been grown in Madagascar since the original inhabitants arrived 1,500 to 2,000 years ago, bringing with them rice seed from what is now Indonesia and Malaysia. Locally grown rice is categorized into three groups, Tsipala, Makalioka, and Vary Gasy (literally, Malagasy rice, so anything that does not fall into the first two categories). Tsipala and Makalioka have distinctive appearances, the former being short and round, and the latter long. Makalioka is considered high-grade rice – well processed rice is the most expensive rice in Madagascar and sold in branded packages in urban supermarkets. By contrast, Vary Gasy can be variable in appearance and accessibility in local markets. One study found that 68% of the rice sold in Malagasy local markets were Vary Gasy and 259 different kinds of rice were sold as Vary Gasy².

Domestically grown rice is reportedly preferred by consumers, and imported rice considered inferior in taste and quality¹. Imported varieties are 90% white rice (not broken, paddy, or brown rice) from India and Pakistan³. Imported rice is known as riz de luxe.

Rice is typically cooked as a soupy porridge, not unlike rice porridges like ‘jook’ and ‘chao’ in Asia¹.

DOMESTIC RICE PRODUCTION
Rice is by far the most important cereal crop, making up around 85% of all cereals production. Farmers grow about 70% for self-consumption and just 30% is commercialized.

¹ Zahana. Rice is vitally important to Madagascar, culturally and as its primary, most important food people like to eat. http://www.zahana.org/Picture_galery/Rice.html
Table 3: Madagascar cereals production - 2016

<table>
<thead>
<tr>
<th>Cereals (MMT)</th>
<th>Rice (milled)</th>
<th>Maize</th>
<th>Millet</th>
<th>Sorghum</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>2.368</td>
<td>0.450</td>
<td>N/A</td>
<td>N/A</td>
<td>2.818</td>
</tr>
</tbody>
</table>

1 USDA, 2016 / IndexMundi

Table 4: Madagascar rice production, 2012-2016 (MMT)

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.913</td>
<td>2.311</td>
<td>2.546</td>
<td>2.382</td>
<td>2.368</td>
<td>2.578</td>
</tr>
</tbody>
</table>

1 USDA, 2016 / IndexMundi

Production, area and yields
Rice production in recent years has failed to keep pace with population growth. The five-year average from 2012-2016 was slightly less than the average for the previous five years. Production of 2.368 MMT 2016 was about 22% less than in 2010, when production peaked at 3.032 MMT.

The rice-planted area has not increased since 2009 and yields have actually fallen. Milled rice yield per ha was only 1.6 tons in 2015, compared to 2.6 in 2010.

A census carried out in 2005 put the number of rice farmers at over 2 million, so roughly over 80% of all rural households. With the exception of the south, nearly all rural households grow rice. Average plot size is about 1.2 ha.

Urban distribution
Traders bring milled rice or paddy from the countryside to the cities. Most sales occur in sprawling popular markets where small vendors with market stalls sell rice out of bulk bags by the scoop. Poorer families buy rice every few days. Higher income families purchase 25 kg bags. Imported white rice is sold in popular markets in the same manner.

International support
Madagascar has faced many years of political turmoil. A contested election in 2009 caused most international donors to withdraw funding of their projects, halting the country’s development. One effect of this absence of support may be the lack of progress in increasing rice yields, which depend on imported inputs. In 2013 there was some resolution to the political conflict, and much international aid resumed.

FAO and AfD (France’s international development agency) have provided support for regular collection of price and other market data by Plan d’Action pour le Developpement Rural (PADR).

IMPORTED RICE INDUSTRY
Rice is Madagascar’s most important imported food commodity, though the 400,000 MT only account for 14% of total rice consumption.

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Table 5: Annual rice import volumes, 2012-2016 (MMT)

<table>
<thead>
<tr>
<th>Year</th>
<th>Rice imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>0.22</td>
</tr>
<tr>
<td>2013</td>
<td>0.56</td>
</tr>
<tr>
<td>2014</td>
<td>0.25</td>
</tr>
<tr>
<td>2015</td>
<td>0.30</td>
</tr>
<tr>
<td>2016</td>
<td>0.40</td>
</tr>
<tr>
<td>Average</td>
<td>0.346</td>
</tr>
</tbody>
</table>

1USDA, 2016 / IndexMundi

Rice origins
Customs data show India and Pakistan as the source of nearly all imported rice at least since 2014. UN Comtrade data also indicates that India and Pakistan dominate imports, with 44% and 53% respectively. The remainder comes from Viet Nam and Thailand but comprise only 3% of rice imports.

Mode of imports
All imports are containerized shipments in 50 kg bags. Given the relatively short distances between India and Pakistan and Madagascar, most shipping may be in smaller vessels. The imports arrive in the country’s four main ports: Diego Suarez (Antsiranana) in the far north, Majunga (Mahajanga) on the west coast, Tamatave (Toamasina, the largest) on the east coast, and Fort Dauphin (Taolagnaro) in the far south.

Rice importers
One set of customs data shows that around 30 companies have imported rice since 2014. No single company dominates the market by a wide margin – the 11 top importers comprise only 67% of the market (Table 6). Further, the Customs data made available only indicates only 57,000-59,000 tons of rice were imported in 2014 and 2015, which is less than 20% of USDA’s reported imports. Therefore, the exact quantities from each company may be in question.

Table 6: Major rice importing companies in Madagascar

<table>
<thead>
<tr>
<th>Company</th>
<th>Headquarters</th>
<th>Import share*</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emke Global Trading</td>
<td>Toamasina</td>
<td>12.5%</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Sodiagri</td>
<td>Majunga</td>
<td>10%</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Nasir Trading</td>
<td>Toamasina</td>
<td>7%</td>
<td>Pakistan/India</td>
</tr>
<tr>
<td>Kayun Trading</td>
<td>Tulear</td>
<td>6%</td>
<td>India</td>
</tr>
<tr>
<td>Tranombarotra</td>
<td>Multiple</td>
<td>6%</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Imco Madagascar</td>
<td>Toamasina</td>
<td>5%</td>
<td>Pakistan</td>
</tr>
<tr>
<td>AMG Madagascar</td>
<td>Toamasina</td>
<td>5%</td>
<td>India</td>
</tr>
<tr>
<td>Global Trading</td>
<td>Fort Dauphin</td>
<td>4%</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Jericot Import</td>
<td>Toamasina</td>
<td>4%</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Kyna Impex</td>
<td>Ampitatifika</td>
<td>4%</td>
<td>India</td>
</tr>
</tbody>
</table>

1Import companies reporting over 2,000 tons of rice in 2015; Share % based on Customs data

Imported rice storage
Imported rice is stored in bags in importers’ warehouses near the port areas. There is 120,000 m² of open-air storage at the Port of Toamasina, the largest port in the country, as well as

5 Customs 2014, Personal communication to Key Consulting in April 2016.
http://dlca.logcluster.org/display/public/DLCA/2.1.1+Madagascar+Port+of+Toamasina
warehouse storage at the other main ports: Diego Suarez\textsuperscript{7} (800 m\textsuperscript{2}, container storage), Mahajanga\textsuperscript{8} (2,300 m\textsuperscript{2}, warehouse) and Taolagnaro\textsuperscript{9} (2,000 m\textsuperscript{2} warehouses).

GOVERNMENT RICE POLICIES AND PROGRAMS
A period of Soviet influence lasted until around 1993, after which democratic reforms and market liberalization was introduced.

The Madagascar Action Plan of 2007-2012\textsuperscript{10} called for increasing rice production as a method for stimulating economic growth. The Plan’s goal was to reach a domestic paddy volume of 5 MMT. A new plan does not appear to have been made.

Rice is the only commodity on which import duties and VAT are waived. Consequently there is much falsification of shipping documents so that other commodities arriving in 50 kg bags in containers, such as wheat flour, sugar and cement, are sometimes classified as rice.

RICE MILLING

\textit{Village milling}
Almost all domestically grown rice is milled at the village level via hand pounding. Some village mills have a one-cycle gasoline engine, like for a lawnmower. They are imported from China and cost just USD 700. Peasants bring their paddy rice for milling, and the mill operator keeps the husks and rice bran (likely used for fuel and animal feed) as payment.

\textit{Small enterprise milling}
The rice industry was liberalized in the 1990s, resulting in a proliferation of small mills. A census in 2005 put their number at over 2,000. That has certainly increased in the intervening 10 years.

\textit{Semi-industrial and industrial milling}
Most of the dozen or semi-industrial rice mills that operated in the formal sector have stopped due to competition from small mills in the informal sector, which do not pay taxes. A small number of government-owned, industrial rice mills were built during the period of Soviet influence from 1975 to 1992 but have stopped operations.

Among the companies that procure domestic rice for milling and packaging for distribution to supermarkets are Societe Industrielle et Agricole du Lac Alaotra SARL (SILAC) and Adamas, subsidiary of MGT Sarl. These companies rely on a few small semi-industrial mills still operating in one zone with a highly desirable local variety (likely to be Makalioka).

Domestic rice storage
Rice is mostly stored at the village level using traditional methods.

WHOLESALE AND RETAIL TRADE

Wholesale
About 30,000 collecting agents buy rice from farmers and farmer groups and sell the rice in towns and cities to market vendors.

Retail
Cost of 1kg bag of rice is estimated at 963.88 ariary\(^1\) (USD 0.30\(^2\)). Most families buy rice from open sacks in popular markets by the scoop, often on a daily basis. Families with more resources buy 25 kg bags at a time. While Makalioka rice is the most expensive kind of rice in Madagascar, prices between Tshipala, Vary Gasy, and imported rice do not vary greatly\(^2\). White long-grain rice is more expensive than short-grain or red rice.

WORLD FOOD PROGRAMME
In 2015 WFP provided support to 680,000 vulnerable people living mainly in the southern and southern parts of the country. Support for school feeding programs including “Home Grown” school feeding as one of the principal programs. Rice is the main carbohydrate in the WFP food basket.

REGIONAL TRADE
There is a history of limited exports of Malagasy rice to the island of Reunion, an overseas French department off the east coast of Madagascar. Rice is a staple food in Reunion but there is no local production and about 50,000 tons per year are imported. Since about 2010 there has been an initiative to produce organic rice in Madagascar for use in Reunion restaurant trade.

REGULATORY MONITORING
It is likely that the Ministry of Trade & Industry, which is responsible for the trade of food products, and Ministry of Health would share regulatory duties for fortification. Ministry of Commerce could also have a role, as it serves as the National Codex Contact Point\(^3\).

RICE FORTIFICATION – SWOT ANALYSIS

Strengths
• The urban population consumes imported rice and potentially could be reached through fortification. However, even if only the urban population consumed imported rice, this would only cover about two-thirds of the per capita daily intake for the urban population.

Weaknesses
• There is no existing grain fortification program.

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• The rural population is unlikely to consume any imported rice, and the domestic milling infrastructure is fragmented and unlikely to be able to fortify. Government tax policies favor small mills over larger mills.
• The rice sourcing supply chain is relatively fragmented: a large number of rice importing companies (unclear how many are legitimately importing rice) source by the container from India and Pakistan.

Opportunities
• N/A

Threat
• It is likely that rice importers prioritize prices over quality from India and Pakistan exporters. Adequately fortifying rice could be a difficult requirement for these exporters.
• Poor quality Customs data and local importer information indicates poor regulatory monitoring to control false rice imports.
Appendix 1. RICE INDUSTRY CONTACTS

Company
MGT Sarl / Adamas
Lot 111 G55
Ouest Ambohijanary 101, Tana Ville
Antananarivo
Jean Jocelyn Rakotoarvelo, Responsible Administratif et Financier
Mobile +261 34 05 61406
comptabilite.azk@adamas.mg
Franck Yves, Assistant Administratif Adamas
Mobile +261 34 056 1409
logistique:itr@adamas.mg

Company
Rizerie Rabehaja / Transportateur Rabehaja Ramamanchaibe
Rabenawo (next to siege BNI CL, Analankely)
Lot AZ Ai 167 Ter
Anosizato Ouest
Richard Rabehaja, Owner
rabejadradiana@gmail.com
Mobile +261 32 65 139 65

Company
Societe Industrielle et Agricole du Lac Alaotra SARL (SILAC)
Antananarivo 101
BP 572
Madagascar
Office +261 20 22 230 54 or +261 20 22 672 48
nirico@moov.org or sila@moov.org
Alain Rasolofondraibe, CEO

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