CÔTE D’IVOIRE

COUNTRY SNAPSHOT

Population\(^1\): 23,295,302
  Urban: 12,626,054 (54%)
  Rural: 10,669,248 (44%)

Rice Availability\(^2\) (g/c/d): 167
  Urban: 208
  Rural: 500

Rice market:
Majority 15% broken white milled rice, luxury preference for fragrant white rice with low percent of brokens.

Production:
  USDA, 2016  1.95 MMT
  FAO, 2013  1.2 MMT

Domestic industrial rice milling: 8% of total domestic production.

Regional trade: Regional trade with landlocked neighbors: Mali, Burkina Faso, and Guinea.

IMPORTS

Number of importers: 5 large importers comprising 100% of the importing market.

Mode of imports:
Break-bulk; one importer planning silo storage to allow bulk shipping.

Total imports:
  USDA, 2016  900,000 (MT)
  UNC, 2014  952,601
  FAO, 2013  890,000

Type & Origins\(^3\)

<table>
<thead>
<tr>
<th>MT (% of imports)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown rice</td>
</tr>
<tr>
<td>Paddy rice</td>
</tr>
<tr>
<td>Broken rice</td>
</tr>
</tbody>
</table>
  Thailand          | 209,790 (60.5%) |
  Viet Nam          | 57,305 (16.5%) |
  India             | 32,806 (9.5%) |
  Myanmar           | 22,482 (6.5%) |
  Pakistan          | 21,300 (6.1%) |
| Semi/wholly milled| 29,879 (63.5%) |
  India             | 174,725 (28.9%) |
  Viet Nam          | 168,219 (27.8%) |
  Thailand          | 146,986 (24.3%) |
  Myanmar           | 51,816 (8.6%) |
  Pakistan          | 44,397 (7.3%) |
  USA               | 14,210 (2.4%) |

Sources:
1. CIA Factbook 2015
2. Overall estimate is FAO 2013; Urban/rural estimated by FFI using USDA 2016 domestic production and import and CIA Factbook population data – the large discrepancy between USDA 2016 and FAO 2013 production data accounts for the conflicting overall and urban/rural estimates.
3. UN Comtrade 2014. Abbreviations: MMT = million metric tons, USDA = United States Department of Agriculture, UNC = UN Comtrade, FAO = Food and Agriculture Organization, MT – metric tons, USA = United States of America.

Rice imports in Côte d’Ivoire. Photo: Alexis Adele/IRIN
CÔTE D’IVOIRE

EXECUTIVE SUMMARY
Rice is by far the most important staple cereal crop in Côte d’Ivoire. At 174 grams daily per capita, Ivoirians have one of the highest rates of rice availability in Africa.

Due to increased political stability, allowing for greater planted area, domestic rice production of 1.8 MMT is now over four times the level of ten years ago. Compared to domestic production, imports have been relatively stable for the last decade; thus the share of imported rice in both urban and rural consumption has been declining.

In the immediate short term, the fortification of imported rice is most feasible; as such the public health impact would largely be limited to the urban population. The feasibility of imported fortified rice is facilitated by the fact that one company controls about 80% of the imports, while industrial milling of domestically grown rice is still only a small proportion of the total consumed rice in the country (8%). However, the Government has pledged investments to domestic milling capacity that could result in 54% of domestic supply milled. Given significant financial incentives for investing in domestic milling combined with recent large increases in domestic production, the import community is unlikely to accept a national fortification strategy that does not include domestic production. The development of domestic milling industry should be monitored for opportunities in the near future.

Table 1: Demographics and annual rice availability

<table>
<thead>
<tr>
<th>Population</th>
<th>Urban</th>
<th>Consumption (MMT)</th>
<th>Imports (MMT)</th>
<th>Exports (MMT)</th>
<th>G/c/d</th>
<th>Production (MMT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.3 million</td>
<td>54%</td>
<td>2.2</td>
<td>0.8</td>
<td>0.05</td>
<td>174</td>
<td>1.4</td>
</tr>
</tbody>
</table>

2011-2016 trend

| | +1.9 per year | +12.3% | +1.4% | +60.6% | -- | +30.3% |

G/c/d: grams per capita per day; MMT, million metric tons

GRAIN CONSUMPTION AND FORTIFICATION STATUS

Total consumption
Rice is the most highly consumed cereal grain in Côte d’Ivoire, compared to maize or wheat (Table 2). However, starchy roots are also an important source of carbohydrates, with an estimated 822 g/c/d. Since 2003, wheat and maize consumption has roughly remained the same, with a small increase in rice consumption (Table 2). Estimates likely vary by regions and urban/rural status; a 2014 household consumption survey in Abidjan found that women of reproductive age consumed on average 125 g/c/d of wheat flour. Without dietary consumption data, it is unclear what subnational dietary patterns are for the various cereal grains.

Fortification of wheat flour and oil has been mandatory since 2007. Prior to mandatory status the

2 Rohner et al. The Potential of Food Fortification to Add Micronutrients in Young Children and Women of Reproductive Age – Findings from a Cross-Sectional Survey in Abidjan, Côte d’Ivoire. PLOS ONE | DOI:10.1371/journal.pone.0158552
government had a program for the promotion of fortified foods (Programme Ivoirien de la Promotion des Aliments Fortifiés, PIPAF), which was supported by GAIN. Standards for wheat flour fortification could be improved by clarifying use of appropriately bioavailable iron compounds and increasing iron levels to align with WHO recommendations.\(^3\)

The FAO 2013 estimate of 175 g/c/d suggests only 1.48 MMT of rice is available as food in Côte d’Ivoire, while FAO 2013 also reports 1.3 MMT milled domestic production and 0.9 MMT milled rice imports (total availability 2.2 MMT). USDA 2016 reports 1.95 MMT domestic production and 0.9 MMT milled rice imports, for a total of 2.85 MMT availability. It appears that rice availability has increased rapidly in Côte d’Ivoire in recent years and the per capita availability according to FAO 2013 is an underestimate.

### Table 2: Cereal grain consumption/availability and fortification status

<table>
<thead>
<tr>
<th></th>
<th>FAO 2003(^1) g/c/d</th>
<th>FAO 2013(^1) g/c/d</th>
<th>Mandatory(^2)</th>
<th>% Industrially milled(^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>48</td>
<td>57</td>
<td>Yes</td>
<td>98%</td>
</tr>
<tr>
<td>Maize</td>
<td>59</td>
<td>60</td>
<td>No</td>
<td>Unknown</td>
</tr>
<tr>
<td>Rice</td>
<td>153</td>
<td>174</td>
<td>No</td>
<td>8%(^3)</td>
</tr>
</tbody>
</table>

G/c/d: grams per capita per day  
\(^1\) FAO Food Balance Sheets  
\(^2\) FFI Database  
\(^3\) Using the more conservative estimate that there are five mills in the country with 5 MT/hr paddy capacity, running at 100% utilization (see rice milling section)

**Urban**

About 54% of Côte d’Ivoire’s population lives in cities. In urban areas, quality imported rice is a staple food in all but poorest households. Almost all residents of the country’s largest district, Abidjan (4.7 million population, or 20% of the total population\(^5\)), consume rice at least twice per day, according to major rice importers and informal interviews of Abidjan residents.

In 2014, the director of the rice agency under the Ministry of Agriculture, Office National du Developpement de la Filiere Riz (ONDR), announced that domestic production was adequate to supply all regions except for Abidjan\(^5\). The importing industry however reports that Abidjan consumes half of the rice imported. If one assumes that the importing industry is correct, the average availability of rice in Abidjan is 262 g/c/d. Assuming other urban areas consuming the remainder of imported rice would have 155 g/c/d available and supplement with other carbohydrate sources, the average urban estimate is 208 g/c/d.

**Rural**

Almost all smallholder farmers grow rice for their own consumption, as well as cocoa, cashews, and coffee as cash crops. This tendency has slowed but not halted the growth in commercial surplus to replace imported rice. Farmers store their paddy rice after drying and take it to small village husking mills where they pay a fee in cash or in kind for processing.

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In the past a large share of smallholder farmers depended on purchases of imported rice after their stocks had run out. As domestic yields and planted area have increased, most rural areas have become fully self-sufficient.

If one assumes that the rural population 100% domestically grown rice then the average consumption of rice is 500 g/c/d.

*Rice varieties and quality*
Ivoirians overwhelmingly prefer white rice. A reported 64% of imported rice is white milled rice, and the remainder is broken rice. Importation of parboiled rice is very limited. In a few zones near the border with Guinea, villagers parboil rice as is done across the border.

About 55% of imported rice is fragrant (“perfumed”) varieties from Thailand (37% of all rice imports) and Vietnam (24%). The remainder is standard non-aromatic varieties.

“Riz semi-luxe” with 15% brokens accounts for 80-85% of urban rice consumption. At the low end, with just ~12% market share, is 50% broken rice. Deluxe rice with just 5% brokens is only 2% of consumption. Generally, the lower the percentage of brokens, the more likely the rice is a fragrant variety.

Some importers maintain that in Côte d’Ivoire the broken percentage is not an important quality factor and that consumers instead value the taste and freshness from a new harvest, as well as aroma and homogeneity. The homogeneity of imported rice exceeds that of domestic rice, but importers suggest that once there is sufficient industrial milling capacity with supply of adequately dried paddy, the freshness of domestic rice will give it a quality advantage over imported rice.

**DOMESTIC RICE PRODUCTION**

*Table 3: Côte d’Ivoire cereals production - 2016*

<table>
<thead>
<tr>
<th>Cereals (MMT)</th>
<th>Maize</th>
<th>Sorghum</th>
<th>Millet</th>
<th>Rice (milled)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>0.50</td>
<td>0.50</td>
<td>1.95</td>
<td></td>
<td>3.65</td>
</tr>
</tbody>
</table>

1 USDA, 2016 via IndexMundi

*Table 4: Côte d’Ivoire rice production, 2012-2016 (MMT)*

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>1.0</td>
<td>1.2</td>
<td>1.34</td>
<td>1.8</td>
<td>1.95</td>
<td>1.465</td>
</tr>
</tbody>
</table>

1 USDA, 2016 via IndexMundi

*Production, area and yields*
Rice is grown in most parts of the country, thanks to sufficient water and sunlight. The production zones of Man, Daloa, and Abidjan together comprise 50% of the domestic production.

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Domestic production has increased rapidly since 2011 (Table 4). Factors include better seed and greater availability of fertilizer, as well as expanded planted area thanks to conversion of lowland basins to rice paddies. Political stability and absence of conflict have also provided a basis for increased investment in the sector.

International support
The international development community has supported the government policy to increase rice production.

Africa Rice, a regional effort to increase rice productivity, is headquartered in Abidjan. Its main focus is the introduction of improved varieties.

IMPORTED RICE INDUSTRY
Total rice import volumes in 2016 were 900,000 MT, a 10% drop from 1.0 MMT the previous year, which was a 23% drop from 2013 (Table 5). Sharp variations from year to year have partly to do with the timing of bulk vessel arrivals, with individual boatloads carrying up to 45,000 MT.

The five-year average of 1.02 MMT from 2012-16 is only 17% higher than average annual rice imports of 863,000 from 2006-10 despite strong economic growth and population increases.

One likely explanation is less dependence on imported rice in rural areas during the lean months leading up to harvest due to higher domestic production.

Table 5: Annual rice import volumes, 2012-2016 (MMT) ¹

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>1.1</td>
<td>0.80</td>
<td>1.30</td>
<td>1.0</td>
<td>0.90</td>
<td>1.02</td>
</tr>
</tbody>
</table>

¹ USDA, 2016 (via IndexMundi)

Rice origins
After Thailand and Vietnam, the remaining countries of rice origins are India (21.8%), Myanmar (7.8%), and Pakistan (6.9%). Nineteen other countries are listed as source origins for 8,564 MT of rice.

One new importer, Trammo, received rice from India, Thailand, Vietnam, Myanmar and Pakistan during its first year of operation. Another importer, Agriex, reported its origins as Cambodia, Laos, Argentina and US with purchases from five international traders (Ameropa, ADM, Swiss Agri-trading, etc.). Its imports are in 25kg and 50 kg bags.

Mode of imports
Break-bulk vessel loads make up most of the rice imported to the port of Abidjan. However the number one importer has plans to build 120,000 MT of bulk white rice storage at the port to accommodate 30,000 MT bulk vessels every two weeks, for a total of 720,000 MT per year.

Some bulk or break-bulk shipments may also arrive at the port of San Pedro, in the southwest of the country. It is primarily a bulk port used for transit shipment to landlocked countries like Mali. Most rice vessels hold 20,000 to 30,000 MT, though some carry up to 45,000 MT.


**Rice importers**

Côte d’Ivoire’s largest food importer and distributor, Groupe Carre d’Or / SDTM, is the dominant rice importer and distributor through its subsidiary SDTM, with 70% to 80% share of imports according to industry sources.

Global agribusiness giant Louis Dreyfus (LD) Company has a mutually exclusive relationship to supply rice to SDTM. LD Company is the world’s leading rice trader with about 2 MMT in annual volumes, most of it delivered to West and Central Africa. Côte d’Ivoire may be its most important rice market. LD Company probably extends financing both to the major suppliers in Thailand as well as to SDTM. In other countries where LD Company supplies rice to local importers it relies on a collateral management arrangement provided by SGS to ensure payment as stocks are released from warehouses.

LD Company’s other major activities in the country cotton exporting and fertilizer importing. LD Company also has milling contracts with the larger mills in the country to process domestic rice, to provide SDTM with domestic rice for its distribution channels.

Other rice importers account for the remaining 25% of rice imports – about 200,000 MT per year. Agriex / Phoenix Group claims to be the second largest importer. The third largest importer is Trammo. Trammo began importing rice in November 2014 and was expecting to bring in 85,000 by the end of 2015.

USDA’s Grain and Feed Annual 2015 report data conflicts with data gathered directly from rice importers during field visits. USDA cites 17 rice importers in Côte d’Ivoire, with lower SDTM market share (46%) and includes Olam as a competitor (6.5%)\(^5\).

**Table 6: Major rice importing companies in Côte d’Ivoire**

<table>
<thead>
<tr>
<th>Company</th>
<th>Headquarters</th>
<th>Import share (MT)</th>
<th>Local milling capacity?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groupe Carre d’Or / SDTM</td>
<td>Abidjan</td>
<td>600,000</td>
<td>Planning</td>
<td>Supplied by LD Company</td>
</tr>
<tr>
<td>Agriex / Phoenix Group</td>
<td>Dubai</td>
<td>100,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Trammo</td>
<td>Dubai</td>
<td>85,000</td>
<td>No</td>
<td>2015 was first year of importing</td>
</tr>
<tr>
<td>Export Trading Group (ETG)</td>
<td>Dar es Salaam</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Stopped in 2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>None in 2015</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Plans to restart 2016</td>
</tr>
<tr>
<td>Everest Sarl SAI Commodities</td>
<td>Abidjan</td>
<td>Unknown</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>Compagnie d'Investissements Céréaliers (C.I.C.) Cote d'Ivoire</td>
<td>Switzerland</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Storage capacity at port of 53,000 MT</td>
</tr>
</tbody>
</table>

\(^5\) Estimates of author.
Imported rice storage
SDTM and LD Company have large warehouses in the Abidjan port area, including in the free trade zone. Most rice arrives in 50kg and 25 kg bags in break bulk vessels. Imported rice is not normally stored in bulk silos or in warehouse. SDTM is considering a project to build silos for silo storage of bulk rice near the port. The Swiss company Compagnie d' Investissements Céréaliers reports 53,000 MT storage capacity at Abidjan port8.

The port logistics company Bolloré Africa Logistics reports 20,000 twenty-foot equivalent (TEU) storage capacity at the Abidjan port, or equivalent to 480,000 MT of rice9.

GOVERNMENT RICE POLICIES AND PROGRAMS
The Ivoirian government’s rice policy since the 1960s has been of self-sufficiency with a history of subsidies to agricultural inputs and irrigation infrastructure. These policies were considered expensive however, and largely unsuccessful at significantly improving rice production. However, the rice crisis of 2008 incentivized the Ministry of Agriculture to develop a National Strategy for Development 2008-2018 of the rice sector (NRDS). In 2011 the existing NRDS was deemed inadequate, and a review was conducted, producing the NRDS 2012-2020.

ONDR is charged with implementing NRDS 2012-2020, with the ambitious goal of reaching 2 MMT of production by 2020. Additional goals are self-sufficiency by 2016, consolidation of domestic rice for security stock from 2016-2018, and expansion into rice exporting by 2018. Thanks to significant recent gains in production, as of 2015/16 milled production is estimated at 1.8 MMT (up 37% from the previous season)10. USDA indicates that to achieve self-sufficiency, domestic milling capacity requires additional capacity to handle the growth in paddy11. Despite the large increases in domestic production, imports are expected to remain steady in 2016 to accommodate increases consumption.

The key activities NRDS to improve domestic production are 1.) strengthening technical support for production (e.g. seed, water control, research and development, adopting more effective farming practices, increasing mechanization); 2.) promoting and improving domestic rice through increasing domestic milling capacity to reach 1 MMT annual capacity. The total cost estimated to implement the NRDS was 672 million CFA12.

The government has not attempted to use high import duties or currency restrictions to lower imports.

RICE MILLING

Village milling & small enterprise
At least 80-90% of domestic paddy production is milled at simple village husking mills. Mr.

Traore, head of ONDR, estimates there are 5,000 such entities. Investment cost for these mills is about 6 million CFA ($10,000). They have capacity of 0.2 to 2 MT per hour of paddy. He estimates 1,300 of the 5,000 are capable of producing rice of acceptable quality, but not polished.

The largest of these mills are Chinese-made husking mills with capacity of 2 MT per hour of paddy rice; the machinery is supplied by a local importer. They are distributed in all rice growing regions. These larger capacity small mills have begun to replace the smallest village units.

**Industrial milling**

During the 1970s and 1980s a network of 10 large state owned rice mills were distributed around the country, but these stopped functioning at the end of the 1980s, victims of economic reform and civil war. All have been privatized and mostly converted to cashew and cocoa handling and storage.

The largest remaining rice mill is AMC in Bongouanou. It has Buhler equipment from the 1980s but is planning to invest in new equipment based on contracts to supply WFP and expected toll milling contracts with LD Company. There are two other known mills with capacity to mill 5 MT per hour of paddy rice produce sufficient quality to compete in urban markets but there also may be a few additional mills of this size. FFI estimates that if there are approximately five mills with 5 MT per hour milling capacity running at 100% capacity and converting paddy at 60%, then modern domestic milling capacity may be 108,000 MT milled rice per year (8% of domestic supply).

Alternatively, USDA estimates that about 500 mills in the country are “modern” but it is not clear what how they define this term, and that domestic milling is at capacity. However, USDA’s generous estimate of 500 mills with 2 MT per hour paddy capacity and 50% paddy conversion, estimates domestic capacity at 3.8 MMT/year. This estimate is too high as it exceeds annual domestic availability of rice.

The few industrial millers procure paddy from farmer groups. Their main challenge is getting adequately dried, good quality paddy for milling.

USDA in 2015 reported government plans to import around 30 integrated rice-milling plants from India with $15 million in financing from Exim Bank of India. These standard mills are 5 MT per hour capacity and include husk-burning furnaces for paddy drying. ONDR has developed a vision for the evolution of the domestic milling industry. Above the village level they see a group of medium-sized mills with annual processing capacity of 15,000 to 25,000 MT. They will be able to polish brown rice (“riz cargo”) received from the small mills. This level of milling is called a “pool” in the ONDR plan. At the highest level there will be just one large industrial mill in each of the ten zones or “poles”. This will have at least 25,000 MT per year capacity.

If the government did proceed with these plans, then milling capacity could have increased by 650,000 MT of milled rice per year and increasing domestic milling capacity to 54%. It is not clear whether this goal has been implemented, or how advanced the ONDR plans to achieve 1 MMT milling capacity are.
Table 7: Industrial rice millers in Côte d’Ivoire (partial list*)

<table>
<thead>
<tr>
<th>Company</th>
<th>Mill location</th>
<th>Capacity (paddy)</th>
<th>Farm</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and Management Company (AMC)</td>
<td>Bongouanou</td>
<td>10 MT/hr</td>
<td>None</td>
<td>Toll milling for LDC.</td>
</tr>
<tr>
<td>Rina Group Afrique</td>
<td>Daoukro, east central 200 km from Abidjan</td>
<td>3-4 MT/hr</td>
<td>None</td>
<td>Conglomerate with mining, real estate, IT, and other activities in Israel and Romania Tolling contract with LDC.</td>
</tr>
<tr>
<td>Socodjigui</td>
<td>Unknown</td>
<td>5 MT/hr</td>
<td>10,000 ha partly irrigated</td>
<td>Supplier to SDTM / WFP</td>
</tr>
</tbody>
</table>

*Partial list: there may be 2 or 3 others.

Domestic rice storage
Formerly the state-owned network of 10 large grain elevators provided 110,000 MT of paddy storage capacity. Of the six not destroyed during two decades of civil war, only the one attached to AMC is still used for rice storage. The others were converted to cocoa bean storage. One is used at the port of San Pedro to store imported wheat.

WHOLESALE AND RETAIL TRADE

Wholesale
Over half of all imported rice is consumed in Abidjan; Abidjan city has nearly 4.4 million inhabitants according to the 2014 Census, while Abidjan district has nearly 4.7 million. The next largest city, Bouake, has only 540,0004.

SDTM has a large network of wholesale warehouses for distribution of rice, other commodities, and branded food products. Other rice importers tend to sell by the truckload from their port warehouses to a large number of wholesale distributors, some of whom may benefit from trade credits.

Retail
Popular markets in urban neighborhoods, small shops, and supermarkets are the most common sales points for rice. The majority of rice sales in urban areas are in 25 kg bags. Vendors in public markets still sell rice by the scoop to lower income consumers. Domestically produced rice is traded in weekly local markets, with only some recent penetration into the urban market.

In 2015 the cost per kg bag of semi-luxe rice was $0.70 per kg (domestic rice) and $0.80-0.90 per kg (imported rice)5.

WORLD FOOD PROGRAMME
Funded by the McGovern-Dole Food for Education Program in the United States, WFP is expected to provide 18 million school lunches to 150,000 students in rural regions from 2016-
Through McGovern-Dole Food for Education Program USAID/USDA have committed to provide in-kind deliveries of fortified rice from the United States. In early 2016 USDA announced a tender for supply to Côte d’Ivoire. They expect to provide 5,000 to 6,000 MT during 5 years.

Half of the WFP food basket by volume in Côte d’Ivoire is rice, pulses are about 20%. Monthly WFP rice distribution under various programs is about 1,000 MT. There are two main development programs involving distribution of food rations: school feeding and protracted recovery operations (PRO) for refugees, returnees, and internally displaced persons (IDP). The PRO ration includes cereals, oil and pulses. The cereal is almost always rice in Côte d’Ivoire.

PRO food distribution is over 1,000 MT per month.

WFP procures 20% of its rice requirement locally and 80% via regional (Dakar) and international (Rome) purchasing. The internationally procured rice comes from a variety of countries, mostly in Asia, mainly Thailand and Vietnam. The WFP standard rice specifications calls for 25% broken (maximum) white rice.

WFP receives about one 4,000 MT vessel per year of 50 kg bags of rice from the USAID (Houston). The vessel usually carries some vegetable oil and corn-soya-blend (CSB) (a fortified complementary food) as well. There are no containerized shipments of these commodities. US rice is used only for PRO food rations. Some returnees and IDP recipients have been receiving WFP food aid for as long as 5 years.

WFP Côte d’Ivoire has made use of a forward purchase facility to purchase rice from local importers and store with them. Last year WFP bought from Olam’s Côte d’Ivoire office 4,000 MT of rice for Mali. WFP also purchases vegetable oil locally for distribution.

Local rice purchasing is done twice per year. The purchase price for local rice may be 10% higher than international rice prices. WFP has some purchase contracts with AMC, the country’s largest rice mill. LD Company is also using AMC to do contract milling.

REGIONAL TRADE
Trammo reports re-exporting up to 20% of the rice brought into Abidjan to clients in Mali, Burkina Faso and Niger, but this totaled only about 15,000 MT in its first year. Since import tariffs on rice are relatively low, the port is efficient, and the road network is satisfactory, there is little cross border trade or smuggling of rice imported from neighboring countries into Côte d’Ivoire, unlike the case of Nigeria.

WFP also conducts some regional trade; in the past it has procured rice from stocks available in Côte d’Ivoire with LD Company for delivery in Niger, Mali and Chad. One such purchase was 10,000 MT of rice.

REGULATORY MONITORING
Mandatory fortification of wheat flour and oil was passed in 2007. Since then international

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development partners in conjunction with the Ministry of Health have held three surveys to assess coverage of adequately fortified wheat flour and oil in Côte d'Ivoire.

Table 8 Fortified vehicle coverage surveys in Côte d’Ivoire

<table>
<thead>
<tr>
<th>Survey</th>
<th>Location</th>
<th>Adequately fortified oil</th>
<th>Adequately fortified wheat flour</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009¹</td>
<td>Nationally representative</td>
<td>25% nationally</td>
<td>50% nationally</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20% Abidjan</td>
<td>43% Abidjan</td>
</tr>
<tr>
<td>2010¹</td>
<td>One rural (Bouaflé District)</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>and urban (Abidjan) area</td>
<td>49%</td>
<td>100%</td>
</tr>
<tr>
<td>2014²</td>
<td>Abidjan</td>
<td>97%</td>
<td>30%</td>
</tr>
</tbody>
</table>

¹ Rohner et al. The Effects of an Oil and Wheat Flour Fortification Program on Pre-School Children and Women of Reproductive Age Living in Côte d’Ivoire, a Malaria-Endemic Area. Nutrients 2016, 8, 148; doi:10.3390/nu8030148
² Rohner et al. The Potential of Food Fortification to Add Micronutrients in Young Children and Women of Reproductive Age – Findings from a Cross-Sectional Survey in Abidjan, Côte d’Ivoire. PLOS ONE | DOI:10.1371/journal.pone.0158552

Coverage of adequately fortified wheat flour and oil varied significantly in all three surveys, suggesting gaps in regulatory monitoring. The 2014 survey found that while only 30% of wheat flour was adequately fortified, no flour was non-fortified – indicating that there could also be capacity gaps at mills to implement fortification successfully. The 2010 survey suggests that the rural populations also could be particularly vulnerable to inadequately fortified wheat flour.

RICE FORTIFICATION – SWOT ANALYSIS

Strengths
- Rice is a staple for the entire population, on average 167 g/c/d overall, but with likely much greater consumption in the capital city of Abidjan and other urban areas.
- One company, Groupe Carre d’Or, accounts for 80% of these imports, which also plans to build capacity to store 120,000 MT of bulk rice at port, which would facilitate destination fortification.
- Almost all rice enters the country legally and can be controlled at the port.
- The government has an existing fortification program, including wheat flour, salt, and vegetable oil.

Weaknesses
- Less than 20% of domestically produced paddy is processed at large integrated mills. The majority of the domestically produced rice is grown as subsistence crop by farmers growing other cash crops for income.
- Due to high domestic production of rice, fortification of imported rice will only reach the urban population (54%); if domestic production continues to grow as rapidly as recent years then it’s likely that domestic rice will begin to penetrate the urban market and coverage of imported rice will fall.
- While coverage surveys of the oil fortification program indicate successful implementation, multiple surveys have shown 50% or greater inadequate fortification of wheat flour with iron, indicating poor regulatory monitoring.
Opportunities

• Government and private partners are investing quickly in domestic rice milling capacity. Fortification of domestic rice could be an opportunity in the near future.
• Control of fortification of imported rice is straightforward due to limited number of supplier companies and bulk vessels.
• Assessment of the existing wheat flour fortification program would be important to advise the inclusion of rice as a fortification vehicle.

Threats

• Government may interpret fortification of imported rice as a threat to domestically grown rice.
• The small group of large domestic millers already have difficulty with high domestic rice costs vis-à-vis imported competition.
Appendix 1. RICE INDUSTRY CONTACTS

Company
Buhler AG – Branch Office Cote d’Ivoire
Immeuble plein ciel, VGE-Marcory
26 BP 151 Abidjan 26
Cote d’Ivoire
Office +225 21 34 07 41
Dates of meetings: Oct. 28, 30 2015
Alin Sossah, Area Sales Manager, West and Central Africa
Mobile +225 21 75 19 70/+225 08 54 28 13
Yannick Rihs, Branch Director / Directeur de Succursial
Mobile +225 59 86 49 19
yannick.rihs@buhlergroup.com
Mr. Marrot, Directeur Technique Wheat (didn’t meet)
Olivier Marion, Buhler West Africa manager

Company
Trammo Cote d’Ivoire S.A.
3ème etage, Immeuble Arc-en-Ciel
Angle Avenue Chandy Boulevard Lagunaire Plateau (Opposite lagoon from Pullman Hotel)
01 BP 1338 Abidjan 01
Abidjan, Cote d’Ivoire
Office +225 20 30 23 70 (??? Check card)
Patrick Bedie, General Manager, Commodities Division
Mobile +225 09 55 55 44 (?)
patrick.bedie@trammo.com
Benedict, asst to Patrick
Mobile +225 09 65 58 52

Company
Agriex / Phoenix
Immeuble Les Dunes est
face SOLIBRA Treichville
01 BP 4192
Abidjan 01, Cote d’Ivoire
Tel +225 21 25 36 47 or +25 21 01 58 82
Date of meeting: Oct. 29, 2015
Sagar Sahu, director general
Mobile +225 07 08 32 36
sagar.sahu@pclworld.net
Skype: sagar_sahu
Dembele Brahima, Trader
Mobile +225 58 60 98 81/+225 05 65 59 40
dembele.agriex@pclworld.net

Company
Groupe Carre d’Or
SDTM – Societe de Distribution de Toutes Marchandises en Cote d’Ivoire
Rue du Havre, Zone Portuaire
14 BP 5120 Abidjan 14
05 BP 3447 Abidjan 05
Cote d’Ivoire
Office +225 21 21 90 00
sdtmci@aviso.ci
Date of meeting: Oct. 29, 2015
Radwan Ezzeddine, Marketing Manager
Mobile +225 07 15 05 05
radwan@sdtm.ci or radwan16@gmail.com
or sdtmci@aviso.ci

Company
Louis Dreyfus Company Cote d’Ivoire
Rue des Petroliers
Zone Industrielle de Vridi
01 B.P. 107 Abidjan 01
Cote d’Ivoire
www.ldcom.com
Office +225 21 21 55 50
Date of meeting: Wednesday, Oct. 28, 2015
Abou Kone, rice project coordinator
M: +225 08 41 32 42 / +225 59 83 45 24
abou.kone@ldcom.com
Denis Vaillant, Director General / LDC
Country director (3 years)
denis.vaillant@ldcom.com
Victorine Amoua, Secretary to Vaillant
victorine.amoua@ldcom.com
Office +225 21215550

Company
AMC FC Riz
20 B.P. 839 Abidjan 20
Cote d’Ivoire
Date of meeting: Oct. 26, 2015 11:30 am
Mory Diabate, Director General
Mobile +225 0708 96 26 / +225 21 27 29 79
m.diabate@amc-fc.com or
morydiabate@uns-ci.com

Company
Socodjigui – Societe Cooperative Djigui
18 bp 5 Abidjan 18
Date of meeting: October 28, 2015
Mamadou Diabate, President
Mobile +225 07 53 86 15 or +225 55 25 17
03 or +225 41101213
info.cocodjkui52@gmail.com or
djetmadou152gmail.com

Company
Export Trading Corporation Cote d’Ivoire
(ETC-CI)
Boulevard de Vridi
Quartier Hino Rue Sicabo
Abidjan, Cote d’Ivoire
Office +225 2125 0911
Sushil Mishra, supply chain manager
Mobile+225 5949 9604
Sushilibon7@gmail.com (?)
Rohit Batra, country manager
Mobile +225 59 06 32 21
Abdourahman Toure, Project head of rice
farm (coffee also)
Mobile +225 59 06 32 37

Organization
ONDR – Office National de Developpement
de la Filiere Riz
1, Rue Paris-Village
Abidjan-Plateau
01 BP 147 Abidjan 01
Cote d’Ivoire
Office +225 20 22 80 00
Date of meeting: October 28, 2015
Aboubakary Traore, Directeur Department
Appui a la Valorisation
T: +225 20 22 80 00 M: +225 07667919
aboubatra@yahoo.fr

Organization
Africa Rice Center (AfricaRice)
01 BP 4029 Abidjan 01
Cote d’Ivoire
www.africarice.org
Global Rice Science Partnership (GRiSP), in
Africa
www.grisp.net
Harold Roy-Macauley, Director General
Tel: +225 20 22 01 10 or +225 22 44 26 29
h.roy-macauley@cgiar.org

Organization
WFP Abidjan
Deux Plateaux, 7eme tranche
Lot No. 2891, Ilot 2891
01 BP 1747, Abidjan 01
Cote d’Ivoire
Office +225 22 52 63 00
Dates of meetings: Monday, Oct. 26 and
Thursday Oct. 29, 2015
Gianluca Ferrera, Country director & WFP
Representative (2nd meeting)
Mobile: +225 04 00 88 48
Office direct +225 22 52 63 01
gianluca.ferrera@wfp.org
 Abdoulaye Tidiane Diallo, national logistics
officer
M: +225 06 36 57 21 / T: +225 22 42 10 65
abdoulayetidiane.diallo@wfp.org