YEMEN

SECURING IMPORTS OF ESSENTIAL FOOD COMMODITIES TO YEMEN

AN ASSESSMENT OF CONSTRAINTS AND OPTIONS FOR INTERVENTION

THE WORLD BANK

With Support from:

YEMEN

SECURING IMPORTS OF **ESSENTIAL FOOD COMMODITIES** TO YEMEN

An Assessment of Constraints and Options for Intervention

CONTENTS

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ABBREVIATIONS

ACA	Advisory Services and Analytics
CBY	Central Bank of Yemen
FAO	United Nations Food and Agriculture Organization
FSTS	Food Security Technical Secretariat (MoPIC)
FX	Foreign Exchange
GAM	Global Acute Malnutrition
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GHI	Global Hunger Index (International Food Policy Research Institute)
HSA	Hayel Saeed Anam
IPC	Integrated Food Security Phase Classification
SMEPS	Small and Micro Enterprise Promotion Service
SMES	Small and Medium Enterprises
TEU	Twenty-Foot Equivalent Unit
UN	United Nations
UNVIM	United Nations Verification and Inspection Mechanism for Yemen
USD	United States Dollar
WB	World Bank
WBG	World Bank Group
WFP	World Food Program
YER	Yemeni Riyal
YOY	Year-on-Year/Year-over-Year

EXECUTIVE SUMMARY

Yemen is home to the world's worst humanitarian crisis due to the collapse of economic, governmental and civic foundations following the outbreak of the war. An estimated 17.8 million Yemenis, 60 percent of the population, are food insecure and require urgent humanitarian assistance. Approximately 9.4 million people are in crisis while 8.4 million face an emergency and are now on the brink of famine.[1] The deterioration of health conditions – including the outbreak of cholera across Yemen – has further increased the vulnerability of the Yemeni population, which was already high before the outbreak of the conflict.

The international community is rightly alarmed by the rapid deterioration of humanitarian conditions and concerns about disruptions in food supply. Yemen depends almost entirely on imports to fulfill the local market demand for its staple food commodities, including wheat, flour, and rice. Rising financial and logistical obstacles to import basic food commodities were flagged as key constraints by Yemeni importers in late 2016, cautioning that they might impact their ability to sustain food imports to Yemen if these challenges remained unresolved. These warning signals initiated the efforts which culminated in the research documented in this report. The report aims at providing the international community with an assessment of the financial and logistical constraints impacting food imports to Yemen, and proposes potential solutions.

The biggest challenge to food security in Yemen is weakened demand, not supply. Food is generally available, but most Yemenis can't afford it. The biggest threat to food security is the erosion of purchasing power. As a result of declining public and private income sources, an increasing share of households can't afford covering their basic humanitarian needs. The coping mechanism of a large number of the population changed due to the decrease in purchasing power. Today, and increased number of the population resort to increased levels of borrowing for food consumption and reliance on income support from humanitarian aid or remittances. Eroding purchasing power is not only the single most important threat to food security, but is also identified as a key challenge by food importers, wholesalers, and retailers.

Market mechanisms have sustained the continued supply of food commodities and have shown great resilience, but are under pressure due to rising costs and risks. Access to foreign exchange (FX) emerged as a key constraint by food importers, with limited availability of FX and

[1] *United Nations Food and Agriculture Organization (FAO), Yemen - Situation report December 2017.*

rising costs being the most pressing challenges. Difficulties in withdrawing and transferring bank funds have also eroded trust in the banking system and contributed to the rise of money exchanges as the major provider of finance, with greater costs and risks. Concerns about the impact of disrupted access to key import ports such as Al-Hodeidah, Aden, and Saleef and rising costs due to delays in obtaining clearances for incoming shipments are also cited as key challenges on the logistical front.

The international community should scale-up income support measures to ease the suffering of the Yemeni population. This includes scaling-up existing efforts to provide income support (cash transfers) and food assistance to address the negative impact of eroding incomes, the main driver of the ongoing humanitarian crisis. The resumption of income payments to public servants, retirees and social welfare beneficiaries should be encouraged.

The international community and Yemeni authorities should also provide support to strengthen the resilience of the food import value chain against rising costs and risks in the following areas:

1. Facilitate Access to FX to Secure Food Imports

- Foreign aid - one of the few remaining sources of FX inflows to Yemen - could be used to help cover FX needs of food imports.
- Donors, authorities, and banks could collectively agree to avail the use of aid inflows for food imports on a priority basis, building on the wide consensus on the importance of sustaining food imports.
- Facilitating access to FX would not only address food importers' challenges to access FX, but would also help reduce high fund transfer costs through informal channels.

2. Restore Trust in the Financial System

- Restoring liquidity in the financial system is an important measure to reduce transaction costs and risks for payments not only for the food value chain, but the entire economy.
- The CBY should formulate a phased and time-bound action plan to restore liquidity in the financial system. The payment of accrued interest on T-bills held by banks could be a first step to ease liquidity pressures on the banking sector.
- Authorities should consider channeling payments of salaries, pensions and social transfers through banks to restore public trust - provided that banks are able to ensure access to funds (cash withdrawals) and make payments in all areas of Yemen (distribution networks).

3. **Facilitate Clearance for Food Import Shipments**

    - Establish an efficient and predictable clearance process enabling access of food supplies through all available ports.

The constraints identified in this report are not limited to food imports and affect other vital imports, humanitarian activities, and reconstruction and recovery efforts. Although the analysis of the constraints in this report is focused on identifying obstacles to the imports of wheat, flour, and rice, they have wider applicability and are relevant to other vital imports, such as the importation of other food items (sugar, powdered milk, and beans) and nonfood items (oil, solar systems, construction materials, and so forth), as well as the importation of medicine and agriculture inputs necessary to sustain the level of local farming production in the country. The constraints identified in this report also impact humanitarian, reconstruction, and recovery activities implemented by the various donors working on Yemen. Addressing those constraints is expected to facilitate the work of the humanitarian agencies and could accelerate the reconstruction and recovery efforts implemented by the various development agencies.

Background & Report Structure

Background and Methodology

This report is an assessment of the current status of staple food imports (wheat, flour, and rice) into Yemen and the impact of the conflict in the country on commercial imports of those commodities. The assessment diagnoses two central aspects hampering imports of those commodities: financial constraints and logistical constraints to importing those commodities by the private sector. The report analyzes the roles of the private sector importers, commercial banks, wholesalers, distributors, the import process itself, relationships with correspondent banks, the role of the Central Bank of Yemen (CBY), foreign exchange constraints, and other relevant aspects that affect food imports. The report also identifies the logistics chain and the bottlenecks faced by importers within the chain. It identifies key drivers of food insecurity within the staple-food import process, assesses these drivers and their main causes, and identifies bottlenecks in the import and distribution process in order to arrive at priority recommendations that are applicable to the Yemeni context. The assessment is expected to inform humanitarian response decisions, public policies, and the designs of operational interventions by Yemen's international development partners.

The assessment was led by a multidisciplinary World Bank Group team with expertise in finance, and trade logistics, and supported by field research. The staple commodities covered in this report are wheat, flour, and rice. The timeframe of the analysis spans the three years of 2014, 2015, and 2016, and extends into 2017 where data was available. It is based on the analysis of historical data only. Future projections of trends of Yemen's international trade, and supply and demand in the local market, are beyond the scope of this assessment.

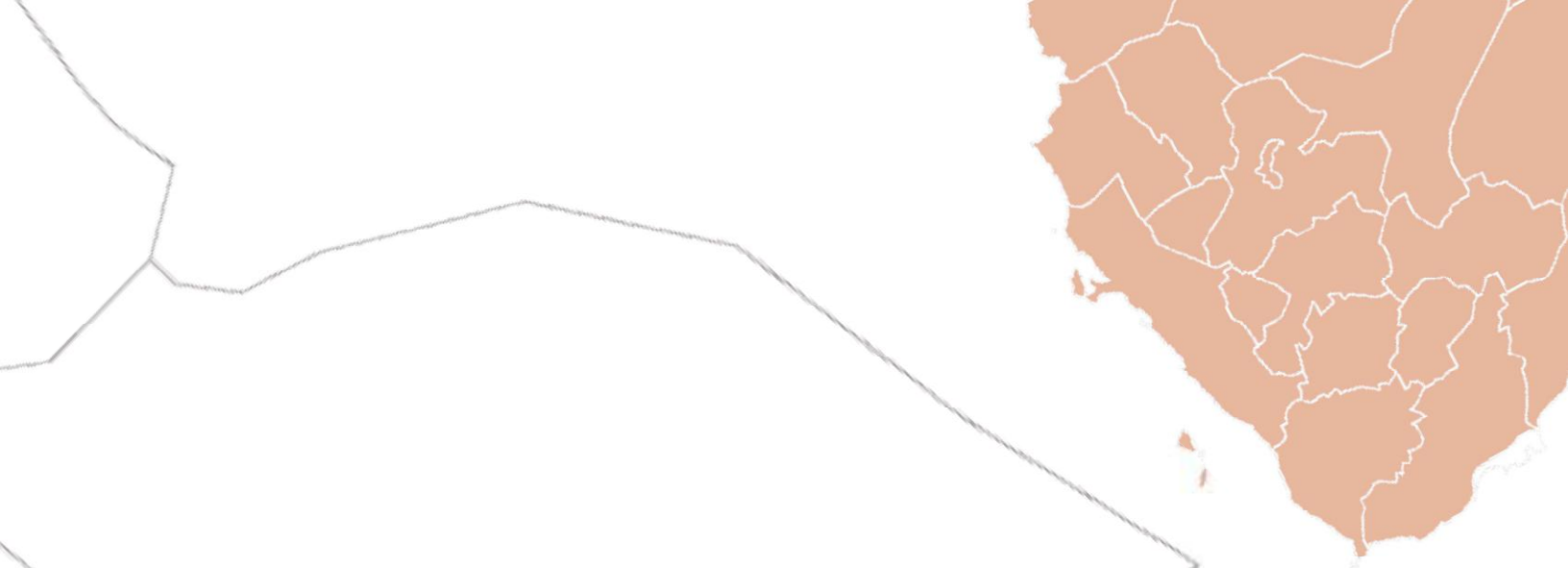
The World Bank Group led an extensive interview and consultation process with stakeholders,

and reviewed experiences in other countries in order to devise options for policy and operational interventions that would improve trade facilitations and ensure availability of trade finance to food importers. Primary data was collected using multiple-structured and semi-structured interviews that were administered face-to-face and over the phone to a select small sample of various stakeholders, including global commodity suppliers, importers, shipping agents, financial institutions, wholesalers, distributors, retailers, consumers, port officials, regulatory agencies, and World Food Programme (WFP) and United Nations Verification and Inspection Mechanism (UNVIM) representatives. Additional secondary data collection, consolidation, and analysis was also conducted using desk reviews of publicly available information from global authoritative sources. The secondary sources of data included reports from the Aden and Al-Hodeidah port authorities, Logistics Cluster reports, UNVIM data, and Yemen Customs Authority's customs database.

The report aims to offer solutions which help facilitate the import of food and other essential goods such as medicine and agricultural inputs to ease the humanitarian conditions in Yemen. The recommended interventions are also expected to improve recovery efforts and the effectiveness and delivery of humanitarian, reconstruction, and recovery activities.

Report Structure

This report is divided into four sections. Part One provides an overview of the macroeconomic and financial sector environment, recent developments, and the impact of the conflict on overall trade finance, logistics, and food security. Part Two provides an overview of the current situation of imports of wheat, flour, and rice, covering three main areas. First, it synthesizes official data on imports to Yemen from international markets during 2014, 2015, and 2016, identifying key recognizable trends and patterns during those three years. Second, it analyzes international and local market prices for the target commodities. Third, it captures the supply chains of the targeted commodities, highlighting key processes involved in importing and distributing them across the country. Part Three identifies the binding constraints on imports of those commodities and highlights the main disruptions and obstacles within the chain. It provides an in-depth analysis of supply versus demand issues based on collected statistical data and based on verification from major stakeholders. Based on the findings of Parts Two and Three, Part Four describes the recommended options for interventions.



Part 1
COUNTRY CONTEXT

Macroeconomic & Financial Sector Environment

The ongoing conflict in Yemen, coupled with insecurity, political instability, blockages to food and fuel deliveries, and economic collapse, has led to a situation of severe economic distress. The prior economic challenges, as difficult as they may have been before March 2015, cannot be compared to the current intensely critical situation in Yemen. The ongoing war has severely affected food and fuel imports, limited Yemen's exports, pressured the currency's exchange rate, accelerated inflation, and caused huge widespread damage to vital economic infrastructure. Gross Domestic Product (GDP) is reported to have decreased by 35 percent,[2] underpinned by widespread disruptions of economic activities, with enterprises operating at half the capacity compared to preconflict times.[3] Many employees have been dismissed, and an estimated 8 million Yemenis have lost their livelihoods or are living in communities with minimal to no basic services.[4] Input stocks, including food, are exhausted, and financial resources for replenishment are lacking. In rural areas, agricultural assets are being consumed to cope with the implosion of the national distribution system, thereby hampering prospects for future agricultural seasons.

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[2] *Yemen Poverty Assessment Report June 2017, World Bank.*

[3] *Small and Micro Enterprise Promotion Service (SMEPS). 2015. Rapid Business Survey, Impact of the Yemen Crisis on Private Sector Activity. SMEPS.*

[4] *United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), Yemen Humanitarian Bulletin Issue 21 | As of 18 March 2017.*

The state's public revenues declined by 53.7 per cent in 2015 compared to 2014.[5] Civil service salaries have only been partially paid since September 2016. Fiscal revenues are failing and deficit financing is increasingly resorting to a build-up of arrears, undermining state functions and impairing the operating environment for private sector activities. Oil and gas production declined from a prior average equivalent of 326,000 barrels a day to no more than 30,000 barrels a day in 2016. Other sources of exports declined by about 60 percent in 2015 compared to their level in 2014. In total, exports in 2016 are estimated to have declined to below 10 percent of their preconflict level.[6] Imports have contracted since 2014 by about 50 percent.[7]

The conflict has also impaired the operational capability of the Central Bank of Yemen (CBY) and disrupted core central bank functions, affecting the availability, reliability, and cost of domestic and cross-border payments and financial services. The suspension of central bank functions in Yemen has had a more severe and far reaching impact because the CBY's role extended beyond classic central bank mandates (for example, monetary policy and banking supervision) to cover functions which are essential to the Yemeni economy, including the payment of salaries and pensions (on behalf of the treasury) and the provision of foreign exchange (FX) for food importers. Consequently, the suspension of CBY functions not only impaired the provision of payments and financial services, but it had a direct impact on millions of Yemeni households (payments of public sector salaries, pensions, and social transfers) and the private sector (provision of FX for food imports).

Rising political, macroeconomic and financial sector instability led to a drop in FX inflows to Yemen. Yemen's foreign reserves flows currently depend largely on a dwindling flow of remittances. The lack of exports, and the limited foreign assistance flows, which previously had been at about USD2 billion annually, has left only remittances as the source for foreign exchange earnings. Remittances initially were maintained at their level up to early 2015 but since then have declined, and are estimated to currently amount to not more than USD1.4 billion.[8]A large part of these remittances is estimated to come to the country through informal channels such as money traders and exchange companies.

The Ongoing Conflict and Its Economic and Humanitarian Impact

The current conflict has resulted in the worst catastrophic humanitarian conditions the country has experienced. Yemen is home to the world's worst humanitarian crisis. The continuing conflict has resulted in an increasing toll of civilian victims and causalities across the country, along with

[5] *Ministry of Planning and International Cooperation (MOPIC). (March, 2016). Yemen Socio-Economic Update Issue 12. Ministry of Planning and International Cooperation (MOPIC).*

[6] *World Bank Policy Notes Series. 2017. Economic, Fiscal and Social Challenges in the early phase of a Post Conflict Yemen, World Bank.*

[7] *World Bank Policy Notes Series. 2017. Economic, Fiscal and Social Challenges in the early phase of a Post Conflict Yemen, World Bank*

[8] *World Bank Policy Notes Series. 2017. Economic, Fiscal and Social Challenges in the early phase of a Post Conflict Yemen, World Bank*

severe impairment of public services. Deaths estimates exceed 8,757, and recorded casualties amount to more than 50,000 across the country,[9]not counting the many people affected by pandemics like cholera and other emerging contagious diseases, or the collateral risks of falling social and economic infrastructure.

An estimated 22.7 million Yemenis (about two thirds of the population) require urgent humanitarian assistance.[10] Within this group, nearly 11.3 million people are already in acute need of assistance to save or sustain their lives and 10.8 million people are in need of assistance to prevent them from slipping into acute need. At least 8 million people currently lack access to clean drinking water and sanitation, and nearly 14.8 million lack access to basic health services.[11]

The United Nations is predicting famine as a tangible risk in Yemen, and malnourished children, pregnant women, and people living with other chronic health conditions are at greater risk of death as they face the "triple threat" of conflict, famine and cholera. Yemen experienced a massive cholera outbreak that the World Health Organization (WHO) classifies as "Grade 3".[12]As of February 2018, the number of suspected cases in the country surpassed 1,057,300, with more than 2,225 people having died due to the disease. According to WHO data, cholera has affected both children and adults, but the attack rates are higher among the most vulnerable groups, particularly children under the age of 18, who represent about 56.3 percent of total suspected cases. Malnourished children, pregnant women, and people living with other chronic health conditions are at greater risk of death. Therefore, about 63.7 percent of total deaths are children under the age of 15 years and people aged 60 years and older.[13]

Poverty incidence almost doubled nationally, from 34.1 percent in 2014 to 78 percent in 2016.[14] Poverty and food insecurity are pervasive in today's Yemen and will remain a big challenge for building a more inclusive society post-conflict. According to a 2014 household budget survey, Yemen experienced a substantial increase in poverty between 2005 and 2014 with a nearly 12 point increase from 34 percent in 2005 to 48 percent in 2014, while initial estimates of the poverty dynamics suggest further increases to 78 percent of the Yemenis living below the national poverty line in 2016. The two most prevalent situations in which the conflict directly affected peoples' livelihoods and assets were either through losing their main source of income (45 percent of the population in 2015 and 38 percent in 2016) or being displaced from one part of the country to another (17 percent of the population in 2015 and 23 percent in 2016).

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[9]*OCHA, Yemen Humanitarian Bulletin, Issue 30, 28 January 2018*

[10]*OCHA, Yemen Humanitarian Bulletin, Issue 30, 28 January 2018*

[11]*OCHA, 2017 Humanitarian Needs Overview, Nov 2016*

[12]*Grade 3 indicates a significant single or multiple country event with substantial public health consequences" for which "external support is required.*

[13]*WHO, Response Dashboard, Emergency Operations Center: http://who-powerbi.net/bi/.*

[14]*Yemen Poverty Assessment Report June 2017, World Bank.*

Status of Food Security: Facts and Figures

An estimated 17 million people in Yemen, 60 percent of the population, have become food insecure.[15] The United Nations Food and Agriculture Organization (FAO) Integrated Food Security Phase Classification (IPC) estimates a total of 17.8 million people in Yemen have become food insecure. Approximately 9.4 million people are in crisis while 8.4 million face an emergency and are now on the brink of famine.[16] The hardest hit governorates in terms of food insecurity are Hajjah, Sa'ada, Abyan, and Taiz.[17] A total of 34 districts in those governorates have a 40 percent or more severely food insecure population. The governorates of Al Jawf, Ibb, and As Dali'e will more likely be at the IPC Phase-4 level if they do not receive humanitarian aid interventions.[18]

Yemen is among the top six most food insecure countries in the world.[19] According to the Global Hunger Index (GHI), rankings of the severity of hunger in Yemen have been isted under the "alarming" category since 1992. It has been noted that in 2016, GHI ranked Yemen among the top six most food insecure countries in the world. An operation document for WFP's new emergency operation, called "Immediate, Integrated, and Sustained Response to Avert Famine in Yemen," notes that the 2016 GHI score shows a significant deterioration in the level of hunger from the preconflict levels where Yemen globally ranked 8th and 11th in 2011 and 2014, respectively. It also warns there are indications that famine is already occurring in some of the hardest-hit districts but is being masked by governorate-level statistics. (See Map 1.1 below). The timeline shown below in Figure 1.1 quantifies the rapid dramatic deterioration in the state of food security in Yemen in recent years.

[15] *WFP, Yemen - State of Food Insecurity in Yemen based on the Emergency Food Security and Nutrition Assessment (EFSNA), April 2017.*

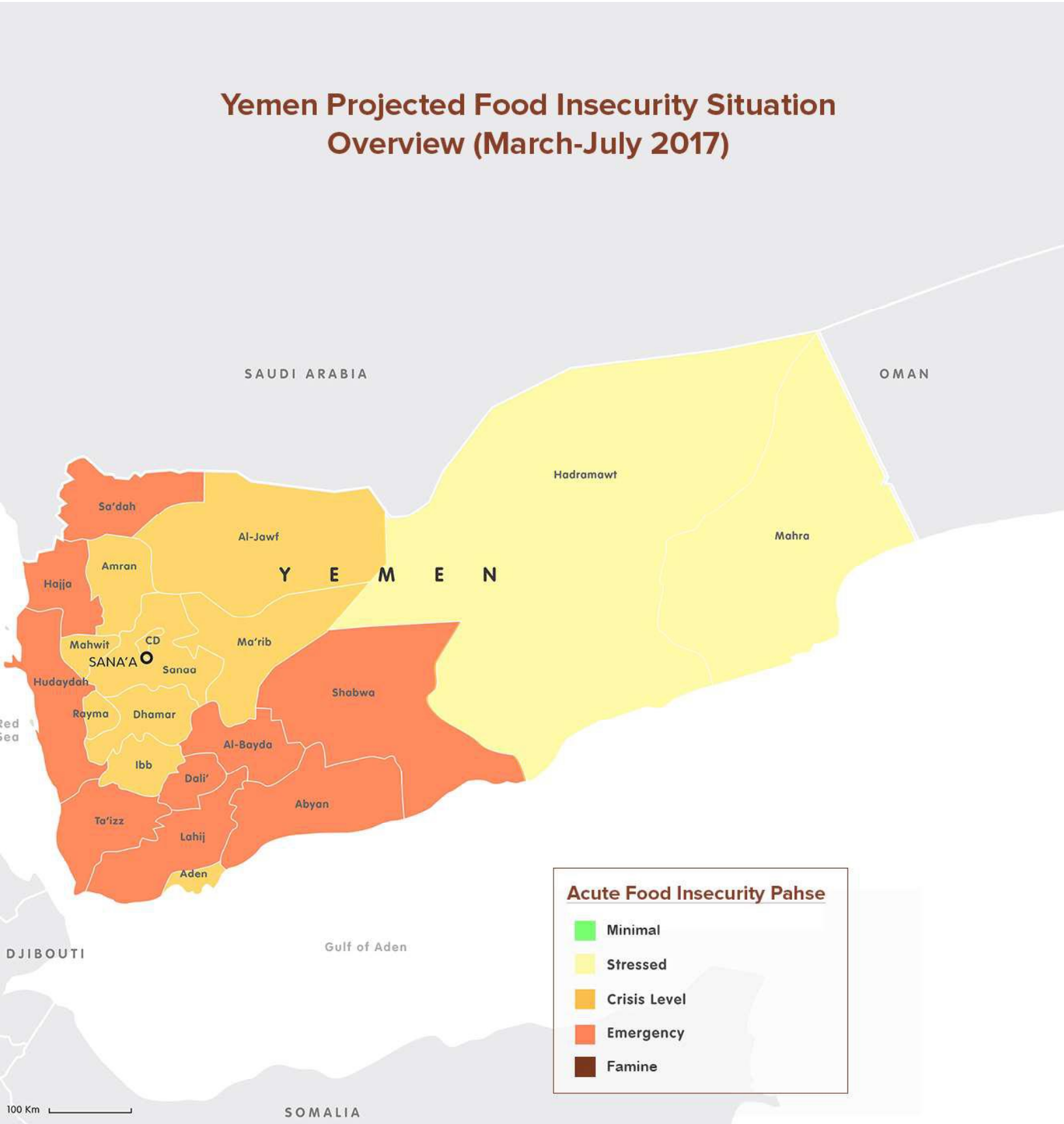
[16] *United Nations Food and Agriculture Organization (FAO), Yemen - Situation report December 2017.*

[17] *SIEG calculation based on the Food Security and Nutrition Clusters prioritization of the geographical locations for the 2017 humanitarian response.*

[18] *Integrated Food Security Phase Classification, Yemen: Projected Acute Food Insecurity Situation, March-July 2017.*

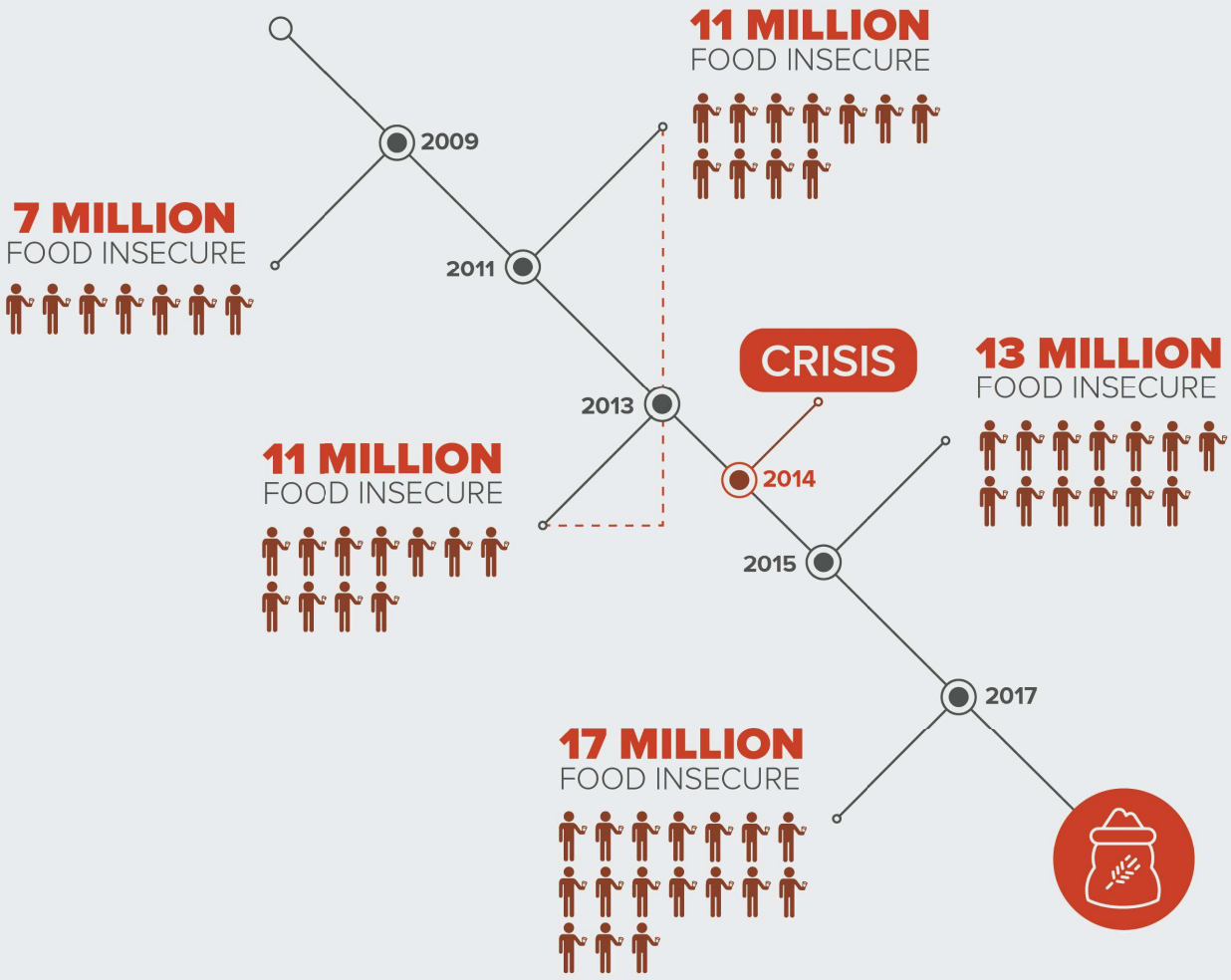
[19] *Global Hunger Index, International Food Policy Research Institute.*

MAP 1.1: Food Insecurity Reached Emergency Levels with Pockets of Famine Believed to Exist in Some Governorates



Source: IPC National Technical Working Group (IPC ratings).

FIGURE 1.1: **Timeline of the Rapidly Deteriorating State of Food Security in Yemen Since 2009**



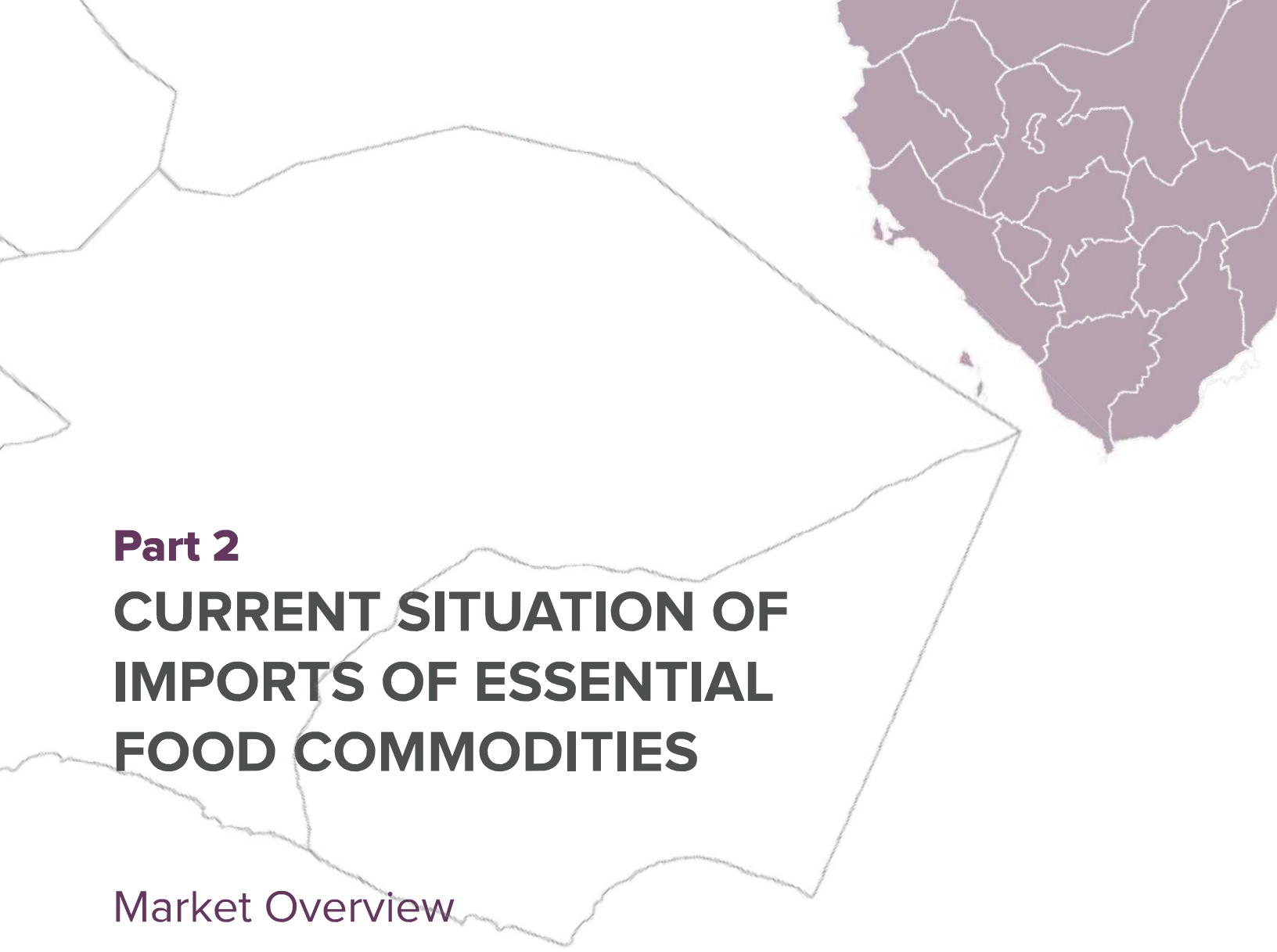
2017

TODAY, **17 MILLION** OF THE TOTAL POPULATION IN YEMEN ARE

FOOD INSECURE

10 MILLION
ARE IN CRISIS

7 MILLION
FACE AN EMERGENCY



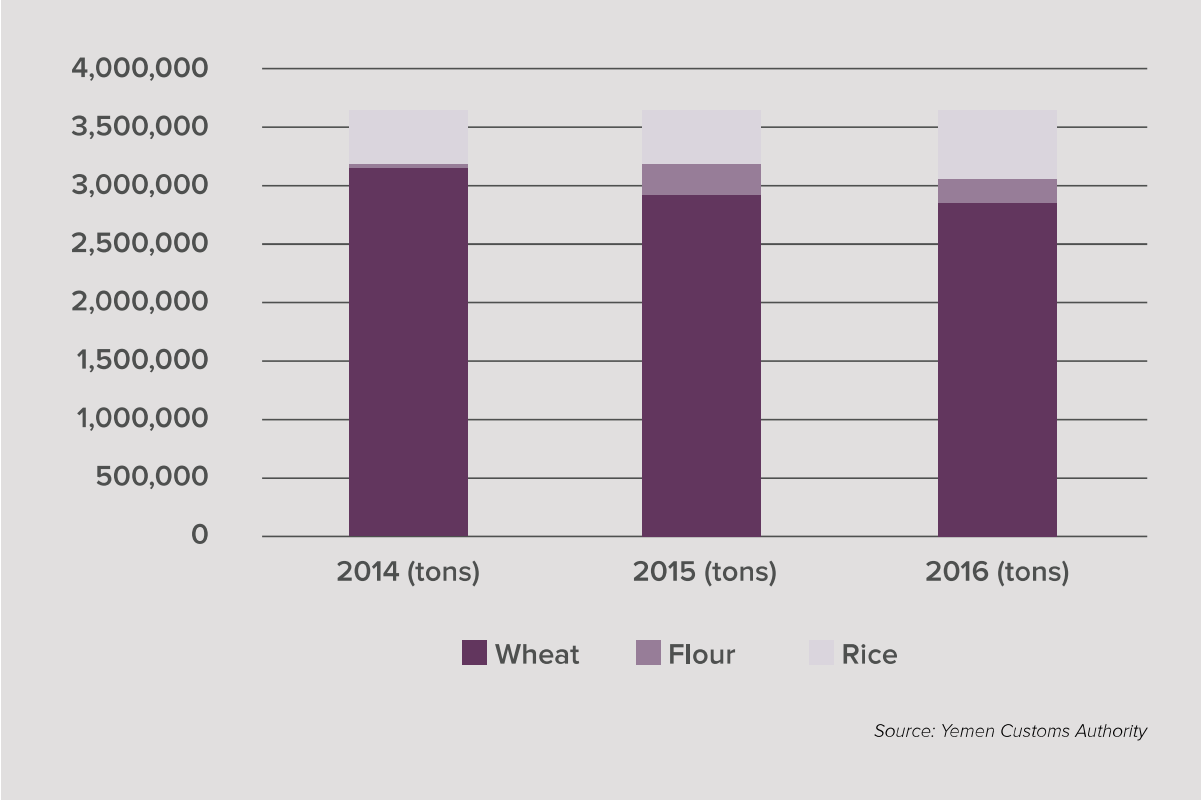
Part 2
CURRENT SITUATION OF IMPORTS OF ESSENTIAL FOOD COMMODITIES

Market Overview

Imports of food commodities constitute the largest nonhydrocarbon imports and cover over 90 percent of annual domestic consumption needs. Yemen depends almost entirely on imports to fulfill the local market demand for its staple commodities, including wheat, flour, and rice. Local production accounts only for about 25 percent, at most, of the overall food availability in Yemen, and less than 10 percent of staple foods. It is estimated that the food imports requirement reaches about 4.75 million MT (metric tons) annually, of which wheat imports alone are estimated to be over 3 million MT. In 2014, Yemen imported 3.16 million tons of wheat, for a total import value of 215.8 billion Yemini Rial (YER) (that is, $1.0 billion at USD/YER 215), and 444.4 thousand tons of rice, for a total import value of YER 84.6 billion (that is, $393.5 million at USD/YER 215). Imports of wheat, flour, and rice continued to flow despite the conflict with a marginal drop in 2016. Wheat grains dropped from 3.16 million MT in 2014 to 2.87 million MT in 2016, a 9.45 percent drop. But flour imports compensated for the drop of wheat grain imports as it reached 202.3 thousand tons compared to only 35.3 thousand in 2014.[20] Rice imports also declined by 16.8 percent compared to 2014. Figure 2.1 below illustrates that the levels of imports of wheat, flour, and rice did not see a significant decrease compared to pre-crises levels.

[20] *Yemen Customs Authority Data.*

Figure 2.1: **Levels of Imports of Wheat, Flour, and Rice Did Not See a Significant Decrease Compared to Pre-crises Levels.**



Source: Yemen Customs Authority

Food imports continued to flow during 2017, resulting in the continued supply and availability of wheat and rice in the country. From January to September, total imports of those two commodities reached 2.6 million and 371 thousand tons, respectively (Table 2.1).[21] In the first half

Table 2.1: **Total Quantity of Wheat and Rice Imports to Yemen from the World during 2014 to Sept 2017 (Metric Tons)**

COMMODITY (MT)	2014	2015	2016*	2017 (JAN-SEPT)**
WHEAT	3,168,117	2,937,914	2,868,730	2,674,781
FLOUR	35,334	262,204	202,398	Combined with wheat
RICE	444,427	439,293	369,714	371,000

*Source: * Yemen Customs Authority ** SIEG Calculation*

[21] *SIEG calculation based on Yemen Ports Data.*

of 2017, there was a high level of imports for wheat as a result of a drop in international prices by almost 40 percent during the harvest season. This drop in international prices triggered a surge in purchasing wheat by Yemeni importers in March, April, and May, which resulted in the storage capacity (totaling 900 thousand MT) in the country becomeing fully utilized. That resulted in making wheat available in most governorates. However, the recent restrictions on imports of food and fuel to the country since November slightly impacted the availability of those commodities in the country and may worsen in the coming months if restrictions are not eased.

Table 2.2: Top Ten Local Wheat Importers by Total Net Weight Imports during 2014-2016

NO	IMPORTER	LEVEL OF IMPORTS (MILLIONS OF TONES)
1	Yemen Company for Flour Mills and Silos (HSA)	2.60 tons
2	Yemen Company for Industrial Invest. (Fahem)	2.30 tons
3	Al-Saeed Trading Company (HSA)	1.26 tons
4	Al-Hodeidah Company for Mills Ltd. (HSA)	0.75 tons
5	Yemen Intl. Food Industries Co. (Al-Habbari)	0.52 tons
6	National Grain Silos Ltd. (NASCO) (Al-Aaudi)	0.49 tons
7	World Food Programme (WFP)	0.43 tons
8	Aden Silos & Mills Company (Al-Rowaishan)	0.33 tons
9	Al-Haj Mohammed Ali Alaudi	0.11 tons
10	Arabian Company for Grain Silos (Yahya Suhail)	0.09 tons

Source: Yemen Customs Authority

Essential food commodities are imported by a small number of private firms. The top two importers accounted for nearly 70 percent of total imports in 2016, while the top ten wheat importers accounted for nearly 99 percent of all wheat imports for the same year. The World Food Program is now one of the top ten importers and accounts for nearly 10 percent of imported wheat (compared to 1 percent in 2014). Compared to wheat, flour imports are far more diversified. There are over 500 importers, with the top 10 accounting for 64.13 percent of imports, as shown below. The rice market is less concentrated on the importers' side than the wheat and flour markets, where there are more than 4,000 importers. The top four importers account for 50 percent of rice imports, and the top 10 importers account for 64 percent of imports, leaving 36 percent spread among thousands of other importers.

Wheat and rice imports originate from the traditional global sourcing markets of these food

Table 2.3: Top Ten Local Flour Importers by Total Net Weight Imports during 2014-2016

NO	IMPORTER	LEVEL OF IMPORTS (THOUSANDS OF TONES)
1	Al-Saleef International Trading Company	78.19 tons
2	Al-Saeed Trading Company (HSA)	54.00 tons
3	Dadiah General Trading	36.98 tons
4	World Food Programme (WFP)	36.56 tons
5	Husam Omar Mohammed Ahmed Al-Zubaidi	32.21 tons
6	Salem Abdulrahman Bajersh Sons Co. (SABSON)	25.86 tons
7	Al-Mohsin Brothers Trading Company	21.91 tons
8	Mohammed Khareef Awadh Badbah	20.13 tons
9	Salem Bakheet Salem Kelshat	19.61 tons
10	Mohammed Muthana Ali Al-Muhannish	18.14 tons

Source: Yemen Customs Authority

Table 2.4: Top Ten Local Rice Importers by Total Net Weight Imports during 2014-2016

NO	IMPORTER	LEVEL OF IMPORTS (THOUSANDS OF TONES)
1	Bin Awadh Al-Naqeeb for Trading & Marketing	234.11 tons
2	Al-Saeed Trading Company (HSA)	123.79 tons
3	Yehia Suhail & Bros For Trading & Invest. Co.	101.63 tons
4	BMC Almehdar & Associates Trading Co. Ltd.	63.30 tons
5	Al-Saleef International Trading Company	56.00 tons
6	Dadiah General Trading	41.91 tons
7	Dadiah Pharma	40.61 tons
8	Mohammed Mahyoub Qaid Al-Udaini	30.76 tons
9	Abdulrahman Ahmed Suhail Ali	29.73 tons
10	Shammakh General Trading Company	24.84 tons

Source: Yemen Customs Authority

commodities. Australia has traditionally been the top exporter of wheat to Yemen, but Russia has now taken over the top spot as of 2016. The two countries account for roughly 50 percent of imported wheat to Yemen. The United States, Germany, France, and the United Arab Emirates account for another 40 percent. In the flour market, the main exporters are Egypt, Turkey, and Oman. These three countries were the source of 77 percent of Yemen's flour imports in 2016. Seven of the top ten exporters are in the MENA region, in contrast to the wider geographic scope of the wheat source markets. The rice market is highly concentrated with three countries dominating exports to Yemen, accounting for over 99 percent of all imports. These countries are India, with almost 50 percent of all rice exports, followed by Thailand and Pakistan with about 30 percent and 20 percent, respectively. In comparison to the source markets for Yemen's wheat and flour, rice has been very stable from 2014-2016.[22]

Table 2.5: Top Three Sourcing Markets by Total Net Weight Imports (2014-2016)

Wheat		Flour		Rice	
Source Market	Level of Imports Millions of Tons	Source Market	Level of Imports Millions of Tons	Source Market	Level of Imports Millions of Tons
Australia	2.61 ton	Turkey	156.83 ton	India	635.07 ton
Russian Federation	2.34 ton	Egypt	146.11 ton	Thailand	383.60 ton
United States	122 ton	Oman	98.68 ton	Pakistan	215.28 ton

Source: Yemen Customs Authority

Three ports in Yemen account for more than 95 percent of essential food commodities imports. (See Figure 2.2 below). Al-Saleef Port is the primary port, followed by Al-Hodeidah and Aden. These three ports account for more than 95 percent of wheat imports. The grain silo storage capacity in-country is able to hold three months of wheat reserves, and is concentrated near the three ports as described in Table 2.6 below. Given such concentration, no alternative port, inside or outside Yemen, can replace the commercial imports coming into the country from those locations. If commercial imports are restricted from any of the three ports, this could lead to a drastic shortage of food commodities.

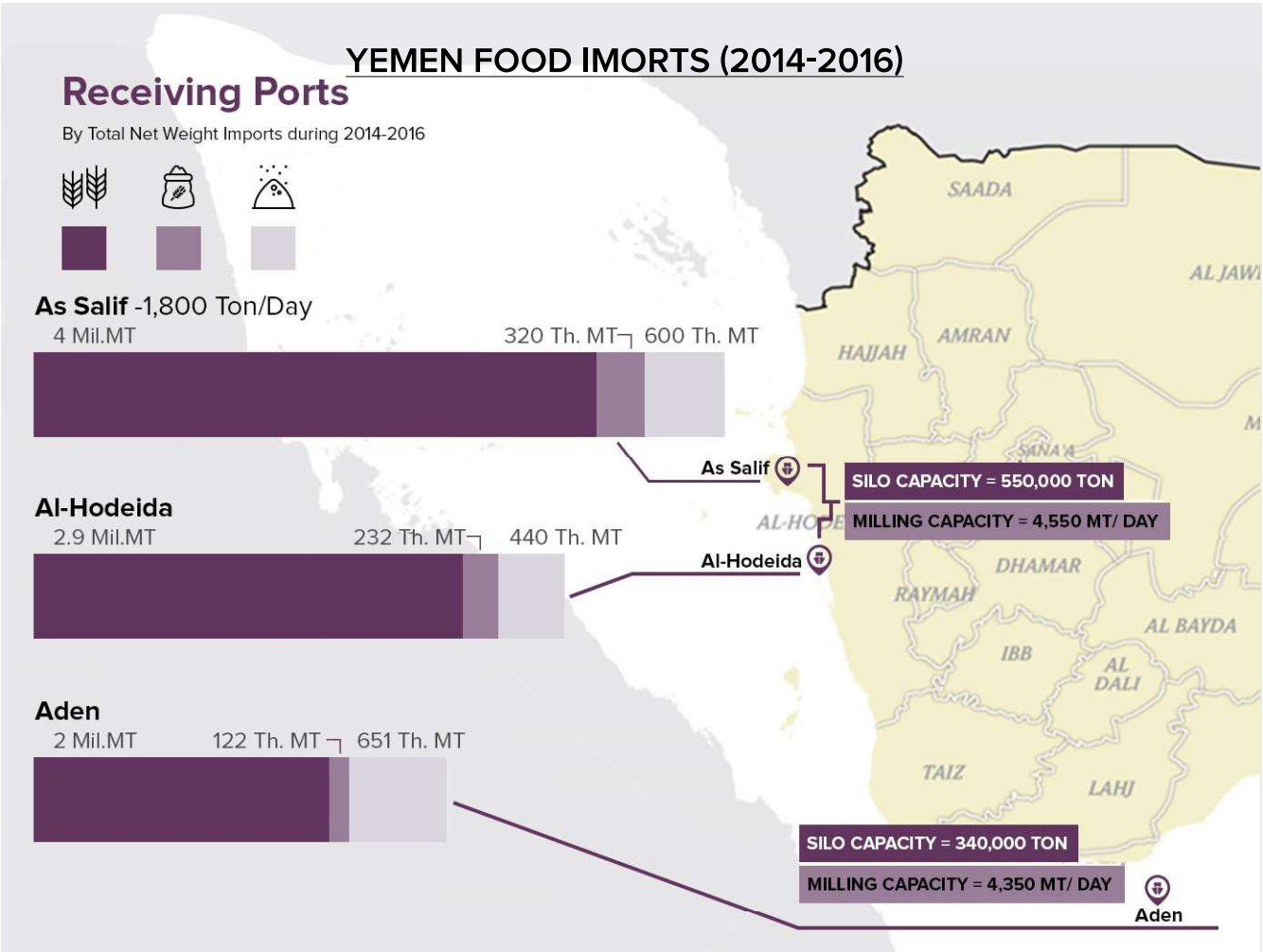
[22] *Yemen Customs Authority Data.*

Table 3.6: Wheat Silo Storage and Milling Capacity in Yemen

PORTS	COMPANY	STORAGE CAPACITY (MT)	MILLING CAPICITY (MT/DAY)
Aden	YCFMS (HSA Group)	230,000	3,750
	Al-Rowaishan Group	110,000	600
	Total Aden:	**340,000**	**4,350**
Al-Hodeidah/ Saleef	National Grain Silos	90,000	N/A
	YCFMS Al-Hodeidah (HSA Group)	130,000	2,250
	YIFICO (Al-Habbari) (Saleef port)	150,000	1,800
	Fahem Group (Saleef port)	120,000	N/A
	Arabian Company (Yahya Suhail)	60,000	500
	Total Al-Hodeidah and Saleef	**550,000**	**4,550**

Source: DeepRoot Calculation based on Stakeholders Interviews

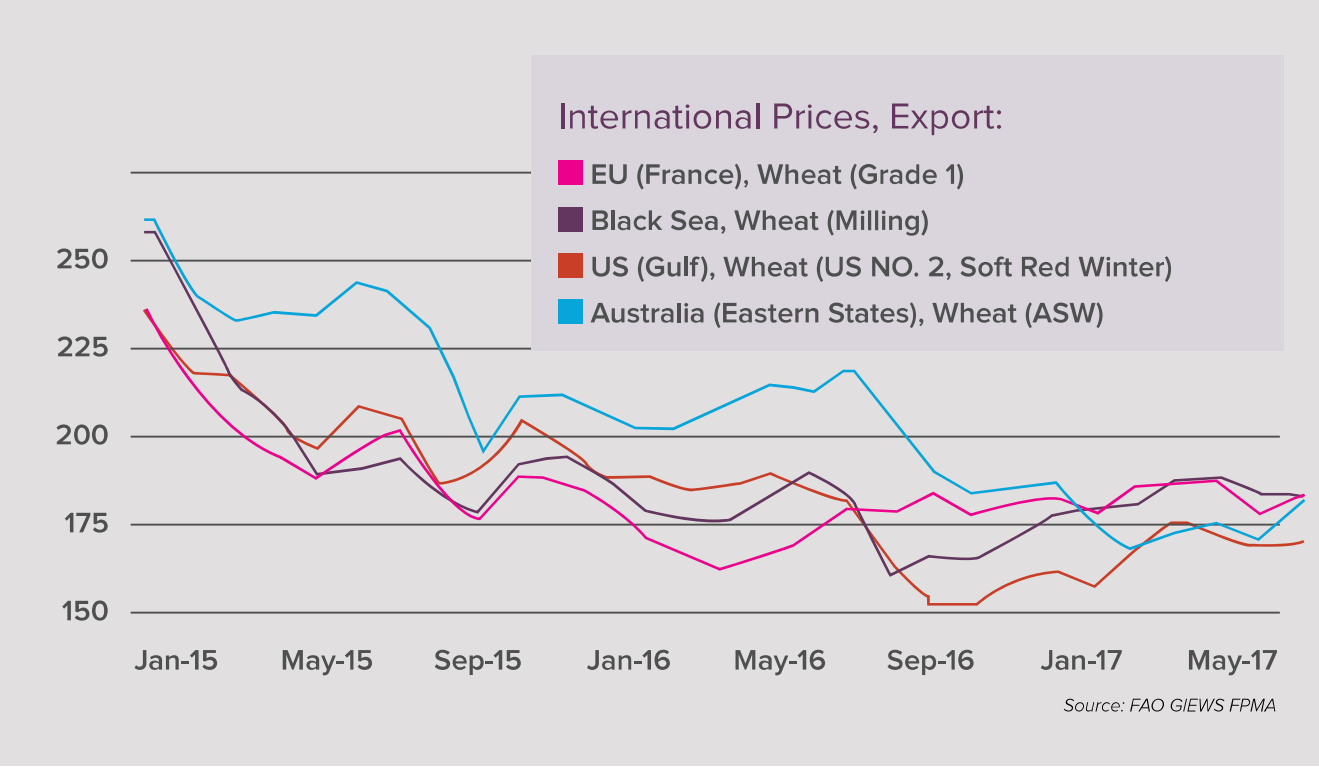
Figure 2.2: Keeping Yemen's Ports Operational is Vital for Food Security



Source: Yemen Customs Authority

Although wheat imports into the country have become more costly and difficult due to the conflict, the main ports receiving food imports continue to be operational. Al-Saleef Port is the primary port for wheat grain imports, receiving 50 percent in 2016. Al-Hodeiah Port received 36.06 percent and Aden Port received 13.82 percent. The top ports for flour are Al-Hodeiah Port with 47 percent, Aden Free Zone with 21.86 percent, and Shanin Port with 17.79 percent. The most rice that is imported is in the Aden Free Zone with 54.63 percent, followed by Al-Hodeiah Port with 37.05 percent and Al-Saleef Port with 5.41 percent. Aden Port accounted for 41 percent of wheat imports in 2014, before the conflict spread south, but imports were impacted significantly in 2015 (down to 9 percent), when fighting over the summer disrupted trade activity and destroyed some of the storage and milling infrastructure of importers. In 2016, Aden Port accounted for 14 percent of wheat imports, showing a slow recovery. Interviews with importers suggested that the drop in wheat imports through Aden port was mainly attributable to the damage sustained by HSA silos and mills in Aden during the conflict in 2015. The silos and mills of HSA in Aden were back to full capacity in January 2017 and the numbers for 2017 will probably reflect that. Al-Hodeidah Port brought in the second highest quantity of wheat in each of the past three years, including 36 percent in 2016.

Figure 2.3: **International Wheat Prices Witnessed a Decreasing trend from Jan 2015 – May 2017**



Price Structure

It was fortunate for Yemen that the start of the conflict coincided with the beginning of a period of decreasing international prices for wheat and rice, from 2014 to 2016. The drop in international wheat prices was particularly significant and contributed in large part to absorbing the rising costs brought about by the conflict and the devaluation of the Yemeni Riyal. The international wheat price per ton in January 2015 was USD 256, while the June 2017 price reached 182 per ton (Figure 2.3). These international price trends were reflected in the cost of shipments arriving at Yemen. It is estimated that the average prices for wheat and rice shipments arriving at Yemen dropped by approximately 25 percent from 2014 to 2016. While this drop for wheat was linked to the drop in international prices, in rice it was also linked to a shift towards cheaper varieties of rice.[23]

Prices of wheat and rice have increased considerably compared to pre-conflict figures. The average national retail price increase for wheat between January 2015 (just before the major conflict started) and April 2017 was about 24 percent. As for flour, WFP reported a 30 percent increase, while FSTS/FAO reported a 37 percent increase. Finally, for rice, WFP data is only available for February 2015 and the price increase was 77.4 percent[24]. Table 3.7 below shows an estimate of the pricing structure pre-conflict (January 2015) and during conflict (April 2017) for wheat which was based on the retail price data as reported by WFP and FSTS/FAO in April 2017, and the SIEG interviews with suppliers, importers, wholesalers, and retailers[25]. Figure 3.4 shows a comparison for flour prices during the same period.

Table 3.7: Pricing Structure for flour compared to Pre-conflict Prices

DESCRIPTION	Jan 2015 (Y.R)	April 2017 (Y.R)
International Wheat Price Per Kg	55.04	72.8
International Shipping And Insurance /Kg	3.65	14
CIF Price Aden/Al-Hodeidah Per Kg	58.69	86.8
Importer Margin	17.60	21.7
Miller Margin	19.07	21.7
Agent Margin	4.76	-
Local Transportation	4	8
Wholesaler Margin	3.12	2
Retailer Margin	26.81	35.05
Retailer Selling Price /KG	134.09	175.25

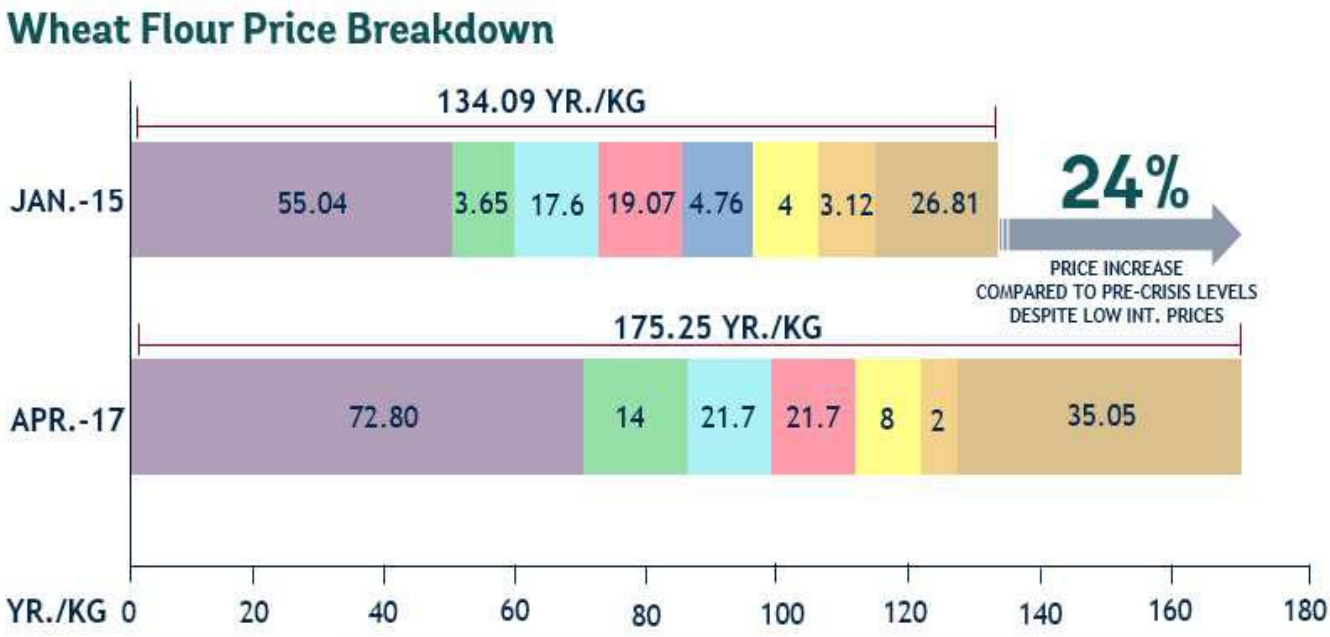
Source: DeepRoot calculation based on WFP and FSTS/FAO in April 2017, and the SIEG interviews with suppliers, importers, wholesalers and retailers.

[23] *Based on Customs Authority data and SIEG calculations.*

[24] *WFP and Food Security Technical Secretariat (FSTS)/Food and Agriculture Organization of the United Nations (FAO) price data.*

[25] *DeepRoot calculation based on WFP and FSTS/FAO in April 2017, and the SIEG interviews with suppliers, importers, wholesalers and retailers.*

Figure 3.4: **The Local Price Increase for flour reached 24% compared to pre-crisis levels despite low Int. prices in the years 2016 and 2017**



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International shipping and insurance now make up a larger share of the costs and have a significant impact on retail prices. The conflict environment forced two major changes in the price structure of wheat in the Yemeni market. First, the "agent" and "wholesaler" categories were consolidated into one category, with significantly reduced margins. According to importers, agents were cut from the supply chain in order to cut price increases. Secondly, international shipping and insurance and local transportation now make up a larger share of the price due mainly to

increased costs as a result of the conflict. Importers and millers also moderately lowered their margins (as a percentage), despite increasing costs of operations, in order to maintain affordable prices in the market, resulting in a considerable decrease in their profits. However, until August 2016 the importers made significant profits by benefitting from much lower international wheat prices and a fixed exchange rate supported by the Central Bank of Yemen.

Interviews conducted with rice importers revealed that the market structure of rice is very similar to wheat in terms of chain sequence and margins. The major difference is that the market is much less concentrated on the importers' side, and there is a very wide range of varieties and prices in the market, making it difficult to analyze but similar dynamics in the price structure are likely to be at play.

Supply Chain Structure

Imports of grains to Yemen follow a common supply chain structure. However, the conflict resulted in new steps being introduced and posed new challenges within the import process that importers consider to be costly and unpredictable. The description below tries to summaries the import process while highlighting what changes, new steps, or challenges were introduced as a result of the conflict. The process is grouped below into four general processes: buying, shipping, port procedures, and in-country sales and transportation.

The first two steps in the import process constitute the buying process. Money exchange companies have become an instrumental intermediary within this step of the process. (See Figure 3.5). The transfer of ownership (incoterms) and payment takes place in this step between the buyer and seller. It usually takes four to five days to confirm an order. It is in this step of the process where the importer needs to secure foreign currency to pay based on the agreed incoterms, and where the importer works with a local bank or with local money exchange companies to try to secure the foreign currency needed to finalize the issuance of the letter of credit (LC) or the advance payment of the goods. Money exchange companies have become the major provider of foreign currency to the buyer while this was uncommon practice before the conflict. Additionally, the use of "Free On Board" (FOB) as an incoterm increased drastically after the conflict began because it has less exposure to risks for exporters/sellers, but adds additional costs and time for the buyer to arrange for the shipments of goods.

During the shipping process, commercial goods destined for Al-Hodeidah or Saleef have to obtain additional clearances before they are allowed to enter the Yemeni ports causing delays and additional costs. (See Figure 3.6). On this step, and prior to sailing from the port of origin, the liner sends the manifest to all the ports on the vessel route. In parallel with this step, the liner also sends the manifest to UNVIM (for charter vessels heading to Al-Hodeidah or Saleef ports) or to the Yemeni Ministry of Transport in Riyadh (for containerized or charter vessels heading to Aden). Major delays and costs during shipping are reported by importers on their food shipments that are destined to Al-Hodeidah or Saleef. While UNVIM takes only up to 48 hours to process documents and issue a clearance for the liner (the current average is 37.5 hours)[26], the UNVIM

clearance is not sufficient to allow the liner to enter Yemeni ports. An additional clearance must also be obtained from the coalition, and the coalition's processing time for clearances varies considerably on a ship-by-ship basis – importers reported that it could take between 48 to 100 hours, but could also take up to two weeks or, in some cases, a full month.[27]

Figure 2.5: **Money Exchange Companies Have Become an instrumental intermediary within the buying process**

[26] *Based on SIEG interviews with (and data obtained from) UNVIM.*

[27] *Based on SIEG interviews with importers, and shipping agents.*

Inspection of vessel or cargo are now an additional step for shipments destined to Al-Hodeidah or Saleef. If inspection is deemed required by UNVIM or the Collation, the ship is usually directed to an agreed-upon location in international waters off Yemen where they make the inspection. For container shipments, the containers destined to Al-Hodeidah gets inspected at the King Abdullah transit port in Jeddah where inspection takes between one to four weeks, or more.

Transshipment ports for shipments destined for Al-Hodeidah or Saleef became restricted to only one transshipment port. The major transshipment ports have typically been Jabal Ali in Dubai, Jeddah, Salalah, and Djibouti, but since the beginning of 2017 the coalition has restricted Al-Hodeidah-bound container ships to only transshipping in King Abdullah Port in Jeddah which is reported to be more congested and costly than other transshipment ports.

Delays at the port have a minor impact on the overall import process. (See Figures 2.7 and 3.8) When vessels are allowed to enter Yemeni waters, berthing and unloading of cargo takes bout 3 to 10 days depending on the port. The delay in berthing and unloading cargo is evident in Al-Hodeidah port, where the unloading process takes about seven to ten days due to damage to some infrastructure, inefficiencies in port operations. However, importers indicate that such delays do not affect the import process substantially and does not affect the prices of those commodities at the local markets

During the sales and transportation process, food distribution is sufficient, although credit facilities throughout the supply chain are limited. Once the goods leave the port, the importer takes full control of the goods because they are already transported to their silos (in the case of wheat grains) or storage facilities (in the case of rice and flour). Next, importers begin selling the wheat and rice to wholesalers or retailers. Some of the wheat is sold as grains and some is milled by milling companies owned by the importers and sold as flour. The goods are transferred by trucks to the wholesalers, but only after goods have been fully paid for. Credit facilities offered throughout the local supply chain are very limited. Importers are not willing to provide credit facilities to wholesalers, and this triggers everyone on the supply chain to refuse offering credit. The transportation and road network sustained damage but importers convey that they are able to reach all local markets and damage to the transportation network and roads does not heavily impact local prices.

FIGURE 3.6: UNVIM and Collation Inspection and Clearance Process are Targeted More Towards Shipments Destined for Hodeida and Saleef Ports

SHIPPING PROCESS

STEP 1

Shipping Company → Vessel (Liner)

STEP 2

Shipping Company → Vessel (Liner) → Send Manifest to Discharging Ports +

For Goods destined to Hodeida or Saleef Ports
(Manifest also sent to UNVIM)

For Goods destined to Aden
(Manifest also sent to MOT)

STEP 3

Vessel (Liner)

Departs from Port of Loading Before Clearance is Obtained

STEP 4 *(Bulk Shipments)*

Liner Vessels Carrying Bulk

If distned to Hodeida Port, vessel moves to holding area.

If inspection is required Coalition & UNVIM inspect.

If deemed necessary, the vessel can be asked to move for further inspe

DJIBOUTI PORT

STEP 4 *(Containerized Goods Continued)*

Vessel (Liner)

If distned to Hodeida Port, vessel has to go to Jeddah Port.

Cleared and inspected.

Goods are loaded.

Charter vessels

Obtain permit clearance from collation

Heading to Hodidah Port

Hodeida Port

If distend to Aden Port, vessel can go to any transit port if prefers.

Goods to Aden Port are unloaded from liner vessels

Loaded into charter vessels without passing inspection

Aden Anchorage Area

Vessel (Liner) For Hodeida Port

Coalition gives the captain the green light (permit) to enter Yemeni waters.

Yemini anchorage are waits for the permit from Hodeida Port.

Hodeida Port

STEP 5

Vessel (Liner) For Aden Port

Clearance by the Coalition Liaison and ship is allowed to enter to the port.

Aden Port

FIGURE 3.7: **Delays at the port have minor impact on the overall import process**

PORT PROCESS

STEP 1

Berthing and Unloading

STEP 2

Buyer (Importer)

Documents required include the PL, original invoice, certificate of origin, packing list and quality certificate.

Custom Team

STEP 3

Manifest sent by the shipping line with the customs declaration.

Matching and acceptable, they number/reference the declaration and stamp it

STEP 4

An employee goes physically check the goods received with the customs declaration.

An employee count the pieces inside one container then multiply it by the nymber of containers.

For bulk, an employee check the documents from the shipping line with the invoice and have a physical assesment.

STEP 5

Hodeida Port:

YSMO

A YSMO member takes samples from the cargo and sends them to Sana'a.

OK SANA'A

The lab checked and approved through a report issued by the organization.

Aden Port:

YSMO

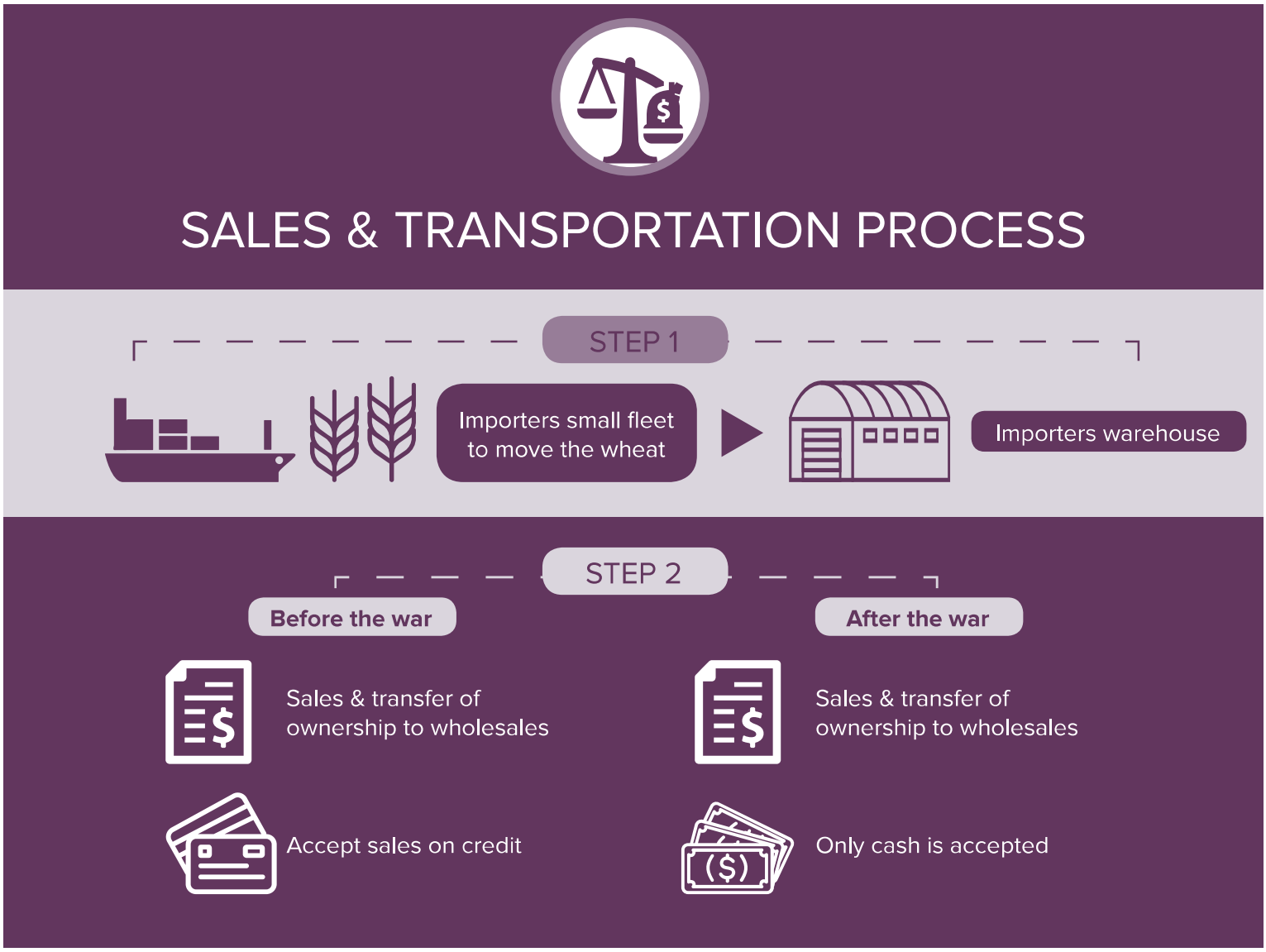
Inspection in the Aden Port by the YSMO that has a food research center there.

STEP 6

Wheat and rice are exempted from customs and obtained from authorities in Sana'a and Aden.

SANA'A

Figure 3.8: **Food Distribution is Sufficient, However Credit Facilities Throughout the Supply Chain are Limited.**



Part 3
CHALLENGES TO FOOD IMPORTS

The conflict has reduced demand and impeded market mechanisms of the imports of food commodities resulting in raised prices along the supply chain. The interviews with the various stakeholders indicated a wide array of import impediments that are contributing to the humanitarian catastrophe, many of which are a direct result of the war. The constraints identified in this section are not a comprehensive list of all financial and logistical constraints affecting food imports. They only represent the top constraints having high-to-medium severity levels.

Challenges related to the economic environment and financial sector have consistently been cited as the top constraints by all participants of the food import value chain. Of the top three constraints listed by food importers in survey responses, 90 percent related to economic and financial challenges in survey responses. The sharp drop in demand as a result of the decline in purchasing power emerged as a top constraint, alongside with rising costs and difficulties to access foreign currency. The shortage of domestic banknotes and rising costs and risks of domestic and international payments were also highlighted as key challenges.

The cumulative impact of economic and financial sector challenges added significant risks and costs of food imports which is putting pressure on food prices. While food price increases have been below average inflation to date, they are likely to increase in the near-to-medium term if the aforementioned challenges remain unresolved. Rising costs will ultimately force importers to pass them on to the food import value chain to sustain operations. The rise in costs and risks

is also a threat to the smaller segments of the food import value chain. These challenges have a particularly severe impact on small- and medium-sized businesses – importers, wholesalers and retailers – who are more vulnerable to rising costs and risks due to lower levels of liquidity, diversification, and access to alternative financing sources. As a result, an increasing number of businesses are forced to scale-down or suspend their operations, which contributes to a rise in market concentration and a decline in incomes. On the logistics side, key reported challenges include delays in obtaining clearances for incoming food shipments and rising costs and risks resulting from damaged port and road infrastructure.

Obstacles associated with access to liquidity, banking services, and payments were considered among the second most important challenges to food importers. The domestic liquidity crisis, and difficulties in making domestic and international payments, were highlighted by all food importers as key concerns that added significant risks and costs to their transactions. The impaired functionality of the Central Bank of Yemen (CBY) and the suspension of its core functions, along with the overall deteriorating financial health of the Yemeni banking system, aggravated these difficulties and disrupted domestic transactions. As a result, the private sector is led to conduct transactions through informal channels at greater costs and risks. Other obstacles that are impeding/delaying/increasing costs of imports include the delay in obtaining clearances for imports destined to Yemen, and the damage to the port infrastructure and road networks.

A. Economic and Financial Sector Challenges

1. Collapsing purchasing power – Severity: High

Food importers, wholesalers and retailers have identified the drop in purchasing power as a key challenge to their businesses. The impaired purchasing power of households is reported as a key driver of the sharp drop in demand which has been felt along the food import value chain, ranging from food importers and wholesalers down to retailers. The resulting drop in sales and clients – estimated to range between 40-60 percent by retailers – has forced businesses to scale down or suspend their businesses.

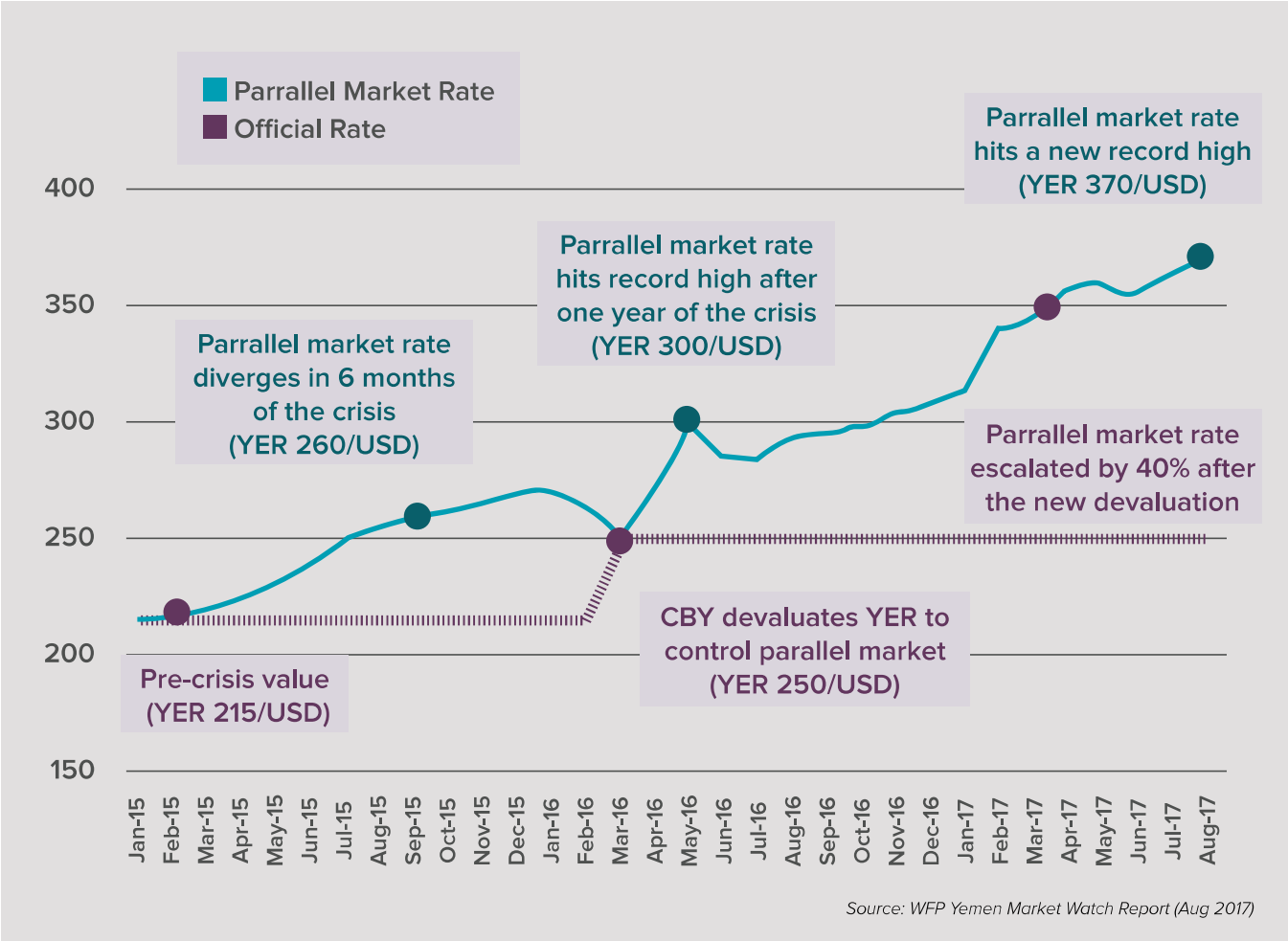
The decline of purchasing power is a result of the deterioration of the economic environment and the political conflict which has impacted the livelihoods of millions of Yemenis. The majority of the population lost their sources of income, which resulted in the near-famine conditions that are present today. Government social welfare transfers to 1.5 million cases (equivalent to over 8 million direct and indirect beneficiaries) have been suspended since the end of 2014. Public sector workers, over 1.2 million of them, have largely gone unpaid for over 10 months. At the same time, private sector employment has collapsed given the high number of businesses that are shutting down. The erosion of incomes coincided with a rise in food prices by an average of 30 percent compared to preconflict levels[28]. The combined effect of eroding incomes and rising food prices have been a key contributing factor to the humanitarian crisis as households are simply

[28] *National average prices of wheat and flour averaged 25 percent and 24 percent, respectively, higher than those before the crises, while the average cost of a food basket increased to 30 percent higher compared to pre-conflict prices.*

unable to afford food despite being available in most areas.

The coping mechanism of a large number of the population changed due to the decrease in purchasing power. Today, an increased number of the population resort to increased levels of borrowing for food consumption & reliance on income support from humanitarian aid/remittances. The Demand side data have revealed high and rising levels of household reliance on humanitarian support and indebtedness for food. The magnitude of the problem is evidenced in numbers from the last EFSNA survey: many resorted to reduced coping strategies, a total of percent; 83 percent of households are indebted, and 53% borrowed money to purchase food for survival. The latest Humanitarian Response Plan (Jan 2018) for Yemen also reported that over 8.8 million people will be targeted and provided with immediate lifesaving emergency food assistance either as in kind/ relief food, voucher transfers, or as cash based transfers.

Figure 4.1: Trends in Yemen Exchange Rate (YER/USD): Jan-2015 to Aug-2017



Source: WFP Yemen Market Watch Report (Aug 2017)

[29]*Source: WFP "State of Food Insecurity in Yemen" report, April 2017*

2. Cost and Scarcity of Foreign Currency – Severity: High

The increasing cost and scarcity of foreign currency was consistently flagged as a top constraint to food importers. The suspension of central banking functions and liquidity problems facing the banking sector have effectively dried up the two primary financing sources of food importers. As a result, food importers had to increasingly resort to the money exchange market to secure their FX needs, but at a higher cost because they had to settle transactions at the market FX rate, which was significantly higher than the official FX rate that existed prior to the CBY's decision to float the Yemeni Rial in August 2017 (see the graph in Figure 4.1). In addition, food importers faced difficulties securing large amounts of foreign currency (up to USD 15 million per shipment), requiring them to spend days in negotiations with money exchange companies. The liberalization of the exchange rate has closed the gap between the parallel market and the official exchange rate, but it did not resolve traders' challenges to source U.S.dollars.

Difficulties in access FX are further aggravated by the concurrent domestic liquidity crisis and the banking sector crisis. The progressive decline of the banking sector's financial conditions contributed to the progressive erosion of public trust in banks as financial service providers. Shortages in domestic banknotes forced many traders to resort to cheques as one of the few alternatives to cash. However, increasing difficulties and risks to cash out cheques rendered them less valuable to cash. The resulting mark-up for check-based payments (+11 percent compared to cash) affected all cheque-based transactions, including FX purchases. The progressive decline of the banking sector has contributed to the rise of the informal sector as the main provider of FX and financial services, at greater costs and risks. The following section provides a more in-depth analysis of the financial sector challenges.

3. Limited Access to Liquidity – Severity: High

In interviews with importers, distributors, and retailers, the liquidity crisis emerged as a severe constraint that added significant additional costs to commercial transactions and government payments. The increasing scarcity of cash has forced importers to resort to checks to settle balances, but at higher costs. The magnitude of these costs are illustrated in the following example: a trader wishing to purchase U.S. dollars for a shipment of wheat can obtain the required funds at a rate of 360 YER per dollar if he settles the transaction in cash. If he uses checks, the exchange rate goes up to 400 YER per dollar, a mark-up equivalent to 11 percent of the required funds. Penalties for noncash payments have extended to most commercial transactions and even for payments to public entities. Customs authorities in both Aden and Al-Hodeidah have been demanding that importers pay custom duties in cash and have been refusing to accept check/ bank transfer payments.

The progressive depletion of the banking sector's liquidity has effectively cut off the private sector's access to their bank deposits and aggravated the systemic liquidity crisis. The introduction of daily withdrawal limits to minimal subsistence levels eased pressures on banks and reduced risks of the sector's collapse, but placed a big financial burden on food importers and other merchants who rely heavily on working capital to sustain their businesses. Importers

in turn have responded to rising liquidity constraints through more stringent payment terms for their clients (wholesalers and retailers). While importers used to offer credit facilities for their clients, they are now mostly requiring advance payments with very few and limited exceptions. The wholesalers are following the same terms from their retail clients. This has caused many small businesses along the supply chain to cease operations because they cannot afford such payment terms.

4. Risks and Costs of Domestic and Cross-Border Payments -Severity: High

Rising obstacles to accessing and exchanging funds were further aggravated by rising obstacles to transferring funds. Yemenis were no longer able to make external wire transfers as banks stopped offering them due to the suspension of the CBY's clearing and settlement function for payments in late 2016. Banks are still able to clear payments to other banks through correspondent bank accounts and settle net balances in cash. However, this significantly increases the cost of payments and makes the possibility to settle balances between banks entirely dependent on the availability of physical cash.

The lack of a mechanism to clear domestic bank payments increased risks and costs for importers through multiple channels. It decreases the efficiency of supply chains, forces the extensive use of paper money, and often forces businesses to maintain accounts with different banks. It also limits the growth of acceptance networks for cashless payment instruments, such as cards or e-money, which are normally dependent on interbank payment and clearing systems. Similarly, the suspension of domestic foreign currency payment systems and the freezing of commercial banks' U.S. dollar balances held at the CBY have further reduced the role of formal financial institutions in handling payments by removing a viable alternative to YER checks, which are distrusted and traded at a discount. It has also led to concentration of trade finance and remittance operations in two banks with the widest access to foreign currency and correspondent banking relationships.

Rising costs and risks of cashless payments reduced their appeal as a payment instrument and further increased demand for cash. Even before the outbreak of the war, most payments were settled in cash. The conflict further increased the role of cash as cash-less payment instruments (cards, cheques, bank transfers, e-payments, etc.) became increasingly costly/risky or unavailable. As the CBY was unable to ensure the distribution of new banknotes across Yemen, it contributed to the shortages of physical money in the economy as demand for cash continued to rise.

Difficulties n making cross-border payments are even more complex and severe. Increasing international restrictions for transactions with Yemeni banks and businesses are making it difficult for traders to make transfers through their Yemeni banks. The financial system's impaired access to international payment platforms, such as the SWIFT messaging system and to financial instructions was consistently cited as a major constraint by food importers as a contributing factor to rising difficulties and costs for cross-border payments and trade finance.

Rising difficulties and costs of cross-border bank transfers led many importers to resort to exchange companies and money traders, but at greater risks and costs. In addition, the foreign currency amounts are not always available from the exchange companies in Yemen, because some of them maintain accounts outside Yemen, especially in Gulf Cooperation Countries (GCC) that are supplied by remittances from Yemeni expatriates working in the GCC. In such cases, the importers also use exchange companies to make international transfers either to the importers' accounts abroad or directly to their suppliers. The exchange companies charge a high fee for this transfer service, estimated to range between 10-15 percent based on interviews with traders.[30] Global food suppliers interviewed for this study considered payment-related issues as the main obstacle to their doing business with Yemen. Reported challenges include the difficulty of dealing with Yemeni banks directly through the suppliers' bank, and the limited number of correspondent banks that can provide Letter of Credit (L/C) confirmation services in particular and correspondence services in general.

5. Limited Access to Trade Finance – Severity: Medium

Rising costs and risks have also led most banks to suspend or scale-down operations and request higher fees and guarantees for financial services. Most banks have either completely stopped providing credit, or demand higher fees and collateral – including for short term credit like overdraft facilities or letters of credit (L/Cs). The latter had a particularly negative impact on importers which rely heavily on L/Cs to finance imports. Importers now have to deposit 100 percent of the L/C amount in their bank account before their bank will establish the L/C. This represents a significant increase compared to the prewar period, where most banks only requested a fraction of the L/C value as a guarantee. As a result, importers have to secure the full payment for their shipment in foreign currency and deposit it at their bank in advance.

B. Logistics and Distribution Channels Challenges

1. Delays in Issuing Clearance & Limiting Transit Ports – Severity: High

International shipping lines report delays in obtaining clearances to enter the ports of Al-Hodeidah and Saleef. Since the United Nation Verification and Inspection Mechanism (UNVIM) became operational in May 2016, all shipments going to Saleef and Al-Hodeidah ports have had to undergo a screening process. The average turnaround for obta nal design and SOPs (that is, UNVIM is only supposed to "inform" the coalition of the decision), in practice UNVIM still requires the coalition's approval before the clearance becomes effective because it is the coalition that controls the waters. Receiving the "approval" from the coalition is not a standard process with clear response times, but is rather done on a ship-by-ship basis. This could sometimes take four days, but it could also take two to three weeks, and sometimes over a month. Importers and shipping agents gave examples of a number of situations where ships had to be inspected again

[30] *According to one international supplier who was paid for a shipment using this mechanism through exchange companies, it was risky because they had to verify the source of funding and payment, and it took much longer to get paid, which caused unexpected delays in the shipment.*

in the international anchorage area despite having already been inspected at the King Abdullah port in Jeddah, or where after having been inspected and cleared, some ships were stopped from discharging at the port and asked to return from the port anchorage area to undergo further inspections. The general sense from importers and shipping agents about the process of obtaining clearance from the coalition is that the process is uncertain, time-consuming, and can be very costly due to demurrage charges they have to pay awaiting inspections.

The UNVIM process does not apply to shipments destined for Aden, although coalition clearance is still required but is obtained faster. Shipments destined for Aden Port sail directly to the Aden anchorage area without having to stop in a holding area. Vessels are also able to transit in any transshipment port it chooses and goods are unloaded from liner vessels and loaded into charter vessels without passing inspections. While this provides an incentive for some importers to divert their shipments to Aden, importers continue to split their shipments between Aden and Al-Hodeidah. The main reason for this is the fact that over 50 percent of storage and milling capacity is closer to Al-Hodeidah or Saleef ports than to Aden ports. Hence Al-Hodeidah and Saleef will remain irreplaceable for the foreseeable future.

Part 4
RECOMMENDED OPTIONS FOR INTERVENTION

This section will present recommended economic, financial, and logistical interventions to address the challenges and constraints to food imports which were described in Part Three of this report. The interventions presented in this report focus on the most important constraints and are prioritized based on their expected impact.

As most key challenges are a result of disrupted government and central bank functions, efforts to restore them should be prioritized and supported as a first best solution wherever feasible. Resuming basic government and central bank functions would address the root causes of the most important economic and financial constraints which are not only affecting food importers, but impacting the livelihoods of millions of Yemeni households and firms as they struggle to receive salaries, make payments, and transfer funds abroad. Restoring the basic institutional framework would not only mitigate the impact of the conflict, but pave the way for a successful and speedy economic recovery and reconstruction.

As most macroeconomic and financial sector challenges are interconnected, resolving them is more likely to succeed if these linkages are understood and addressed in a coordinated and sequenced manner. The implementation of large-scale income support measures is a case in point. The resumption of payments of salaries for public servants or social welfare transfers relies on the ability of the central bank to print and distribute the required supply of domestic currency across the country, resuming its monetary policy role. Ensuring effective banking sector oversight

is another example of a core function which is a prerequisite to restore disrupted linkages with the international financial system.

The international community can increase its role and impact in Yemen on three levels: Scaling-up humanitarian aid, leveraging aid inflows for food imports and supporting efforts to restore core state functions. The international community already plays a vital role as a provider of emergency food assistance through the provision of direct assistance (food distribution) and income support measures (cash transfers/vouchers), but these programs should be scaled-up to weather the negative impacts of the loss of household income as the single most important factor contributing to the humanitarian crisis. Strengthening the people's ability to cover their basic needs not only address one of the root causes of the famine, but also has wider economic benefits by reviving income generating activities along the food value chain. Foreign aid could also be leveraged to cover the FX gaps of food importers, which can address the domestic liquidity needs of aid projects. Finally, the international community can play an important role in restoring core state and central banking functions in various capacities, ranging from the direct provision of services to a guarantor or facilitator of solutions through advisory and convening efforts.

A. Economic and Financial Sector Interventions

1. Scale-up Income Support Measures for Yemeni Households

a. Resume payment of salaries, pensions and social transfers

The resumption of payments of salaries for public servants, and payments of social transfers should be targeted as a top priority given their importance as a main source of income for millions of Yemeni households. The resumption of payments of salaries, pensions and social transfers is an essential step to address the sharp decline in household incomes as one of the most important factors contributing to the humanitarian crisis. This measure would not only help restore the purchasing power of Yemeni households as a direct outcome, but also contribute to employment and income generating activities for businesses along the entire food value chain, which have been forced to scale-down or cease operations due to declining demand and rising costs and risks.

The successful resumption of income payments is contingent on the availability of financial resources and the capacity to deliver these payments swiftly and securely across all parts of Yemen. The authorities should formulate an action plan which identifies the financing sources and lays out an implementation plan which considers the financial and operational constraints and priority needs of the most vulnerable populations. The financing plan should a) identify and earmark potential government revenues (customs; taxes; oil sales) and a strategy to channel them for income payments through a trusted mechanism (e.g. through a memorandum of understanding or negotiated agreement with relevant stakeholders) and b) identify financing gap which may be complemented through international aid.

Given the magnitude of outstanding payments and resource constraints (both financial and operational), the implementation plan should consider prioritization and/or phasing of payments. The plan should be based on objective criteria aimed at targeting the most vulnerable populations (e.g. start with lowest income segments; areas or populations most affected by drop in incomes/ less likely to have access to other income sources; capping salary payments to subsistence levels [deferring additional balances to future]. The payment strategy could be informed by household data/surveys of humanitarian organizations, which could play a facilitating role as a convening power between different stakeholders

Finally, the implementation plan should include a delivery strategy through payment agents/ instruments which have the operational capacity to roll out these payments and are credible and trusted by key stakeholders. The selection of a payment agent which is trusted as a reliable and non-partisan actor facilitates the safe and timely delivery of payments across Yemen as it reduces the risks of political interference and disruptions of the process. The resolution of the liquidity crisis and domestic payments infrastructure would also facilitate the payment process. Restored confidence in the banking sector and paperless payment instruments will ease the demand for physical cash by Yemenis, which will reduce the necessity for costly and risky transfers of physical cash within Yemen.

b. Scaling-up emergency food assistance

The international community should scale-up existing emergency food assistance efforts given the severity of the humanitarian crisis. The resumption of income payments to public servants, retirees and social welfare beneficiaries do not extend to large segments of the Yemeni population who rely on private sector incomes and remittances as a primary source of income. The efficiency and effectiveness of emergency food assistance through cash transfers is contingent on the capacity of payment agents (banks/MFIs) to access the required funds and deliver them across the entire country, reflecting the same enabling conditions to resume the payment of salaries as described in the previous section.

2. Facilitate Access to FX for Food Importers

Foreign aid inflows to Yemen could help secure FX needs for food imports. Food importers have access to local currency, which are needed for humanitarian aid projects requiring local currency (e.g. cash transfers). Given the wide consensus between the international community and the Yemeni public and private sector on the importance of sustaining food imports to Yemen, Yemeni banks could reach a voluntary agreement to earmark incoming hard currency through foreign aid for food importers on a priority basis. This could be implemented in a short time by changing financial management arrangements of humanitarian organizations which allow them to secure the local currency needs for their emergency programs (e.g. cash transfers) in exchange for the provision of the equivalent funds in hard currency to secure the FX needs of food importers. The concept can be implemented through different variations which can be adapted to the country context and requirements of participating stakeholders. Variations of this

concept have been applied elsewhere by international organizations (e.g. UNICEF in Ivory Coast) and bi-lateral donors (e.g. DFID in Zimbabwe).

This solution would help address two key constraints of food importers in Yemen: difficulties to access and transfer FX to purchase food imports. In addition to addressing key constraints to food importers, the aid for trade concepts yields additional advantages. It doesn't require additional fundraising as it can be implemented on existing/planned humanitarian aid inflows. This solution would also likely be supported by the Yemeni public and private sectors given the wide consensus on the importance of securing food imports as a key national priority.

3. Restore Trust in the Financial System

a. Restore liquidity in the financial system

Resolving the domestic liquidity crisis should be addressed as a top priority given the severity and scope of the problem and its cross-cutting negative impact through indirect channels and spill-over effects. The CBY should prepare a strategy which formulates a time-bound action plan to restore systemic liquidity across Yemen. The strategy should entail a plan to resume the CBY's core functions as a monetary authority (ensuring the issuance and distribution of currency across Yemen) and as fiscal and financial agent of the government (sovereign bond issuance and management; payment of public servant salaries and pensions).

Resolving the liquidity crisis would help restore trust in the financial system, reducing costs and risks of commercial transactions. Restored access to deposits reduces pressures on liquidity by food importers and the interdependent downstream members of the food value chain. Ability to withdraw cash restores convertibility of cashless payment instruments such as cheques and bank transfers, reducing costs and risks of domestic and international fund transfers. Access to household deposits allows households to access savings to cover basic needs, boosting demand for essential goods through increased purchasing power.

b. Restore Mechanism for clearing and settlement of domestic payments

The establishment of a clearing and settlement mechanism for domestic payments is key to reduce the costs and risks of cashless payment instruments. This mechanism could be established as part of the CBY's efforts to modernize its payment systems infrastructure and should be envisaged as first best solution if the necessary preconditions are conducive to its successful implementation (coordination/collaboration between CBY branches and HQ; availability of qualified human resources; etc.). If this solution is not feasible, alternatives could be considered (e.g. establishment of a facility for clearing and settlement of interbank transfers could be established offshore, possibly based on a SWIFT closed user group).

A reliable clearing and settlement mechanism would help restore trust in the formal financial system and reduce the appeal of the informal sector. Restoring banking sector liquidity and reliable clearing and settlement mechanisms for domestic payments would restore public trust in

cash-less payments, lowering costs and risks for commercial transactions along the food import value chain.

c. Ensure effective banking sector oversight

Restoring effective banking sector oversight is key to restore trust of the global financial system in the integrity of the Yemeni banking sector. Firstly, due to the lack of financial supervision, the capacity of the banks to open or maintain Corresponding Banking Relationships (CBRs) is considerably lower than in normal circumstances. A well functioning supervision authority can provide at least a high-level negotiation process or a subsequent smooth transition by buying enough time to open new CBRs. Second, the absence of effective banking sector oversight increases ML/TF risks for Yemeni banks, which increases the likelihood of CBRs closures. Third, it creates an environment of regulatory vacuum, including in AML/CFT area, which increases the risk that existing CBRs will be closed due to the non-compliance of national legislation with international recommendations.

Restoring effective banking sector oversight across Yemen requires close collaboration/ coordination between the CBY HQ and its branches. In order to ensure that CBRs will not be closed, it must be possible to verify whether Yemeni banks performing international transactions have adequate policies, procedures and resources to comply with AML/CFT legislation. If a restoration of the CBY's supervisory functions is not feasible, alternatives should be considered. A temporary workaround may be the transfer of a part of the supervisory activity to statutory (external) auditors. In some jurisdictions, it is common practice to transfer a part or all on-site supervision to statutory auditors. This may be the result of a lack of resources, or time or other reasons.

B. Logistics and Distribution Channels

1. Establish an efficient, predictable and fast clearance process that delivers food supplies through all available ports.

International development partners should advocate for establishing an efficient, predictable, and fast clearance process that delivers food supplies through all available ports. The Verification and Inspection Mechanism (UNVIM) process has proven to be an efficient and effective process within the limits of what it is authorized to do. UNVIM should be empowered with further authority by the international community. This can be accomplished through delegating UNVIM to conduct the final inspections of all vessels destined to Yemen, and enabling it to issue the final clearances necessary to enter Yemen waters. Delegating such activities to UNVIM is envisioned to address the significant delays and uncertainties that still impact the shipping process. This will help in stabilizing shipping times and assist in bringing down shipping rates to Al-Hodeidah.

Limit restrictions on shipping lines, and allow for alternative transshipments ports for vessels destined to Hodeida and Saleef. The time required for this step is particularly ambiguous, since it

could take a week or a month or even more. Allowing transshipments by shipping lines in Salalah port or any other transshipment port in addition to the King Abdullah Port in Jeddah for shipments going to Al-Hodeidah or Aden will relieve the bottleneck currently experienced in Jeddah. Also, allowing transshipments in Dubai and Djibouti as envisioned in the UNVIM SOPs will assist greatly in facilitating shipments to Yemen. Finally, removing the current limit of 700 containers per vessel imposed by the coalition for vessels going to Al-Hodeidah port and allowing vessels carrying up to 1,700 containers (the maximum that Al-Hodeidah port can handle) will also assist in lowering costs and improving the efficiency of shipping to Hodeida.

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APPENDIX

Appendix A: Yemen Customs Authority Raw Data on Imports of Wheat, Flour, & Rice to Yemen from The World During 2014-2016

Top Wheat Importers by Total Net Weight During 2014-2016 (Metric Tons)

No	Importer[31]	Qty tonnes	2014 Qty (%)	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
1	Yemen Company for Flour Mills and Silos[32]	1,317,523	41.59%	705,703	24.02%	-46.44%	576,909	20.11%	-18.25%	**2,600,134**
2	Yemen Company for Industrial Investment[33]	435,417	13.74%	967,997	32.95%	122.32%	892,763	31.12%	-7.77%	**2,296,178**
3	Al-Saeed Trading Company	510,819	16.12%	436,193	14.85%	-14.61%	308,039	10.74%	-29.38%	**1,255,052**
4	Al-Hodeidah Company for Mills	226,169	7.14%	286,812	9.76%	26.81%	233,923	8.15%	-18.44%	**746,904**
5	Yemen Intl. Food Industries Co. (YIFICO)[34]	221,481	6.99%	136,360	4.64%	-38.43%	164,451	5.73%	20.60%	**522,292**
6	National Grain Silos (NASCO)[35]	117,707	3.72%	170,966	5.82%	45.25%	196,485	6.85%	14.93%	**485,158**
7	World Food Programme (WFP)	44,757	1.41%	113,281	3.86%	153.10%	275,617	9.61%	143.30%	**433,655**
8	Aden Silos & Mills Company[36]	205,002	6.47%	41,820	1.42%	-79.60%	87,166	3.04%	108.43%	**333,988**
9	Al-Haj Mohammed Ali Alaudi	16,250	0.51%	58,375	1.99%	259.23%	33,625	1.17%	-42.40%	**108,250**

[31]According to source, the total number of wheat importers during 2014-2016 is 107.

[32]Importers number 1, 3, and 4 are all members of HSA Group. See http://www.ycfms.com/en/index.php and http://www.alsaeedtrading.info/flashws/

[33]Owned by Mohammed Fahem and partners.

[34]Ninety percent of the business is owned by Ali Mohammed Al-Habbari and sons (Al-Habbari Group). See http://www.yifico.com/ensite/index.htm

[35]Owned by Mohammed Ali Alaudi. See http://www.nasco-ye.com/en-index.php.

[36]Owned by Al-Rowaishan. See http://www.adenmills.com/English/Index.asp.

[37]Owned by Yehia Suhail and partners. See http://www.ysbco.com/eng/index.php. Started receiving wheat vessels and selling in the local market in mid-2016.

No	Importer[31]	Qty tonnes	2014 Qty (%)	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
10	Arabian Company for Grain Silos[37]	0	0.00%	0	0.00%	0.00%	88,931	3.10%	Entrant	**88,931**
11	Tihama Silos and Flour Mills Grain Company	41,600	1.31%	0	0.00%	-100.0%	0	0.00%	0.00%	**41,600**
12	Bin Hilabi Trading Stores	19,525	0.62%	10,000	0.34%	-48.78%	0	0.00%	-100.0%	**29,525**
13	Mohammed Mahyoub Qaid Al-Udaini	3,820	0.12%	3,228	0.11%	-15.50%	6,856	0.24%	112.40%	**13,903**
14	Harmal Trading	3,752	0.12%	0	0.00%	-100.0%	0	0.00%	0.00%	**3,752**

Source: : Yemen Customs Authority

Top Flour Importers by Total Net Weight During 2014-2016 (Metric Tons)

No	Importer[38]	Qty tonnes	2014 Qty (%)	Yoy % Change	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
1	Al-Saleef International Trading Company	0	0.00%	-	77,833	29.68%	Entrant	356	0.18%	-99.54%	**78,189**
2	Al-Saeed Trading Company[39]	0	0.00%	-	30,899	11.78%	Entrant	23,101	11.41%	-25.24%	**54,000**
3	Dadiah General Trading[40]	572	1.62%	-	16,479	6.28%	2781.84%	19,926	9.84%	20.92%	**36,976**
4	World Food Programme (WFP)	0	0.00%	-	26,737	10.20%	Entrant	9,823	4.85%	-63.26%	**36,560**
5	Husam Omar Mohammed Ahmed Al-Zubaidi	0	0.00%	-	18,762	7.16%	Entrant	13,450	6.65%	-28.31%	**32,212**
6	Salem Abdulrahman Bajersh Sons (SABSON)	11,423	32.33%	-	8,988	3.43%	-21.32%	5,452	2.69%	-39.34%	**25,863**

[38] *According to source, the total number of flour importers during 2014-2016 is 502.*

[39] *Importers number 2 and 17 are members of HSA Group. See http://www.alsaeedtrading.info/flashws/ and http://genpack-hsa.com/en/?style=blue.*

[40] *See http://www.dadiah.com.ye/.*

No	Importer[38]	Qty tonnes	2014 Qty (%)	Yoy % Change	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
7	Al-Mohsin Brothers Trading Company	0	0.00%	-	0	0.00%	0.00%	21,906	10.82%	Entrant	**21,906**
8	Mohammed Khareef Awadh Badbah	0	0.00%	-	1,773	0.68%	Entrant	18,355	9.07%	935.54%	**20,128**
9	Salem Bakheet Salem Kelshat	2,523	7.14%	-	9,878	3.77%	291.46%	7,209	3.56%	-27.01%	**19,610**
10	Mohammed Muthana Ali Al-Muhannish	2,534	7.17%	-	5,386	2.05%	112.57%	10,218	5.05%	89.72%	**18,137**
11	Mohammed Mahyoub Qaid Al-Udaini	0	0.00%	-	600	0.23%	Entrant	14,735	7.28%	2355.75%	**15,335**
12	Yehia Suhail & Bros for Trading & Invest.[41]	0	0.00%	-	5,019	1.91%	Entrant	10,000	4.94%	99.23%	**15,019**
13	Majdi Salem Obaid Badhawi	0	0.00%	-	5,840	2.23%	Entrant	4,843	2.39%	-17.08%	**10,683**
14	Bin Shahbain for Trade & Investment	0	0.00%	-	0	0.00%	0.00%	10,437	5.16%	Entrant	**10,437**
15	Bin Dowal & Partners for Iron Trade	0	0.00%	-	900	0.34%	Entrant	7,792	3.85%	765.76%	**8,692**
16	BMC Almehdar & Associates Trading Co.[42]	5,523	15.63%	-	2,563	0.98%	-53.59%	45	0.02%	-98.24%	**8,131**
17	General Industries & Packages Company	3,274	9.27%	-	3,881	1.48%	18.53%	400	0.02%	-89.69%	**7,555**
18	Ali Ahmed Omar Darmash Ghabry	0	0.00%	-	5,565	2.12%	Entrant	0	0.00%	-100.0%	**5,565**
19	Unknown	0	0.00%	-	4,408	1.68%	Entrant	296	0.15%	-93.29%	**4,703**
20	Abdullah Ali Abdullah Jassar	2,593	7.34%	-	720	0.27%	-72.24%	0	0.00%	-100.0%	**3,313**

Source: : Yemen Customs Authority

[41] See http://www.ysbco.com/eng/index.php.

[42] Member of Almehdar Group. See http://en.bmc-ye.com/.

Top Rice Importers by Total Net Weight During 2014-2016 (Metric Tons)

No	Importer[43]	Qty tonnes	2014 Qty (%)	Yoy % Change	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
1	Bin Awad Al-Naqeeb Trading & Marketing[44]	90,114	20.28%	-	63,592	14.48%	-29.43%	80,404	21.75%	26.44%	**234,109**
2	Al-Saeed Trading Company[45]	30,709	6.91%	-	41,243	9.39%	34.30%	51,840	14.02%	25.70%	**123,792**
3	Yehia Suhail & Bros for Trading & Invest.[46]	39,642	8.92%	-	28,647	6.52%	-27.74%	33,340	9.02%	16.38%	**101,629**
4	BMC Almehdar & Associates Trading Co.[47]	33,376	7.51%	-	25,820	5.88%	-22.64%	4,103	1.11%	-84.11%	**63,299**
5	Al-Saleef International Trading Company	0	0.00%	-	35,995	8.19%	Entrant	20,000	5.41%	-44.44%	**55,995**
6	Dadiah General Trading	12,891	2.90%	-	19,692	4.48%	52.76%	9,327	2.52%	-52.64%	**41,910**
7	Dadiah Pharma[48]	11,065	2.49%	-	16,973	3.86%	53.40%	12,569	3.40%	-25.95%	**40,606**
8	Mohammed Mahyoub Qaid Al-Udaini	17,910	4.03%	-	7,528	1.71%	-57.97%	5,320	1.44%	-29.33%	**30,758**
9	Abdulrahman Ahmed Suhail Ali	2,790	0.63%	-	15,849	3.61%	468.05%	11,089	3.00%	-30.03%	**29,728**
10	Shammakh General Trading Company[49]	4,044	0.91%	-	13,463	3.06%	232.93%	7,333	1.98%	-45.53%	**24,839**
11	Al-Khair Trading Company	11,399	2.56%	-	9,640	2.19%	-15.43%	3,383	0.91%	-64.91%	**24,422**
12	Marwan Mohammed Abdo Thabet Al-Hirwi	7,773	1.75%	-	8,647	1.97%	11.24%	7,176	1.94%	-17.02%	**23,596**

[43] *According to source, the total number of rice importers during 2014-2016 is 4,367.*

[44] *See http://alnaqeeb.com/en/.*

[45] *Member of HSA Group. See http://www.alsaeedtrading.info/flashws/.*

[46] *See http://www.ysbco.com/eng/index.php.*

[47] *Member of Almehdar Group. See http://en.bmc-ye.com/.*

[48] *A subsidiary of Dadiah General Trading. See http://www.dadiah.com.ye/ and http://www.dadiah.com.ye/pharma_intro.htm.*

[49] *Importers number 10 and 16 are members of Shammakh Group.*

No	Importer[43]	Qty tonnes	2014 Qty (%)	Yoy % Change	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
13	Bin Shahbain for Trade & Investment	10,845	2.44%	-	4,681	1.07%	-56.83%	6,673	1.80%	42.55%	**22,200**
14	Al-Ahliah Company for Importing Foodstuff	5,871	1.32%	-	3,525	0.80%	-39.96%	6,528	1.77%	85.19%	**15,923**
15	Abdullah Saeed Ba-Akeel	9,306	2.09%	-	4,253	0.97%	-54.30%	1,000	0.27%	-76.49%	**14,559**
16	Salem Mohammed Shammakh & Co.	10,766	2.42%	-	3,056	0.70%	-71.61%	0	0.00%	-100.0%	**13,822**
17	Abdulaziz Mohammed Saif Al-Ariqi	6,117	1.38%	-	5,811	1.32%	-4.99%	1,541	0.42%	-73.48%	**13,469**
18	Abdullah Ali Abdullah Jassar	4,951	1.11%	-	5,659	1.29%	14.32%	2,708	0.73%	-52.14%	**13,318**
19	Al-Mahdami Trading LLC	10,833	2.44%	-	2,272	0.52%	-79.03%	0	0.00%	-100.0%	**13,105**
20	Abdul Galil Radman Trading & Industries[50]	8,346	1.88%	-	3,591	0.82%	-56.97%	992	0.27%	-72.38%	**12,930**

Source: : Yemen Customs Authority

Top Wheat Export Countries by Total Net Weight During 2014-2016 (Metric Tons)

No	Export Country of Origin	Qty tonnes	2014 Qty (%)	Yoy % Change	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
1	Australia	908,363	28.67%	-	954,801	32.50%	5.11%	742,426	25.88%	-22.24%	**2,605,590**
2	Russian Federation	905,337	28.58%	-	581,301	19.79%	-35.79%	850,506	29.65%	46.31%	**2,337,144**
3	United States of America	235,082	7.42%	-	470,884	16.03%	100.31%	513,108	17.89%	8.97%	**1,219,074**
4	France	413,545	13.05%	-	434,499	14.79%	5.07%	147,389	5.14%	-66.08%	**995,433**
5	Germany	151,209	4.77%	-	365,177	12.43%	141.50%	353,382	12.32%	-3.23%	**869,768**
6	Ukraine	255,205	8.06%	-	91,601	3.12%	-64.11%	7,744	0.27%	-91.55%	**354,551**
7	India	299,015	9.44%	-	1,668	0.06%	-99.44%	0	0.00%	-100.00%	**300,683**
8	Bulgaria	0	0.00%	-	0	0.00%	0.00%	69,502	2.42%	Entrant	**69,502**
9	Lithuania	0	0.00%	-	0	0.00%	0.00%	53,651	1.87%	Entrant	**53,651**
10	Unknown	0	0.00%	-	0	0.00%	0.00%	33,325	1.16%	Entrant	**33,325**

Source: : Yemen Customs Authority

[50]*Member of Radman Group. See http://www.radmangroup-ye.com/en/.*

Top Flour Export Countries by Total Net Weight During 2014-2016 (Metric Tons)

No	Export Country of Origin	Qty tonnes	2014 Qty (%)	Yoy % Change	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
1	Turkey	8,863	25.08%	-	98,192	37.45%	1,007.84%	49,792	24.60%	-49.29%	**156,848**
2	Egypt	572	1.62%	-	84,246	32.13%	14,633.40%	61,289	30.28%	-27.25%	**146,107**
3	Oman	14,701	41.61%	-	38,852	14.82%	164.28%	45,123	22.29%	16.14%	**98,676**
4	United Arab Emirates	3,378	9.56%	-	17,595	6.71%	420.92%	12,114	5.99%	-31.15%	**33,087**
5	Sudan	0	0.00%	-	7,000	2.67%	Entrant	21,906	10.82%	212.94%	**28,906**
6	India	6,726	19.04%	-	5,037	1.92%	-25.11%	75	0.04%	-98.51%	**11,838**
7	Italy	0	0.00%	-	2,063	0.79%	Entrant	7,585	3.75%	267.60%	**9,648**
8	Jordan	8	0.02%	-	6,660	2.54%	78,688.60%	2	0.00%	-99.97%	**6,670**
9	Saudi Arabia	15	0.04%	-	1,418	0.54%	9,140.89%	1,382	0.68%	-2.57%	**2,815**
10	Belgium	0	0.00%	-	563	0.21%	Entrant	1,350	0.67%	140.00%	**1,913**

Source: : Yemen Customs Authority

Top Rice Export Countries by Total Net Weight During 2014-2016 (Metric Tons)

No	Export Country of Origin	Qty tonnes	2014 Qty (%)	Yoy % Change	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
1	India	227,131	51.11%	-	223,982	50.99%	-1.39%	183,963	49.76%	-17.87%	**635,075**
2	Thailand	126,695	28.51%	-	147,449	33.56%	16.38%	109,456	29.61%	-25.77%	**383,601**
3	Pakistan	84,309	18.97%	-	57,003	12.98%	-32.39%	73,968	20.01%	29.76%	**215,280**
4	United States of America	4,951	1.11%	-	2,136	0.49%	-56.86%	943	0.26%	-55.85%	**8,030**
5	Unknown	152	0.03%	-	3,082	0.70%	1933.53%	88	0.02%	-97.14%	**3,322**
6	Viet Nam	811	0.18%	-	807	0.18%	-0.57%	131	0.04%	-83.76%	**1,749**
7	Oman	0	0.00%	-	1,667	0.38%	Entrant	0	0.00%	-100.00%	**1,667**
8	United Arab Emirates	1	0.00%	-	1,055	0.24%	91,631.22%	211	0.06%	-79.97%	**1,267**
9	Iran (Islamic Republic of)	0	0.00%	-	822	0.19%	Entrant	0	0.00%	-100.00%	**822**
10	Egypt	142	0.03%	-	484	0.11%	240.38%	75	0.02%	-84.41%	**701**

Source: : Yemen Customs Authority

Top Wheat Receiving Ports by Total Net Weight During 2014-2016 (Metric Tons)

No	Receiving Port	Qty tonnes	2014 Qty (%)	Yoy % Change	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
1	Al-Saleef Port	673,148	21.25%	-	1,900,428	64.69%	182.32%	1,430,160	49.85%	-24.75%	**4,003,736**
2	Al-Hodeidah Port	1,160,861	36.64%	-	753,964	25.66%	-35.05%	1,034,469	36.06%	37.20%	**2,949,294**
3	Aden Port	1,309,908	41.35%	-	267,090	9.09%	-79.61%	396,597	13.82%	48.49%	**1,973,595**
4	Al-Mukalla Port	20,015	0.63%	-	10,000	0.34%	-50.04%	0	0.00%	-100.00%	**30,015**
5	Aden Free Zone	3,868	0.12%	-	2,251	0.08%	-41.79%	7,111	0.25%	215.83%	**13,230**

Source: : Yemen Customs Authority

Top Flour Receiving Ports by Total Net Weight During 2014-2016 (Metric Tons)

No	Receiving Port	Qty tonnes	2014 Qty (%)	Yoy % Change	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
1	Al-Hodeidah Port	1,182	3.34%	-	136,234	51.96%	11,427.19%	95,131	47.00%	-30.17%	**232,547**
2	Shahin Port	3,633	10.28%	-	43,296	16.51%	1091.71%	36,016	17.79%	-16.81%	**82,944**
3	Aden Free Zone	18,232	51.60%	-	12,308	4.69%	-32.49%	44,240	21.86%	259.44%	**74,780**
4	Aden Port	180	0.51%	-	22,382	8.54%	12,334.46%	25,612	12.65%	14.43%	**48,174**
5	Al-Saleef Port	25	0.07%	-	32,693	12.47%	130,672.23%	0	0.00%	-100.00%	**32,718**

Top Rice Receiving Ports by Total Net Weight During 2014-2016 (Metric Tons)

No	Receiving Port	Qty tonnes	2014 Qty (%)	Yoy % Change	Qty tonnes	2015 Qty (%)	Yoy % Change	Qty tonnes	2016 Qty (%)	Yoy % Change	2014-2016 Total Qty Tonnes
1	Aden Free Zone	234,321	52.72%	-	214,957	48.93%	-8.26%	201,981	54.63%	-6.04%	**651,259**
2	Al-Hodeidah Port	154,015	34.65%	-	149,697	34.08%	-2.80%	136,997	37.05%	-8.48%	**440,709**
3	Al-Saleef Port	365	0.08%	-	39,979	9.10%	10,853.10%	20,001	5.41%	-49.97%	**60,345**
4	Al-Mukalla Port	33,173	7.46%	-	14,417	3.28%	-56.54%	0	0.00%	-100.00%	**47,589**
5	Shahin Port	2,021	0.45%	-	13,970	3.18%	591.39%	5,982	1.62%	-57.18%	**21,973**

Appendix B: The Central Bank of Yemen Role in Financing Imports of Basic Commodities

The Central Bank of Yemen has played a pivotal role in the financing of commodity imports, especially in the past few years, using several instruments. Before discussing the CBY role and its instruments, we will review the volume of commodity imports, as follows:

Volume of basic commodities' imports: Table (1) shows the volume of imported commodities during the period 2014-2016, where imports dropped in 2016 compared to 2014 and 2015. The table shows also that imports of basic commodities ranged between 2.60 and 4.04% during the same period. This percentage indicated an increase in basic commodities' imports as a percentage to GDP. It should be noted here that Yemen imports between 90% - 100% of the wheat and rice needs consumed.

Table (1) Imports of Basic Commodities during the period 2014-2016

	2014	2015	2016
CBY Coverage	**868.9**	**583.8**	**933.1**
Wheat	812.3	458.3	**763.4**
Rice	8.3	124.2	**119.9**
Sugar	48.2	1.4	**49.8**
As a percentage of GDP	2.60	3.33	**4.04**

Source: Central Bank of Yemen

In Table (2), meanwhile, shows the total volume of imports during the period 2014-2016 compared to foreign currency reserves at the Central Bank. Capacity of the foreign currency reserves to cover the total imports dropped from 3.9 months in 2014 to 1.6 months in 2016, which indicates CBY, would not be able to finance imports - at least in the short term- and if urgent steps are not taken to replenish the foreign currency reserves held at the Central Bank.

Table 2: Total Imports and Amount of Foreign Currency Reserves for the period 2014-2016

	2014	2015	2016
Basic commodities' imports	868.9	933.1	**583.8**
Total imports	15760.43	6616.46	**7299.08**
Foreign currency reserves	4665	2900	**1000**
One month imports	3.9	3.4	**1.6**

Source: Central Bank of Yemen

The role of CBY in financing the value of imported basic commodities: The Yemeni Riyal was floated for the first time in July 1996 followed by gradual consolidation of official exchange rates during the period 1995- 1st half of July 1996. This marked the transition into free exchange rate system. In addition, CBY has adopted a set of measures (policies) to finance imports, including imports of basic commodities in particular. These procedures can be summarized as follows:

Indirect intervention policy: Despite the introduction of the free exchange rate system, CBY continued to intervene by selling the dollar to banks and the exchange sector in a bid to lessen short-term sharp

fluctuations given the fact that it receives the largest amount foreign currency inflows against collecting government revenues due from crude oil and natural gas exports in addition to foreign aids and loans. Thus, indirect intervention has been one of the most important sources to foreign currency flows into needed by the local exchange market to finance imports, especially basic commodities. The main source used during this intervention was foreign currency reserves (US dollar in the first place) and this policy continued until mid-2010.

Financing documentary credits (LCs) by commercial banks in foreign currencies: By the end of 2010, as CBY had a new leadership, the Bank began to lessen its intervention in the local exchange market by selling US dollar directly to banks and the exchange sector. For CBY, it was the right option finance LCs related basic commodities issued by commercial banks which require the bulk demand for foreign currencies. Therefore, CBY opted for the policy to sell foreign currencies (mainly USD) to banks to enable them cover their documentary credits, which increased requests by banks to cover their LCs in foreign currencies. In view of the mounting pressure on the CBY foreign exchange reserves and the total freeze of foreign currency sources, especially oil and gas exports over the past two years, the CBY has reduced the number of commodities to be covered. In February 2016, CBY stopped financing imports at the official exchange rate except wheat and rice. This policy went on until September 2016 and the decision to move the Central Bank to Aden. The main funding source for these LCs was foreign currency reserves that have accumulated over the years. The process goes as follows:

1) The customer (importer of basic commodity) approach his/her commercial bank requesting to open a documentary credit to importing basic commodities (wheat or rice) and pay the LC amount to the Commercial Bank in Yemeni Riyal.

2) The commercial Bank considers the client's request and upon completion of required procedures an LC is opened in US dollar.

3) Upon arrival of the commodity (wheat or rice) to the port of destination and receipt of the shipment, the Commercial Bank submits a request to the client to reimburse LC value with following documents enclosed:

- Copy of the documentary credit.
- Commercial Invoice
- Certificate of Origin
- Shipping Policy
- Insurance policy
- Customs Declaration
- Certificate of inspection by the Yemeni authorities.
- Release order from the port of arrival.

4) Upon receipt of all documents with coverage letter, CBY reviews these documents and if complete the bank deposits the LC value in US dollar in the account of the requesting Commercial Bank account (either foreign account or the one held at CBY) and deducts the equivalent in Yemeni Riyals at the official rate.

CBY conducts a prior inspection of basic commodities' LCs by making sure that all LC documents are complete, revised and verified vis-à-vis the requesting company

records and earlier imported shipments. CBY monitoring applies to all LCs whether imports of basic commodities or imports in general and is done in once the LC becomes payable by the Commercial Bank i.e. in case of default by the customer to pay the LC amount as an example. LC documents are reviewed in terms of authenticity, the customer's credit position, how the LC was opened and other issues related to the LC under consideration. The Banking Supervision Sector at CBY handles this process.

It should be noted, however, that CBY- Sana'a executed some partial reimbursement transactions for wheat importation LCs after suspending the SWIFT system and moving CBY to Aden and this was applied to LCs opened before moving CBY to Aden, according to remittances and LCs departments at CBY-Sana'a. Beneficiary banks said to have agreed to deposit reimbursed amounts to their USD accounts at CBY (Deducting the LC amount from their YR accounts and adding the equivalent to their USD account at CBY-Sana'a at the official rate) contrary to the usual practice, where reimbursed amount used to be deposited to accounts of commercial banks abroad.

Decrees to execute all local transactions in YR and create a basket of foreign currencies in CBY: By the end of 2015, CBY has issued a number of decrees obliging banks to execute all local payments in YR, especially those used to be paid in US dollar. CBY also created a basket of foreign currencies combining remittances by Yemeni expatriates abroad where banks or exchange companies had to pay all remittances the local currency and transfer the equivalent in foreign currency to the basket of currencies. At the end of the week, the basket balance is distributed to the commercial banks according to the criteria set by CBY (needs by banks to cover their LCs against imported commodities). The basket has been able to make approximately $ 40 million in the first week only. However, this did not continue and the basket balance began to drop until it stopped totally at the end of the first half of 2016 due to a number of reasons, mainly:

1. Expatriates turned to send their remittance through channels other than the banking system to take advantage of difference between the official and the parallel exchange rates.
2. Poor efficiency by the banking system to attract these remittances, lack of legal systems and frameworks governing foreign exchange in the local market.
3. Insufficient balance of the basket to cover the value of documentary credits.

Measures adopted by the Central Bank have been suspended since September 2016 and the decision to move CBY to Aden. The result was that the local economy becomes indirectly susceptible to high risks on top of that inability of the local exchange market to finance the bill of basic commodities' imports.

Policies applied by the Central Bank of Yemen since the beginning of 2015 have helped to stabilize the financing of imports (mainly basic commodities). However, with the decline in foreign exchange reserves and halting oil exports, which is the main source of hard currency reserves. Under such a situation, it was inevitable that CBY would stop financing the bill of imports altogether. Moving CBY to Aden, the total freeze of SWIFT system and delay to operate CBY from Aden until this moment does also reinforce this assumption.

Appendix C: Mapping of The Import Process

BUYING PROCESS			
STEP ID	STEP DESCRIPTION	COST	TIME
Step 1	Buyer (importer) & seller (producer/ exporter) initiate the process by agreeing on price, incoterms & payment method	Wheat price: $220-240/ton CIF Rice Price: $420-1500/ton CIF Wheat Shipping Method: Mostly FOB Rice Shipping Method: Mostly CIF Payment Method: 100% covered LC or Advance Payment	Takes 4 days to confirm the order/ deal).
Step 2	Buyer needs to secure foreign currency to pay based on the agreed incoterms, the importer works with his local bank or with local money exchange companies to try to secure the foreign currency needed to finalize the issuance of the LC or the advance payment of the goods.	Additional costs are incurred to secure the USD and to transfer the USD to Seller	It could take weeks to complete this step

SHIPPING PROCESS			
STEP ID	STEP DESCRIPTION	COST	TIME
Step 1	Port of Loading: Shipping company loads goods into the vessel (liner).	Wheat CIF: 35 USD/ton Rice CIF: 2400/20ft Con	NA
Step 2	Manifest sent to discharge ports: Shipping company/ Liner sends goods manifest to all ports (discharge ports) that will be in the vessel route. For goods distend to Hodeida: Shipping company/liner sends the manifest to UNVIM For goods heading to Aden: Shipping company/liner sends the manifest to the Yemeni Ministry of Transport for vessels heading to Aden)	NA	Shipping Company sending manifest: 1 Day UNVIM: takes up to 2 days to process documents and issue clearance. UNVIM sends its clearance to collation for further processing and issuance of permit to allow the vessel to enter Yemeni waters. Yemeni MOT: take up to 2 days to issue clearance to the liner.
Step 3	For all ports (Hodaidah and Aden), liner vessel departs from Port of Loading before getting coalition clearance.	NA	NA

SHIPPING PROCESS			
STEP ID	STEP DESCRIPTION	COST	TIME
Step 4	**When sailing** **Liner vessels carrying Bulk:** • If distend to Hodaidah Port, vessel moves to holding area (an anchorage in the international waters and waits for the coalition permit to enter to the Yemeni waters. If inspection is required Coalition and UNVIM inspect the vessel at an inspection area in international waters. If deemed necessary, the vessel can be asked to move to Djibouti port for further inspections. • If distend to Aden Port, vessel sail directly to the Aden anchorage area without having to stop in a holding area. **Liner vessels carrying Container goods:** • If distend to Hodaidah Port, vessel has to go to Jeddah port as the transit port. Goods to Hodiaidh are unload from liner vessels and inspected by port authorities. Once cleared, the goods are loaded into charter vessels. Once loaded, the charter vessel has to wait to obtain permit clearance from collation before heading to Hodidah port. • If distend to Aden Port, vessel can go to any transit port if prefers. Goods to Aden are unloaded from liner vessels and loaded into charter vessels without passing inspections. Charter vessels sail directly to the Aden anchorage area.	**For vessels carrying bulk:** • If distend to Hodaidah Port, Demurrage rates apply if there are delays at the holding area. • If distend to Aden Port, no costs incurred. **For vessels carrying Container goods:** • If distend to Hodaidah Port, shipping company is charged storage fee by Jeddah transit authorities if inspection and clearance to load to charter vessel is not obtained within 7 days. Fees are: 16 SAR/day for 20ft and 30 SAR/ day for 40ft. • If distend to Aden Port, normal process takes place at the transit ports and no additional costs are incurred.	**For vessels carrying bulk and container goods:** • If distend to Hodaidah Port, It depends on the coalition and inspection time; sometimes it takes up to 2 months to get clearance to enter to Yemeni Waters, and sometimes it takes one week. • If distend to Aden Port, the coalition permit is usually provided ahead of scheduled arrival to the port.
Step 5	**Vessel goes to Yemeni anchorage area (Hodaidah or Aden) and awaits clearance from port authorities to berth.** • For Hodaidah port, the coalition gives the captain the green light (permit) to enter Yemeni waters. Then, the vessel enters the Yemeni anchorage area and waits for the permit from Hodaidah port authority's to approach the dock and berth. • For Aden, when the ship arrives to anchorage area, it communicates the clearance number received from Ministry of Transport to the Harbour Master, who in turn runs the clearance by the Coalition Liaison and if it checks the ship is allowed to enter to the port.	Demurrage rates apply	For Al-Hodeidah: 3 to 4 days to get clearance to berth. But it can take weeks if the coalition requires the vessel to go out again for further inspections (shipping agents reported such cases). For Aden: No delays reported to get clearance to berth.

PORT PROCESS			
STEP ID	STEP DESCRIPTION	COST	TIME
Step 1	Berthing and unloading	Demurrage rates apply after the allowed time of around 3 to 5 days.	Berthing and unloading ion Hodaidah:It takes around 7 to 10 days because all cranes are damaged and vessels use their own cranes which are smaller and slower. Also for unloading wheat in Al-Hodeidah,the unloading will not be done until steps 10 through 13 are done. For rice in containers the ship is unloaded then the steps 10 to 13 starts.
Step 2	Importer brings all the necessary documents to the customs team to process the customs declaration. Documents required include the PL, original invoice, certificate of origin, packing list, and quality certificate.	NA	Berthing and unloading in Aden: No delays were reported. The ship is unloaded then the steps 10-13 starts. Total Days: 3-4 Days
Step 3	Manifest Department. Verify/compare the quantity and type of goods in the manifest sent by the shipping line with the customs declaration. If it's matching and acceptable, they number/reference the declaration and stamp it.	NA	NA
Step 4	Inspection Department. An employee goes to the shipment and physically check the goods received with the customs declaration. (For bulk they check the documents from the shipping line with the invoice and have a physical assessment. For containers they count the pieces inside one container then multiply it by the number of containers).	NA	NA
Step 5	**Obtaining Clearance from The Standardization, Metrology, & Quality Control Organization (YSMO).** • **Al-Hodeidah Port:** For wheat, rice and food in general, a YSMO member takes samples from the cargo and sends them to Sana'a to be checked in the lab and approved through a report issued by the organization. For wheat grains particularly, another member from the agricultural office also checks the wheat to see if it's okay to be planted in Yemen (in cases the importer intends to plant). • **Aden Port:** The same process as with Al-Hodeidah applies, but in Aden the inspection is done in Aden Port itself as the YSMO has a food research center there	0.001% of the shipment value.	With steps 10 to 12
Step 6	Customs Exemption Department/Section.	Wheat and rice are exempted from customs. Exemption letters are obtained from authorities in Sana'a and Aden.	With steps 10-12

SALES & TRANSPORTATION PROCESS

STEP ID	STEP DESCRIPTION	COST	TIME
Step 1	Releasing, transfer, to silo, storage, milling and transportation to mega inventories.	Usually importers use their small fleet to move the wheat to their silos and rice to warehouses.	1-2 days
Step 2	Sales & transfer of ownership to wholesalers. **Before the war,** importers used to accept sales on credit that reached up to 30 days net. Also, they would accept cheques that were not even certified. **After the war,** only cash is accepted or direct deposits to the importer's bank account before delivery and upon receiving the deposit note from the bank. Only limited customers (like agents of importers, who have very good performance history) would have some facilities like a credit line for max 10 days and this facility might not be for the full bought quantity (e.g., 50% cash and 50% due in a week).	**For wheat:** around 5,300 YER/50kg bag from the importer's silos (ex-stock). **For flour:** 6500-6600 YER/50kg bag from the importer's mills. **For rice:** differ depending on the type and brand. Thai rice around 7,500 YER/40kg, Basmati rice around 17,000 YER/40kg, Maza rice around 13,000 YER/40kg	As soon as the customer has the cash to buy.
Step 3	Wholesalers use Transporters to governorates, cities, agents, etc.	Transporters indicated around a 35% to 45% increase per container. **Before the war,** Al-Hodeidah-Sana'a: 20ft container or equivalent: YER 150,000; 40ft container or equivalent: YER 230,000. As for Aden-Sana'a: 20ft container or equivalent: YER 230,000; 40ft container: YER 310,000. **After the war,** Al-Hodeidah-Sana'a: 20ft container or equivalent: YER 250,000; 40ft container or equivalent: YER 340,000. Aden-Sana'a: 20ft container or equivalent: YER315,000. 40ft container or equivalent: YER430,000. This is excluding the payments that need to be made at checkpoints, which are usually between 80K to 100K from Aden and around 40K from Al-Hodeidah.	It depends on the roads, checkpoints, season (if rainy it takes longer). For example, Al-Hodeidah to Sana'a used to take 8 - 10 hours on average but now it takes 12 - 18 hours.
Step 4	Sales & transfer of ownership to retailers. **Before the war**, wholesalers and distributors used to accept sales on credit. **After the war**, only cash is accepted or direct deposits to the wholesaler/distributor's bank account before delivery and upon receiving the deposit note from the bank.	For wheat: 5,800 - 5,900 YER/50kg bag. **For flour:** 7,000 YER/50kg bag **For rice:** differs depending on the type and brand. (Thai is around 8000-8100 YER/40kg, Basmati 17,500-17,600 YER/40kg, and Maza around 13,500 to 13,600 YER/40kg).	NA

SALES & TRANSPORTATION PROCESS

STEP ID	STEP DESCRIPTION	COST	TIME
		For wheat: 6,000-6,100 YER/50kg bag. But if sold by kilo it is 150 YER/KG. **For flour:** Around 7,400-7,500 YER/50kg bag. But if sold by kilo it can go up to 200 YER/kg depending on the governorate.	
Step 5	Sales & transfer of ownership to consumers.	**For rice:** differs depending on the type and brand (Thai rice around 8,200-8,400 YER/40kg, Basmati 17,800-17,900 YER/40kg, and Maza around 13,800 to 13,900 YER/40kg). But if sold by kilo it can go up to 250, 500 and 400 YER/kg for Thai, Basmati and Maza rice respectively	With steps 10 to 12

Appendix D: Ports Assessments and Fees

Al-Hodeidah:

The Yemen Red Sea Ports Corporation manages three ports along the Red Sea: Saleef, Al-Hodeidah, and Mocha ports. The port has eight berths with a total length reaching 1405 meters. One of these berths are used for discharge of bulk oils, two for bulk goods, three for general cargo and two for containerized cargo. In addition, there are two mooring dolphins for discharge of petroleum products, a maintenance slipway and shallow water jetties for smaller boats.

There are twelve ceiled warehouses with a total area of 37,260 m2. The port also has open paved and unpaved yards with a total area of 1,700,000 m2.

For container handling, the port has four gantry cranes (two 30.5MT and two 40.5MT), five dockside cranes with capacity of 5-10MT, ten mobile cranes (1 crane 15 MT, 3 cranes 25 MT, 6 cranes 30 MT). In addition, the port also has 11 forklifts and crane pliers with capacities ranging from 3MT to 45MT.

All details on the equipment and facilities available at both the Al-Hodeidah and Saleef ports can be found on the port authority website: http://www.yrspc.net/SiteEnglish/.

For Al-Hodeidah, damage assessment collected by DeepRoot from the port authority estimates the cost of repairing the damage at approximately USD 70 million. The largest cost item is for the replacement of the gantry cranes, which is estimated at $50 million. This is slightly confusing as all available data (including from the Port Authority's website) indicates the port has 4 gantry cranes. The second largest cost is to rehabilitate the container yard at a cost of $15 million. The remaining items are to rehabilitate and reconstruct various equipment and facilities in the port. The damage at Al-Hodeidah port led to increased delays in queuing times at anchorage for berthing, and discharge time at the port. Interviews with shipping agents indicated that before the conflict the ships used to wait in the anchorage area 2 to 3 days. Now they first have to wait in the international anchorage (holding area) for approval and inspection by the coalition, which can take anywhere from 4 days to several weeks, as described in the previous section. Then they need to wait average of 2 weeks in the port anchorage area queuing for berthing. However, since a new chairman for the port authority was appointed in January 2017, a significant improvement in the queuing time was achieved, and currently the majority of ships queue for 3 to 4 days. Finally, shipping agents used to unload their ships within 1 to 2 days maximum but now it takes around 8 to 10 days due to the destruction of the gantry cranes. In total the damaged infrastructure at

[51] *This report is based on data collected through interviews with Captain Roy Facey, 20 years' experience as Port Development Adviser for Yemeni Ports, Abdulrab Al-Khulaqi, Deputy Chairman of Yemen Gulf of Aden Ports Corporation (YGAPC) and former advisor to the Chairman of Yemen Red Sea Ports Corporation, Multiple importers using the port of Al-Hodeidah for their shipments, and Transport companies and heavy truck drivers operating at the port. In addition to these interviews, DeepRoot received a copy of an official preliminary damage assessment conducted by the Yemen Red Sea Ports Corporation. Finally, data on port equipment and current level of operations were extracted from the Ports Corporation website and the Customs authority database.*

the port adds around 7 to 10 days of extra time for ships to get into the port and unload.

Constraints on vessels: Maximum draught for vessels entering Al-Hodeidah Port is 8.75m. This is a significant constraint on any ship, whether bulk grain carrier, tanker, or container ship. This means that maximum cargo would normally be limited to 20,000 tonnes of grain, but in practice bulk grain carriers can carry up to 30,000 tonnes capacity, because part loaded ships with a greater beam are used to bring in larger quantities. Following damage to the cranes, container ships can now only berth and discharge or load if they have their own cranes. This pushes up costs on the transport of container items, including foodstuffs in containers.

Grain Capacity: Al-Hodeidah terminal has one private grain facility inside the port area and three outside:

A. National Grain Silos operate a facility close to the quay side, where grain is discharged by evacuators to 4 steel silos and one concrete silo, at a rate of 6,000 tonnes / day. Total silo capacity is 90,000 tonnes.

B. Hayel Saeed Anam (HSA) has 23 grain silos (3 large 26m diameter, 20 smaller 18m diameter) and a flour mill (all constructed in 2011). These are located 3 km by road from the port. Trucks are used to achieve highly efficient transport from quay to silos. Rate of transfer from ships to silos is 8,000 tonnes / day. Total storage capacity is 130,000 tonnes.

C. Yahya Suhail Silos and Mill, located just south of HSA complex. They have 9 silos (24m diameter). Trucks used to move grain from quayside to silos at 5,000 tonnes /day. Storage capacity is not known accurately, but is estimated at 80,000 tonnes.

Al-Zutairy complex (near the HSA complex) has 6 silos (26m diameter) used for the import of corn and soy beans for chicken feed (ie part of the food value chain). Trucks move corn from quay at a transfer rate of 5,000 tonnes / day. Estimated storage capacity is 60,000 tonnes.

Container capacity[52] : Al-Hodeidah has 14 hectares (ha) of paved yard alongside the container berths, and additional space at Berth 5. Containers are unloaded using Straddle Carriers. Empty containers can be moved by forklift and stored in an additional 5ha of unpaved area. Stacking density is low - max 2 containers high and one wide, with space between the lines of containers for the straddle carriers to operate in. Total available storage space is around 10,000 TEU (Twenty Foot Container Equivalent Unit). Pre-conflict handling was 18 moves /hr per crane, using the 4 gantry cranes. But these were damaged during the conflict (photos are available), and from then on ships were restricted to using their own ship cranes (termed 'geared vessels'). The damaged cranes cannot be moved without large heavy equipment (substantial bulldozers, excavators and cranes for example) so these berths cannot be used effectively until this has been done. Rate of container discharge has been reduced from 18 to 6 moves/hr per crane, with (normally) a maximum of 2 cranes per ship. This has led to congestion, given the high volume of containerised goods necessary to sustain the northern part of Yemen that arrive at Al-Hodeidah.

[52] *Note this is relevant to food imports as bags of flour, sugar and oil are brought in by container.*

UNVIM reports that the limited number of berths available at Al-Hodeidah (and Saleef) has been kept fully occupied since mid-2016. As soon as a berth becomes vacant, the next ship is instructed to berth.

SALEEF:

Saleef port's primary activity is the reception of bulk grain vessel discharging into silos at this port. The port has a single general cargo berth of 450 meters that boasts a draft of 14.0m. An auxiliary berth used for launches and small vessels is 60 m long and has a 6.0 m draft. Asphalted storage yards behind the berths have an area of 18,000 m2 , and prepared yards for gypsum salt total 56500 m2 in area.

All details on the equipment and facilities available at both the Al-Hodeidah and Saleef ports can be found on the port authority website: http://www.yrspc.net/SiteEnglish/.

No significant damage was inflected on the port of Saleef and no rehabilitation of infrastructure is required.

Constraints on vessels: The quay at Saleef has a length of 450m with a depth alongside of 13.0m. Depths are greater by about 0.5m over the summer months due to tidal variations in the southern Red Sea. Depths in the approaches to the port, and the large, sheltered anchorage area on the east side of Kamaran Island (in Kamaran Bay), are 20m or greater, in contrast to the depth and width of the Al-Hodeidah approach channel. Access from the main sea route through the channel around the north side of Kamaran Island takes some two hours. In terms of total voyage time, and port delays due to the conflict, this is insignificant. Ships carrying up to 60,000 tonnes of bulk grain or corn have been berthed at Saleef, making the port the second after Aden on the Yemeni coast for ship capacity. Freight rates on larger ships are of course lower per tonne than those for smaller vessels.

Grain Capacity: Two companies operate bulk storage silos and flour mills at Saleef. These are the Fahem Group and Al Habbari Company. The Fahem Group operates a complex consisting of 24 grain silos (diameter 22m) on a site area of 4.2 hectares, with a site extension granted in 2009 of about 1.5 hectares for sugar handling and storage plant. Fahem uses two rail mounted bulk excavators on quay side rails, supplies by BMH Marine. The rate of each unloader is estimated to be 400 to 450 tonnes/hour. These deliver bulk grain and corn to a conveyor running parallel to the quay and set back 45m from the quay apron. This conveyor delivers bulk grain etc. to the silos. Al Habbari operates a complex consisting of 21 grain silos (diameter 20m), together with a flour mill, on a site area of around 18 hectares. Al Habbari uses two rubber-tyred bulk excavators that can move from the quay side to the area clear of the apron so that other vessels can use the eastern berth. The rate of each unloader is estimated to be 300 tonnes/hour. These deliver bulk grain and corn to a conveyor running parallel to the quay and set back 45m from the quay apron. This conveyor delivers bulk grain to the silos.

Grain and corn handling can achieve high rates at Saleef. In 2004, ship days alongside were reported to be 61.5, when the port handled 570,000 tonnes of bulk cargo at a rate of around 9,300 tonnes/day. When the port handles bagged cargoes, or uses automatic bagging plant to bag grain, the discharging rate for that vessel falls to around

2,000 tonnes/day and depresses the average port handling rate at Saleef compared with 'bulk only' operations.

Container capacity. The facilities at Saleef are not intended for container handling, as bulk handling is the primary purpose at the port. However, geared vessels can use Saleef to work containers if there is sufficient inducement. Containers can be loaded to trucks for direct delivery to the owner of the goods.

ADEN:

There are no critical infrastructural bottlenecks that are impacting the port operations, and the requirements outlined by the ports authority are mostly enhancements to existing infrastructure. It is not clear that these enhancements would significantly improve the port's efficiency, and it is evident that any significant improvements will require a management change at the port in addition to political support from the government to provide the leadership required to turn around port operations. The most important non-infrastructure bottleneck that needs to be addressed is the Heavy Transport Union that is monopolizing transport of goods from the port.

Constraints on vessels:

A. The access channel to the main cargo port has a depth of 15.0m at chart datum.

B. Ma'alla Quay with depth of 11m can take ships carrying up to 33,000 of grain (by part discharging the cargo on arrival using a favourable tide).

C. ACT (Aden Container Terminal). The Aden Container Terminal has a depth alongside of 16m. The ACT has handled container ships of 8,300 TEUs and, in terms of depth alongside and the container gantry cranes available, could handle larger vessels.

D. HSA jetty (see 'Aden Gulf Terminal' on chart) has a depth alongside of 14m (on the north side of the jetty, 12m on the south side) and can accommodate fully loaded Panamex size bulk grain carriers with maximum capacity of 80,000 tonnes.

Grain Capacity: There are two grain storage facilities and flour mills operating in Aden. Rowaishan Group have 15 silos (17m diameter), giving storage capacity of 80,000 tonnes. Ma'alla Quay No 3 Berth (see chart) is used where an automatic rail mounted unloading system pumps grain to the silos using an overhead conveyor at a rate of c.300 tonnes / hr. In order to speed discharge ships' cranes and grabs are also used to load trucks and move grain to the silos, increasing the rate to 430 tonnes / hr. With this double process, a 30,000 TDW bulk carrier can be unloaded in 5 days. Note: One grain shipment per month (i.e. 30,000 tonnes) has been recorded in recent months.

HSA has a dedicated jetty for grain imports. The jetty is 300m long with depth of 14m, the other 12m deep with a 6.5ha site adjacent. 12 (22m diameter) silos, 8 (26m diameter) and 3 (31m diameter) silos give a total storage capacity of 120,000 tonnes. Grain is discharged with an automatic pumping elevator that delivers bulk grain to a conveyor belt, built below the jetty surface, to the silos with a maximum transfer rate of 700 tonnes / hr. One 80,000 ship per month has been unloading in recent months. Note: This is less than before the conflict, which damaged the flour mill and which is currently only one third operational.

Container capacity: The Aden Container Terminal (ACT) has 35ha of paved area and 8 ha of unpaved area for container storage. 7 gantry cranes are available, but only 5 can operate at one time. Containers can be stacked 5 high. Handling rate was 21 moves / hr before the conflict, but this has slowed to around 17 moves/ hr due to maintenance problems and shortage of fuel. Rice is normally brought into Aden in containers. Rice is bagged at source country into 5kg or 10kg bags carrying brand names – there is considerable variation in the 'quality' and price of rice. These bags in turn are bagged into 40kg bags (ie 4 x 10kg bags, and 8 x 5kg bags). Each 20 foot container then contains 520 40kg bags. Cheap Thai rice brought into Saleef may use another method as there in no onshore container unloading facility there.

Union Monopoly over transportation from port

Our interviews with importers highlighted a challenge that they are facing with transporting their goods out of Aden port. The Heavy Transport Union has a monopoly over trucks that are allowed to enter the port and transport goods to outside the port. The transportation prices set by the union are seen as inflated and higher than what they should be, especially compared to the rates of transportation from Al-Hodeidah port. One importer explained that the union currently charges YER 440,000 for a 40ft container from Aden to Sana'a. This is separate from any payments that need to be made at the checkpoints. When compared to the cost of YER 180,000 for transporting a 40ft container from Al-Hodeidah to Sana'a there is a big diference. If the price is calculated distance-wise, and based on the Al-Hodeidah rates, the rates from Aden should be closer to YER 280,000 and not YER 440,000.

FEES ASSOCIATED WITH BERTHING AND DISCHARGING

Clarifying Corporation Tariffs: Three Port Corporations were set up under the Ministry of Transport in 2007 which allowed each Corporation the freedom to set its own port tariffs. These are:

- Yemen Red Sea Ports Corporation, covering Al-Hodeidah, Saleef and Mokha
- Yemen Gulf of Aden Ports Corporation, covering Aden
- Yemen Arabian Sea Ports Corporation, covering Mukalla, Nishtun and Socotra

The Tariffs levied by the Corporations were issued in 2011 under three decrees, No. 8 (Al-Hodeidah), No. 9 (Mukalla) and No. 10 (Aden), under the titles '(Corporation) Services and Facilities Tariff and Charges Regulation'. Each Tariff consists of some sixty pages. Tariffs are divided into those applicable to vessels and those applicable to goods. Fees and Charges applied to a Vessel (Chapter II). These include navigational assistance (provision of navigational aids), harbour dues, pilotage, towage, mooring and unmooring, quay (berthing) dues, loading and unloading charges, and assisting services. Fees and Charges applied to Goods (Chapter III). These include port fees on goods, handling charges on the wharf, storage charges and other charges on goods.

Yemen Red Sea Ports Corporation Fees - covering Al-

Hodeidah and Saleef (& Mokha):

For Al-Hodeidah, some of the fees applicable to vessels ('Chapter II Fees') are the same as for the other two Corporations (see below for Aden), but charges for pilotage, towage and berthing are different, as are charges on containers. The list below identifies all the fees and where these are different to those levied at Aden.

Fees charged on goods (Al-Hodeidah and Saleef): Both imported and exported cargoes are subject to charges (tolls) designed to provide the Corporation with revenue for the use of the port and its berths. These vary depending on the cargo type. These are generally paid to the Corporation by the cargo owner. Charges for containers (full or empty) are also levied under the Tariff and payable to the Corporation (see Table 1B). The charges for Aden are laid out below in Tables 1A and Table 1B. Note that items a1 and a2 in Table 1A are most relevant for this report (referring to wheat and rice imports). Fees charged on goods (Chapter III fees) are very similar for Al-Hodeidah as for Aden, except for the lower tolls levied on containers (see Table 1B). Al-Hodeidah charges YR1,500 on 20 foot containers (Aden YR1,800) and YR3,000 on 40ft or over containers (Aden YR3,500). Note: The charges at Al-Hodeidah have recently been raised and became applicable in June 2017.

Fees charged by vessel (Al-Hodeidah and Saleef)	
Navigational Aids	Fees are $6 per 100 GRT (Gross Registered Tonnage, effectively the working volume of the ship), with a minimum of $85 (as for Aden)
Port Dues	$8 per 100 GRT and minimum $115 (also as for Aden)
Pilotage Charges	These are set in bands of GRT size, from 5,000 GRT to over 45,000 GRT, as shown in the Table below.
Port clearance and 'guarding' fees	Assisting charges (port clearance fees) are $30 per vessel. A 'guarding fee' of $20 per day per vessel is also payable.
Mooring charges	$7 per 100 GRT, minimum $250 (as for Aden)
Berthing dues for ships alongside	$0.15 per meter of length per hour, minimum $100 per 24 hours (lower than Aden, which charges $0.25 per meter per hour). Relatively small loading and unloading fees are payable to the Corporation for services provided by licensed stevedoring companies, charged per ton or per container or (for livestock ships) per vessel. Under the new Tariffs, charges for containers in Al-Hodeidah are lower than in Aden. Special charges are levied on items such as hazardous cargoes and are and additional 50%-100% of normal handling fees for hazardous goods of various classes.

Table of Charges for Pilotage and Towage (use of tugs) for Al-Hodeidah and Saleef		
Ship Size in GRT	Pilotage Fees $/move	TowageFees $/move
5,000-10,000	550	1,000
10,001-15,000	700	1,500
15,001-20,000	850	2,000
20,001-25,000	1,000	2,500
25,001-35,000	1,300	3,000
35,001-45,000	1,500	3,300
More than 45,000	1,600	3,500

Yemen Gulf of Aden Ports

Corporation covering Aden:

The tariffs for Aden includes the Outer Harbour (inside port limits), Oil Harbour and Inner Harbour.

Fees charged by vessel (Aden)	
Navigational Aids	Fees are $6 per 100 GRT, with a minimum of $85
Port Dues	$8 per 100 GRT and minimum $115
Pilotage	$4.50 per 100 GRT for up to two hours, minimum $130
Towage	$11 per 100 GRT, minimum $300 for up to two hours of service, plus $450 lump sum for ships using the oil harbour
Mooring charges	$7 per 100 GRT, minimum $250
Berthing dues for ships alongside	$0.25 per meter of length per hour, minimum $100 per 24 hours, with lower charges for ships at anchor in the inner or outer harbours, or using buoy berths. Berthing charges for container ships at the ACT are on a different tariff. Berthing charges for ships calling at the Refinery (Oil) Harbour are paid to the Refinery, not the Ports Corporation.
Loading and unloading fees	Relatively minor fees are payable to the Corporation for services provided by licenced stevedoring companies, charged per ton or per container or (for livestock ships) per vessel
Port clearance and 'guarding' fees	Assisting charges are $30 per vessel. A 'guarding fee' of $20 per day per vessel is also payable.
Other	Oil tankers are charged and additional $400 per visit on top of other dues listed. Special charges are levied on items such as hazardous cargoes. All ports charge ships compulsory fees for garbage collection.

Table 1A. Port Tolls on Cargo (by item) by the Corporation (Aden). Note because these are set in YR, this effectively means a charge of c.$2,000 for a 30,000 tonne wheat shipment at pre-conflict exchange rates (or $1,200 at current exchange rates)

Table 1A. Port Tolls on Cargo (by item) by the Corporation (Aden)

Table 1B. Port Tolls on Containers by the Corporation (Aden)

(A) Non-Formal Imports		
Description	Calculating Unit	Value of Charges in Riyal
Wheat/Flour	Ton	YR 15/00
Sugar/ Rice/ Other	Ton	YR 30/00
General Cargos, minerals, machineries, engines, vehicles, consecution materials	Ton	YR 100/00
Timber, cement, steel	Ton	YR 70/00
Tar, Gypsum & chemical substances and other materials of the same category	Ton	YR 150/00
Hazardous materials & inflammables as per the international classifications	Ton	YR 200/00
Petroleum materials except crude oil	Ton	YR 50/00
Crude Oil	Ton	YR 10/00
Cows and the like	Per head	YR 50/00
Goats and the like	Per head	YR 200/00

CARGO HANDLING CHARGES

(B) Formal Imports		
Description	Calculating Unit	Value of Charges in Riyal
20” Container	Container	YR 1800/00
40" Container	Container	YR 3500/00

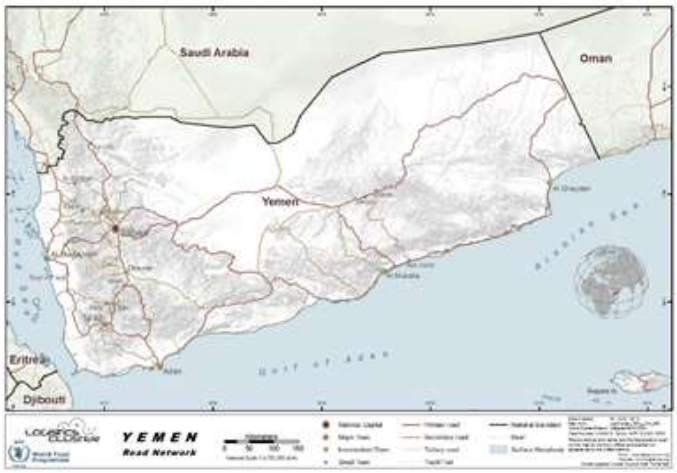
Separate tariffs for handling cargo are provided by the private stevedoring companies. The companies are licenced by the Corporations and the charges for handling cargo that are set in each of the main ports are generally similar at around $4/ tonne (official rate).

CUSTOMS DUTIES

In addition to the charges levied by the Corporations and the private cargo handling companies, customs duties must be paid. The Yemeni Customs Authority operates under the international ‘standardized’ ASYCUDA system in setting the tariffs for various types of goods. This means that, under normal operations, the charges levied on cargoes will be the same in each Yemeni port. However, in 2016 duties at Mukalla Port were modified, with containers being charged a ‘lump sum’ regardless of the type of commodities they contained. This placed Mukalla in a more favorable position than Aden. Aden Port management has requested the government to treat Aden in the same way as Mukalla. The process is ongoing and it remains to be seen whether the customs duties will be equalized for both ports.

Appendix E: Transport Infrastructure Assessment (Road Network and Bridges)

Figure 1: Yemen Road Network[53]



Yemen has a number of main corridors that run between the capital city Sana'a and other major cities and towns, as well as airports and seaports. These are mostly dual carriageways 70 meters wide with 1.5 meter shoulders. The network of main roads in Yemen is approximately 4,067 KM in length, according to the Ministry of Public Works and Highways (MoPWH).[54] The map below provides an overview of the road network in Yemen.

The data in Table 1 below, from the Logistics Cluster in Yemen, provides an overview of the distance and time between major cities as of April 2015. It should be noted that the time listed in the table is for travel by car, and is not the same for fully-loaded trucks. For example, Aden-Sana'a route is listed as taking 8 hours to travel. However, for trucks it used to take 12-13 hours to make that trip.

After the conflict started, travel time on almost all commercial routes in Yemen increased. The map in Figure 2 provides a snapshot of the bottlenecks within the main road network.

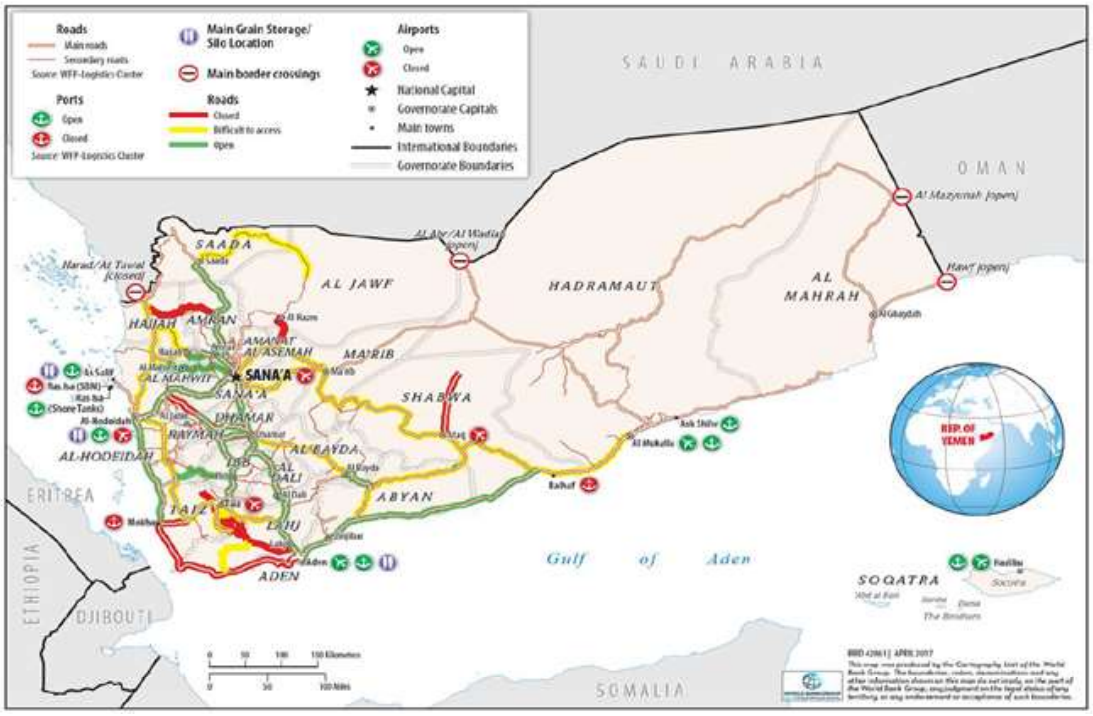
City	Sana'a	Aden	Taiz	Al-Mukalla	Hodeidah	Zinjubar	Ataq	Sayun	Sa'adah	Al-Bayda	Al-Mahwit	Marib	Al-Ghaydah	Ibb	Dhamar	Al-Jawf	Lahej	Haradh	Hajja	Al-Buqa	City
Sana'a		363 (8)	256 (7)	794 (10)	226 (6)	472 (6)	474 (6)	1,115 (14)	242 (6)	267 (4)	113 (2)	173 (3)	1,318 (15)	193 (3)	100 (2)	143 (3)	337 (4)	422 (5)	123 (3)	382 (5)	Sana'a
Azen	363 (8)		158 (2)	620 (8)	430 (6)	55 (1)	371 (4)	941 (10)	605 (7)	222 (3)	482 (6)	536 (6)	1,145 (12)	210 (3)	263 (4)	511 (6)	27 (1)	626 (7)	496 (5)	745 (8)	Aden
Taiz	256 (7)	158 (2)		787 (9)	272 (3)	222 (3)	538 (6)	1,108 (12)	498 (6)	322 (4)	375 (4)	429 (5)	1,311 (14)	63 (1)	156 (2)	404 (5)	132 (2)	468 (5)	389 (4)	647 (7)	Taiz
Al-Mukalla	794 (10)	620 (8)	787 (9)		1,059 (11)	565 (6)	320 (4)	321 (4)	1,032 (11)	520 (6)	911 (10)	626 (7)	524 (6)	780 (8)	687 (7)	762 (8)	653 (7)	1,219 (13)	913 (10)	1,172 (12)	Al-Mukalla
Hodeidah	226 (6)	430 (6)	272 (3)	1,059 (11)		494 (5)	810 (9)	333 (4)	468 (5)	492 (5)	337 (4)	398 (4)	1,536 (16)	226 (3)	248 (3)	373 (4)	404 (4)	196 (2)	160 (2)	608 (7)	Hodeidah
Zinjubar	472 (6)	55 (1)	222 (3)	565 (6)	494 (5)		316 (3)	886 (9)	678 (7)	168 (2)	547 (6)	600 (7)	1,089 (11)	274 (3)	324 (4)	575 (6)	89 (1)	847 (9)	560 (6)	818 (9)	Zinjubar

[53] Link: http://dlca.logcluster.org/display/public/DLCA/2.3+Yemen+Road+Network

[54] Comprehensive Road Network Inventory Study conducted by the Ministry of Public Works and Highways in January 2017.

City	Sana'a	Aden	Taiz	Al-Mukalla	Hodeidah	Zinjubar	Ataq	Sayun	Sa'adah	Al-Bayda	Al-Mahwit	Marib	Al-Ghaydah	Ibb	Dhamar	Al-Jawf	Lahej	Haradh	Hajja	Al-Buqa	City
Ataq	474 (6)	371 (4)	538 (6)	320 (4)	810 (9)	316 (3)		641 (7)	713 (8)	270 (3)	591 (6)	306 (3)	845 (9)	530 (6)	438 (5)	442 (5)	404 (4)	900 (10)	594 (6)	853 (9)	Ataq
Sayun	1,115 (14)	941 (10)	1,108 (12)	321 (4)	333 (4)	886 (9)	641 (7)		352 (4)	841 (9)	227 (3)	947 (10)	451 (5)	1,100 (12)	1,007 (11)	1,084 (11)	974 (10)	1,528 (16)	1,233 (13)	1,492 (15)	Sayun
Sa'adah	242 (6)	605 (7)	498 (6)	1,032 (11)	468 (5)	678 (7)	713 (8)	352 (4)		512 (5)	357 (4)	405 (4)	1,555 (16)	442 (5)	345 (4)	381 (4)	583 (6)	254 (3)	265 (3)	140 (2)	Sa'adah
Al-Bayda	267 (4)	222 (3)	322 (4)	520 (6)	492 (5)	168 (2)	270 (3)	841 (9)	512 (5)		386 (4)	439 (5)	1,045 (11)	259 (3)	166 (2)	415 (4)	255 (3)	686 (7)	398 (4)	652 (7)	Al-Bayda
Al-Mahwit	113 (2)	482 (6)	375 (4)	911 (10)	337 (4)	547 (6)	591 (6)	227 (3)	357 (4)	386 (4)		286 (3)	1,436 (15)	316 (3)	218 (2)	262 (3)	457 (5)	532 (6)	238 (3)	496 (5)	Al-Mahwit
Marib	173 (3)	536 (6)	429 (5)	626 (7)	398 (4)	600 (7)	306 (3)	947 (10)	405 (4)	439 (5)	286 (3)		1,151 (12)	368 (4)	272 (3)	137 (2)	510 (6)	593 (6)	287 (3)	545 (6)	Marib
Al-Ghaydah	1,318 (15)	1,145 (12)	1,311 (14)	524 (6)	1,536 (16)	1,089 (11)	845 (9)	451 (5)	1,555 (16)	1,045 (11)	1,436 (15)	1,151 (12)		1,303 (14)	1,211 (13)	1,287 (14)	1,178 (13)	1,743 (19)	1,437 (16)	1,695 (18)	Al-Ghaydah
Ibb	193 (3)	210 (3)	63 (1)	780 (8)	226 (3)	274 (3)	530 (6)	1,100 (12)	442 (5)	259 (3)	316 (3)	368 (4)	1,303 (14)		93 (1)	342 (4)	185 (2)	615 (6)	328 (3)	581 (6)	Ibb
Dhamar	100 (2)	263 (4)	156 (2)	687 (7)	248 (3)	324 (4)	438 (5)	1,007 (11)	345 (4)	166 (2)	218 (2)	272 (3)	1,211 (13)	93 (1)		247 (3)	238 (3)	518 (5)	232 (2)	485 (5)	Dhamar
Al-Jawf	143 (3)	511 (6)	404 (5)	762 (8)	373 (4)	575 (6)	442 (5)	1,084 (11)	381 (4)	415 (4)	262 (3)	137 (2)	1,287 (14)	342 (4)	247 (3)		486 (5)	570 (6)	263 (3)	521 (6)	Al-Jawf
Lahej	337 (4)	27 (1)	132 (2)	653 (7)	404 (4)	89 (1)	404 (4)	974 (10)	583 (6)	255 (3)	457 (5)	510 (6)	1,178 (13)	185 (2)	238 (3)	486 (5)		757 (8)	470 (5)	723 (8)	Lahej
Haradh	422 (5)	626 (7)	468 (5)	1,219 (13)	196 (2)	847 (9)	900 (10)	1,528 (16)	254 (3)	686 (7)	532 (6)	593 (6)	1,743 (19)	615 (6)	518 (5)	570 (6)	757 (8)		155 (2)	392 (4)	Haradh
Hajja	123 (3)	496 (5)	389 (4)	913 (10)	160 (2)	560 (6)	594 (6)	1,233 (13)	265 (3)	398 (4)	238 (3)	287 (3)	1,437 (16)	328 (3)	232 (2)	263 (3)	470 (5)	155 (2)		405 (4)	Hajja
Al-Buqa	382 (5)	745 (8)	647 (7)	1,172 (12)	608 (7)	818 (9)	853 (9)	1,492 (15)	140 (2)	652 (7)	496 (5)	545 (6)	1,695 (18)	581 (6)	485 (5)	521 (6)	723 (8)	392 (4)	405 (4)		Al-Buqa

Figure 2: Access by Port and Transit Time



The ongoing conflict in Yemen has caused significant damage to the road and bridge network in Yemen, directly from airstrikes and ground fighting, and indirectly through limiting the ability of the Public Corporation for Roads and Bridges to maintain the network given the lack of government funding and the absence of a secure environment. In addition, the usability of the road network has also been impacted by the drastic increase in the number of security checkpoints controlled by the different armed groups along the main roads

No	ROAD	INTERVENTION	PRIORITY
1	Aden–Lahj–Al-Dhalea–Yareem–Dhamar–Sana'a	Naqeel Al-Dhalea	High
2	Hodeidah–Manakhah–Sana'a	Al-Darjah bridge	High
		Al-Qasabah bridge	High
		Al-Dinarah bridge	Medium
		Bab Mak'hlah bridge	Medium
		Bab Reeshah bridge	Medium
3	Aden–Lahj–Taiz	Aqqan bridge	Medium
		Madram bridge	Medium
4	Hodiedah–Taiz	N/A	
5	Hodeidah–Hajjah	N/A	
6	Sana'a–Amran	N/A	

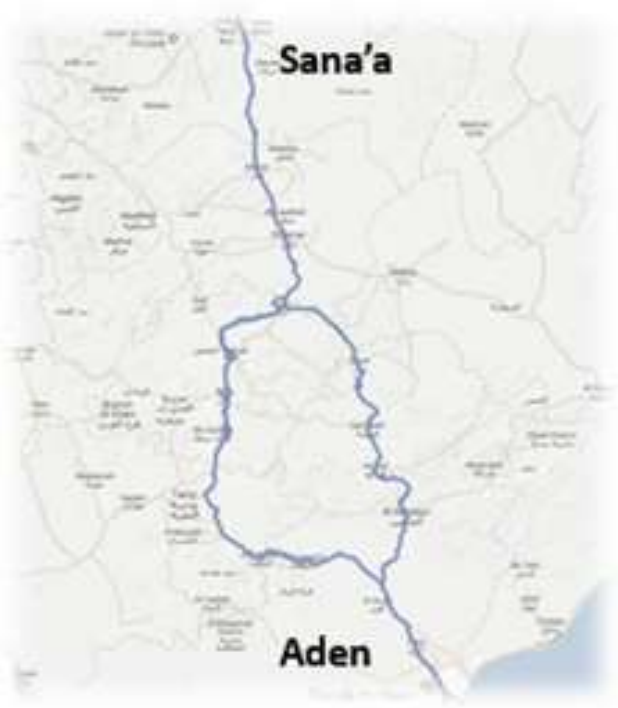
The MoPWH issued a draft report in January 2017 outlining the damage to the road network since the beginning of the conflict, and providing an estimate for the reconstruction costs. For the purpose of the "Securing Imports of Essential Goods" project, DeepRoot reviewed the MoPWH report with the objective of identifying the key bottlenecks that are impacting the transport and distribution of food products (specifically wheat and rice) from the ports of Al-Hodeidah/Saleef and Aden to the major cities of Yemen. It is worth noting that the majority of the road network in Yemen is in need of urgent maintenance and the reconstruction needs are enormous (estimated by the MoPWH to reach over $900 million). However, this report will focus only on identifying the bottlenecks relevant to transport from the port cities, bridges that need to be repaired and haven't been repaired yet, and areas where World Bank interventions would create the greatest improvement to road transportation. Table 2 below provides a summary of the recommended interventions.

The main roads connecting the ports to the main cities of Yemen are:

THE ADEN–LAHJ–AL-DHALEA–YAREEM–DHAMAR–SANA'A ROAD:

Before the conflict, trucks from Aden heading to Sana'a would take the Aden–Al-Rahidah–Taiz–Ibb–Yareem–Dhamar–Sana'a route, where trucks would cross the Lahj border into Taiz governorate near the town of Al-Rahidah. However, since the conflict started this road became unsafe, mainly due to the conflict in Taiz. As a result, trucks currently take the Aden–Al-Habilayn–Al-Dhalea–Yareem–Dhamar–Sana'a route, crossing the Lahj border near Al-Habilayn town into Al-Dhalea governorate rather than Taiz. Figure 2 below shows these two routes, which converge at Yareem town (point B on the map).

Figure 3: The Two Main Routes Between Aden and Sana'a



The majority of bridges that were targeted by airstrikes along this road have been fixed to a sufficient level that allows the passage of transportation, including trucks. Travel along the road is hindered by extensive security checkpoints, causing delays to travelers and transport vehicles, as well as a large number of potholes and road bumps. Additional damage to the Yareem–Sana'a portion of the road caused by three airstrikes has been temporarily fixed but not with asphalt (see Figure 3 below). Parts of the protection walls in Naqeel Yaslih have also collapsed and were only temporarily restored, as can be seen below.

While impediments to travel along this route include the physical condition of the roads and bridges and the proliferation of security checkpoints, the main structural challenge is not due to the conflict. Rather, there is a steep hill in Al-Dhalea (known as Naqeel Al-Dhalea) and the road on this hill was constructed

Figure 4: Sana'a–Dhamar Road (Naqeel Yaslih)

at a very steep grade and with sharp turns. Many trucks get stuck and need to be towed, creating delays that can last days, and this is one of the primary reasons this route was not used prior to the conflict. Total travel time from Aden to Sana'a increased from approximately 12-13 hours before the conflict to a very uncertain duration that depends on the checkpoints and the situation in Naqeel Al-Dhalea, and can take up to three days or more.

THE Al-Hodeidah–MANAKHAH–SANA'A ROAD:

There are a number of bridges along this road that were targeted by airstrikes. Some of these bridges have been restored by the MoPWH but the following bridges are still not operational. Temporary bypass solutions have been put in place but vehicles continue to face significant delays, especially during the flood season when the bypass becomes unusable. These bridges include:

Figure 5: Hodeidah–Manakhah–Sana'a Road

• **Al-Darjah bridge and Al-Qasabah bridge:** These are two of the most important bridges on this road and when they are not accessible it can cause delays of over 12 hours. Currently a bypass is in place at Al-Darjah but it is not usable during the flood season (see Figure 5 below). Al-Darjah was targeted in August 2016. Al-Qasabah bridge was targeted in January 2017 and therefore is not included in the English MoPWH report published in January but is included in the Arabic MoPWH report published in March 2017.

• **Al-Dinarah bridge:** This is another important bridge that was targeted in August 2016 (see Figure 6 below). Currently a bypass is in place, but again delays continue to be substantial and can reach up to 5 hours.

• **The Bab Mak'hlah bridge** (targeted August 2016), and the Bab Reeshah bridge (targeted October 2015) have bypasses implemented for them but rebuilding has yet to begin.

Al-Darjah Bridge on the Sana'a–Hodeidah Road

Al-Dinarah Bridge on the Sana'a–Hodeidah Road

THE ADEN–LAHJ–TAIZ ROAD:

This road is difficult to use due to insecurity, as ongoing clashes are frequently taking place along it, especially in Karish area. From a constructions perspective, there are two bridges along this road that need to be rebuilt: Aqqan bridge and Madram bridge (both targeted by airstrikes). Both bridges lie in challenging valley terrain, which becomes especially hard to access during the rainy season. Bypasses are not efficient as heavy trucks face considerable difficulties using them given the terrain.

There is an alternative route from Aden to Taiz that goes through Aden–Lahj–Toor Al-Baha–Haigat–Al-Abd–Taiz. In terms of security it is less dangerous, however it is not suitable for heavy transportation trucks because many parts of the road are not properly finished with asphalt and it was not designed for long trucks.

THE Al-Hodeidah–TAIZ ROAD:

The Hodeidah–Taiz route before conflict

The standard route for trucks travelling between Al-Hodeidah and Taiz before the conflict is shown in Figure 8 below. It is currently unusable due to the ongoing conflict along the west coast of Taiz, including the districts of Mokha and Al-Mawza, and clashes at several of the entrance areas of Taiz.

Therefore, as shown below, the current alternative route for trucks from Al-Hodeidah (A) is to go to Ibb first (B) then to head to Hawban (C) in Taiz and from there to Damnat Khadeer (D), also in Taiz, where trucks are then offloaded to smaller cars that can utilise the Jabal Sabir back road to enter the city (E). This makes it very difficult for shipments to reach the city of Taiz.

THE HODEIDAH–HAJJAH ROAD & THE SANA'A–AMRAN ROAD :

A number of bridges along this road have been partially destroyed by airstrikes. Some of them have been restored and for others bypasses have been implemented, and as a result there are no significant impediments to the movement of trucks and other road

The Hodeidah–Taiz route during conflict

traffic. On the Sana'a- Amran road, a number of bridges have been destroyed along this road as well, but again bypasses have been

implemented and there are no significant impediments to the movement of trucks and other vehicles.

In consideration of the above, the key interventions by the World Bank and other donors that could provide substantial improvement is along the Al-Hodeidah–Sana'a road, and in particular the five bridges along this road listed above that are in vital need of rebuilding, and the Naqeel Al-Dhalea road along the Aden-Sana'a route.

FINANCIAL ASPECTS

The MoPWH included in its report an estimate of the costs to rebuild the bridges highlighted in the section above. The two tables below outline the costs provided by the MoPWH report. It is worth noting that the estimates vary significantly between the English report published in January 2017 and the Arabic report published in March 2017.

Given the above discrepancies, it is hard to credibly accept the numbers provided by MoPWH. In addition, it is difficult to provide accurate estimates given the substantial fluctuation of exchange rates and the inconsistent availability of fuel and other materials required for asphalt. Forecasting costs under such an environment is very difficult, especially without knowing more precisely when the work will be implemented, which highlights the need for a contingency plan that allows for greater variation in costs and time.

Table 1: Cost Estimates in MoPWH March 2017 Report (Arabic)

No	BRIDGE NAME	HEIGHT (M)	LENGTH (M)	WIDTH (M)	COST (US$)	AREA	TOTAL (US$)
1	Al-Darjah	10	60	7.9	10,000	474	**4,740,000**
2	Al-Qasaba	5	30	7.9	5,000	237	**1,185,000**
3	Al-Dinarah	4	30	7.9	5,000	237	**1,185,000**
4	Bab Mak'hlah	2.5	20	7.9	5,000	158	**790,000**
5	Bab Reeshah	2	5	7.9	2,500	39.5	**98,750**

Table 2: Cost Estimates in MoPWH January 2017 Report (English)

No	BRIDGE NAME	HEIGHT (M)	LENGTH (M)	WIDTH (M)	COST (US$)	AREA	TOTAL (US$)
1	Al-Darjah	10	50	12.8	2,750	640	**1,760,000**
2	Al-Qasaba*	N/A	N/A	N/A	N/A	N/A	**N/A**
3	Al-Dinarah	6	30	12.8	1,550	384	**595,200**
4	Bab Mak'hlah	3	16	12.8	1,550	204.8	**317,440**
5	Bab Reeshah	2	15	12.8	1,550	192	**297,600**

** Not included in the English report because it was targeted in January 2017.*

Appendix F: Additional Figures and Tables

Figure 2. Overview of food security trends (based on EFSNA Nov/Dec 2016 and CFSS March 2014)

Theme	Indicator		2016	2014	% Change
Food consumption and dietary diversity	Food consumption	Poor	27%	19%	44%
		Borderline	37%	22%	67%
		Acceptable	37%	60%	-38%
	Application of food coping strategies	No coping (0)	38%	53%	-29%
		Low (1 to <5)	10%	8%	24%
		Medium (5 to 20)	35%	28%	25%
		High (>20)	17%	11%	55%
	% of households using various food coping strategies	Relied on less preferred/expensive food	55%	44%	24%
		Borrow food and rely on help	38%	25%	49%
		Limit portion size	43%	34%	28%
		Restrict consumption by adults	28%	22%	23%
		Reduce number of meals	26%	21%	21%
Debt	% of households indebted		83%	76%	9%
	% of households indebted for food		52%	34%	53%
Hunger and perceived trends	Household hunger over past 30 days	No food to eat because of lack of resources	49%	13%	278%
		Gone to sleep hungry	43%	14%	219%
		A whole day and night without eating	17%	6%	171%
	Household Hunger Score	No or little hunger in the household (0)	37%	79%	-53%
		Slight hunger in the household (1)	27%	8%	225%
		Moderate hunger in the household (2-3)	27%	10%	165%
		Severe hunger in the household (4-6)	9%	3%	240%