Cold Chain in Angola

Emerging Markets Program Assessment

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World Food Logistics Organization

WFLO

The Refrigeration Research & Education Foundation

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LIST OF ABBREVIATIONS

3PL	Third-Party Logistics Provider
ABIAF	Associação Brasileira da Indústria de Armazenagem Frigorificada
ADB	African Development Bank
CFCs	Chlorofluorocarbons
CIA	Central Intelligence Agency
CLOD	Center for Logistics and Distribution
CLQ	Chicken Leg Quarters
CNCA	Conselho Nacional de Carregadores
CPI	Consumer Price Index
DRC	Democratic Republic of the Congo
ECODIMA	Associação de Empresas de Comércio e Distribuição Moderna de Angola
EMP	Emerging Markets Program
FAS	Foreign Agriculture Service
GAIN	Global Alliance for Improved Nutrition
GCCA	Global Cold Chain Alliance
GDP	Gross Domestic Product
KFC	Kentucky Fried Chicken
KW	Kwanza (Angolan Currency)
MPLA	Popular Movement for the Liberation of Angola
P&CS	Project and Construction Services
QSR	Quick Service Restaurants
SADC	Southern African Development Community
SWOT	Strengths, Weaknesses, Opportunities and Threats
UNITA	National Union for the Total Independence of Angola
US	United States
USD	US Dollar
USDA	United States Department of Agriculture
WFLO	World Food Logistics Organization
WTI	West Texas Intermediate

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EXECUTIVE SUMMARY

The World Food Logistics Organization (WFLO), the technical assistance and educational arm of the Global Cold Chain Alliance (GCCA), deployed four technical experts to Luanda, Angola from February 8-19, 2016 to conduct an assessment of the food systems and cold chain infrastructure. Consistent with the methodology used to carry out the assessment this report is organized into two main sections detailing the existing systems for food and agriculture and the cold chain. Each section features observations with conclusions and opportunities, followed by recommendations for specific interventions designed to enhance the cold chain and support US exports of beef, poultry, and pork.

Key observations, conclusions/opportunities, and recommendations are outlined in the table below.

Table 1: Summary of Observations, Conclusions & Opportunities, and Recommendations

Food & Agriculture System		
Observations	**Conclusions & Opportunities**	**Recommendations**
Food production is low and not likely to increase. Reduced oil prices to $29/barrel decreased the country's ability to make payments to suppliers.	U.S. **poultry** exports will not recover to pre-economic crisis levels any time soon. U.S. **beef** exports are currently composed of prime cuts. Opportunities exist to increase, but beef suffers the same currency constraints as poultry. Opportunities for U.S. **pork** exports in the near term are very limited due to strong price competition with Brazil and Portugal.	US suppliers should maintain contact during period of economic difficulty and be ready to assist when the price of crude oil increases to range of $50-$60.
Retailers requiring cold stores are entirely vertically integrated to maintain quality.	There is an opportunity for 3PLs to take over the management of logistics enabling retailers to focus on their core competency.	The Government of Angola may consider policies designed to stimulate and enable cold chain businesses to thrive such as energy subsidies, access to affordable credit, or access to climate offsets.
Strong historical relationships and language similarities have led to favorable trading relationships with Brazil and Portugal.	There is an opporunity for US exporters to strengthen relationships with Angolan traders and show value of US products keeping in mind that they must be price competitive.	Increase the number of US/Angolan business exchanges for key fresh and frozen importer/distributor representatives once crude oil prices reach the $50-60 range.
Cold Chain System		

Observations	Conclusions & Opportunities	Recommendations
Sophisication of cold storage facilities ranges from high to low quality.	The ability to install first-class facilities in Angola exists.	Increase the number of US/Angolan business exchanges for cold chain expos and events.
All cold store materials are imported adding to the price of construction.	There is an opportunity for US suppliers of cold chain equipment to export to Angola.	The Government of Angola may consider policies designed to stimulate and enable cold chain businesses to thrive such as energy subsidies, access to affordable credit, or access to climate offsets (noted above).
All companies are dependent upon expats for operational management and many have created in-house training programs.	There is an opportunity to deliver enhanced training in refrigeration and management as well as training in basic operations and equipment repair.	Conduct WFLO cold chain management training in Angola, utilizing the cold chain training skills of GCCA affiliate, ABIAF. Delivery of the WFLO Cold Chain Management Training, which emphasizes efficiencies and best practices of 3PLs, could further hone the local skillset required for third-party logistics
The number of facilities currently under construction or recently completed has increased dramatically over the past 3 years with one high-quality 3PL operating.	Prior to the drop in oil prices, a significant amount of money was invested into the cold chain by private companies.	
The Government of Angola is working to reduce the dependence on refrigerated containers, but the transport of refrigerated food into the interior of the country is accomplished using refrigerated containers.	Railways have recently been completed facilitating transport from North to South and East to West, but amount of frozen/cold product transported to interior is too low, due to low population, to make this cost-effective.	Focus road rehabilitation on roads enabling trucks and product to move into interior. Within Luanda, drainage issues cause extensive flooding. These drains should be rehabilitated and unclogged.
Infrastructure is poor with electricity cited as the largest ongoing hindrance to maintaining temperature control.	The Government of Angola is interested to support cold chain initiatives and eager to obtain information to support the industry.	Develop a relationship with ECODIMA, the new retail association to assist in strengthening the organization. ECODIMA could be a potential resource for the government to learn about industry needs.

BACKGROUND AND INTRODUCTION

ACTIVITY DESCRIPTION

The World Food Logistics Organization (WFLO), the technical assistance, training and education arm of the Global Cold Chain Alliance (GCCA), was allocated a grant under the Foreign Agricultural Service's (FAS) Emerging Markets Program (EMP) Agreement #2015-12 to conduct an assessment of the food and rural business systems in Angola. This baseline assessment examines existing cold chain infrastructure in Angola, with specific focus on identifying gaps and constraints. The cold chain assessment team studied the movement of perishable foods inland from ports to the ultimate consumer and from points of domestic production to postharvest, processing, and retail. Looking specifically at processing, packaging, transport, and storage with particular emphases on the cold chain infrastructure, the assessment considered the resources available and those needed to receive or expand US perishable imports. These resources also have implications for Angolan exports and local retail distribution throughout the country.

ASSESSMENT TEAM

The assessment team consisted of four traveling members and one technical support member in the United States (non-traveling). Amanda Brondy, Director of International Projects for the GCCA; Kent Sisson, President of SIAM Professionals; Martin Donnelly, Operations Lead, Project & Construction Services (P&CS), Africa for AECOM; and Fabio Andrade, Commercial Accounts Manager for EuroFrigo travelled to Angola, while Richard Tracy, Vice President of International Programs at GCCA provided technical guidance and support in preparation for and during the in-country assessment and served as the overall technical review for the assessment.

Amanda Brondy has more than 10 years of international development experience, a substantial portion of which was devoted to projects in Africa, including two years living the Democratic Republic of the Congo (DRC). As GCCA's Director of International Projects, she oversees the implementation of cold chain activities for a variety of donor-funded projects and writes project deliverables for assessments, feasibility studies, and cold chain consultations while providing overall project management. Ms. Brondy organized the logistic details and provided the overall technical framework for the team members.

Kent Sisson is a retired United States Department of Agriculture (USDA) FAS Foreign Service Officer with a background in the marketing of US agricultural products. For 27 years with FAS, Mr. Sisson participated in USDA programs designed to increase exports of US food and agricultural products. As founder and President of SIAM Professionals, LLC, a private consulting company, Mr. Sisson maintains close contact with a variety of United States agriculture trade associations (Cooperators) including those supporting this assessment. He has conducted similar assessments in Pakistan and China and lived in Indonesia and Malaysia while working for the USDA.

Martin Donnelly works in South Africa for AECOM, a US-based company that has grown to be one of America's largest companies. AECOM provides fully integrated professional and technical services to design, build, finance and operate infrastructure assets around the world for public and private-sector clients. As a cold storage engineer with 15 years of experience, Mr. Donnelly examined the construction infrastructure from a design/build perspective, offering expertise on the design of facilities, the construction quality, and equipment and materials utilized for cold rooms. Based in South Africa, his background enhanced the team's understanding of the regional context.

Fabio Andrade has worked in cold chain industries for his entire professional career, beginning with meat exportation in Brazil and to include cold storage operations and management, and finally with commercial accounts management in Europe, and specifically within the port of Rotterdam in the Netherlands. Mr. Andrade's technical expertise is in the operational management of the business, and he applied this

knowledge through the lens of having lived and worked in an emerging economy and a developed country with a highly sophisticated approach to cold chain management. His knowledge of Portuguese enabled the team to probe further into specific areas during interviews that would not have been considered relying solely on translation, and his background in Brazil solidified the understanding of the South-South relationship between Angola and Brazil that has formed from the shared language.

Richard Tracy has 20 years of experience in international development, of which eight are with the GCCA. Throughout his career, he has conducted multiple studies assessing cold chain systems, consulting with existing businesses, or studying the feasibility of cold storage companies in new locations. He also has extensive experience developing or strengthening cold chain associations in a variety of countries, working with association leadership to provide valuable member services that provide revenue to ensure sustainability. Mr. Tracy provided overall technical guidance for the assessment with specific focus on next steps for training and round tables. These are the aspects that will support the longer-term impact of the project.

METHODOLOGY

The assessment was conducted in three phases. The first phase consisted of a desktop review, prepared prior to travel. Led by the WFLO home office, the team reviewed available public information for the food and agriculture industry with a focus on temperature-controlled food and the development of cold chain systems in Angola. This included reports prepared by the Government of Angola, the U.S. Departments of Commerce and Agriculture; published reports prepared by other public and private sector organizations, such as the World Bank, Food and Agriculture Organization of the United Nations, World Economic Forum, and official trade statistics.

The in-country assessment took place in the second phase of the project, which lasted from February 8-19, 2016. Upon arrival in Luanda, the team met retailers, importers, distribution/logistics centers, government officials, hotels, local producers, and other key stakeholders involved with temperature-control enterprises to gather as much information as possible pertaining to the status of the cold chain and specifically focusing on the following:

- Distribution Models
- Business Models
- Construction
- Facility Management & Operations
- Transportation
- Human Capacity
- Role of the Government
- Infrastructure

The team inventoried the aspects above noting gaps and constraints that limit the operation of an efficient supply chain for temperature controlled products. In addition, the team assessed the market strength and potential for specific commodities (poultry, beef and pork), and sought information on existing producer groups, cooperatives, and associations.

The final phase began upon return to the United States. The team evaluated all relevant information gathered and analyzed during the literature review and in-country assessment, reviewing observations, drawing conclusions and forming recommendations in order to identify the specific needs for developing the cold chain in Angola in parallel with increasing US exports of meat, poultry and pork.

The written assessment is comprised of four main sections beginning with an economic and agricultural trade overview of the country. This will provide context and background necessary to understand the assessment findings presented in sections two and three. The second section will report on the findings for the food and agriculture system within Angola utilizing a Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis, while the final section examines the cold chain system, detailing information as it relates to direct and indirect links in the cold chain including operations, distribution, transportation, capacity, governance, and infrastructure. This section will also include a detailed SWOT analysis. The report will close with the specific recommendations drawn to enhance the cold chain and opportunities to increase US exports.

ECONOMIC AND AGRICULTURE TRADE OVERVIEW

Angola is still rebuilding its country since the end of a 27-year civil war in 2002. Fighting between the Popular Movement for the Liberation of Angola (MPLA) and the National Union for the Total Independence of Angola (UNITA) followed independence from Portugal in 1975. Peace seemed imminent in 1992 when Angola held national elections, but fighting picked up again in 1993. Up to 1.5 million lives may have been lost - and 4 million people displaced - during the more than a quarter century of fighting.

Luanda is the capital of the Republic of Angola that is made up of 18 provinces. Its civil legal system is based on Portuguese civil law and Portuguese is the official language although several other indigenous languages are also spoken. Catholics and Protestants account for about 53 percent of the religious make-up and indigenous beliefs the remaining 47 percent. The population of 24.3 million is currently growing at about 2.78 percent per year and ranks 16th in the world. However, life expectancy is only about 55 years which places Angola 207th among 224 countries. There is a very high risk for major infectious diseases and quality health care is lacking. Luanda itself has an estimated population of 5.5 million, representing 23 percent of the total country, but the actual population in and around Luanda is probably higher.

The country suffers from a severe lack of electricity that makes reliance on diesel or gasoline-powered generators a way of life for most businesses (including supermarkets, hotels, office buildings, and cold storage facilities) since power outages and surges occur on a daily basis. According to the World Bank's Doing Business Report (2016), the price of electricity is US 5 cents per kWh, which is low when compared to the cost in industrialized countries. However, the need for stable backup generators increases the overall cost of energy substantially for businesses. Road and water drainage infrastructure in and around the capital of Luanda is also lacking and leads to major traffic congestion especially during the rainy season. It is common to see traffic lights that do not function at many intersections, but the people manage to work through it. One of the major roads leading into and out of the Port of Luanda is not much more than a dirt road for two to three miles marred by large pot holes and puddles of water that make it impossible to travel at much more than five miles per hour in most places.

Figure 1: Map of the Three Major Rail Lines in Angola

Source: Wikipedia Railway Map

There are three major rail lines that start at the west coast from three of the country's four major ports – Luanda in the North, Lobito in the middle, and Namibe in the south – and run east (see Figure 1). However, only the Central rail line extends all the way to the eastern border with the Democratic Republic of Congo. According to those interviewed during the assessment, little food or container traffic is transported by rail – virtually all is transported by truck.

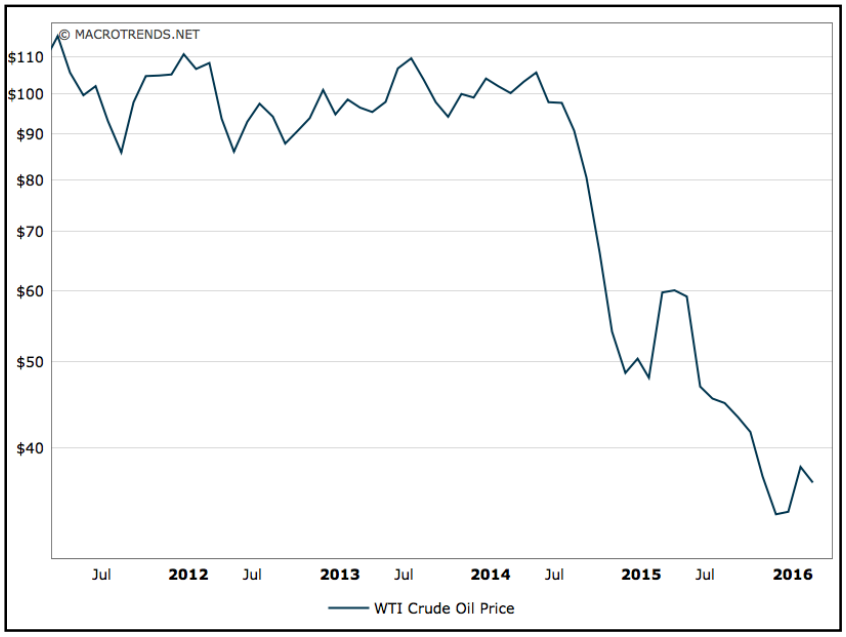
GENERAL ECONOMIC SITUATION

NOTE: During the team's visit to Angola, the country was facing severe economic challenges. The root cause of which was a major decline in world crude oil prices since mid-2014. Although the economic facts presented below in this section of the report paint a rather pessimistic picture, ***if*** Government policy makers view this as an important "wake-up call", they could begin implementing changes that will refocus resources and policies to improve infrastructure, diversify the economy, remove foreign investment disincentives, and take other actions that will return the country to even stronger economic growth in the longer term. It is under this more positive outlook and scenario that we believe the time is right to provide cold chain capacity building training and services that will have a positive impact on reducing the high cost of food imports and distribution – and ultimately lead to increased imports of frozen food from the United States in the long-term.

Angola is Africa's fifth largest economy with crude oil production the main contributor to its economic growth and well-being. Oil production and its supporting activities contribute about 50 percent to GDP and more than 70 percent to government revenue according to the *CIA World Factbook*. The country is the 15th largest oil producer (the second largest in Africa) and crude oil accounted for 97 percent of Angola's total exports of US$ 77 billion in 2014. Subsistence agriculture provides the main livelihood for most of the people employing 85 percent of the country's 10.5 million labor force, yet half (some say more) of the country's food is imported. Up until mid-2014 Angola was one of the fastest growing economies in Africa. Since then the economy has declined, due in large part to the precipitous fall in the world price of crude oil (see Figure 2). While the team was in-country in February, the price per barrel according to the West Texas

Intermediate (WTI) Nymex Crude Oil was $29/barrel (at the time of this report's finalization in May 2016, it had risen to $48/barrel).

Figure 2: World Price Trend of Crude Oil (US$ per barrel 2011-2016)



Source: Graph from Macrotrends.net Website Data from U.S. Energy Information Administration, Bureau of Labor Statistics, West Texas Intermediate Crude Oil Price.

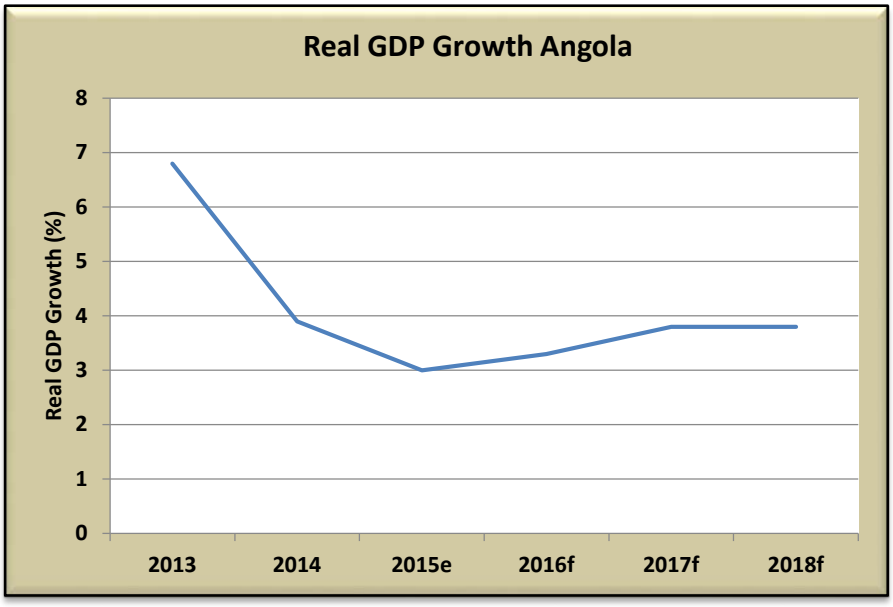
Based on World Bank data from 2013 and 2014, real GDP growth was 6.8 percent in 2013, fell to 3.9 percent in 2014, and is forecast to be only 3.3 percent for 2016 and stay below 4 percent going into 2018 (see Table 2 and Figure 3 below). Per capita GDP on a purchasing power parity basis was US$ 7,600 in 2015 ranking it at 151 among 224 world economies. With crude oil prices just above $40 per barrel at the time of this writing, some sources say they do not expect the economy to rebound until the price moves above $50 and perhaps even closer to $60.

Table 2: Angolan Macroeconomic Indicators

Macroeconomic Indicators	2013	2014	2015(e)	2016(f)
Real GDP growth	6.8	3.9	3.8	3.3
Real GDP per capita growth	3.7	1.4	0.7	1.1
CPI inflation	8.8	7.4	8	8.7
Budget balance % GDP	0.3	-2.2	-10.6	-7.7
Current account balance % GDP	5.8	2.7	-5.9	-2.2

Source: World Bank.

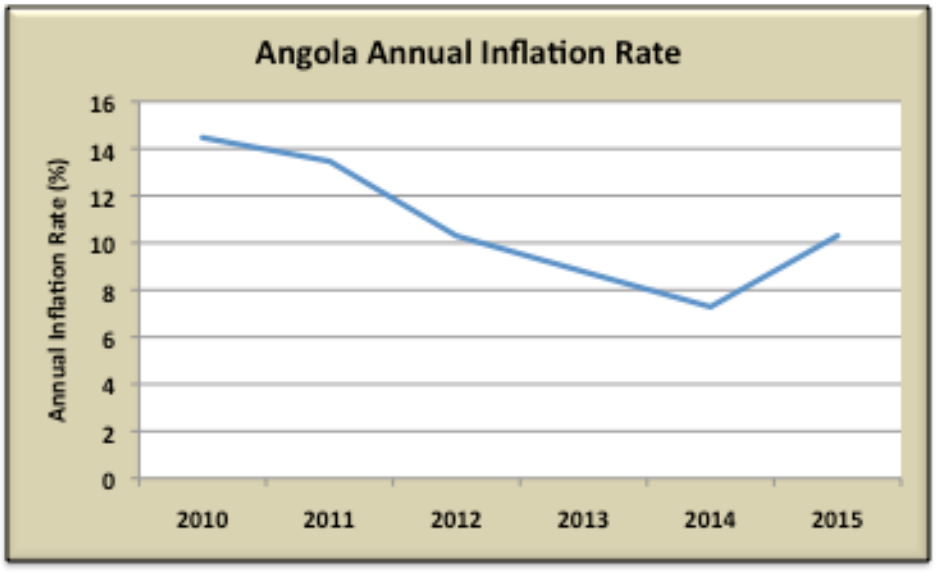
Figure 3: Angolan Economic Growth



Source: World Bank GDP Growth Data

Inflation is another important indicator for the general economic outlook, which has been relatively unstable as seen in the decline from 2010 to 2014. In 2010 the inflation rate in Angola was between 14 and 15 percent but dropped steadily over the next four years to about 7.5% in 2014 (see Figure 4 below) before rising to 10.3% in 2015.

Figure 4: Angolan Annual Inflation Rates (2010-2014)



Source: World Bank GDP Growth Data

Contrast Figure 4 against what has happened more recently as reflected in Figure 5. In May 2015 inflation began to rise rapidly from just under 9 percent to just over 26 percent by April 2016, which was the highest rate since September 2005. This rapid increase took place in less than 12 months.

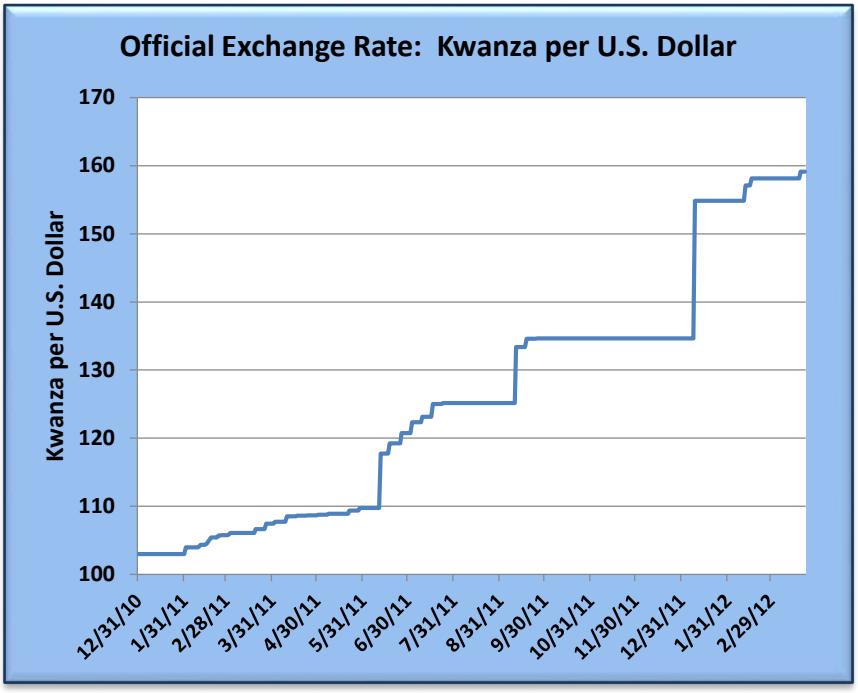
Figure 5: Angolan Monthly Inflation Rates (May 2015-April 2016)

Source: www.tradingeconomics.com using data reported by the Instituto Nacional De Estatistica, Angola

The most important components in the Angolan Consumer Price Index (CPI) used for calculating inflation are: Food and Non Alcoholic Beverages (55.1 percent of total weight); Housing, Water, Electricity, Gas and Other Fuel (11.1 percent); and Clothing and Footwear (7 percent). With imports comprising more than 50 percent of all food, prices are also rising rapidly and there is now a shortage of many important items including sugar, poultry, and cooking oil. While the team was in Luanda some retailers placed limits on the quantity of products (e.g., sugar) that could be purchased by consumers to prevent hoarding. Contributing to inflationary pressures, the Angolan Government cut fuel subsidies to consumers at the beginning of January 2016 to relieve some of the burden on the nation's budget. The price of gasoline rose 39 percent to 160 kwanza (KW) per liter (about US$ 3.80 per gallon at the official exchange rate) and diesel rose 80 percent to 135 KW per liter as a result.

In addition to declining crude oil revenues and economic growth, combined with rising inflation, the Angolan currency has weakened considerably against the US dollar (see Figure 6). On January 1, 2015 one US dollar could be exchanged for 103 KW. As of March 24, 2016 one dollar could be exchanged for nearly 160 KW representing a devaluation of the kwanza by 55 percent in just less than 15 months. At the same time, the unofficial exchange rate was anywhere from 350 - 400 KW per dollar which was more than double the official exchange rate during the two-week period that the team was in Angola. This decline in value of the kwanza has further exacerbated Angolan importers' ability to obtain dollars to purchase imported products and for businesses to pay their expatriate staff.

Figure 6: Devaluation of Kwanza by 55 Percent Since January 2015



Source: OANDA Historical Exchange Rates

On top of all the previously mentioned economic woes, over a quarter of the country's labor force has remained unemployed since 2006 as reported by the African Development Bank (ADB) and depicted in Figure 7 below. Unfortunately, unemployment will likely move even higher in the short term as companies lay off workers due to the declining economy and lack of investment in various key industries including construction.

Figure 7: Angolan Unemployment Rate (2006-2014)

Source: www.tradingeconomics.com using data reported by the African Development Bank

Lastly, Angola is one of the most challenging places to do business when measured in terms of the World Bank's rankings of 189 countries. The relevant categories and Angola's rankings are listed below, with the four lowest categories in bold:

Table 3: Selected World Bank Rankings for Angola Among 189 World Economies

Ease of Doing Business	**181**
Starting a Business	141
Dealing with Construction Permits	108
Getting Electricity	166
Registering Property	169
Paying Texas	141
Trading Across Borders	**181**
Enforcing Contracts	**185**
Insolvency	**189**

In summary, until 2015 Angola had been a rising star in Africa. In just 12 years it developed quickly and grew its economy, overcoming the ravages and destruction from its 27-year civil war that ended in 2002. However, this strong growth was due almost exclusively to the country's rich oil reserves. This lack of economic diversity, and in particular the lack of investment and reestablishment of an agricultural base, is now having dire consequences on the economy and the welfare of the people.

AGRICULTURE PRODUCTION AND TRADE SITUATION

FAS prepared an Agricultural Economic Fact Sheet for Angola in May 2015 and included it in a Global Agricultural Information Network (GAIN) report dated June 9, 2015. That fact sheet is included in Annex A of this report and provides a very detailed and comprehensive overview of the general economic situation for the Angolan food and agricultural sector. Some of the key points from the fact sheet are presented here along with information from other sources.

Angola has the resources (fertile land, abundant water, and a favorable climate) to become one of the leading agricultural countries in Africa. Yet in 2014 the agriculture sector represented only 11 percent of the country's GDP. It is estimated that Angola imports more than half of its food to feed its population of 24.3 million. Some sources estimate the percentage of imports is even higher and could be as much as 90%. With the possible exception of fresh eggs and vegetables, there is very limited domestic production of perishable products (those products that rely on handling and storage in temperature controlled environments) so substantially more than 50% of those items are imported. Perishable imports enter the country primarily through one of the four main seaports in refrigerated shipping containers with Luanda and Lobito being the two that handle most of the containers.

Together poultry, dairy products, beer and wine account for half of the total value of food imports with wheat flour, beef, palm oil, rice, sugar and pork making up the other half (see the Agricultural Fact Sheet in Annex A). Portugal and Brazil are the top two suppliers accounting for over 50 percent of Angola's food imports in 2014, indicating the country maintains strong cultural, language, and historical trade relationships with those countries. The United States and South Africa are the next two largest suppliers. Together these four countries supplied over 75% of Angola's food and agriculture imports.

Figure 8: Chicken Leg Quarters (CLQs) are the primary US poultry export into Angola.

In 2014, Angola was almost a $300 million market for U.S. exports of agricultural products. Poultry meat, primarily chicken leg quarters (CLQ), represented about 88 percent of the total followed by beef (5%) and pulses (4%). In that year Angola was the U.S. poultry industry's fifth largest export market.

In September 2012, an FAS/USDA and private sector Retail Assessment Team traveled to Luanda (see Angola GAIN report dated February 27, 2013) to meet with Angolan importers, retailers, port officials, and the Banco Angolano de Investimentos. According to their report, retail food purchases are made from both formal and informal retail outlets with 20 percent made from formal (e.g., small neighborhood stores, regular grocery stores, hyper-markets) retailers and the remaining 80 percent from informal (e.g., street venders, unregulated wet markets, etc.) retailers. The team also stated that they expected that the formal 20 percent would expand significantly in the next few years. Obviously at that time they could not have foreseen the rapid and steep decline in the world price of crude oil that began in June 2014. However, the current WFLO assessment team heard estimates that the formal/informal market share is now in the neighborhood of 40%/60% indicating that the formal market share doubled in just over three years.

The Angolan market is relatively open, but the government does exert control in a variety of ways. For retailers, this control is exercised through licenses, the promotion of Angolan partnerships with new retail chains, or full ownership of certain stores (e.g., Kero). Angolan regulations also require that food labeling must be in Portuguese. Finally, the traditional wholesale markets are being forced from inside the city of Luanda to relocate outside the city in surrounding areas. The Government's Center for Logistics and Distribution (CLOD) serves as an example of how it is implementing this policy.

The CLOD is located near a local wholesale market at KM 30 on 235 acres. Once completed, it is expected to be the largest distribution and supply center in the country with five submarkets for fruits and vegetables, fish, meat, tubers, and ice processing. The Government of Angola plans to relocate all wholesale traders to the CLOD to remove them from the city and urban areas. This is part of the plan to regulate transport and trade, especially as the government is working to reduce the amount of trucks operating in Luanda. As discussed during the tour of the CLOD, the wholesalers have already been notified about this change, and most welcomed it due to the difficult conditions they currently operate under and the fact that it will allow them greater control than the unregulated market allows. Moving forward, it was reported that the government will require new licenses where businesses can register as either a wholesaler or retailer, but not both.

FOOD & AGRICULTURE ASSESSMENT

In addition to the narrative below, the key findings for the food/agriculture sector are organized into a SWOT Analysis table to develop key conclusions, identify opportunities for U.S. suppliers of products and services and lastly, to make recommendations for training and next steps.

KEY FINDINGS

Domestic Production

Domestic production of virtually all food is insufficient to meet domestic demand. Since the assessment team targeted products requiring temperature control, this section focuses on fresh and frozen supply and distribution. Specific findings for food groups are as follows:

- Livestock and poultry production is very limited and constrained by the lack of domestic production of animal feed (corn and soybeans) virtually all of which must be imported. There is some beef production but it is not large. Eggs may be the only exception and local production appears to be increasing.
- Chicken, beef, and pork as well as fresh and frozen fruit and vegetables are imported in large volumes to meet domestic demand.
- Chicken and pork imports are all frozen; most beef is also frozen but some is chilled coming from local suppliers and imported including from South Africa, Botswana, and Portugal.
- Traditional ties to Portugal and Brazil influence the origin of many food imports (dry and frozen) but most fruit and vegetables come from South Africa. Fresh and frozen food suppliers and their market share rankings (2010-14 average value) are identified in the table below.

Table 4: Ranking of Top Suppliers of Selected Temperature Control Products to Angola (by Volume)

Country/Product	Poultry	Beef	Pork	Fresh Fruit	Fresh Vegetables	Frozen Potato Products
Argentina	4					
Belgium	3					
Brazil	2	2	1			
China					2	
India		1				
Italy		5	4			
Netherlands			3		4	
Paraguay		3				
Portugal	5		2	2	3	1
South Africa				1	1	2
Spain			5			
United States	1	4				

Source: Based on Global Trade Atlas data provided by the FAS Representative in Angola.

Impact of Oil Prices on Imports into Angola

Imports of all food products have declined substantially since the middle of 2014 due to the lack of hard currency (U.S. dollars). Every interview conducted in Luanda revealed that the lack of hard currency is the single most important constraint currently limiting imports of US food and agricultural products into Angola. The Angolan economy is almost totally dependent on hard currency generated from oil exports, the value of which have been decimated by the fall in the world price of crude oil. Some contacts estimate that the oil price must reach $50-60 per barrel in order for the economy to get back on track.

The impact is clearly felt by the retail sector. Food shortages are starting to be seen in the market and some retailers are rationing purchases of basic commodities, such as sugar. Most food importers, distributors, and retailers as well as hotels are laying off workers and some retailers are limiting their hours of operation. Shortages of fresh fruit and chicken were clearly seen during visits to stores and distribution centers. Only

a very limited number of containers of chicken from the US were being imported at that time and some US suppliers had not been paid for sales in 2016. One contact said it appears that some Angolan commercial banks are not making payments to off-shore corresponding banks raising questions about where those dollars are going and resulting in off-shore banks refusing to conduct future business with those banks.

Imported food faces additional challenges. Luanda is one of, if not the most expensive cities in the world due in part to the fact that over 50% of the food and many other products must be imported. Once containers arrive at the ports additional costs are incurred including high food safety inspection fees from a new organization (Bromangol) established in 2012, terminal charges, customs, electrical charges, and demurrage. The assessment team estimates that the landed cost of a container of US chicken leg quarters compared to the retail price that consumers pay is more than double the landed cost due to the additional port charges, inspection fees, and transportation expenses from the port to the wholesalers/retailers.

Finally, the lack of adequate cold storage facilities, poor roads, traffic congestion, and "shrinkage" losses due to improper handling and theft all add to the cost of imported frozen food and have a negative impact on product quality and food safety.

Distribution Models for Fresh, Chilled and Frozen Food

Interviews and observation revealed three key points about the fresh/chilled/frozen food distribution model in Angola. First, there are very few international quick serve restaurant (QSR) chains in Angola. QSR's typically drive imports of frozen US fries. Yum Brands has eight KFC's stores in and around Luanda and one Pizza Hut. They are reportedly doing well but there are no other US QSR chains in the country. One third party logistics (3PL) provider (Rangel) handles the storage and distribution of all KFC products in Angola except for its beverages. KFC imports all its frozen food products from Portugal.

Second, the major importers/suppliers typically control food distribution from the port to the consumer, with limited existence of 3PL providers. In the experience of the WFLO, the existence of 3PLs in a country is a sign of the maturity of the industry as these businesses enable retailers or importers to focus on their core business. Currently, the formal (modern supermarkets, cash & carry, and hypermarkets) market is said to make up about 40% of food sales to consumers while the traditional market (informal open-air markets and small shops) is estimated to make up the other 60%. This is somewhat of a reversal of the situation from the recent past, but some believe this trend could revert back with the informal market making up an even greater share of food retail sales due to the economic situation.

Most fixed cold storage facilities are located in and around Luanda and to a lesser degree, around the port city of Lobito located about 500 kilometers (about 7 hours by car/truck) south of Luanda and more centrally located on the west coast of the country. Food is typically transported around Luanda using small refrigerated trucks or via road, using tractor-trailers with refrigerated containers to the interior of the country. These containers are used not only for transportation but also as (highly inefficient) storage/distribution facilities for selling to stores and directly to consumers since there are little or no fixed cold storage facilities. Poor road infrastructure throughout most of the country prolongs transportation time and increases wear and tear on vehicles. Recently two rail systems were improved from the west coast running east across the country, but they are reportedly not being used for transporting food.

Finally, most food importers/distributors planned to expand facilities and operations prior to the decline in the price of oil, but now most have put those plans on hold due to the economic downturn. The difference between 2014 growth and the current situation was stark, as indicated during the first interview when the team was told that this assessment is a year too late. While most companies maintain their plans for growth, at least one has begun to close down or suspend operations indefinitely.

SWOT ANALYSIS

One of the key objectives of this study is to identify limitations in the Angolan cold chain system where training, education and services may improve infrastructure and operations and ultimately facilitate imports of more US food and agricultural products. Therefore, it is important to conduct a SWOT analysis of the Angolan agriculture system to assess the situation for the current and future food supply and demand – in particular, focusing on those products dependent upon the availability of reliable cold chain infrastructure and operations. By necessity we focused on both domestic and imported supply since domestic food and agriculture production obviously impacts how much is imported and/or exported.

In the SWOT table below (Table 5) the key findings from the section above are summarized and organized into Strengths, Weaknesses, Opportunities and Threats for more easy analysis.

Table 5: SWOT Analysis of Angolan Food and Agriculture System

	Helpful to achieving the objective	**Harmful** to achieving the objective
Internal origin (attributes of the system)	***Strengths*** • Plentiful water, abundant fertile land, and favorable climate • Adequate labor supply/85% of labor force is in agriculture • High food prices create an incentive for greater domestic production • Strong Government interest in expanding agriculture • Modern supermarkets & retailers in most major cities • Some very modern, vertically integrated storage facilities in major cities • Demonstrated consumer preference for buying frozen poultry and meat in bulk quantities • Limited tariff and non-tariff trade barriers	***Weaknesses*** • At least 50% of food must be imported • Food imports subject to redundant and high inspection fees • Roughly 60% of food is purchased by consumers at informal wet markets • Very high food prices restrict consumption • Limited domestic production of poultry, beef, and pork most of which must be imported • Limited production of fresh fruit and vegetables • Lack of local and foreign investment in ag production • Lack of skilled domestic farm managers • Road & rail infrastructure is limited/roads not well maintained • Severe traffic congestion in major population center of Luanda exacerbated by inadequate water drainage during rainy season • Machinery, equipment & parts must be imported • Crop inputs (seed, fertilizer) must be imported, increasing price • Unreliable and inadequate electrical power • Limited foreign currency for expat salaries & buying imports • Inefficient food distribution from smallholder farms to wholesale/retail markets • Significant post harvest losses • Lack of modern wholesale and retail outlets and cold storage facilities outside of major cities • Food safety & quality concerns in traditional open air wholesale/retail markets • Declining value of local currency (Kwanza to U.S. dollar) • Difficulty obtaining tourist and business visas • Selective enforcement of laws and regulations

External origin
(attributes of the environment)

Opportunities	*Threats*
• Limited competition for investment in ag • Imported food is very expensive • Formal retail market is growing and informal market is declining • Railway systems recently improved • Opportunities for export and transshipment of imports to nearby countries, e.g., Congo, Zambia, and Namibia • Relatively fast growing population (2.8%) • New hydroelectric dams to be completed in 2016 • High level of crude oil reserves • Four major seaports • New port to be built outside of Luanda should help to relieve traffic congestion near Port of Luanda • Fledgling retailer association recently formed • Currently very little consumer promotion is carried out	• Continued reliance on declining oil revenue for foreign currency in the short to medium term • Limited investment interest by foreign investors due to financial and structural constraints • Lack of diversified economy • Relatively low income of majority of consumers • High unemployment (25%) • Potential for social unrest due declining economy • Relatively high infant mortality and poor health care • High risk of infectious diseases • Low Government expenditure rate on education • Rising inflation and currency devaluation • No definitive plans or agreement for IMF loans • U.S. poultry, beef and pork will continue to face stiff competition from Brazil and Portugal due in part to Angolan strong traditional business ties to those countries

OPPORTUNITIES FOR U.S. AGRICULTURAL COOPERATORS AND EXPORTERS

The best opportunities for US exports to Angola are for poultry and beef. Assuming the economy eventually recovers and growth continues to rise at the same pace prior to the collapse of crude oil prices in 2014, the upward trend in exports (see US export table in Annex A) of those two products should continue. The US will likely command the greatest share of poultry imports assuming they remain price competitive. As crude oil prices rebound, the economy recovers, and incomes rise, the demand for high quality beef from the US should grow as well. Typically, when developing countries begin to experience strong economic growth as Angola did up to 2014, international quick service restaurants (QSR) often begin investing and opening outlets that drive up the demand for frozen fries and other products supplied by US companies. However, the Angola QSR sector is currently underdeveloped and may not grow much unless and until there are positive changes in the investment climate and ability to convert kwanza profits into hard currency. Following are additional observations for US poultry, beef and pork. All figures and tables for this section are based on economic data provided by FAS's representative in Angola using Global Trade Atlas data.

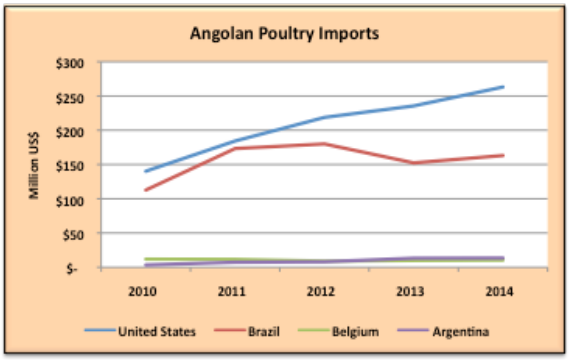
Poultry

The US dominates the market for poultry in Angola. Currently there is virtually no domestic commercial poultry production and will not likely be for the next five years or anytime soon due to the current poor economic situation and other key factors. Restrictive and challenging investment laws and regulations virtually precluded any foreign investment in poultry production on the scale that would have any impact on meeting local demand. Additionally, there is very little corn or soybean production in the country so all feed would have to be imported and would thus be costly. It should be noted with regard to investment laws that a new private investment law (Law No. 14/15 of 11 August 2015) was passed to stimulate investment through tax benefits into the country for all sectors. It is too soon to determine any results or impact from the law, but the Angola Trade USA, Angola's Commercial Representation in Washington DC promoted the advantages conveyed by the new law through an informational webinar hosted on February 25.

Brazil is the main competitor as can be seen from the figures below. As long as US poultry (primarily CLQs) remains price competive with Brazilian poultry, Angola will continue to buy primarily US. However, with the lack of foreign currency to pay for imports, rising inflation, the declining value of the kwanza vis-à-vis the dollar, and declining consumer purhasing power, US exports are not likely to return to previous levels anytime soon. If and when the price of crude oil reaches $50 to $60 dollars per barrel, compared to the $29/barrel price in February 2016, we would expect to start seeing an uptick in imports of US poultry. The recommended approach to servicing the market at this time is for the USAPEEC

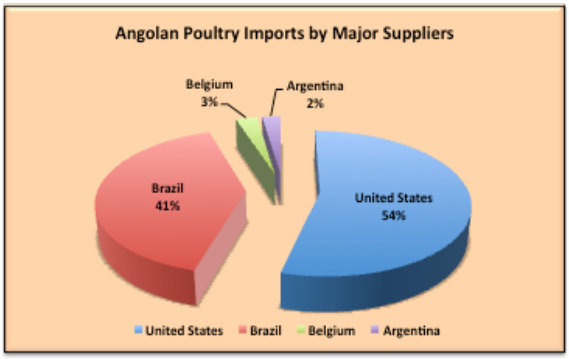
representative in South Africa and the FAS representative in Angola to keep in touch with Angolan buyers and be ready to assist them if and when oil prices rise and when the economic situation begins to improve.

Figure 9: Poultry Imports by Supplier



Source: FAS Angola - Global Trade Atlas data

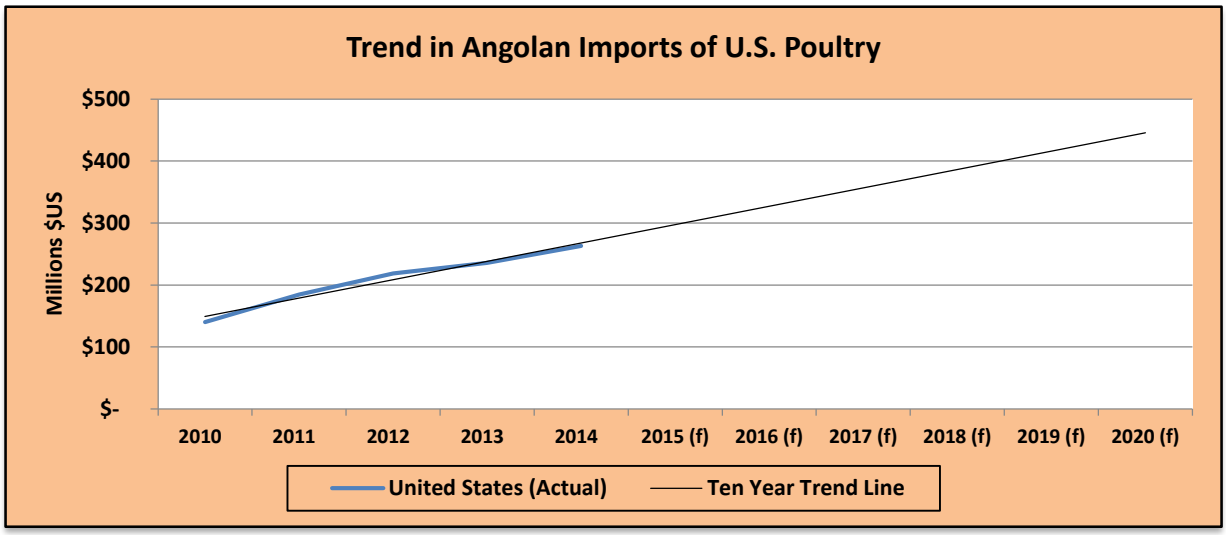
Figure 10: Poultry Import Market Shares



Source: FAS Angola - Global Trade Atlas data

We expect the trend in Angolan imports of US poultry will continue its steep upward climb from 2017 to 2020 assuming an economic recovery in 2016. Imports from the US are forecast to reach $450 million based on the five-year trend from 2010 to 2014 (see Figure 11, below) prior to the economic decline. We believe the US will continue to dominate the market share at around 50 to 60 percent with Brazil taking up most of the remaining share.

Figure 11: Angolan Imports of US Poultry, Projected through 2020



Source: FAS Angola - Global Trade Atlas data

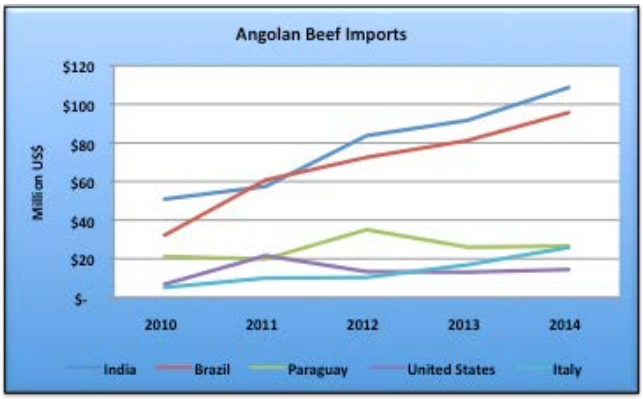
Beef

The US is a niche supplier of beef to Angola with India and Brazil supplying the lion's share of imported beef. In the most recent five years, boneless frozen beef cuts (0202306000 - BFWO/B, CRC, FRZ) typically made up between 40-60 percent of total US beef exports to Angola and the bulk of the remainder was beef offal including frozen livers and kidneys. While all US beef categories have declined, the boneless

frozen cuts have dropped the most since 2011. As the economy recovers, expats return, and more restaurants are opened, US exports of premium beef cuts will likely rebound. As with poultry, domestic beef production is limited at this time and is not expected to expand significantly in the short to medium term for the same reasons mentioned above in the poultry section.

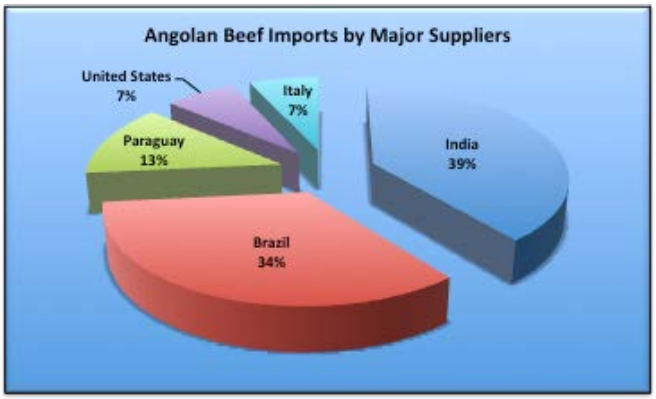
With the current negative economic situation, weak currency, and limited foreign exchange to purchase imported products, US beef exports will be very limited in the short term. We expect that there will be fewer expats working and visiting the country as well and thus, less demand for high quality beef in high-end hotels and restaurants. Perhaps there may be some opportunities for low cost offal but otherwise Angola will not be a strong market for US beef until the economy improves and the price of crude oil rises. It is recommended that USMEF take the same approach as indicated above for USAPEEC, that is their representative from the UK that covers Angola should follow the situation in Angola and keep in touch with key contacts there and be ready to assist them when the economic situation improves.

Figure 12: Beef Imports by Supplier



Source: FAS Angola - Global Trade Atlas data

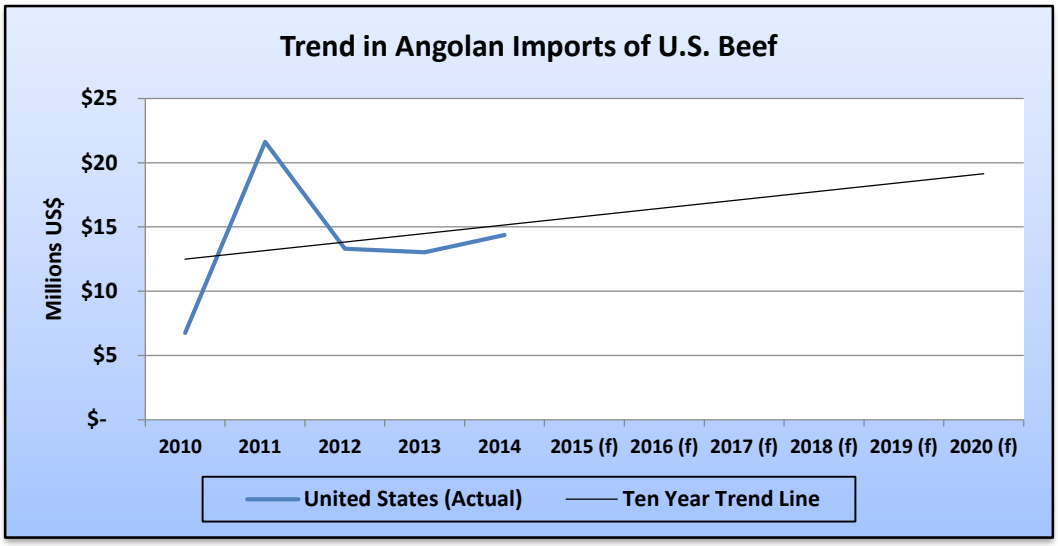
Figure 13: Beef Import Market Shares



Source: FAS Angola - Global Trade Atlas data

We forecast that the trend in Angolan imports of US beef will rise from 2017 to 2020 assuming the economy starts to recover by the end of 2016. By 2020 imports are forecast to reach $19 million based on the trend in imports from 2010 to 2014 (see Figure 14, below) prior to the decline in crude oil prices and the economy. We believe this is a reasonable assumption since imports from the US in 2011 were over $21 million. The US share of the market will probably remain in the area of 5-10 percent with India and Brazil dominating the market for the low-end beef sector.

Figure 14: Angolan Imports of US Beef Projected through 2020

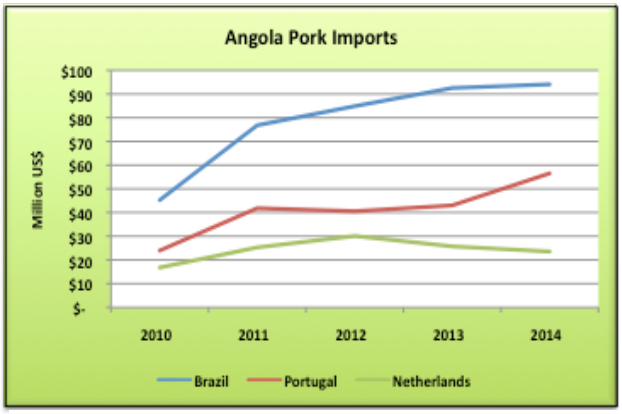


Source: FAS Angola - Global Trade Atlas data

Pork

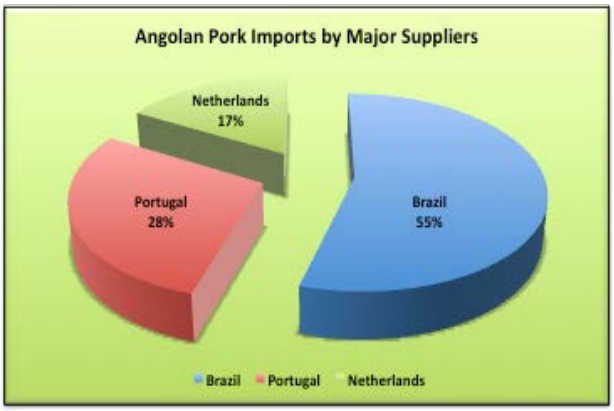
There appears to be very limited opportunities for US pork exports to Angola in the short and long term. According to those interviewed, US pork prices are not competitive with prices for pork from Brazil and Portugal. We do not recommend any actions or efforts by US exporters or USMEF to promote pork at this time, especially due to the very poor economic situation.

Figure 15: Pork Imports by Supplier



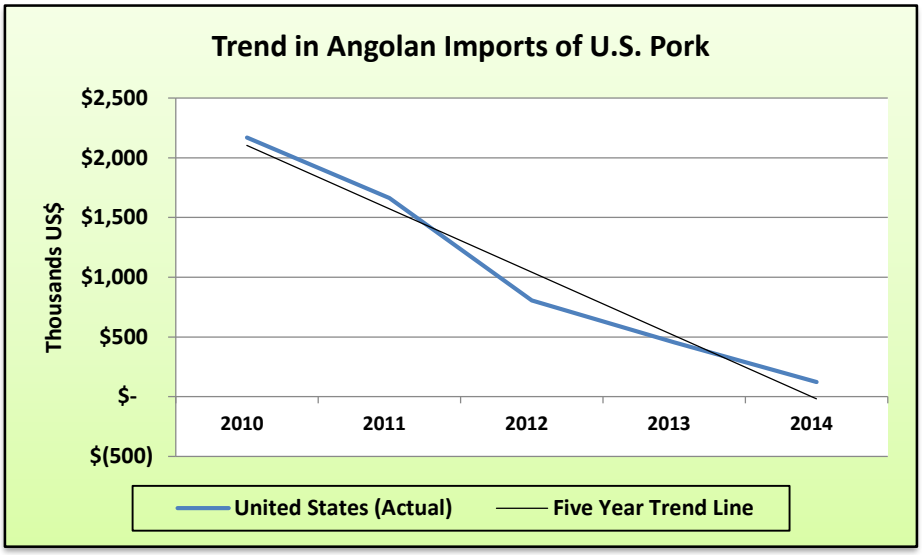
Source: FAS Angola - Global Trade Atlas data

Figure 16: Pork Imports by Market Shares



Source: FAS Angola - Global Trade Atlas data

Figure 17: Trend for Angolan Imports of US Pork (2010-2014)



Source: FAS Angola - Global Trade Atlas data

The declining trend in pork imports from the US is expected to continue. In fact, the latest US export data (see Annex A) show that there were no pork exports to Angola in 2015. As indicated in the chart above, imports were just over $2.0 million in 2010 and continued to fall every year through 2014. Meanwhile imports from Brazil and Portugal rose during the same period. There is no reason to believe imports will pick up after the economy recovers given Angola's historical relationships and preference for trading with Portugal and Brazil as well as the reportedly higher price of US pork in part due to the strength of the US Dollar vis-à-vis the Brazilian Real.

COLD CHAIN SYSTEM ASSESSMENT

The cold chain refers to the logistics system used to ensure ideal storage and transportation conditions for perishable commodities from the point of origin to the point of sale. A well-developed, and efficiently-organized cold chain would include pre-cooling or freezing, cold storage at the minimum safe temperature, and refrigerated transport. A properly designed and managed cold chain reduces wastage, spoilage, and helps keep the perishables intact and safe to eat, ensuring excellent quality to the consumer.

The cold chain ensures that perishable products maintain the highest quality and are safe for human consumption. Failing to maintain product at the correct temperatures can result in a variety of negative attributes including: textural degradation, discoloring, microbial growth and loss of market and nutritional value. Moreover, a quality product leads to a satisfied customer, greater demand, and overall protection of public health. Each link within the chain, from the point at which product is harvested to the point at which it is sold, shares responsibility. Breaks in the chain may occur just as easily on a warehouse dock as they do on a supermarket floor.

This section will detail the key findings for the cold chain system in Angola looking at the existing business model and the current situation on the ground, especially as they relate to construction, management and operations of facilities, distribution and transportation. However, there are a number of components that indirectly impact a cold chain system within a country. These include human capacity, government regulations, enforcement, and the existing infrastructure, which typically covers electricity, roads, railways,

and ports. Consumer demand is also an important factor, but this was detailed in the section covering the agriculture and food systems so will not be dealt with here. In the case of Angola, drainage and sewage infrastructure is also a factor of consideration. The direct and indirect components of a complete cold chain system as they exist in Angola are detailed below.

KEY FINDINGS

Business Model

Overwhelmingly, the business model practiced by Angolan companies utilizing the cold chain is one of vertical integration. Beginning with the first company the team met with at the start of the assessment, nearly every importer had evolved to handle their own transport, repairs and maintenance, and retail. This is not uncommon across developing countries where businesses devoted to providing high quality and safe food to consumers struggle in locations with little infrastructure, expertise, or existing services, and it is the situation Angola faced after emerging from 27 years of civil war. As peace became a reality, the country's vast oil resources attracted international oil companies that brought in expatriate employees or employed the mostly highly educated, elite Angolans of the upper class. These wealthy consumers provided a willing and demanding market for safe, high quality food. For those seeking to serve this market, the only way to ensure the maintenance of the cold chain was to "do it yourself," as this enabled total control over the entire system.

Construction

Infrastructure development has experienced a surge in recent years, linked to increased revenue from high oil prices. The skyline in Luanda revealed the extent to which the city had undergone massive infrastructure developments in terms of building construction. Numerous cranes could be seen from every angle, but during the two-week assessment, the team only saw one crane actually operating. The team was told that almost all of the cranes had ceased operations at the time of the assessment due to the uncertainty surrounding crude oil prices, a sign that reflects the fragility of the infrastructure as a whole.

Figure 18: Construction begins on a new cold storage facility in Viana.

Figure 19: Highly sophisticated dry goods storage warehouse in Viana.

The construction industry that has developed over the past 10-15 years supports a range of sectors including housing, commercial, retail and civil infrastructure. At the time of this assessment, the short-term horizon is not anticipated to show growth (due to the low oil prices), but medium to long term growth for the construction sector as whole is viewed more positively. Narrowing the focus to cold chain specifically, the facilities visited were in a range of development. Some were simply cleared sites where planned construction would take place; others were completed and functioning facilities. The range of facilities

visited demonstrated that Angola has the capacity for the development of modern cold storage facilities held to world class international standards. However, not all contractors have the experience and knowledge for the cold chain, and therefore considerable care and caution should be exercised when selecting local partners.

In addition, it was noted in the section on the Food and Agriculture System that the domestic production of virtually all food is insufficient to meet domestic demand; as a result, Angola is a net importer of food. This holds true for nearly all industries, including construction. All products anticipated and required for the construction of cold storage facilities must be secured well in advance, adding an extra layer of complication or potential delays resulting from the import of these materials. It was also determined that the base cost of materials when benchmarked to other Southern African Development Community (SADC) countries, is inflated. Discussions during interviews indicated an inflation factor of three for the importation of cold storage related materials. Some of this is attributable to the high cost of transport and associated logistics; some of the materials are coming from Europe and South America as well.

Facility Management and Operations

There is some overlap with construction or design/built and cold storage operations. For example, the lack of operational best practices often leads to rapid deterioration of equipment. While equipment repair is noted above in the construction section, frequently operational practices or techniques, such as keeping the cold storage doors closed as much as possible, can reduce the wear and tear on the equipment.

The practices observed by cold storage operators ranged from passable but highly deficient to those that could be transplanted into the United States and exceed industry best practices. Most companies relied on computerized warehouse management systems, but at least one relied on paper registries. Total monthly losses were estimated – and expected – to be 10%. This average was based on prior experience.

Figure 20. The inside of a frozen warehouse with less consideration for product organization and stacking

All facilities except one utilized Freon-based systems (see explanation below), which contrasts with facilities in developed markets that primarily use ammonia. Ammonia-based systems are highly efficient applications for high and low temperatures and are considered the most environmentally friendly refrigeration system. However, it should be noted that ammonia systems have their own inherent risks and challenges including water cooling quality and supply, dangers from ammonia gas exposure risk, and a lack of specialist support and maintenance. It is a toxic refrigerant, flammable under certain conditions so safety concerns are a priority for all facilities. Currently, it is also not a universal refrigerant as it is mainly suitable for industrial and heavy commercial applications.

Chlorofluorocarbons (CFCs) and hydrofluorocarbons (HFCs) are synthetic coolants added to the compressor of air-conditioning units to help produce refrigeration. Freon is the trade name for some of the more commonly used CFC and HFC refrigerants. While these refrigerants are used on a widespread basis globally, there is a trend to reduce the installation of certain types of CFC and HFC refrigerants due to their negative impact on the environment. CFCs are of concern because they can deplete the ozone and HFCs are of concern for their global warming potential. There are dozens of refrigerant types, each with its own global warming potential.

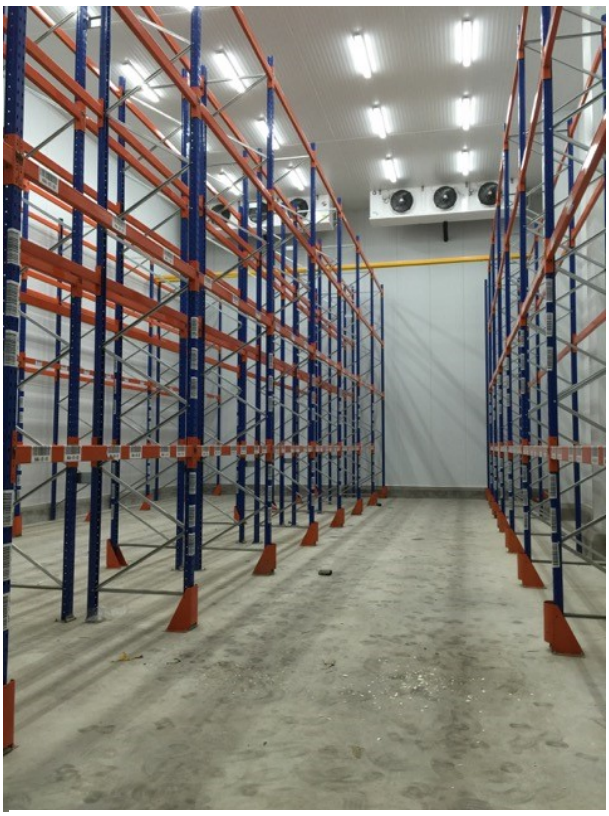


Figure 21: Racking system in place under newly-constructed ammonia-based cold storage warehouse

The refrigerant R22 is the most commonly used CFC, but is currently being phased out by many countries. According to the Montreal Protocol on Substances that Deplete the Ozone Layer, an international treaty designed to protect the ozone by phasing out harmful substances (ratified by Angola in the year 2000), refrigerant R22, is to be phased out by 2040, although specific timing depends upon the country. In the United States, no new production of R22 will occur after 2020, and no new facilities utilizing this refrigerant can be constructed. Alternative refrigerants will need to be utilized (R404, an HFC, is a common alternative). However, it is important to note that efforts are underway under the Montreal Protocol to begin phasing out HFCs with high global warming potential. Generally, switching refrigerants from CFCs to HFCs is possible, but there is some conditioning that will need to occur to ensure the new refrigerant runs smoothly. Switching from a CFC or HFC to a natural refrigerant such as ammonia is more complicated and carries a higher transition cost.

There are some benefits to Freon-based systems. They are less expensive to install and work well for small cold rooms (approximately 3,500 square meters). While many HFCs do not operate as efficiently as ammonia-based systems over the long-term, it is common for companies who are beginning to establish cold chain facilities, especially in lower-income countries, to use HFC systems due to the lower initial startup cost. When questioned about the discontinuation of CFC refrigerants like R22, some companies noted that it would not be feasible for the government to enforce a radical change so soon. With regard to the supply, it will be more difficult to source, but companies remain confident that as long as there is a demand, they will find suppliers. However, it can be expected that the cost for R22 will increase. Those companies who will be making a transition to a new refrigerant should consider the global warming potential of new alternative refrigerants so that a product is not selected that will be targeted for phase out in the near future.

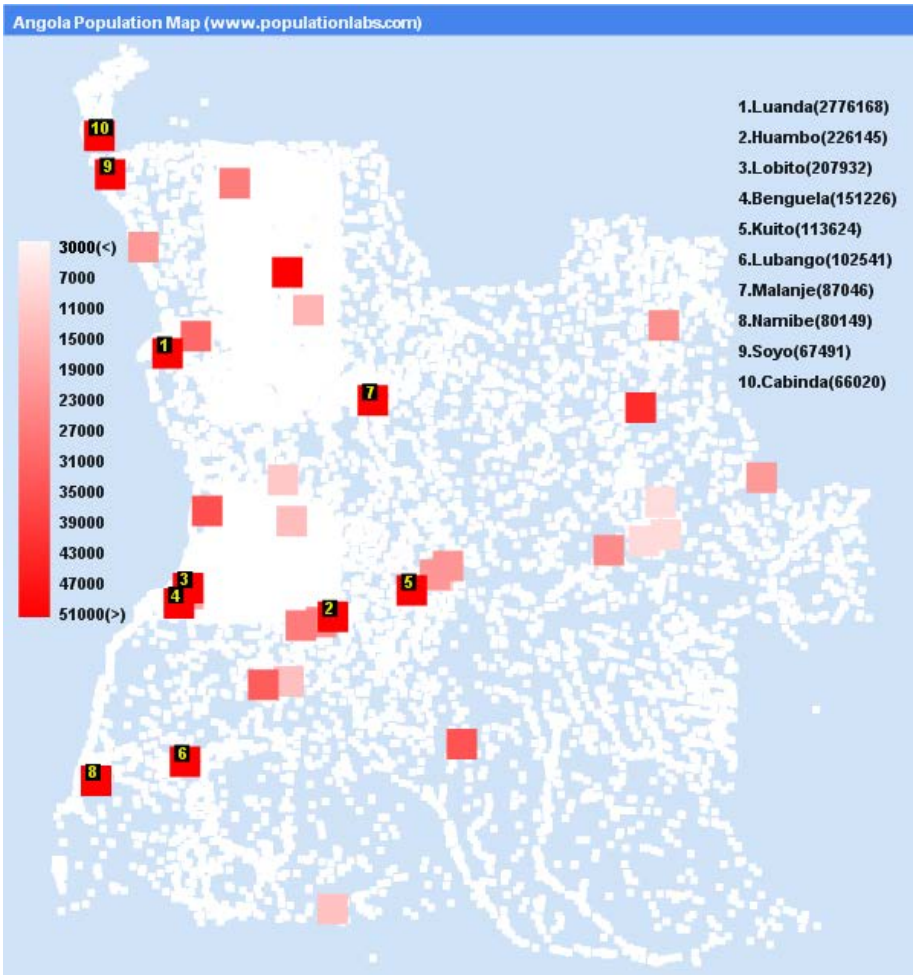
Transportation

The transportation of food via refrigerated trucks is heavily dependent on existing infrastructure, which is discussed in detail below. This section will focus on the transport practices within Angola. However, it should be noted that the assessment team did not locate any transport companies. Because the companies are so vertically integrated, they manage and own their own fleet of refrigerated trucks (and unrefrigerated trucks for dry products) of various sizes and employ their own drivers. The assessment team did not meet with any of these drivers, but the importers/retailers did not complain about driver practices, stating that the cold chain was maintained from arrival in the port until they sold it.

As expected, the cold chain is most developed in the capital, and there is little cold chain distribution into the interior. The companies that do service the populations living inland typically rely on refrigerated containers to transport products. Railways have been developed, but according to those interviewed, they

are not being used to a great extent yet. Even when the use increases, it is not efficient to transport food via rail due to low population, which translates to low consumption and thus low demand, in the interior of the country. The map below from populationlabs.com of the cities and areas with the highest population reflects how the majority of Angolans live in the west, near the coast.

Figure 22: Map of Angola Reflecting Areas with Highest Population.



Source: populationlabs.com

However, moving product successfully within Luanda and Angola will require improvements in road infrastructure, as demonstrated by Figure 23 and explained further in the infrastructure section. Fortunately, the building of the rail-lines demonstrates the government's efforts to improving the infrastructure and specifically to facilitating the planned establishment of Luanda as a logistics hub. A successful cold chain depends on efficient logistics so government support in these areas is fundamental. There are also cold chain advocates within the Angolan government, a critical requirement for a successful cold chain. The Ministry of Trade and Commerce, as well as the Ministry of Fisheries are interested in and/or actively supported the development of cold storage facilities.

Figure 23: The state of the road just outside of the Port of Luanda, a highly trafficked area for movement of product.

The government initiative to support the Central Logistics Operations Distribution (CLOD) facilities is partly an attempt to reduce the number of refrigerated trucks operating in the city. Relocating to the Angolan government owned and operated CLOD in Viana will not be an option for wholesalers as it is part of the government's intention to reduce the informal market, and to move it at the very least outside of the city center.

The Port of Luanda handles about 80% of the imported cargo coming to Angola. Seaport operations have improved considerably since 2007-2008. Some businesses reported it could take as long as 35 days for cargo to be unloaded, but now, it takes only 1-3 days, a significant improvement. In spite of this improvement, there is a need to add more reefer plugs and perhaps repair some of the non-functioning existing plugs. Before the products are unloaded, they must be sampled by Bromangol (see section on Bromangol below) and in some cases, they are also tested by the Ministry of Agriculture, although this was reported as optional.There are substantial port fees, as reported by one of the interviewees:

Table 7: Import Fees at the Port of Luanda

Fees	Prices
Plugging Fees	
Days 1-10	$150/container/day
Days 11-14	$250/container/day
Days 15-19	$350/container/day
Days 20-Onward	$400/container/day
Port Fees	
Days 1-5	Free
Days 6-Onward	$120/container/day
Trucking Fee	
If container is moved to dry terminal after 10 days, there is a tracking fee	Approximately $1,000
Demurrage	

Days 1-30	Free. Usually cleared before 30 days.

When importing meat products, the following documents must be submitted: health certificate, bill of lading for sea freight, the Conselho Nacional de Carregadores (CNCA) loading certificate (also known as the Waiver/ARC), commercial invoice, packing list, and certificate of origin. Pre-inspection certificates, which were once required, are no longer mandatory.

Human Capacity

A final area that holds enormous potential is the human capacity. Currently, all of the businesses were owned by expatriates (or "Angolans" of Lebanese, Portuguese, and Indian descent), and within these, the management positions were held by expatriates or foreign workers. Some businesses had created internal training programs and devoted substantial resources and pride into training a workforce capable of moving into higher management positions. However, an often-lamented side effect is that the newly skilled workers were hired away to better paying positions within the oil sector.

Generally, businesses found it difficult to find local Angolans trained in the maintenance and repair of general equipment; none were trained on refrigeration equipment specifically, but would apply knowledge gained elsewhere to try and repair broken items.

Figure 24. View of CLOD logistics area, taken from the roof of the main office.

Role of the Government

The second indirect component discussed during the course of this assessment included the role of the government, especially in the development of regulations and the subsequent enforcement of these regulations. Usually, these regulations spring from concerns over food safety. A common mistake with cold chain development is to assume that developing countries suffer from a lack of regulations or clarity within the existing regulations that guide the industry. What is often ignored is the enforcement of regulations, and whether or not businesses not following regulations are held accountable in a transparent manner.

Most of the businesses were aware of existing regulations, which seemed to be relatively well-respected. According to the companies interviewed, the regulations were based on Portuguese laws, and while outdated, they were considered to be easily understood. However, the government did not ensure adequate enforcement of these regulations. The areas with the most stringent application of the roles concerned the initiation of the Bromangol (see below) certificate and a recent government decision to close down the containers acting as cold stores for informal wholesalers. In the first case, the enforcement concerns were only the start of the food testing process; the results of the tests were often never revealed to the importers, and when they were, they were one to three months late. By then, the food had already been sold. In the second case, the government has recently backed down on this decision as food shortages in the country are of increasing concern. Just days before the assessment team arrived, a formal wholesale location in Cabinda had been attacked by consumers. The government is hesitant to enforce any changes that will make it more difficult for consumers to purchase food at this time.

In addition to food safety, government regulations can cover safety in the construction of facilities. Within the construction industry, there is no joint voluntary construction industry body to help guide and inform

the development of standards; such organizations are signs of mature industries. In addition, practices pertaining to safety were not often witnessed. If safety standards exist, they are not widely practiced, which leads to the conclusion that they are not widely enforced. Companies that did follow them developed or followed internal codes set by parent companies, most often in Europe.

Finally, it was reported that processing the licenses and permits for cold storage construction could take up to 365 days. Governments can do much to support and speed up this process – not sacrificing safety, but ensuring sufficient support of the development of private sector initiatives. Currently, the process is cost and time prohibitive for all but the most patient of businesses.

In Angola, there is a lot of support within the government for cold chain, which is a positive sign for future growth. The Ministry of Trade (Commerce) has emphasized cold chain specifically as a need to facilitate the growth of local industries. The CLOD facilities mentioned above were built with the support of the Ministry of Trade.

Figure 25: CLOD facilities under construction.

Figure 26: Tour of the CLOD Phase 2 facilities.

Bromangol

Bromangol is a food testing laboratory and was mentioned during every discussion with importers and distributors. There seems to be almost a mythical association with it, as when the assessment team was able to schedule a meeting, many were surprised or incredulous, as well as interested to know what was discussed. After recording the experiences of the importers and distributors, and then meeting with a large team of Bromangol food safety experts, there are two separate reports of the process and regulations, and what is actually happening is lost somewhere in the middle. Table 6 is a sample of some of the conflicting information.

Table 6: Conflicting Reports on Bromangol

Importers/Distributors	Bromangol
Owned by the President's son, Bromangol was created three years ago due to 2012 legislation stating that all goods entering Angola must be inspected. It did not specify Bromangol, but in practice, the Bromangol tests are required to clear customs.	Bromangol is a private, accredited lab that analyzes only food at the moment, but will expand to cosmetics, toys, and drugs. It started in response to legislation on food safety. The law applies to both imported and exported food, and it applies to food coming in by sea, air and road.

It is the only company with authority to inspect goods when they come out of the Port.	All of their work goes through Customs who has contracted Bromangol since July 2012
Bromangol must be present when the container is opened to test one box, and the price for this service ranges from $3,000 to $,4000 (700,000 KWZ) per container. The cost for Bromangol inspections cost $1,500-$2,000 per container. In the past it cost $1,000 to clear, but now it is $3,000-$4,000. Bromangol fees can reach up to $10,000. Collection charges $2,000 per sample, and can reach up to $10,000 depending on the value of the container and number of samples.	The money that is paid for the analysis is decided in Presidential Order 275/11 from October 28th and Finance and Commerce 190/13 from June 3rd. These are public documents. The amount paid is divided by product group. The size of the sample depends upon the quantity in the container and the number of lots. Lots are organized by product, production, and production location. When a container is mixed, they need a sample of each product. The fees are set by a Government Decree.
It is unclear what they are testing for- perhaps arsenic. The analysis for each product always looks exactly the same, so there was little faith in the results.	The lab runs microbiology tests, look for pathogens, hygiene controls, molds and bacteria. They also run chemical analysis for micro-toxins. Prior to 2012, there was no control of imported food, and products were released without any analysis. This changed in 2012 with a presidential law requiring analysis. Bromangol has a lot of confidence in the results that they send.
Technically, Bromangol should come to their facility, but in practice, if importer is leaving the port with 10 containers destined for different locations, Bromangol will have them take them all to one location for the sample, and then they distribute to the final locations. This essentially equates double transport, and increases the amount of money and time to rent the trucks to get the items out of port.	The importer is responsible for scheduling the date with Bromangol before they leave the harbor. Importers must pay in advance for the analysis, and only when they have paid can they schedule the pickup. Bromangol always travels with someone from customs or police because they cannot go alone. They do not open anything at the importer location to avoid contamination.
The analysis would take 3 months to return, but the product is already sold. After it leaves customs, it is sold within two days.	Bromangol has 15 calendar days to release the result.
There is no consistency with the report. Sometimes, they receive the certificate, but not all of the time. When it happens, it could take a week or a month. The certificate/letter comes from Bromangol, and they receive the payment directly.	Bromangol's only job is to collect and analyze samples; they do not have any interaction with the importers. Money, lab results, and certificates are handled through Customs. When a contaminant level is too high (Bromangol follows the food safety limits from CODEX), Customs is notified.
Bromangol and the Ministry of Agriculture require laboratory tests. The MOA charges $300/container. The Bromangol test results take a long time, but the Ministry of Agriculture take a week or less.	There are other labs that do testing from the Ministry of Agriculture and Fisheries. They have other purposes outside of food safety

Source: Interviews.

As evidenced above, there is a large amount of misunderstanding and misinformation between Bromangol and the importers. This results in efficiencies within the distribution system for cold and dry products.

Infrastructure

In spite of massive improvements over the past 10-15 years including functioning ports, the completion of railways, government investment in cold storage facilities, projects to better develop the roads, the country is in massive need of additional improvements including water treatment, sewage and drainage, roads, and electricity remain problematic. Most of the warehouses and logistics centers, including the Central Logistics Operations Distribution center (CLOD) built and operated by the government, are located in Viana. The assessment team visited Viana multiple times throughout the course of the two weeks and witnessed the normal state of traffic. The water in the photo below, exacerbated by rain, was reported to be a regular occurrence on the drive from Luanda to Viana, resulting in lengthy delays to travel the 30 kilometer trip. The assessment team attempted to visit the local wet market at Kilometer 30 one Saturday, and eventually turned around after 2 hours. The high frequency of flooding around Luanda caused by inadequate drainage systems is one area in need of improvement.

Figure 27: Flooding on road to wet market.

Figure 28: Wet Market at Kilometer 30.

The drainage system is not the only problematic area concerning water. A quality potable water supply is key to refrigeration systems. Some businesses had their own water treatment processes installed; others encountered regular wear and tear attributed to the low quality water supply.

The roads themselves, while recognized as a problem that needs addressing, remain an issue that must be mentioned in this assessment. The impact of bad roads on the cold chain results in a number of problems. Poorly maintained roads increase the amount of time drivers travel between locations, which increases the cost of running a refrigerated truck. They also increase the amount of maintenance that must be completed on refrigerated trucks. Finally, they increase the risk for damage to products, especially those that are not packaged, packed or braced properly inside the vehicle.

Figure 29: Massive flooding on road to Viana – view from passenger side window.

Figure 30: Massive flooding on road to Viana – view from front window.

Finally, all businesses and even government officials cited electricity as one of the main challenges for the cold chain. Frequent (daily) outages have led to a dependence on generators. This necessary cost of business is extensive with high capital costs (the generator itself) and operating expenses (diesel and maintenance). The cost of running generators has increased recently in spite of the lower oil prices worldwide because the government has removed subsides that previously existed for fuel. Equally constraining is the inconsistent voltage. Several businesses complained of equipment failures and breakdowns that resulted from sudden surges in the electrical voltage. Repair and replacement of needed parts further added to the cost of running a cold chain, especially as the services and parts are not always readily available in Luanda, and in some cases may not exist at all. On the positive side, it was mentioned that the government is building additional facilities that will generate considerable increased megawatts by 2017. If this is successful, it will add considerable relief to businesses and consumers alike.

SWOT ANALYSIS

Similar to the SWOT analysis completed for the food and agriculture system, an analysis was performed of the current cold chain system, examining Angola's internal strengths and weaknesses as well as the external threats and opportunities. Table 8 summarizes this information.

Table 8: SWOT Analysis Table of Angolan Cold Chain System

	Helpful to achieving the objective	**Harmful** to achieving the objective
Internal origin (attributes of the system)	***Strengths*** • Large labor supply • Strong Angolan Government interest in expanding modern cold storage facilities • Some very modern, vertically integrated wholesale storage facilities in major cities • Modern supermarkets & retailers in most major cities using good cold storage practices • Little enforcement of regulations concerning food safety and general safety practices	***Weaknesses*** • Labor supply is unskilled and there is a lack of domestic labor for management and supervisory positions • Road & rail infrastructure is limited/roads not well maintained • Extremely congested traffic in and around Luanda • Poor water drainage system in Luanda cause floods that exacerbate traffic congestion during rainy season • Most machinery, equipment & parts must be imported for construction and maintenance • Limited foreign currency for paying expats & imports • Inefficient food distribution from smallholder farms to wholesale/retail markets • Lack of modern cold storage facilities outside of major cities • Unreliable power from public electrical grid • Must have diesel powered generators on stand-by 100% of the time • Virtually no 3rd party logistics providers • Declining value of local currency (Kwanza vis-à-vis U.S. dollar)
External origin (attributes of the environment)	***Opportunities*** • Angolan Government (CLOD) investment in large wholesale dry and cold storage facilities near location of future Luanda airport • Railway systems recently improved • Opportunities for export and transshipment of imports to nearby countries, e.g., Congo, Zambia, and Namibia • Future new airport and seaport located away from highly congested Luanda city traffic • Potential market for skilled 3PLs • Recent formation of retailer association (ECODEMA) • Existing businesses are interested in sharing information and collaboration • Local Angolan businesses are looking for partnerships with American/international businesses • Wide receptivity to training and information	***Threats*** • Continued reliance on oil revenue for foreign currency in the short to medium term • Limited investment interest by foreign investors due to financial and structural constraints and regulations • At risk for insecurity caused by decrease in imports/reduction in food supply

OPPORTUNITIES FOR GLOBAL COLD CHAIN ALLIANCE AND U.S. COMPANIES

Training

The greatest opportunity for the GCCA and WFLO is the provision of much-needed training. An often-cited area of need was in the basic refrigeration engineering for the repair and maintenance of expensive refrigeration equipment. Observations from the facilities demonstrated that much could also be achieved from training in basic cold storage operations and techniques that enhance the functioning of a warehouse to achieve its optimum efficiency and enable the equipment to perform as it was designed. US companies who are members or affiliates of the GCCA can also benefit from this opportunity. GCCA is unique in its capacity to engage private sector members to participate in international development through the WFLO. Those companies and entities interested in the Angolan market can assist with training, providing first-hand knowledge and connections.

Cold Chain Expansion

There is a market for cold chain companies to move into Luanda, especially as franchises expand. Beginning with suppliers of cold chain equipment and materials, there are companies currently operating and expanding cold storage businesses in need of equipment and materials. Traditional or existing relationships based on historical ties or preferences (e.g., Portuguese businesses purchasing from the European markets), will hinder market entry, but US suppliers willing to invest the time and energy into establishing and building these relationships will have access to a large and growing market. This is especially true as new facilities are gaining in sophistication. There may be room for entry based on the high quality of the products. US-Angola visits would facilitate the networking needed to displace preexisting relationships or preferences.

Additionally, although the one large 3PL serviced only one client, the company was negotiating additional contracts with at least two companies in Brazil, and had just completed an expansion of high-class cold storage facilities, signaling strong growth. 3PLs within the United States have opportunities to expand into this market, although market entrance is difficult and will require massive local assistance and a reliable local partner. This assessment identified potential local partners who can facilitate this process.

Association Development

The retail sector has recently united to form an association called ECODIMA. This provides an opportunity for GCCA to work with the nascent organization, both on cold chain technical information and association strengthening. Frequently, GCCA has found that local associations are formed with intentions to provide services, but in reality are not staffed or staffed with technical experts who have no focus on member services and retention. Individuals do not join the association because the association does not do anything, and the association cannot host events because they do not have revenue. GCCA has experience working with nascent organizations in developing countries to meet this challenge. Association strengthening is a core competency of the organization, and therefore, the existence of a retail association, however new, presents an opportunity for GCCA to work to support and strengthen this organization through mentoring.

A strong retail association through ECODIMA provides excellent potential for a platform to advocate for cold chain development. Meetings with the Department of Trade in Luanda and Washington, DC revealed a strong interest for support in this sector. The Angolan government has already invested funds into the CLOD facilities, which are currently under expansion. However, most companies did not interact regularly with the government and confusion on practices and procedures resulted in efficiencies (see Table 6 on Bromangol for an example). ECODIMA could serve as the industry's collective voice to the government, providing them with recommendations to develop the cold chain.

KEY CONCLUSIONS

Angola possesses favorable resources for supporting a strong agriculture sector but currently is not producing near its full potential. Although there are opportunities for investment in crop, poultry, and livestock production – and some local companies are expanding or starting new operations – the increased production will not be enough to meet demand or even to have any significant impact on the volume of food that is currently being imported now or in the next five years or more. Likewise, it is not likely that there will be much foreign investment in agriculture due to financial and infrastructure constraints including the need to import most inputs and the difficulty or risks involved in being able to convert kwanza profits into hard currency. For many of the same reasons it is unlikely that there will be much new investment by international restaurant franchises beyond Yum brand's eight KFC stores and one Pizza Hut.

For these reasons, Angola will continue to import at least 50 percent of its food in the short (five years) to medium (10 years) term. Key conclusions are highlighted in bold below.

With regard to fresh and frozen food supply and distribution, domestic food production will not be able to meet consumer demand over at least the next five years or more so imports will continue to be critical. This has three important implications for US-based exporters.

1. Angola will continue to import virtually all of its poultry and pork (in frozen form) and most of its beef (mostly frozen) over the next five years.
    - The U.S. will likely continue to dominate frozen poultry imports with low priced chicken leg quarters;
    - Non-U.S. suppliers (Brazil, India and Portugal) will dominate frozen beef and pork imports but the US should continue to supply the niche for premium beef cuts for the hotel and restaurant sector, although the economic downturn will have a greater impact on these higher priced US imports.
2. Angola will continue to import most of its fresh and frozen fruits and vegetables. South Africa and Portugal will likely continue to dominate in this sector over the next five years unless and until US quick service restaurants franchises start investing and opening stores in Angola in which case they may start importing US frozen potatoes/fries.
3. Domestic egg production will likely increase over the next five years so opportunities for imports will continue to be limited.

All food imports will continue to fall in the near term until the price of crude oil starts to rise and dollars from oil generated export revenue increases. This means that food imports will not likely return to pre-crisis levels in the short-term unless and until the price of oil reaches at least $50-60 per barrel. As a result, Angola may have to deal with social unrest challenges very soon if the current economic situation does not improve. Another solution might be hard currency loans from the IMF or the use of corresponding banks in Europe to arrange payments to overseas suppliers since Angola is currently "blacklisted" by some U.S. banks that have not received payments from Angolan banks.

The current food distribution business model will continue over at least the next five years or more but there may be some opportunities for more 3PL providers once the economy recovers.

The construction industry in Angola is well-established and, in spite of the current downsizing due to the global economy, it is well positioned to support growth in the cold chain sector when the global market situation improves. Although, this should be considered in conjunction with additional challenges that hinder development, the constraints are not a long-term hindrance for the construction of cold storage facilities; they can be overcome with effective training, as well as focused design, planning, and execution of projects during the conception stage that takes these challenges into consideration to mitigate the impact.

That said, there is a huge need for training targeting a number of areas, including construction of facilities as mentioned above, as well as management, operations, and targeted refrigeration equipment repair and maintenance. Business management training would target middle-upper tier workers with some education and a demonstrated ability to deliver for their employer and focus on running a profitable cold storage business. Second, unskilled and uneducated workers need training in basic operational practices that enhance the cold chain and ensure there are no broken links. This training will go a long way to reducing the need for the third training opportunity, which is on refrigerated equipment repair. This need is especially apparent as more and more expatriates depart Luanda due to the inability of their employees to make salary payments in dollars.

The current cold chains that exist in Angola are discrete systems that do not operate in unison. This vertically integrated system is highly inefficient and detracts from the ability of businesses to focus on their core competencies. Provided the range of facilities visited, the ability for Luanda to construct and support world class facilities has already been demonstrated.

Cold chain systems have a long future for Angola. The country will struggle in the short term in the face of lower oil prices and in the lack of development of local industries to diversify the economy. In spite of this, the country has demonstrated a vast consumer demand for frozen products. In addition, the government of Angola has recognized the importance of cold chain, and there are advocates in particular Angolan Government Ministries. While much remains to be done on food safety and regulatory/law enforcement, this recent recognition of the importance of the cold chain will greatly facilitate those businesses interested in working in the cold chain industry.

RECOMMENDATIONS

Increase the number of US/Angolan business exchanges for cold chain expos and events. The team met local Angolan companies interested in cold chain opportunities who could benefit from expertise on how best to grow the industry. There also represents an opportunity for US-based suppliers of cold chain equipment and materials to access a new market. It is recommended to consider sponsoring key fresh and frozen importer/distributor representatives to trade events within the United States, such as the Global Cold Chain Expo in Chicago during the month of June (in 2016, this event will be held June 20-22, 2016). Food buyers were also interested in additional connections to source US products. US poultry and beef Cooperators may also want to consider sponsoring importers to international expos and other events**.** Although language is often presented as a barrier, at the CEO or executive level, this does not pose a problem.

The Government of Angola should consider additional policies to support the development of the cold chain. The Government of Angola may consider policies designed to stimulate and enable cold chain businesses to thrive such as energy subsidies, access to affordable credit, or access to climate offsets. Many governments, including India and Turkey have created policies to enable cold chain businesses to establish and grow. In some cases, this includes subsidies and tax breaks, but could also include facilitating the process by which companies are able to bring in the equipment necessary for the cold chain. Such policies could be particularly beneficial to coincide with the Government's recent and ongoing investments into infrastructure for energy and roads, which should continue and might be supplemented by funding to support climate change initiatives for eco-friendly and energy-efficient systems that reduce the environmental impact of refrigeration.

Conduct WFLO Cold Chain Management Training in Angola using GCCA affiliate, ABIAF. The GCCA's research, education and training arm, the WFLO, has developed extensive and proven training

courses on the management and operations of cold chain facilities. As reported during the interviews, these needs are diverse, and it is recommended that the GCCA conduct appropriate training in Angola during the 3rd or 4th quarter of 2016. GCCA should identify and work with one or more potential local partners in Angola to assist with in-country training arrangements and co-sponsorship. The Angolan Ministry of Trade and Commerce might be a possibility. There are also technical training schools, which do not provide the relevant and requested training at this stage, but could be explored as a potential partnership to instill local capacity for conducting additional training in the future.

Utilizing the cold chain training skills of GCCA affiliate, ABIAF, to provide in-country training to alleviate the need for translation. The GCCA will need to translate cold chain training modules based on the specific opportunities and weaknesses in the country, and should locate Portuguese speaking trainers to ensure content is not lost during translation. This should be coordinated with the Brazilian affiliate organization, ABIAF. Specific modules pertaining to basic operations management and preventative maintenance will be tailored to the Angolan context and translated. The training itself should utilize the services of local individuals, such as Mr. Afonso Neves, who assisted the team with translation, and has now gained some understanding of the cold chain industry.

Delivery of this basic training for cold chain management could also lay the foundation for skills that could support the establishment of additional 3PLs to grow with the market – and more importantly, without relying on the long-term hiring of expatriate managers. Such training may be delivered in the second phase of this USDA program as a one-off exercise. However, it working in partnership with local organizations could enable training to be delivered more frequently so that the skills are sharpened.

Focus infrastructure efforts on improving water drainage systems within Luanda and on road rehabilitation to move product into the interior. Although the Government of Angola has focused on rebuilding the railroad network throughout the country, and has been attempting to stop the operations of cold rooms in containers, additional support is required to assist companies in this transition. The amount of freight required to send products into the interior or for export to the DRC is too large for the current demand and population needs for rail to be cost-effective. For this reason, the government should continue to support infrastructure, but should focus on efforts that would support the trucking industry such as effective drainage that reduces flooding in Luanda and the rehabilitation of roads that extend from the western coast to the East.

Develop a relationship with the ECODIMA, the new retail association to assist in strengthening organization. Where most projects consider sustainability, GCCA has a vested interest in developing and advancing the cold chain globally as strengthening the cold chain increases the GCCA membership base and facilitates the shipment and handling of greater volumes of US perishable food exports. For this reason, the GCCA should attempt to coordinate with the new retail association to find ways in which this newly formed organization can benefit its membership and look for ways in which it might be an advocate for cold chain services and US food export programs and information.

In addition, strong associations serve a vital role in informing the government about industry challenges and needs. ECODIMA could be this voice to the government as Angola works to support the growth of cold chain. Working with the private sector to understand the challenges would serve to strengthen the public sector's own cold chain projects and has greater potential to result in government policies and regulations that support cold chain growth.

US Cooperators should maintain contact during period of economic difficulty. USAPEEC's and USMEF's representatives and the FAS representative in Angola should keep in contact with Angolan buyers and be ready to assist them as needed when the economy improves and the world price of crude oil goes up to the $50-60 range. Although the prices were around $29/barrel during the assessment, at the time

of this report's submission, they had risen to $48/barrel. Where possible, the US Embassy should support the establishment of new contacts with American suppliers.

ANNEX A: COUNTRY REFERENCE MATERIALS

U.S. Exports of Agricultural & Related Products to "Angola"
CY 2009 - 2015
(in millions of dollars+)

Export Market: "Angola"

Product	Calendar Years (Jan-Dec) 2009	2010	2011	2012	2013	2014	2015	% Change 2014-15
Bulk Total	2.0	7.8	6.6	7.0	12.0	10.9	4.2	-61.6
Wheat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Corn	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Rice	0.0	0.0	0.2	0.0	0.1	0.2	0.1	-14.0
Cotton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Pulses	2.0	7.7	6.3	6.8	11.7	10.6	4.0	-62.7
Tobacco	0.0	0.0	0.1	0.0	0.0	0.0	0.0	-
Other Bulk Commodities	0.0	0.0	0.1	0.1	0.1	0.1	0.1	-13.4
Intermediate Total	6.0	5.6	2.4	15.1	4.3	3.5	4.3	24.2
Soybean Meal	0.0	0.0	0.0	0.0	0.0	0.0	0.2*	-
Soybean Oil	3.0	2.7	0.0	0.0	0.0	0.0	0.0	-
Vegetable Oils (ex. soybean)	0.0	0.3	0.1	0.4	0.7	0.1	0.1	61.5
Animal Fats	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Live Animals	0.0	0.0	0.0	8.3*	0.0	0.0	0.0	-
Feeds & Fodders NESOI	0.0	0.0	0.0	0.0	0.0	0.2	0.2	27.5
Planting Seeds	0.0	0.0	0.1	0.1	0.0	0.0	0.6	-
Sugar, Sweeteners, Bev. Bases	2.0*	0.0	0.1	0.0	0.0	0.0	0.3	-
Other Intermediate Products	1.0	2.6	2.1	6.3	3.6	3.2	2.9	-9.2
Consumer Oriented Total	71.0	160.5	218.1	242.9	254.7	283.7*	119.6	-57.9
Beef & Beef Products	6.0	9.4	22.8*	13.7	13.4	15.2	6.6	-56.4
Pork & Pork Products	2.0	2.2	1.7	0.9	0.5	0.1	0.0	-
Poultry Meat & Prods. (ex. eggs)	59.0	140.2	184.3	218.7	235.5	263.1*	108.6	-58.7
Meat Products NESOI	0.0	0.1	0.0	0.1	0.1	0.1	0.0	-89.1
Eggs & Products	0.0	0.0	0.0	3.3*	0.0	0.0	0.0	-
Dairy Products	0.0	0.0	0.2	0.0	0.0	0.0	0.0	43.0
Fresh Fruit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Processed Fruit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Fresh Vegetables	0.0	0.0	0.0	0.0	0.1	0.0	0.1*	-
Processed Vegetables	0.0	0.0	1.3*	0.1	0.1	0.0	0.0	-
Fruit & Vegetable Juices	0.0	0.0	0.0	0.0	0.0	0.1	0.0	-
Tree Nuts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Chocolate & Cocoa Products	0.0*	0.0	0.0	0.0	0.0	0.0	0.0	-
Snack Foods NESOI	0.0	0.0	0.1	0.0	0.0	0.1	0.1	-50.5
Breakfast Cereals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	85.4
Condiments & Sauces	0.0	0.0	0.0	0.1	0.4*	0.4	0.0	-94.3
Prepared Food	4.0	8.6	7.3	5.4	4.4	3.7	4.0	9.0
Wine & Beer	0.0	0.0	0.1	0.1	0.1	0.8*	0.0	-
Non-Alcoholic Bev. (ex. juices)	0.0	0.0	0.0	0.0	0.1	0.0	0.1	245.2
Other Consumer Oriented	0.0	0.0	0.1	0.4	0.0	0.0	0.0	-
Agricultural Related Products	1.0	0.5	3.0	3.2*	0.4	1.1	0.4	-65.9
Distilled Spirits	0.0	0.0	2.6	2.7*	0.0	0.1	0.1	-28.0
Ethanol (non-bev.)	0.0	0.0	0.0	0.0	0.0*	0.0	0.0	-
Biodiesel & Blends > B30	0.0	0.0	0.0	0.0	0.0	0.0	0.0*	-
Forest Products	1.0	0.5	0.4	0.5	0.3	0.7	0.2	-72.0
Fish Products	0.0	0.0	0.0	0.0	0.0	0.2	0.1	-73.0
Agricultural Products	79.0	173.8	227.1	264.9	271.0	298.0*	128.0	-57.0
Agricultural & Related Products	80.0	174.3	230.1	268.1	271.4	299.1*	128.4	-57.1

Prepared By: Global Policy Analysis Division/OGA/FAS/USDA
Source: U.S. Census Bureau Trade Data
* Denote Highest Export Levels Since at Least CY 1970
+Values of $0.05 million or more are rounded to $0.1 million
www.fas.usda.gov/GATS
GATSHelp@fas.usda.gov
Biodiesel aggregate includes only higher-level and pure biodiesel HTS chapter 38 codes; biodiesel blends below 30% by volume (aka. petroleum oils containing biodiesel) found in chapter 27 are excluded.

Angola

Agricultural Economic Fact Sheet

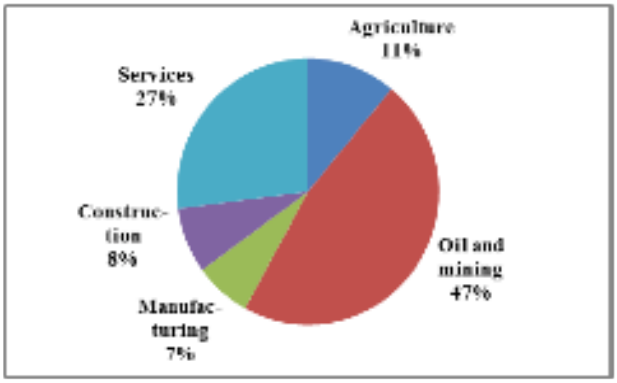
Foreign Agricultural Service
United States Embassy in Angola
(updated May 2015)

General

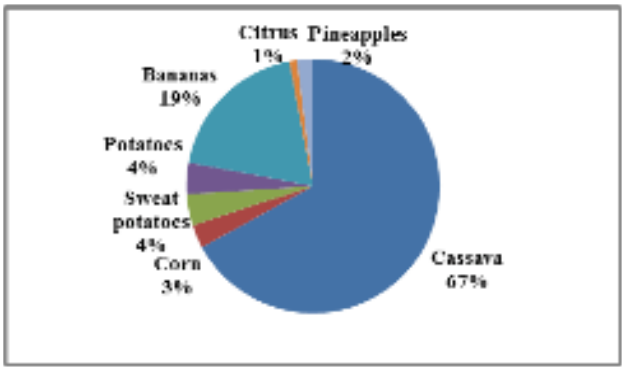
- Angola is **Africa's fifth largest economy** after Nigeria, South Africa, Egypt and Algeria, with oil production the main contributor to the economy.
- Angola is the **world's 15th largest oil producer** and the second largest in Africa after Nigeria.
- **Crude oil represented 97% of Angola's total exports** of US$77 billion in 2014.
- **Agriculture** accounts for **11% of** Angola's US$129 billion **GDP.**
- Angola has the **resources to be one of the leading agricultural countries in Africa** as its diverse and fertile ecology can host a variety of crops and livestock.
- Currently, **Angola only cultivates 8% of** its 58 million hectares **agricultural land available**.
- An estimated 90% of farms in Angola are small to medium in size and are used mainly in communal ways for **subsistence farming**.
- Prior to the 1975-2002 civil war, **Angola was a major exporter** of coffee, sisal, sugar cane, banana and cotton, **and self-sufficient** in all food crops except wheat. The civil war disrupted agricultural production and displaced millions of people.
- Angola currently **imports more than half of its food**, with some estimates putting the figure as high as 90%.
- Angola is **United States' fifth largest market for poultry products** in the world, and the third largest market in Africa for all agricultural exports.

Economic Facts	2012	2013	2014
GDP at current prices (billions)	$115	$124	$129
GDP/capita	$5,018	$5,245	$5,273
Real GDP growth	5.2%	6.8%	4.2%
Ag % of GDP	10%	11%	11%
Total Population (million)	23	24	24
Inflation	10.3%	8.8%	7.5%
Unemployment rate	26%	26%	26%
Average exchange rate	Kz95/$1	Kz96/$1	Kz100/$1

Composition of the Economy:



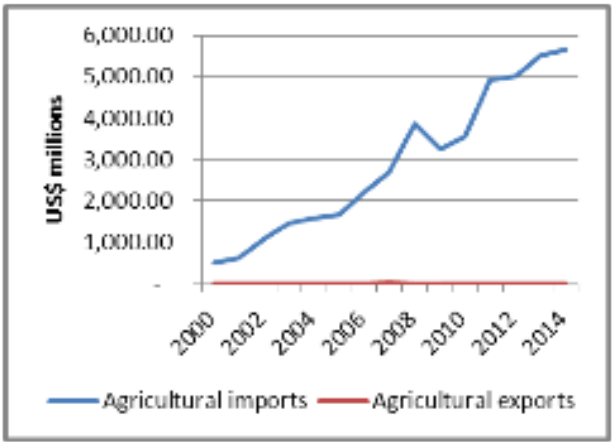
Top Produced Crops (tons):



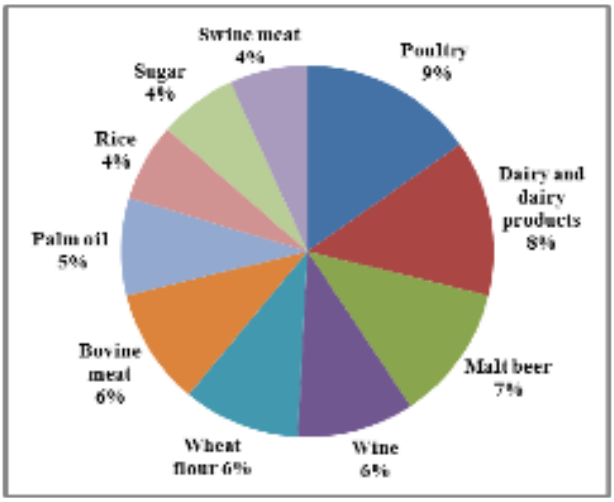
Agricultural Trade

	2012	2013	2014
Agricultural exports (millions)	$3.8	$3.2	$3.5
% of total Angola exports	0.0%	0.0%	0.0%
Agricultural imports (millions)	$5,015	$5,506	$5,645
% of total Angola imports	17.2%	18.3%	16.5%

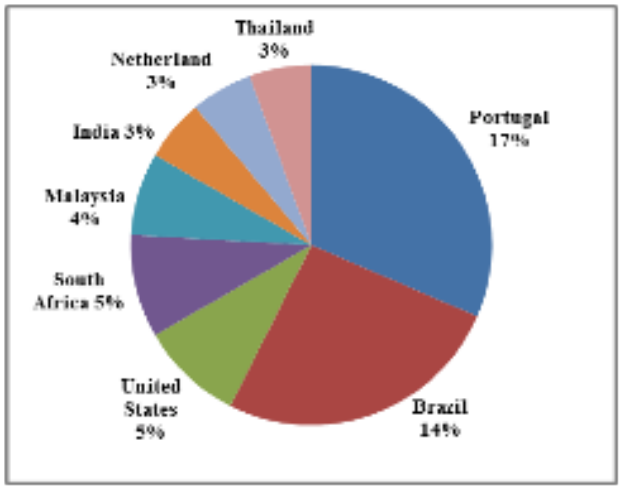
Trends in Angola's Agricultural Trade:



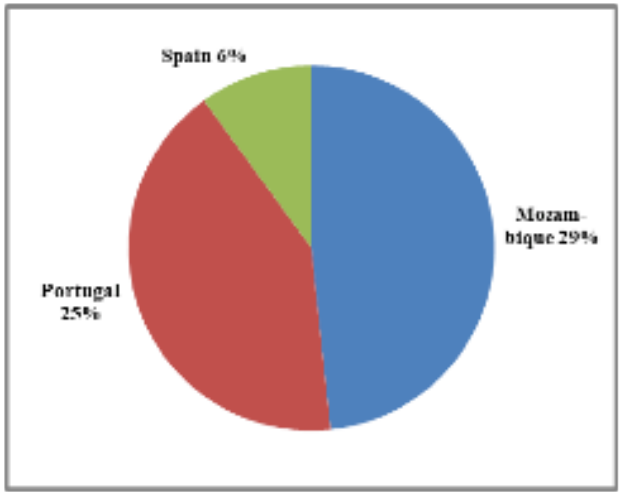
Major Agricultural Products Imported:



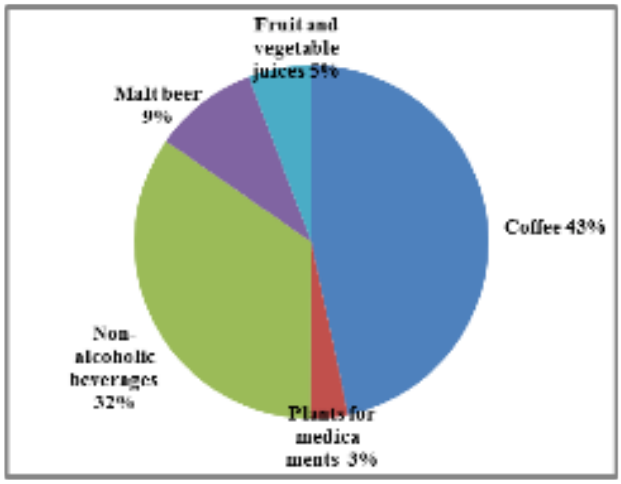
Major Agricultural Import Countries:



Major Agricultural Export Destinations:



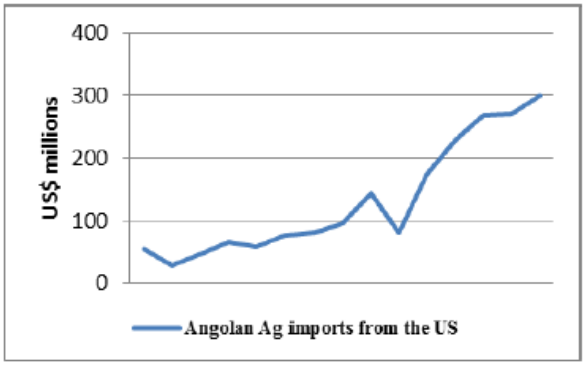
Major Agricultural Products Exported:



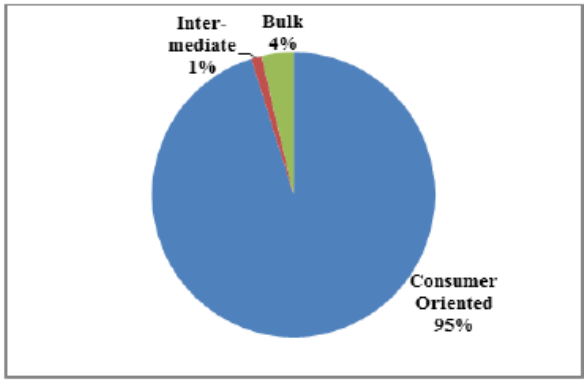
US – Angola Agricultural Trade

(US$ millions)	2012	2013	2014
Angola ag exports to US	$0	$0	$0
Angola ag imports from US	$265	$271	$299

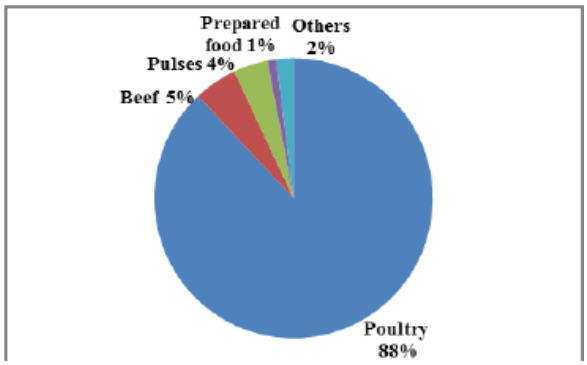
Trends in the US-Angola Agricultural Trade:



Categories of Ag Products Imported from the US:



Major Ag Products Imported from the US:




ANGOLA
0 km 75 150 225 km
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National Capital (2,550,000 in 99)
over 400,000
over 100,000
over 50,000
other main city
other city
Chief town of province
Loubomo (Dolisie)
Brazzaville
Kinshasa
Pointe-Noire
Cabinda
Banana
Matadi
ZAIRE
M'banza Congo
UIGE
LUANDA
Caxito
CUANZA NORTE
N'dalatando
MALANGE
Malange
LUNDA NORTE
Lunda Plateau
Lucapa
Saurimo
LUNDA SUL
BENGO
CUANZA SUL
Sumbe
SOUTH ATLANTIC OCEAN
Lobito
Benguela
Huambo
HUAMBO
BIE
Kuito
MOXICO
Luena
BENGUELA
HUILA
Lubango
Namibe
NAMIBE
CUNENE
Ondjiva
CUANDO CUBANGO
Menongue
ZAMBIA
Mongu
Oshakati
Rundu
Ponta das Palmeirinhas
Baía do Bengo
Cabo de São Bráz
Ponta das Salinas
Cabo de Santa Maria
Cabo de Santa Marta
Serra do Congo
Serra Chilengue
Serra da Chela
Bié Plateau
Zambeze
ezilon.com

ANNEX B: FOOD RETAILERS IN ANGOLA

Retailing Landscape in Angola	
Company	**Outlets**
Nosso Super (Nova Rede de Supermercados de Angola will be managed by Kero)	28
Shoprite and Usave (South African Shoprite)	17
Maxi Cash & Carry (Teixeira Duarte)	14
Kero Hypermarket (Zahara Group)	11
Casa dos Frescos (Casa dos Frescos Group)	9
Mega Cash & Carry (Refriango Group)	1
Jumbo (Aunchan Group)	1
Mazarati (Group Dimassaba)	1
Deskontão (Jeronimo Martins group)	1
AngoMart (Sanzi group) *	4
Alimenta Angola	2
MEL	1
MARTAL	2
Cabire (SODOSA group)	1
InterMarket (Italian Group)	2
TAKI (NDAD group)	2
TOTAL	**97**

Source: U.S. Agricultural Affairs Office, Luanda, Angola

***** Estimated

ANNEX C: IN-COUNTRY ASSESSMENT ITINERARY

Trip Name: Angola EMP
Location: Luanda, Angola
Dates: Feb. 7-20, 2016

DATE AND TIME	EVENT	LOCATION/LOGISTICS
Arrival: Sunday, Feb. 7th, 2016		
12:20	Martin Lands at Airport	LAD Airport
12:20-14:00	Arrivals/Transit to hotel	Transit
14:00	Arrival at Hotel Skyna	Hotel Skyna Rua de Portugal, nº 29. Luanda, Angola (+244) 222 670 900
19:20	Amanda & Kent Land at Airport	LAD Airport
19:20-21:00	Arrivals/Transit to hotel	Transit
21:00	Arrival at Hotel Skyna	Hotel Skyna
21:00	Meet with Martin	Hotel Skyna
Day 1: Monday, Feb. 8th, 2016		
6:25	Fabio lands at airport	LAD Airport
6:25-8:00	Arrivals/Transit to hotel	Transit
8:00	Arrival at Hotel Skyna	Hotel Skyna
8:00-9:00	Breakfast	Hotel Skyna
8:30-9:00	Meet with Interpreter	Hotel Skyna
9:00	Depart for Mokbel	Transit
10:00-12:30	Meeting with Elissa Mokbel, Mokbel International Trading, Lda	Via AL10, Talatona, Luanda, Angola + 244 949 512792 + 244 992 020270
12:30-13:00	Transit to Hotel Skyna	40 Mins Without Traffic
12:30-13:30	Lunch	Hotel Skyna
13:30-15:00	Meeting with Ricardo Dias, FAS/Embassy	Hotel Skyna
15:30-16:15	Transit to Jumbo Supermarket	Transit
16:15-17:00	Jumbo Supermarket Visit, Unaccompanied	Jumbo
17:00-17:30	Transit to Hotel Skyna	Transit
19:00	Dinner	Hotel Skyna
Day 2: Tuesday, Feb. 9th, 2016		
7:30-8:00	Breakfast	Hotel Skyna
8:00-9:00	Transit to Newaco	Transit
9:00-15:30	Meeting with Prayesh Lalani, COO of Newaco	Rua Major Kanhangulo No.145/147, Appt192, 2 Andar, Bairolngombota, Luanda 00244 938 210 786

15:30-16:30	Transit to Hotel	Transit
19:00	Dinner	Hotel Skyna
Day 3: Wednesday, Feb. 10th, 2016		
7:30-8:00 AM	Breakfast	Hotel Skyna
8:00-9:00	Transit to Casa dos Frescos	Transit
9:00-10:00	Meeting with Rui Catalo, General Manager, Casa dos Frescos	Av. 21 de Janeiro 00244 945 103 222
10:30-11:00	Transit to Ango Rayan	Transit
11:00-12:00	Meeting with Ali Aidibi and Mr. Roberto, General Manager, Ango Rayan	Ango Rayan Group Rua Eugenio de Castro, No.27, Vila Alice Luanda, Angola Mobile: +244 923760760
12:00-12:30	Transit to Lunch	TBD
12:30-13:30	Lunch at Maxi Supermercado	Transit
13:30-16:00	Meeting with Hugo Santos, General Director of Distribution, Maxi Supermercado.	Ph: 222 006 104/944 884 655 Email: morrobento@maxi.co.ao Address: Rua De Castro Pedro Van-Dunem "Loy", Morro Bento LUANDA SUL
16:00-17:00	Transit to Hotel Skyna	Transit
18:00	Dinner	Lookal Mar
Day 4: Thursday, Feb. 11th, 2016		
7:30-8:00	Breakfast	Hotel Skyna
8:45-9:40	Transit to Cabire Group	Transit
9:40-11:00	Meeting with Tony Soares, General Manager, Cabire Group	tonysoares.cabire@gmail.com
11:00-11:30	Transit to Port of Luanda	Transit
11:30-12:00	Transit to Hotel	Transit
13:00-14:00	Lunch	Hotel Skyna
14:00-14:40	Meeting with Hotel Skyna, Director of Food and Beverages	Hotel Skyna
14:40-15:00	Transit to MSC (Navegacao Logistica e Servicos Maritimos LDA)	Transit
15:00-16:30	Meeting with Angshuman Mitra Mustafi, MSC	43 - 5A e 5B, Rua Guilherme Pereira Ingles, Edificio Ingombotas, Luanda, Angola Ph: T: +244 222882872 M: +244 936676619 Email: Info AOLAD <info@mscao.mscgva.ch>
16:30-17:00	Transit to Cabire Group Cold Storage Site	Transit
17:00-18:00	Facility Tour with Cabire Group Cold Storage Site	Cabire Cold Storage
18:00-18:30	Transit to Hotel Skyna	Transit

19:00	Dinner	Hotel Skyna
Day 5: Friday, Feb. 12th, 2016		
7:30-8:00	Breakfast	Hotel Skyna
8:00-9:30	Transit to Bromangol	Transit
9:30-10:30	Meeting with Dr. Maria Paula, Bromangol	Rua Moisés Cardoso Camy ,69/6º andar, Bairro Ingombotas, Maianga / UF: Luanda, Angola Phone: 931 749 036
10:30-11:45	Transit	Transit
11:45-13:00	Meeting with Alberto Pereira, Director of Logistics, Zahara Kero	Estrada De catete KM 28 – ZEE Viana, Edifício GP4
13:00-13:30	Transit to Cold Storage Site organized by Casa dos Frescos	Viana
13:30-15:30	Tour of Three Facilities (Casos dos Frescos, Adsil, and a Catering Processing Plant	Viana
15:30-16:30	Transit to Hotel	Transit
18:00	Dinner	Casa de 4
Day 6: Saturday, Feb. 13th, 2016 (Possible Day Trip)		
8:00-8:30	Breakfast	Hotel Skyna
8:30-9:00	Transit to Mansa	Transit
9:00-11:00	Meeting with Sunil Kumar, Mansa Importação & Exportação	Near to Hotel. Call and he will explain directions.
11:00-13:30	Attempt to visit Vegetable Market	Transit
13:30-15:00	Lunch	Realto
19:30	Dinner	Hotel Skyna
Day 7: Sunday Feb. 14th, 2016 (Notes, Analysis, Report Drafting)		
18:00-19:30	Dinner	Epic Sana Hotel Restaurant
Day 8: Monday, Feb. 15th, 2016		
7:30-8:00	Breakfast	Hotel Skyna
8:00-9:00	Transit to AgroLider	Transit
9:00-11:00	Meeting with Jose Macedo, AgroLider	Riua to Hotel Costa du So.
11:00-11:30	Transit to KFC	Transit
11:30-12:00	Discussion with KFC Manager	KFC
12:00-12:30	Transit to Hotel Skyna	Transit
12:30-14:30	Lunch/Meeting Preparation	Hotel Skyna
14:30-15:00	Transit to Ministry of Commerce	Transit
15:00-16:30	Meeting with the Ministry of Commerce	Ministry of Commerce
16:30-17:00	Transit to Hotel	Transit
17:00-18:45	Meeting with Sundeep Angola, Rajesh Gurbani	Hotel Skyna
19:00	Dinner	
Day 9: Tuesday, Feb. 16th, 2016		
8:00-8:30	Breakfast	

8:45-9:30	Transit/Embassy Clearance	
9:30-10:30	Transit to US Embassy/Go through Embassy Clearance	U.S. Embassy Angola Ricardo Dias
10:30-12:30	Julia Rauner, Senior Commercial Officer. US Dept. of Commerce US Embassy	U.S. Embassy Angola julia.rauner@trade.gov +244-222-641-000 ext. 1603 Cell: +244-933-405-632
12:30-13:00	Transit to Electrix	TBD
13:00-14:30	Meeting with Ana, Alexander Thomson, Electrix	Transit
14:30-15:00	Transit to Port of Luanda	
15:00-15:30	Waiting at Port; Meeting Canceled	
16:00-16:30	Transit to Epic Sana Hotel	Transit
16:30-18:30	Meeting with Monty Brown, UK Representative for US Meat Export Federation	Epic Sana
19:00	Dinner	Epic Sana
Day 10: Wednesday Feb. 17th, 2016		
7:00-7:30	Breakfast	Hotel Skyna
7:30-9:15	Transit to Wet Market	Transit
9:15-9:45	Wet Market	Kilometer 30th
9:45-10:00	Transit to Agrolider Cold Storage	Transit
10:00-11:00	Tour of AgroLider Cold Storage Site	Kilometer 38th
11:00-12:00	Transit to Sartel Meeting	Transit
12:00-13:30	Meeting with Luis, Sartel	Stadio 11 November 935 319 672
13:30-15:30	Transit to Entreposto Meeting	Transit
15:30-16:30	Meeting with Entreposto	Dr. Bernardo 923 652 367
16:30-17:30	Transit to Hotel	Transit
18:30	Dinner	Hotel Skyna
Day 11: Thursday, Feb. 18th, 2016		
7:00-7:30	Breakfast	Hotel Skyna
7:30-9:00	Transit to Rangel	Transit
9:00-10:30	Meeting with Miguel Rangel (3PL)	Viana, 949 523 966, Miguel
10:30-11:00	Transit to CLOD Viana	Transit
11:00-13:30	Tour of CLOD	CLOD Sites, Viana
13:30-14:30	Transit to AngoLissar	Transit
14:30-15:30	Meeting AngoLissar, Eduardo Barbosa	AngoAlissar
15:30-16:30	Transit to Gildo Meeting, Canceled en Route	Transit
16:30-17:00	Transit to Hotel Skyna	Transit
18:00	Dinner	Coconuts
Day 12: Friday Feb. 19th, 2016		
7:15-7:45	Breakfast	Hotel Skyna

7:45-8:30	Transit to Fivest	Transit
8:30-9:30	Meeting with Luis, Fivest	Taletona
9:30-11:00	Transit to the Port of Luanda	Transit
11:00-12:00	Meeting with the Port of Luanda	Port
12:00:12:30	Transit to Maersk	Transit
12:30-13:00	Meeting with Maersk	Maersk
13:00-13:30	Transit to Hotel Skyna	Transit
15:00-17:00	Debrief with Ricardo Dias, USDA	Epic Sana
17:00-18:30	Dinner	Epic Sana
20:00	Check Out	Hotel Skyna
20:15	Depart for Airport	Transit
22:55	Departure from Luanda	Airport

ANNEX D: LIST OF CONTACTS

Organization/Affiliation	Name	Position	Phone	Email
Mokbel International Trading	Elissar Mokbel	Director/General Manager	244 949 512 792	elissarm@mitangola.com
Foreign Agricultural Service (FAS) Angola	Ricardo Dias	Agricultural Specialist	244 929 298 484	ricardo.dias@fas.usda.gov
Newaco/Sanzi Group	Prayesh Lalani	COO	00244 938 210 786	prayesh@newacogrupo.com
Casa dos Frescos	Rui Catalo	General Manager	00244 945 103 222	rui.catalo@casadosfrescos.com
Ango Rayan	Ali Aidibi	Director General	00244 923 760 760 00244 917 939 085	ali@angorayan.com angorayan@hotmail.com
Maxi Supermercado	Hugo Santos	Director General	00244 949 523 951	hcs@maxi.co.ao
Maxi Supermercado	Carla Malheiro	Food & Safety Quality Manager	00244 949 523 980	cml@maxi.co.ao
Cabire Group (Sodosa Holdings)	Antonio Soares	Chairman	00244 942 438 687 00244 912 501 270	antonio.soares@sodosa.co.ao
Hotel Skyna	Nuno Antunes	Food and Beverage Manager	00244 945 262 310	nuno.antunes@skynahotels.com
MSC	Angshuman Mitra Mustafi	Administrative Director	00244 936 676 619	amustafi@mscao.mscgva.ch
MSC	Antonio Dias	Managing Director	00244 936 051 052	adias@mscao.mscgva.ch
Bromongol	Dr. Maria Paula Parmigiani	Director	00244 931 749 036	maria.paula@Bromangol.com
Bromongol	Bruno Vasconcelos	Finance Director	00244 938 216 731	bruno.vasconcelos@Bromangol.com
Zahara Kero	Alberto Pereira	Director of Logistics	00244 943 151 554	alberto.pereira@zahara.co.ao
Aldis	Joao Bernardo	Production Manager	00244 941 571 084	joao.bernardo@aldisangola.com
Mansa Importação & Exportação	Sunil Kumar	CFO	00244 923 937 727 00244 914 046 110	skumar@berkleyglobal.com

AgroLider	Jose Macedo	Administrator	00244 923 336 057 00244 916 013 060	joao.macedo@grupolider-ao.com
Ministry of Trade/Commerce	Sandra Figueiredo	Assistant	Unknown	sandramarisafigueiredo@gmail.com
Sundeep Angola	Rajesh Gurbani	Managing Director	00244 924 285 797	sundeepangola@sundeepgroup.net
US Embassy	Constance Arvis	Deputy Chief of Mission	00244 923 404 618 00244 222 641 000	arviscc@state.gov
US Embassy	Todd Katschke	Economic Officer	00244 931 425 579	katschketm@state.gov
US Embassy	Jason Fraser	Mission Director	00244 942 642 547	jfraser@usaid.gov
US Embassy	Manuel Cafala	Commercial Specialist	00244 932 572 530	manuel.cafala@trade.gov
US Embassy	Julia Rauner Guerrero	Senior Commercial Officer	00244 933 405 632	julia.rauner@trade.gov
Electrix/ESS	Alexander Thomson	Founder and President	00244 999 777 777	at@electrixtel.com
Electrix/ESS	Ana Nobre	Commercial Manager	00244 926 155 291 00244 915 148 061	am@essangola.com
USMEF	Monty Brown	(Not Listed)	0044 7970 593 101	montybrown@aol.com
Sartel	Daniel Quintas	General Manager Assistant	00244 943 137 994	geral@sortelangola.com
Sartel	Luis Quintas	General Manager	00244 935 319 672	geral@sortelangola.com
Entreposto	Bernardo Muzazo	Administrator	00244 923 652 367	mucazob@hotmail.com
Rangel	Jose Santos	Director of Operations	00244 949 523 967	jose.santos@multiparquesrangel.com
CLOD	Josine Patricio	Director General	00244 937 370 072 00244 927 812 726	j.pacavira77@hotmail.com
CLOD	Barroso Antonio	Director of Administration and Finance	00244 923 636 527	barrosantonio@yahoo.com.br
AngoAlissar	Eduardo Barbosa	Country Finance Director	00244 942 583 100	eduardo.barbosa@webcorgroup.com

Fivest/Gildo Farms	Luis Lourenco	Project Coordinator	00244 923 370 047 00244 923 080 080	lvoss@fivest.co.ao
Port of Luanda	Manuel Zangui	Administrator of the Commercial Area	00244 923 449 006	mzangui@portoluanda.co.ao
Maersk	Carlo Joao	Administrative Coordinator	00244 923 166 100 00244 923 166 107 00244 936 707 673	carlos.joao@maersk.com
Tecangol	Victor Camilo	Director General	00244 933 205 290	vitor.camilo@tecangol.com
Embassy of Angola	Ineclito A. de Almeida Lima	First Secretary	001 202 785 1156 001 202 699 1258	ilima@angola.org
Embassy of Angola	Mario de Azevedo Constantino	Minister Counselor	001 202 785 1156 001 202 699 0062	mconstantino@angola.org marioconsta@hotmail.fr
Commercial Representation of the Embassy of Angola	Ana Beatriz Costa	Commercial Representative	001 202 783 4740	angolatrade@usa.com
Commercial Representation of the Embassy of Angola	Kamy Fernandes	Commercial Assistant	001 202 783 4740	angolatrade@usa.com

ANNEX E: BASELINES AND GOALS FOR MEASURING PROJECT SUCCESS

During the two-weeks of research and interviews conducted in Angola, the team conducted 29 interviews with companies and organizations representing food importers, wholesalers/distributors, and retailers; logistics providers; the Port of Luanda; U.S. Embassy and Angolan Government Officials and inspection agencies; and hotels/caterers/restaurant. In so doing we make 37 new stakeholder contacts and 42 when including the U.S. government officials, exceeding or goal of 20 by 17 or as much as 22 as indicated in the table below taken from our Emerging Markets Program proposal.

Baselines and Goals for Measuring Project Impact

Description of Performance Measures	Goals	Actual
Phase 1: Establishment of a baseline for US export Value*/ Mkt Share Poultry Baseline: $263 / 55% Beef Baseline: $15 / 7%	$450 / 60% $25 / 10%	TBD
Phase 1: Number of new stakeholder contacts	20	42
Phase II: Number of key stakeholders trained in Cold Chain Management best practices	20	TBD
Phase III: Number of individuals/companies that express interest in joining a regional or national cold chain association (on a fee-basis)	7	TBD

* $US Million

TBD = To Be Determined