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Partners for University-Led Solutions Engine (PULSE)

DESK REVIEW AND MARKET STUDY IN TANGANYIKA PROVINCE OF THE DEMOCRATIC REPUBLIC OF THE CONGO (DRC)

ABOUT LASER PULSE

LASER (Long-term Assistance and SErvices for Research) PULSE (Partners for University-Led Solutions Engine) is a $70M program funded through USAID's Innovation, Technology, and Research Hub, that delivers research-driven solutions to field-sourced development challenges in USAID partner countries. A consortium led by Purdue University, with core partners Catholic Relief Services, Indiana University, Makerere University, and the University of Notre Dame, implements the LASER PULSE program through a growing network of 3,000+ researchers and development practitioners in 74 countries. LASER PULSE collaborates with USAID missions, bureaus, and independent offices, and other local stakeholders to identify research needs for critical development challenges, and funds and strengthens the capacity of researcher-practitioner teams to co-design solutions that translate into policy and practice.

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Executive Summary

The current report presents the results of the Desk Review and Market Study (DRMS) conducted in the Democratic Republic of the Congo's Tanganyika province in November 2022. It was led by Purdue University, Conflict and Development Foundation (CDF), and NFK Consulting.

Purpose

The goal of the DRMS in Tanganyika is to inform the Bureau of Humanitarian Assistance (BHA) Resilience Food Security Activity (RFSA) design process and serve as a publicly available resource for implementing partners developing applications to BHA's RFSA solicitation.

Methodology

The analysis draws on two sources of data: secondary and primary data, collected respectively, through a desk review and key informant interviews (KIIs) in four territories in Tanganyika. The territories are Kalemie, Kabalo, Manono, and Moba. KIIs were conducted primarily in person and remotely, as needed, using virtual interviews.

General Context

The province of Tanganyika has an area of 134,940 km^2. It is the third-largest province in the country. The province bears the name of Lake Tanganyika, the second-largest freshwater reserve in the world. With its strategic position relative to Lake Tanganyika, the province is resource-rich with vast fertile arable land, minerals, hydropower potential, and aquatic resources. However, the poverty incidence in Tanganyika is 66.6 percent (MPPSCE 2017), and the province faces a severe food crisis. About 39 percent of its population (1.2 million people) experienced acute food insecurity (Integrated Food Security Phase Classification (IPC) 3 and above) in 2021 (IPC 2021).

Infrastructure

Tanganyika has 3,162 km of roads, including 1,580 km of state highways, 1,582 km of provincial highways, 75 bridges, and 61 culverts (Ministry of Planning 2017). Agricultural feeder roads extend over 3,039 km and cover 192 bridges. According to the Provincial Ministry of Planning (2017), most of these agricultural feeder roads have been poorly maintained. However, they do allow the transport of commodities from production areas. In fact, according to the International Finance Corporation (IFC) (2022), less than five percent of the 58,000 km national road network is paved and around 50 percent is in fair to good condition (meaning passable).

The province is crossed by 3,641 km of railways from Kabongo to Kalemie and 1,048 km from Kongolo to Kabalo. Trains play the crucial role of connecting remote places – mainly the mining and agricultural areas around Nyunyu, Kabalo, and Kongolo – to Kalemie, the province's capital city. Trains also allow traders to source goods from Lubumbashi and Zambia. The railway infrastructure is functioning but needs some rehabilitation. However, railroads are the preferred mode of transportation, especially for non-perishable goods.

The province has several ports on the shores of Lake Tanganyika. Kalemie and Moba are the largest ports. Tanganyika's ports connect the province to the region via (the ports of) Bujumbura in Burundi, Mpulungu in Zambia, and Kigoma in Tanzania.

The largest airport in Tanganyika is in Kalemie, the capital city. Kalemie National Airport has 1,750 m of runways, 12 airfields with dirt runways, and several terminals which are in poor condition. There are also smaller airports in the territories of Moba, Kongolo, Kabalo, Nyunzu, and Manono, with a total of 12,500 m of runway for the province (Ministry of Planning 2017).

The province has a few functioning electricity supply infrastructures, such as the hydroelectric power plant of Bendera/Kiyimbi and the thermal power stations of Kabalo and Ankoro.

In 2018, 46.2 percent of Tanganyika's households owned a cell phone and only 1.5 percent of households had internet at home (INS 2020). Vodacom, Airtel, and Orange are the three main network providers in the province, yet their coverage is low at the provincial level. According to the Multiple Indicator Cluster Surveys (MICS) survey, in 2018, 32 percent of Tanganyika's households had a radio and 8.4 percent had a television.

Available financial service providers (FSPs) are mobile money providers, microfinance institutions, and a few banks. In the province, banks are only located in Kongolo, Manono, and Kalemie.

Market Context

The territories of Moba and Kalemie have the largest markets in the province. Using the Market Functionality Index (MFI), the Ministry of Agriculture in 2019 found that Tanganyika's markets function well, with frequent exchanges between territories and neighboring countries (Tanzania, Zambia). Local markets in Tanganyika are integrated with national markets and regional markets of neighboring countries, such as Tanzania, Burundi, and Zambia.

Food Assistance and Bellmon Determination

In terms of humanitarian assistance modalities, previous efforts primarily used in-kind distribution and cash transfers. Food fairs have been used to a lesser extent.

Transportation is the biggest challenge to food distribution in Tanganyika. Road and railway infrastructures are in poor condition in some areas year-round and in most areas during the rainy season. In rainy seasons, roads in rural areas could be impassable or dilapidated. Gas prices are also increasing due to the war in Ukraine. Nevertheless, maritime and airport infrastructures offer additional delivery opportunities. Lake Tanganyika plays an essential role in connecting places along the lakeshore.

With the insecurity situation and the vicious cycle of low food production, food distribution in the current context in Tanganyika would help alleviate farmers' food needs during lean seasons. KIIs suggest that no food assistance modality will deter or impede domestic agricultural production and marketing channels, if done appropriately. The analysis also suggests that the province has storage facilities in the ports and urban areas to facilitate commodity storage. However, some KIIs point out the poor conditions of some of these storage facilities.

One noteworthy food assistance procurement factor is that the DRC government does not impose restrictions on the import of food products, even in the case of Genetically Modified Organisms (GMOs). This could facilitate regional and international procurement. GMO multiplication (growing) is forbidden in the country.

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Acronyms

BHA	Bureau for Humanitarian Assistance
CDF	Congolese Franc (Currency denominated in centimes and francs)
DRC	Democratic Republic of Congo
DRMS	Desk Review and Market Analysis
FEWS NET	Famine Early Warning System Network
FNS	Food and Nutrition Security
FSP	Financial Service Provider
GAM	Global Acute Malnutrition
GER	Gross Enrollment Rate
GMO	Genetically Modified Organisms
IFC	International Finance Corporation
IPC	Integrated Food Security Phase Classification
KII	Key Informant Interview
MFI	Market Functionality Index
MICS	Multiple Indicator Cluster Surveys
MW	Megawatt
NGO	Non-Governmental Organization
OCI	Octopus Consulting & Insight
RFSA	Resilience Food Security Activity
SNCC	National Railway Company of Congo (Société Nationale des Chemins de Fer du Congo)
TMB	Trust Merchant Bank
U5MR	Under-Five Mortality Rate
USAID	United States Agency for International Development
WASH	Water, Sanitation, and Hygiene
WFP	World Food Programme

1. Introduction

The Democratic Republic of the Congo (DRC) is the largest country in Sub-Saharan Africa, spanning 2.3 million km^2. The population of the DRC in 2021 was estimated to be around 93 million, with 64 percent, approximately 60 million, living below the poverty line (World Bank, 2022). The DRC also ranks as one of the most fragile states in the world due to decades of conflict and socio-economic decline constraining its development. Weak institutions and instability created by ethnic conflicts and rebel groups operating in the country, especially in the eastern regions, inhibit government delivery of essential services such as health, education, and water, sanitation, and hygiene (WASH).

Tanganyika, located in the southeastern part of the DRC, is the third-largest province in the country. Along with its strategic proximity to Lake Tanganyika and neighboring countries, the province is also resource-rich with vast fertile arable land, minerals, hydropower potential, and aquatic resources. (Ministry of Planning 2017; World Bank 2022). However, the poverty incidence is higher in Tanganyika (66.6 percent) compared to the national average (63.4 percent) (MPPSCE 2017). The province faces a severe food crisis, and about 39 percent of its population (1.2 million people) experienced acute food insecurity (Integrated Food Security Phase Classification (IPC) 3 and above) in 2021 (IPC 2021).

As part of its Resilience Food Security Activity (RFSA) programming, the Bureau for Humanitarian Assistance (BHA) of the United States Agency for International Development (USAID) aims to carry out a resilience and food and nutrition security (FNS) desk review and market study (DRMS) in the province of Tanganyika. The goal of the DRMS in Tanganyika is to inform the BHA RFSA design process and serve as a publicly available resource for implementing partners developing applications to BHA's RFSA solicitation.

The study has two specific objectives:
- To conduct a market analysis to inform the Bellmon determination[1] and the selection of food assistance modalities for Tanganyika; and
- To conduct a desk review to provide BHA and potential implementing partners with a contextual understanding regarding the resilience and FNS situation, stakeholders, and key activity design issues for consideration.

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[1] See https://www.usaid.gov/sites/default/files/documents/BHA_Functional_Policy_20-02_on_Bellmon_Amendment_Final.pdf

2. Methodology

The analysis draws on two sources of data: secondary and primary data, collected respectively, through a desk review and key informant interviews conducted in Tanganyika. Key informant interviews (KIIs) were conducted primarily in person but also remotely using virtual interviews.

The fieldwork was outsourced to Octopus Consulting & Insight (OCI), a Chicago-based consulting firm specialized in data collection and program evaluation. The data collection for the DRMS was part of a larger data collection effort carried out by the firm for the project.

Prior to the fieldwork, OCI and the research team conferred with USAID/BHA in the US and the DRC to ensure the appropriate individuals and stakeholders were interviewed. The USAID Mission in the DRC provided a list of potential stakeholders to interview as well as crucial territories to include in the study area.

OCI coordinated the enumerators' training and fieldwork preparation in collaboration with a designated member of the research team. The data collection tools were structured around the knowledge goals detailed in the project's scope of work. The knowledge goals are:
- Demographic and social characteristics
- Food availability
- Food accessibility
- Food nutrition and utilization
- Delivery of in-kind food assistance, and
- Cash transfers, food vouchers, or small-scale local procurement.

The interview guide (see Annex 1) was translated into French but also practiced (simulation) in local languages with the enumerators during training sections. Overall, for the DRMS Tanganyika, six key informants were interviewed by the OCI team in four territories of the province (Kalémie, Kabalo, Manono, and Moba). Given the various topics covered in the interview guide, key informants from different fields were selected. The list of KIIs includes:
- The Advisor to Tanganyika Provincial Minister of Agriculture, Fisheries, and Livestock
- A Technician from the Provincial Agriculture Division
- Tanganyika Food Security Cluster Manager
- A Technician from the Territorial Agricultural Division (Manono)
- A Local Nurse (Kabalo territory), and
- The Deputy Manager of Lukuga Market

The fieldwork took place between the end of October and mid-November of 2022. In addition to the information in the interview guide in Annex 1, OCI also helped collect relevant documents, such as provincial development plans and relevant statistics from various institutions in the field. At the same time, the DRMS team met virtually with a Famine Early Warning System Network (FEWS NET) country representative to collect additional information and statistics.

3. General Context in Tanganyika

Located in the southeast of the DRC, the province of Tanganyika borders the provinces of Maniema and South Kivu in the north, the provinces of Lomani and Haut-Lomani in the west, and the province of Haut Katanga and the Republic of Zambia in the south. Lake Tanganyika defines its border with Tanzania to the east. It is the third largest province in the country, with a total area of 134,940 km^2 and an estimated population of over 3.5 million people. It has six territories: Kalémie, Kabalo, Kongolo, Manono, Moba, and Nyunzu.

The main sources of income in the province are agriculture and fishing, and to a lesser extent, petty trade of crops, street foods, and imported goods.

Tanganyika province

Capital: Kalémie

Website: http://tanganyika.gouv.cd

Area: 134,940 km^2

Population: 3,570,000 (in 2019)

Territories: Kabalo, Kalémie, Kongolo, Manono, Moba, Nyunzu

Literacy rate: 52.2% (in 2016)

Source: INS, 2021 & CAID (https://www.caid.cd/)

The politico-administrative institutions of Tanganyika are fairly recent. Having become a province in November 2015, Tanganyika has a Provincial Assembly made up of 24 provincial deputies from the Assembly of the former province of Katanga. The provincial executive comprises a governor and a vice-governor elected by the Provincial Assembly.

Decentralization of jurisdiction has yet to take effect in the province. Local government entities, also called Decentralized Territorial Entities, are supposed to operate autonomously, but the central government remains involved in local affairs. The central authorities insert their influence by appointing local authorities at the grouping[2] (cluster) and village levels in Tanganyika (MPPSCE 2017).
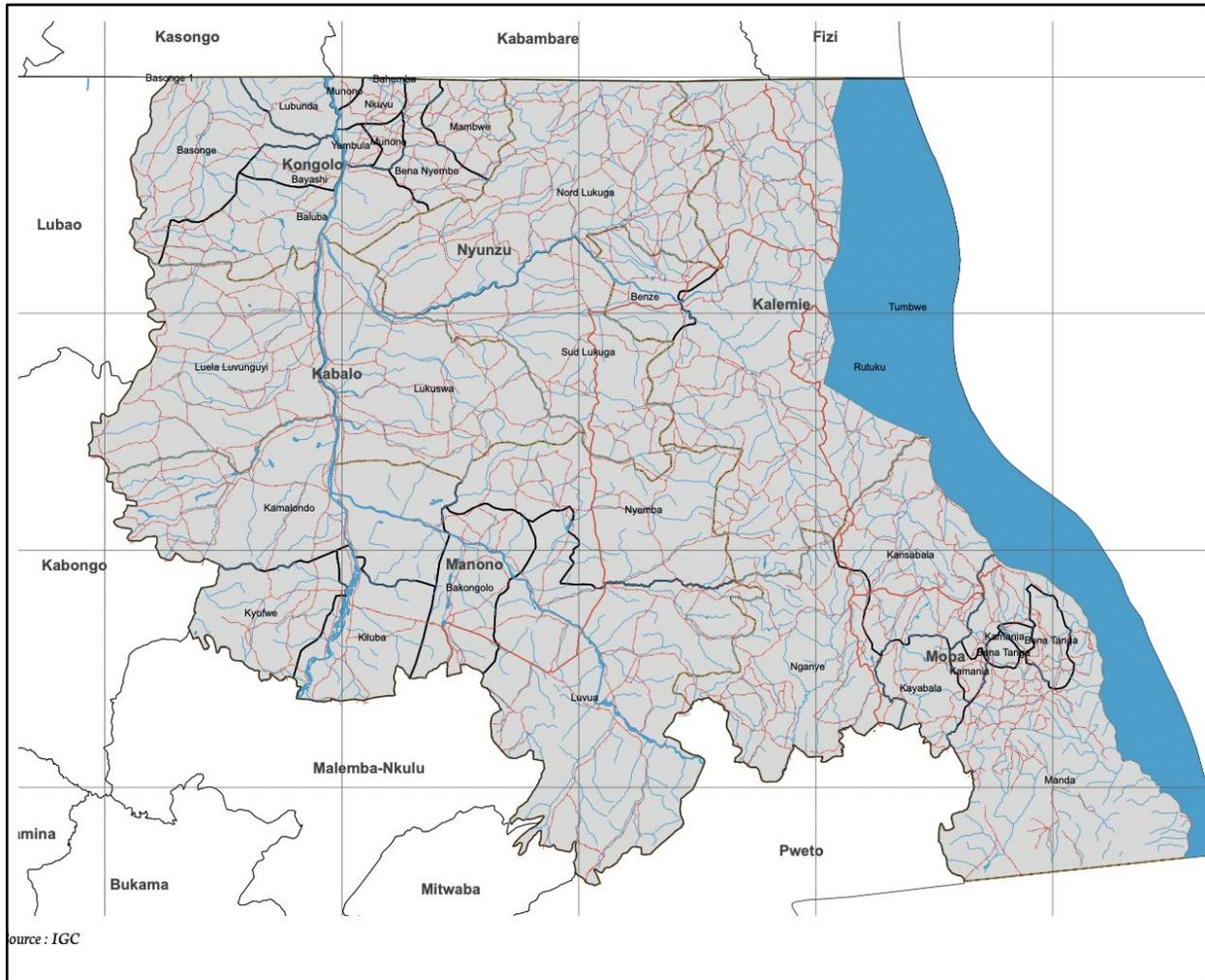
Figure 1: Politico-administrative map of Tanganyika Province
(**Source**: INS 2021)

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[2] Groupings are the fourth level of administrative division in the DRC.

3.1. Socio-Economic Context

3.1.1. Population

Tanganyika's population was estimated at 3,570,000 in 2019, with 49.72 percent males and 50.28 percent females (INS 2021). Figure 2 depicts the proportion of each age group, by sex, in the province in 2019. The graph shows that the province has a young population, with the 10 to 34 year old age group representing nearly 50 percent of the population.

The vast majority of the province is populated by the Twa (also known as the Batwa), the Luba (also known as the Bantu), and the Hemba. Other ethnic groups - mainly the Songye, the Bwile, the Kou, the Lumbu, the Kalanga, and the Holoholo, are directly or indirectly related to these three groups. The Twa are actually part of the Bemba people of the Republic of Zambia, along with the Bwile, the Kunda. (Tshonda 2015).
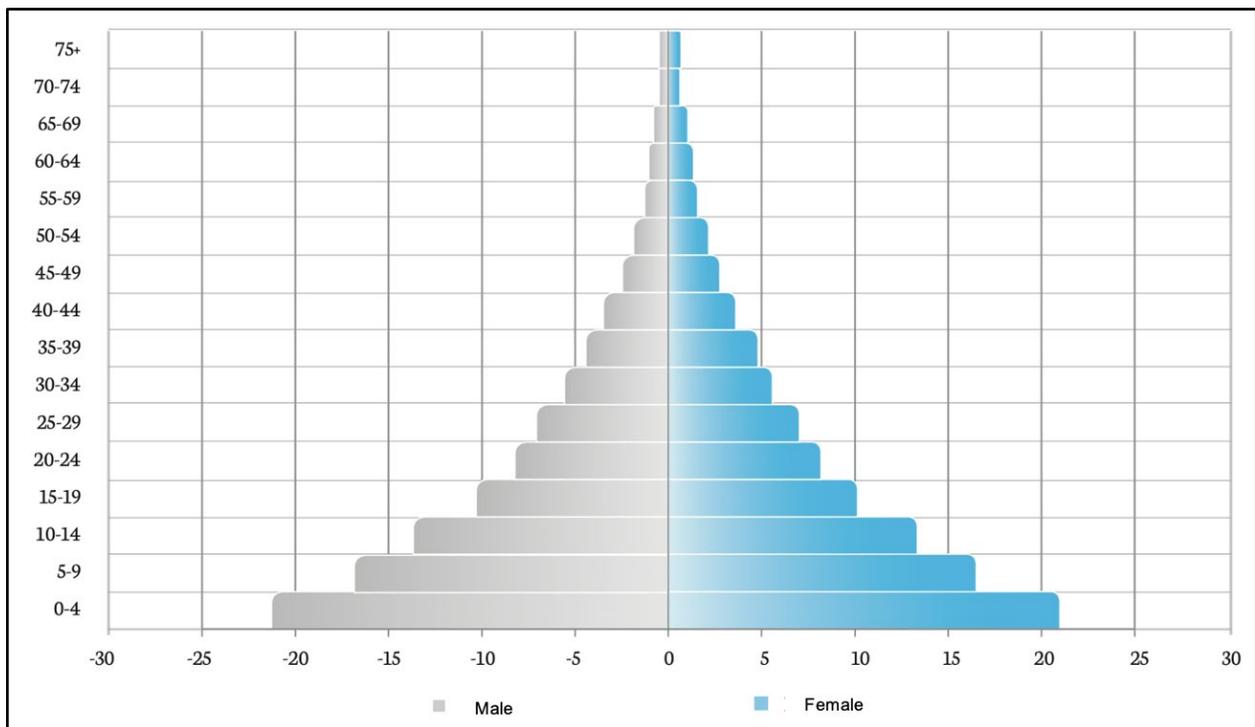
Figure 2: Population in Tanganyika by age group and sex in 2019
(Source: INS 2021)

3.1.2. Education

In Tanganyika, recorded data shows significant progress in basic education over the past decade. The primary school gross enrollment rate (GER), which indicates the proportion of

children attending school compared to the expected school population, was about 50 percent[3] in 2007-2008 (Tshonda 2015). For the 2017-2018 school year, the GER in Tanganyika rose to 67 percent (INS 2021). Likewise, the enrollment rate in the first year of primary school for school-age children was around 50 percent in 2007-2008, with many pupils starting school late, but this rate improved to 76 percent in 2017-2018 (Tshonda 2015; INS 2021).

For the 2017-2018 school year, the number of primary schools in the province was 1,645, with 1,562 public schools and 83 private schools. At the national level, the average number of primary schools per province, for the same school year was estimated at 2,056. The total number of classrooms for that school year was 11,342, nearly seven classrooms per school. This latter figure is nearly the same as the national average of classrooms per primary school (INS 2021).

The primary school completion rate in the province was estimated by the Multiple Indicator Cluster Survey 6 (MICS) at 56.8 percent versus 66.7 percent at the national level. The completion rate of middle and high (secondary) school was 49.1 percent and 5.9 percent respectively (INS 2021).

The adult literacy[4] rate in the province was 52.2 percent in 2016. However, once disaggregated by sex, the literacy rate falls to an alarming level of 32.6 percent for women versus 73.5 percent for men (INS 2021). In the province, there is a university in Kalémie, as well as three private higher education schools and institutes (Ministry of Planning 2017). These statistics, while encouraging at first glance, show room for improvement in the education sector.

3.1.3. Poverty

The poverty incidence remains relatively high in Tanganyika compared to that of the country. Statistics available for the former province of Katanga show that poverty is higher than the national average. It is 66.6 percent compared to a national average of 63.4 percent, with large disparities between rural and urban areas. Multidimensional[5] poverty figures are also high; more than 55 percent of the population have at least eight deprivations. Deprivation refers to the lack of basic resources or conditions to live a decent life, such as employment, safe drinking water, and basic sanitation. Unemployment is often cited as the primary cause of poverty in Tanganyika

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[3] Considering children aged 6 to 11 years (the official school age)

[4] The adult literacy rate is the percentage of people aged 15 years and over who can read, write, and understand simple statements about their everyday life.

[5] The Multidimensional poverty index gives a more complete view of poverty by considering, in addition to the monetary dimension, two other dimensions of well-being – education and basic infrastructure services (See https://www.worldbank.org/en/topic/poverty/brief/multidimensional-poverty-measure).

in both rural and urban areas. The other two leading causes are insufficient income and lack of road infrastructure (MPPSCE 2017).

3.2. Environmental Situation and Natural Resources

3.2.1. Climate

Tanganyika's climate is tropical and humid with two seasons – one dry season from June to August and one rainy season from September to May. In the province, December is the rainiest month and July is the driest.

3.2.2. Hydrography

Tanganyika province is characterized by environmental diversity. It features Lake Tanganyika and several streams. Together, they represent a dense, interconnected, and vast hydrographic network made possible by sufficient rainfall. Nevertheless, the management and preservation of this environmental diversity remains inadequate, mainly due to pollution (Ministry of Planning 2017). The province's main environmental challenges are the effective management of Lake Tanganyika and erosion caused by rain which affects transport infrastructures.[6]

Lake Tanganyika

It is important to highlight Lake Tanganyika given its significance to the province's economy. After the 2015 division of the Greater Katanga, the province now bears the name of its major lake, Tanganyika. Several important cities in the province are located around the lake, including Kalémie, the capital.

Lake Tanganyika is the second-largest freshwater reserve in the world. It is 650 km long, 80 km wide, and 32,000 km^2 in area; it is located at an altitude of 773 m. The lake's shoreline is divided between the DRC, Burundi, Zambia, and Tanzania. It is fed by several rivers, of which the largest are the Malagarasi, the Ruzizi, and the Kalambo (Jansen et al. 2021).

Lake Tanganyika borders Haut-Lomami and Haut-Katanga, Lomami, Maniema, and South Kivu. Therefore, the lake represents a commercial crossroads for the other provinces of the country. Additionally, Lake Tanganyika connects the province to Tanzania for exports through the port of Dar Es Salam. It also connects the province to Zambia and Burundi.

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[6] See https://www.digitalcongo.net/article-en/61d2e9b38b99640015717aa9/ for an example of erosion threatening a railroad in Nyunzu.

In addition to its hydrography, Tanganyika has diversified fauna and flora. However, several species of animals, such as elephants, are threatened with extinction due to poaching.

3.2.3. Soils

According to the Tanganyika Provincial Ministry of Planning (2017), the province has fertile soils, predominantly in the territories of Kongolo, Kabalo, and the right bank of the Lualaba/Congo River, as well as in the Nyemba and Luizi valleys.

3.2.4. Mining

The province of Tanganyika has great mining potential. The province is rich in minerals, particularly cassiterite, gold, coltan, emeralds, limestone, and coal. Other minerals found in the province include copper, zinc, nickel, manganese, iron, titanium, platinum, monazite, lithium, and tungsten.

The exploitation of these minerals remains, for the most part, artisanal, except for limestone and coal. For these two minerals, there is industrial exploitation in the province (Ministry of Planning 2017). Coal is exploited industrially by INTERLACS, a company that produces gray cement.

Gold is artisanally mined in 32 sites across three territories (Nyunzu, Kalémie, and Moba). Cassiterite, coltan, lithium, and tungsten are mined in 189 sites across four territories: Nyunzu (76 sites), Manono (49 sites), Moba (19 sites), and Kalémie (45 sites). Official production figures for these minerals are not available (Ministry of Planning 2017).

3.3. Infrastructure

3.3.1. Road Infrastructure

The road network in Tanganyika was designed and mostly built during colonial times and, overall, needs rehabilitation (Ministry of Planning 2017). According to the Ministry of Planning (2017), Tanganyika has 3,162 km of interstate roads connecting towns. These interstate roads include 1,580 km of state highways, 1,582 km of provincial highways, 75 bridges, and 61 culverts (Ministry of Planning 2017).

The province has an urban road network that expands over 6,692 km, of which 2,371 km are paved roads, 4,321 km are dirt roads, and seven km are engineering structures or bridges. It also has a 1,366 km long sewage system (collectors) in the urban area (Ministry of Planning 2017).

Agricultural feeder roads extend over 3,039 km and cover 192 bridges. According to the Provincial Ministry of Planning (2017), these agricultural feeder roads have been poorly maintained. However, they do allow the transport of commodities from production areas.

Overall, the Provincial Ministry of Planning (2017) evaluates that the existing road network is insufficient to meet the province's multiple economic and development needs. Road transport in the province is characterized by the absence of road transport companies and low private investment. In addition, there is excessive tax on the import of vehicles and numerous administrative formalities. Insecurity also hinders transportation by land in some areas of the province. Additionally, less than five percent of the 58,000 km national road network is paved, and around 50 percent is in fair to good condition (meaning passable) (IFC 2022). Nevertheless, these existing roads remain one of the primary modes for the movement of goods and people in the province and the country. In fact, according to the IFC (2022), about 90 percent of commodities are transported by road in the DRC.

3.3.2. Rail Network

Although functioning, the railway infrastructure in Tanganyika is in poor condition. Trains are slow and prone to breakdowns, delays, and cancellations. The issues are due to both obsolete rolling stock and poorly maintained tracks.

The province is crossed by 3,641 km of railways from Kabongo to Kalémie and 1,048 km from Kongolo to Kabalo. The province's railway system has 28 terminals, and 70 bridges and culverts (Ministry of Planning 2017).

Despite their poor conditions, railroads are the preferred mode of transportation, especially for non-perishable goods. The multimodal railway network enables connections to Maniema, Kasaï, and Kasaï Central provinces. It also facilitates access to territories such as Nyunzu and Kabongo, which are territorial outlets on Lake Tanganyika and the Congo River.

Trains play the crucial role of connecting the hinterland – mainly the mining and agricultural areas around Nyunyu, Kabalo, and Kongolo – to Kalémie, the province's capital city. Trains also allow traders to source goods from Lubumbashi and Zambia (Bahiz et al. 2021). The railway is managed by the National Railway Company of Congo (Société Nationale des Chemins de Fer du Congo - SNCC).

3.3.3. Port Infrastructure

In the province of Tanganyika, there are several ports on the shores of Lake Tanganyika, including the ports of Kalémie, Moba, Kabimba, Kongolo, Kalundu, Mshimbakye, Kabalo, Ankoro, and more.

Given the precarious state of the roads and railways, ports and towns around Lake Tanganyika are often described as islands. At the same time, Lake Tanganyika is often referred to as a highway, providing national and international connectivity to other ports, cities, and countries along the lake's shores. However, this connectivity is affected by the poor quality or absence of maritime infrastructure.

The ports of Kalémie and Kalundu have the most developed port infrastructures in the province. Most existing infrastructure is in dire need of repair (Bahiz et al. 2021). Limiting factors include the length of the docks, which limits the number of ships that can be handled at the same time, as well as the depth of the port, which limits the size of the vessels.

Port of Kalémie

The port of Kalémie[7] is the busiest port on the DRC's shore of Lake Tanganyika. It connects the DRC with the ports of Bujumbura in Burundi, Mpulungu in Zambia, and Kigoma in Tanzania. The port also serves as a transshipment hub with intermodal and trans-modal connectivity. Intermodal connectivity connects Kalémie to the hinterland via roads or railways, while trans-modal connectivity connects Kalémie to smaller ports and landing sites along the lake shore. The port is also used for passenger transport, usually in addition to the transportation of goods.

Kalemie's port is also owned by the SNCC and has only eight employees, according to a study by Bahiz *et al.* in 2021. Not only does this key asset in the province have very few human resources, but it is also not under the province's control and is managed by a national company headquartered in Kinshasa, nearly 2,500 km west of Kalemie.

In terms of characteristics, the port's quay is about 360 m long. The port has five winch-lifting cranes as well as a mobile crane with a capacity of 60 tons. The winch cranes are not currently working and need repair. The port has five[8] warehouses, a shipyard, and a dry dock. Its railway head-end allows the transshipment of goods to Lubumbashi or Kindu. However, the infrastructure is in poor condition and is either unusable at times or usable only with strict limitations or security risks. The dock has disintegrated, mainly due to its heavy use. The storage space is dilapidated and barely usable for storing goods safely. The port is also affected by sedimentation, which makes it difficult for ships to access. Similarly, the dry dock, shipyard, and

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[7] This refers to the public port of Kalemie. There are three other private ports in Kalemie, but as of August 2022, the government closed two of them, and only one is operating. See https://magazinelaguardia.info/2022/08/21/kalemie-deux-sur-trois-ports-prives-toujours-fermes/

[8] See https://dlca.logcluster.org/pages/releaseview.action?pageId=10126734

railhead are in need of repair (Bahiz et al. 2021). The key features and infrastructures of each port in Tanganyika are summarized in Table 1.

The port of Kalemie has regular connections to Kigoma in Tanzania, Kalundu, and Moba, with about two to three weekly boats to each destination. This number varies, as there are no regular sailing schedules, with ships usually waiting to be filled before leaving port. On average, about 70 large cargo ships and about 20 small wooden boats dock in Kalemie each month, according to Bahiz et al. (2021). In 2021, the maritime service in Kalemie estimated the traffic of imported goods at nearly 60,000 tons per year.

Loading or unloading a vessel takes about two days for small vessels under 600 tons, while large vessels over 600 tons usually take six days to unload. Hamburg Port Consultants (2018) estimated the daily handling capacity at 500 tons (or 182,500 tons per year), which is well above the volumes handled, according to a study by Bahiz et al. in 2021. Other estimates by the World Food Programme (WFP) are slightly higher, at 220,000 tons per year.

In 2021, loading and unloading were done manually, as cranes were not functional. This significantly affected the port's capacity, with ships often having to wait three to six days before being unloaded (Bahiz et al. 2021).

In April 2021, the Congolese government signed a $127USD million contract with China for the rehabilitation of Kalemie's port, but it is yet to start (RFI 2021).

Figure 3: Warehouse at Kalemie Port © Octopus Consulting & Insight

Port of Kalundu

The port of Kalundu is strategically important due to its location and connectivity to the hinterland. The port serves the city of Uvira, but it is also a critical transshipment port, with connectivity to Bukavu and Goma, as well as neighboring Burundi and nearby Rwanda.

The port of Kalundu has two berths with a total length of 311 m, a mobile crane, and three transit warehouses (two with a capacity of 1,500 m^2 and the other with a capacity of 1,000 m^2). Up to eight vessels of 500 to 1,000 tons can dock and be unloaded at the same time. However, due to the sedimentation of the nearby Ruzizi and Kamongola rivers, only ships under 500 tons can currently use the port. As in Kalemie, Kalundu's infrastructure is in poor condition, including the docks, the crane, and the warehouses.

The port has regular connections with Kalemie, Kigoma, Moba, and Mpulungu. On average, about 26 ships arrive in Kalundu monthly, not counting small wooden boats. With a single mobile crane, most loading and unloading are done manually, and the small berthing space limits the port capacity (Bahiz et al. 2021).

Port of Moba

Though small, the port of Moba is of great importance for the cities of Moba and Kirungu. It is located about 10 km inland, from the lake shore. The Moba Maritime Commission owns and manages the port and employs five warehouse workers for loading and unloading vessels. It has no handling equipment or other infrastructure. In terms of infrastructure, the port only has a harbor, which is in poor condition and gets submerged during heavy rains.

This port receives ships from Kalemie and Uvira, as well as Kigoma and Mpulungu. Due to the lack of adequate infrastructure in the Moba port, most of these vessels are small. In the first two months of 2021, the port counted 32 ship departures to other ports and landing sites in the DRC and four to ports in neighboring countries.

Port of Mshimbakye

Located between Kalundu and Kalemie, the port of Mshimbakye serves Baraka in South-Kivu province. Reportedly, the legal and illegal trade of redwood transits the port. Overall, there are about two weekly departures to Kalundu. At times, the port gets submerged by flooding (Bahiz et al. 2021).

Port of Kabimba

The port of Kabimba is located between Mshimbakye (Baraka) and Kalemie. It was built during colonial times to transport cement produced in the Kabimba cement plant. As of 2021, the port is not in use but will be rehabilitated as part of the cement plant's rehabilitation (Bahiz et al. 2021). Table 1 presents the key characteristics of the different ports in the province.

Table 1: Summary of Ports' Infrastructure in Tanganyika

	Kalemie	**Kalundu**	**Moba**	**Mshimbakye**	**Kabimba**
Berths	360 m long quay	Berth 1: 160 m long Berth 2: 180 m long	Gets submerged at times	Gets submerged at times	100 m long dock
Maximum size of vessels	1,500 tons	500 tons	Limited	Limited	-
Cranes	Five quay cranes (non-functional) Mobile crane (up to 60 tons capacity)	Two dock cranes (out of order) Up to 30 tons capacity	No	No	No
Warehouses	6,000 – 10,000 m^2 (depending on sources)	Warehouse 1: 1,000 m^2 Warehouse 2: 1,500 m^2 Warehouse 3: 1,500 m^2	None	None	None

Source: Bahiz et al. (2021), https://dlca.logcluster.org/pages/releaseview.action?pageId=10126734 and https://dlca.logcluster.org/display/public/DLCA/2.1.5+Democratic+Republic+of+Congo+Port+of+Kalundu

3.3.4. Airport

The largest airport in Tanganyika is in Kalemie, the capital city. Kalemie National Airport has 1,750 m of runways, 12 airfields with dirt runways, and several terminals which are in poor condition. There are also airports in Kalemie, Moba, Kongolo, Kabalo, Nyunzu, and Manono, with a total of 12,500 m of runway for the province (Ministry of Planning 2017).

Between 2014 and 2019, the airport authority conducted some rehabilitation of Kalemie National Airport, funded with passenger levies. This rehabilitation includes the lengthening and widening of the runways, an extension of the tarmac, the construction of a passenger terminal, as well as the installation of a runway lighting system (Bahiz et al. 2021; Desk Eco 2020).

Currently, Compagnie Africaine d'Aviation airline only operates non-stop flights to Goma and Lubumbashi[9]. Air transportation services are not accessible to many of the people in Tanganyika due to high airfare costs (Ministry of Planning 2017).
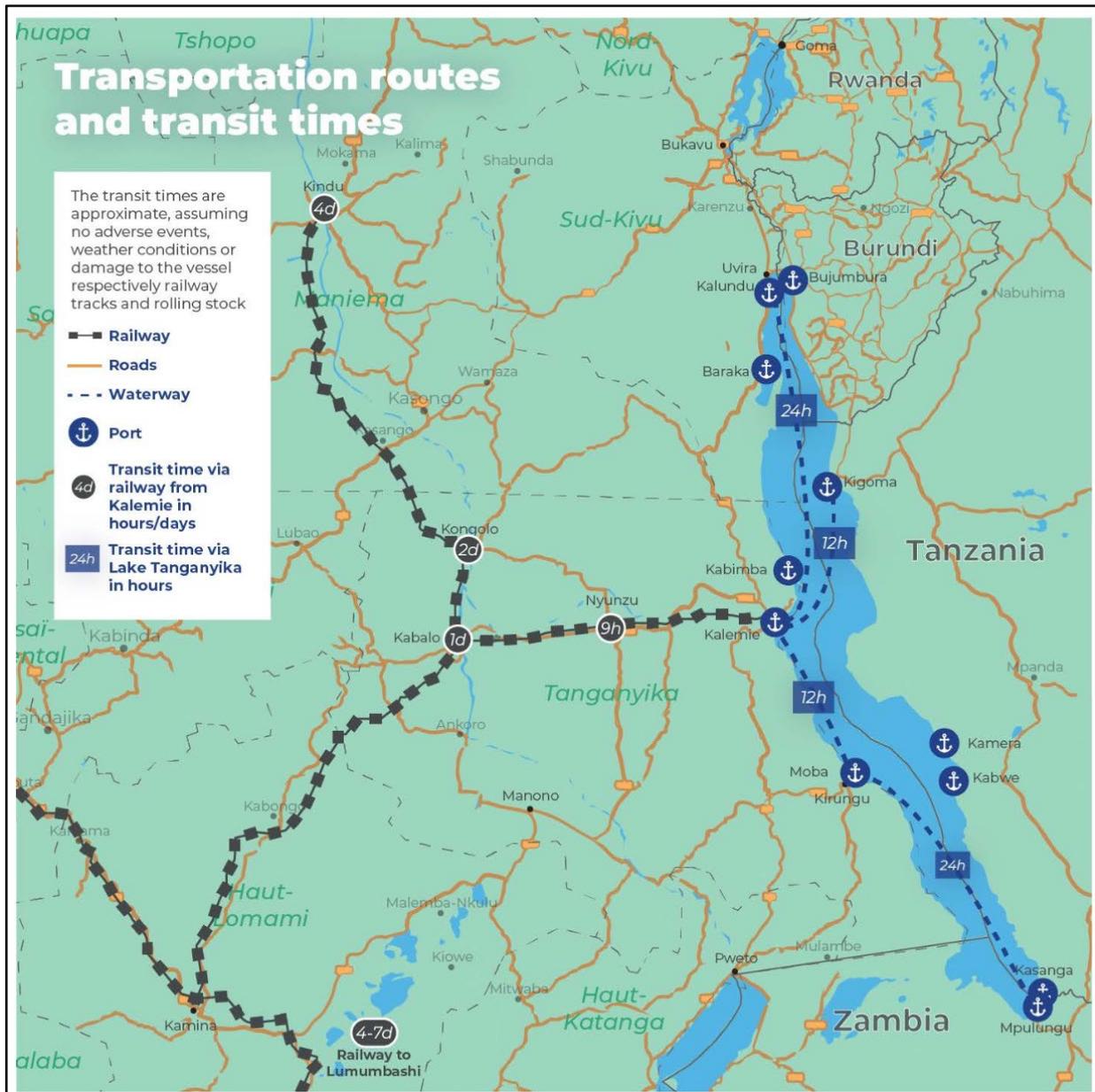
Figure 4: Transportation Routes and Transit Time
(**Source**: Bahiz et al. 2021)

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[9] See flight schedule starting September 2022 on http://www.caacongo.com/horaires_22_sep_22.pdf

3.3.5. Electricity Infrastructure

Regarding electricity supply, Tanganyika has a few functioning infrastructures, such as the hydroelectric power plant of Bendera/Kiyimbi and the thermal power stations of Kabalo and Ankoro. There is also the Mpiana Mwanga hydroelectric dam, which has a capacity of 30 Megawatts (MW), but it has been shut down since 1998.

The Bendera/Kiyimbi power plant is located 120 km from Kalemie and has been in service since 1959 with two turbo generators. Only one generator is currently active. Of the total 17.20 MW of power capacity, only 8.60 MW was available in 2019, and 5.40 MW was used on average in the same year (INS 2021).

The province also has a dam at Moba in Nghandwe Nfwamba managed by a private operator, the diocese of Kalemie Kirungu. The dam production capacity is 9 MW (Ministry of Planning 2017).

Table 2: Thermal power stations in Tanganyika in 2019

Thermal Power Station	Number of generators installed	Power installed (MW)	Power (MW) available
Kabalo	2	0.672	0.320
Ankoro	4	0.938	0.520

Source: Adapted from INS, 2021

Despite the significant hydroelectric potential available to the province, only 8.7 percent of the province's households had access to electricity in 2018, compared to 15.6 percent at the national level (INS 2020).

3.3.6. Digital Infrastructure

The digital infrastructure situation in Tanganyika is similar to the national context, with disparities between urban and rural areas. According to the 2018 MICS survey, 32 percent of Tanganyika's households had a radio and 8.4 percent had a television in 2018. According to the same study, 46.2 percent of households in the province owned a cell phone and only 1.5 percent of households had internet at home in 2018 (INS 2020). Vodacom, Airtel, and Orange are the three leading network providers in the province, yet their coverage is low at the provincial level.

Regarding gendered access to digital infrastructure, about one in 30 women (2.9 percent) in the province have ever used a computer, while none had used one in the three months

preceding the 2018 MICS survey. Among those surveyed, about 4.8 percent of female youth (15 - 24 years) had ever used a computer.

Approximately, 24 percent of females in the province owned a cell phone, while 25 percent had used one during the three months preceding the MICS survey. The 2018 MICS survey estimated that 37.7 percent of young women (aged 15 to 24) owned a cell phone at the time of the study.

Internet use remains very low among women in the province, with only 0.1 percent stating they have used the internet before, and none had used it during the three months before the 2018 MICS survey.

Access to financial services

Available financial service providers (FSPs) are mobile money providers, microfinance institutions, and a few banks. In the province, banks are only located in Kongolo, Manono, and Kalemie. Only mobile money service providers effectively meet the population's needs in terms of liquidity, according to key informants interviewed (November 2022). Even in Kalemie, many people save money using their mobile phones instead of formal banking. There are not enough microcredit institutions in the province, limiting financial market actors.

At the country level, digital financial service usage is also low, with only 26 percent of adults having an account with a financial institution; four percent are able to access their accounts using a mobile phone, six percent possess a debit card, and 16 percent own a mobile money account (World Bank 2020). In rural areas where digital financial services are limited, saving is done at home, with people borrowing from friends and family. There are only 16 active banks in the country, with over 100 microfinance banks, four mobile money operators, and 83 money transfer companies. While the demand for mobile money has increased in urban areas, rural communities are yet to follow. The available FSPs present in Tanganyika include:
- The Foundation for International Community Assistance,
- Trust Merchant Bank (TMB),
- RAWBANK,
- Equity,
- First Bank of Nigeria, and
- M-Pesa, which is the mobile money service of Vodacom.

These institutions usually have a large liquidity capacity, but TMB and M-Pesa are the most commonly used.

4. Food Security in Tanganyika

Despite its endowments, the province of Tanganyika faces a severe food crisis. According to the latest analyses conducted by the IPC[10], about 42 percent of Tanganyika's population (1.7 million people) experienced high levels of acute food insecurity (IPC Phase 3 or above) between July and December 2022 (Table 3). Multiple factors, such as widespread poverty, conflicts and displacements, weather shocks, low agricultural production, and the lingering effects of the COVID-19 pandemic created this food insecurity situation.

Table 3: Acute Food Insecurity (IPC Phase 3+ July - December 2022)

Territory	Proportion of Food Insecure
Kabalo	40%
Kalémie	45%
Kongolo	40%
Manono	40%
Moba	40%
Nyunzu	45%
Tanganyika	**42%**

Source: https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1155280/

Figures A1 - A3 in the appendix show past trends in the food security situation in the province using the IPC Acute Food Insecurity Phase Classification. Analysis of the map in Figure A1 shows that between August 2018 and June 2019, three territories were in the fourth phase (emergency) and three in the third phase (crisis). Then, the province's food security situation worsened in 2020, according to the map on Figure A2. This worsening was primarily due to the COVID-19 pandemic. In fact, five out of the six territories were in the emergency phase between July and December 2020 (at the height of the pandemic). Most recently, between July and December 2022 (Figure A3), all six territories were in the crisis phase, which is a slight improvement from the 2020 situation. Nevertheless, the overall food security situation of the province is not improving over time.

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[10] See https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1155972/?iso3=COD

4.1. Food Availability

This section assesses the extent to which food is available in sufficient quantities in the province. Food availability in the province is a function of food production and market availability which includes food imports. Market availability is discussed later in the report.

4.1.1. Food Production

Agriculture, livestock production, and fishing are the primary food sources in Tanganyika.

4.1.1.1. Agriculture

Agriculture and petty trade are the main sources of income for food-insecure people. Petty trading is the main livelihood diversification strategy and women are predominantly engaged in it. KIIs also suggest that agriculture accounts for 70-85 percent of most vulnerable residents' income sources in the province.

About 70 percent of the employed population is engaged in agriculture primarily for subsistence, using only about 13 percent of the available arable land (USAID, 2022). With vast arable lands and climatic diversity, the province has diversified agriculture that allows the production of various annual and perennial crops. The main crops produced are cassava, maize, peanuts, rice, sweet potatoes, beans, cowpeas, and oil palm. The territories of Kongolo, Nyuzu, and Kabalo are the agricultural production hubs. The Marungu highlands in Moba territory are also an agricultural hub where maize, wheat, beans, and potatoes are extensively produced.

Production volume

Data from the National Institute of Statistics, summarized in Table 4 below, suggests that the production of all key staple crops in the province has been steadily increasing over the past few years. However, KIIs conducted for this study reveal that local production is insufficient to meet the local food demand.

Table 4: Production of Key Crops in Tanganyika from 2016 to 2019 (in tons)

	2016	**2017**	**2018**	**2019**
Cassava	2,108,174	2,166,239	2,285,568	2,348,519
Maize	192,515	197,236	202,073	207,029
Peanuts	34,333	35,016	35,713	36,424
Paddy rice	30,170	32,315	34,613	37,075
Sweet potatoes	9,228	9,482	9,743	10,011
Beans	4,403	4,469	4,536	4,604
Cowpeas	992	1,018	1,048	1,079

Source: INS, 2021

Food deficit

The agricultural sector in the province is inadequate to meet local needs. Administrative mismanagement, looting from inter-ethnic conflict, the abandonment of farms due to insecurity, defective agricultural feeder roads, and the poor railway have crippled the sector. The agricultural sector has suffered the most from the security crisis in the province. Tanganyika, once considered the breadbasket of the DRC, now experiences persistent food insecurity (Ministry of Planning 2017).

For most staple foods, there is a production deficit in the province. In fact, plantains, rice, potatoes, maize, soybean, peanuts, and cassava are in short supply for the latest agricultural season in the province, according to KIIs. Cassava production has been deficient for the past two years reportedly because of rot. For maize, the main cause of the deficit is insecurity in production areas, according to KIIs.

Production deficit estimates for the staples are not readily available at the provincial level. In 2019, the Ministry of Agriculture estimated that the national production deficit for cereal (rice, maize, millet, sorghum, etc.) was about 9 million tons that year, nearly twice the cereal production available at the national level in the same year.

Figures A4 through A10 in the appendix show production deficit by territory for different categories of crops in 2019, using the food needs coverage rate calculated by the Ministry of Agriculture with the formula below:

$$\text{The coverage rate (CR)} = \left(\frac{Crop\ Gross\ Production - Loss - Seeds}{Total\ population * Consumption\ norms}\right) * 100$$

If CR < 90: the area has a production deficit

If 90 < CR < 120: the area's production is self-sufficient

If CR > 120: the area has a production surplus

The coverage rate expresses the relationship between consumption and households' food needs. It helps gauge the capacity of agricultural households to cover their food consumption needs with their own production. The analysis of Figures A4 - A10 in the appendix suggests that for most crops, in most territories, agricultural households are not able to meet their consumption needs with their production but rely on the market to fill the gap. Specifically, appendix Figure A6 shows that the territory of Manono had a deficit for maize but Figure A7 shows a surplus for cassava in 2019. Nyunzu, in contrast, had a deficit for cassava (Figure A7), meaning that households' cassava production was insufficient to cover their consumption in 2019 in that territory. Data on other territories was missing.

Furthermore, in 2019, Manono had a deficit for peanuts (Figure A8), rice (Figure A10), and other cereals (A9). In 2019, the Ministry of Agriculture did not have sufficient data to assess the coverage rate for beans and cowpeas in Tanganyika's territories (Figure A5).

KIIs suggest that the province's beans and palm oil productions are self-sustaining for the most recent agricultural seasons. Kongolo, Manono, and Kalemie are the leading palm oil production territories in the province.

Yields

Table 5 presents the yield of major staple crops in the province from 2017 to 2019. For tubers, specifically cassava, yields increased over the three-year period. Tubers' yields are below the national average overall, but cassava's yield rose above the national average in 2018 and 2019.

Cereal's yield was above the national average in 2019, but their yield trend was mixed during the three years considered. For the 2016-2017 agricultural campaign, maize yield was above the national average at 1.14 tons/ha (versus 0.83), but dropped by 41 percent for the following season. This production drop could be explained by the inter-ethnic violence in the province. In fact, the Twa-Bantu conflict spiked between mid-2016 and the beginning of 2017, affecting five of the six territories in the province. Rice yield also fell from 1.28 tons/ha to 0.75 tons/ha in that period.

Legumes (peanuts, beans, and cowpeas), on average, have a yield well above national levels, and their yield was on an upward trend between 2017 and 2019.

Overall, yields in Tanganyika are still low. This is due to the lack of adequate extension services, conflict and insecurity, and pests. The fall armyworm (spodoptera frugiperda) is the major pest damaging and destroying multiple crops in Tanganyika, as well as other provinces in the country.

Table 5: Yield of Key Crops Produced in Tanganyika from 2017 to 2019 (in tons/hectare)

Crop	2017		2018		2019	
	Tanganyika	**National average**	**Tanganyika**	**National average**	**Tanganyika**	**National average**
Cassava	10.60	15	11.78	10.9	14	10.36
Maize	1.14	0.83	0.67	0.80	0.90	0.77
Peanuts			0.66	0.66	0.9	0.70
Rice	1.28	1.5	0.75	0.8	1.00	0.86
Sweet potatoes	-	-	1.05	2.18	-	-
Beans	-	-	0.73	0.49	1.19	0.79
Cowpeas	-	-	0.1	0.38	0.8	0.59

Source: Ministry of Agriculture 2017, 2018, 2019
Note: - indicates that data is not available

Seeds

According to a study by Fintrac Inc., commissioned by USAID/Feed the Future in 2019, the (improved or certified) seed sector in Tanganyika is entirely dominated by short-term relief and humanitarian assistance. Humanitarian seed tenders hinder any potential development of the improved or certified seed sector in the province. Almost 100 percent of improved seed purchases in the province are sponsored by humanitarian or development organizations and distributed as emergency seeds. There is virtually no local production of improved seed except for a few donor-funded projects supporting village-level seed production. Additionally, improved seeds do not exist in the local market, according to the same study (Fintrac Inc. 2019).

In Tanganyika, there is no operational branch of the National Seed Service (Service National des Semences). With the absence of seed inspectors and testing laboratories, there is no certified seed produced in the province. Commercial grains are increasingly entering the tenders under the guise of certified seeds. Most humanitarian agencies and non-governmental organizations (NGOs) are aware of the fraudulent practices and the deteriorating quality of the seeds distributed to farmers. Yet tenders for certified seed continue to be issued even when it is clear there is no quality seed available (Fintrac Inc. 2019).

Finally, the National Institute for Agricultural Research and Studies established in Emiligombe town in the province is conducting a participatory variety selection testing with farmers on a Burundian rice variety and on cassava varieties from the International Institute for Tropical Agriculture (Fintrac Inc. 2019).

4.1.1.2. Livestock Production

Cattle breeding is an important activity and food production source in the province. It is estimated that natural pastures account for about 10 percent of the province's land (Ministry of Planning 2017).

The development of the livestock sector is impacted by the lack of veterinary products and inputs, disease outbreaks, the inadequacy of zoo-sanitary infrastructures, and the absence of feed mills. Conflicts between herders and farmers have also adversely affected livestock production in the province (Ministry of Agriculture 2017; Ministry of Planning 2017).

The evolution of the number of different types of animals raised in the province from 2016 to 2019 is presented in Figure 5. The number of sheep and goats remained stagnant over the four-year period, while the number of cattle sharply increased.
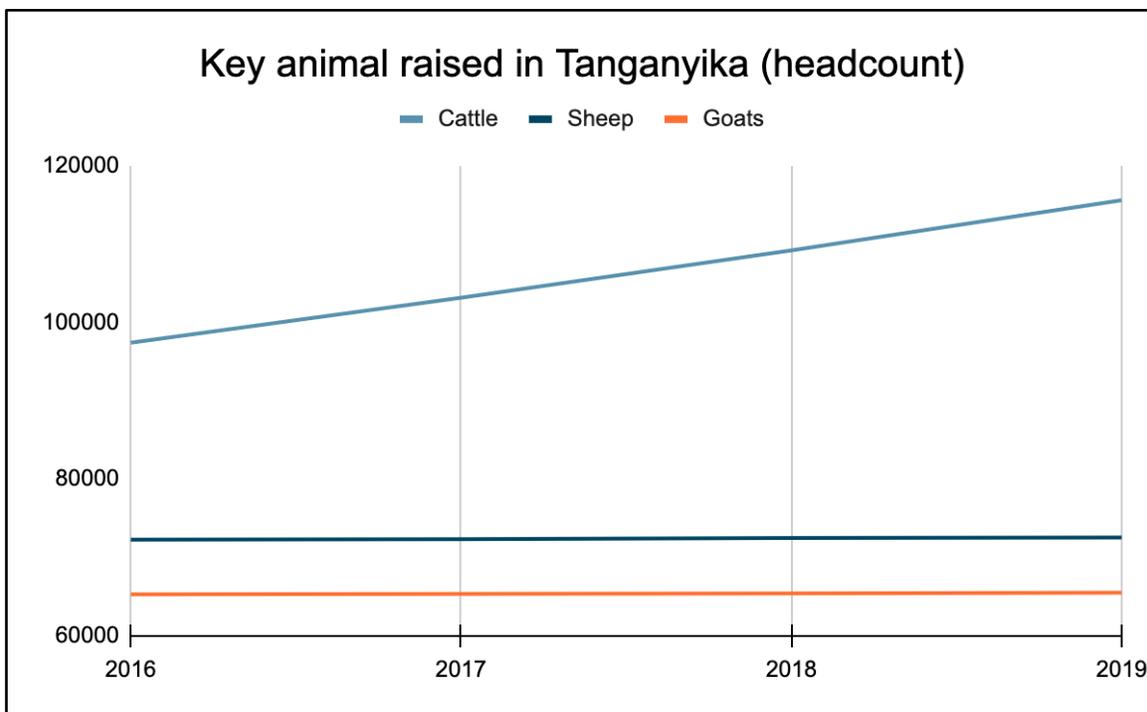
Figure 5: Evolution of the Number of Cattle, Sheep, and Goats Raised in Tanganyika from 2016 to 2019
(Source: INS, 2021 (2020 DRC statistical yearbook))

4.1.1.3. Fishing

Fishing is a key activity in the province, practiced mostly at the subsistence level. Artisanal fishing alone represents a sizable share of the province's income. Kalemie and Moba are the largest artisanal fishing hubs. For example, there is a large landing site in Kalemie (Kamko), where nearly 6,150 tons of fish are handled each year (Bahiz et al. 2021).

Annually, about 280,000 tons of fish are caught in Lake Tanganyika. In contrast, there is the potential on the Congolese side of the lake to catch an estimated 300,000 - 450,000 tons of fish. Furthermore, about 156,000 tons of fish were imported in 2017, suggesting that the full potential of the fishery sector is not yet met (Bungubetshi 2020).

The fishing sector employs more than 5,000 people, including 4,726 fishermen (exclusively men), 700 fishmongers (mostly women), and 50 processors (mostly women), according to Bungubetshi (2020). Processing involves primarily smoking and drying. Ndakala (anchovies) and mikebuka (sleek lates), endemic fishes to Lake Tanganyika, are widely consumed throughout the country (BVRDC 2019).

The fishing sector is experiencing many issues, in particular poor fishing practices, with the use of prohibited materials such as monofilament nets. Monofilament nets are less visible in the water and fish enter them faster than other types of net because they cannot see it. These nets are often utilized by illegal artisanal fishermen. Value chain actors also face challenges, such as the lack of cold storage both on fishing vessels and on land.

4.2. Food Accessibility

Households mainly access food by either purchasing it in markets or producing it themselves.

4.2.1. Food Access in Markets

As a rule, the percentage of income allocated for food purchases decreases as a household's income rises, while the percentage spent on other things, such as education and leisure, increases (Engel's Law). In accordance, vulnerable populations in Tanganyika allocate a significant part of their income to food purchases. Key informants interviewed could not readily gauge the percentage of average household income spent on market food purchases (not produced by them), but they estimated anywhere from 50 to 75 percent of an average household's income is spent on such. They unanimously agreed that a sizable portion of household income spending is on food and that vulnerable households mostly purchased their food items even though some of their own production takes place. KIIs suggest that in urban areas, buying habits do not vary much by the period of the year (seasons), but in rural areas, the variation is noticeable with less food items purchased after harvest. Women usually buy food items for the household.

According to the KIIs, the most important factors that limit access to food in the province are financial and conflict-related (i.e., the Twa-Bantu conflict). Low household income and high market prices limit vulnerable populations' market participation. The Twa-Bantu conflict creates an insecurity situation, which not only hinders trade activities but also results in destruction, including the burning and looting of fields and community infrastructures such as markets.

Physical market access varies across the province. Average distances to markets depend on the territory and range from 2 km to 40 km. Transportation prices vary by location as well. On average, a ride with a motorbike costs 200 Congolese Francs (CDF), and a car ride to a market in the province costs, on average, 500 CDF.

In urban areas such as Kalemie, all markets are accessible by road and never very far. Even when markets are located on hills with steep slopes, they are still accessible, whether on foot or by some other means of transportation.

Across the province, access is sometimes challenging during the rainy season, with many roads in poor conditions. In order of most to least common mode of transportation, people go to markets on foot, by bicycle, by motorbike, or in cars.

4.2.2. Own Food Production

KIIs estimated that tubers and cereal make up 80 percent of the commodities accessible to vulnerable or food-insecure people through their own production. More specifically, the commodities that vulnerable people access through their own production are mainly cassava and maize, but also small amounts of palm oil, and harvested products such as mushrooms, snails, caterpillars, and honey. However, these products' quantities are lower than households' demand. In fact, cassava and maize production has been adversely affected by insecurity, and respectively, by cassava mosaic disease and climate change. Usually, meat sources such as goats, pigs, rabbits, guinea pigs, and chickens are considered a luxury and are not consumed even if produced.

Some households set up small-scale vegetable gardens, to cope with insufficient access to food. Other coping strategies include reducing the quantity of food or the number of meals, or, in the more dire cases, begging. People may also change their diet and consume more leaves or vegetables.

4.3. Nutrition and Food Utilization

4.3.1. Typical Food Basket Consumed by Households in the Province

According to the National Institute of Statistics, more than 80% of households in the province report having two meals per day (Figure 6). The typical food basket consumed by households in the province includes cassava roots, cassava leaves, maize (flour), and fish (mikebuka[11]). With the province's proximity to Lake Tanganyika, fish is widely consumed in the province. Other cereals are also consumed. Cassava is the staple food in rural areas, whereas maize is the staple food in urban areas. Key informants stated that the Twa ethnic group has less diversified diets due to their nomadic lifestyle.

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[11] Also known as sleek lates
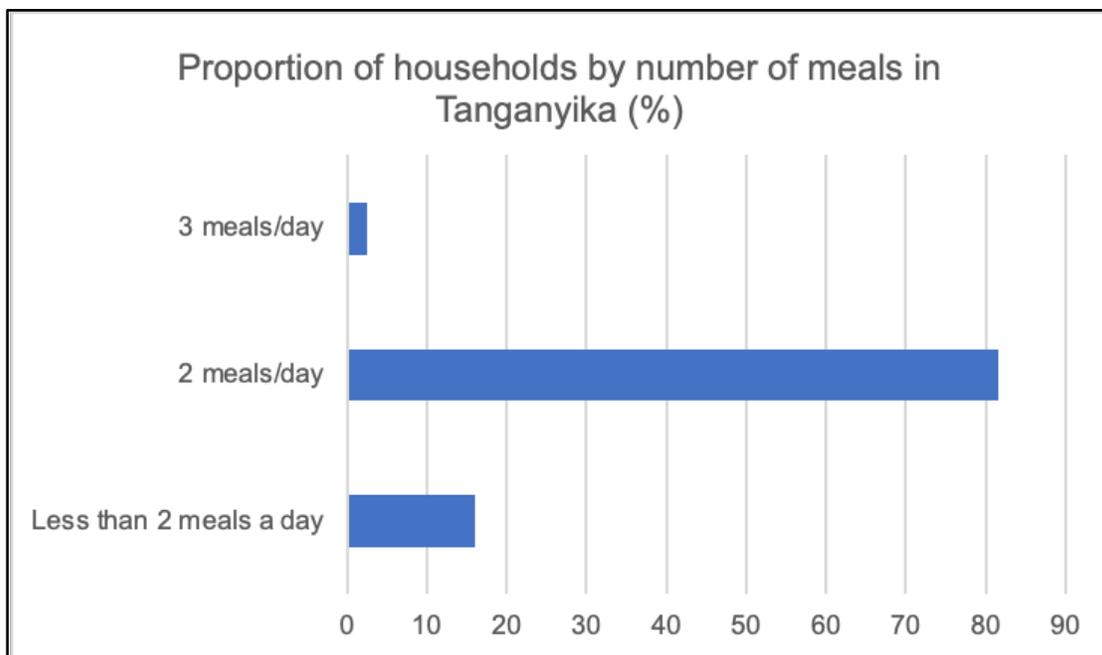
Figure 6: Proportion of Households by the Number of Meals in Tanganyika
(**Source**: INS, 2021)

4.3.2. Nutritional Situation in the Province

According to the National Nutrition Program,[12] each year, in Tanganyika, nearly 150,000 children under the age of five suffer from acute malnutrition with a very high risk of mortality. Additionally, more than 250,000 children in the same age group suffer from stunting resulting from chronic malnutrition and nearly 51 percent are affected by chronic malnutrition. This means that approximately one in five children suffers from acute malnutrition and one in two children suffers from chronic malnutrition in the Tanganyika province. Table 6 shows the prevalence of malnutrition in different territories over the past five years.

According to the MICS survey (2018), global acute malnutrition (GAM) affects less than one in 10 children (4 percent) among children aged 6 to 59 months, including 75 percent in severe acute malnutrition (SAM). However, many disparities exist across studied health zones with regard to the prevalence of GAM. Nearly one in five children (18.3 percent) is underweight (110,700 children) and 6.4 percent of newborns have low birth weight (< 2,500 g) (DHIS2 2019).

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[12] See https://pronanutrdc.org/tanganyika/

According to the DHIS2-2019 report, 18.42 percent of pregnant and breastfeeding women in Tanganyika suffer from under-nutrition, resulting in approximately 42,350 women with reduced physical abilities.

Micronutrient deficiency is also a major problem in the province. In particular, vitamin deficiency in children aged 6-59 months is prevalent, as are iron deficiency (iron deficiency anemia) and iodine deficiency disorders.

Table 6: Prevalence of Malnutrition in Different Territories Over the Past Five Years

Territory	Health Zone	Year	Month	% GAM (P/T <-2 z-score	% GAM (PB <12.5 cm)	U5MR[13] (deaths/10,000 children <5 years/day)
Manono	Manono	2018	July	11,5	9,9	1,74
	Ankoro	2018	July	11,2	9,7	2,1
Nyunzu	Nyunzu	2018	June	6,7	9,0	1,32
	Nyunzu	2019	March-April	8,1	10	3,97
Kongolo	Mbulula	2019	March	7	7,8	2,41
Kalemie	-	2019	May	3,3	5,3	0,92
Manono	Ankoro	2019	May	12,5	14,3	5,24
Moba	Kansimba	2019	May	6,1	7,9	1,06
Manono	Ankoro	2020	Feb.-Mar	11,9	13,2	
	Manono	2020	Feb.-Mar	11,9	13,2	
	Kiambi	2020	December	6,6	11,3	
Nyunzu	Nyunzu	2021	July	3,9	4,7	1,41
Kongolo	Kongolo	2022	March	7,7	6,3	0,78
	Mbulula	2022	March	9,9	8,1	0,78
Manono	Kiambi	2021	December	5,5	8,9	1,68

Source: PRONANUT, 2022

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[13] Under-five mortality rate (mortality rate for children under five years old)

Malnutrition is more prevalent in rural areas due to structural causes that are further exacerbated by shocks (climate-related, violent conflict and displacement, and high food prices). Malnutrition affects all ethnic groups, with children, pregnant women, and lactating women among the most affected. Education level is a key determinant of malnutrition with less educated households more malnourished than more educated ones (INS 2020). Conflict and declining productivity are the known drivers of poor nutrition, along with socioeconomic status.

According to the key informants interviewed, pregnant women, lactating women, and children are more susceptible to diseases due to malnutrition. The number of children dying from acute diarrheal diseases and measles is on the rise and pregnant women are prone to respiratory diseases, miscarriages, and malaria. Conflicts and food insecurity exacerbate the malnutrition and adverse health situation in the province.

4.3.3. Water, Sanitation, and Hygiene (WASH)

WASH issues are a significant concern in the province of Tanganyika. According to the 2018 MICS report, only 41 percent of the population in Tanganyika had access to drinkable water sources, and just 6 percent had access to basic sanitation facilities. Less than 20 percent of the province's population have a facility on their premises where they can wash their hands with soap. These low rates of access to clean water and proper sanitation can have serious health consequences, including the transmission of waterborne diseases such as cholera and diarrhea. In addition, the lack of adequate WASH infrastructure and services disproportionately affects women and girls, who often bear the responsibility of fetching water and may face safety risks when doing so.

4.4. Stability

The stability pillar of food security assesses factors that threaten the consistent access and availability of food. These factors could be economic, political, weather-related, or idiosyncratic. In Tanganyika, factors that introduce variability or instability in food availability and price levels are often seasonal and localized. At the local level, KIIs cite (i) the Twa-Bantu inter-community conflict, (ii) weather shocks (delayed rains, floods, etc.), and (iii) extreme poverty as factors that threaten consistent access to and availability of food. Section 3.1.3. discusses poverty incidence in the province.

Regional influences also have an impact, especially in the event of export restrictions imposed on food items on the Tanzanian market given that most of the food imports to Tanganyika come from Tanzania (as discussed in Section 4).

4.4.1. Weather Shocks and Food Availability

Generally, Tanganyika benefits from plentiful rainfall. However, according to key informants, rains are starting to come late, causing a drop in agricultural production. In fact, the rainy season usually starts in early September, but in 2022, the rains started in November. This delayed the agricultural calendar and the growing season in the province, making food unavailable for some time.

Weather shocks affect all crops in the province, especially maize, bananas, and cassava. For example, in 2021, abnormal rains and floods caused cassava to rot, leading to more vulnerable households, according to key informants.

An analysis of weather data from FEWS NET in collaboration with NASA shows that for the last ten years, rainfall in the DRC, in general, has been typical, with an average of 1,200mm/year. However, there has been an increasingly unequal distribution of rain over the years.

In the image below, FEWS NET estimates that the country's southeastern regions (Old Katanga, including the current province of Tanganyika) will experience light rains between December 2022 and April 2023. In contrast, the northwest (Equateur) and central (Kasai) areas may experience excess rainfall during this period (FEWS NET 2022). As mentioned earlier, December is the rainiest month in the province; yet forecasts predict light rain for December 2022 and most of the 2023 growing season (Figure 7).
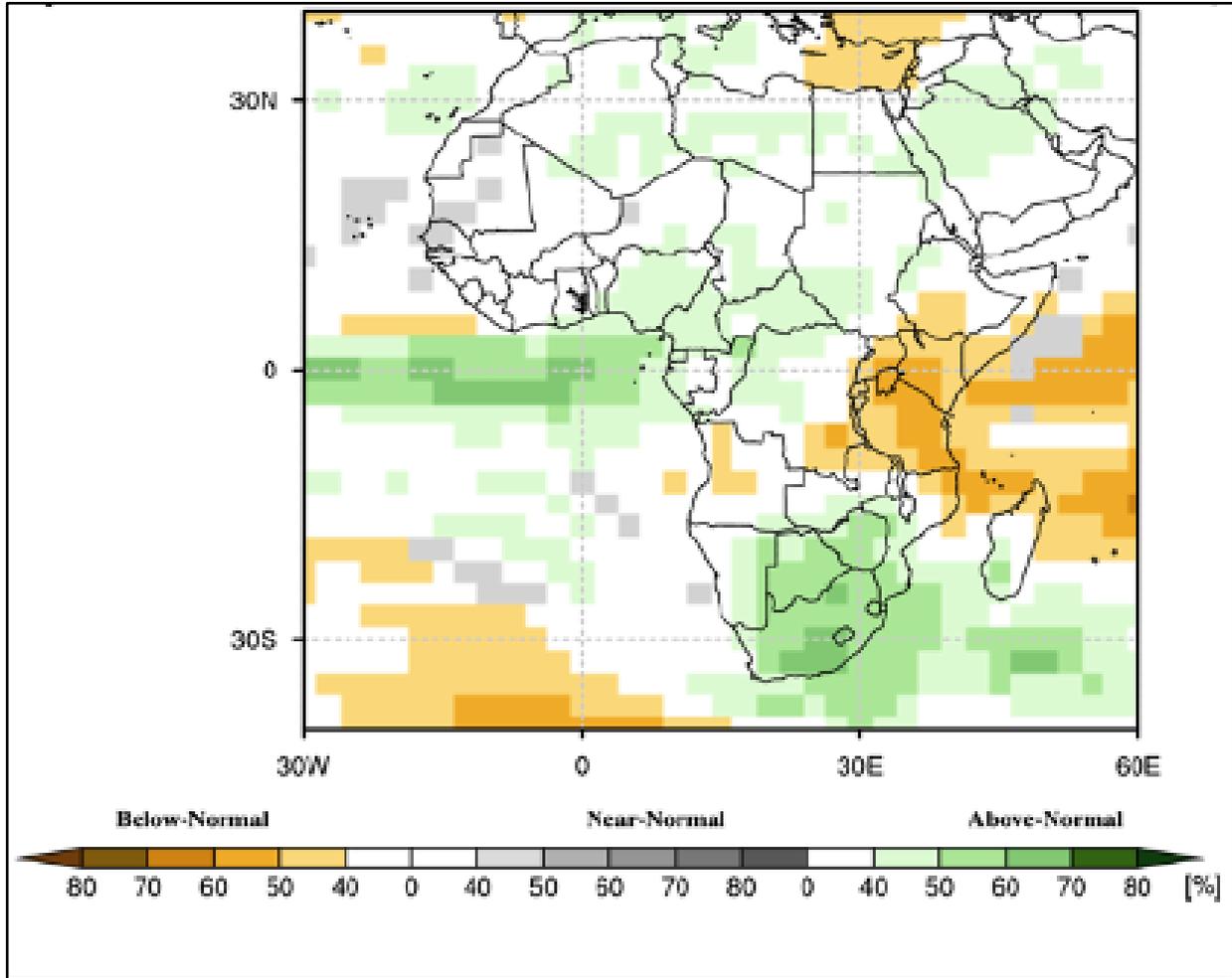
Figure 7: December 2022- April 2023 Precipitation Forecasts
(Source: FEWS NET 2022)

Figure 8 below displays rainfall amounts (in mm) in Tanganyika in 2022 (dark blue) compared to the long-term average (20 years, 1994-2013, in light blue) by dekad (a period of ten days) and month. The graph depicts the general timing of the rainfall season in Tanganyika for the year 2022.

The analysis of Figure 8 shows that, for 2022, during the beginning of the rainy season, which is a critical time for farming, rainfall is consistently below the 20-year average. However, the rainfall amount equals the 20-year average during the first dekad as of November 2022. During 2022, the dry season remained typical with rainfall similar to the 20-year average.
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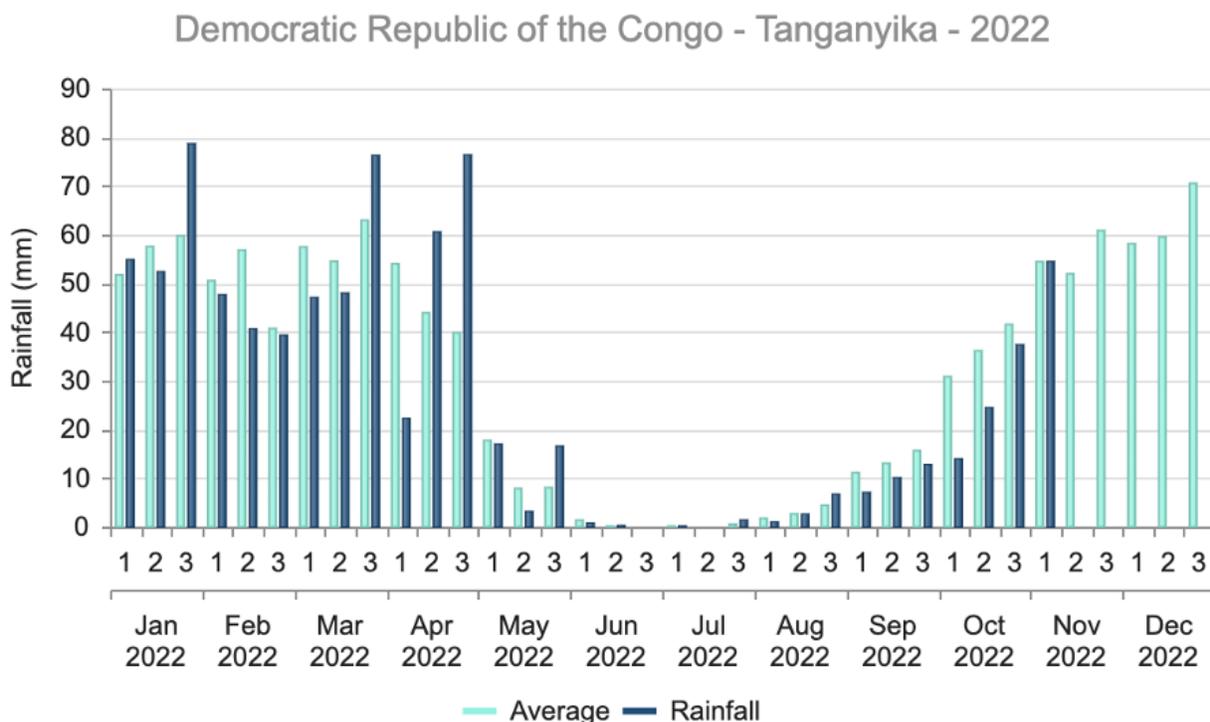
Figure 8: Rainfall Amounts (mm) in 2022 and 20-year Averages in the Province of Tanganyika

Rain abnormality

Figure 9 shows rainfall anomalies during 2022 in Tanganyika province. One-month and three-month anomalies are shown. Here, an anomaly constitutes a comparison between the given year and the long-term average and is expressed as a percentage. This is done for the rainfall in one-month and three-months increments. For example, a value of 82 percent of the three-month anomaly in the second dekad of August means that the rainfall for the three-month period ending on August 20 has been 82 percent of the average. For an average amount of 120mm, this would mean a current three-month rainfall of 87.6mm.

Values below 100 percent represent rainfall deficits and above 100 percent rainfall surplus. Note that one-month anomalies are more erratic than three-month anomalies and will reach more extreme values as would be expected. Values between 90 percent and 110 percent are considered as being within the range of normal variability for both anomalies.

Note: For locations with very low rainfall or during dry-season periods, anomalies can take extreme values. For example, if, on average, you get 2mm and in one particular month you get 8mm, the one-month anomaly will be 400 percent.
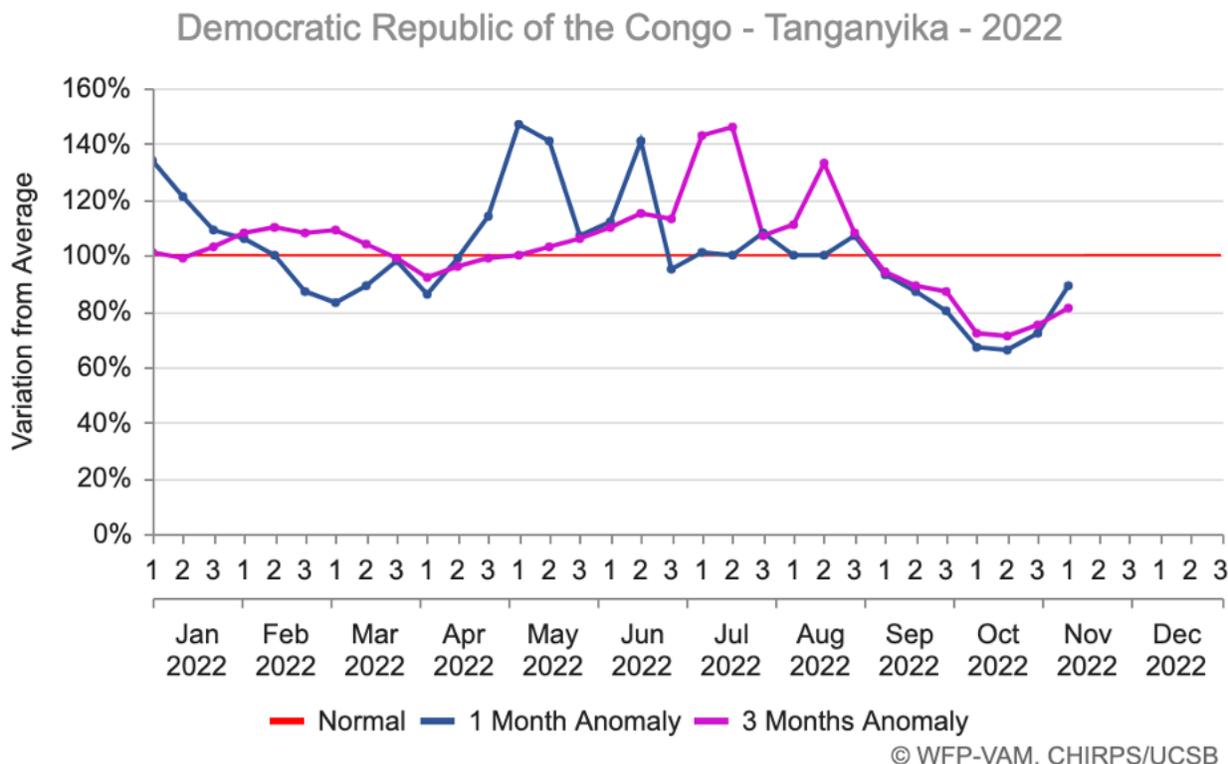
Figure 9: Rainfall Anomalies in 2022 in the Tanganyika Province

4.4.2. Conflict and Food Security

The Twa-Bantu conflict has affected the crop-growing areas of Tanganyika and has often led to the destruction of the Bantu fields. Conflict and migration also affect food availability by displacing labor or reducing production areas according to KIIs. Additionally, armed groups attack during the harvest period, causing huge crop losses for households in the province and a lack of seeds for the next season (Groleau 2017). Conflict and migration also affect assistance or intervention by the government, private sector, and NGOs, worsening the food insecurity situation in inaccessible areas.

In addition, according to KIIs, most sellers can no longer specialize in the trade of a specific product to guarantee its availability on the market, but they combine several commodities to make a profit.

Furthermore, the province experiences land disputes between breeders and farmers, leading to some breeders finding their livestock completely decimated overnight. Indeed, in the highlands of Marungu, important ranches in the province have been devastated, and their cattle

herds, particularly prized by the armed groups, have disappeared. Smaller livestock operations significantly downsized because of recurring conflicts (Ministry of Planning 2017; Groleau 2017; KIIs 2022).

4.5. Actors

Several multilateral and bi-lateral agencies and NGOs are implementing development and humanitarian projects in Tanganyika. The goal of these actors is to support the DRC and local government in their actions. Table 7 summarizes the most cited actors (by KIIs) involved in resilience and FNS in the province.

Table 7: Most Cited Actors Involved in Resilience and FNS in Tanganyika

Type	Actors
United Nations organizations	WFP, Food and Agricultural Organization (FAO), UNICEF
International Non-Governmental Organizations (NGOs)	CONCERN, Agency for Technical Cooperation and Development, CRS, World Relief, Caritas, ADRA[14], AVSI[15]
Local NGOs	Action Against Poverty, Association of Farmers Without Borders, Friend of People in Distress
Governmental organizations	Ministry of Agriculture, Provincial Minister of Agriculture, Fisheries and Livestock, Patrice Emery Lumumba University

Source: Authors, Adapted from KIIs

5. Market Context

In Tanganyika, there is at least one large market in each territory (Kalemie, Kongolo, Kabalo, Manono, Nyunzu, and Moba). Moba and Kalemie have the largest markets in the province. With agriculture, fishing, and livestock as the primary occupation in the province, Kalemie and Moba are the market hubs. In fact, the Moba and Rugumba production basins supply the city of Kalemie.

When it comes to the food supply, markets play a crucial role in the province. KIIs suggested that agricultural production in the province is not enough to fully meet the population's

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[14] https://adra.org/

[15] See https://www.avsi.org/en/what-we-do/countries/democratic-republic-of-congo

food needs, even if, for some commodities, territories have sufficient production. When the supply of locally produced food is insufficient to meet local demand, the market fills the gap with imports from neighboring countries, primarily Tanzania, which leads, in most cases, to increased food prices in the local market. For example, in Kongolo, cited by all KIIs as the biggest food production hub, oil and maize are sufficiently produced, but cassava and other staples are imported. KIIs also cited Moba as the largest bean-producing territory but deficient for other staples. Overall, KIIs suggested that the province imports about 40 percent of food products to meet the population's needs.

5.1. Markets Profile in Tanganyika

Markets in Tanganyika vary by size, type, and commodities traded. The Market Functionality Index (MFI) is often used to evaluate market performance in the DRC. The MFI includes 12 indicators grouped into the following four categories:

- availability (presence of commodities, diversity, stock, price trends),
- competition (number of traders, price setting mechanisms, tax, and license system),
- response capacity (access to sources of supply, frequency and time of supply, capacity to respond to a demand increase), and
- constraints (access to credit, means of transport, physical access to the market).

In 2019, using the MFI (See Figure 10), the Ministry of Agriculture found that Tanganyika's markets function well. There are many exchanges between territories and neighboring countries (Tanzania and Zambia). The strengths of Tanganyika's markets are the wide availability of food products, the existence of storage facilities, permanent access to sources of supply, a short restocking time, a large number of traders on the markets, and the ability to respond to an increase of more than 25 percent in demand. On the other hand, the weaknesses of all markets in the province include lack of access to credit, lack of capital, and the high cost of transportation to the market (Ministry of Agriculture 2019).

Territory	Market	Market Functionality Index
Kalemie	Kanteba	0.60
	Kalemie	0.83
Manono	Kanteba	0.77
	Kiala	0.77
	Manono	0.77
Moba	Moba	0.77
Nyunzu	Nyunzu	0.75

MFI
- 0.851–1
- 0.751–0.85
- 0.6–0.75
- <0.6

Figure 10: MFI for Selected Markets in Tanganyika in 2019
(Source: Ministry of Agriculture 2019**)**

The territory of Kongolo has a very large market that is connected to Kabalo and Nyunzu. Kongolo is the only territory that does not experience the Twa-Bantu conflict, its production is not affected, and thus it reflects Tanganyika's production potential. It is also connected to the territory of Kabambare in the province of Maniema; its marketing channel goes as far as the provinces of Kasai and Lomami. Maize is the predominant commodity in the Kongolo market, as well as cassava and peanuts, all in sufficient quantities.

Food commodity production in Nyunzu and Manono is very limited due to inter-community conflict and clashes with armed groups. Nyunzu is supplied in part by the Kabalalo market. The latter benefits from the presence of the WFP/FAO Project for Policy (P4P) project. It has a profile of a collection market. A collection market is a market where collectors or wholesalers gather/buy commodities to sell them on consumption markets. The key staple crops mentioned earlier are not available in the Nyunzu market, except for peanuts.

Kalemie city center has a consumer market connected to Tanzania on which it depends greatly for several fresh agricultural products and, to some extent, cereals. The port of Kalemie receives food and manufactured products from East Africa. It is also connected to the province of South Kivu, particularly the Uvira region and Bukavu city.

Figure 11: Inside Kalemie City Market © Octopus Consulting & Insight

The Moba market is the most diverse in the province, offering a variety of food products such as beans, potatoes, maize[16], plantain, peanuts, and more.

Market Days/Calendar

It is important to note that all territorial markets operate daily and offer food products, including maize, cassava, and palm oil.

Price Setting Strategy

Prices are set by individuals with no regulation by state authorities.

Transport

Carriers facilitate the transport of products purchased from farmers or wholesalers. Bicycles or motorcycles are the most common means of food products' transport. These modes of transport play a key role in the collection of products for the benefit of wholesalers. The latter rent trucks for transport to consumption centers, where retailers sell to consumers. In Moba, boats also help transport goods.

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[16] Agricultural commodities such as maize are sold using local measurement units, including Pompa (1 Pompa = 20 kg) and Meka (1 Meka = 25 kg).

Table 8: Market Participants in Tanganyika

Market participants	Role
Wholesalers	Collect goods from local markets and export their products to urban areas
Intermediaries	Are resellers, middlemen, or collectors who often seek sourcing markets for wholesalers
Retailers	Sell commodities to consumers and source products from wholesalers
Carriers	Facilitate the movement of products from production areas to markets or from one market to another

Source: Authors, Adapted from KIIs

5.2. Market Integration

Local markets in Tanganyika are integrated with national markets as well as regional markets in neighboring countries like Tanzania, Burundi, and Zambia. That integration is made possible by Lake Tanganyika. There is market integration when the prices of related goods and services across different markets are aligned or follow similar patterns over an extended period of time (Abay et al. 2023). Market integration shows how much different markets are related or connected to each other.

The territorial market in Kongolo is connected to markets in the Maniema and South Kivu provinces. This connectivity also benefits Nyunzu and Manono. Lake Tanganyika plays a large role in trade flows in the region (See Figure 12). It is often referred to as the boulevard de la region (the boulevard of the region). The territory of Kalemie, with its port (Kalemie port), opens the province to national and international trade. The province imports food items such as oil, rice, tomatoes, and goats from Tanzania.
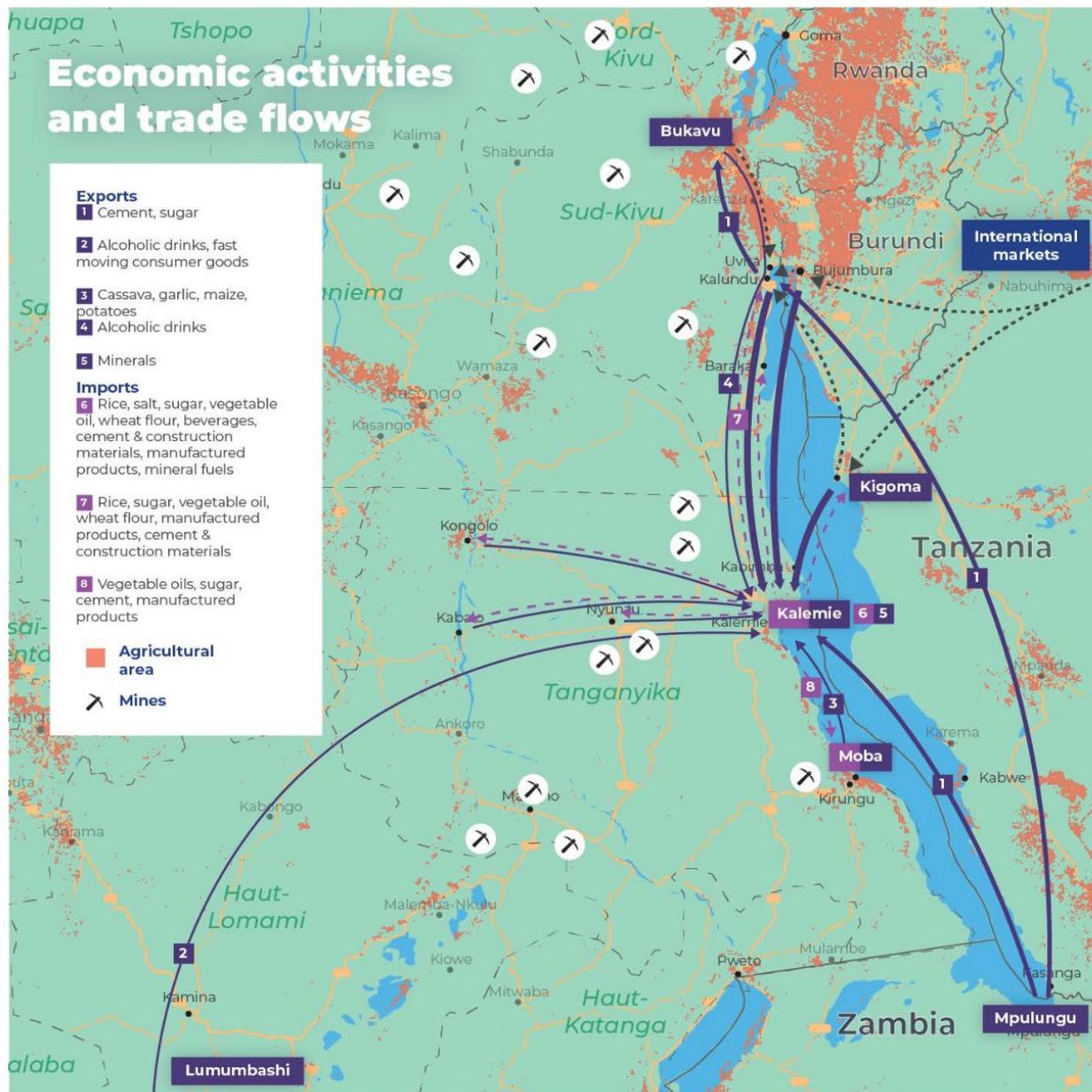
Figure 12: Tanganyika Economic Activities and Trade Flows
(**Source**: Bahiz et al. 2021)

5.2.1. Commodity Price Trends

Overall commodity prices are rising. Food price trends are seasonal with volatile variability. Figure A11 in the appendix illustrates this general trend. The graph shows monthly market prices for major staple crops sold in Kalemie and Lukuga markets, between 2020 and 2022. During harvest months, prices remain relatively low, while prices tend to rise in the

months leading up to harvest periods. In particular, shelled peanuts and oil prices have risen alarmingly during the last two years. In general, events such as weather shocks, conflict, disease outbreaks, or food shortages drive market prices for food commodities higher. With no price control mechanism by the authorities, the continuous food price increase may worsen the food security situation in the province.

KIIs anticipate commodity prices will remain high despite food availability because of population growth, the high number of people displaced by the conflicts, and shocks such as the presence of elephants destroying fields and food resources in Kabalo territory.

6. Food Assistance in Tanganyika

6.1. Food Assistance Procurement

All key informants interviewed asserted that there are sufficient ports, transportation, and storage facilities to ensure that in-kind commodities can be stored and distributed. Descriptions of the ports in the provinces, as well as their capacity, storage facilities, and other characteristics can be found in Section 3.3.3. As previously mentioned, the ports in Tanganyika are built on the shores of Lake Tanganyika, not on the seacoast. The largest ports are the ports of Kalemie and Moba, which are integrated with Tanzania, Burundi, and Zambia.

The biggest challenge to in-kind product distribution is the road infrastructure. In fact, as discussed earlier in the report, the province's roads, mostly in rural areas, are in poor condition. During the rainy season, most of these roads are impassable even for motorcycles. This could lead to production losses due to storage and time.

KIIs suggest mixed results on storage facilities availability. According to our KIIs, the province has warehouses available with adequate capacity to store in-kind goods, in the ports as well as in urban centers. The capacity of some ports' warehouses is summarized in Table 1. KIIs stated that storage facilities outside of ports have a capacity of up to 500 tons. However, some point out the poor conditions of the storage facilities; as did this KII: "*For example, in this market (Lukuga), we recorded a lot of rots due to excessive heat last month.*"

6.2. Food Assistance and Local Agricultural Production and Marketing

In the current state of the Tanganyika province, all KIIs acknowledge that food distribution will not deter nor impede domestic agricultural production and marketing if done appropriately. In fact, with (i) the increasing number of displaced people due to conflict and

insecurity, (ii) the destruction of fields by elephants, and (iii) the outbreak of plant diseases such as cassava mosaic disease, farmers can no longer grow crops in many fertile places. Thus, creating the current deficit in production levels. Food distribution in this context, especially in the lean season or at the beginning of the production period, would help alleviate farmers' food needs and allow them to sustain the growing season.

> *"...The province of Tanganyika is going through a crisis, the Twa-Bantu conflict, that has severely impacted agricultural production. However, some areas are experiencing a lull and slowly resuming production. In this latter case, food distributions are beneficial during the lean or sowing season; otherwise, food aid creates a wait-and-see attitude. In general, agricultural production is still very low,"* said a key informant.

6.2.1. Food Assistance and Local Context and Regulations

When it comes to food distribution, local authorities do not impose any specific restriction on the modalities. According to KIIs, all food assistance modalities are feasible, as long as there are market studies beforehand.

One noteworthy food assistance procurement factor is that the DRC's government does not impose restrictions on the import of food products, even in the case of GMOs. This could facilitate regional and international procurement. GMO multiplication (growing) is forbidden in the country. Import restrictions are only imposed on adulterated products or those deemed unfit for consumption, as well as inadequate fishing equipment (mesh nets).

6.3. Recent Food Assistance Activities in the Province

Food and cash distributions to the most vulnerable have been frequent for nearly ten years in the province. The most cited examples of food distribution assistance are:
- The WFP, which has two types of assistance modalities through its General Distribution program: in-kind and cash transfers to those displaced by conflicts and other vulnerable groups, as well as a resilience program (P4P) in the Nyunzu territory;
- Agency for Technical Cooperation and Development (Agence d'Aide à la Coopération Technique et au Développement);
- Concern Worldwide;
- Catholic Relief Services;
- Solidarité Internationales;
- FAO;
- Food For Work (food and seeds distribution); and

- International Rescue Committee.

Although it was not cited by KIIs, it is important to mention that UNICEF conducts cash transfer rounds through its Cash for Nutrition program in the Manono territory. The program supports families with children who are receiving treatment for severe acute malnutrition to ensure that the household has access to nutritious food and avoids falling back to malnutrition after treatment.

> "...*The World Food Programme distributed maize flour and semolina oil to members of farmers' organizations. Food items were given in a public place where recipients had to present their membership cards individually first. We learned that the assistance did not meet the food needs of the recipients for a week. Apart from the small quantities served, the requirement that these beneficiaries have to abandon their activities to only focus on the farmer's organization has not sounded well in the community,*" said a key informant.

In terms of modalities, the most used ones are in-kind distribution followed by cash transfers. Food fairs have been used to a lesser extent. When it comes to food distribution in Tanganyika, our key informants stress that the biggest challenge remains transportation. In fact, road and railway infrastructures are in poor condition in most rural areas of the province. In the rainy season, roads are impassable or dilapidated. In addition, gas prices are increasing due to the war in Ukraine.

6.4. Food Assistance Modalities and Context

According to all key informants, the current macroeconomic context, particularly with regard to the exchange rate between the Congolese franc and the US dollar, will not affect the feasibility of cash and voucher transfers. In fact, the exchange rate has remained stable between mid-2020 and 2022, with 1 USD = 2,000 FC, according to our KIIs. The only challenge they foresee lies in the security of fund transfers via private agencies. In Tanganyika, secure digital money transfer services are offered by only three providers: M'pesa of Vodacom, Airtel Money, and Orange Money. With the growing insecurity in the community, KIIs mentioned that a phone could be stolen and if so, the recipient could lose everything.

When it comes to what transfer modality could be implemented and on what scale without creating major market distortions, assuming that current market conditions are maintained over the next two years, our KIIs had mixed opinions. On the one hand, some suggested that all modalities are feasible, but believe a risk analysis should be conducted prior to implementation. On the other hand, some KIIs believed that it is very unlikely that the current

market conditions would hold in the next two years because, in their opinion, the economic situation would keep worsening due to poverty, rising prices, and climate change. In addition, market actors, especially traders, are credit constrained because there are not enough microcredit institutions in the province.

Literacy and numeracy levels in the province can be an obstacle to the success of some food assistance modalities, according to all KIIs. In fact, they stress that low numeracy and literacy levels do not allow for active participation in cases of cash transfer using digital finance, especially in rural areas and even more so for women.

Finally, for an eventual food assistance program, the Congolese Control Office[17] has the capacity to test products for quality assurance in accordance with international food standards. According to our key informants, that office in Kalemie does not currently conduct some tests such as the aflatoxin test. For aflatoxin tests, samples are sent to Bukavu.

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[17] See http://occ.cd/

7. Conclusions

This report presented the results of the DRMS conducted in Tanganyika. The goal of the DRMS is to inform BHA's RFSA design process and to serve as a publicly available resource for implementing partners developing applications to BHA's RFSA solicitations.

The information presented in this report was collected through a desk review complemented by KIIs conducted in four territories within the province (Kalemie, Kabalo, Manono, and Moba). The analysis shows that Tanganyika is a food-deficit province, although it is endowed with natural resources and conditions suitable for good agricultural production (vast fertile arable land, good rainfall, and a young population). No territory has self-sustained production of all major staple commodities.

The main impediment to production is the Twa-Bantu conflict, resulting in the destruction of fields, labor displacement, and a decline in production areas. Additionally, armed groups attack during harvest periods, causing extremely significant crop losses for households and a lack of seeds for the next season.

Given the insecurity situation and the vicious cycle of deficient production, food assistance will not deter nor impede domestic agricultural production and marketing if done appropriately. Food distribution in the current context in Tanganyika would help farmers through hard times like the lean season and allow them to sustain the growing season.

Previous humanitarian efforts have mostly used in-kind distribution followed by cash transfers as modalities. Food fairs have been used to a lesser extent.

The province has sufficient ports, transportation, and storage facilities to ensure in-kind commodities can be stored and distributed, but the bad state of agricultural feeder roads and railways, and the poor conditions of some storage facilities, could be challenging.

The DRC's government does not impose restrictions on the import of food products, even in the case of GMOs, which could facilitate BHA's local, regional, and international procurement.

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Annexes

Annex 1: Figures

1 - Minimal   2 - Stressed   3 - Crisis   4 - Emergency   5 - Famine   Famine Likely   Areas with inadequete evidence   Areas not analyzed
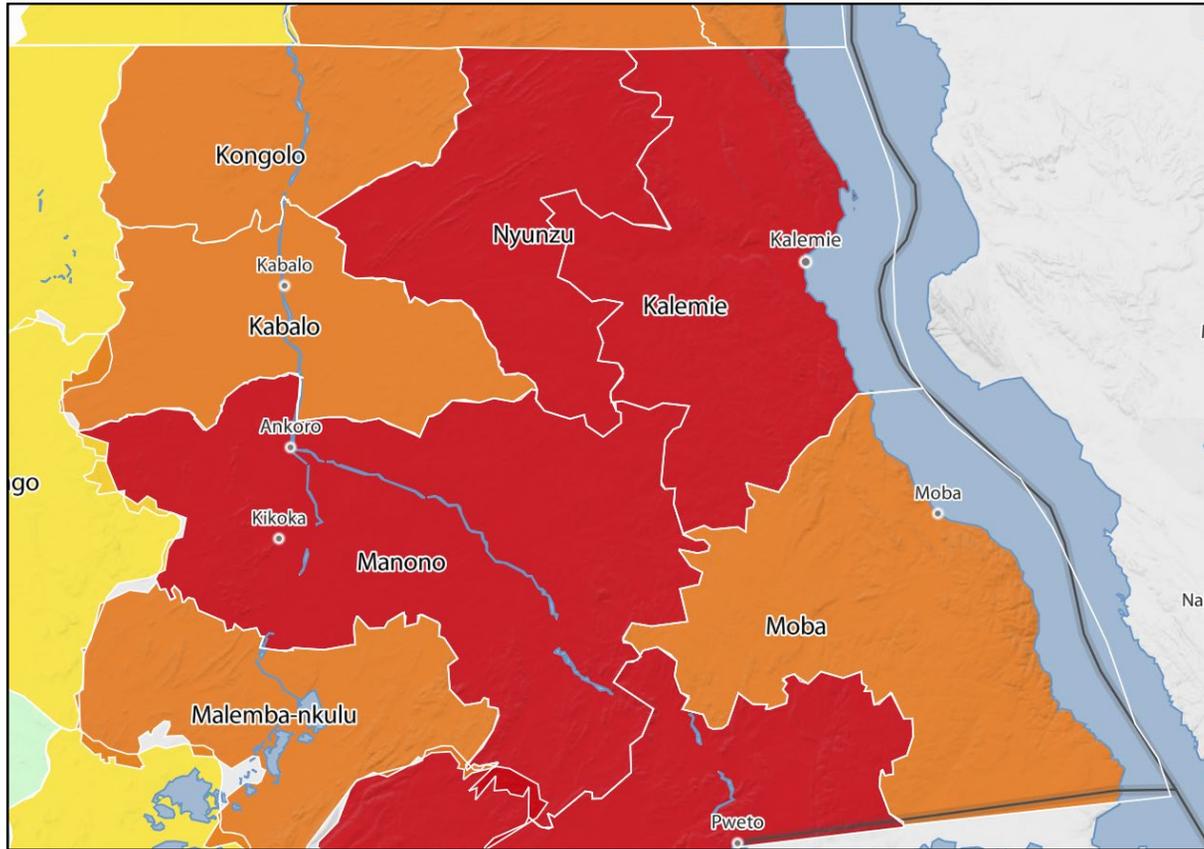
Figure A1: Acute Food Insecurity Situation for the Period of August 2018 - June 2019
(**Source**: Integrated Food Security Phase Classification)
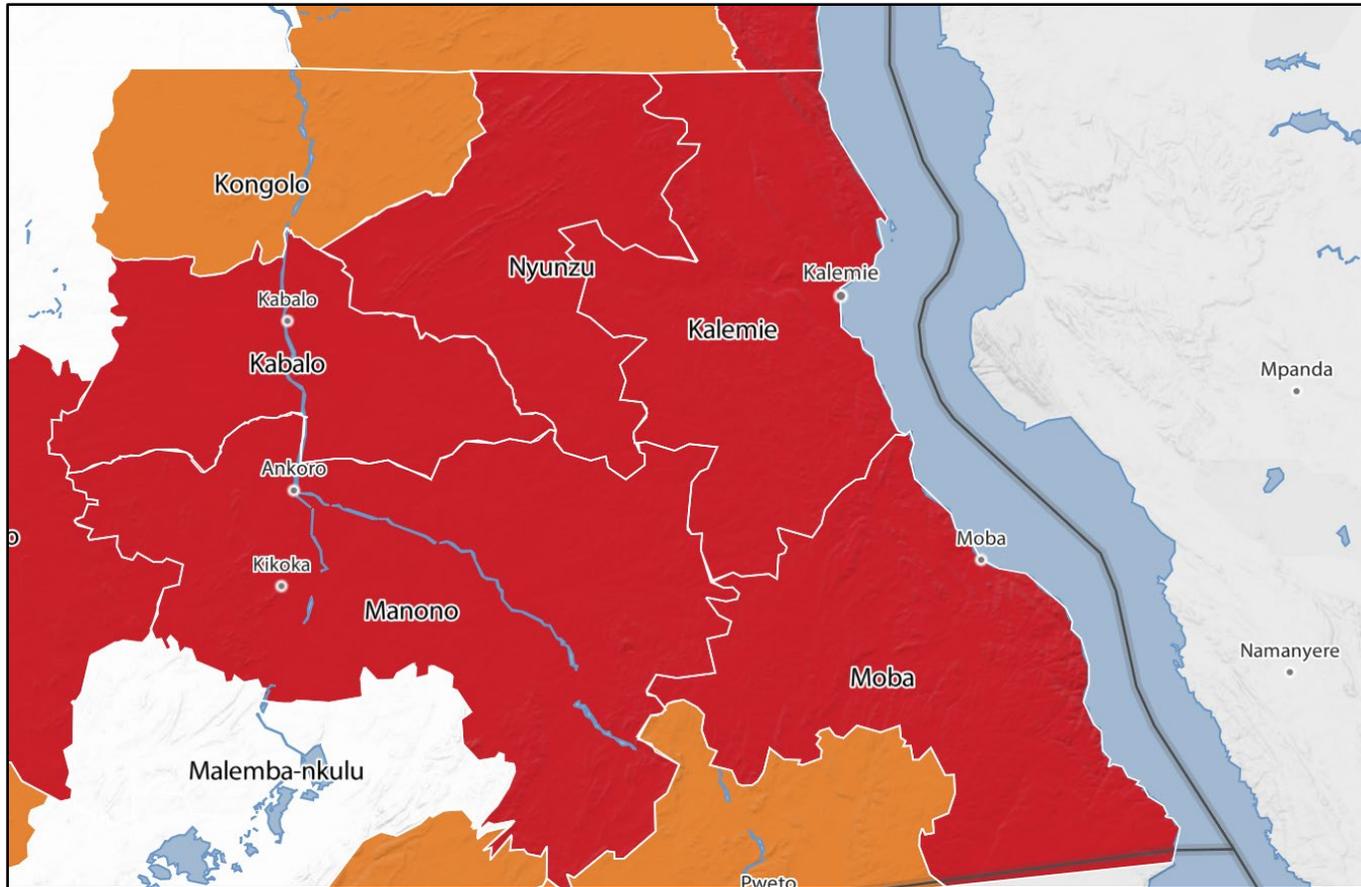
Figure A2: Acute Food Insecurity Situation for the Period of July 2020 - December 2020
(**Source**: Integrated Food Security Phase Classification)
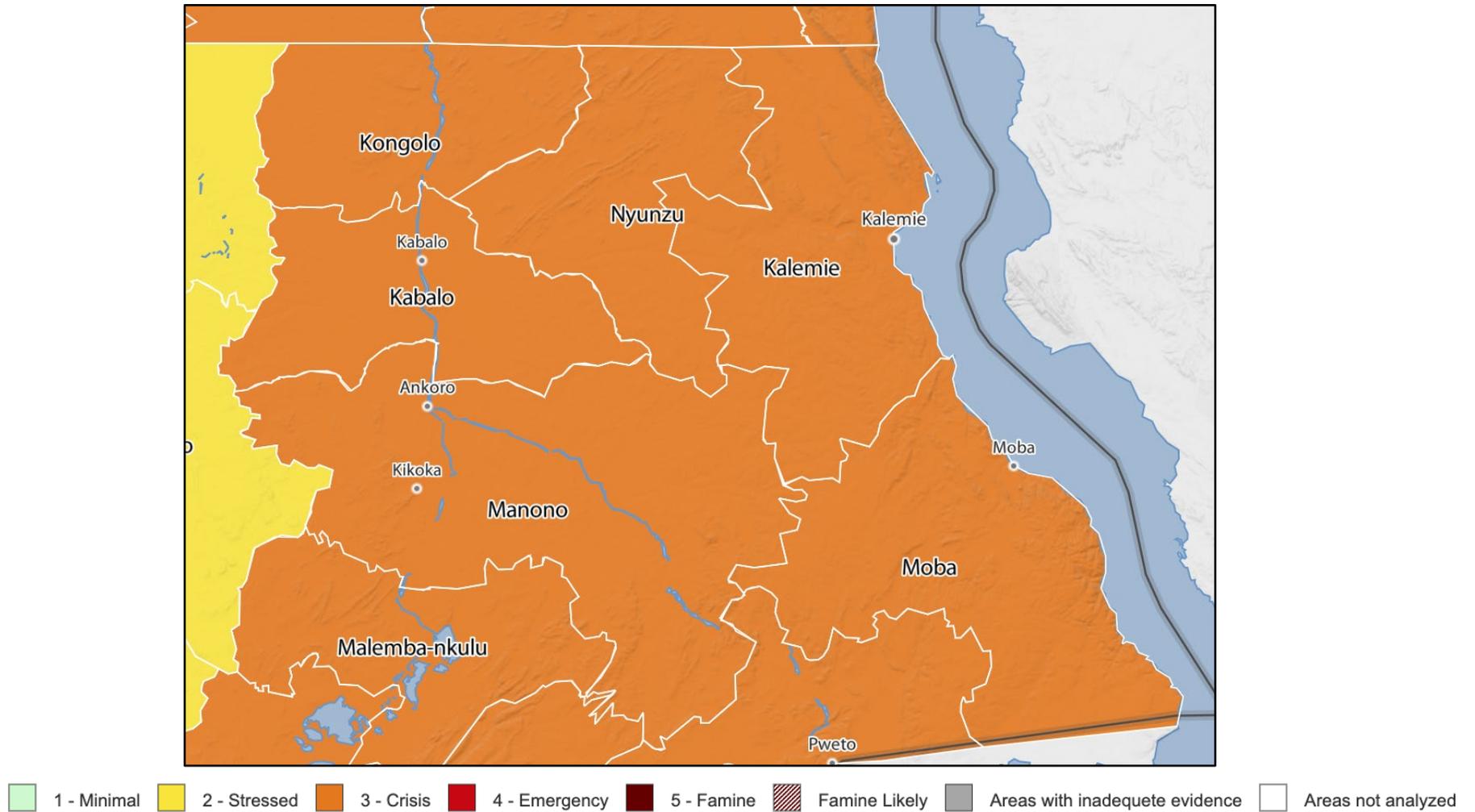
Figure A3: Acute Food Insecurity Situation between July 2022 and December 2022
(**Source**: Integrated Food Security Phase Classification)

In Figures A4-A10, deficit areas are colored red, surplus areas are green, and those with insufficient data are gray.

Province border
Territory border
Insufficient data
Deficit area
Surplus area

Figure A4: Food Needs Coverage Rate for Beans
(Source: Ministry of Agriculture 2019)

Figure A5: Food Needs Coverage Rate for Cowpeas
(**Source**: Ministry of Agriculture 2019)

——	Province border
········	Territory border
▢	Insufficient data
▉	Deficit area
▉	Surplus area

Figure A6: Food Needs Coverage Rate for Maize
(**Source**: Ministry of Agriculture 2019)

Province border
Territory border
Insufficient data
Deficit area
Surplus area

Figure A7: Food Needs Coverage Rate for Cassava
(**Source**: Ministry of Agriculture 2019)

Province border
Territory border
Insufficient data
Deficit area
Surplus area
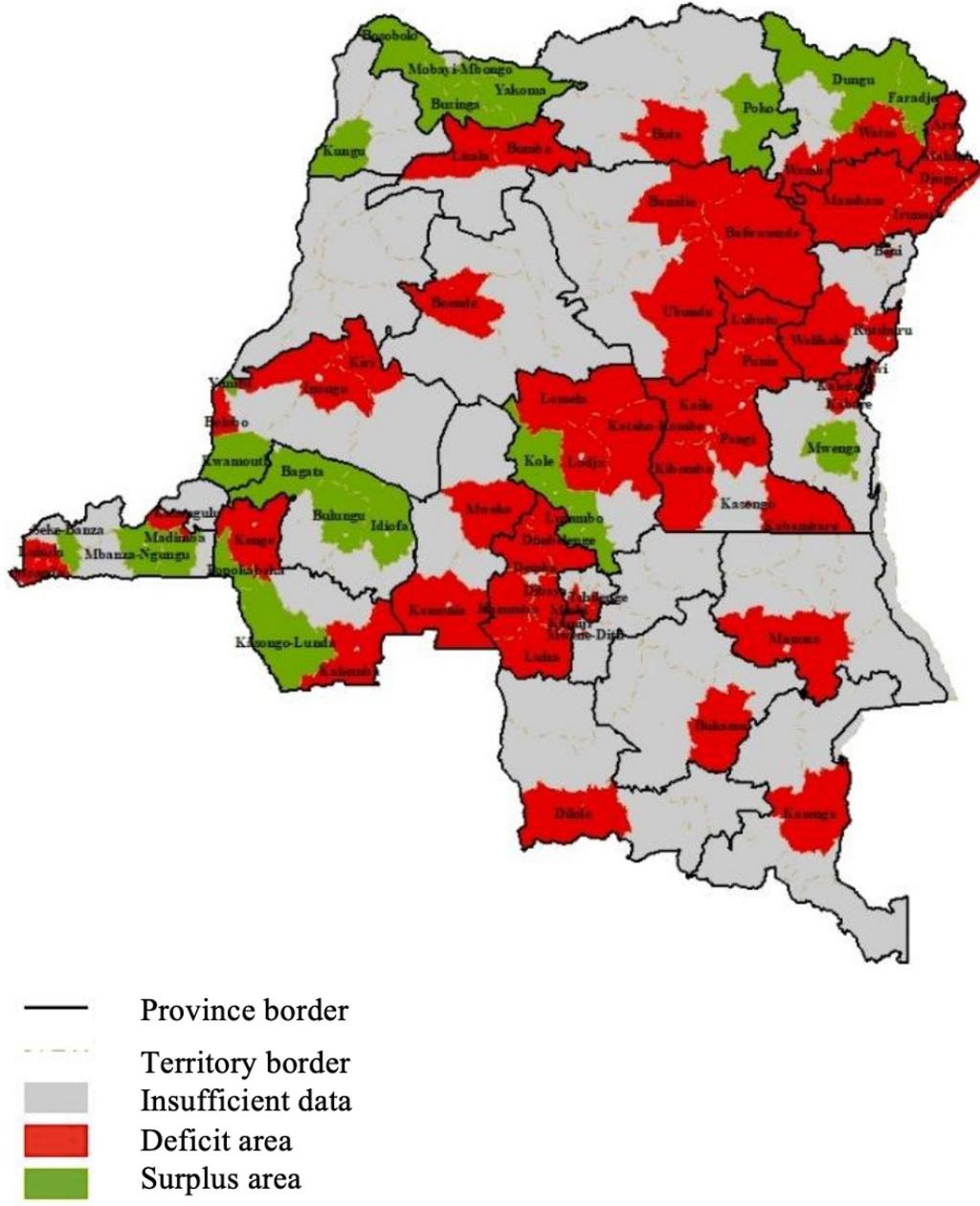
Figure A8: Food Needs Coverage Rate for Peanuts
(**Source**: Ministry of Agriculture 2019)

Province border

Territory border

Insufficient data

Deficit area

Surplus area

Figure A9: Food Needs Coverage Rate for Cereals
(**Source**: Ministry of Agriculture 2019)

Figure A10: Food Needs Coverage Rate for Rice
(**Source**: Ministry of Agriculture 2019)
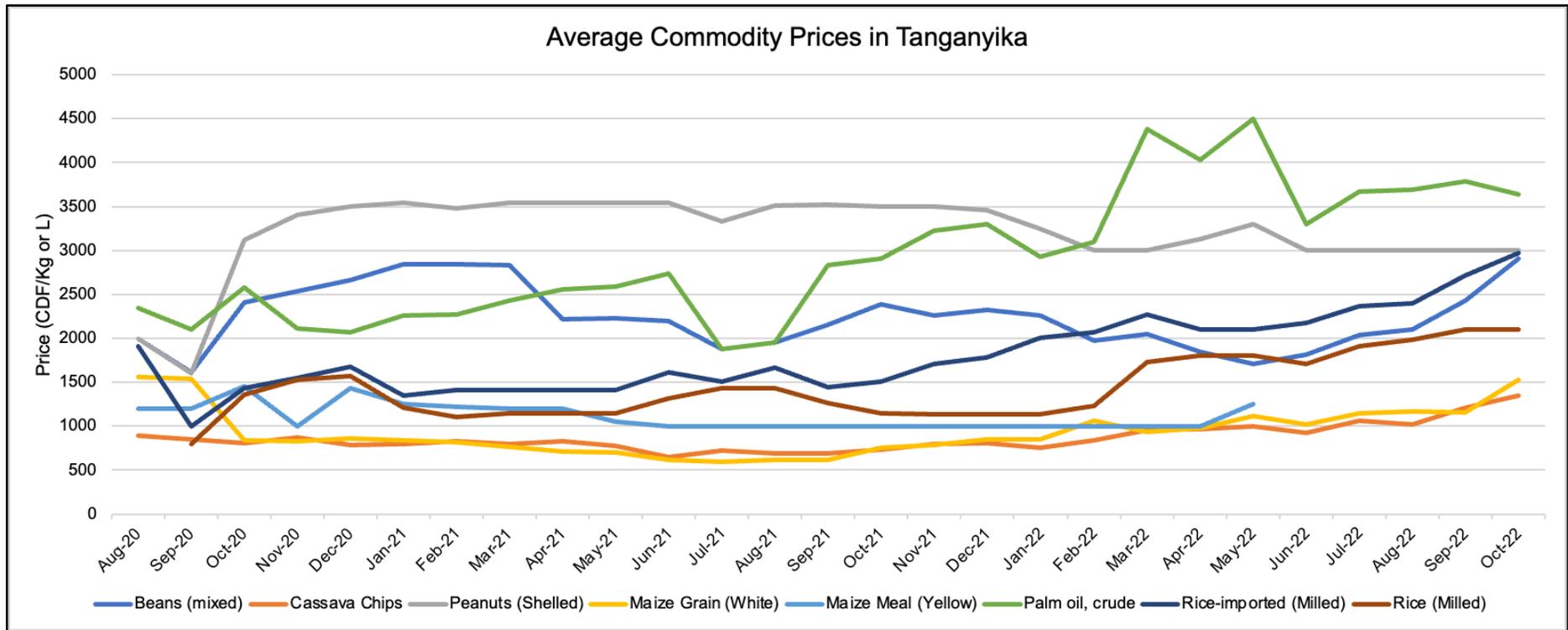
Figure A11 : Average commodity prices in Tanganyika (CDF[18]/Kg or L)
(**Source**: FEWSNET (https://fews.net/fews-data/337))

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[18] Congolese Franc. 1 US dollar = 2000 CDF at the time of this report

Annex 2: Key Informant Interview Guide

Section 1: US In-kind, Local[19] Procurement, Regional[20] Procurement and/or International[21] Procurement

The goal here is to understand the factors involved with delivering in-kind food assistance.

1. Are there adequate ports, transportation, and storage available to ensure in-kind commodities can be stored and distributed without substantial waste?

2. To what extent would the distribution of the commodities in each province result in a substantial disincentive or interference with domestic agricultural production or marketing?

3. To what extent are there any restrictions on modalities and/or delivery mechanisms by relevant authorities (e.g., formal or informal government policies)?

    a. What are the risks to delivering assistance across modalities (security, fraud, liquidity, government interference, etc.)?

    b. What, if any, restrictions do the DRC's government impose on the importation of commodities, e.g., GMO considerations?

    c. What is the recent history of export restrictions from neighboring countries and how might they affect the reliability of regional procurement options?

4. What food assistance activities are currently or have recently been implemented in the area and what modalities/delivery mechanisms did they utilize? What were the key lessons learned and challenges faced?

Section 2: Food Availability

The goal here is to get an understanding of the extent to which food is available in sufficient quantities for purchase in markets in the Kasai, Kasai Central, and Tanganyika provinces. It is also important to understand market quality and ability to meet local demand and to what extent markets for staple food function in the provinces.

1. What are the key markets in the Kasai, Kasai Central, and Tanganyika provinces?

2. What is the market structure, conduct, and performance for key food staples (cassava, plantains, peanuts, maize, beans, rice, potatoes, soybeans, and edible oil) in the Kasai, Kasai Central, and Tanganyika provinces and the marketing basins that serve those areas?

3. What is the production capacity of these staple foods in the provinces? Is it typically self-sufficient, deficit or surplus producing?

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[19] Local Procurement – The purchase of commodities sourced in the country where they will be distributed.

[20] Regional Procurement – The purchase of commodities sourced within the same continent as the country where they will be distributed.

[21] International Procurement – The purchase of commodities sourced outside the continent where they will be distributed. Note the definition of international procurement does not include procurement from the United States.

4. How do rainfall and access to water affect food availability?

5. (Get documents or data to graph price trends for key commodities in the three provinces): What are the current and longer-term commodity price trends, for multiple years if available, for staple food markets in the targeted area?

6. What is the basic profile of key markets in and serving the provinces (key commodities sold, types of vendors, typology of market size/type, quantities traded, market days/schedule)?

   a. Describe the roles of various market actors (wholesalers, middlemen, retailers, and transporters) and price-setting behavior.

7. To what extent are key reference markets accessible to populations vulnerable to nutrition and food insecurity and does accessibility vary (by gender, age, ethnicity, socioeconomic status, language, religion, disability, and the socially excluded)?

8. To what extent are the local markets integrated with national, regional, and/or international markets?

9. When the supply of locally produced food is insufficient to meet local demand, does the market meet demand (price responsive)?

10. What are the factors that introduce variability (or instability) in availability and price levels? These may be localized, national, regional, or international.

11. How do shocks (especially conflict), migration, environmental, and other contextual factors influence and impact:

   a. Food availability

   b. The functionality of the markets and staple commodity price trends?

   c. The capacity of the private sector, government, and non-government actors to provide agricultural production-related services (inputs, extension, marketing, etc.) for staple food and livestock?

Section 3: Food Access

The goal here is to get an understanding of the extent to which extremely poor and vulnerable households can access food in the three provinces.

1. What are the main staples accessed through own production (including cassava, plantains, peanuts, maize, beans, rice, potatoes, soybeans, and edible oil and livestock such as goats, pigs, rabbits, guinea pigs, and chickens?

   a. How does this vary by key demographics?

   b. What proportion is this of their total food needs?

2. What percentage of average household expenditure is on market food purchases?

   a. How do purchase patterns vary seasonally?

3. What is the typical food basket consumed by households in each of the three provinces? To what extent are there differences in how people access food based on their level of

wealth, vulnerability, and other social characteristics (sex, age, ethnicity, political affiliation, etc.)?

4. What are the main sources of income for the food insecure?
5. To what extent do households in each province diversify their livelihoods
6. How do populations access markets?

   a. Who typically purchases commodities for the household?

   b. How do people travel to the market (modes of transport)?

   c. How far do they typically travel and what average costs do they typically incur?

   d. How do people of different socioeconomic groups generally use cash, credit, or barter to purchase goods and any relevant services (e.g., milling) at food markets?

   e. How do shocks (especially conflict), migration, environmental, and other contextual factors affect access to markets and other food sources?

7. Do small-scale farmers have access to high-quality, affordable seeds for cassava, plantain cuttings, and peanuts, maize, beans, rice, potatoes, and soybeans?
8. How do people cope if they have inadequate access to food? To what extent are there differences in how people access food based on sex, age, socioeconomic status, and other social characteristics?

Section 4: Food Utilization and Nutrition

To understand food utilization and nutrition trends and how they vary by province and across demographics

1. What are the current, recent, and projected trends related to malnutrition, dietary diversity for women and children, child feeding, family planning, infectious diseases (i.e., upper respiratory disease, COVID-19, malaria), acute diarrheal illnesses, water, and sanitation access, and hygiene behavior changed status?

   a. To what extent are there differences in these trends based on socioeconomic status, vulnerability, education level, immigration status, and other social characteristics (sex, age, ethnicity, political affiliation, etc.)?

   b. How do these trends change because of a shock?

   c. What other characteristics, risks, and factors are associated with or contribute to poor nutrition-related outcomes?

2. What are the structure and characteristics of systems that provide nutrition, family planning, water, sanitation, and hygiene-related resources and services, especially related to the surveillance, prevention, and treatment of malnutrition?

   a. How does access to nutrition-related resources and services differ between communities, ethnic groups, youth, and adult men and women? How does this affect nutrition-related outcomes?

b. What is the current level of capacity of the private sector, government, and non-government stakeholders to provide nutrition-related services, especially during shocks or emergencies?

Section 5: Cash Transfers, Food Vouchers, or Small-scale Local Procurement

To understand the range of feasible modality delivery mechanisms within the provinces as related to cash transfers, food vouchers, or small-scale improvement.

1. How does the current macroeconomic context, particularly as it relates to uncertainty around Congolese Francs and US dollar exchange fluctuations, affect the feasibility of cash and voucher-based transfers?
2. To what extent are markets able to provide the necessary commodities in the quantity and BHA commodity quality needed to meet demand without inducing price increases at a rate above an appropriate benchmark for average inflation?
3. Assuming current market conditions hold in the next one to two years, which transfer modalities could be implemented and at what scale without significantly distorting markets?
4. Who are the available financial service providers, including mobile money providers, banks, Micro-Finance Institutions, SACCOs, etc?
   a. What are their capacities, coverage, reliability, and ability to meet program needs (liquidity)?
   b. What are the current adoption rates and/or size of the customer base in relevant geographic areas (bank accounts, mobile phones, etc.)?
5. Do local literacy and numeracy levels provide a distinct barrier to delivery mechanism success?
   a. Are market actors able to access credit?
6. What are the particular risks to delivering assistance across modalities (security, fraud, liquidity, etc.)?
7. Does the DRC's government or local organizations have the capacity to test commodities to ensure quality as per the Codex Alimentarius Recommended International Code of Practice: General Principles of Food Hygiene CAC/RCP 1-1969 Rev 4 – 2003?

Section 6: Key Stakeholder Mapping
1. Who are the various actors involved in resilience and Food and Nutrition Security in the focus geographic area?
2. What are the structure and characteristics of informal and formal mechanisms of social protection? To what extent are there differences in how people access social protection based on their level of wealth, vulnerability, and other social characteristics (sex, age, ethnicity,

etc.)? This includes gender-based violence (GBV) services, such as government and NGOs providing legal, psychosocial, protection, or medical services.

3. What are the mandates, missions, and objectives of each stakeholder?

4. What alliances and relationships exist between stakeholders?

5. What are the strengths, challenges, risks and opportunities for collaboration or coordination associated with working with each stakeholder?

6. What are the key resilience and food and nutrition security policies, strategies, and plans that exist or are planned?

7. What programs and projects exist or are currently planned in the provinces?
   a. Where are programs geographically and programmatically?
   b. What are the objectives of the program and who are the intended participants?
   c. What type and level of resources do the programs and projects provide?
   d. What is the timing and duration of the programs and projects?

8. What activities have been most successful and least successful in improving the resilience of those most vulnerable to nutrition and food insecurity? What factors contributed most significantly to high and poor performance?