

Agriculture supply chain mapping

Opportunities to rebuild Cabo
Delgado's staple food value chains

2024



Executive Summary

Cabo Delgado has historically faced high levels of malnutrition and food insecurity, resulting in negative socio-economic impacts, with over 4.6 Household Dietary Diversity Score (HDDS) in the pre-conflict period, with implications for health, particularly among children.

Due to the increased frequency and magnitude of the insurgency, coupled with climate-related shocks, all districts are currently classified as stressed or worse. Five districts are in crisis and four are dependent on humanitarian food assistance. Without aid these districts would be at least one stage worse, limiting communities' ability to generate income.

Although 48% of humanitarian aid is channeled into the food and agriculture sector, continuous year-on-year reductions in available funding hamper its effectiveness, and various agnostic market failures across value chains further threaten community livelihoods.

Given Cabo Delgado's significant production potential and large market, focusing on increasing the availability of Maize, Cassava and Rice could alleviate food insecurity pressures and improve livelihoods.

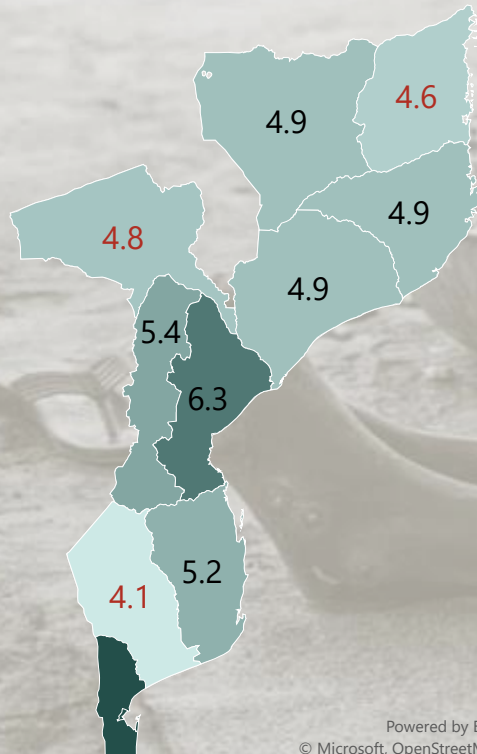
Key Takeaways

1. Cabo Delgado has historically been facing high levels of malnutrition and food insecurity, with negative socio-economic impacts
2. The insurgency's increased frequency and magnitude coupled with the climate related shocks worsened the situation into a crises and the reduction in humanitarian support threatens to lead into emergency or famine
3. Focusing on increasing availability of Maize, Cassava and Rice by improving connectivity and produce conservation could alleviate the pressure of food insecurity and improve livelihoods

Cabo Delgado has historically been facing high levels of malnutrition and food insecurity, resulting in negative socio-economic impact

Along with its neighboring provinces, Cabo Delgado had some of the worse HDDS¹ in the country in pre-conflict period

HDDS¹ score by province (Pre-conflict, 2009)



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Health problems as a child in Cabo Delgado is three times more likely to die before reaching 5 years of age than a child in the City of Maputo.

Reduce an individual's capacity to work, leading to **lower productivity and earning potential**

Severe and moderate chronic malnutrition in children under 5 years, Cabo Delgado achieved the highest value of 55.6%

Deter investment due to the perceived risks, slowing economic development

1) HDDS - Household Dietary Diversity Score is a population-level indicator that is used as a proxy measure of household food access (Swindale & Bilinsky, 2006)
Source: 360 Mozambique

The insurgency's increased frequency and magnitude coupled with climate related shocks worsened the situation into a crises

All district are classified as stressed or worse, with 5 in crises and 4 dependent on humanitarian food assistance, without which these would be one phase worse, limiting communities' income generation opportunities

The insurgency attacks (2017 - onward)

currently the major driver of food insecurity, the attacks led to widespread displacement and as families fled their homes, agricultural activities were abandoned, markets were destabilized, and access to food became increasingly constrained

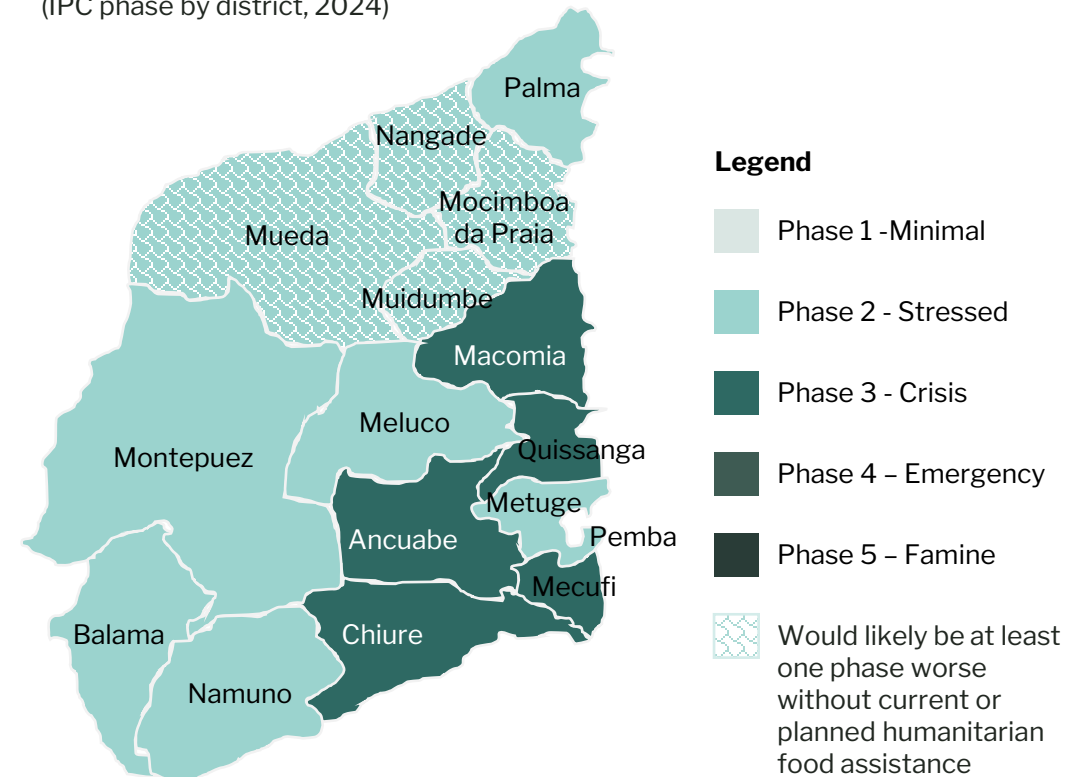
Cyclone Keneth (2019)

destroyed entire villages and displaced thousands of people that had already dealt with the consequences of drought. It resulted in the destruction of over 55 400 hectares of crops, and boats and fishing equipment in fishing villages, most in Cabo Delgado

El Niño (2024)

is leading to a mix of below-average and irregular rainfall, affecting agricultural productivity, with some crops failing due to drought, while others have been damaged by heavy rains

Acute Food Insecurity Classification (IPC phase by district, 2024)



Various agnostic market failures across value chains further threaten communities' livelihoods

Inputs & Production

- **Input access:** Access to quality seed and fertilizer is limited. Many SHFs rely on previous season grain or seed leading to low germination rates and low productivity
- **Technical knowledge:** Limited technical mastery of the value-chains hinders optimization of the production practices. The coverage of extension service officer is limited
- **Production technology:** Mass use of obsolete technologies with limited to no mechanized processes limits production capacity. Most farmers use small handled hoes
- **Irrigation schemes:** SHF rely on rainfed agriculture as there are a limited number of water sources available for agriculture-based interventions. The high costs of electricity and fuel make it prohibitive to incorporate alternative irrigation schemes

Transport & Storage

- **Limited access to silos:** Without proper access to storage, most farmers are forced to sell at harvest time, a point in which the market is flooded, and prices are at their lowest
- **Inadequate storage:** Without adequate storage, farmers are not encouraged to pursue easily perishable crops, that could offer better nutritional value due to potentially higher post-harvest losses
- **Improper road access:** Transporting product to market is unrealistic for most SHFs due to prohibitive costs and poor infrastructure, forcing sale at uncompetitive farm gate prices. Moreover, farmers have limited knowledge of market prices of their produce hampering their ability to negotiate

Processing & Packaging

- **Mismatch of processing needs and available facilities:** Although some operators report having spare capacity in their processing facilities, many farmers lack access to processing. Distance between processing units and prohibitive transport prices makes it difficult to match demand to supply

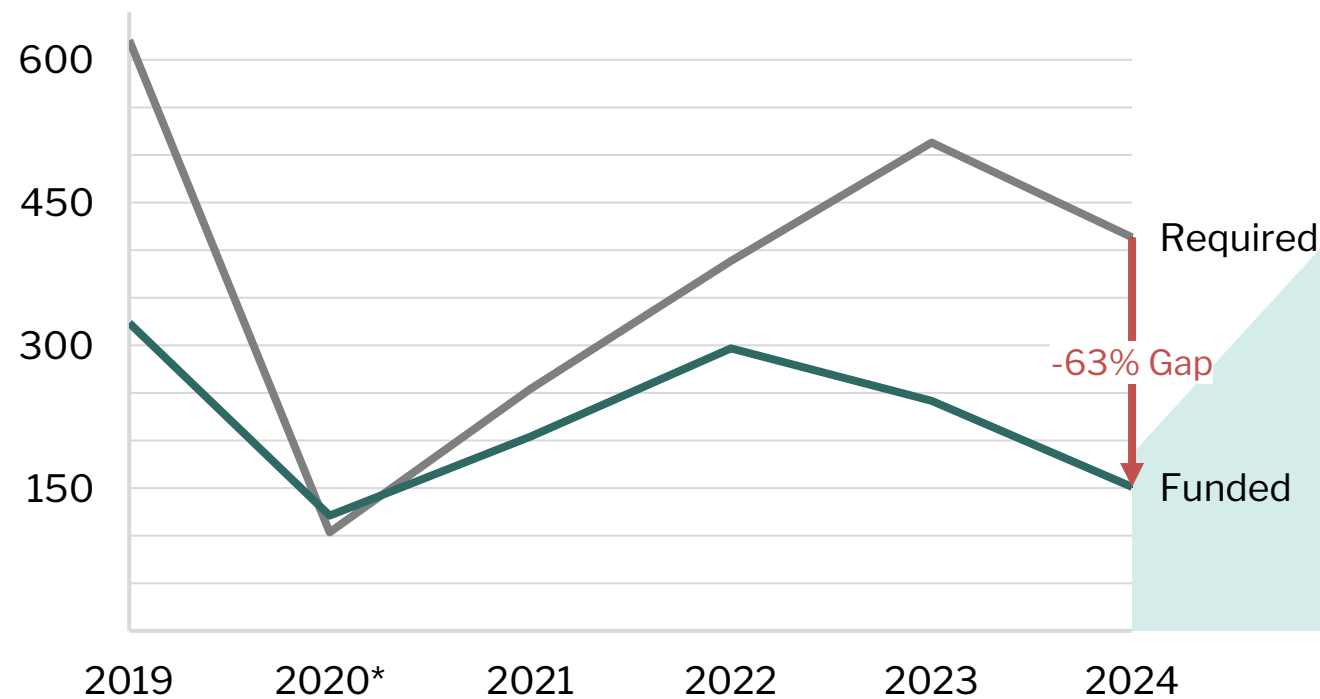
Market

- **Inconsistent off-taking agreements:** The quasi-monopsonic local market is detrimental to SHF profitability as off-takers determine the price of goods
- **Limited access to surrounding markets:** Local road conditions hinder the access to competitive markets, increasing end pricing

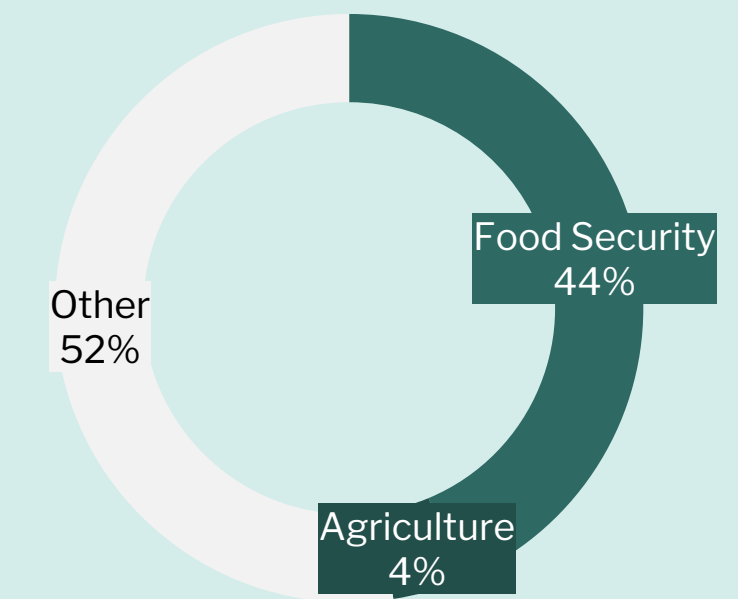


Though 48% of humanitarian aid is funneled into Food Sec. & Agriculture, continuous YoY reduction in available funds hamper its effectiveness

Mozambique Humanitarian Response Plans
(Inside coordinated plans - US\$ Millions)



Funding allocation by sector
(2024, US\$ Millions)



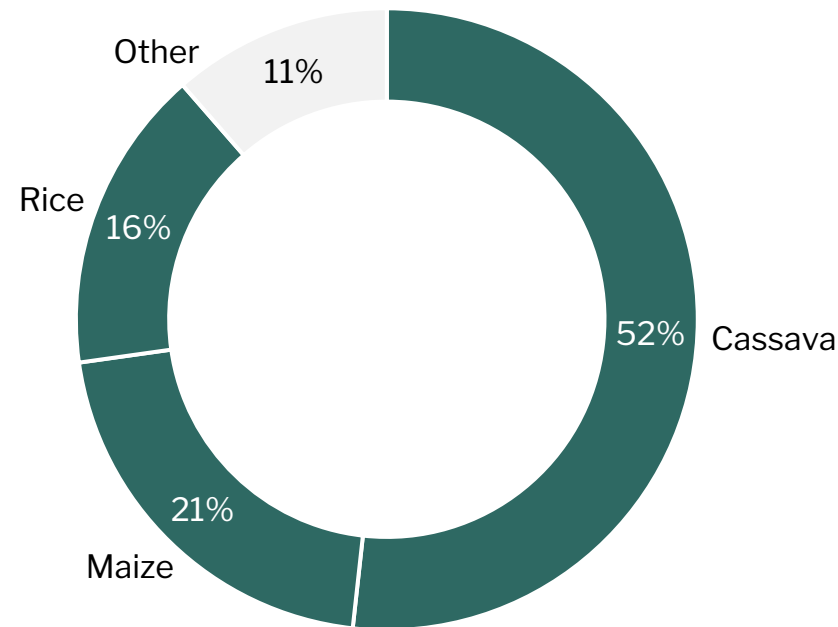
Reduced funding for humanitarian response could deepen the crises (phase 3) and even lead to an emergency (phase 4) or famine (phase 5) in the coming years

Source: Financial Tracking Service ([link](#))
*** Note:** Mozambique UN Multi-Sector Response Plan to COVID-19 and Cabo Delgado Province Mozambique Rapid Response Plan

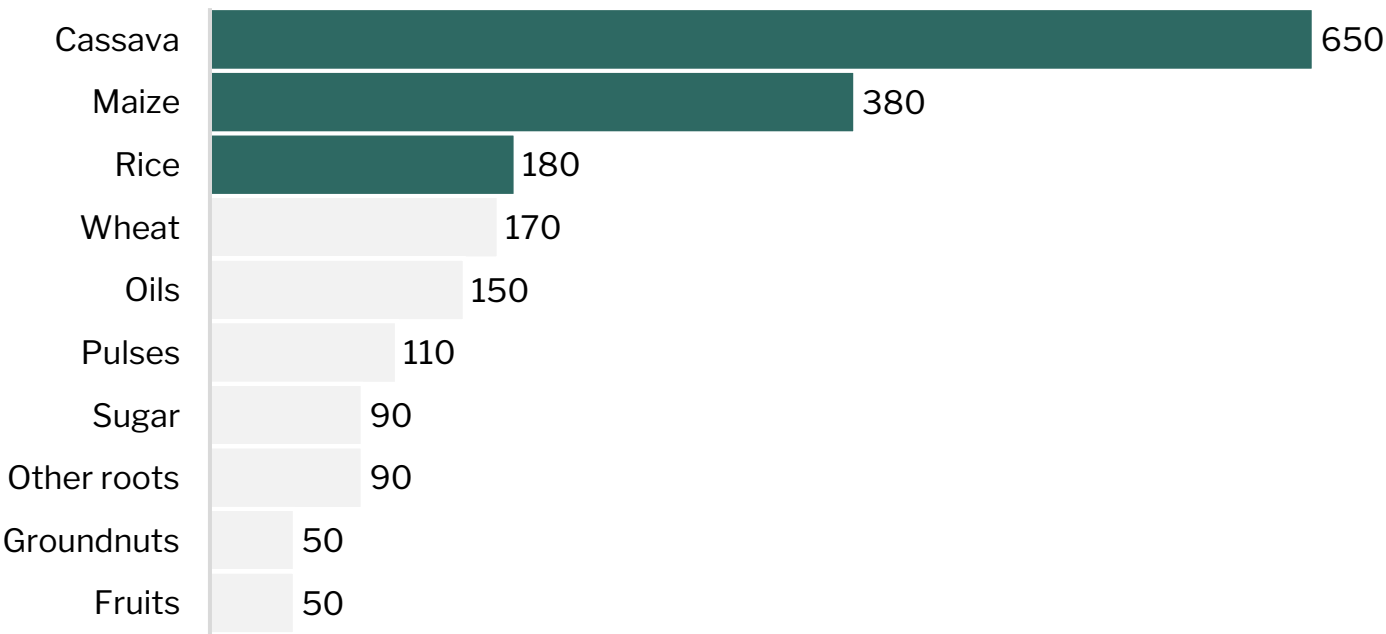
Focusing on increasing availability of three staple crops, could alleviate the pressure of food insecurity and improve livelihoods

These crops are the most consumed in the periods without food reserves, during pre-conflict periods, and provide the higher caloric intake, key in reducing food insecurity

Crops consumed during period without food reserves
(pre-conflict, % of household in Cabo Delgado)



Average daily caloric intake for select foods per person
(pre-conflict, Kcal)



To evaluate the feasibility of these crops, we analyzed their supply chains from the initial production to the market

Though Cabo Delgado has significant production potential and a large market, connectivity and produce conservation are the major issues

	Inputs & Production	Transport & Storage	Processing & Packaging	Market
Cassava	Bottom-up figures indicate a high level of production, across the province, sufficient to cover multiple times over the local demand.	Cassava is produced in virtually all districts so minimum transportation is required. Storage is done through traditional methods to allow for long-term consumption	Lack of proper processing facilities leads the communities to use traditional (domestic) processing and maintenance mechanisms often unsuited for commercial use	Most of the population has Cassava in their daily menu. High production levels keep prices low, therefore less attractive for commercial trade
Maize	Production above the basic needs of the local population	Insufficient processing capacity makes storage and transportation harder. Transportation worsens in rainy seasons due to road conditions	Currently there is basic processing capacity (8-15%) of the production. Lack of adequate processing pushes producers to sell wet corn at lower than market prices to avoid rotting	Demand levels are high, particularly in areas with the most IDPs. There is also large demand for exporting Maize, particularly for Asian market
Rice	Pre-conflict, only one district produced rice, following the attacks, there is no considerably rice production in CD. Most of the local rice is purchased from Nampula	N/A	Cabo Delgado has processing capacity for rice, but it remains unused due to lack of local production	High demand of rice with willingness to pay for relatively higher prices. Most of the consumed rice is imported from other countries and a minor amount from neighboring districts

Status:



Positive



Minimally-good



Negative



Unavailable



Inputs & Production: Despite challenges, Cabo Delgado produces high quantities of staple crops such as maize and cassava

Maize Production
(Prod.Real (ton) 2022/23)



(0 – 5000) (5000 – 10000) (10000 – 15000) (15000 – above)

Cassava Production
(Prod.Real (ton) 2022/23)



(0 – 2000) (2000 – 4000) (4000 – 6000)

Inputs & Production: Most of the production potential is particularly found in in-land districts as conditions are better for rainfed crops

District production potential map



Factors impacting the potential of Cabo Delgado districts to produce staple crops



Irrigation systems

Districts like Mueda and Namuno benefit from established irrigation infrastructure, including dams and access to subterranean water sources, ensuring a steady water supply



Soil conditions

Coastal districts tend to face challenges such as soil erosion and salinity, which negatively impact productivity. On the other hand, districts like Montepuez possess fertile soil, ideal for sustainable crop production



Climate

These inland areas also have an agriculture-appropriate climate that supports growth throughout the year

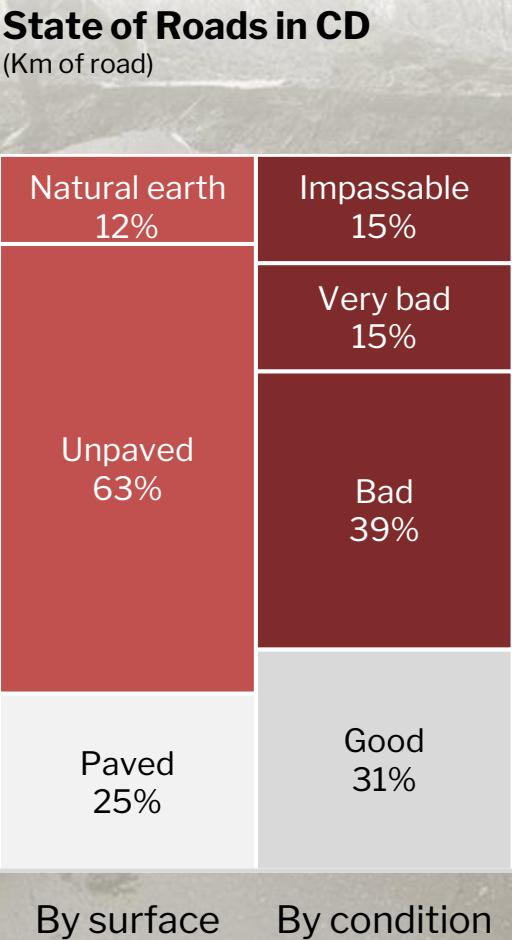
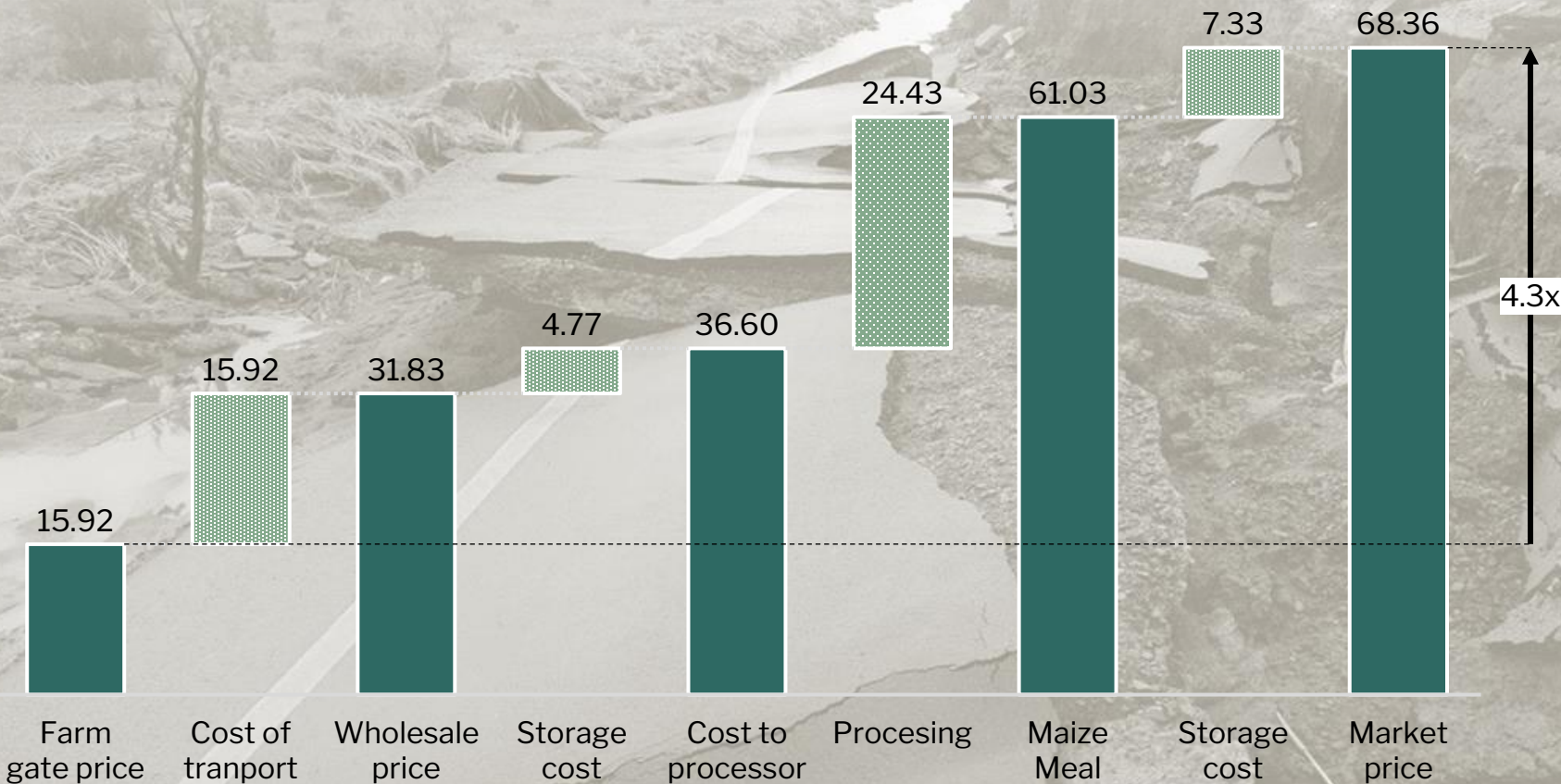


Farming tradition

Many of the farmers in these districts have decades of experience and a strong agricultural tradition, which has been passed down through generations, further contributing to productivity and knowledge of the land

Transport & Storage: The state of the roads and lack of proper storage increase the price by 4-5 times; Only 30% of roads are in good condition

Illustrative Maize Price impact on food prices
(MT/Kg, Jul 2024)



Processing & Packaging: Processing capacity has improved over the last 5 years

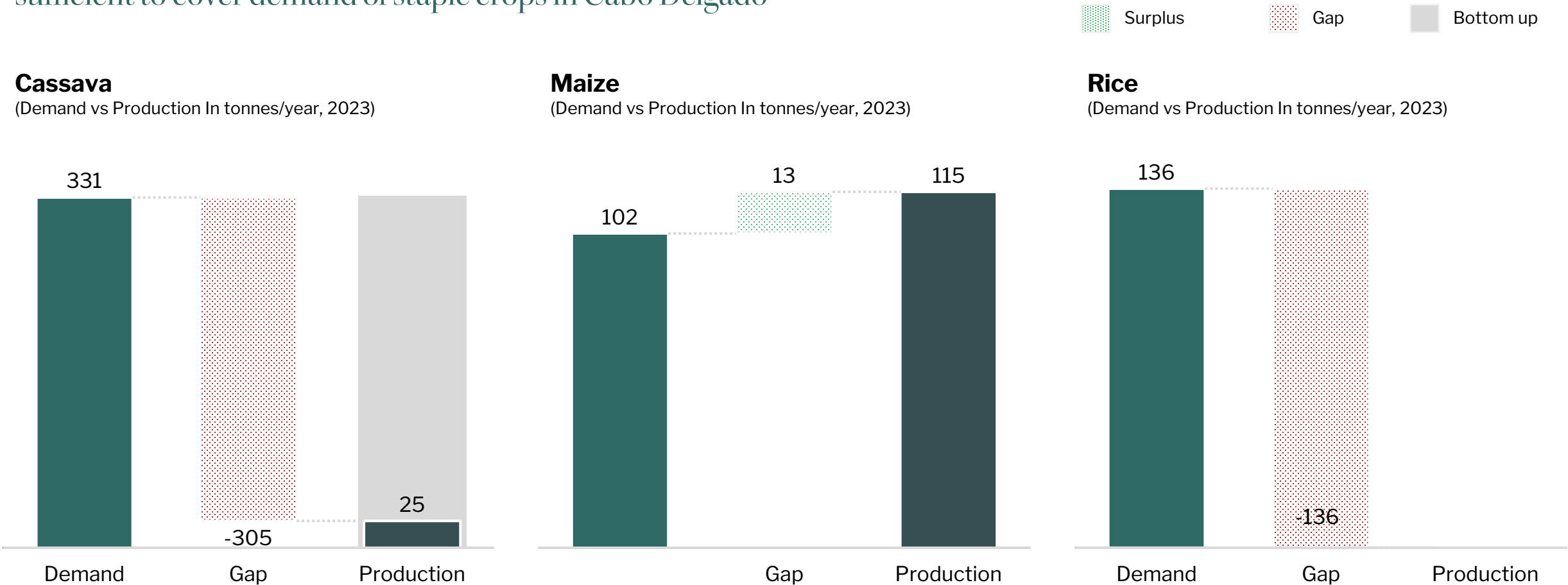
Increase

Decrease

District	Maize proc. units		Maize Avg proc. capacity (tons/day)		Rice proc. units		Rice Avg proc. capacity (tons/day)	
	2019	2024	2019	2024	2019	2024	2019	2024
Ancuabe District		1		2.5				
Chiúre District	1	1	7.5	7.5	1	1	4.0	2.0
Mocímboa da Praia District	2	2	2.5	2.5	1	1	3.0	3.0
Montepuez District	3	3	6.2	6.2	1	1	3.0	3.0
Mueda District	2	3	4.3	5.3				
Muidumbe District	3	3	4.3	4.3	2	2	4.0	4.0
Pemba City	7	7	7.6	5.1	3	2	2.7	2.0
Quissanga District					1	1	6.0	6.0
Total	18	20	32.4	33.4	9	8	22.7	20.0

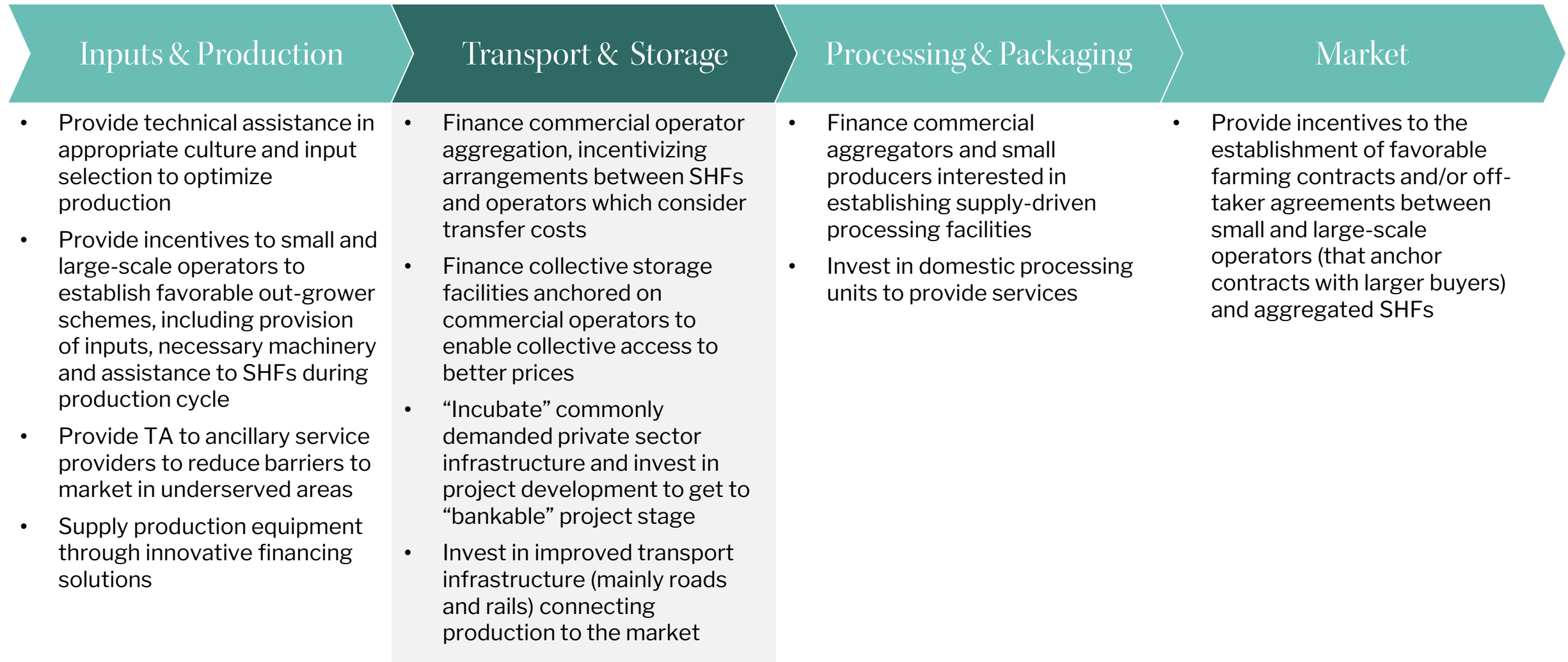
Market: There is significantly high demand of these crops in Cabo Delgado that could be covered by its production

Bottom-up data indicate very high levels of Cassava production; with the exception of rice, production levels are sufficient to cover demand of staple crops in Cabo Delgado



Note: The expected demand figure resulted from a multiplication between pre-conflict consumption of the three crops

Strengthening these value chains will require significant investment across all of Cabo Delgado's circle with emphasis on the transport and storage



Thank You
Obrigado

