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FOOD SYSTEMS PROFILE - MOZAMBIQUE

Catalysing the sustainable and inclusive
transformation of food systems



Mozambique



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FOOD SYSTEMS PROFILE MOZAMBIQUE

Key messages

Mozambique has made significant progress towards inclusive sustainable development in recent decades, demonstrating that it is possible to reduce its chronic food insecurity.

It has proved difficult to maintain those improvements, however, and major challenges remain in terms of achieving sustainable food systems.

Meeting the needs of a growing and urbanizing population, internal conflicts, persistent poverty, climate change and weather shocks all present substantial barriers to further progress.

Mozambique has declared agriculture a national priority and is committed to allocating 10 percent of its national budget to the sector, in line with the Maputo Declaration towards zero hunger. It still has some way to go to meet that goal.

Agriculture is mainly based on subsistence farming, characterized by low productivity, reduced production volumes and a lack of crop diversity. While it accounts for approximately 70 percent of total employment in Mozambique, it only contributes about 25 percent of gross domestic product.

The low availability of and access to nutritious, healthy, diverse food makes for poor quality diets and Mozambique carries the triple burden of chronic and acute malnutrition with micronutrient deficiencies, and growing problems of overweight and obesity.

Socioeconomic difficulties include rapid urbanization as people leave rural areas in search of decent livelihoods. Some have also sought refuge as armed conflicts in central and northern regions have driven internal displacement.

The unemployment rate is high and income inequality is increasing. There are also substantial disparities in opportunity between urban and rural areas and between different regions, which in turn contribute to the resurgence of conflicts and social tensions.

Food systems are also affected by a lack of policy coherence and inclusive governance. The agrifood sector, in particular, lacks public and private investment and institutional support for sustainable transformation, with family farmers and small-scale businesses finding little assistance despite the stated intent to devote more budget resources to agriculture.

Mozambique relies on foreign capital, and private investments are insufficient. However, efforts to overcome these challenges are hampered by a development model mostly targeting export-oriented large-scale agriculture and fossil-fuel extraction.



Market integration is limited, and the private sector and small-scale family agriculture are weakly connected, with poor infrastructure and underdeveloped value chains constraining the returns from agriculture and fishing and compromising livelihoods – particularly in rural areas.

Mozambique is vulnerable to climate change and weather-related shocks, such as floods, droughts, tropical storms and cyclones. High levels of land degradation, rapid deforestation and loss of soil fertility also contribute to increased vulnerability of the rural poor.

Sustainable transformation of food systems could benefit from support to small-scale farmers, including young people and women, to diversify production and foster nutrition-smart agriculture.





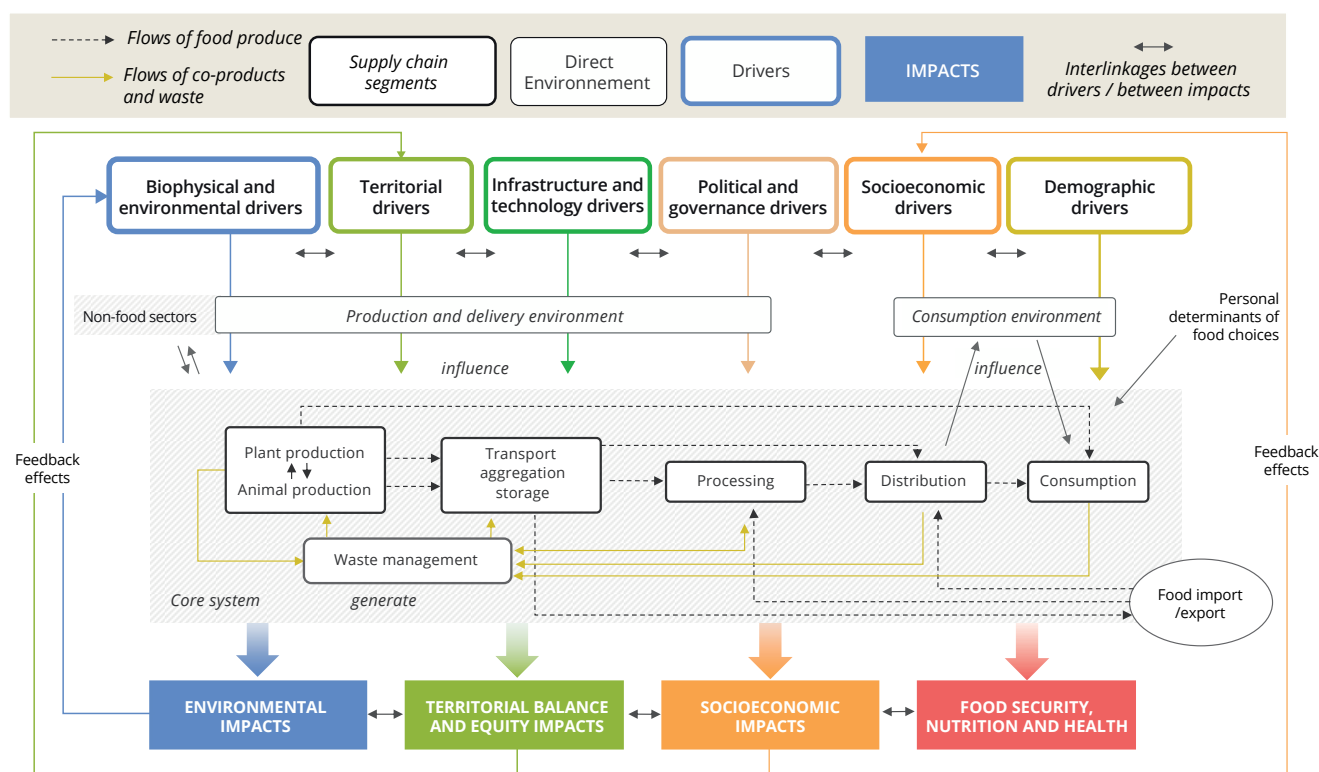
Summary of methodology and process at national level

This brief is the result of a collaboration between the Government of Mozambique, The Food and Agriculture Organization of the United Nations (FAO) and the European Union in close collaboration with FAO experts. It was implemented in Mozambique from June to September 2021. The methodology used for preparing this brief is the result of a global initiative of the European Union, FAO and CIRAD to **support the sustainable and inclusive transformation of food systems**. This assessment methodology is described in detail in the joint publication entitled *Conceptual framework and method for national and territorial assessments: Catalysing the sustainable and inclusive transformation of food systems*. (David-Benz et al., 2022).

The assessment integrates qualitative and quantitative data analysis with participatory

processes by mobilizing public, private and civil society stakeholders. The approach includes interviews with key stakeholders and a consultation workshop to refine systemic understanding of the food system and discuss potential systemic levers to improve its sustainability. The assessment process thus initiates participatory analysis and stakeholder discussion on the strategic opportunities and constraints to sustainable transformation of food systems. The approach assesses the actors and their activities at the core of the system, together with their interactions along the food chain as well as the environments directly influencing their behaviour. Conditioned by long-term drivers, these actors generate impacts in different dimensions that in turn influence drivers via a number of feedback loops (see **Figure 1**).

Figure 1. Analytical representation of the food system



Source: David-Benz, H., Sirdey, N., Deshons, A., Orbell C. & Herlant, P. 2022. *Conceptual framework and method for national and territorial assessments: Catalysing the sustainable and inclusive transformation of food systems*. Rome, Brussels and Montpellier, France. FAO, European Union and CIRAD.



The approach involves a detailed understanding of the key challenges along the four dimensions of sustainable and inclusive food systems: (i) food security, nutrition and health; (ii) inclusive economic growth, jobs and livelihoods; (iii) sustainable natural resource use and environment; and (iv) territorial balance and equity. Aimed at identifying critical issues affecting the sustainability and inclusivity of food systems, challenges and key food systems dynamics are specified in the form of **Key Sustainability Questions (KSQs)**, whose answers (see schematic representations for all KSQs) help identify **systemic levers** and areas of action that are essential to bring about desired transformations in food systems.

This approach is designed as a preliminary rapid assessment for food systems and can be implemented over a period of 8–12 weeks. The methodology has been applied in more than 50 countries as a first step to support the transition towards sustainable food systems.

The assessment draws on food systems research undertaken by a team of national and international consultants. An online stakeholder consultation workshop was held in Mozambique in August 2021, to share and refine the results and identify the main systemic levers that could be put into action to improve the system's sustainability.

National context: key figures

Indicator		Indicator	
Total population (2020) ¹	31.3 million	Access to electricity (2019) ¹	29.6%
Population growth rate (2020) ¹	2.9%	Mobile phone subscriptions (per 100 people, 2019) ¹	49
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Urban population growth (2020) ¹	4.4	Gender inequality index (2020) ²	0.523
Gini Index (2019) ¹	40	Literacy rate, total of adults (proportion of people aged 15+, 2017) ¹	60.7%
GDP/capita PPP (current international USD, 2020) ¹	1 297	Employment in agriculture (% of total employment, 2019) ¹	70.2%
Contribution of agriculture, forestry and fisheries to GDP (2019) ¹	26%	Employment in agriculture, female (% of female employment) (2019) ¹	79.8%
Forest area (% of land area, 2018) ¹	47.3	Employment in agriculture, male (% of male employment) (2019) ¹	59.8%
Chronic hunger and malnutrition in 2021 (Global Hunger Index) ³	31.3%		
Human development index (2019) ²	0.456 (rank) 181/189		
Poverty (2018) ²	46%		

Sources: ¹ World Bank. 2022. *World Development Indicators*. Cited March 2022. <https://datatopics.worldbank.org/world-development-indicators/>;

² UNDP. 2022. Mozambique. *Human Development Reports*. Cited March 2022. <https://hdr.undp.org/en/countries/profiles/MOZ>;

³ Global Hunger Index. 2021. Mozambique. *Global Hunger Index 2021*. Cited March 2022. www.globalhungerindex.org/mozambique.html.

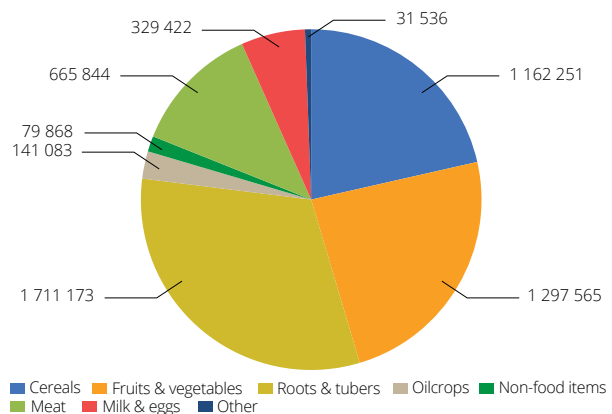


Food production and trade: key figures and trends

Food is mainly produced through subsistence agriculture, which is characterized by low productivity and volumes, limited crop diversity, and vulnerability to drought and flooding. Cattle farming and fishing are increasingly important. There is still a high dependence on imported food, while national policies tend to focus on market-oriented commercial agriculture.

Mozambique has plentiful arable land, abundant water resources and a vast coastline. Agriculture is, however, practised on less than 16 percent of the arable land – predominantly by subsistence farmers. Food crops with roots and tubers (cassava, sweet potato) are most important, followed by cereals (maize, rice), fruit and vegetables. Together these dominant crops represented 77 percent of total production by value in 2018, approximately USD 4.171 billion. Meat, milk and eggs accounted for 18 percent of the total, or USD 995 million. The remainder – oilseeds, other food products (grouping sugar cane, pulses, nuts and honey), and non-food items – represented about 5 percent of overall agricultural production, or USD 252 million (**Figure 2**).

Figure 2. Value of agricultural production (thousand USD, 2018)



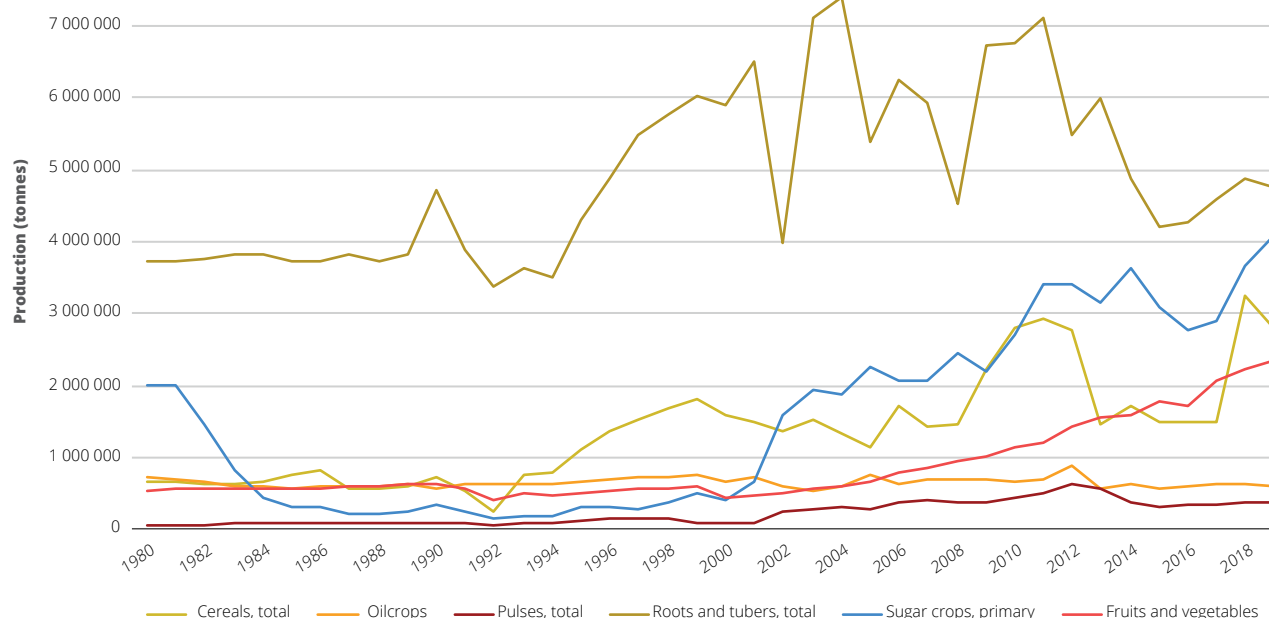
Source: FAOSTAT, Value of Agricultural Production, <https://www.fao.org/faostat/en/#data/QV>.

Agricultural production trended slightly upwards between 1980 and 2018 for cereals, roots (cassava), and tubers (sweet potato), albeit with considerable volatility (**Figure 3**). Production volumes of sugar cane, fruits and vegetables have increased since 2002. The volatility in staple crop output, however, affects the overall availability of food for household consumption, and seasonality in food production also has an impact on the food security and self-sufficiency of small-scale family producers.





Figure 3. Evolution in production of the main agricultural products (tonnes)



Source: FAOSTAT, Suite of Food Security Indicators, <http://www.fao.org/faostat/en/#data/FS>.

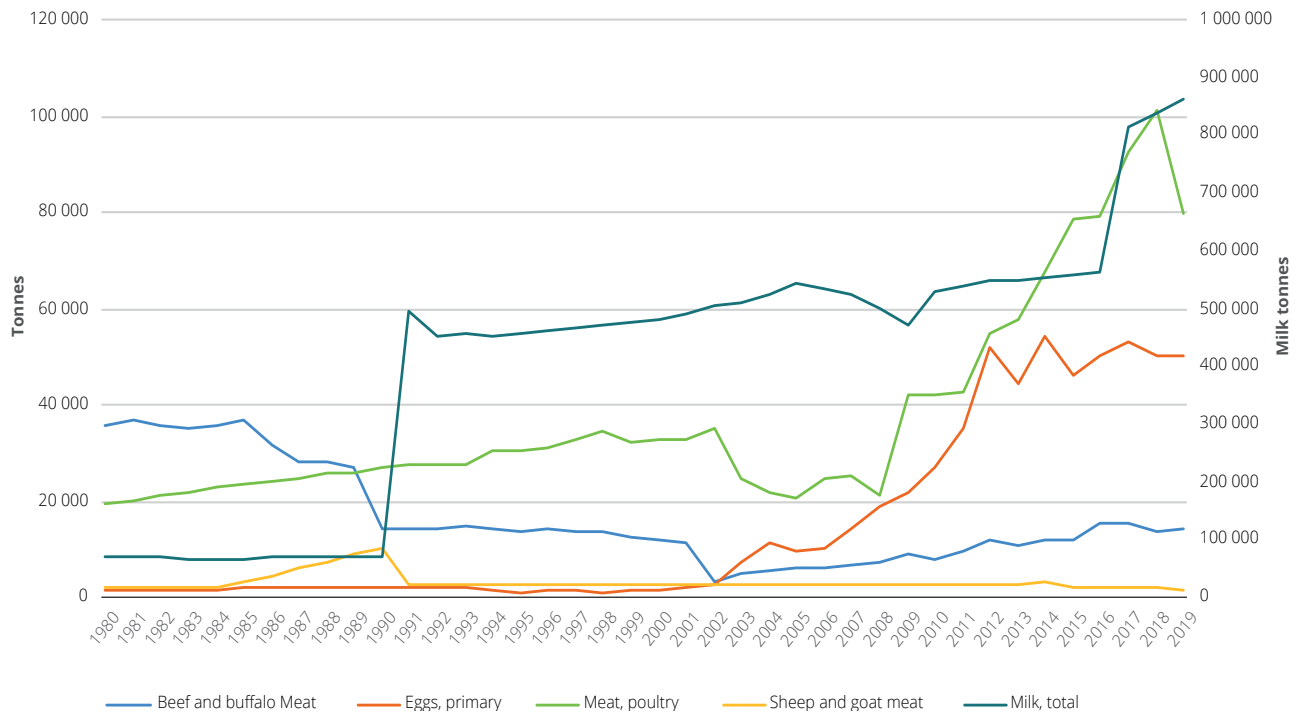
The 2021 FAO data also suggest strong regional differences. Whereas cereal output in central and southern provinces is anticipated to be at average or above-average levels, output in northern provinces, particularly Cabo Delgado, is expected to fall, reflecting the negative impact of adverse weather and conflicts on planting and crop yields (FAO-GIEWS, undated). After stagnating for more than two decades, milk production increased strongly in the early 1990s (Figure 4) as a result of increased investment by private dairy farms, cooperatives, and processing facilities, especially in Manica and Sofala provinces. Considered to be the main dairy basins, these provinces provide 66.4 percent of milk produced in the country, for the local, regional and national markets (O'Donovan, 2021). While egg and poultry production has risen since 2000, beef production (red meat) declined somewhat from 1990, before

showing a small increasing trend since 2014. In the meantime, sheep and goat meat production has stagnated (Figure 4) (FAOSTAT; MADER, 2021).

Fish production is dominated by the family sector, which accounts for 90 percent of artisanal fishing. Overall annual production has been increasing steadily, having tripled between 2006 and 2017 from approximately 102 000 tonnes to 340 000 tonnes (MIMAIP, 2019). Artisanal fishing consists of various small-scale, low-technology, low-capital fishing practices undertaken by individual fishing households, many of which belong to coastal or island ethnic groups. Aquaculture remains limited, facing challenges such as a lack of access to inputs, financial services and essential investments in cold chains (IFAD, 2020a; MIMAIP, 2019).



Figure 4. Evolution in production of animal products (volume tonnes)



Source: Compiled from 2020 FAOSTAT data.

Food production has been rising slightly, but Mozambique continues to face significant domestic deficits. The shortfall is made up by imported food, which accounted for 19 percent of import value in 2020 (World Bank, 2021c). That is more than double the global average for food imports for low-income countries. With production of cereals and sugar cane increasing (**Figure 3**), the country reduced its import dependency from 57.6 percent between 2015 and 2017 to 39 percent in 2019 (FAO Suite of Food Security Indicators, undated), but continues to import cereals, cooking oil and sugar. Mozambique also has the third highest rice consumption among Southern African Development Community countries, most of which is imported from Asia (CCARDESA, 2021).

While food imports as a proportion of total imports fluctuated widely over the period 1980 to 2019 (**Figure 5**), they have generally trended

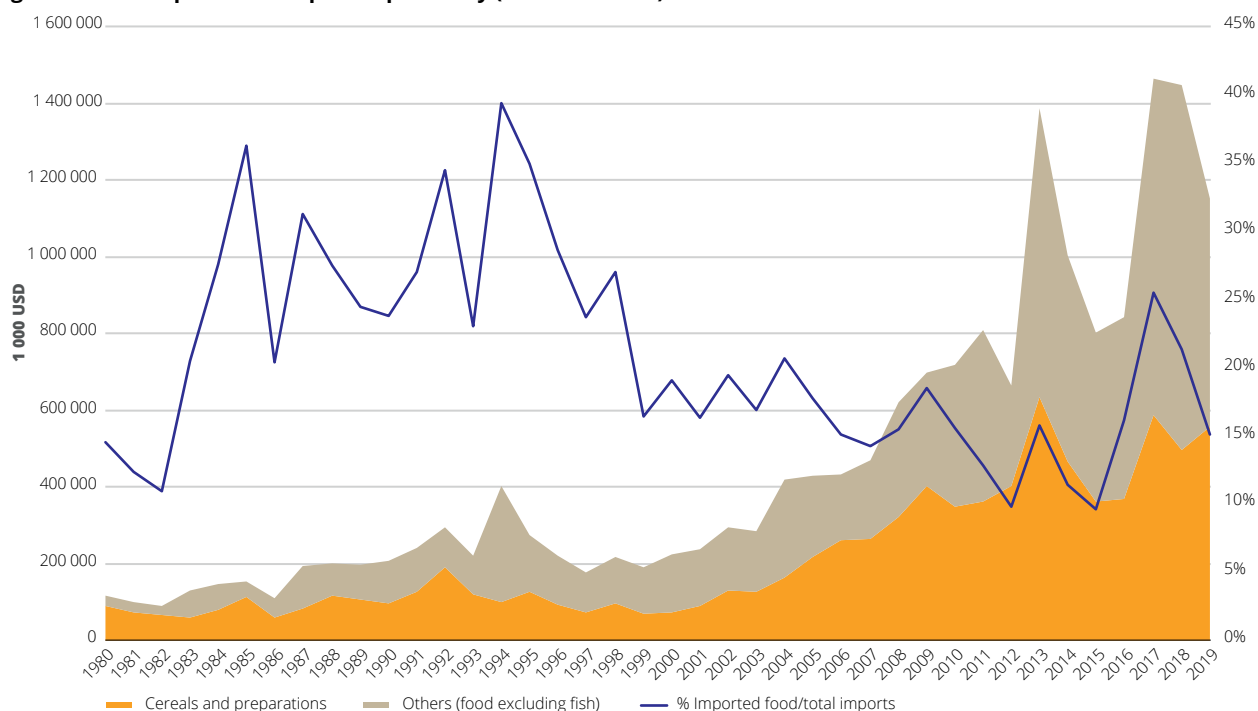
downward since 1998 – roughly the same post-civil-war period during which national food production has increased (**Figure 3**).

National statistics (INE, 2019) show Mozambique had a trade deficit in 2019 of USD 2.76 billion and food products comprised only 5 percent of export values – the most significant of these being cashew nuts, shrimp, bananas, sugar cane and lobsters.





Figure 5. Food imports and import dependency (in value and %)



Source: Compiled from 2020 FAOSTAT data.

Food consumption: Key figures and trends

Approximately two-thirds of the Mozambican population live in rural areas and most make their subsistence livelihoods from agriculture, forestry, and fisheries. They consume around 90 percent of their production and make use of markets only to a very limited extent. There is, however, still a high dependence nationally on imported food, given that local production has not kept pace with population growth, and eating habits have been changing, particularly in urban areas.

The diet are mainly based on cassava in the north of the country and on maize in central and southern regions. Urban households consume foods based mostly on maize and imported wheat.

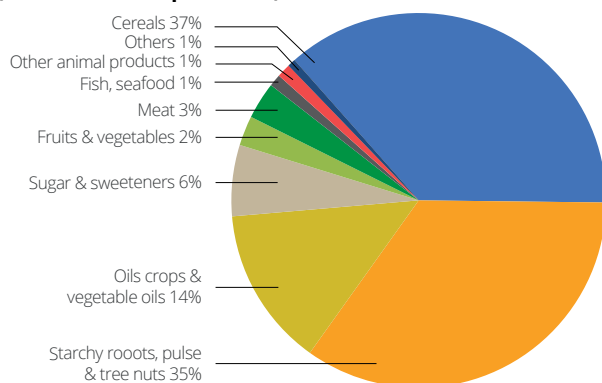
People living in rural areas also have to buy food during periods of scarcity, or when affected by natural disasters, deepening the domestic food deficit. **Figure 6** shows staple crops

(cereals, roots and tubers) make up 72 percent of the food available (in calories) followed by oilseeds (14 percent), and sugar and sweeteners (6 percent). The remaining food groups – including meat, fish and seafood, fruits and vegetables – together make up only 8 percent.





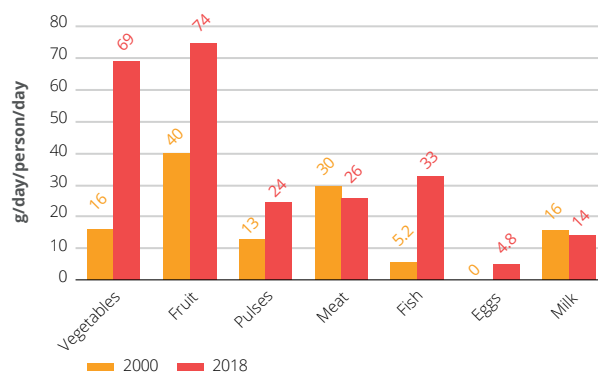
Figure 6. Food availability structure by commodity group (% of calories/capita, 2018)



Source: Compiled from 2020 FAOSTAT data.

The World Bank Global Consumption Database (World Bank, 2021a) shows that in 2010 the consumption of protein-rich foods (meat and fish) was only 17 percent. The statistical bulletin of fisheries and aquaculture in Mozambique from 2006 to 2017 shows an increase in per capita consumption from 4.6 kg/year to 14 kg/year, which is still average considering WHO recommendations (MIMAIP, 2019). Pulses (chickpeas, mung beans, cowpeas, and pigeon peas) are hence the most important source of dietary protein. Tete and Sofala provinces are the main sources of legumes, with 90 percent produced by smallholders. The daily supply of vegetables, fruit, pulses, fish and eggs showed substantial increases between 2000 and 2018 (Figure 7).

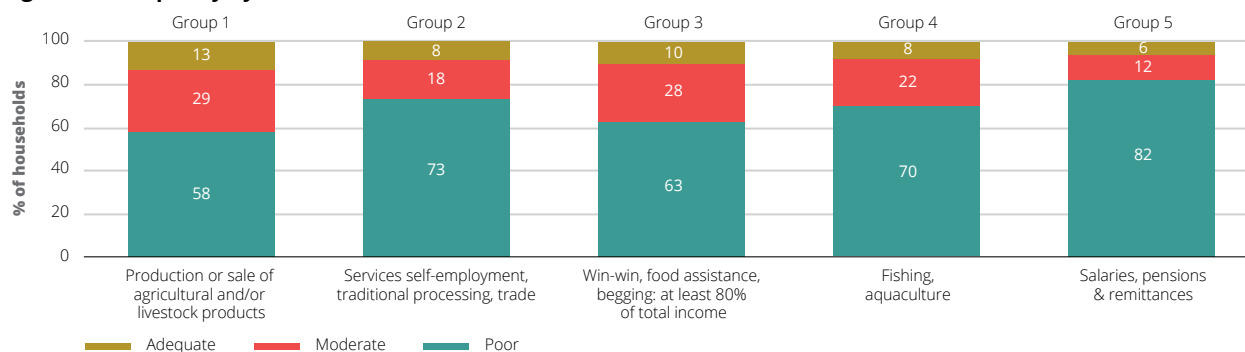
Figure 7. Daily supply of vegetables, fruits, pulses, meat, fish, eggs and milk (grams/person)



Source: FAOSTAT. Food Balance Sheets.

There are substantial dietary disparities between people with different livelihoods. Data from the SAN Baseline Study on Food and Nutritional Security, conducted in 2013 (SETSAN 2014), shows (Figure 8) that people who earn wages, or live on remittances or pensions (Group 5), have access to the best quality food. Next follow the people in Group 2, which includes those who provide services, are self-employed, or involved in traditional food processing or trade. Group 3 and Group 1, respectively, have the poorest diets and the highest incidence of moderate diets,¹ considering that they group the most vulnerable people – such as those living on food assistance – and subsistence food producers/farmers.

Figure 8. Diet quality by livelihood



Note: Group 3 includes “Win-Win” or “*ganho-ganho*”, which refers to occasional work done for additional income. **Source:** Secretariado Técnico de Segurança Alimentar e Nutricional. 2014. *Relatório do Estudo de Base de Segurança Alimentar e Nutricional 2013*. Maputo, Mozambique.

¹ Quality of diet (poor, moderate, adequate) is derived from the food consumption score (FCS). When the score is between 0 and 21 it is considered poor, between 21.5 and 35 it is borderline/moderate and higher than 35 is acceptable/adequate (SETSAN, Personal communication).



In terms of food consumption and nutritional variety, 67 percent of households nationally have an adequate diet, 23 percent have a moderate diet, and 10 percent have a poor diet (SETSAN, 2014). The provinces of Norte, Zambézia and Tete, in the central zone, concentrate the highest proportion of households consuming poor and moderate diets. In general, diets consumed in rural areas are nutritionally poorer than those consumed in urban areas. (SETSAN, 2014).

On average, more than a third (35.6 percent) of Mozambican household expenditure is on food and non-alcoholic beverages, with the proportion substantially higher in rural areas at 53 percent, and lower in urban areas at 20.7 percent.

For the poorest quintiles, which constitute 60 percent of the population, more than half of their expenditure is on food. Of the monthly household spending on food purchases, 47 percent is for the purchase of cereals and bakery products, 20.3 percent for vegetables, potatoes and other tubers, 5.6 percent for fruit, 11 percent for fish, and only 1.1 percent for the purchase of eggs, milk and their derivatives (INE, 2015). Finally, protein supply per person was on average 50 g/day, with animal protein counting for just 8.3 g/day (FAOSTAT Suite of Food Security Indicators, undated), suggesting an unbalanced diet, contributing to poor nutritional outcomes and micronutrient deficiencies, especially for the poorest families.

Characterization of the dominant actors of the food systems

According to the Integrated Agricultural Survey 2020 (IAI 2020), there were 4 167 702 agricultural smallholdings,² 93 183 medium-sized holdings and 873 large-scale holdings (MADER/DPP, 2021). Agriculture is practiced on less than 16 percent of the arable land and largely in flood- and drought-prone areas. Smallholder farming is characterized by low-input, low-technology, rain-fed production systems using very few improved inputs (seeds, fertilizers) and with difficulties in accessing markets and financial services. This makes them particularly vulnerable to shocks. Plots are generally small: farmer household families cultivate an average of 1.4 hectares (**Table 1**). The smallholder food system is very informal, and smallholders largely engage in agriculture (crop production/livestock or fisheries) with little or no connection to a value chain or formal suppliers. Involvement with buyers or resellers is often just as informal, in the context of loose value chains. Farmers also have limited market access due to lack of transport, which can mean they do not get the best market price for their goods.

Smallholder households often have no savings and very limited access to funds in the event of an emergency, and do not have insurance or any other way to mitigate risk (CGAP, 2016).

Most rural women play a crucial role in growing food crops and generating income for their families. Yet they have little access to productive resources or control over them (IFAD, undated). Generally, men may clear the land and participate in harvesting, but women's tasks include sowing, planting, weeding and irrigating. Only 20 percent of women cultivate more than 2 hectares and 65 percent of female-headed households cultivate less than 1.5 hectares. That compares with 47 percent of male-headed households. The number of women who are heads of households increased from 23 percent in 1980 to 30 percent in 1997 (FAO, 2021). Women are particularly disadvantaged in rural communities, having considerably less access to education and thus fewer skills than men have. Healthcare is inadequate and death in childbirth common (IFAD, undated).

² The survey defined holdings as economic units existing independently and classified as (i) agricultural holdings if focused on producing crops; (ii) livestock holdings if dedicated to animal husbandry; or (iii) as a combination of the two. (MADER/DPP, 2021).

**Table 1. Average landholding size and total cultivation for family farmer households (hectares)**

Province	Average area per household (ha)	Average cultivated area per household – 1st season (ha)	Total cultivated area – 1st season (ha)	Total cultivated area – 2nd season (ha)	Total area cultivated by small-and medium-size holdings (ha)
Niassa	1.7	1.5	228 964	14 573	243 537
Cabo Delgado	1.4	1.2	386 567	24 078	410 645
Nampula	1.2	1.1	778 154	80 606	858 760
Zambézia	1.4	1.2	949 894	121 836	1 071 730
Tete	1.5	1.4	844 240	54 968	899 208
Manica	2	1.7	405 692	43 315	449 007
Sofala	1.6	1.5	645 245	143 400	788 645
Inhambane	1.2	0.9	156 074	52 060	208 134
Gaza	1.2	1	314 246	194 226	508 472
Maputo Province	0.7	0.6	119 245	21 735	140 980
National	1.4	1.2	4 828 318	750 798	5 579 116

Source: Ministry of Agriculture and Rural Development, Directorate of Planning and Policies. 2021. *Integrated Agricultural Survey: Statistical Framework*, Maputo, Mozambique. https://www.agricultura.gov.mz/wp-content/uploads/2021/06/MADER_Inquerito_Agrario_2020.pdf.

Livestock owners can be classified into family or private. Family farmers constitute the majority – about 85 percent of all livestock farmers – and while they are the largest herd holders, they are not market-oriented (MADER, 2021). They also do not generally invest in improved inputs (pastures, vaccines and dips/baths) and are dependent on natural pastures. Family farms tend to keep animals for household consumption, personal prestige, and for sale in case cash is required urgently.

Private livestock keepers, who account for the other 15 percent, are market-oriented and do invest in genetic improvement, improved animal management and health e.g. by contracting veterinary services. In the production of chicken

and eggs, poultry farmers are also classified into three groups: (i) small (< 5 000 birds); (ii) medium (5 000–10 000); and (iii) large (> 10 000 birds). These poultry farmers are also fully market-oriented and use improved inputs, including vaccines and feed (MADER, 2021).

Food value chains are generally short and involve few actors. In rural areas they may simply follow producer–wholesaler/intermediary–retailer–final consumer links, but they become more complex in urban areas, combining with processed foods sourced internationally (in particular from South Africa) or with rice that is mainly imported from Asia. In rural areas, informal (unregulated) small-scale operators engage in aggregation, transportation, storage and distribution using



local, informal, traditional markets. These markets tend to be poorly organized in terms of food safety. Agricultural products are also traded and sold on-farm. Other important actors in the food systems are government institutions at national

or regional level, the private sector, academia, NGOs and development partners. **Table 2** presents some data on actors/activities of the food systems accessed in the country, namely producers, business units, and others.

Table 2. Numbers of holdings – actors in food systems in Mozambique

Agricultural holdings ¹	4.3 million (total)
Small agricultural holdings (family sector farmers) ¹	4 167 702 (97.8%)
Medium agricultural holdings ¹	93 183 (2%)
Large agricultural holdings ¹	873 (<1%)
Number of companies in agriculture, animal production, hunting and related service activities ²	471
Number of companies in forestry and related activities ²	80
Number of companies in fisheries and aquaculture ²	98
Number of food processing industries ²	1 322
Number of beverage manufacturing industries ²	66
Number of water collection, treatment and distribution, sanitation, waste management and pollution-handling companies ²	213
Number of companies in catering and similar activities ²	3 350
Cumulative number of industrial fishing boats licensed from 2009 to 2017 – national fleet ³	730
Cumulative number of industrial fishing boats licensed from 2009 to 2017 – foreign fleet ³	563
Cumulative number of semi-industrial fishing boats licensed from 2009 to 2017 ³	2 899
Cumulative number of artisanal fishing gears (family sector fishers) licensed from 2009 to 2017 (including gears licensed in 2012) ³	177 511
Sanitary licensing of production units (national) ³	2 802
Number of partners of the Mozambican Cereals Institute that carry out agricultural marketing and agroprocessing ⁴	75
Number of locally produced milk processors/cooperatives in the centre of the country ⁵	15/5
Storage and weighing units for cereals and beans in silos of the Mozambique Commodity Exchange: Lichinga in Niassa province, Nhamatanda and Gorongosa in Sofala; Nanjua in Cabo Delgado, Malema in Nampula, Mugema in Zambézia province and Ulóngue in Tete ⁶	

Sources: ¹ **MADER/DPP** (Ministry of Agriculture and Rural Development & Directorate of Planning and Policies). 2021. *Integrated Agricultural Survey 2020: Statistical Framework*. Maputo, Mozambique. https://www.agricultura.gov.mz/wp-content/uploads/2021/06/MADER_Inquerito_Agrario_2020.pdf

² **Instituto Nacional de Estatística (INE)**. 2017. *Empresas em Moçambique: Resultados do Segundo Censo Nacional (2014–2015)*. <http://mozdata.microdatahub.com/index.php/catalog/20>

³ Calculations based on information from **MIMAIP** (Ministry of the Sea, Inland Waters and Fisheries). 2019. *Fisheries and Aquaculture Statistical Bulletin 2006–2017*. Maputo, Mozambique. http://www.mimaip.gov.mz/wp-content/uploads/2019/06/AF_Boletim-Estatistico-Miolo-2006-2017-Final-em-usoFev2019.pdf

⁴ Calculations based on data available at <https://icm.gov.mz/>.

⁵ **O'Donovan, F.** 2021. Shaping the Future of Mozambique's Dairy Sector, *Agrilinks*, 17 March 2021. <https://agrilinks.org/post/shaping-future-mozambiques-dairy-sector>

⁶ <https://www.bmm.co.mz/index.html> accessed on August 19, 2021.



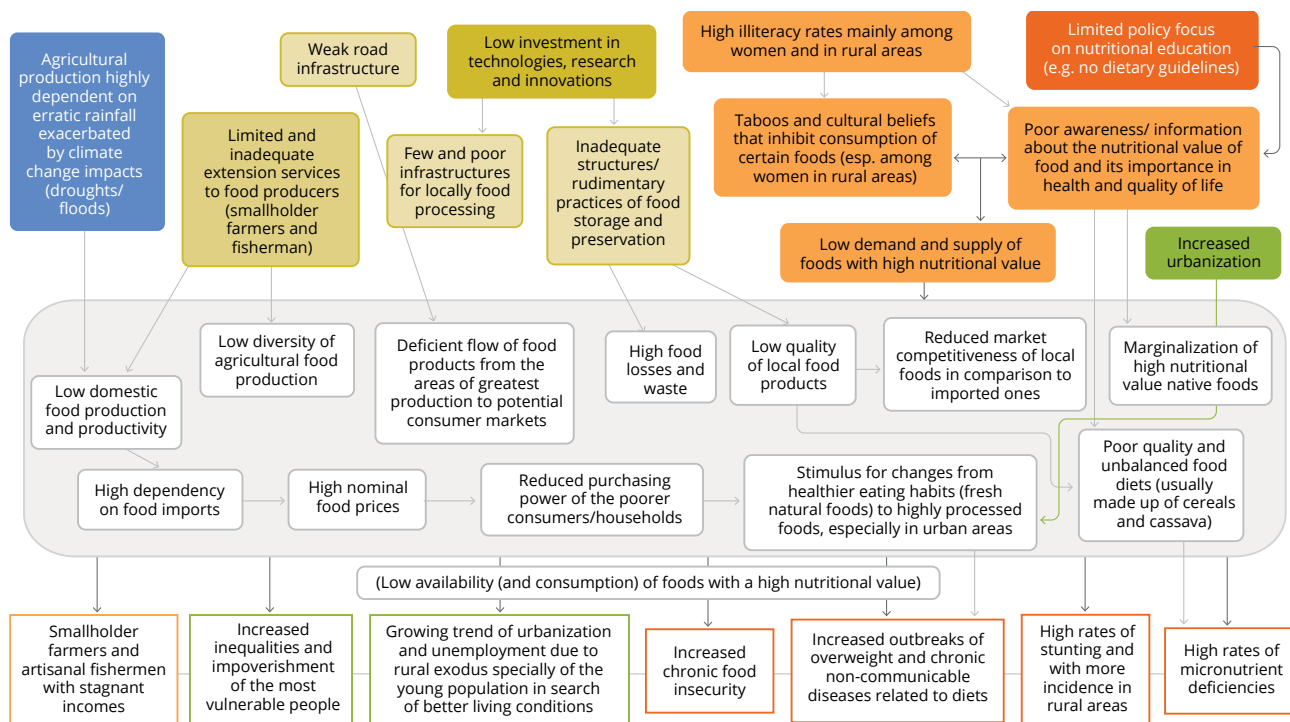
Key challenges to the achievement of core sustainable food systems goals

Key Sustainability Question 1: Why does the food system not provide sufficient nutritious food for the Mozambican population?

Agricultural production is mainly based on subsistence, characterized by low productivity and volumes, using traditional tools and few improved inputs. It is focused on a few staples (particularly cassava and maize) along with

some livestock. Diets thus have insufficient nutritional value. Chronic undernutrition and acute malnutrition are pervasive and food security indicators are improving only very slowly.

Figure 9. Systemic representation of Key Sustainability Question 1



Source: Authors.

Undernutrition has been the most important human development challenge in Mozambique for decades, in the form of stunting or micronutrient deficiencies. With food production insufficient to meet the country's needs, about 46 percent of the population face difficulties in securing enough food at some point in the year. Only about 31 percent of households are able to hold out on

their self-produced food reserves for more than 10 months (SETSAN, 2014). The lack of variety and diversity limits access to micronutrient-rich foods, though leafy green vegetables often accompany staple foods. Deficiencies in micronutrients (iodine, iron, zinc, and vitamin A) are very high, in particular for children under five years old and women of childbearing age (Table 3).



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On the other hand, overweight and obesity are becoming a concern, and while still low compared to regional averages, they mean Mozambique carries the triple burden of malnutrition.

According to the Global Nutrition Report, while the country has made some progress, it faces substantial challenges in meeting global nutrition targets (Global Nutrition Report, 2021).

Table 3. Main nutritional indicators and prevalence of associated diseases

Acute malnutrition in children < 5 years old (2015) ¹	4.4%
Chronic malnutrition (stunting) in children < 5 years old (2013) ²	42.3%
Vitamin A deficiency in children < 5 years old (2012) ³	68%
Anaemia (iron deficiency) in children < 5 years old (2019) ⁴	68.2%
Underweight in children < 5 years old (2015) ⁵	15.6%
Overweight in children < 5 years old (2015) ¹	7%
Anaemia in women of reproductive age 15–49 years (2016) ⁶	51.1%
Vitamin A deficiency in women ⁷	68.8%
Overweight in adults (2016) ⁸	23.1%
Prevalence of diabetes in adults ⁹	6.2% of women and 6.6% of men
Prevalence of obesity in the adult population > 18 years old ¹	7.2% (10.5% of women and 3.3% of men)
Energy proportion of cereals in the diet ¹	72% of kcal
Average intake of animal protein per capita (2015–2017) ¹	8.3 g/day

Note: The colours refer to the position in relation to the severity of the indicator. **Green** represents a more favourable situation, **yellow/orange** = worrying and **red** = severe.

Sources: ¹ **Global Nutrition Report**. 2021. Country Nutrition Profile – Mozambique: The burden of malnutrition at a glance – Mozambique. Cited 10 March 2022. <https://globalnutritionreport.org/resources/nutrition-profiles/africa/eastern-africa/mozambique/>

² **SETSAN** (Secretariado Técnico de Segurança Alimentar e Nutricional). 2014. *Relatório do Estudo de Base de Segurança Alimentar e Nutricional 2013* (Food Security and Nutrition Baseline Study 2013). Maputo, Mozambique.

³ **INE** (National Institute of Statistics). 2013. Mozambique – Demographic and Health Survey 2011, Maputo, Mozambique, March 2013. <https://dhsprogram.com/pubs/pdf/fr266/fr266.pdf>

⁴ **WHO** (World Health Organization). Undated. Anaemia in children aged <5 years – estimates by country. In *Global Health Observatory Data repository*. Geneva, WHO. www.who.int/data/gho

⁵ **WHO** (World Health Organization). Undated. Children aged <5 years underweight, country survey results – data by country. In *Global Health Observatory Data repository*. Geneva, WHO. www.who.int/data/gho

⁶ **FAOSTAT**. Suite of Food Security Indicators. <http://www.fao.org/faostat/en/#data/FS>

⁷ **FAO**. 2021. Mozambique: General Introduction. In *Gender and Land Rights Database*. Rome Cited 10 March 2022. www.fao.org/gender-landrights-database/country-profiles/countries-list/general-introduction/en/?country_iso3=MOZ

⁸ **WHO** (World Health Organization). Undated. Prevalence of overweight among adults, BMI>25, crude – estimates by country. In *Global Health Observatory Data repository*. Geneva, WHO. www.who.int/data/gho

⁹ **UNICEF**. Undated. Nutrition Situation in Mozambique. Cited 10 March 2022. <https://www.unicef.org/mozambique/en/nutrition>



While imports make up for some low production volumes, the prevalence of severe food insecurity in the total population over the years 2018–2020 was 40.5 percent, while the prevalence of moderate and severe food insecurity combined was 71.1 percent over the same period (FAOSTAT Food Security Indicators).

UNICEF research shows that only 13 percent of children aged between six and 23 months old received a minimum acceptable diet (UNICEF, undated-b). Additionally, only 41 percent of children under five years old had the minimum frequency of meals and only 28 percent the minimum dietary diversity (UNICEF, undated-a). As regards safe drinking water and basic sanitation, only 56 percent of the population have access to basic water services, and only 29 percent are able to use basic sanitation services (WHO, undated).

Key drivers

Factors contributing to low food production and availability include dependency on rain-fed agriculture and the worsening impacts of climate change (such as erratic rainfall). Constraints on improving productivity and food safety include high input costs (e.g. for fertilizers and pest control), and absence of infrastructure for processing, preservation, storage and dispersal of food, especially for more perishable products such as fish, vegetables and fruit. In addition, small-scale family producers often lack access to extension services and finance (see also KSQ 2).

A poor road network limits food distribution from major production areas to consumer markets, as well as connections between smaller producers and local markets or urban centres. Additionally, unreliable power distribution contributes to considerable food losses and waste, with a lack of stable refrigeration contributing to spoilage and further reducing the quantity and quality of available food.

The problems of inadequate infrastructure increase the cost of transporting foodstuffs to markets, decreasing producers' incomes while also raising prices for hard-pressed consumers. Additionally, there is a loss of quality in transit, resulting from poor produce management, inadequate storage and refrigeration capacity. Even once perishable foods reach the market, they are often stored, handled or sold in unsanitary conditions, further degrading their nutritional quality.

A further hurdle is the lack of information, knowledge and awareness among both producers and consumers about nutritional values, constraining demand for higher quality and more nutritious food. The influence of tradition, taboos and culture may also favour particular foods over more nutritious produce, along with factors such as high rates of illiteracy and of unemployment.

Malnutrition has a high human cost in Mozambique, being directly associated with 25.6 percent infant mortality in 2011 and 2015. Infant mortality associated with malnutrition reduces the country's workforce by 10 percent and about 19 percent of school failures are associated with chronic malnutrition, which also has a very negative economic impact (SETSAN, 2017).

The Cost of Hunger in Mozambique study estimated the country lost approximately USD 1.7 billion as a result of child undernutrition in 2015 (Nutrition Modeling Consortium, 2015). These losses represent the cumulative impact of undernutrition on health, education and productivity and would equate to approximately 11 percent of GDP in 2015. Importantly, the largest share of this cost was derived from the loss of (potential) productivity that resulted from undernutrition-related mortality – people who would have been productive adults in 2015 but had died from undernutrition-related illnesses as children.

Identification of systemic levers

Two levers were identified during the consultations on Mozambique's food systems assessment, relating to the provision of sufficient nutritious food. The first aims to improve access to diversified food in efforts that could combine with programmes supporting households in increasing the demand for nutritious food. The second aims to promote investment in storage and food conservation infrastructure, combined with training in handling and conservation of food to improve safety and reduce waste. The levers discussed and refined during workshop discussions were:

- **Supporting family farming, including women and young people, in diversifying production.** This would be done in conjunction with strengthened social protection programmes, supported by development and private sector partners and civil society actors.
- **Foster public-private partnerships to invest in essential food-processing infrastructure, such as cold storage** (and support smallholder farmers to develop improved post-harvest techniques), together with public investment in road infrastructure to reduce food losses, increasing food availability

and stability of access. This would be coupled with **capacity development** and raising awareness of the importance of food security and nutrition. Efforts could include training and communication programmes focused on food preservation and processing, dietary guidelines, cultural habits and how these can harm nutrition, gender inequalities, and revising the national education curriculum to encourage more varied and healthier diets.

Strengthening family farming (with a focus on women) could contribute to breaking the vicious cycles of poverty, as well as improve food security, livelihoods and health of rural households. Supporting investments in food processing while raising public awareness on the importance of nutritious, healthy diets could increase demand and develop new market opportunities.

Risks, barriers

Potential difficulties include low government budget allocations for transport infrastructure, armed conflicts in the central and northern zones, a lack of finance and system efficiency and corruption in allocation of scarce resources, and territorial biases. Success would require peace in the country; increased programme efficiency, and developing appropriate educational packages.

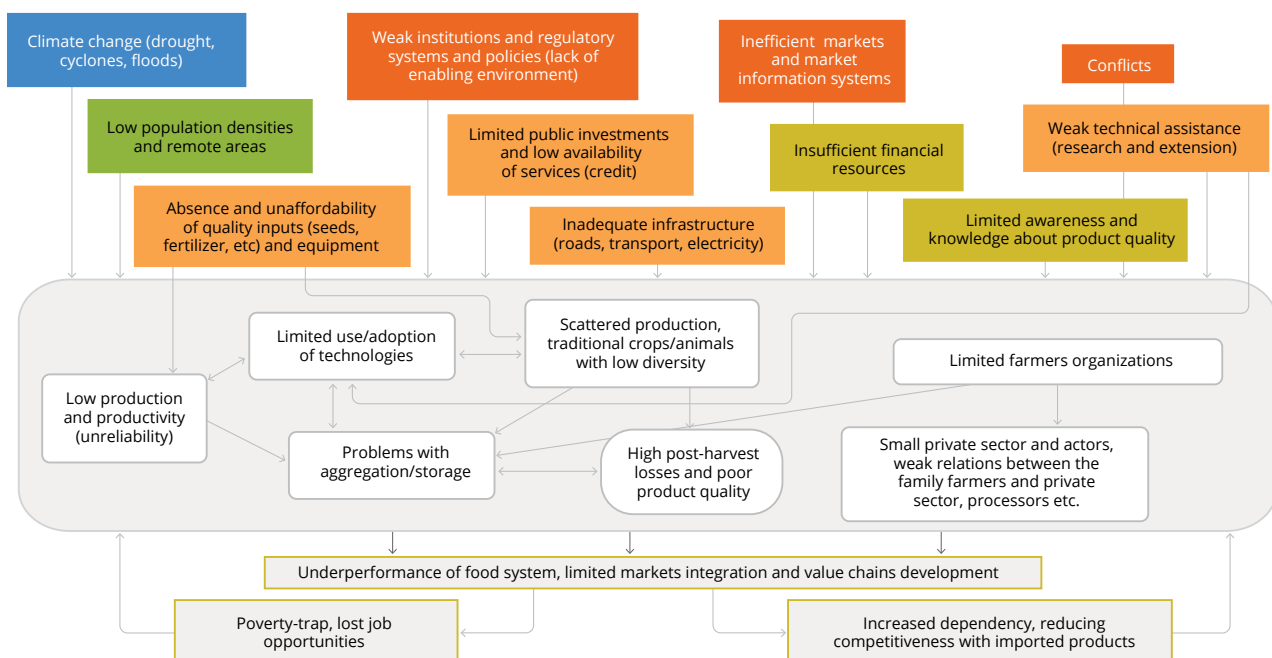


Key Sustainability Question 2: Why are domestic value chains underdeveloped and unable to generate sustainable livelihood opportunities in Mozambique?

The commercialization of smallholder agriculture is an important element of Mozambique's strategy to increase equitable economic growth in rural areas and to diversify production to improve livelihoods. Integrated value chains are very rudimen-

tary, held back by production-related problems, limited access to finance and a lack of functional markets. A lack of negotiating skills in farmers' organizations has hampered development of sustainable partnerships with downstream actors.

Figure 10. Systemic representation of Key Sustainability Question 2



Source: Authors.

Agriculture and fisheries are among the principal sources of income for rural communities. Primary agricultural production is dominated by small-scale family producers, with landholdings from 0.5 hectares to 1.5 hectares, though there are also some larger enterprises engaged in production and agroprocessing. Farmers and fishers generally make enough to meet their households' basic food requirements and in some cases (less than 10 percent of households) generate a small surplus for market sale. Most of the rural population subsists on meagre incomes.

Mozambican agricultural markets are generally thin, uncompetitive, lacking

support services, capital investments, marketing skills and access to information technologies. They are characterized by high transaction costs that may factor in price risks, transport, weather risks, losses and theft (IFAD, 2020b).

Domestic value chains remain highly fragmented and relatively short, with intermediaries adding to costs but contributing limited added value. This makes for an unstable basis for processing businesses to succeed, being reliant on regular, reliable flows of raw commodities of known quality (IFAD, 2020b).



Drivers

Subsistence production, with little value added to primary products, is typified by low levels of technical skill, with limited use of improved inputs and equipment (see **Table 4**). Producers also face difficulties such as lack of support services, including rural extension (**Table 5**), or access to finance. Financial institutions have limited outreach in rural areas, charge unaffordable interest rates and require guarantees and other conditions that effectively exclude small farmers from getting credit (IFAD, 2019). Only 0.6 percent of the population have access to credit (see **Table 6**).

Precarious storage, coupled with limited infrastructure (roads, electricity, warehouses and

processing facilities) and high transaction costs, result in an environment that is not conducive to the development of value chains. Other barriers are limited bargaining power and negotiating skills when dealing with market traders or intermediaries, low level of organization, remoteness and lack of information. Only about 10 percent of rural households are members of farmers' organizations (IFAD, 2019). Most such groups are characterized by poor management and business skills, limited focus on service provision, lack of knowledge of post-harvest and marketing aspects. The lack of coordination in production or marketing allows intermediaries to pressure smallholders to sell part of their production at the farm gate and immediately after harvest for very low prices.

Table 4. Holdings that used improved technologies (inputs), small and medium holdings

Province	Watering (%)	Used chemical fertilizers (%)	Used pesticides (%)	Used herbicides (%)	Used manure (%)
Niassa	2.9	7.6	6.7	2	4.1
Cabo Delgado	7.1	7.9	13.7	5.2	6.2
Nampula	4.8	3.9	5.6	1.9	3.5
Zambézia	2.1	1.7	1.5	0.2	10.9
Tete	14.8	29.4	9.6	1.6	14.2
Manica	10.5	3.7	1.8	0.9	5.4
Sofala	6.2	1.9	4.5	2.2	5.2
Inhambane	6.3	3.8	2.7	1.6	10.1
Gaza	24.9	6.3	3.9	2.2	14.4
Maputo Province	25.2	7.1	6.4	3.5	13.4
National	9.1	7.8	5.5	1.8	8.8

Source: Ministry of Agriculture and Rural Development, Directorate of Planning and Policies. 2021. *Integrated Agricultural Survey: Statistical Framework*, Maputo, Mozambique. https://www.agricultura.gov.mz/wp-content/uploads/2021/06/MADER_Inquerito_Agrario_2020.pdf

Table 5. Access to rural extension

Province	Received extension visits (%)	Apply the advice received (%)	Total number of men who received extension visits	Total number of women who received extension visits
Niassa	6.1	91.1	9 874	6 989
Cabo Delgado	6.2	85.8	18 584	12 793
Nampula	4.4	85.7	30 532	17 384
Zambézia	3.6	79.8	23 351	18 804
Tete	6.2	88.5	36 045	19 671
Manica	7.8	80.9	18 597	16 593
Sofala	23.9	89.1	88 877	90 768
Inhambane	3.3	79	5 257	4 692
Gaza	4.8	89	8 316	18 159
Maputo Province	2.4	83.4	4 573	6 144
National	6.9	86.6	244 006	211 997

Source: Ministry of Agriculture and Rural Development, Directorate of Planning and Policies. 2021. *Integrated Agricultural Survey: Statistical Framework*, Maputo, Mozambique. https://www.agricultura.gov.mz/wp-content/uploads/2021/06/MADER_Inquerito_Agrario_2020.pdf

**Table 6. Access to rural credit (small and medium holdings)**

Province	Received loan/ credit for agricultural purposes (%)	Number of people who received agricultural credit (N)			
		Adult men	Adult women	Young men (18-35 years old)	Young women (18-35 years old)
Niassa	1.2	1 770	72	826	50
Cabo Delgado	0.6	1 886	92	294	0
Nampula	0.4	2 493	621	615	121
Zambézia	0.6	4 433	899	1 899	302
Tete	0.8	4 506	345	3 190	345
Manica	1.2	2 021	1 103	287	95
Sofala	0.4	384	1 504	0	755
Inhambane	0.1	42	69	0	0
Gaza	0.3	941	216	177	177
Maputo Province	0.4	465	661	0	0
National	0.6	18 941	5 582	7 287	1 845

Source: Ministry of Agriculture and Rural Development, Directorate of Planning and Policies. 2021. *Integrated Agricultural Survey: Statistical Framework*, Maputo, Mozambique. https://www.agricultura.gov.mz/wp-content/uploads/2021/06/MADER_Inquerito_Agrario_2020.pdf

District-based public extension services are under-resourced and even where available, may focus on staple crop production, rather than exploring the possibilities offered by cash crops, marketing, management and strengthening farmers' organizations. New actors, such as input suppliers, have begun providing advisory services, but overall research and extension linkages remain very weak.

Small-scale actors dominate trading in agricultural produce and usually operate informally, allowing them to compete unfairly with duly authorized traders (MADER, 2021).

In the livestock trade, intermediaries or traders may buy animals from family producers, often to aggregate them for sale to animal transporters; animal feed producers, hatcheries, meat processors (slaughterhouses and butchers) and hide processors (ibid.).

Identification of systemic levers

A first lever would promote inclusive and sustainable value chains, improving market access for producers and supporting other actors (e.g. food processors) in further integrating the value chain.³ It would address key production,

³ Some organizations (e.g., IFAD, FAO) have successfully implemented value-chain projects focusing on empowering producer groups (including women's groups) and facilitating the linking of smallholders with commercial farmers to accelerate the adoption and use of improved technologies, to increase production and marketed quantities and consequently farmers' incomes (IFAD, 2019).



processing and marketing constraints, with a view to improving farmers' ability to deliver the required qualities and quantities. That would allow them to respond to market opportunities without jeopardizing household food security, improve the profitability of farming, and strengthen their position in value chain governance, through improved negotiation capacity.

This would involve: (i) fostering agricultural marketing associations and cooperatives (in agriculture, livestock and fisheries/aquaculture) to increase their capabilities and capacities to aggregate produce from subsistence and small-scale farmers, herders, and fishers; (ii) supporting farmers to increase their production sustainably both in volume and in quality. Specific actions could include exploring opportunities for organic agricultural production systems, and also exploring science-smart alternatives that facilitate climate change adaptation (see also KSQ 3); and (iii) addressing key market constraints (storage for horticulture products, environmentally-friendly processing for cassava, quality incentives and traders' working capital for livestock), etc.

A second lever would be the development of appropriate public and private services in support of inclusive value chain development. This would

enhance value chain development through improved access to rural finance and appropriate financial products, upgrading infrastructure (including electricity, rural roads) and developing transport services for all actors in the value chains.

Strengthening activities in specific value chains and across food systems would also help to promote a more diverse range of livelihoods for rural people. Fostering entrepreneurial capabilities and capacities, business support and private sector partnerships would be crucial, along with targeted approaches to ensure the inclusion of women and young people in rural areas.

Risks, barriers

The highest risks and barriers to sustainable agricultural transformation were identified as: lack of food policy, climate shocks, degradation of natural resources, low commodity prices and high input costs. Growing civil unrest in the centre and north of the country could result in increased military spending and disrupt trade. Prerequisites for success are peace in the country, capacity development and education, in particular within producer organizations, and increasing programme efficiency.



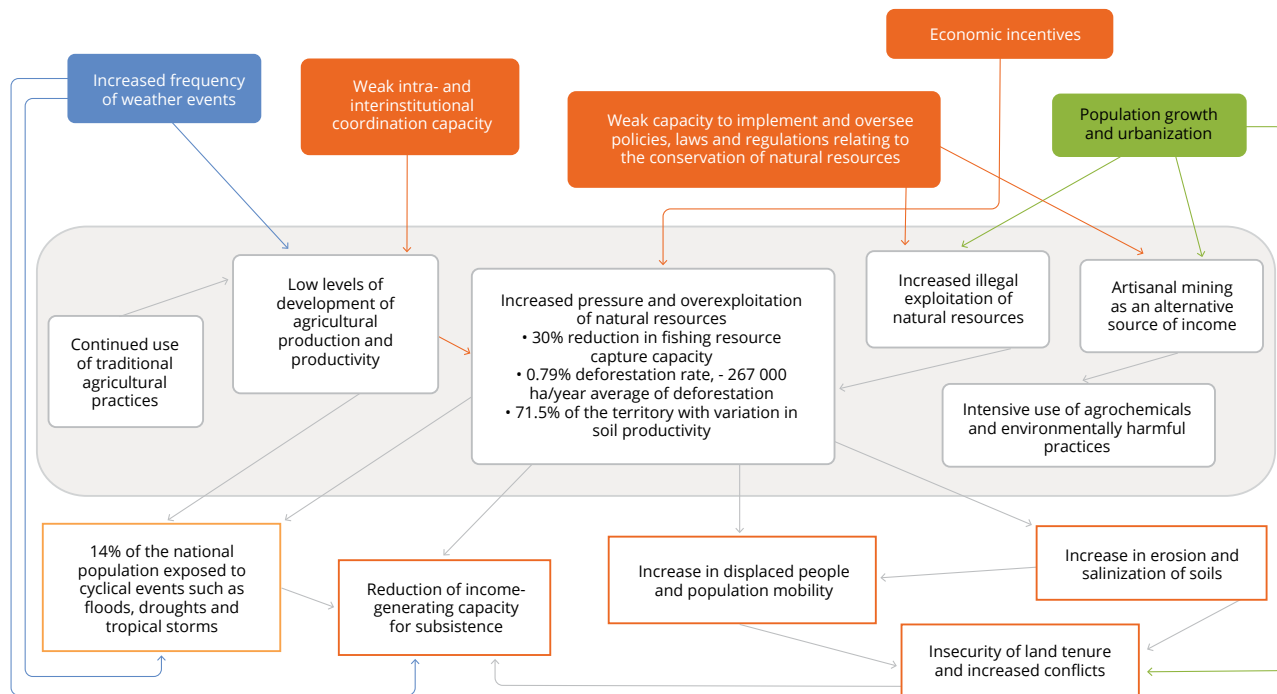


Key Sustainability Question 3: Why are current food systems accelerating the degradation and depletion of natural resources (forest, marine and coastal)?

Current food production systems contribute to land degradation and depletion of natural resources. Soils are degraded by erosion and salinization, forests by deforestation and encroachment, and marine ecosystems by

widespread illegal fishing. These direct threats to productive resources increase poverty and affect the quality of life of the people. They also jeopardize the future sustainability of food systems.

Figure 11. Why are current food systems accelerating the degradation and depletion of natural resources (forest, marine and coastal)?



Source: Authors.

While Mozambique has abundant natural resources, its forested areas and marine ecosystems alike are under substantial pressure from unsustainable practices and overexploitation, as well as threats posed by climate change.

Unsustainable agricultural practices, such as slash-and-burn methods of shifting cultivation, are a major cause of deforestation and degradation of forests, and Mozambique recorded a sharp fall in the productive forest area between 2007 and 2018 (Figure 12).

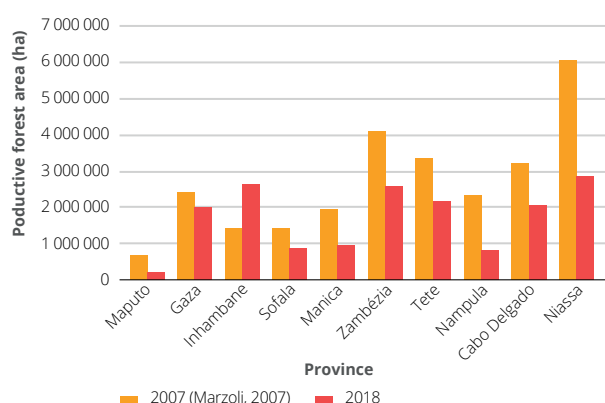
The forested area was estimated at 34 million hectares in 2016 – 47 percent of the national territory (National Forest Inventory, 2017). Of this, the area of productive forest was estimated at 17 million hectares. The annual deforestation rate was estimated at 0.79 percent on average between 2003 and 2016, corresponding to approximately 267 000 hectares of forest cleared each year.

Deforestation may have far-reaching environmental impacts and knock-on effects, including further land degradation, exacerbated



flooding, coastal erosion (mostly from loss of mangroves) and sedimentation. The loss of forests also directly affects the communities who make their livelihoods from the availability of non-timber forest products (e.g. fruits, mushrooms).

Figure 12. Change in productive forest area (2007–2018)



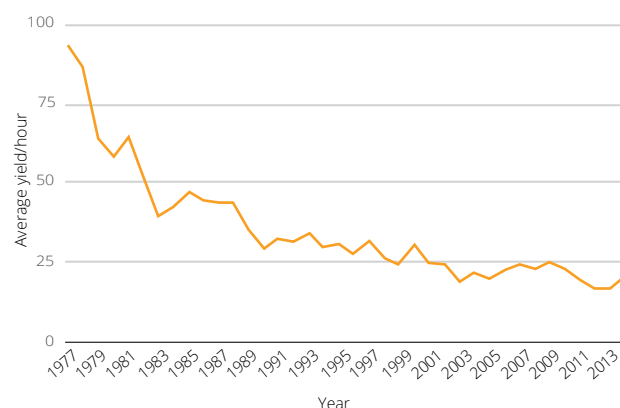
Source: Magalhães, T. 2018. *Inventário Florestal Nacional (National Forest Inventory)*. Direcção Nacional de Florestas, Ministério da Terra, Ambiente e Desenvolvimento Rural. Maputo, Mozambique. 118pp.

Similarly, the fishing sector – which provides livelihoods for about 60 percent of the coastal population – registered a decrease of about 30 percent in catch capacity in the last 25 years (see **Figure 13**) (Rare, undated), mainly caused by overfishing and destructive fishing techniques.

It could become an even more important source of income and employment, as well as contribute to improving family diets by providing relatively cheap protein in the form of fish. However, the fishing sector – and the health of Mozambique's ocean ecosystems (blue economy) – are not only threatened by overexploitation, but will also face new challenges in the coming decade. Revenues from extractive industries, especially offshore gas exploitation, are expected to grow substantially. While these have the potential to transform the economy, industrial expansion and marine-based transport corridors will pose a challenge to the fragile coastal environment (World Bank, 2020).



Figure 13. Average yield per hour of industrial fisheries



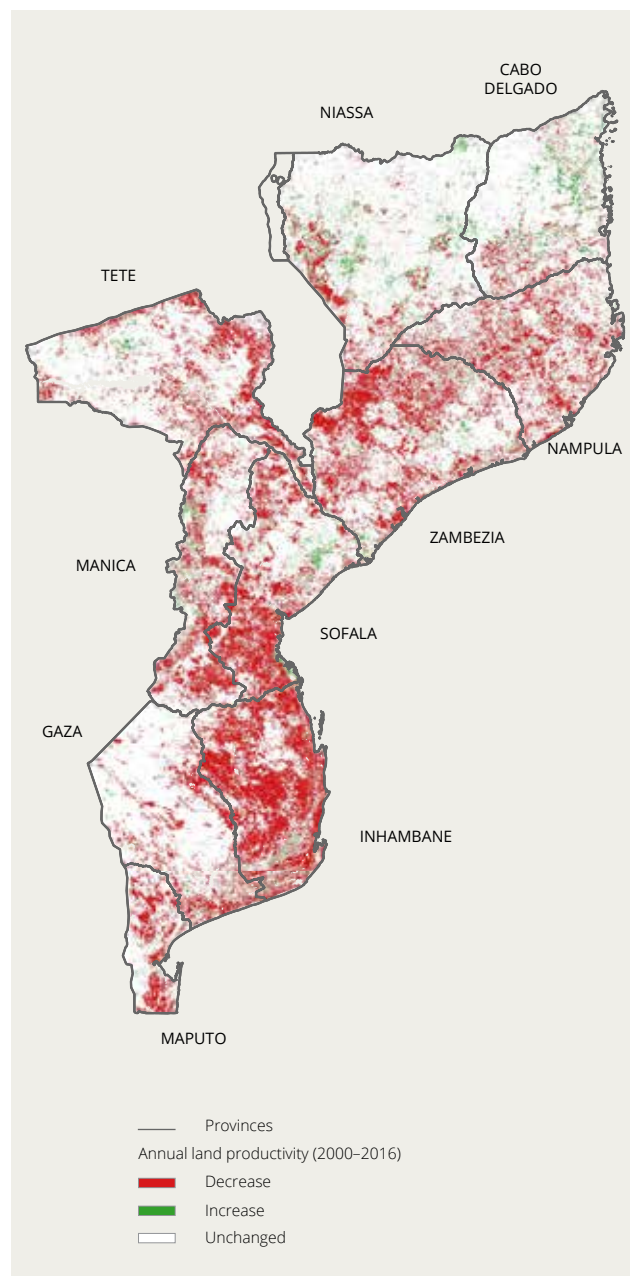
Source: Instituto Nacional de Investigação Pesqueira. 2016. Estado de Exploração dos Recursos Pesqueiros de Moçambique 2014–2015. www.iip.gov.mz/images/pdfs/eerp/eerp2016.pdf

Drivers

In addition to the depletion of forests and marine ecosystems, accelerating soil degradation is a very significant issue affecting sustainability. Between 2000 and 2016, more than a quarter (25.3 percent) of the land in Mozambique (equivalent to 2.49 million hectares) showed a marked decrease in soil productivity, as measured by normalized difference vegetation index (NDVI) decreases (**Figure 14, Figure 15**) (Montfort *et al.*, 2020). This results in lower yields, reduced resilience of rural communities and economic losses and can be traced back to unsustainable agricultural practices such as mono-cropping of maize, which harm soil health and reduce future productivity.

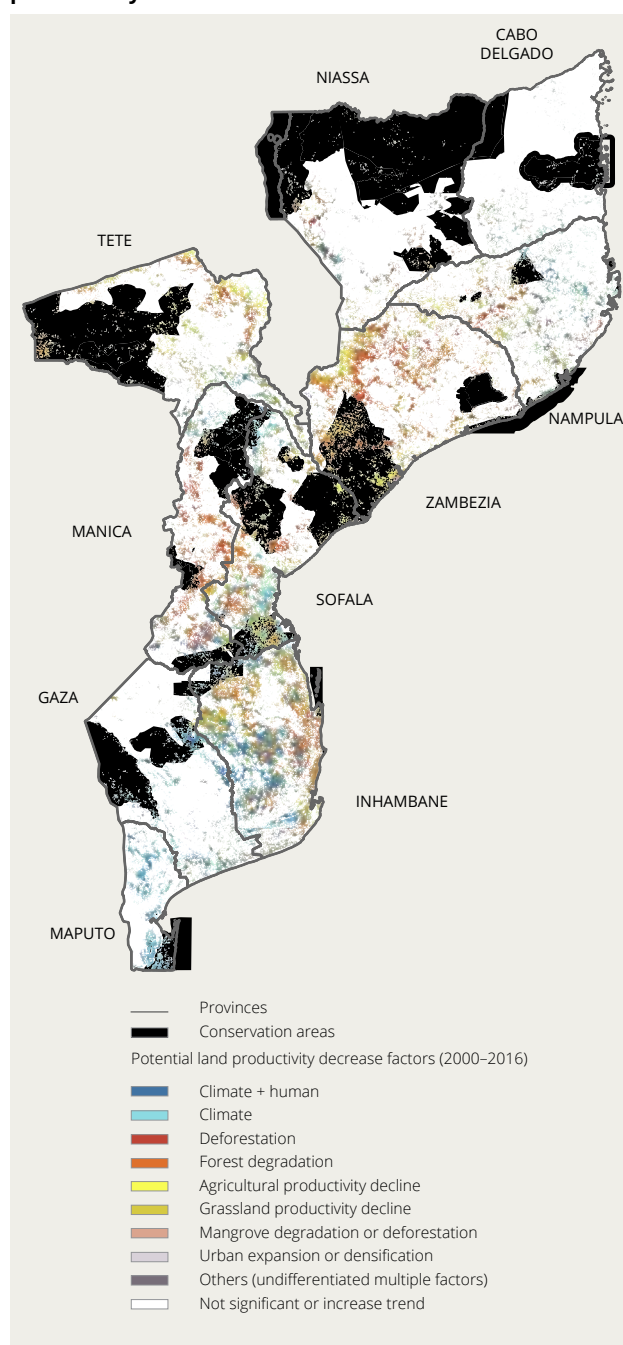


Figure 14. Annual change in land productivity



Source: Adapted from Montfort *et al.*, (2020): **Montfort, F., Bégué, A., Leroux, L., Blanc, L., Gond, V., Cambule, A.H., Remane, I.A.D., Grinand, C.**, 2020. From land productivity trends to land degradation assessment in Mozambique: Effects of climate, human activities and stakeholder definitions. *Land Degrad Dev.*; 32: 49– 65. <https://doi.org/10.1002/ldr.3704>. Map conforms to UN. 2016. Map No. 3706, Rev. 6. <https://www.un.org/geospatial/content/mozambique>

Figure 15. Spatial distribution of main factors in land productivity decreases



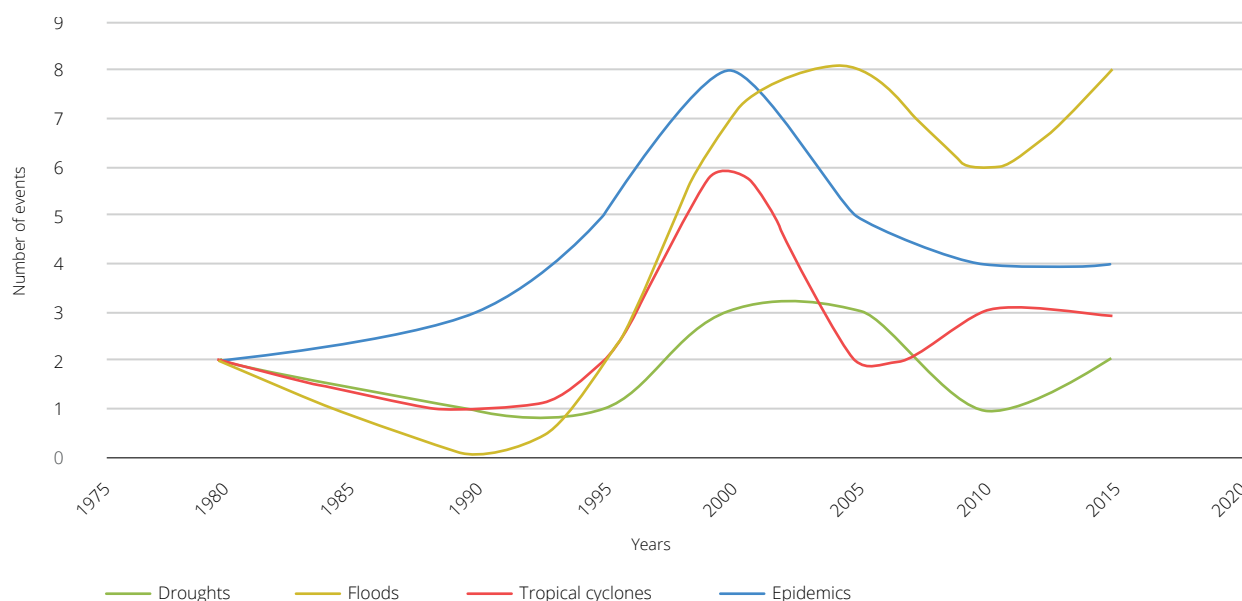
Source: Conservation areas were obtained from: **UNEP-WCMC and IUCN (2022)**, Protected Planet: **The World Database on Protected Areas (WDPA)** and **World Database on Other Effective Area-based Conservation Measures (WD-OECM)** [Online], March 2022, Cambridge, UK: UNEP-WCMC and IUCN. Available at www.protectedplanet.net.



Natural resources are also threatened by rapid population growth and the large-scale exploitation of wood, including timber associated with illegal logging (EIA, 2021). In addition, other key factors accelerating degradation of natural

resources and loss of biodiversity are climate change (droughts, cyclones, tropical storms etc.) (Figure 16), uncontrolled fires, production of charcoal for fuel, and shifting agricultural cultivation (Bossuet *et al.*, 2019).

Figure 16: Frequency of adverse weather events 1980–2020



Source: República de Moçambique, Conselho de Ministros (2017). Plano Director para a Redução do Risco de Desastres 2017–2030. www.preventionweb.net/files/64564_planodirectorporareducaodoriscode.pdf

Climate change and population growth are important contributors to degradation of natural resources, along with structural dynamics that have allowed unrestrained resource overexploitation and depletion. For example, the government’s capacity to enforce existing natural resource management legislation has been unequal to the task of stemming illegal harvesting of timber and exploitation of marine resources. It has also been unable to ensure implementation and enforcement of regulations on large-scale investment projects in agriculture, biofuel production, timber exploitation and forest plantations. In timber harvesting, for example, measures have been unable to prevent increasing

illegal exploitation and export of forest resources, with more than 90 percent of the product destined for China (Macqueen, 2018), in a market mostly dominated by small-scale enterprises where informality thrives.

In marine resources, illegal fishing along Mozambique’s more than 2 500-km coastline has a very high impact on demersal fish (groundfish), shallow-water shrimp, line fish and deep-water lobster. Illegal fishing involves licensed fishers violating rules on catch sizes, as well as individuals, groups or companies hauling in species for which they are not licensed (FCWC, 2019). A lack of marine management



and increasing numbers of artisanal and commercial fishers is partly to blame for this overexploitation, but of particular concern is widespread illegal fishing by foreign fishing fleets (The New Humanitarian, 2008). Over and above the impact on fish stocks and the sustainability of the resource, Mozambique misses out on an estimated USD 56 million in tax revenue annually through illegal fishing (FCWC, 2019).

Impact on economy/society

It is clear that local farming and fishing communities suffer most from land degradation and the depletion of natural resources, and the absence of enforceable accountability mechanisms means there is little pressure or incentive to ensure sustainable resource-management practices, including by the private sector.

Unsustainable farming practices, overexploitation of natural resources – and the corresponding loss of resilience in ecosystems, such as soil fertility and biodiversity – undermine the sustainability of food systems and incomes, increasing the likelihood of poverty, food insecurity, socioeconomic instability, conflict, and migration.

Identification of systemic levers

The main levers to deal with overexploitation and the depletion of natural resources are aligned with the need for a resource governance system based on intersectoral policies and strategies. It is also necessary to generate evidence-based information to better engage the various actors in the natural resource management chain. The following two levers could thus be effective:

- Strengthen natural resource **governance mechanisms** at the provincial and district levels to facilitate implementation of regulatory instruments dealing with overexploitation (such as conservation laws, tools for stopping illegal wildlife and timber

trafficking, illegal fishing and uncontrolled forest fires), as well as unsustainable agricultural practices.

- Strengthen community-based management practices for water resources, forests and biodiversity, in combination with supporting sustainable farming systems. Specific actions could include exploring opportunities for agroecological production systems and for climate-smart agricultural practices and technologies (see KSQ 1 and KSQ 2). These efforts could be combined with devolving user rights, strengthening community-based organizations and ensuring value addition at local level, e.g. for timber, non-timber forest products and fish.

These levers would contribute to harmonizing implementation of policies and regulations aimed at reducing the overexploitation of natural resources, while contributing to employment and integration of rural producers in local value chains and agrifood systems.

Risks, barriers

The biggest barriers here centre on political commitment to the organization of institutional governance systems and accountability in implementing natural resources policies and regulations. It would be essential to ensure such commitment and willingness to adapt natural resource management policies, and reorganize governance systems and design accountability mechanisms, relying on community-based principles for managing these resources. Additionally, integrated land-use management plans are still underdeveloped and there is a lack of the necessary infrastructure (e.g. irrigation systems, electricity, processing and technical capacity) for the sustainable development of more resilient agrifood systems. Finally, the limited availability of funds to finance implementation and monitoring of the various regulatory instruments approved as national development strategies is also a barrier.





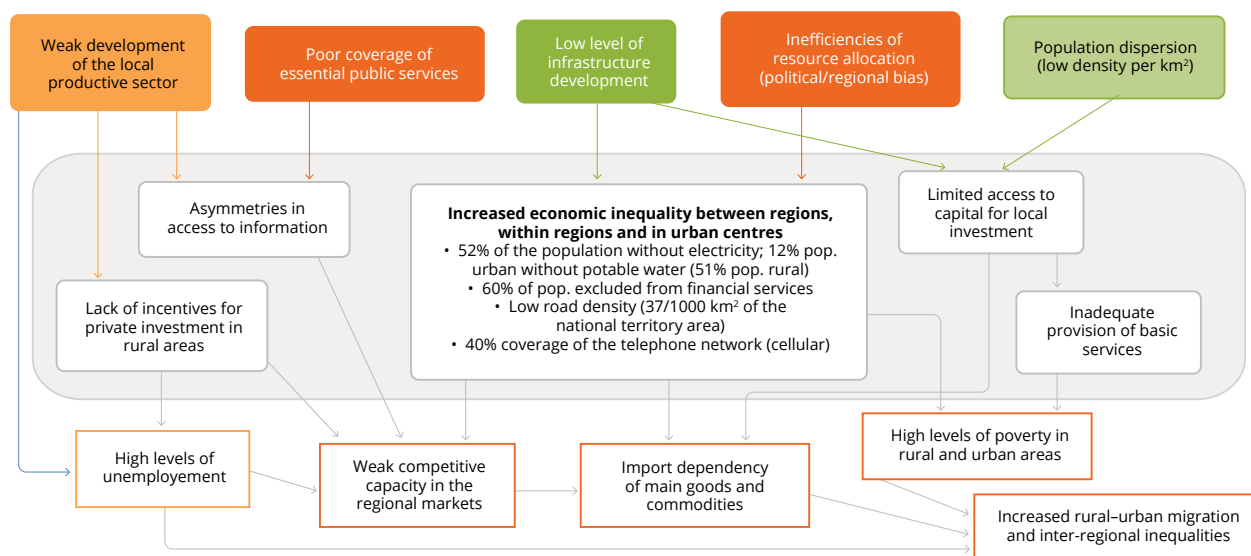
Key Sustainability Question 4: Why do such stark regional differences remain in food systems development in Mozambique?

The food systems are characterized by socio-economic and geographic disparities between the northern, central and southern regions. The south exhibits a concentration of economic, institutional and intellectual capital, but its poor soils and erratic rainfall limit agricultural production. The northern and central regions have enormous agricultural production capacity, but dysfunctionality in governance limits the growth of the agrifood sector, which mainly comprises small-scale producers. Long-term economic orientation has favoured investments in large-scale agro-industry and fossil fuel exports, rather than supporting agricultural productivity.

A schematic representation (**Figure 17**) shows the links between the identified drivers and impacts related to the regional differences in food systems in Mozambique.

Mozambique is one of the poorest countries in the world, with per capita income of around USD 460 per year (World Bank, 2021b). Such low income, combined with increasing inequality between the various social classes and regions, characterize a socioeconomic situation that poses a major challenge to inclusive, integrated development (**Figure 18**).

Figure 17. Systematic representation of Key Sustainability Question 4



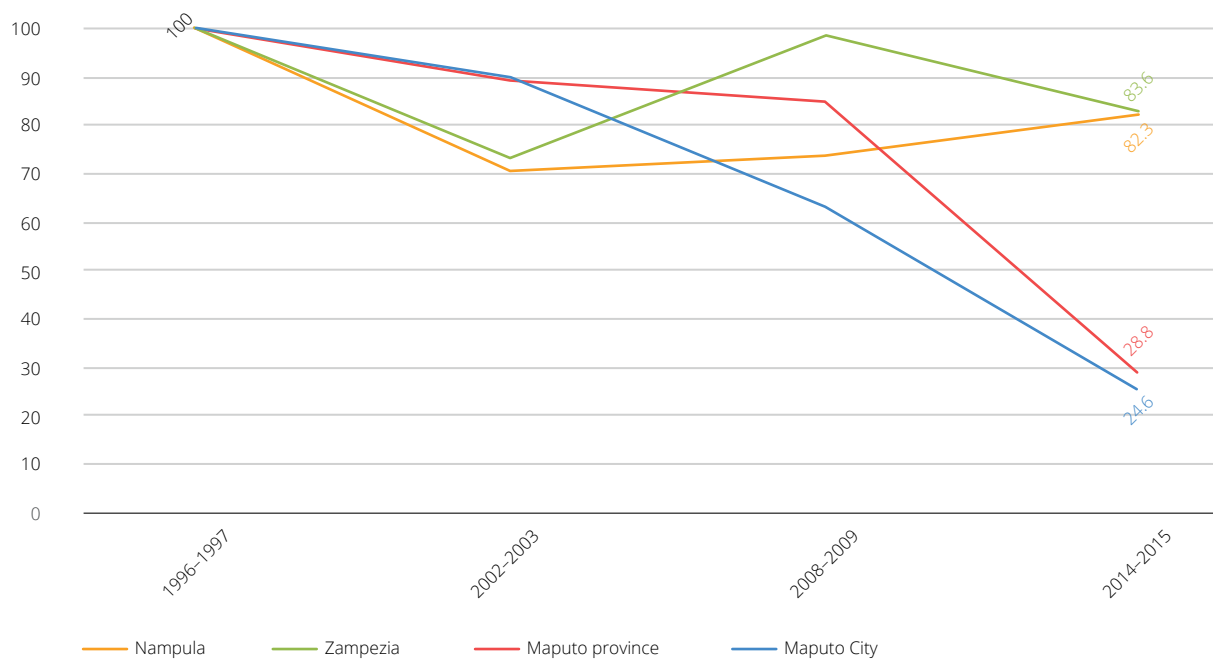
Source: Authors.

Socio-economic inequality has increased in recent decades due to the chosen governance and development model. Total poverty rates in 2014 showed 63.7 percent of the population living on less than USD 1.90 per day, while the richest tenth accounted for 45.5 percent of total national income (World Bank, 2021d). And while the capital city and Maputo Province in the south

have recorded major decreases in the poverty rate in recent decades, the rate has remained very high in the central and northern provinces, represented in **Figure 18** by Zambézia and Nampula, respectively (see also **Figure 19**). The gross domestic product (GDP) generated by the southern region of the country is, additionally, as much as half of the national total (OMR, 2021).



Figure 18. Evolution of the poverty rate by region (from 1996/97)



Note: Y-axis is an index for the poverty rate (1996/97 = 100). **Source:** Mozambican Ministry of Economy and Finance, cited in **Baez, J. E. and Olinto, P.** 2016. *Accelerating Poverty Reduction in Mozambique : Challenges and Opportunities*. World Bank Group, Washington, DC. <https://www.worldbank.org/en/country/mozambique/publication/accelerating-poverty-reduction-in-mozambique-challenges-and-opportunities>

Drivers

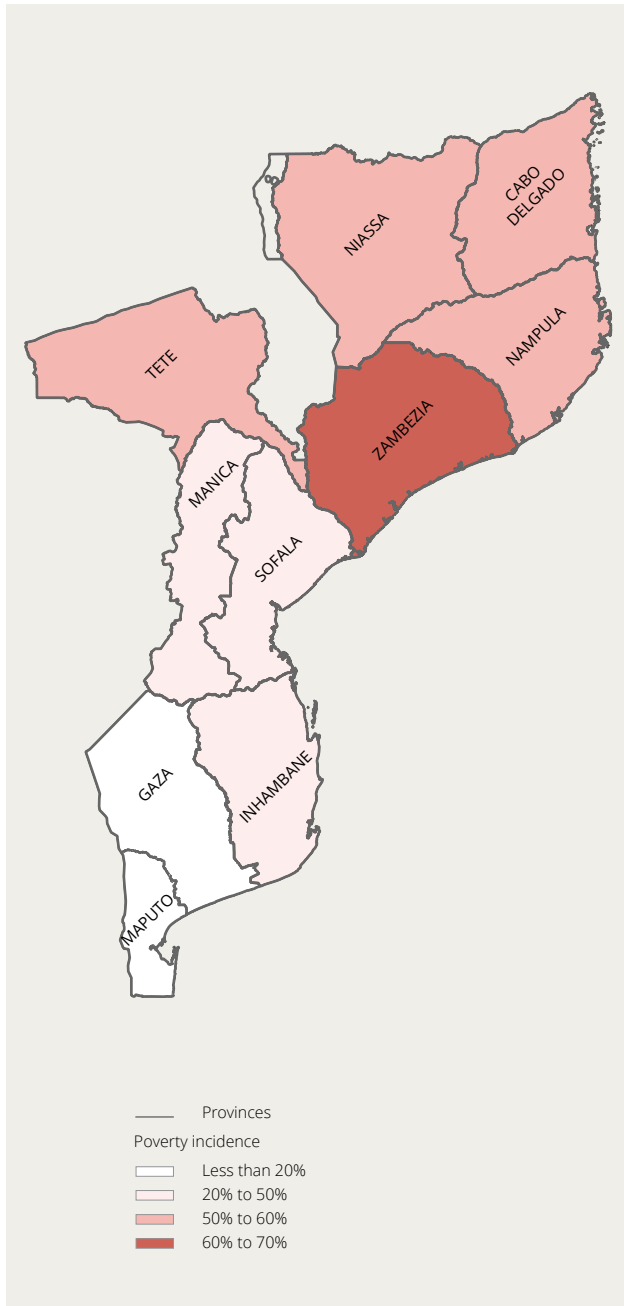
Dysfunctionality in governance systems regarding territorial planning, along with a lack of access to financial services as well as communication and information technologies, limit growth and competitiveness in the agrifood sector,

particularly in the northern and central regions – the provinces with the strongest agricultural potential. In addition, coastal communities often show significantly higher levels of development compared with those in the interior, where there are lower levels of basic infrastructure such as electricity (**Figures 19 and 20**).



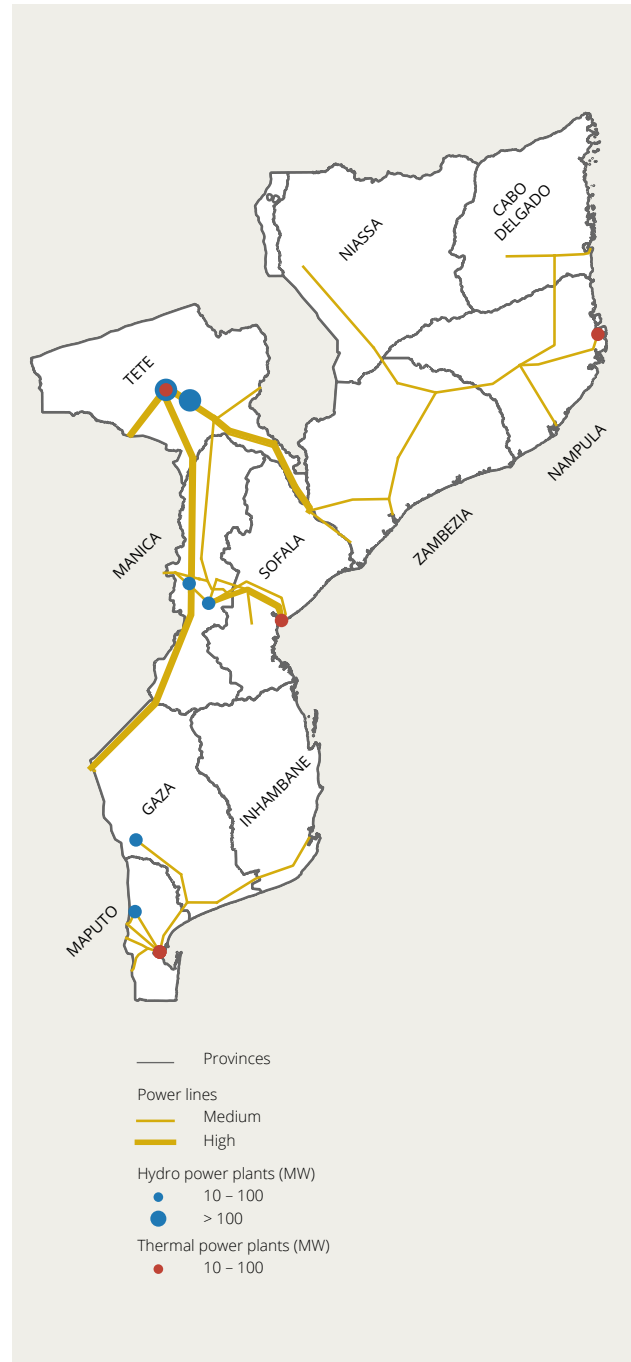


Figure 19. Poverty incidence at national level



Source: Adapted from AfDB (2018): AfDB. 2018. Mozambique Country Strategy Paper 2018-2022: Supporting Mozambique towards the High5s. Available at: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Boards-Documents/MOZAMBIQUE_-_CSP_2018-2022_Final_.pdf. Map conforms to UN. 2016. Map No. 3706, Rev. 6. <https://www.un.org/geospatial/content/mozambique>

Figure 20. Penetration of electrical distribution network



Source: Author (2022). Power plants and electricity transmission networks data were obtained from: EnergyData.info. Map conforms to UN. 2016. Map No. 3706, Rev. 6. <https://www.un.org/geospatial/content/mozambique>



Table 7. Holdings whose members had access to banking and financial services, small and medium holdings

Province	Have a bank account (%)	Use mobile account (%)
Niassa	11.3	3.1
Cabo Delgado	13.3	2.5
Nampula	7	2.1
Zambézia	5.9	2.7
Tete	7.8	1.7
Manica	17.2	2.6
Sofala	23.2	4.3
Inhambane	24.8	5.6
Gaza	20.7	4.3
Maputo Province	57	18.6
Mozambique	15	3.8

Source: Ministry of Agriculture and Rural Development, Directorate of Planning and Policies. 2021. *Integrated Agricultural Survey: Statistical Framework*, Maputo, Mozambique. https://www.agricultura.gov.mz/wp-content/uploads/2021/06/MADER_Inquerito_Agrario_2020.pdf

Mozambique's political economy has been characterized by a high degree of political centralization, a high dependency on foreign capital mostly interested in the production of cash crops and fossil fuels for export, a low level of collective organization of rural communities and small-scale producers, and recurrent conflicts in the Central and Northern regions. At independence in 1975 and after the civil war from 1977 to 1992, Mozambique inherited a distorted economy characterized by:

- weak economic integration with neighbouring countries, where Mozambique essentially supplied migrant labour (e.g. to mines in South Africa) while offering transport (e.g. railways) services to neighbouring countries to export products through its ports; and

- limited economic foundations, mainly for the production and export of commodities (cashew nuts, cotton, sugar, copra and tea) and including some backward linkages with basic processing industries but neglecting the development of a strong agrifood sector (Carrilho *et al.*, 2021; Weimer and Carrilho, 2017).

The development model adopted over recent decades reinforced these trends with investments directed towards large-scale agricultural production (particularly for biofuels) – the ProSAVANA programme being the most prominent – and fossil fuel (gas) development projects aimed at export markets. Although this approach to agriculture has become slightly more nuanced in the last ten years (Di Matteo and Schoneveld, 2016), the share of the state budget allocated to food and agriculture has been consistently low, at approximately 4 percent in the 2004–2018 period. It has also flowed more to the south – where political and economic power is concentrated – than the central and northern regions (Pernechele *et al.*, 2021). While spending has been insufficiently targeted towards small-scale, family producers, it has also not been used to generate new employment opportunities or better services, for example, in agricultural support services, banking or finance (Table 7) (Deininger and Xia, 2016).

The reasons for adopting this development model can be traced back to excessive centralization of decision-making and political power (Carrilho *et al.*, 2021) as well as the high dependence on foreign investments, the relative weakness of civil society and of farmers' cooperatives, the lack of productive infrastructure, and competition from South African cereal production (Sitko *et al.*, 2017). Hence, regional development and local as well as national food systems performance have been negatively influenced by the focus on an agro-industrial and export-led agrifood system, as well as by the political instability and violence resulting from the challenges posed to state legitimacy.



Impact on economy/society

Economic inequalities between regions in Mozambique have been exacerbated by policies concentrated on interventions in the south, and while the Government has made efforts to mitigate unbalanced territorial development through public sector reforms and a decentralization process, the overall policy has suffered from a lack of coherence. Socioeconomic and spatial inequalities remain, as can be observed in poor access to health services, limited valorization of local agricultural potential given the lack of a local productive sector and reduced competitiveness in local and regional markets. These inequalities exacerbate rural poverty, triggering political tensions and processes of urban migration. Recently, food systems have also been subject to risks and impacts associated with the COVID-19 pandemic, such as limiting the movement of products and people at the national and international level and disruptions in educational programmes, increasing unemployment and decreasing income (IOM, 2020).

Identification of systemic levers

Continued support for decentralization will be fundamental to mitigating the negative impact of export-led food systems, from a territorial development perspective.

Potential key systemic levers will seek to:

- Strengthen territorial governance mechanisms to mobilize public funding for strategic rural infrastructure and basic services (roads, electricity, water and sanitation, education and health) in order to attract private investments (specifically to underdeveloped regions in the North and Central areas).
- Foster and promote investments in sustainable local food systems that increase the availability of nutritious food and improve rural livelihoods while increasing communities' resilience to climate-related shocks. Key targets would be rural communities, including fishers, women and young people, and intermediate cities. Policies should accordingly also





support the transformation of family farms into commercial units. For this to happen, policies must, for example, further the integration of small farmers into diversified value chains with high market potential, while strengthening their capacities (e.g. through enhanced producer organizations). That would enable them to participate and negotiate their integration in local supply chains in ways that increase their income and improve living conditions (see KSQ 2).

Risks, barriers

Risks include fragile and dysfunctional public institutions, including organizational structures, and the allocation of responsibilities at the various levels of governance. There is also a lack of innovation and knowledge for the deployment of appropriate technologies to develop the food systems, which would promote competitive advantages at a regional level.

Transition to sustainable food systems

Mozambique has the potential to transform its food systems, even as it faces new challenges in the coming years in ensuring food security and better nutrition, improved livelihoods and opportunities for people in all of its regions. Environmental sustainability will also present greater challenges as the nation looks to expand its economy through increasing revenues from extractive industries.

Improving access to fertile and arable land, investing in basic infrastructure, coordinating coherent policies and approaches, and taking steps to restore peace, would all contribute to improving the sustainability of food systems. Inclusive transformation would also require increased empowerment of women and young people, as well as broadening access to technologies and innovation.

A systemic approach would bring the necessary leverage from agriculture, as the basis of food availability, given the scope for agricultural production in the central and northern zones and livestock production in the southern zone, with a relatively small proportion of fertile and arable land currently under cultivation. Forestry, fisheries and aquaculture also offer scope throughout the country.

Other elements and actors in food subsystems, such as supply chains, food environments and consumer behaviour, could also help to address factors including climate change, urbanization, globalization, trade liberalization, income growth and distribution, the sociocultural context, leadership and policies.

In addition, investments in basic infrastructure, such as safe water supplies, electricity and irrigation are also necessary, as are improved access to health services and, equally importantly, the need for peace and security. Stakeholders in the food systems consultation process also identified the potential of public-private investments in food supply chains as an important lever.

The government's current five-year programme (PQG 2020–2024), which translates into annual national and territorial economic and social plans, sees as priorities increasing agricultural production, investment in economic and social infrastructure, strengthening fishing and aquaculture, and mitigating climate change (Ministerio da Terra, Ambiente e Desenvolvimento Rural, 2018; Republic of Mozambique, 2020).



While these pillars would support the transformation of food systems to become more sustainable, inclusive and resilient, better coordination and integration of policies and approaches would be necessary for the desired impact.

The vast scope of food systems offers various entry points for sustainable transformation, among them improving and diversifying smallholder production and productivity through sustainable practices such as climate- and nutrition-smart agriculture, strengthening value chains and small and medium enterprises, as well as enhancing policy processes and inter-ministerial cooperation, governance and decentralization processes.

In practical terms, transformation would require close collaboration between stakeholders in

rural as well as urban areas, in the fields of agriculture, health, education, the environment, and extractive industries. The desired impact would also need involvement at various levels – from ministries and line departments, regional bodies, private sector players and NGOs, as well as producers and consumers.

The findings of this assessment serve as a first step in thinking about the transition and necessary for sustainable food systems transformations. Further research will help to better detail the challenges and their impact on food systems sustainability, as well as to refine the levers and necessary actions for the desired impact. Institutional innovations could help to ensure that the voices of all stakeholders, especially the most vulnerable sections of society, are reflected in the activities and plans.





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