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FOOD SYSTEMS PROFILE - **SIERRA LEONE**

Catalysing the sustainable and inclusive
transformation of food systems



Sierra Leone



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Catalysing the sustainable and inclusive
transformation of food systems

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FOOD SYSTEMS PROFILE

SIERRA LEONE

Key messages

Sierra Leone has a significant natural resource base and diverse agroecologies, making it highly suitable for developing diverse, sustainable food systems. The country receives abundant rainfall across 5.4 million hectares (ha) of its arable land. With over 400 km of coastline, it also has extensive fish resources to ensure affordable diets for all Sierra Leoneans. This potential is largely unrealized, however, with the current food systems being too heavily based on unsustainable practices. Even though the country is experiencing rapid urbanization, Sierra Leone's population of 7.98 million mainly live in rural areas (57 percent). Hit hard by the civil war, which destroyed most of its infrastructure, followed by the Ebola and the Covid-19 pandemics, the country's food systems remain unresponsive to the needs of most of its population. More than half-a-million people have been added to the count of the food insecure in Sierra Leone over the last five years (WFP CFSVA, 2020).

Opportunities and potentials exist in Sierra Leone's agri-food sector:

- Government policy 2021–2022 inflection indicates an intention to direct public policy for creating an enabling environment for private sector-led initiative to expand rice cultivation, double farmer income and contribute to a vibrant, rural economy. Existence of organized network of farmers, in the form of Agricultural Business Centres or ABCs, can offer a good entry point for food system development initiatives.
- Large area of arable land with only 15 percent under cultivation, including fertile lowlands (1 million ha), can be developed to support double cropping and boost food production, as well as diverse agro-ecosystems offering opportunities for smallholder-based crop expansion and large scale land-based investments.
- Potential for a readily available domestic market that can absorb agricultural products, including processed products for urban consumers, as well as export opportunities (particularly sub-regional) that are still largely under-exploited.

Despite advances, there are significant challenges to the country's sustainable food systems:

- Persistent, and rising food insecurity (57 percent) and malnutrition, particularly among children and pregnant women.
- Low government allocation (2.4 percent) to agriculture is a constraint for the sector to achieve its full potential.
- Weak and poorly structured agro-industry as well as high interest rates for rural finance reduces the returns from agricultural enterprises.



- A policy environment that fails to address rural disparities and the effective participation of youth and women.
- Sierra Leone is one of the most volatile economies in the world, fluctuating from a growth rate of more than 20 percent in 2013 to -20 percent in 2015, to stand at -2 percent in 2020. This fluctuation is due to – (a) the civil war from 1991–2002 and post-war growth, and (b) the mining industry boom in 2012–2014 and fall in global iron ore prices in 2015.

The ongoing dynamics of the sector call for an urgent transformation to sustainable food systems:

- Failure to adopt production techniques that will ensure sustainable land use practices, particularly on the upland.
- Rising food import dependency in the last decade indicates that domestic production is not keeping pace with population growth as well as consumer demand, especially for a growing urban population.
- Overexploitation of natural resources (forests, fish stocks), land degradation, territorial inequities and slow uptake of improved technologies are key dynamics likely to make Sierra Leone's food system unsustainable, if not addressed in time.





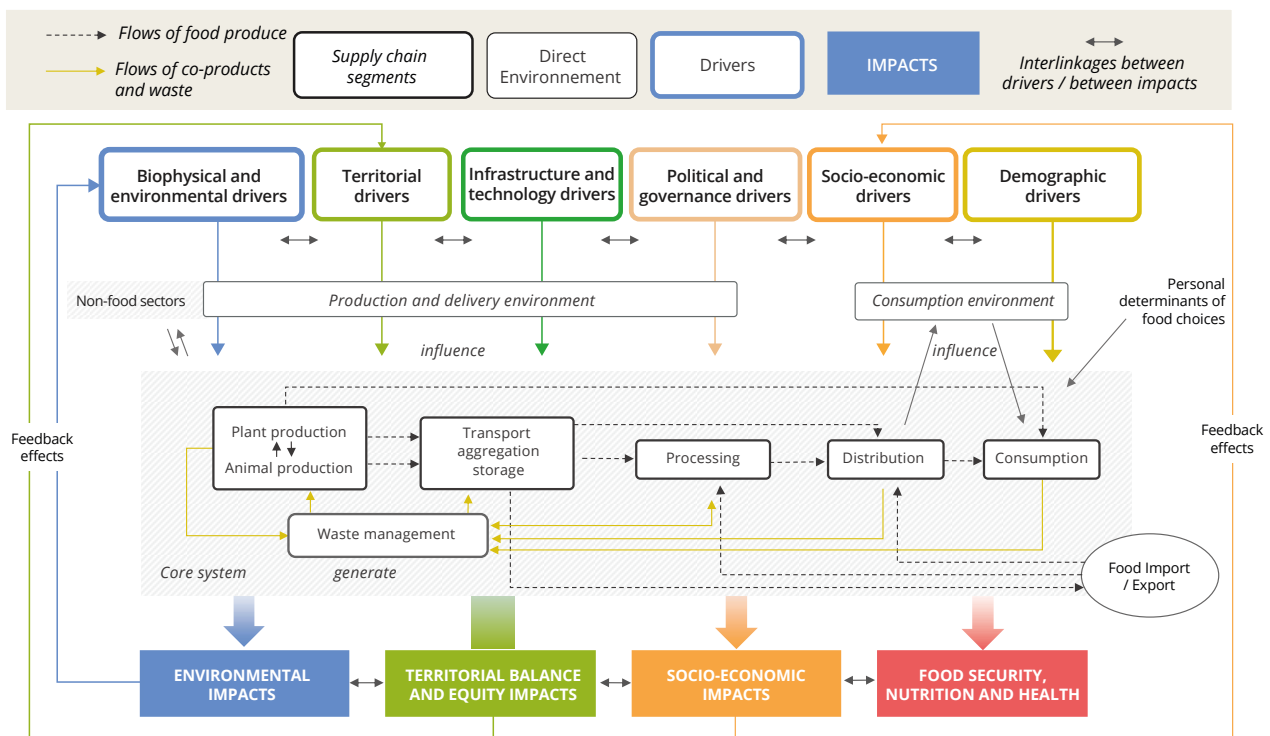
Methodology and process

This brief is the result of a collaboration between the Government of Sierra Leone, Food and Agriculture Organization of the United Nations (FAO) and the European Union in close collaboration with FAO experts. It was implemented in Sierra Leone during April to October 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 *Catalysing the sustainable and inclusive transformation of food systems: conceptual framework and method for national and territorial assessment*. (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 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: *Catalysing the sustainable and inclusive transformation of food systems: conceptual framework and method for national and territorial assessment*. (David-Benz et al., 2022).



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, the assessment is both qualitative and quantitative in nature. Critical 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



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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.



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National context: key figures

Sierra Leone is rich in natural resources. Mining and agriculture are the two main sectors of the economy. With notable deposits of rutile, bauxite, iron and diamonds, among other minerals, the economy has been heavily dependent on the mining sector for decades. In 2018, mining contributed 0.7 percent to the gross domestic product (GDP), representing 65 percent of export earnings, and 3 percent of employment generation (International Trade Administration, 2021). The fall of iron ore prices in 2015 resulted in substantial depression of GDP growth. Timber exports have also risen in recent years as mining exports have fallen. The agriculture sector employs 54 percent of the population and drives 61 percent of the GDP on an upward trend, which is substantially higher than its

neighbouring countries (Liberia: 42 percent; Guinea: 23 percent) (World Bank, 2019 and 2020, respectively). The agriculture sector remains largely composed of smallholder subsistence farmers with low technology and improved input use. The basis of Sierra Leone's economy in extracting natural resources puts a particularly high pressure on land use and ecosystems, wherein continuation of unsustainable practices is a risk to future growth.

The population of Sierra Leone stood at 7.98 million in 2020, with over 42 percent of the population living in urban areas (FAOSTAT, 2021). Poverty had decreased in the post-war period from 66.4 percent in 2003 to 53 percent in 2011, before increasing to 56.8 percent in 2018.

Table 1. Country level data – Sierra Leone

Indicators	2000	2010	2020	Comments
Population growth rate	2.7%	2.2%	2.0%	Stabilized around 2% in post-war period
Rural population growth rate	64.3%	61.1%	57%	Steady decline in rural population
Urban population growth rate	3.4%	3.2%	3.1%	Rose steadily throughout civil war; currently stabilized at around 3%
GDP/capita	USD 138	USD 401	USD 484	Post-war growth after 2000. Sharp rise in 2013–14 to over USD 700, declined since drop in iron prices. Lowest among neighbouring countries
GDP growth rate	6.6%	5.3%	-2.1%	Large fluctuations owing to macroeconomic factors, including drastic fall in global iron ore prices, global financial situation, Ebola, COVID, etc.



Inflation rate, consumer prices		7.1%	13.4%	Peak in 2017 at 18%, moderate decrease since
Access to electricity		11.5%	22.7%	Increasing; rural access only at 1.5%
Access to safe drinking water				Declining disparity between rural and urban regions; little change in urban access over time
Urban	10.5%	11.5%	12.5%	
Rural	1.7%	4.6%	9.2%	
School enrolment primary (gross %)	59.5%	113% (2011)	143% (2019)	Increasing primary enrolment
Forest coverage (%)	40.5%	37.8%	35%	Declining forest cover
Exports of goods and services (% GDP)	18.1%	16.8%	12.8%	Large fluctuations, reaching peak of 32% in 2012
Imports of goods and services (% GDP)	39.4%	34.5%	37.3%	Current trend: increasing imports
Food as percent of imports	32.7%	10.9% (2014)	32.3%	Higher than neighbouring countries; 2014 shows a relative dip due to a surge in import of mining equipment
Agricultural land	38.9%	54.4%	54.7%	Post-war stability in agriculture land use

Source: FAOSTAT, 2021.





Key figures and trends in food production, consumption and trade

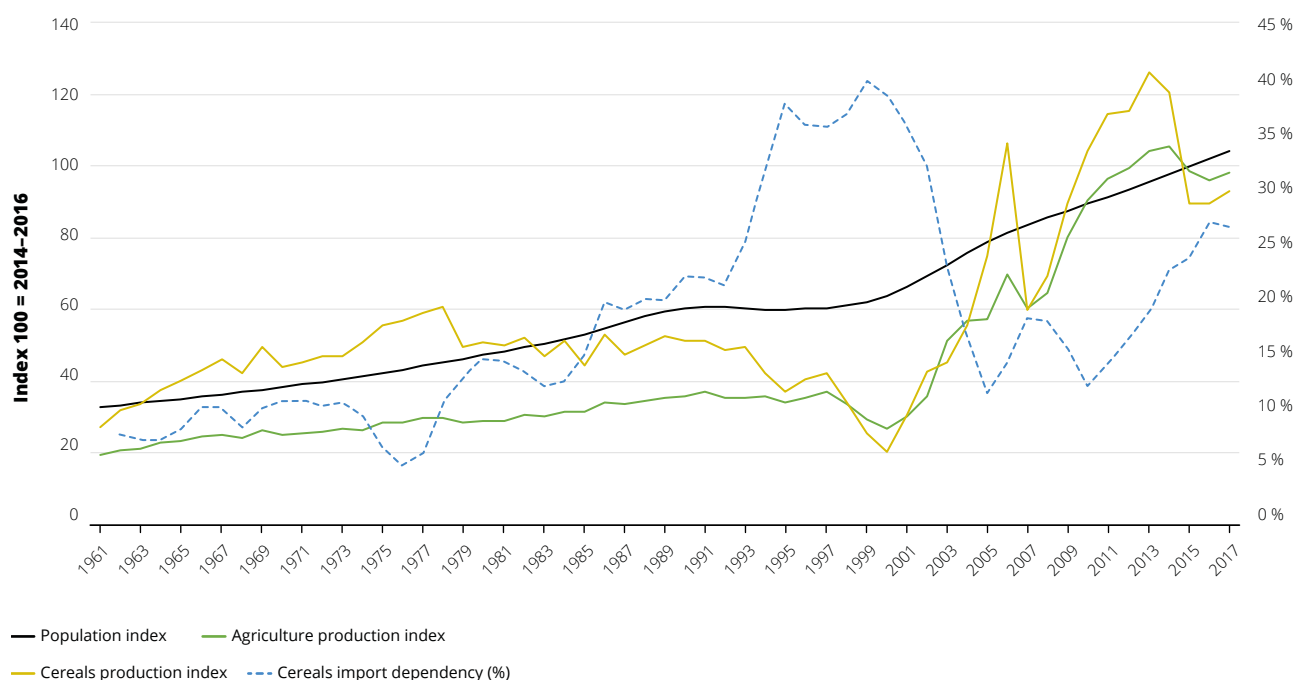
Staple production in post-war Sierra Leone has oscillated substantially. Rising food import dependency over last decade indicates domestic production lagging behind population growth and consumer demand.

In the 1960s and 1970s cereal production in Sierra Leone accounted for all but 5–11 percent of consumption needs, prompting government interest in rice self-sufficiency, a policy goal since then (see Figure 2). However, the civil war of the 1990s interrupted agricultural production and efforts to stabilize production in the post-war period failed to meet the rising demand of the growing population. Cereal imports have been steadily rising since 2011, to the current level of 29 percent import dependency (2017–2019). Figure 3 illustrates the production levels of the major food crops of Sierra Leone, including rice, cassava (substitute staple after rice), maize, groundnuts, sweet potatoes and vegetables, demonstrating post-war growth in

staple production and little recent growth in rice production. Figure 4 shows the rising import values, especially for cereals.

Agriculture, forestry, and fisheries contribute USD 2.3 billion to the country's economy, higher than neighbouring Liberia (USD 1.2 billion), and lower than Guinea (USD 3.7 billion). The percent contribution of agriculture, forestry, and fisheries to GDP was 61 percent in 2020 (see Figure 5). The rising contribution of agriculture to GDP demonstrates the lack of economic diversification, where agriculture and extractive industries are essentially the key economic sectors, as well as the low development of alternative economic sectors in the country.

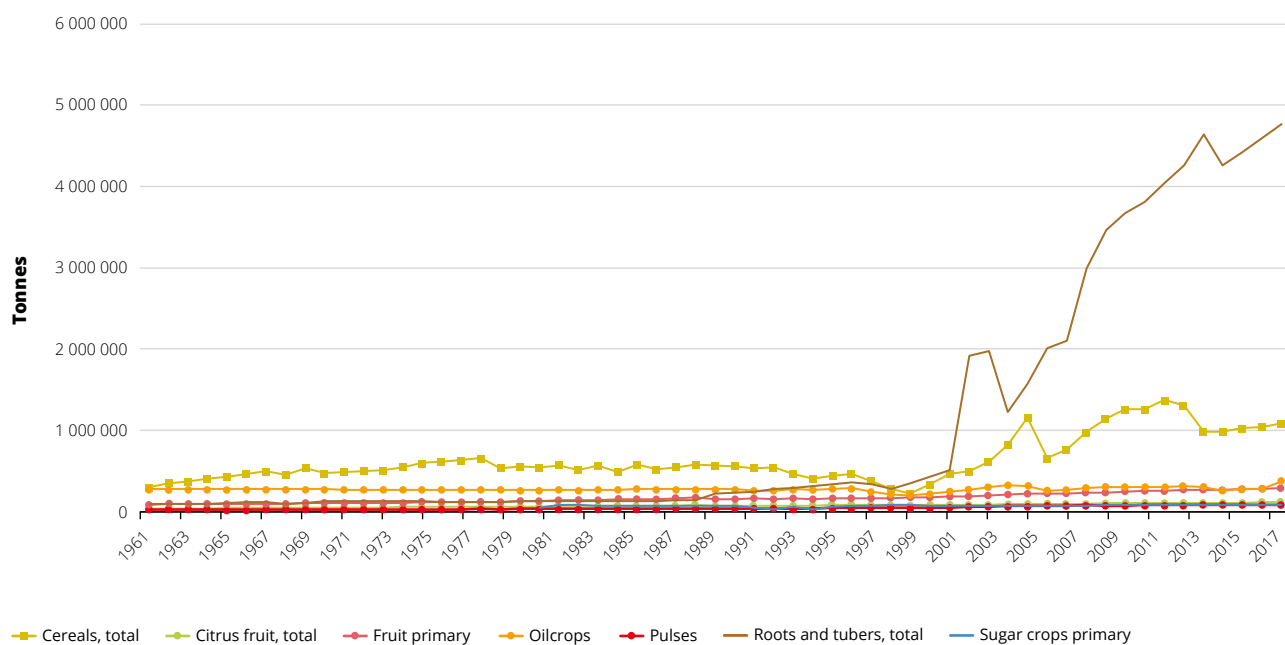
Figure 2. Evolution of population, cereals and agriculture production, and cereal import dependency (volumes, percentages, in index)



Source: FAOSTAT, 2021.

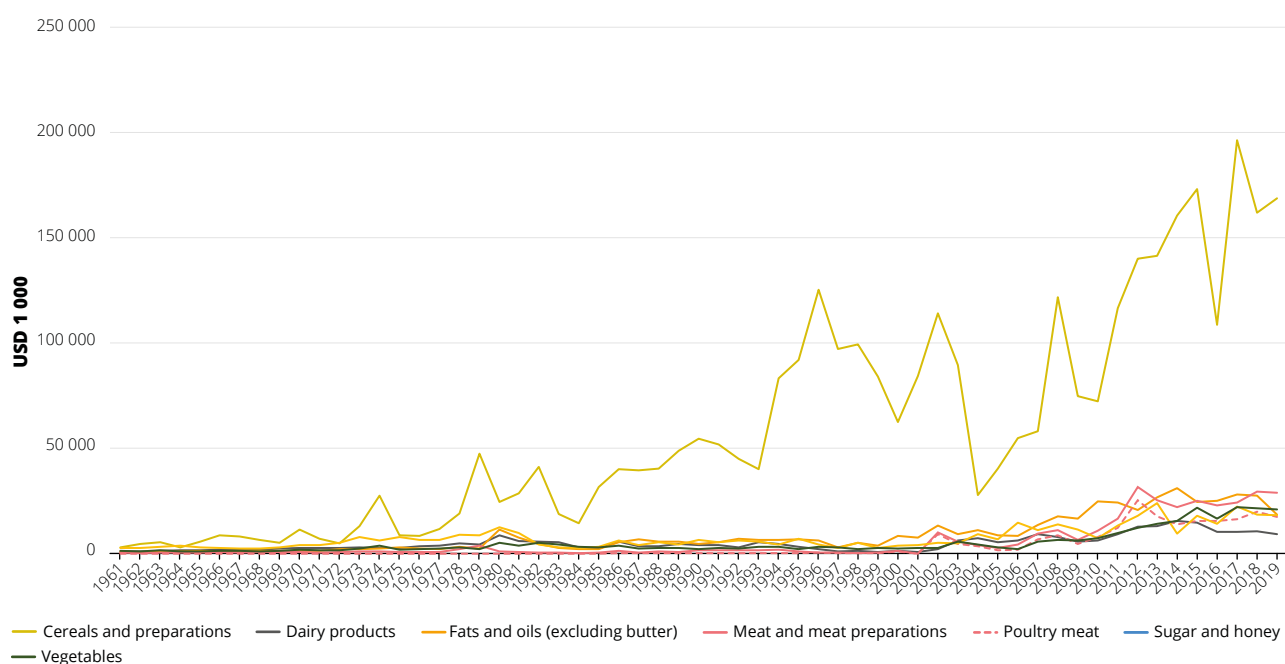


Figure 3. Production of major food crops (in tonnes)



Source: FAOSTAT, 2021.

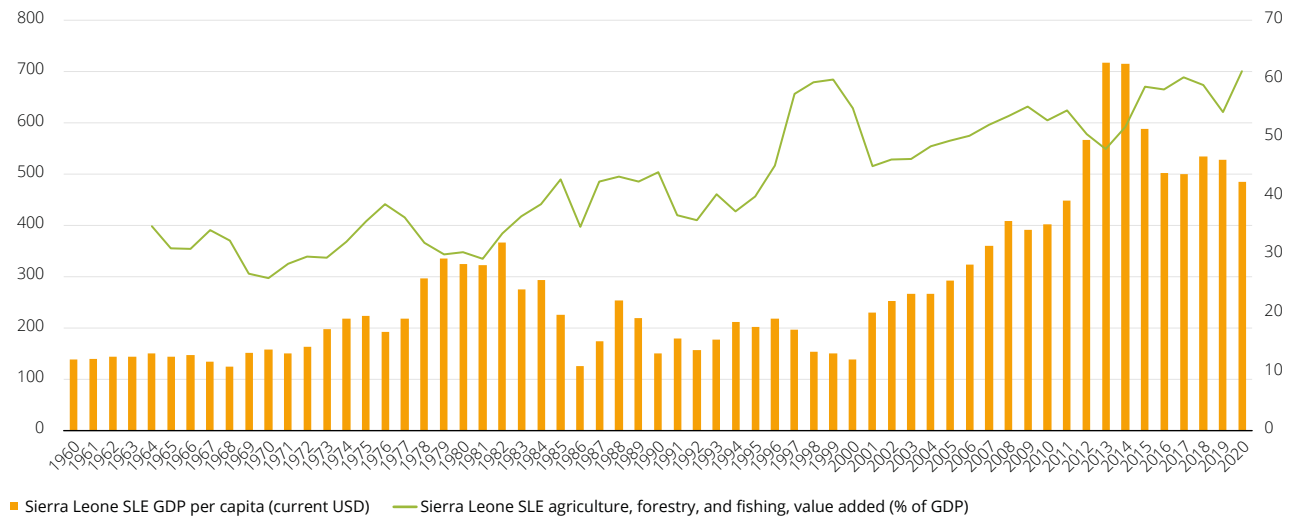
Figure 4. Food imports (in value)



Source: FAOSTAT, 2021.



Figure 5. Evolution of agricultural value alongside total GDP

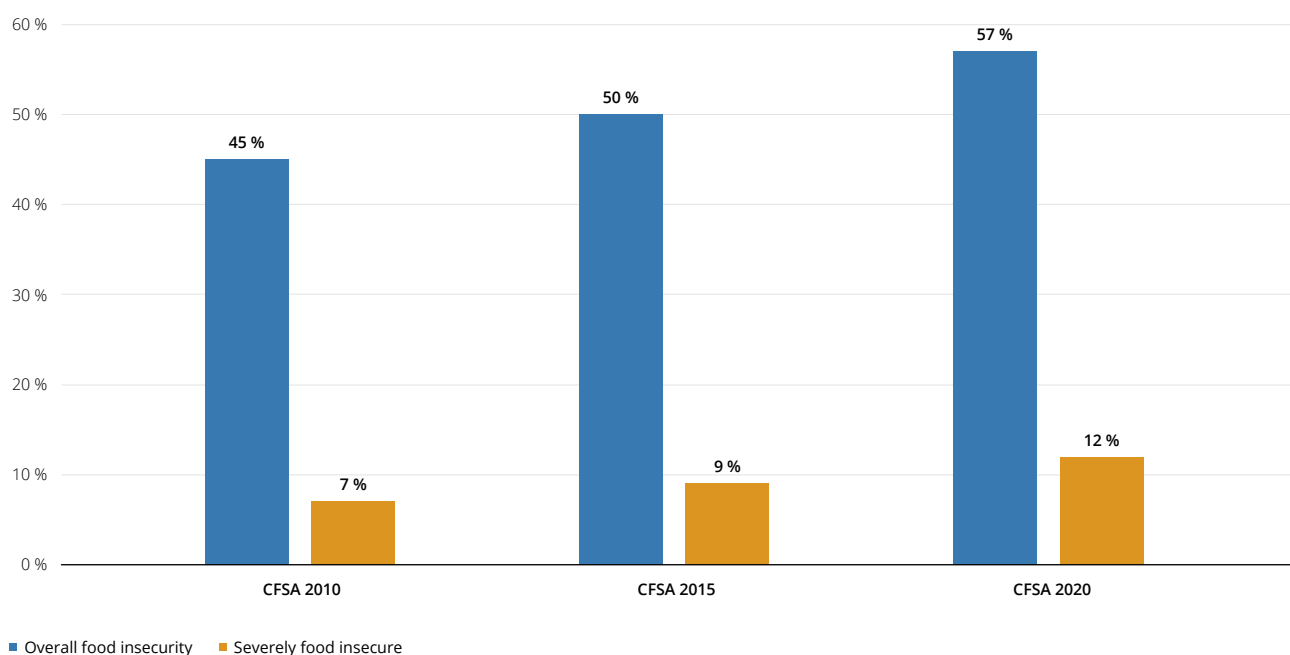


Source: FAOSTAT, 2021.

Food consumption in Sierra Leone is predominantly focused on two food groups – staple cereals and starches, and oils – with poor dietary diversification across districts. Meanwhile,

food insecurity has been increasing over the last decade (see Figure 6). Notably, over the last five years, more than half-a-million people have been added to the country's food insecure population.

Figure 6. Food insecurity 2010–2020

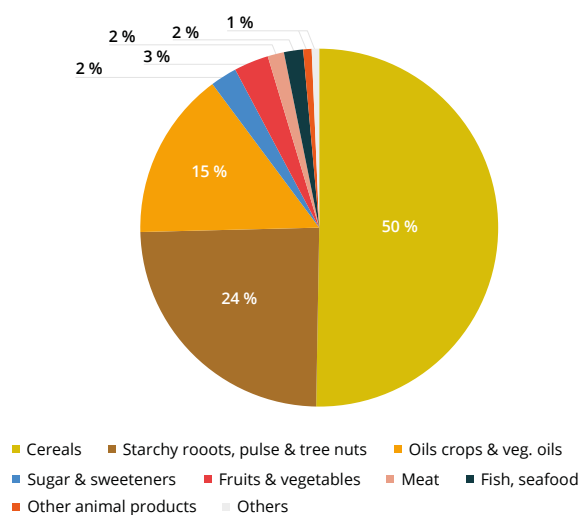


Source: WFP CFSVA, 2021.



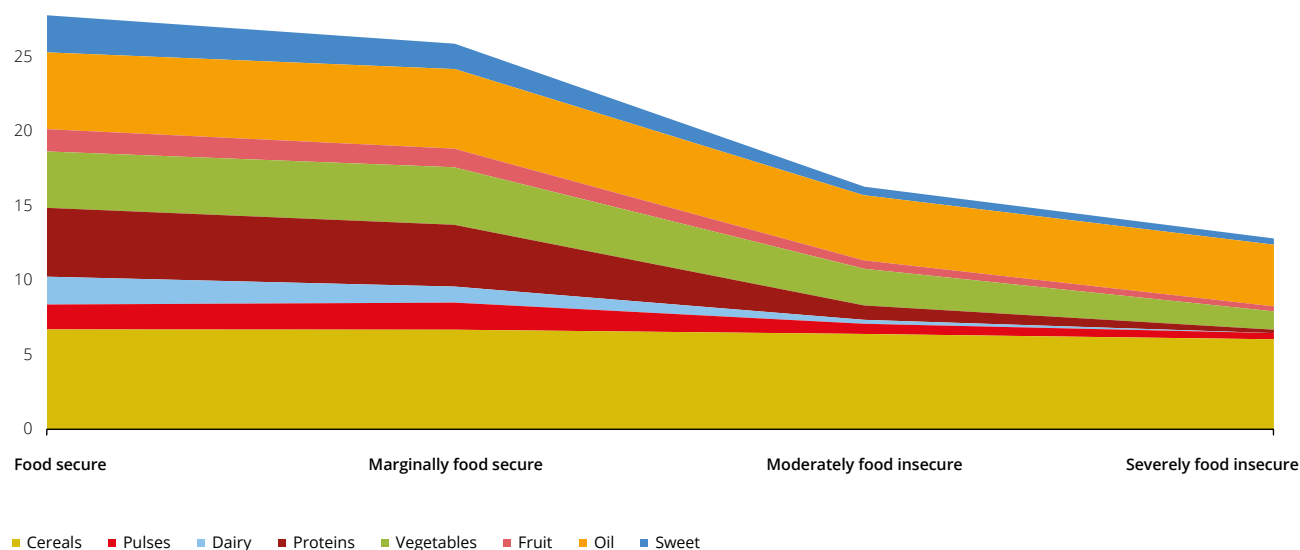
The diet in Sierra Leone is highly dependent on the primary staple, rice, with consumption averaging 104 kg per capita, one of the highest in sub-Saharan Africa. Cassava is second to rice as the primary substitute staple. Roots, tubers, pulses (especially groundnuts) and tree nuts make up almost a quarter of available food (see Figure 7). Most households consume rice daily, with oils and vegetables (cassava leaves or potato leaves) on a weekly basis. With high rates of poverty and increasing food prices many households cannot afford a diverse diet every day. Figure 8 presents the declining food diversity, especially for dairy and protein, and increasing food insecurity. The diets of households with severe food insecurity (12 percent, or 963 217 people) consist of cereals, oils and vegetables (WFP CFSVA, 2021).

Figure 7. Structure of food availability (in calories)



Source: FAOSTAT, 2021.

Figure 8. Food diversity by food security group (Y axis – number of times food eaten in last 7 days)



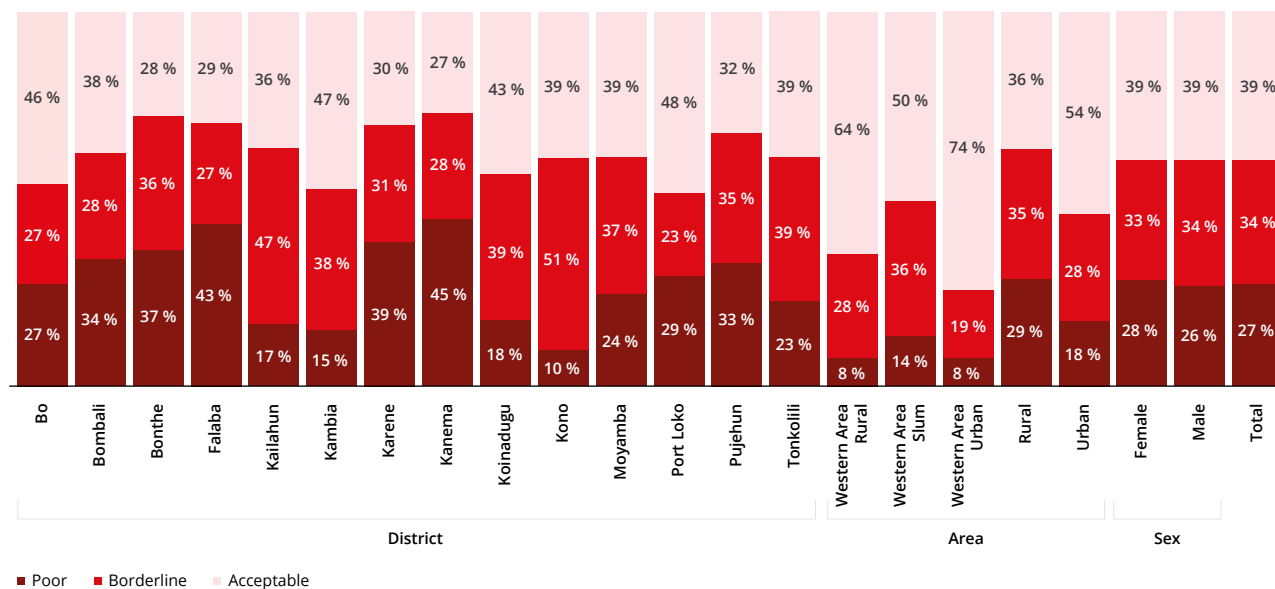
Source: WFP CFSVA, 2021.

Poor diet is an issue affecting households across all districts in Sierra Leone, from as low as 10 percent in Kono to as high as 45 percent and 43 percent in Kenema and Falaba, respectively (see Figure 9).

The household food consumption score incorporates dietary diversity, frequency of food consumption, and nutritional composition of the foods consumed.



Figure 9. Household food consumption score by district



Source: WFP CFSVA, 2020.





Characterization of the dominant actors in Sierra Leone's food systems

- About 122 000 smallholder farmers (30 percent females, representing less than 10 percent of the farmer population) registered under 193 under 193 ABCs, 52 of which have been transformed into cooperatives along several value chains (MAF/ IFAD, 2020).
- Over 500 000 people engaged directly or indirectly in the fisheries sector. This includes 36 000 artisanal fishermen, a thousand industrial fishermen, 5 000 from inland/ aquaculture and the rest from secondary fisheries segments, who are engaged in processing, marketing, and boat building, etc. (World Fish Report, 2017).
- The livestock sub-sector drove only 2.4 percent of GDP (SSL, 2020). As per Census 2015, 74 percent of rural households practice some sort of animal husbandry (cattle, sheep, goat, poultry). Less than five percent own cattle (SSL, 2017).
- Scant data exists on agroprocessors, and small and medium-sized enterprises (SMEs) in Sierra Leone. However, the industry is highly fragmented with few medium and large-scale actors. A 2017 World Bank study revealed that only 13 large agribusiness investors were mainly focussed on the production of oil palm, rice, cocoa and coffee (Sierra Leone Investment & Export Promotion Agency (SLIEPA)/ World Bank, 2017).
- There are only four major rice importers in Sierra Leone.
- There are no precise figures for the number of aggregators, wholesalers and retailers in the food system. Farmers sell their products at the farm gate and periodic rural markets, or bring them to bigger towns.
- Enabling conditions have been created for 13 Ministry of Agriculture and Forestry (MAF) registered seed dealers to enhance timely access to quality and improved planting materials for farmers (MAF, 2021).
- In addition, 17 MAF registered fertilizer dealers have been supported to facilitate a private sector driven input distribution scheme (MAF, 2021), an improvement from the earlier heavy reliance on government distribution channels.
- The government invested in 390 machineries and supported the establishment of 14 machine rings that are being managed and operated by private sector actors. The scheme plans to support farmers in land preparation, largely for rice cultivation, and intends to help 30 000 farmers double their income by 2023 (MAF, 2021).





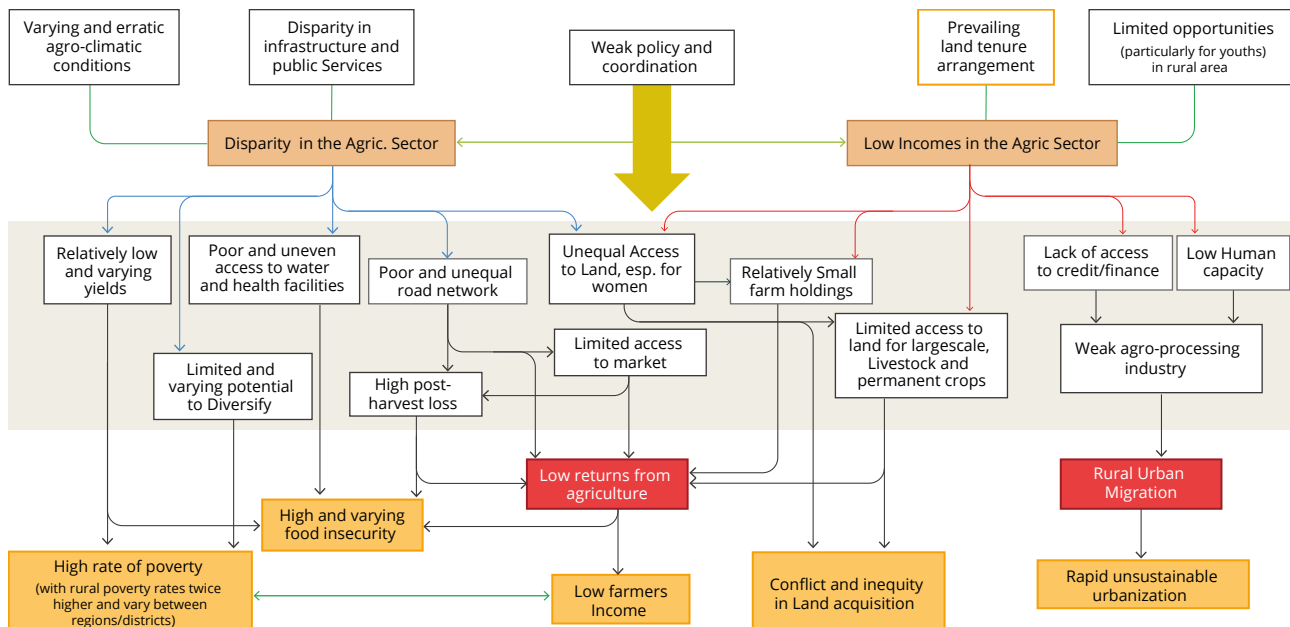
Key challenges to the achievement of core sustainable food systems goals

Key Sustainability Question 1: What is driving low incomes and disparities between regions in Sierra Leone's agri-food value chains?

More than half of Sierra Leoneans (58.5 percent) are engaged in agriculture, which employs 61 percent of the rural population. However, of the 56.4 percent

of the country's population who live in rural areas, 73.3 percent are poor (SLIHS, 2018). By occupation, the poorest households are headed by those engaged in agriculture, with a poverty incidence of 72 percent (MTNDP, 2019–2023). In addition to being high in rural areas, poverty (and income levels) varies between districts in the country.

Figure 10. Drivers of low incomes and disparities between regions in Sierra Leone's agrifood value chains



Source: Authors, 2021.

The predominantly low incomes and disparities in rural areas are posing huge challenges for the government and development partners in their bid to reduce poverty and inequalities, as well as achieving the UN's Sustainable Development Goals (SDGs). These disparities and low income levels in rural areas can be attributed to a series of factors, key among being the failure of the policy environment (a crosscutting issue) to adequately influence the other key elements shaping the food system. More often than not, there is either a mismatch between needs

and priorities, leading to gaps and duplication of government efforts, or a total neglect of certain areas due to certain elements of bias. Poor prioritization results in an insufficiently diversified rural economy that fails to offer non-agricultural employment opportunities to the rural population.

Additionally, existing food systems related policies tend to ignore territorial imbalances and spatial inequalities by adopting a uniform policy approach to address varying situations in the



country. The existence of political interference on the implementation of policy interventions (World Bank, 2018) is another key challenge facing the food system. It often results in mismanagement, elite capture and distortions in intended progress and lower income levels, limiting livelihood opportunities for less advantaged communities (MTNDP, 2019–2023). For instance, in 2010, under the Smallholder Commercialisation Programme/ Global Agriculture and Food Security Program (GAFSP), 193 ABCs were established to provide various services in rural areas, which included access to input supplies, technical support along the value chain, marketing and enhanced linkages to micro-finance, etc. The initiative was good, but the location and implementation process were marred by a series of problems that led to the failure of most of the ABCs. At the moment, only 52 ABCs have been transformed to cooperatives, while over 65 percent are not functional (FAO/ MAF, 2018). Even though the ABCs were available in all chiefdoms, their locations were influenced by top government officials and politicians, and support to these ABCs was also biased. Limited consultation and coordination between sectors often result in development policies that lack the support and commitment of stakeholders at the sub-national level, ending up being poorly and inconsistently implemented.

Overall, the country's highly centralized governance structures with a weak bureaucracy and regional inequalities (World Bank, 2018)

are a key impediment. The Local Government Act of 2004 and decentralization policy have helped devolve power and resources to the local authority. However, local councils still face pressure from highly placed individuals for credit of achievement and share of resources.

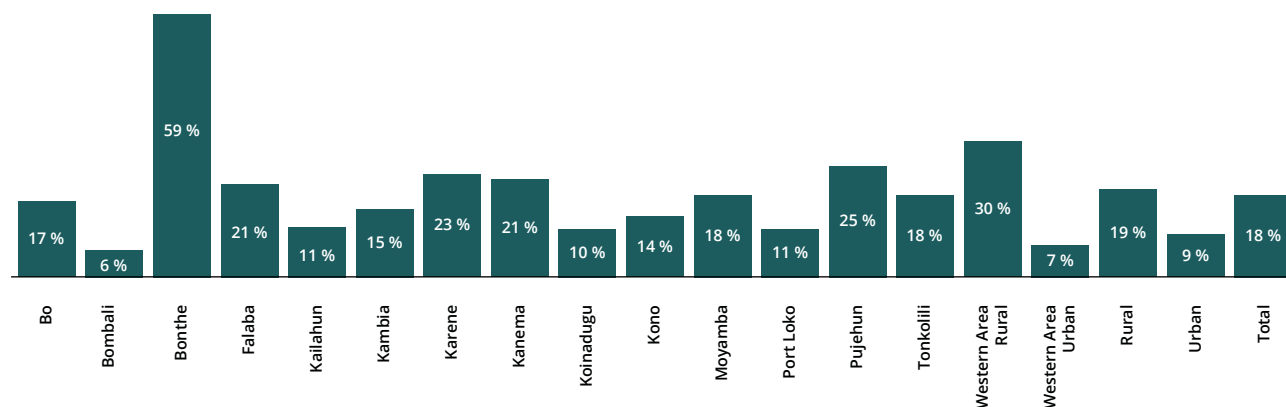
Another key area of concern is the land policy framework and governance. The land tenure system in rural areas is a customary system, wherein each area has its own land distribution and management bylaws. While in some areas chiefdom land committees have authority over land distribution, the paramount chiefs are the designated custodians of the land and the final authority. This prevailing customary land tenure system disadvantages women and youth from enjoying adequate access to land for agricultural purposes. This limits their potential to maximize revenue and to significantly contribute to income generation and poverty reduction. The land tenure arrangement also limits people's access to land for livestock, large-scale farming and the cultivation of permanent (cash) crops. The revised land tenure policy seeks to ensure an effective tenure system that can equitably meet public demands, stimulate investment and foster national development (MLCPE, 2015). However, its effective implementation is yet to be fully achieved.

In addition to the policy environment, disparities in rural areas are further driven by disparities in infrastructure and public service delivery. This affects the access of food system actors to basic services, such as good road networks, education, healthcare, and safe drinking water.

Smallholders, who represent the vast majority of farmers, are poorly connected to markets, while the development of modernized agrifood chains that profitably link local producers to urban consumers is yet to materialize (World Bank, 2018). The **road network, access to market and cost of transportation** can affect the income of farmers. These are unevenly distributed among the various regions and districts in the country. Figure 11 shows the distribution of communities that are inaccessible by vehicles.



Figure 11. Communities and villages inaccessible by vehicles



Source: SLIHS, 2018.

In total, 18 percent of the communities and villages in Sierra Leone **cannot be accessed by vehicles**. The percentage of inaccessible villages is highest in Western Area Rural (30 percent), Pujehun (25 percent) and Karene (23 percent). The Bonthe district's major source of transportation is by boat as it comprises a number of islands. It is relevant to note that almost half (49 percent) of Sierra Leone's accessible villages are **inaccessible during the wet season** (July, August and September). The highest percentage of such villages are in Kono (73 percent), Kenema (70 percent), Western Area Rural (65 percent) and Bo (58 percent).

Also, the average distance to the nearest accessible road for villages is 7.8 miles and functioning markets on average are 9.8 miles away from the communities. Transportation of goods to the market becomes very difficult as a result of poor accessibility. At the district level, the furthest distance to a road network was reported in Bonthe at 15.2 miles, Pujehun at 10.6 miles and Kenema at 8.8 miles. This situation of poor accessibility, increased market prices and low supplies exacerbate the ability of rural poor households to access food, thereby increasing their food insecurity, income and vulnerability.

Given that women are mostly tasked by tradition to buy and sell foodstuffs, the long distances reduce their ability to engage in any other income generating activities.

In rural areas, moreover, **the cost of transportation** is far higher than urban areas owing to poor road networks and limited number of transport vehicles. Transportation cost ranges from an average of USD 0.35 in Western Area Rural, to a high of over USD 1.9 in Koinadugu (SLIHS, 2018). High transportation costs increase the price of produce and inputs, thus reducing the real income of households.

Furthermore, unequal access to health, education and safe drinking water is prevalent in the country. Overall, the **literacy level** is very low in Sierra Leone (50 percent) and is marred by high gender disparity.¹ The western region has the highest level of literacy, while the North-West has the lowest (16.7 percent). At district level, the literacy levels are lowest in Falaba (20.3 percent) and Pujehun (28.9 percent), while Bombali (51.3 percent) and Port Loko (51 percent) have the highest rates of literacy. There is a direct correlation between **education and food security**. The higher the education of

¹ As of 2018, UNICEF reported that the male literacy rate was 51.65 percent and that for females was 34.85 percent.

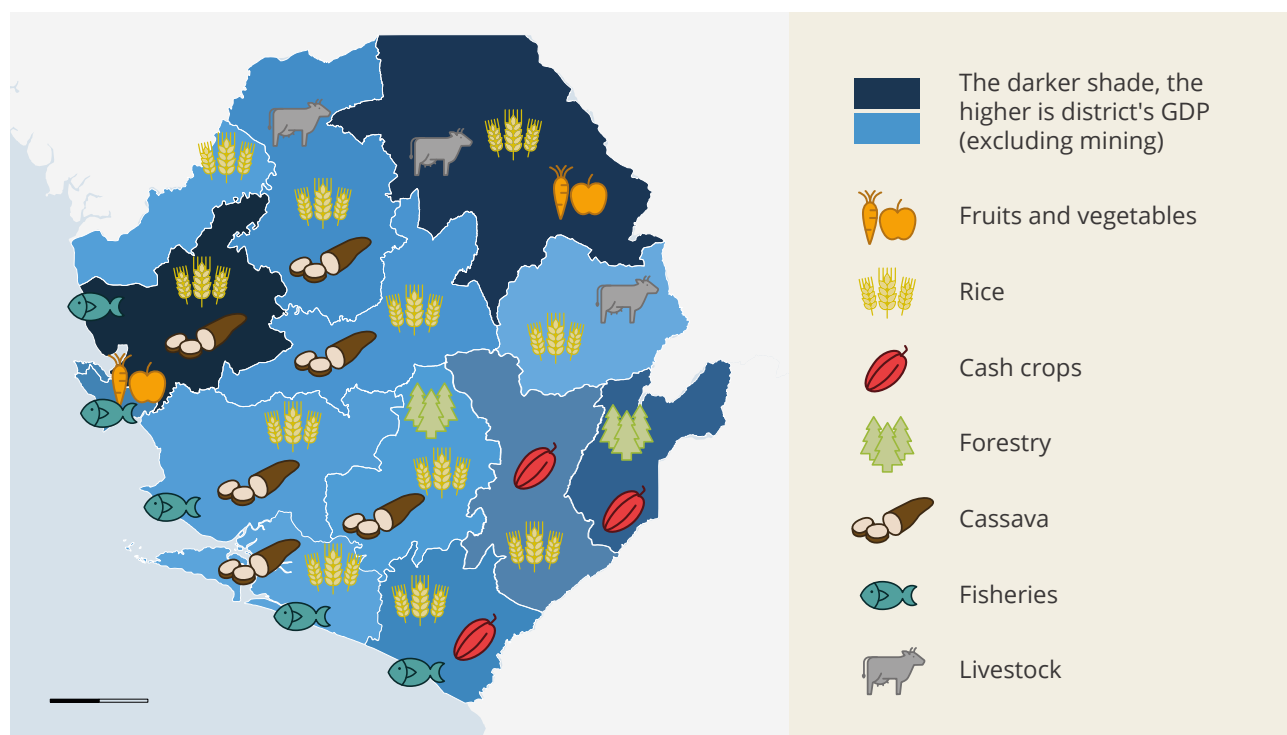


household heads, the better their food security status (SLIHS, 2018). Among those households without education, food insecurity stands at 61 percent. **Poor and unequal access to healthy and safe drinking water** are other factors affecting most people in the country, and have an impact on food utilization and overall food security of households and individuals. Healthcare deprivation is 48.2 percent in the North, South and eastern provinces compared to 38.5 percent in the Western Area (SLDHS, 2018). Also, the cost of medical consultation is high and unevenly distributed around the country (USD 9.7 in Kailahun, USD 9.69 in Koinadugu, USD 7.09 in Port Loko, and USD 4.63 in Kambia). In terms of **access to water**, about 42 percent of households **drinking unsafe water** live in rural areas compared to eight percent in urban areas. The highest proportion of households using unsafe sources of drinking water are Koinadugu (49 percent), Karene (49 percent) and Kono (48 percent).

The differences between regions/districts in terms of agro-climatic conditions are other factors driving inequalities in rural areas. The types of soil ecologies, rainfall patterns and vegetations vary across the country. Therefore, the type of agricultural enterprise and practice depends on the agroecological zone.

Figure 12 shows the GDP for various districts and the agribusiness enterprises they undertake. It can be seen that districts with more diverse enterprises (mostly combining food crops with either livestock or cash crops), have relatively higher GDPs. In this case, Koinadugu (cattle, rice, vegetables) and Port Loko (fish, rice, cassava and vegetables) have the highest GDP compared to Tonkolili and Kambia, which only have food crops. Also, rice yield levels vary from district to district (2.38 metric tonnes per hectare or MT/ha in Kambia, 1.23 MT/ha at Bonthe, and 0.92 MT/ha at Kailahun) (NASS, 2018).

Figure 12. GDP and main products per district



Source: Adaptation of Tony Blair Institute for Global Change, 2022. Map conforms to UN, 2014. Map of Sierra Leone <https://www.un.org/geospatial/content/sierra-leone>

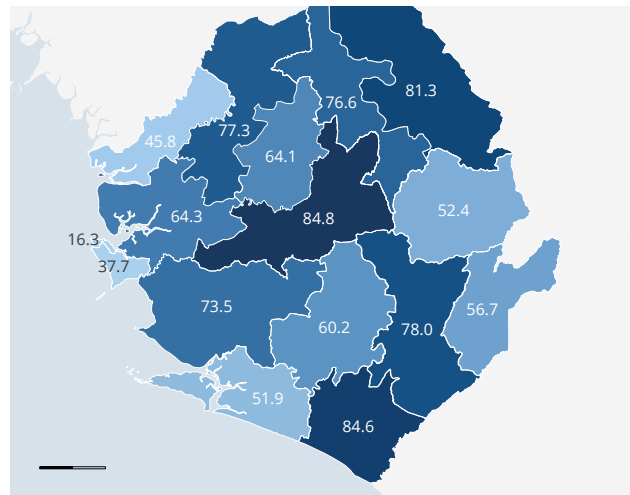


Currently, 56.8 percent of people in Sierra Leone live below the poverty line and this rate varies between the regions and districts in the country (SLIHS, 2018). Figure 13 depicts the total poverty rate by district. The North has the highest rate of poverty by region, while the Tonkolili, Pujehun and Falaba districts have the highest rates by district. Poverty rates vary widely within provinces, however, and the three poorest districts (Pujehun, Tonkolili, and Falaba) span the far South, Central and far North-East of the country. The least poor districts are Western Area Urban and Rural, Kambia and Bonthe (SLIHS, 2018).

These regional disparities also translate into the country's food security situation. The rate of food insecurity in Sierra Leone is unevenly spread across the districts. According to the SLIHS (2018) report, the Western Rural Area has the lowest rate of food insecurity (16 percent), while Kenema and Bonthe districts have the highest rates (71 percent each) (SLIHS, 2018). In Sierra Leone, similar to the rates of poverty, the highest percentage of food insecure people are those involved in agricultural livelihoods, such as production and sale of cash crops (66 percent), fishing (66 percent), and unskilled wage labour in agriculture (60 percent).

On the other hand, low human and institutional capacity, compounded by the limited opportunities in rural areas, is a major driver of low incomes. This, consequently, results in weak private sector participation, as there are limited incentives to engage in agriculture. The establishment of the ABCs was partly to strengthen the private sector; they were intended to provide rural communities with not only places to process their agricultural produce, buy inputs and sell products but also as a central interface between farmers and rural service providers (SCP, 2010). Most recently, the machine ring initiative is also being geared towards more private sector involvement in input delivery services. However, in the implementation of the ABC model much premium was not placed on access to finance and capacity building, alongside the hardware packages provided. This led to the near failure of the scheme.

Figure 13. Total poverty rate by district



Source: Adaptation of SLIHS, 2018. Map conforms to UN. 2014. Map of Sierra Leone <https://www.un.org/geospatial/content/sierra-leone>

Generally, the lack of access to credit and finance is a major impediment to the realization of returns from agriculture. Currently, only five percent of farmers have access to rural financial services. Limited access to rural financial services (microfinance and credit) constraints farmers, particularly smallholders (USAID, 2017), from investing in agricultural inputs. Many loan and microfinance programmes requiring monthly repayments translate into high risks and high interest rates for rural smallholder producers. The immediate effects of this scenario are weak value chain development and a poor agroprocessing industry, which does not adequately reward food system actors in rural areas. This ultimately induces rural-urban migration (urbanization increased from 36.7 percent in 2004 to 40.9 percent in 2015) (SSL, 2017).

In addition, inadequate access to productive resources limits opportunities for rural women and youth, thus limiting their ability to maximize their potential incomes from food systems activities. Women and youth are less likely to grow cash crops, gain access to credit and other productive resources than men. For instance, even though 70 percent of those employed in agriculture are women, their average plot sizes



are 27 percent smaller than that of male farmers. This consequently leads to lower returns from agricultural productivity and also contributes to rural-urban migration, particularly among youth.

Proposed systemic levers:

- 1. Formulation and implementation of inclusive food systems policies and programmes focusing on territorial development.**
- 2. Private sector involvement and investment in agriculture.**

There is a need to formulate and implement policies that are well coordinated and inclusive of all relevant stakeholders in the food system. This should entail the development of well-tailored policies that look into the specificities of the various regions and districts in the country. The policy environment must seek to ensure fair and equitable distribution of resources, taking cognizance of district specificities, degree of heterogeneity and comparative advantages. To increase the involvement of youth, women and other potential farmers (investors), land policy and governance must be enhanced to ensure fair and equitable access to land for economic activities. Also, the current policy environment must be reviewed to allow for the adoption of a more diverse approach, which promotes the production of other crops, livestock and fisheries.

Bundled interventions in limited geographies can also address the multi-layered issues constraining food production, processing, and marketing at a reasonable scale. Geographically tailored investment packages can be used to boost production in key areas. Services like: (i) continued and adequate investment in rural infrastructure (roads and electrification), (ii) tailored agronomic training packages specific to agroclimatic needs, (iii) business skills development, and (iv) development of farmer organizations for better aggregation and storage practices, and other regionally appropriate interventions can be bundled together. There is good evidence across sub-Saharan Africa, particularly in Sierra Leone,

that a bundled service intervention can raise farm productivity.

A bundled territorial intervention has the potential to more efficiently distribute resources to increase yields and production of crops, thereby decreasing food insecurity and malnutrition. It may also spur further innovation and agricultural technology investment, attracting additional actors to support agrifinancing, knowledge on good agricultural practices, market information and market links.

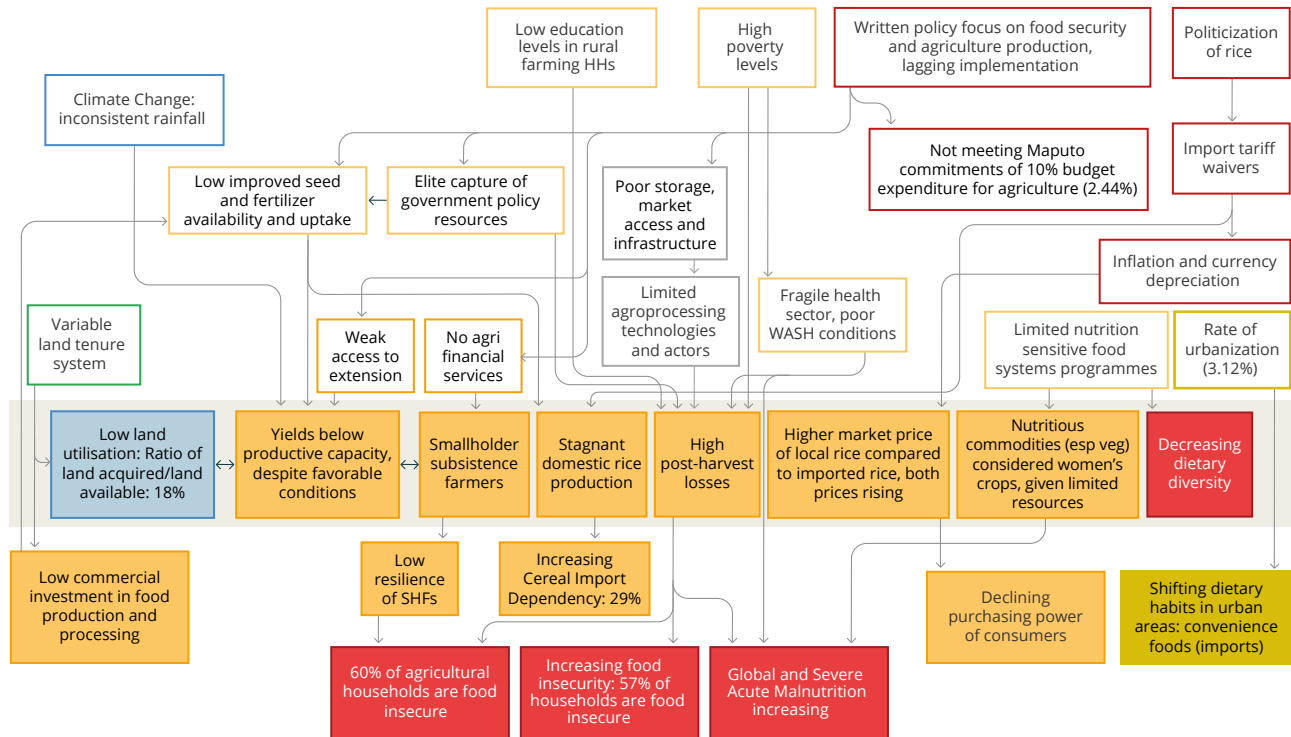
Private sector involvement is another essential factor ensuring sustainability of the agriculture sector. The government (with support from development partners) must institute strategies geared towards the creation of an enabling environment for the promotion of private sector participation and investment in the country's food systems. This can be achieved by strengthening the capacity of food systems actors (farmers, agrodealers, processors, etc.) to enable them to participate effectively in the development of the value chain and help create a more diverse food system. Also, the government must create incentives and provide support packages in the form of enhanced access to rural finance, targeted subsidized inputs support and capacity building in agroprocessing techniques. Involving the private sector can bring benefits such as access to capital and external markets, and an improvement in skills, management and technologies. Public investment in private sector development must also address gender imbalances and marginalization of the rural youth.

Key Sustainability Question 2: Why is agricultural production unable to meet the national food and nutrition requirements of Sierra Leone?

This question was motivated by recent data on increasing food insecurity and persistently high, though improving, nutrition indicators within the policy context over the last 15 years of focus on food production and improving food availability for the population.

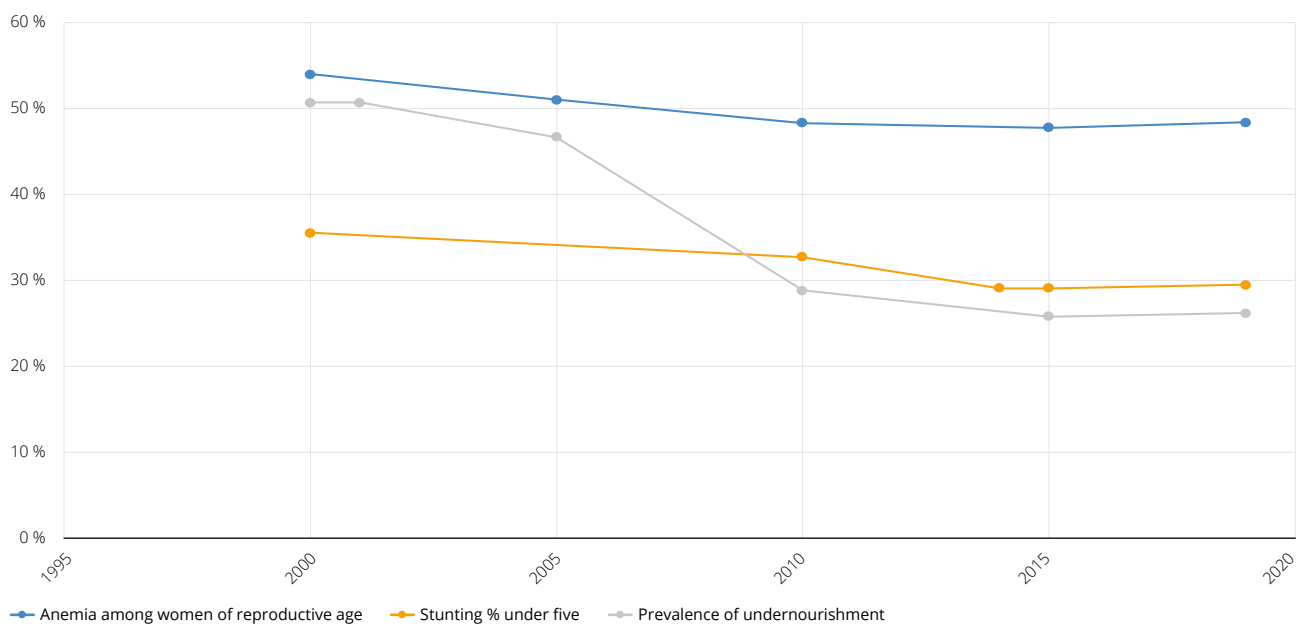


Figure 14. Barriers to agricultural production in Sierra Leone meeting national food and nutrition requirements



Source: Authors, 2021.

Figure 15. Key nutrition indicators



Source: FAOSTAT, 2021.



The latest Comprehensive Food Security and Vulnerability Analysis (WFP, 2021), indicates that the national level food security situation is worsening, with food insecurity rising from 45 percent in 2010, 50 percent in 2015 to 57 percent in 2020. Other nutrition indicators (see Figure 15) show improvement in the initial post-war period from 2000–2014, with a stagnant or worsening situation in the last seven years. National and international factors such as the global economic crisis of 2008–09, the Ebola outbreak of 2014–15, and the COVID-19 pandemic have undoubtedly contributed to this deteriorating food and nutrition security.

Production of key food crops in Sierra Leone have stagnated and failed to keep pace with population growth of 2.1 percent (FAOSTAT, 2020). The latest data from the 2020 market year shows that cereal production was only 78 percent of the five-year average quantity. This 2019 production figure accounted for only about 62 percent of the consumption requirement. Domestic rice production has fluctuated over the past 15 years entirely due to fluctuation in area harvested, as yields remain stagnant around 1.5 MT/ha. Production of the secondary staple, cassava, has increased due to yield increases from 8 MT/ha to 13 MT/ha (meeting global average). Overall, the food production index as of 2019 was at 74.2 (when 2014–2016 is 100) meaning that total food production for Sierra Leone has decreased over the last five years.

The policy context is one of the drivers of this situation. There has been a written policy focus on food security and agriculture production for the last 20–30 years from the MAF and central policy documents, with special focus on alleviating food insecurity in rural areas as well as targets for rice self-sufficiency.² However, given the challenges, the results and impact of these policies have yet to materialize. This is due both to poor policy formulation and unsystematic policy implementation.

The government currently allocates about 2.4 percent of government budget to the MAF, well below the 10 percent Comprehensive Africa Agriculture Development Programme (CAADP) Commitment (World Bank, 2021). A substantial portion of that is absorbed into two offices, the office of the chief agriculture officer and the office of the permanent secretary, with very little allocated to any of the technical directorates and only 16 percent allocated to local and district council offices. Input subsidies account for 45 percent of expenditure, when wages are removed from total expenditure; and have remained stable at this level for some time. The per capita spending on agriculture amounts to about USD 6.92 (PPP dollars) per year, which is about a third of the average for sub-Saharan Africa (World Bank, 2021).

As discussed in KSQ 1, farmers lack access to finance. Also, currently there are no tailored agricultural finance products on the market, neither loans nor agriculture insurance schemes. Considering the government expenditure on input subsidies, there is very low improved seed and fertilizer availability and uptake, due both to low availability and high prices (WFP CFSVA, 2021). Sixty-seven percent of farmers use local seeds. Though the use of improved seeds by farmers increased from 10 percent in 2015 to 17 percent in 2020, the highest regions of improved seed use are either the border districts (48 percent in Kailahun and 20 percent in Kambia) or proximate to Freetown (Western Area Rural: 26 percent). Only 7 percent and 18 percent of farmers use chemical and organic fertilizers, respectively (WFP CFSVA, 2021). For example, a 50-kg bag of nitrogen, phosphorous and potassium (NPK) fertilizer cost USD 57 in Moyamba during the 2021 season, and only USD 13 in Nigeria (WFP CFSVA, 2021).

The government is currently shifting its policy approach away from state provision for inputs towards private sector distribution and sale. However, with the recent emphasis on engaging every Sierra Leonean as a farmer, elite capture

² See for example the 2019–2025 medium term National Agricultural Transformation Plan.



of the latest farming inputs and technologies within their own networks may be limiting access to most subsistence farmers. Furthermore, in line with previous policies, the policy shift lacks structured targeting/ regional tailoring, or effective monitoring and evaluation to assess its impact.

There is weak research and development (R&D) in agriculture. R&D accounts for 19.4 percent of agriculture budget expenditure, or 0.14 percent of the agriculture GDP, which is considered low for efficacy (World Bank, 2021). The limited research on varieties, suitability, and farmer preferences is primarily driven by project funding cycles, as opposed to a broader strategic agenda. Technical expertise in seed production is also limited. There are weak linkages between applied research and extension services. Dissemination of locally produced innovative material is limited and not systemic.

There is also weak access to extension services at the farm level. Budget allocations to extension services have varied substantially over the last five years from .36 percent to 5.37 percent, standing at 2.52 percent in 2019 (World Bank, 2021). This makes it very difficult for extension services to plan and effectively implement their mandate year-on-year.

The country has very poor post-harvest storage facilities and practices contributing to high post-harvest losses, estimated at more than 30 percent of total production, and losses may go up to 60 percent in the case of rice (World Bank, 2021). Market access is a constraint with average distance to functioning markets from rural villages being 9.8 miles (WFP CFSVA, 2021). Riverine and coastal communities are especially impacted by poor market facilities and poor rural transport networks.





Overall, there is very low commercial investment in food production and processing, driven by a failure of commercialization policies. Sierra Leone ranks 163 out of 190 in the World Bank Doing Business rankings, with access to financing, corruption, and inadequate infrastructure as the most commonly cited problematic factors limiting commercial investment in the country (World Bank, 2018). Relatedly, there is limited agroprocessing technologies and firms for post-harvest processing and packaging, with elite capture of the few active operations (World Bank, 2018). Very poor market and price information also discourages market participation and aggregation by farmers.

Another driver of low production and availability of food is the land tenure system and discrepancies in access to land, as discussed earlier. Sierra Leone's customary land tenure system discourages commercial agriculture and large scale land acquisition because of the lack of transparency and low formalization of land transactions.

Low food production is also impacted by feedback loops relating to both climate change and poverty. Climate change is resulting in shifting of typical rainfall patterns across the country, and when only four percent of farmers are using irrigation facilities, the change in rainfall patterns has a big impact on crop production (WFP,

2021). Low levels of education in rural farming communities and high poverty levels are other contributing factors, as discussed in KSQ 1. These aspects contribute to very low resilience among agricultural households.

Rice is highly politicized as the staple food in Sierra Leone. With such high poverty levels, and the fact that 63 percent of rice consumed is purchased in the market, the price of rice is an important determinant for consumers. The continued use of import tariff waivers, which were put in place during the 2008 food price crisis, have kept the price of rice artificially low. Still, the rising price of rice in the market has resulted in lower purchasing power for consumers, which contributes to increasing food insecurity. High levels of inflation and currency depreciation, which are tied directly to import bills and foreign reserves, as well as the boom-bust cycles in the mining sector, further interact with the market price of rice. Cereal import dependency currently stands at roughly 29 percent (FAOSTAT, 2021). And even with increasing rice imports, the food security situation has worsened significantly.

These elements interplay with domestic rice production. In the markets, domestic rice is higher priced than imported rice. Although high (domestic) rice prices could incentivize farmers to increase production, with a cheaper alternative (imported rice) on the market, consumers show marked preference for the cheaper imported product. For many consumers there is a preference for imported rice because it has fewer stones and other impurities than domestic rice. There is also less institutional and individual incentive to develop domestic rice production, even when prices are high and rising.

Deficiency in micronutrients, including iron and Vitamin A, are common in Sierra Leone. Household level consumption of micronutrient rich foods stands at 95 percent for Vitamin-A rich foods and 54 percent for iron rich foods, over the course of a week (WFP, 2021). Consumption levels vary by district, suggesting there are regional limitations on access and/



or knowledge about micronutrient rich foods. There is neglect of nutritious crops by policy and programming, especially vegetables, which are considered women's crops and given very limited resources and focus. The government focus on the rice sector, neglects the broader efforts for a diversified food basket. Malnutrition efforts have focused on supplementation as opposed to a food-based effort. The fragile health sector and poor WASH conditions across the country, especially in rural areas, also contributes to poor nutrition impacts as well as labour productivity of smallholder farming households. At the consumption stage, household dietary diversity is decreasing, with 18 percent of households consuming only two food groups (WFP, 2021), as discussed earlier (see page 13).

Finally, the rate of urbanization at over three percent will lead to shifting dietary habits over time as evidenced in other countries. In 2013, the prevalence of hypertension among adult men and women was 29.4 percent and 31 percent, respectively (NCD Risk Factor Collaboration, 2021). Rising food imports from 11 percent of total merchandise imports in 2014 to over 32 percent in 2018, suggest an increasing consumption of processed and convenience foods (World Bank, 2018).

Proposed systemic levers:

- 1. Improvement of production environment to increase production, productivity and food diversity.**
- 2. Implementation of food-based nutrition programmes.**

Strengthening key elements of the food production and processing environment through more effective policies and institutions is of major importance. There is a need for public institutions to be better resourced and more effective. The most critical public services should have their budgets increased to provide agricultural production actors with the services necessary to secure and diversify their production. This

implies that the public resources available to the ministries involved in the food systems should be aligned with the Maputo commitments. This concerns, in particular, basic services such as agricultural research, agricultural extension, production services, veterinary services, food quality control and epizootic risk management. This balancing of expenditure towards public goods could also be accompanied by a due disengagement of the state from the supply of private goods such as fertilizers and seeds and leave the initiative to the private sector. To address the challenge of agricultural diversification of the food system, public policies should also shift from supporting the rice sector to supporting a broader basket of agricultural and food products. In particular, some sub-sectors, such as livestock, fisheries and aquaculture, should be better resourced because of their contribution to nutrition and income generation.

Moreover, a proactive policy to support financial service providers would enable traditional banking institutions and microfinance institutions to address financing needs at different levels. Finally, the development of the private sector requires access to appropriate technologies and well-trained human resources. To this end, programmes promoting technology transfer in rural areas as well as for small and medium-sized agrifood industries could strongly contribute to the development of the food value chain. A significant investment in technical training in the agricultural, particularly agrifood, sector also appears to be a critical element. Looking forward, the recent formulation of the National Agriculture Transformation Programme 2023 (NAT 2023) would be an opportunity to concretize this lever.

Food-based nutrition interventions should also be scaled up, especially for women, children, and other vulnerable populations. One element is to operationalize the Sierra Leone Food-based Dietary Guidelines for Healthy Eating (FAO, 2016). This goes hand in hand with increasing the production of nutritious crops. Scale up of nutritious staple varieties like orange-fleshed sweet potato and yellow cassava, as well as



opportunities for fortification and processing of crops like cassava (*gari*) is important.

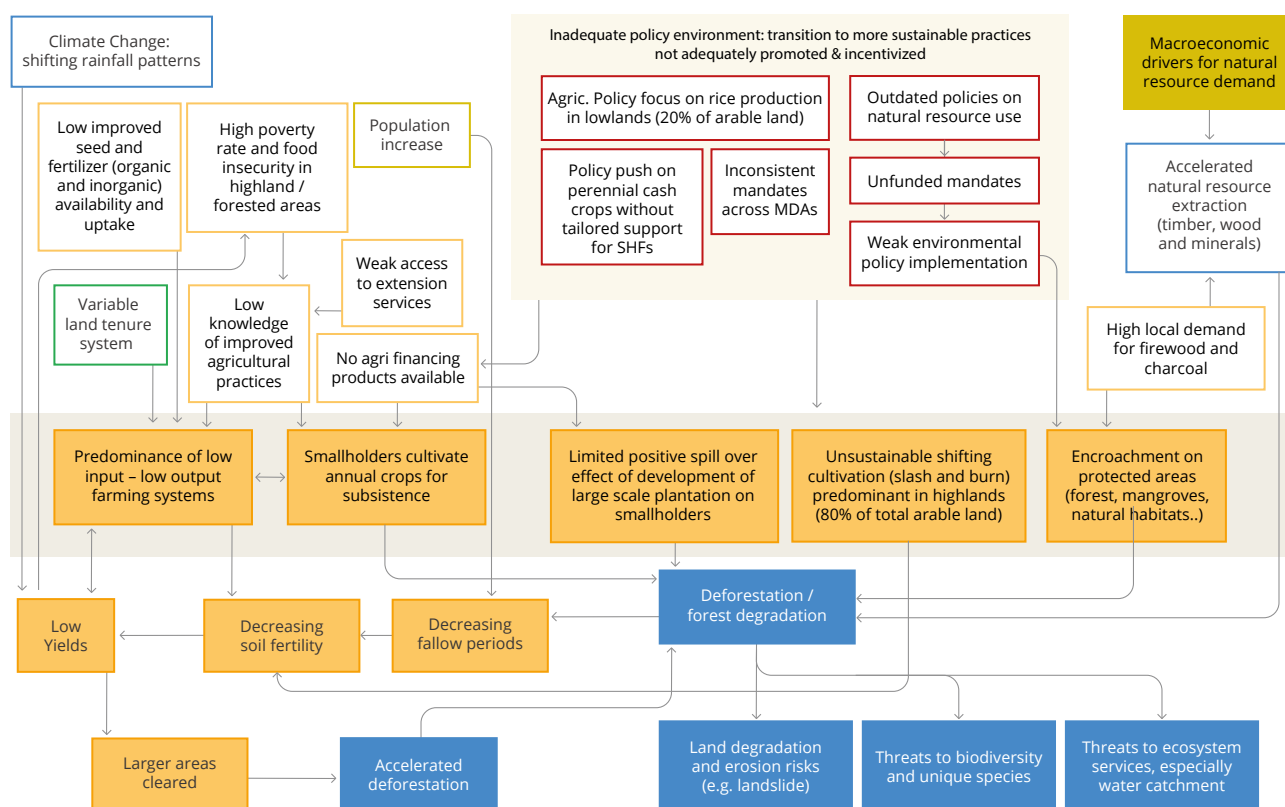
A food-based nutrition approach, combining nutrition education and scaling up production of nutritious crops, can address the dual food systems issue of malnutrition and low farm

productivity and incomes. For farmers, these efforts could support farm diversification and increased incomes, as well as improved cropping practices. Furthermore, it could spur growth and innovation in value-added and processing sectors, harnessing the commitment to adopt national food safety standards.

Key Sustainability Question 3: Why are unsustainable land use practices so widespread across Sierra Leone?

This question tries to better understand the drivers of environmental degradation across agroecologies of Sierra Leone, including deforestation, slash-and-burn agriculture, and outdated agricultural practices.

Figure 16. Causes of widespread unsustainable land use practices in Sierra Leone



Source: Authors, 2021.



The Sierra Leone crop production system is largely characterized by outdated practices that result in land degradation. Smallholder farmers cultivate annual crops for subsistence, predominantly using low input–low output farming practices.

In particular in the uplands, which holds 80 percent of the country's arable land, plots are established using unsustainable shifting cultivation, or slash-and-burn, practices. This practice of shifting cultivation also goes hand in hand with deforestation for fuelwood and charcoal production, as well as timber production. Statistics on forest cover, and definitions of primary and secondary forests vary in Sierra Leone. The National Forestry Policy 2010 reports that 50 years ago there was 60 percent original forest cover, while today this is less than five percent (see Figure 17) (Sierra Leone National Forestry Policy, 2010). Whereas FAO and USGS data sources report between 30–42 percent forest cover lost during the same period (FAOSTAT, 2021).

There is high demand for firewood and charcoal for cooking fuel. Outside of urban areas, fuelwood is

the exclusive cooking fuel, and even in urban areas penetration of liquid petroleum gas (LPG) is limited.

Additionally, there are other macroeconomic drivers for natural resource demand. After the fall of global iron ore prices in 2015, and the subsequent fall of 99 percent of iron ore exports, there was a major shift to timber exports. For example, registered timber exports rose 783 percent between 2014–2019 (Observatory of Economic Complexity, 2019).

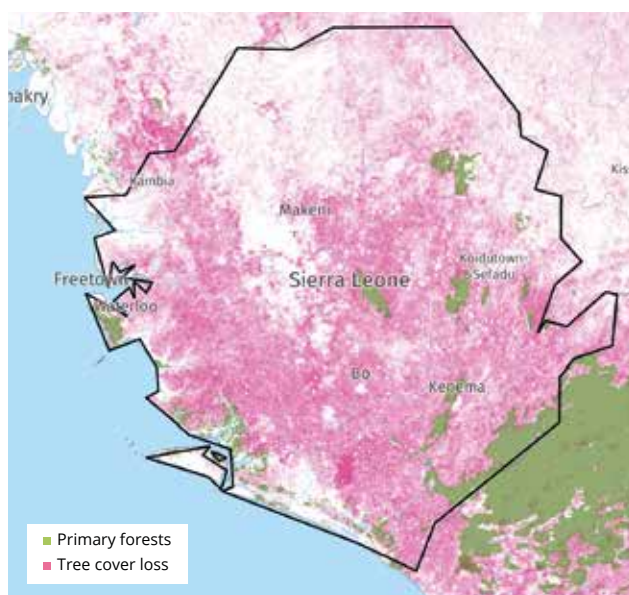
Across agroecologies and food crops, farms are also achieving low yields compared to potential for most major crops. The low input production system interacts with decreasing soil fertility for these low yields. Specific data on the soil fertility composition across regions is not currently available, but is of interest among stakeholders.

Because of the low input system resulting in low yields and poor soil fertility, the incentive for food production is to clear larger areas of land, which results in accelerated deforestation. Driving this as well is the increasing population and demand for food and livelihoods. Fallow periods in the traditional shifting cultivation practice have decreased from the 20-year periods common in the 1960s to less than 4–7 years today (Kamara, Alie, et al., 2016).

There is low availability and uptake of improved seeds and fertilizers, while research on varieties and practices suited to the specific agroecologies of the country is conducted by SLARI, improved seed multiplication and distribution remains limited. As discussed in KSQs 1 and 2, the customary land tenure system and lack of R&D, extension services and agricultural financial products for farmers keep them from investing in building soil fertility and experimenting with new practices. Mining and commercial plantations further compete with smallholder farmers over access to land, with negative externalities (pollution, land degradation) for neighbouring communities.

Deforestation has additional impacts, including land degradation and erosion risks, exemplified

Figure 17. Change in tree cover



Source: Global Forest Watch, 2021.



by the 2017 Freetown landslide. There are substantial threats to the biodiversity and unique species of Sierra Leone, including the Western Chimpanzee and other unique forest species. The coastal mangroves and fish breeding grounds, critical to the marine resources of the country, are also under threat. Very critically, deforestation threatens the ecosystem services provided by the forests, most importantly the country's water catchment areas, two of which provide water to the greater Freetown area.

There are policy drivers for these issues as well, as discussed in KSQ 2. The country has outdated policies on natural resource use. Additionally, there are unfunded mandates in environmental policy, which leads to weak policy implementation on issues of environment and resource management. The result is encroachment on protected areas including forest, mangroves, and other natural habitats. For example, mangrove forest loss is estimated at almost 25 percent since 1990 (USAID, 2017).

The government has recently shifted policy focus on rice production to lowland ecologies, which represents 20 percent of arable land available. Improved land management does not constitute a key priority, and the new policy

shift risks an overemphasis on mono-cropping and expansion of rice fields, further threatening biodiversity as well as a diversified food basket. The expansion of rice into lowlands, especially inland valley swamps (IVS) and mangroves risks further land degradation. Input use in IVS rice, if not adequately managed, could lead to pollution of surrounding lands and communities when swamps flood. The encroachment of rice cultivation into mangrove areas also risks the destabilisation of fish breeding grounds.

Also, the policy on perennial cash crops, although it includes opportunities for land sizes under 5 ha, does not have other tailored supports for making it feasible for smallholders to participate. The high poverty rate and food insecurity are also other drivers, as discussed in KSQ 1. High poverty levels drive households to seek short-term coping strategies, such as fuelwood collection from open access lands. These households are also the most vulnerable to the shocks of climate change and land degradation.

Climate change and shifting rainfall patterns predominantly affect rainfed farms. In 2020, there was both upwards and downward deviation from the typical rainfall throughout the year. In the case of commercial plantation agriculture,





granted under the customary system, these enterprises also hold negative consequences for smallholders (Hennings, Anne Nd, 2019).

Proposed systemic levers:

- 1. Policy implementation and community engagement on key land use policies to be strengthened.**
- 2. Transition to sustainable mixed cropping system to be supported.**

At the governance level, investment in land use policy could include supporting bodies such as the National Environmental Protection Board, which is in charge of the intersectoral and interministerial coordination on environmental programmes. It could also operationalize the National Land Commission, while aligning policy work and clarifying the mandates of the associated institutions on land use practices. Owing to the existing land tenure system, engaging communities in land use policies and practices would further support policy implementation. It will also improve capacity at community level for land use planning and management. Since environmental policies are in place and have been through some recent revisions in 2015, the implementation, funding, and enforcement is the key bottleneck limiting their impact.

Strengthening these policies can make an impact on the sustainable food systems. Harmonizing the existing policies and aligning institutions and their mandates can improve sustainable land use across the country, leading to decrease in land conflict, increased food production and improved natural resource management. However, these impacts may be limited without further development of the land tenure system.

There is a good opportunity in Sierra Leone to invest in farm productivity increases, reducing food insecurity and malnutrition, and transition to sustainable land use practices. A transition to agroecological practices could include mixed

cropping of tailored locally/regionally appropriate crops, input availability and knowledge about appropriate and sustainable input use, and irrigation facilities. Such an approach could also orient toward active inclusion of youth and women. Cash crops, including cocoa, coffee, and cashew, are well suited to upland ecologies, but farmers need access to credit, land, and quality seed/seedlings to cultivate them.

Scaling up the use of sustainable mixed cropping systems, with climate-smart agricultural practices, would result in improved natural resource management and conservation, protecting biodiversity and valuable ecosystem services. Farmers could also see improved crop yields from improved soil fertility, and diversify and increase their farm incomes. Diversifying farm production, with appropriate marketing, storage, and transportation efforts, could also improve nutrition outcomes in the long run. Any sustainable land use efforts would need to address availability of charcoal or improved cooking fuel efficiency to support the transition from unrestricted firewood collection.

Key Sustainability Question 4: What are the issues affecting the sustainability and share of nutrition of the fisheries sector in Sierra Leone?

The fisheries sector makes a substantial contribution to the economy and food security of Sierra Leone. Currently, it contributes 80 percent of animal-source protein intake, approximately 12 percent to the country's GDP and employs over 500 000 people (MTNDP, 2019–2023). The sector provides huge employment, particularly in coastal areas. Even though export revenues from fisheries have increased over the past couple of years (from USD 2.8 million in 2014 to USD 6.5 million in 2017) the ability of the sector to contribute (at its full potential) to the economy and food security of Sierra Leone is being inhibited by a series of factors (MFMR, 2020).

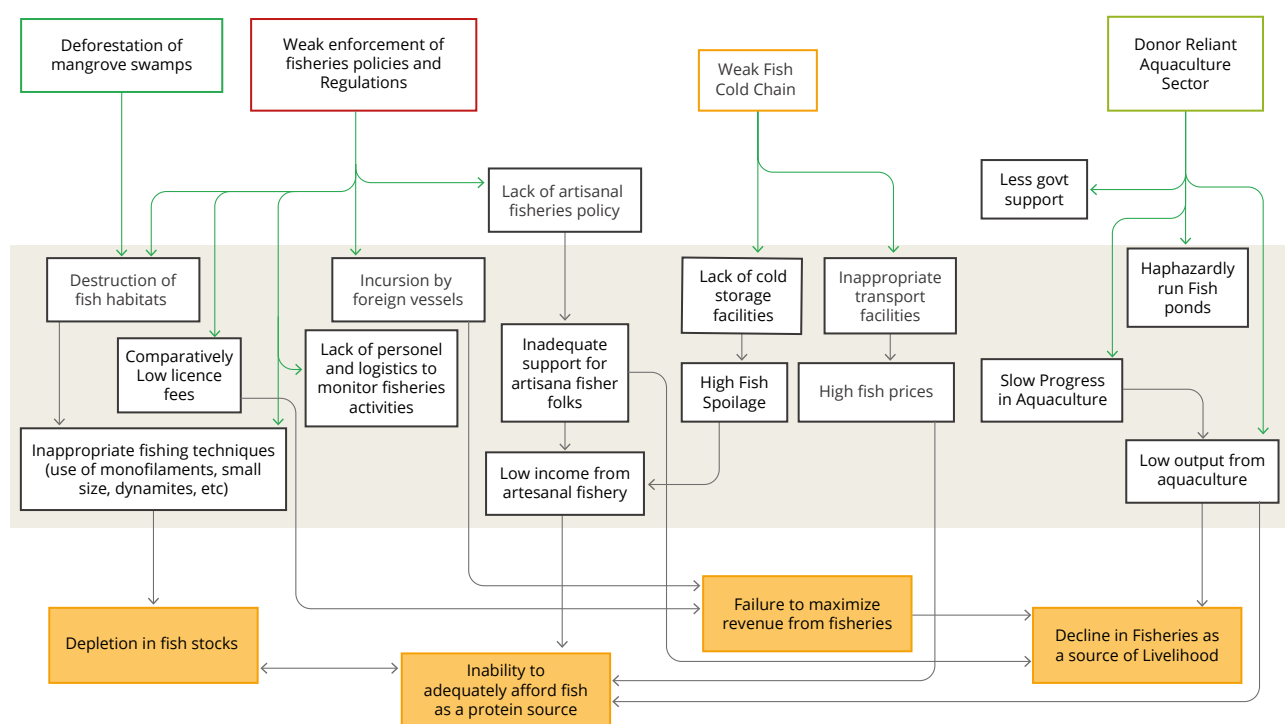
The potential total economic value of the country's marine fish stocks was estimated at



USD 735 million and at optimum fishing effort the sector is capable of sustainably producing an annual economic return of USD 59 million (Neiland et al., 2016). According to the Tony Blair Institute for Global Change, if sustainably managed, the sector has the potential to become the country's second export after minerals and

can provide 50 000 more jobs in the next five years (Tony Blair Institute for Global Change, 2018). However, experts are hesitant that if action is not taken fish stocks could get to a point of no return, threatening the nutrition security of Sierra Leoneans plus the livelihood of half-a-million people who catch, process or trade fish.

Figure 18. Issues affecting the sustainability and share of nutrition of Sierra Leone's fisheries sector



Source: Authors, 2021.

As manifested in the whole food system of Sierra Leone, an ineffective policy environment poses a major impediment to the sustainability of the fisheries sector. In some cases, policy requirements that are suitable to address specific sub-sectors are either outdated or non-existent, while in other cases the policies do exist but there are problems with their effective implementation. Key development partners such as the World Bank recognize that there is ample fisheries policy and regulations in Sierra Leone, but also that enforcement is often

undermined by political interference (MFMR, 2020). The Fisheries and Aquaculture Act of 2011 is very comprehensive, intending to make better provisions for the management, development, protection, conservation and sustainable use of the sector. However, its effectiveness is often compromised by political hindrance in policy implementation. The prevalence of weak policy governance and management have created room for unregulated incursion by foreign vessels, destruction of fish habitats and a series of other factors.



Illegal, unreported and unregulated (IUU) fishing, particularly by unlicensed vessels operating in the largely unprotected areas of the country's Exclusive Economic Zone (EEZ) poses huge challenges. Due to incursions by foreign and illegal vessels, the country loses an annual value estimated at USD 30 million (Audit Report, 2019). The lack of logistics to monitor fisheries activity and enforce regulations is another burning issue. Efforts have been made by the government and partner organizations to improve capacity for monitoring but the lack of resources and corruption continues to hinder the MCS process. For instance, a fisheries patrol boat and a satellite-based monitoring system was provided, following investment from the World Bank's West Africa Regional Fisheries Program. Fines are beginning to be more consistently imposed and collected for fishing infractions (Herbert Smith Freehills, 2021). The government also procured patrol boats but officers are being constrained by the vessels' running cost.

Also, the licence fees are relatively lower than other countries, representing 0.8 percent

ex-vessel value in Sierra Leone, compared to 10 percent in Liberia and the global norm of 5–8 percent (World Bank, 2018). In addition to other factors, the Fisheries and Aquaculture Act is disadvantageous to artisanal fisher folks, affecting their income and ability to compete with the industrial fisheries sector. According to the Ministry of Fisheries and Marine Resources, approximately 80–85 percent of Sierra Leone's fish is caught by artisanal fisheries (small-scale local fishermen). However, they lack the support necessary to enable them to compete with their industrial counterparts. This discourages people from maintaining fisheries as a source of livelihood.

Another factor driving the sustainability of the fisheries sector is the rapid and indiscriminate deforestation of mangrove swamps, which serves as a breeding ground for fish. Total mangrove cover in Sierra Leone is estimated to have decreased by approximately 25 percent since 1990, and very unequally among regions, recording a decrease of 46 percent in the Scarcies River Estuary, due to widespread conversion of





land to rice farms (USAID, 2017). Unfortunately, due to policy incoherence, conflict of interest and lack of coordination between sectors, destruction of mangrove habitats continues unabated. The destruction of fish habitats, compounded by the inefficacy of the policy environment to curtail IUU, failure to regulate the current licence regime and build capacity for effective and efficient monitoring, among other factors, are immensely contributing to the depletion of fish stocks and the inability to maximize revenue from the fisheries sector, and adequately afford fish as a source of protein.

This scenario is further being complicated by the lack of fisheries infrastructure and support services in most parts of the country. This is manifested in the lack of cold storage and appropriate transport. Also, there are no modern fish processing facilities to enable upwards operations in the value chain. This often results in spoilage and high prices of fish, thus affecting the availability and affordability of fish. This can affect both fish consumers and producers in that spoilage can affect the incomes of fisherfolk, thereby reducing fish supply, increasing demand and market prices.

Over the past decades, the aquaculture sector has been dependent on donor support with less government support towards the sub-sector, leading to slow progress and low output from aquaculture. Considering the current challenges faced by the marine sector and the reliance of the country's population on fisheries as a major source of protein, the aquaculture sub-sector can serve as a good opportunity to complement the dwindling fish stocks.

In the project document of the FAO's Sustainable Aquaculture for Food Security, Livelihood and Nutrition Project, the objective of building the capacity of rural communities in relevant and adequate skills and knowledge to establish and manage fishponds is deemed as being very critical in creating livelihood opportunities and improving the nutritional status in rural areas (FAO, 2017). Currently, the country is heavily reliant on coastal

marine fisheries for the supply of fish to its markets, provision of revenue for the government and employment among coastal communities (FAO, 2017). Insufficient financing of the aquaculture sub-sector has limited its potential to meaningfully complement marine fisheries, contribute to nutrition and serve as a major livelihood for inland communities. Currently, the aquaculture sub-sector is disorganized and marred by slow progress. Compared to the other sub-sectors, the output obtained from aquaculture is still very low.

Proposed systemic levers:

- 1. Capacity for monitoring and enforcement of fisheries regulations to be strengthened**
- 2. Increased investment in sustainable aquaculture interventions to complement the availability of fish from artisanal fisheries as a protein source.**

Weak governance of the fisheries sector is the primary cause of excess fishing and IUU. There is a need to institute policies and regulations that would limit fishing from exceeding sustainable levels. Also, the MFMR should be supported with strong mandates and necessary resources to enable them to monitor and enforce fisheries activities and regulations. However, to be able to achieve an effective monitoring and enforcement process, it is essential to engage with a broad range of community stakeholders (fisherfolks, chiefs, law enforcement officers and local representatives of line ministries). Community Management Associations were established to enhance surveillance, but they are currently not functional and need to be institutionalized and scaled up. Additionally, a vessel monitoring system must be adopted and installed in all licensed fishing vessels to effectively track fishing vessels and help combat IUU.

Another area of concern is that industrial fishing vessels are registered based on their size rather than the quantity of fish they catch. This makes



it hard to estimate the total fishing efforts per vessel. To address this, a comprehensive fish stock assessment should be conducted to establish the abundance and distribution of fish stocks and enable the setting up of a quota management system.

The development of aquaculture and inland fisheries can complement the industrial and artisanal fisheries. They can serve as an alternative source of proteins and create employment opportunities for populations living off the coast. It can help meet the demand for fish and create employment among rural populations and reduce catch effort from coastal/marine fisheries (reduce environmental pressure). It is,

therefore, essential to develop commercialized aquaculture to buoy fish production and support diversified growth in the fisheries sector. The government must promote aquaculture and reduce its reliance on donor support.

With a sustained and consistent budget allocation, the aquaculture sector can be assured of growth and sustainability. An enabling environment for capacity building on aquaculture management must be created and the private sector encouraged to invest in the production of fish inputs (fingerlings, fries and fish meal). The existing fish hatcheries in the country must be revamped and expanded to enhance the availability of fingerlings.





Transition to sustainable food systems

The Food Systems Assessment (FSA) provides an overview of the current situation in Sierra Leone, providing an outline of the key issues and challenges it faces. These issues are pertinent to many sectors (agriculture, health, education, lands, environment, etc.) and involve a wide range of stakeholders at national, regional and sub-national levels.

To adequately address the issues emerging from the assessment and effect any favourable changes in the system there is need to adjust the current policy environment, a crucial crosscutting theme with the greatest impact on many other development outcomes. In the country's current situation, policy direction has a serious leverage over access to land, infrastructure, gender equality, environmental issues, etc.

The short and medium term development objectives of the Government of Sierra Leone are embedded in the Medium Term National Development Plan (MTNDP, 2019–2023). This plan as well as the recent NAT 2023 align with the FSA in that their preparation involved consultations with a broad spectrum of FSA actors. It involved inputs from government agencies, the private sector, donor partners, and academia, drawn from both national and sub-national levels. Considering that these plan are comprehensive,

involving all sectors and stakeholders, and founded on a strong political will, they can serve as an anchor to drive all food systems initiatives in the country.

In addition, there are various institutional arrangements whose support is relevant in moving forward with the levers. Existing multi-sectoral platforms and devolved bodies at a sub-national level are a good example of entities whose structures and capacity can be harnessed to complement the FSA.

The land tenure system is a key overarching issue that cuts across dimensions of Sierra Leone's food system. Revising the system is a critical lever that can stimulate sustainable changes in both small scale and commercial scale food production. Continued efforts and progress on this front will greatly support the country's food systems through stabilizing land rights and spurring investment in food production systems.

Given the scope and time frame of the assessment, there are several areas that could not be comprehensively addressed. Therefore, the need exists to further deepen and broaden the process to get a better knowledge of the existing issues and challenges faced by the food systems.

References

- FAO.** 2016. *Sierra Leone Food Based Dietary Guideline for Healthy Eating*. Rome. www.afro.who.int/sites/default/files/2017-05/sierra-leone-food-based-dietary-guidelines-for-healthy-eating.pdf.
- FAO.** 2017. *Aquaculture for Food Security, Livelihood and Nutrition in Sierra Leone*. Rome, (TCP/SIL/3502).
- FAO/MAF.** 2018. *Report on the Assessment of ABCs for Selection and Transformation into Cooperatives*. Rome.
- FAOSTAT.** 2021; <https://eros.usgs.gov/westafrica/land-cover/land-use-land-cover-and-trends-sierra-leone>.
- Hennings, Anne. Nd. 2019.** *Sierra Leone: Context and Land Governance*. <https://landportal.org/node/38427>.
- Herbert Smith Freehills.** 2021. *Investing in Sierra Leone. Agriculture and Fisheries*. <https://www.investingsierraleone.com/>.
- International Trade Administration.** 2021. *Sierra Leone Mining and Mineral Trade*. www.trade.gov/country-commercial-guides/sierra-leone-mining-and-mineral-resources.
- Kamara, Alie, Osman Sidie Vonu, John Lansana, Foday Saidu Sesay.** 2016. *Extent of Reduction of the Fallow Period and its Impact on Upland Rice Production in the Nongowa Chiefdom of Kenema District in Eastern Sierra Leone*. *Agricultural Sciences* Vol 8 No 11. <https://www.scirp.org/journal/paperinformation.aspx?paperid=72181>.
- Lockhart, Kurtis, Barbara Cardona, Anthea Piong.** 2019. *Scoping Study: Using Network Theory to Promote Adoption of New Agricultural Technologies in Sierra Leone*. International Growth Center.
- Ministry of Agriculture and Forestry (MAF) and International Fund for Agricultural Development (IFAD).** 2020. *Smallholder Commercialisation Programme*. Project Completion Report.
- Ministry of Agriculture and Forestry.** 2021. *Ministry of Agriculture and Forestry Progress Report*.
- Ministry of Agriculture and Forestry.** 2021. *Investing in Rice Self-Sufficiency in Sierra Leone. Agriculture Policy Shift for Accelerated and Sustained Rice Self-Sufficiency and Food Security*.
- Ministry of Fisheries and Marine Resources (MFMR).** 2020. *Progress Report*.
- Ministry of Fisheries and Marine Resources.** 2020. *Environmental and Social Management Framework for the West African Fisheries Program Global Environmental Facility Financing Project in Sierra Leone (WAREFP-SL GEF AF)*.
- Ministry of Lands, Country Planning and the Environment (MLCPE).** 2015. *Ministry of Lands, Country Planning and the Environment Report*.
- MTNDP.** 2019–2023. *Medium Term National Development Plan*. Government of Sierra Leone.
- NASS.** 2018. *National Agricultural Sample Survey*. Ministry of Agriculture and Forestry.
- NCD Risk Factor Collaboration.** 2021. *Country Data Sierra Leone*.
- Neiland, et al.** 2016. *Assessing the Potential Contribution of Fisheries to Economic Development-The Case of Post-Ebola Sierra Leone*.
- Observatory of Economic Complexity.** 2019. *Sierra Leone country export import profile*. <https://oec.world/en/profile/country/sle?compareExports0=comparisonOption5&tradeScaleSelector1=tradeScale2>.
- SCP.** 2010. *Smallholder Commercialisation Programme Document*.
- Sierra Leone National Forestry Policy.** 2010. <http://extwprlegs1.fao.org/docs/pdf/sie143754.pdf>

SLIHS. 2018. *Sierra Leone Integrated Household Survey*.

Statistics Sierra Leone (SSL). 2017. *Sierra Leone 2015 Population and Housing Census. Thematic report on Agriculture*.

SSL. 2020. *Statistics Sierra Leone National Accounts Section. Report on the 2019 and 2020 Real GDP figures*.

Tony Blair Institute for Global Change. 2018. *Sierra Leone: Plenty More Fish in the Sea?*

Tony Blair Institute for Global Change. 2022. *The potentials of Sierra Leone Agriculture Sector*.

USAID. 2017. *West Africa Biodiversity and Climate Change: Sierra Leone Mangrove Forest Cover Change and Carbon Stock Assessment*.
https://pdf.usaid.gov/pdf_docs/PA00X4JZ.pdf.

World Bank. *World Development Indicators*.

World Bank. 2018. *World Bank Systematic Country Diagnostic. Sierra Leone*.

World Bank. 2021. *World Bank Sierra Leone Programmatic Expenditure Review: Module 2: Agriculture Sector*.

World Fish Report. 2017. *Sierra Leone Fish Value Chain with Special Emphasis on Tonkolili District*.

World Food Program (WFP). 2021. *Comprehensive Food Security and Vulnerability Analysis (CFSVA), Sierra Leone*.

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