CGIAR

INITIATIVE ON
Diversification in East and Southern Africa

Tanzania Agricultural Policy Profile

Mugisha Rweyunga Rweyemamu[1], Tersia Mruma[1] and Shiluva Nkanyani[2]

[1]Economic and Social Research Foundations (ESRF)

[2]Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN)

14 January 2024

Contents

Author affiliations

Mugisha Rweyunga Rweyemamu[1], Teresia Mruma[1], Shiluva Nkanyani[2]

[1]Economic and Social Research Foundation (ESRF), Dar es Salaam, Tanzania

[2]Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN), Pretoria, South Africa

Suggested citation

Rweyemamu, M. R.; Mruma, T.; Nkanyani, S. 2024. *Tanzania agricultural policy profile*. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Initiative on Diversification in East and Southern Africa. 21p.

Acknowledgments

This work was carried out with support from the CGIAR Initiative on Diversification in East and Southern Africa, Ukama-Ustawi. We would like to thank all funders who supported this research through their contributions to the CGIAR Trust Fund.

CGIAR Initiative on Diversification in East and Southern Africa

The CGIAR Initiative on Diversification in East and Southern Africa aims to help smallholders transition to sustainably intensified, diversified, and derisked agri-food systems based on maize in 12 ESA countries. Specifically, it seeks to enable 50,000 value chain actors, including farmers (at least 40% women, 40% youth), to adopt climate-smart maize-based intensification and diversification practices and one million to access digital agro-advisory services. Emphasizing the role of the private sector in driving such transformation, UU targets to support at least 30 start-ups and SMEs.

Learn more about Diversification in East and Southern Africa here: https://www.cgiar.org/initiative/diversification-in-esa/

Disclaimer

This publication has been prepared as an output of the CGIAR Initiative on Diversification in East and Southern Africa and has not been independently peer reviewed. Responsibility for editing, proofreading, and layout, opinions expressed, and any possible errors lies with the authors and not the institutions involved. The boundaries and names shown, and the designations used on maps do not imply official endorsement or acceptance by IWMI, CGIAR, our partner institutions, or donors.

Abbreviations

Acronyms	Definitions
ASDP II	Agricultural Sector Development Program II
BBT	Building a Better Tomorrow
EAC	East Africa Community
ESA	East and Southern Africa
EU	European Union
GCMs	Global Climate Models
GDP	Gross domestic product
Kilimo Kwanza	Agriculture First
Mt	Metric ton
NAIVS	National Agricultural Input Voucher Scheme
NEP	National Environmental Policy
NFP	Agricultural Sector Development Program
NFSP	National Food Security Policy
PFCF	Preliminary Food Crop Production Forecast
SADC	Southern African Development Community
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
SSR	Self-sufficient ratio
UAE	United Arab Emirates
USD	United States Dollar

Executive Summary

Tanzania places a significant emphasis on the importance of its agricultural sector, acknowledging its pivotal role in both the economy and the livelihoods of its citizens. The government's commitment to the advancement of agriculture is evident through the execution of diverse policies and programs. The central pillar of Tanzania's agricultural policies is the Agricultural Policy of 2013, which delineates strategies to boost productivity, ensure food security, and enhance the socio-economic conditions of farmers. The policy underscores the importance of sustainable practices and the adoption of technology.

Several key programs contribute to the realization of the regions agricultural policy objectives such as the Agricultural Sector Development Program (ASDP) II which focuses on modernizing agriculture, improving infrastructure, and enhancing market access. The Southern Agricultural Growth Corridor of Tanzania (SAGCOT) seeks to attract investments and boost agricultural productivity in the southern regions and the "Kilimo Kwanza" initiative, meaning "Agriculture First," emphasizes the prioritization of agriculture in national development. It encourages private sector involvement, technology adoption, and increased agricultural productivity.

Tanzania has made significant progress in agricultural development, marked by increased production and improved livelihoods. However, challenges persist, encompassing the impacts of climate change, issues related to market access, and the imperative for sustained policy implementation tailored to fortify the agricultural sector's resilience. The Tanzanian government remains steadfast in its commitment to advancing the agricultural sector. Future efforts are anticipated to emphasise the need for sustainable practices, technological innovations, and inclusive policies to address challenges and promote long-term growth.

In conclusion, Tanzania's agricultural policy framework reflects a comprehensive approach to sector development. The implementation of key programs and initiatives demonstrates the government's unwavering dedication to nurturing a robust, sustainable, and economically vibrant agricultural sector for the holistic benefit of its nation.

1. Introduction

The East and Southern Africa (ESA) region has been described as a climate hotspot, where the agricultural production is worth over USD 45 billion and is under threat due to rising temperatures, reduced growing periods, and increased occurrences of severe droughts and floods. Maize, a fundamental crop, occupies up to 75% of cultivated land in certain areas, is especially vulnerable and is expected to experience a reduction in yields of 15%, along with other climate-related consequences. The impacted communities already suffer from severe levels of hunger and malnutrition, mostly affecting women and young individuals from marginalised and vulnerable communities.

Consequently, if these systems are effectively diversified, they have the potential to help stabilise both the regional and global agrifood systems. The upcoming decade will be crucial for enhancing the resilience and effectiveness of food, land, and water systems across the ESA region. The agribusiness ecosystem in the region has been seen as a crucial catalyst for agricultural and economic growth, as well as for addressing climate change and promoting gender and youth empowerment. Investing in innovation, capabilities, and conducive environments will be crucial for fostering sustainable growth that benefits society.

The CGIAR Initiative on Diversification in East and Southern Africa, also known as Ukama Ustawi, seeks to tackle the dangers to food and nutrition security in the region caused by an over dependence on maize. This will be achieved by implementing a strategy that is robust to climate change, ensures water availability, and promotes social inclusivity. The initiative seeks to assist small-scale farmers in 12 countries in ESA in developing agriculture and livelihoods that are resilient to climate change. It aims to achieve this by enhancing extension services, promoting the growth of small and medium enterprises, strengthening governance structures, and increasing investment, all while considering gender and social inclusion.

This document explores agricultural policy in Tanzania. It outlines the country's production, the potential for crop diversification, and the impact of climate change. Additionally, the document also reviews Tanzania's food and agriculture policies and the major issues they need to address.

2. Country Overview

Tanzania's extensive and diverse agricultural resources, play a fundamental role in driving its economic growth and providing nourishment for its population (World Bank, 2016). Located in East Africa, Tanzania benefits from diverse agro-ecological zones, excellent soils, and ideal meteorological conditions, making it suitable for a wide range of agricultural activities. Apart from its economic importance, agriculture in Tanzania is firmly embedded in the social and cultural construct of the country. With a primarily agrarian populace, inclusive of both rural and urban populations, agriculture serves as the foundation for the livelihoods of millions. The sector comprises a wide range of activities, such as cultivation, animal husbandry, forestry, and fishing, collectively playing a crucial role in ensuring food security, generating jobs, and making a substantial contribution to export earnings.

A significant proportion of Tanzania's land area is utilized for agricultural activities, with cropland accounting for 44.62% of the country's land area, 24% of which is being utilized for cropland cultivation (FAO, 2023). Tanzania has achieved self-sufficiency in food production underpinned by a production surplus, however significant malnutrition and food insecurity rates continue to pose a hinderance to poverty alleviation efforts. The agricultural landscape consists of a variety of staple foods, with maize being the main staple food, followed by rice, sorghum, millet, pulses, cassava, and bananas. In addition, to this Tanzania imports significant quantities of wheat to satisfy the local demand for wheat flour. Forming part of both the East Africa Community (EAC) and the Southern African Development Community (SADC), Tanzania holds a significant position in the regional trade of essential staples across the ESA region. It typically produces an excess of staple cereals and pulses, exporting substantial amounts of these goods to nearby countries such as Kenya, Malawi, Zambia, Uganda, Rwanda, Burundi, and the Democratic Republic of Congo (FEWS NET, 2018). The observed domestic surplus in staples is owed to the Rukwa, Mbeya, Njombe and Ruvuma regions.

For six consecutive years, Tanzania has observed a food surplus in the range of 120-125%. The 2018/19 Preliminary Food Crop Production Forecast (PFCF) revealed a 16 408 309 metric ton (Mt) production grain equivalent this was in excess of the required 13 842 536 Mt indicative of a 2 565 774 Mt surplus (The United Republic of Tanzania Ministry of Agriculture, 2019). In addition, at the national level the upper self-sufficiency ratio (SSR)[1] is demonstrably achieved by 11 regions (with production exceeding local needs by 128-227%), while seven regions are definitively self-sufficient (109-119%). However, eight regions exhibit definitive deficits (3-99%), requiring external support.

Tanzania's agriculture, forestry and fisheries value added (% of GDP) recorded a 3.3% growth in 2022, which is a slight decline from the 3.7% growth recorded in 2021 (World Bank, 2023). The reduction is

[1] Self-sufficiency ratio - Is an index used to measure domestic food production as a ratio of consumption.

attributed to the occurrence of erratic and poorly timed rains in specific areas, resulting in droughts and floods. Furthermore, agricultural growth of the region is stagnated by low productivity of land, constrained access to financial services, ineffective agricultural technical support, and infrastructure underdevelopment (FEWS NET, 2018).

The subsector of livestock experienced the most significant rise, at 5.0%. This was followed by forestry (3.1%), crop production (2.7%), and fishing at (1.9%). In 2022, the average growth rate with respect to monetary and non-monetary agricultural activities declined slightly from 4.0% and 3.8% respectively, to 3.0%. Additionally, the agricultural sector accounted for 26.2 % of GDP, with crop-related activities contributing 15.0%, livestock (6.7%), forestry (2.7%) and fishery (1.8%). This highlights the observed decline from the prior year.

The agriculture sector plays a significant role in the generation of employment opportunities, employing 64.9% of the national labour force, with 65.6% in Tanzania Mainland and 35.5% in Zanzibar (NBS, 2022). Moreover, it is the main provider of industrial raw materials, with an average contribution of 65% of the overall industrial material annually.

2.1. Key Agricultural Indicators in Tanzania

Tanzania's agricultural statistics provide an essential perspective into the diversity of the country's agricultural sector. The indicators provide an overview of the country's food production, import and export value, losses, net supply, domestic requirements, and domestic balance as shown in Table 1 below.

Table 1: Food commodity – MT cereal equivalent, Tanzania (2014/15 – 2017/18 average)

Indicator	Maize	Rice (milled)	Sorghum/Millet	Wheat	Cassava	Bananas	Pulses
Opening stocks	368,855						
Production	5,541,203	1,751,772	625,946	74,717	1,397,770	1,035,180	2,134,428
Imports	49,996	208,859	1,422	869,246	36	172	7,988
Total Supply	5,960,054	1,960,132	627,389	943,962	1,397,807	1,035,352	2,142,415
Losses[2]	775,768	115,818	62,246	193,223	138,302	135,158	105,936
Exports	256,094	223,150	6,816	139,925	5,395	253	234,725
Net Supply[3]	4,928,192	1,612,164	558,328	610,810	1,254,110	899,941	1,801,755
Domestic Requirements[4]	4,561,965	1,226,957	579,261	745,155	1,055,580	943,813	1,356,110
Domestic Balance	336,266	394,207	(20,934)	(134,301)	198,530	(43,872)	445,645

Source: (FEWS NET, 2018)

The indicators in the table above are influenced by a complex interaction of variables that define the landscape of agriculture in Tanzania. The indicators of food production metrics reveal the nation's capacity to fulfil its nutritional requirements and even exceed them. The allocation of land for agricultural uses is a crucial aspect that determines the degree to which Tanzania utilises its natural resources for food production to ensure self-sufficiency and bolster economic growth prospects through exports. Regarding exports, the monetary worth assigned to agricultural exports represents the economic importance of the sector worldwide. This value not only signifies concrete economic contributions but also highlights Tanzania's standing in the global market, thereby accentuating the country's significance in the worldwide agriculture sector.

Essentially, these agricultural indicators go beyond numerical values, they create a mosaic that portrays a clear and detailed image of Tanzania's agricultural strength, difficulties, and possibilities. They provide a comprehensive understanding of the complex dynamics of the sector, equipping policymakers, researchers, and stakeholders with the essential tools to make well-informed decisions, promote sustainable agricultural practices, and drive the nation towards a resilient and prosperous agricultural future.

[2] Loss estimations do not include calculations for feed, seed, and industrial utilization.

[3] Net supply is determined by deducting losses and exports from the overall supply.

[4] Estimations of domestic requirements are based on the presumed average per capita kilogram requirement for each commodity, which are as follows: maize (86), rice (21), sorghum/millet (10), wheat (15), cassava (21), bananas (19), and pulses (29).

3. Agricultural Production and Diversification Potential

The production of primary food crops in 2022 amounted to 17,147,290 Mt, representing an 8.1% decline (Table 2) in contrast to the 18,665,217 produced in 2021 (Ministry of Finance , 2023). The decline in productivity in crucial areas in the northern and southern parts of Tanzania can be attributed to droughts. Tanzanian farmers typically rely on monitoring rainfall patterns to plan their planting schedule. In cases where rains are delayed or absent, farmers are compelled to switch to the cultivation of alternative crops (Mtaki and Snyder, 2022). In 2022, the predicted quantity of food demanded was 15,053,034 Mt, as opposed to 14,835,101 Mt in 2021. The country's food self-sufficiency ratio for the year 2022, in relation crop production and food consumption, reached 114%.

Table 2: Production of Major Food Crops (in thousand tons)

Indicator	2018	2019	2020	2021	2022	% Change
Maize	6,273	5,652	6,711	7,039	6,417	-8.8
Rice	2,220	2,063	3,038	2,688	1,708	-36.5
Wheat	57	63	77	70	62	-11.4
Pearl millet, finger millet, and sorghum	988	1,117	1,043	1,077	1,046	-2.9
Dried cassava	2,791	2,728	2,427	2,486	2,411	-3.0
Beans and legumes	1,823	1,888	1,895	2,236	2,499	11.8
Dried bananas	1,132	1,135	1,358	1,443	1,290	-10.6
Dried sweet potatoes and round potatoes	1,608	1,644	1,647	1,626	1,715	5.5
Total	16,892	16,290	18,196	18,665	17,147	-8.1

Source: (Ministry of Finance , 2023)

3.1. Cash crops

Tanzania experienced notable rise in the production of main cash crops in 2022, with an observed rise of 8.3% (Table 3). The overall cash crop production reached 973,436 Mt, surpassing the previous year's output of 898,967 Mt. The significant increase in production was credited to improved yields in the country's primary cash crops: cashew nuts, coffee, cotton, sisal, and sugar (Torq Commodities, 2023). The cotton sector experienced an increase due to the timely availability of resources and support services. Similarly, the tobacco business expanded as a result of enhanced market access facilitated by four significant tobacco purchasing companies and the reopening of the Mkwawa Leaf Tobacco Limited facility in Morogoro. Nevertheless, tea production encountered obstacles as a result of inadequate rainfall in crucial production regions and reduced fertiliser utilisation due to price increases. Similarly, coffee production decreased as a result of excessive precipitation in the production areas and decreased use of fertilisers.

In 2022, Tanzania's conventional exports showed substantial robustness, with a revenue generation of USD 703.7 million. Cashew nuts maintained their position as the highest revenue generator, adding USD 226.9 million to the overall total. In the prior year, Tanzania's conventional exports saw a significant increase in revenue, cashew nuts, in particular, emerged as the top export valued at USD 159 million. The following table presents the patterns seen in the cultivation of cash crops.

Table 3: Production of Major Cash Crops (measured in tons)

Indicator	2018	2019	2020	2021	2022	% Change
Cotton	222,039	348,910	348,958	122,836	144,792	17.9
Coffee	45,245	68,147	60,651	73,027	66,837	-8.5
Tea	34,010	37,193	28,715	27,510	24,825	-9.8
Pyrethrum	2,400	2,014	2,510	2,412	2,694	11.7
Tobacco	50,522	70,824	37,546	58,508	70,699	20.8
Cashew nuts	313,826	225,053	232,681	210,786	240,158	13.9
Sisal	40,635	33,271	36,379	36,170	44,151	22.1
Sugar	303,752	359,219	311,358	367,718	379,280	3.1
Total	1,012,429	1,144,631	1,058,798	898,967	973,436	8.3

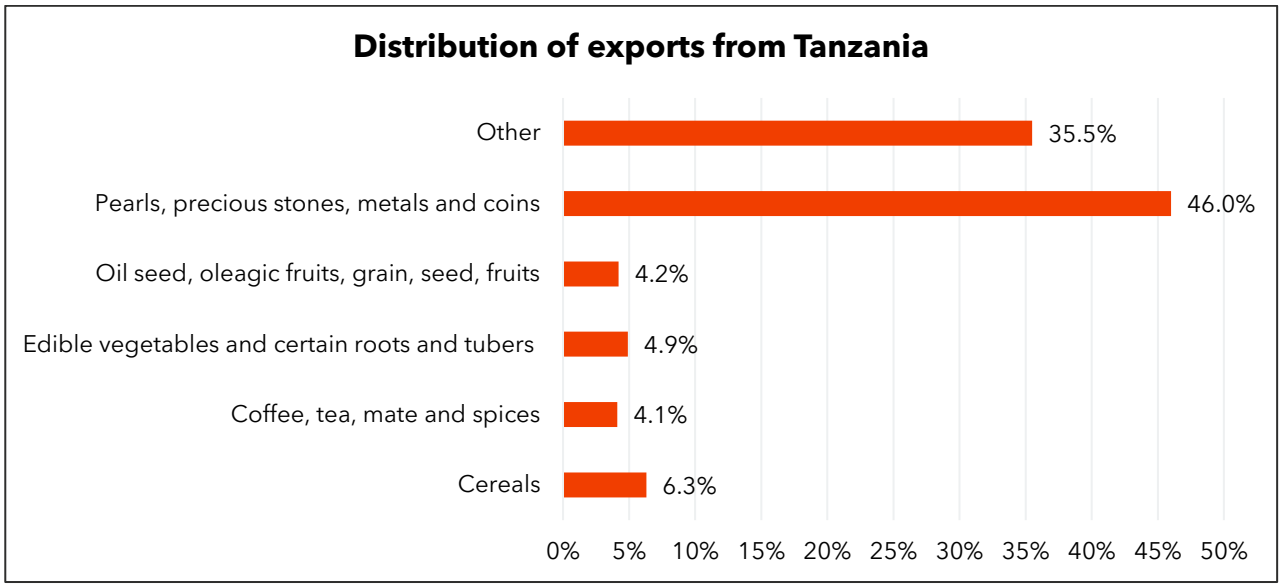
Source: (Ministry of Finance , 2023)

3.2. Oilseed crops

In 2022, the total production of oilseed crops, such as sunflower, groundnuts, sesame, palm, and soybeans, reached 1,507,565 tons. This represented a 12% reduction compared to the 1,713,178 tons harvested in 2021 (Ministry of Finance , 2023). The decrease can be attributed to inadequate rainfall in specific production areas a resulting effect of climate change, additionally, irregular restrictions on the export and import of certain goods, elevated interest rates, and the limited efficiency of smallholder manual labour present obstacles to the industry's expansion (Torq Commodities, 2023).

As of 2021, Figure 1 illustrates the distribution of exports from Tanzania by product. With cereals, edible vegetables, certain roots and tubers and oil seed, oleagic frits, grain, seed, and fruits forming part of the top five exports in the region.

Figure 1: Distribution of exports from Tanzania as of 2021 (by product)



Source: (Statista, 2021)

3.3. Livestock

Table 4 below provides a summary of the livestock production in Tanzania for the period 2018 - 2022. The livestock population experienced a substantial rise in 2022, reaching 173.9 million, which represents a notable 4.8% increase compared to the 165.9 million recorded in 2021. The surge in livestock numbers can be attributed to a combination of factors, including the collaborative efforts of government and stakeholders' initiatives to control livestock diseases through measures such as the construction of dip tanks, subsidizing acaricides, and enhancing the production and distribution of vaccines (Ministry of Finance , 2023). Additionally, efforts such as the establishment of pasture farmer field schools, raising awareness about grazing land demarcation, capacity building in commercial livestock farming, and a growing demand for livestock products in both domestic and international markets have contributed to this increase.

In the same year, meat production reached an impressive 769,966.5 tons, indicating a significant 4.3% increase from the 738,166 tonnes in 2021. Additionally, egg production surged to 4,949.8 million in 2022 – a substantial 8.8% rise from the 4,510.4 million eggs produced in the previous year. Furthermore, milk production experienced a substantial surge, reaching 3,426 million litres in 2022, reflecting a commendable 10.5% increase from the 3,101.4 million litres in 2021. These robust figures demonstrate the industry's resilience and its ability to meet the growing demands for diverse livestock products.

The growth in the dairy industry was facilitated by improving the capacity of commercial dairy farming, expanding dairy farmers' cooperatives, increasing the number of milk processing industries from 105 to 111, and establishing more milk collection centers, which grew from 221 to 238. Additionally, in 2022, the production of hides/skin pieces reached 53,256 tons, showing a 4.2% increase from the 51,113 tons

in 2021. This growth was a result of continuous training on improved skinning techniques, including the use of specialized skinning knives. In terms of domestic earnings, the market generated a total of 1,741 billion Tanzanian shillings in 2022, reflecting a significant 13.7% increase compared to the previous year's earnings of 1,531.0 billion Tanzanian shillings. This growth is attributed to the growing demand for livestock within the export-oriented meat processing sector and improvements in auction infrastructure.

Table 4: Number of livestock (in millions)

Types of Livestock	2018	2019	2020	2021	2022	% Change
Cattle	30.5	32.2	33.9	35.3	36.6	3.7
Goat	18.8	20	24.5	25.6	26.6	3.9
Sheep	5.3	5.5	8.5	8.8	9.1	3.4
Pig	1.9	2	3.2	3.4	3.7	8.8
Chicken	74.8	79.1	87.7	92.8	97.9	5.5
Total	131.3	138.8	157.8	165.9	173.9	4.8

Source: (Ministry of Finance , 2023)

3.4. Fisheries

The aquaculture business in Tanzania is currently dominated by the production of Nile Tilapia, Rainbow Trout, African Catfish, Seaweed, and Milk Fish. The main water bodies utilized for fishing activities encompass Lake Victoria, Tanganyika, Nyasa, Rukwa, as well as several smaller lakes, rivers, dams, ponds, and marshes. Currently, the production capacity is less than 2% of the total potential, resulting in a yield of 392,932.82 tons. The majority, 85.7%, comes from inland waters, while the remaining 14.3% is obtained from the ocean.

Tanzania's exports amount to 32,388.88 tons, resulting in export revenues of USD 8.24 million. The Key export destinations to which exports are exported are the United Arab Emirates (UAE), Japan, Rwanda, Malawi, Congo, the European Union (EU), and Israel.

3.5. Potential for sector diversification

The government, in collaboration with the Ministries of Agriculture, Livestock and Fisheries, along with other important agricultural participants, has initiated a set of strategic measures to guarantee long-term food production and enhance exports. These initiatives are focused on enhancing overall agricultural production to meet both domestic consumption and export requirements. These efforts are classified into the following agricultural sub-sectors:

3.5.1. Agriculture Sector

The "Agenda 10/30" is a comprehensive strategy designed to increase the growth rate of the agriculture industry from 5% to 10% by doubling it. The main goals include attaining food self-sufficiency and increasing agricultural exports from USD 1.2 billion to USD 5 billion (AGRF, 2023)

This ambitious plan encompasses crucial elements for achieving achievement, such as elevating horticultural sales from USD 750 million to a substantial USD 2 billion per year, thereby enhancing the country's export contributions. Moreover, it highlights the prioritization of research and development services, specifically in the domain of high-quality seed production, in order to guarantee farmers' availability of superior seeds, resulting in enhanced agricultural yields and quality. Concurrently, ministries are aggressively endeavoring to foster commercialization in the food crop sector, with the aim of increasing the proportion of irrigation in agricultural production from 10% to 50%. This strategic approach facilitates agricultural operations throughout the year, ultimately enhancing food stability.

In August 2022, the Prime Minister, the Honorable Kassim Majaliwa initiated a youth programme called "Building a Better Tomorrow" (BBT) with the primary objective of enhancing youth involvement. The initiative seeks to engage youth in various facets of the value chains within the agricultural sector. Additionally, prioritizing the accessibility of primary resources for industries that enhance the value of products is of utmost importance, aiming to increase the present rate from 65% to 100%. These steps are implemented with great care to improve food security, serving both internal consumption and exportation.

3.5.2. Livestock Sector

In order to enhance food security and guarantee a long-term provision of livestock products for both domestic consumption and international trade, Tanzania's livestock industry intends to commit a budget of 1.94 trillion Tanzanian shillings for the upcoming five-year period. The increased funding is primarily targeted towards the accomplishment of various crucial objectives, which entail the enhancement and availability of high-yielding livestock breeds, reinforcing pasture and water services, improving extension services, fortifying animal health, progressing research and training in livestock management, and establishing a Livestock Development Fund that will oversee various initiatives such as breed enhancement, pasture improvement, infrastructure for livestock marketing, healthcare facilities, and the capacity development of livestock farmers in contemporary and commercial farming techniques.

3.5.3. Fisheries

The Ministry’s increased budget allocation of USD 69 million Tanzanian shillings signifies a strengthened dedication to the fisheries industry, with the objective of cultivating resilient public-private collaborations, enlarging employment prospects, improving food security, and fortifying production capacity. This strategic focus incorporates the promotion of sustainable fisheries management practices, the facilitation

of research-driven extension services, the establishment of breeding programmes and specialized centers for the production of freshwater and marine species, and the development of comprehensive inventories for aquaculture chemicals and equipment. The plan prioritizes strengthening cooperative unions and associations, while also focusing on enhancing knowledge, funding, technology, and facilities, specifically for seed and feed producers. Together, these procedures guarantee a dependable and uninterrupted fish supply, catering to both domestic consumption and wider commercial needs.

4. Impact of Climate Change in Tanzania

In Tanzania, the prevalence and impact of climate change are evident and significant. Recent climate analyses indicate a concerning pattern of declining yearly rainfall, with an average decrease of 2.8mm per month (3.3%) per decade. The most notable reductions in rainfall have occurred in the southern regions of Tanzania. Subsequently, the mean yearly temperature in Tanzania has increased by 1.0^{0}C since the year 1960.

The ensemble of downscaled Global Climate Models (GCMs) predicts a concerning scenario, indicating that the average annual temperature will rise by 1.0 to 2.7°C by the 2060s and 1.5 to 4.5°C by the 2090s. Nevertheless, the path of rainfall is unpredictable, with expected fluctuations in both location and timing, leading to significant degrees of uncertainty (Omondi et al, 2014; Wambura et al, 2014; Adhikari et al, 2016).

The impact of climate change on agriculture in Tanzania is significant and severe at the local level. The increase in temperatures and unpredictable rainfall patterns have disturbed the customary planting seasons and hindered crop development, leading to a significant decrease in agricultural output. The occurrence of extended periods of drought has increased, intensifying the difficulties related to the scarcity of water for both agricultural crops and cattle. The increased incidence of pests and diseases has escalated the strain on crops, specifically impacting essential food crops such as maize, rice, and wheat.

Furthermore, climate risks such as floods and storms have caused substantial harm to agricultural lands, infrastructure, and storage facilities, resulting in large losses after the harvest. The detrimental climate consequences not only present a substantial peril to the availability of food but also endanger the means of subsistence for millions of Tanzanian farmers. Consequently, there is an urgent need to promptly adopt climate-resilient agricultural practices and policies to alleviate these effects.

The sector with the largest emissions in Tanzania is land-use change and forestry, with agriculture being a close second. In response to the complex difficulties presented by climate change, the Tanzanian government has shown dedication by making significant investments in policies, plans, and strategies, as detailed in section 5. These measures emphasize the urgent need for a thorough and proactive response

to protect agricultural sustainability, food security, and the general resilience of the nation amid a changing climate.

5. An Assessment of Tanzania's Agricultural and Food Policies

Tanzania has a wide range of agricultural policies that operate at several levels to effectively guide and govern the country's agricultural sector. The following are essential publications that offer comprehensive advice for the nation's development:

- The Tanzania Development Vision 2025 (NDV 2025) is a document that sets forth the long-term vision for the development of Tanzania. It provides guidance for the overall national goals.
- The Long-Term Perspective Plan (LTPP 2011/12 - 2022/26) is a strategy roadmap that covers a ten-year period and emphasizes the long-term development outlook within certain timeframes.
- The Second Five-Year Development Plan (FYDP II 2016/17-2020/21) outlines precise developmental objectives and strategies for a five-year period, offering a systematic way to achieving short to medium-term targets.
- The policies relating to Agriculture and Food Security are summarized in Table 5. It is important to mention that there are additional policies now being evaluated. These encompass the Tanzania Development Vision 2025 (NDV 2025) and the National Agriculture Policy (NAP 2013).

Table 5: Policies and strategies for Agriculture and Food Security in Tanzania

Policy Name	Responsible Institution(s)	Main objective	Policy Focus
National Food Security Policy (NFSP)	Ministry of Agriculture and Food Security	Ensure food security for all Tanzanians by promoting food production, improving access to food, and enhancing the stability of food supplies, especially during times of crisis.	Food security
National Fisheries Policy	Ministry of Livestock and Fisheries	To enhance the livelihood of fisher-folk and aqua farmers by boosting their incomes and ensuring self-sufficiency in food of fish origin	Food security and Economic development
National Agricultural Policy	Ministry of Agriculture and Food Security	The Policy aims among others at fighting land degradation, favoring organic agriculture and the production of biofuel crop production for increased use as a renewable energy, and more broadly to take adequate measures to improve adaptation to climate change effects	Food security and Economic development
National Environmental Policy (NEP)	Ministry of Tourism and Natural Resources	Provide the framework for making fundamental changes that are needed to bring environmental considerations into the mainstream of decision making in Tanzania. It seeks to provide policy guidelines, plans, and give guidance to the determination of priority actions, and provides for monitoring and regular review of policies, plans and programme.	Environment

Policy Name	Responsible Institution(s)	Main objective	Policy Focus
National Livestock Policy	Ministry of Livestock and Fisheries	To boost the livestock sector, increase income, enhance food security, and promote environmental conservation while improving the quality of life for all stakeholders involved in livestock in the country.	Food security and Economic development
Food and Nutrition Policy for Tanzania	Ministry of Health	To eliminate malnutrition by improving the nutritional status of the Tanzanian community, particularly of women and children. ii)To ensure food security.	Food nutrition and Security
Kilimo Kwanza (Agriculture First)	Ministry of Agriculture and Food Security	To transform agriculture into a modern, commercial, and competitive sector by encouraging public and private investment, improving infrastructure, and enhancing agricultural value chains.	Agriculture Development
Agricultural Sector Development Program II (ASDP II)	Ministry of Agriculture and Food Security	Promote sustainable agricultural development, improve food security, and enhance income generation for farmers through various interventions, including infrastructure development, capacity building, and technology transfer.	Agriculture development, Food security and Economic development
National Forest Policy (NFP)	Ministry of Tourism and Natural Resources	Promote sustainable forest management, conservation, and reforestation, contributing to food security by safeguarding ecosystems crucial for agriculture and water resources.	Environment and Food security
National Agricultural Input Voucher (NAIVS)	Ministry of Agriculture	To increase access to quality agricultural inputs, such as seeds and fertilizers, for small-scale farmers, this improving productivity and food security.	Agriculture development and Food security

Source: (Ministry of Agriculture, 2023; Ministry of Livestock and Fisheries Development , 2015; Ministry of Agriculture, Food Security and Cooperatives , 2013; URT, 2021; Ministry of Livestock and Development , 2006; Ministry of Health , 1992; Global Agriculture and Food Security Program , n.d.; ASDP II, 2017; Ministry of Natural Resources and Tourism, 2018; Malhotra, 2013)

6. Significant Concerns Regarding Tanzania's Agricultural Policies

The Tanzanian government is now implementing its Agricultural Policy of 2013, a strategic framework aimed at the modernization of the agricultural sector. The current strategy has been reviewed several times to ensure its appropriateness and effectiveness in the ever-changing agricultural environment of the country (URT, 2013). In addition to the policy, there are several efforts in place to stimulate progress in technology adoption, promote market growth, and strengthen collaborations. Three such endeavors comprise the Agricultural Sector Development Programme (ASDP II), the Southern Agricultural Growth Corridor of Tanzania (SAGCOT), and the Kilimo Kwanza initiative. The objective of these projects is to improve productivity, boost output and incomes, strengthen resilience, and guarantee food and nutrition security throughout the country (SAGCOT, 2010).

The ASDP II programme, which spans a 10-year period and is divided into two implementation phases, plays a crucial role in facilitating Tanzania's agricultural transition. The initial 5-year stage is from 2018/2019 to 2023/2024, followed by a subsequent 5-year stage, from 2024/2025 to 2028/2029 (URT, 2013). ASDP II, in line with the Tanzania Development Vision 2025, aims to stimulate economic growth by giving priority to actions that advance the agricultural sector (ASDP II, 2017). The primary goal of ASDP II is to transform the agricultural sector, including crops, livestock, and fisheries.

The main objectives are to increase production, promote commercialization, and boost the income of small-scale farmers, with the ultimate goal of improving livelihoods and ensuring food and nutrition security in the country (ASDP II, 2017). The programme is organized into four primary components:

1. **Sustainable Water and Land Use Management** – seeks to enhance sustainable techniques for managing water and land, specifically for crops, livestock, and fisheries.
2. **Enhanced Agricultural Productivity and Profitability** – aims to boost productivity by implementing targeted interventions for key priority commodities.
3. **Market and Value Addition** – focuses on enhancing and broadening marketing channels, stimulating value addition through a dynamic and competitive private sector, and nurturing efficient farmer organizations.
4. **Sector Enablers, Coordination, and Monitoring & Evaluation** – focuses on enhancing institutions, providing favorable conditions, and implementing efficient coordination frameworks to ensure the overall success of ASDP II.

The Tanzanian government demonstrates a firm commitment to fostering agricultural growth, ensuring sustainability, and enhancing the welfare of its people, which is evident in the enactment of the Agricultural Policy of 2013 and initiatives like ASDP II, SAGCOT, and Kilimo Kwanza.

7. Policy Implications

The implications for policy in transforming Tanzania's agricultural sector are multifaceted and crucial for ensuring food security, economic growth, and sustainability amid the challenges posed by climate change. The following recommendations outline key policy considerations:

- **Diversification Beyond Rain-fed Agriculture:**

Recognizing the unreliability of rain-fed agriculture, policies should advocate for diversification strategies that go beyond dependence on rainfall. This includes exploring alternative irrigation methods, water management practices, and climate-resilient crops.

- **Building a Food Secure Society:**

Policies should shift focus from mere food production to building a food-secure society. Emphasis should be placed on decreasing malnutrition rates and ensuring the quality and nutritional value of food products. Considering the growing market in the SADC and EAC regions, policies should align with regional food security initiatives.

- **Youth Engagement through Strategic Programs:**

Addressing youth unemployment, policies should prioritize initiatives like BBT that specifically target the youth. By making agriculture more attractive through youth-oriented programs, the sector can tap into the potential of the younger generation.

- **Investment in Irrigated Farming and Modern Technologies:**

Policies should encourage increased investment and financial support for modern agricultural practices, including irrigated farming, screen houses, pack houses, and cold chain infrastructure. This investment aims to enhance the country's food self-sufficiency ratio, targeting an increase to 140-150%.

- **Research and Development for Biofortified Seeds:**

Policies should actively support research and development initiatives focused on biofortified seeds and tubers. Additionally, there should be a concerted effort to promote the use of safer technologies for micronutrient fortification during food processing, contributing to improved nutritional outcomes.

- **Modernization and Commercialization of Agriculture:**

Accelerating the modernization and commercialization of the agricultural sector is vital. Policies should embrace smart agriculture practices that are resilient to climate changes. This involves substantial investment in smart irrigation systems and the adoption of technology-driven farming methods.

- **Enhancing Productivity and Value Addition:**

Policies should prioritize enhancing productivity in the agriculture sector by focusing on irrigation schemes and modernizing livestock production and fishing. Value addition through policies supporting agro-processing and critical infrastructure development, such as irrigation systems and access roads, should be a key focus.

By implementing these policy considerations, Tanzania can fortify its agricultural sector against climate-related challenges, promote sustainable practices, and ensure a resilient, diversified, and economically vibrant food system (NBS, 2020).

References

Adhikari, U., Nejadhashemi, A. P., Herman, M. R. & Messina, J. P., 2016. Multiscale Assessment of the Impacts of Climate Change on Water Resources in Tanzania. *Journal of Hydrologic Engineering,* 22(2), p. 05016034. https://doi.org/10.1061/(ASCE)HE.1943-5584.0001467

AGRF, 2023. *Tanzania's Agricultural Sector Profile.* Dar es Salaam, Africa Food Systems Forum.

ASDP II, 2017. *Agricultural Sector Development Programme.* [Online]
Available at:
https://asdp.pmo.go.tz/index.php/about/category/overview#:~:text=The%20expected%20benefits%20from%20the,materials%20for%20the%20industrial%20sector.
[Accessed 10 October 2023].

FAO, 2023. *Food and Agriculture Organization of the United Nations.* [Online]
Available at: https://www.fao.org/docs/handinhandlibraries/countries/tanzania/tanzania_ppt-presentation-hih-rome-2023revab-18-oct-2023.pdf?sfvrsn=6ed281f7_1
[Accessed 9 October 2023].

FEWS NET, 2018. *Market Fundamentals Summary (Tanzania),* s.l.: Famine Early Warning Systems Network .

FEWSNET, 2021. *https://fews.net/sites/default/files/documents/reports/PB_TZ_202106.pdf.* [Online]
[Accessed 02 October 2023].

Global Agriculture and Food Security Program , n.d. *Global Agriculture and Food Security Program.* [Online]
Available at: https://www.gafspfund.org/sites/default/files/inline-files/KILIMO_KWANZA_RESOLUTION_-_FINAL%5B1%5D.pdf
[Accessed 10 November 2023].

Malhotra, K., 2013. *National Agricultural Input Voucher Scheme (NAIVS 2009 - 2012), Tanzania: Opportunities,* Dar es Salaam : Policy Research for Development .

Ministry of Agriculture, Food Security and Cooperatives , 2013. *National Agriculture Policy of 2013,* Dar es Salaam : The United Republic of Tanzania.

Ministry of Agriculture, 2023. *Ministry of Agriculture (Tanzania).* [Online]
Available at: https://www.kilimo.go.tz/index.php/en/about/national-food-security-division
[Accessed 10 November 2023].

Ministry of Finance , 2023. *The Economic Survey 2022,* Dodoma: The United Republic of Tanzania.

Ministry of Finance and Planning, 2022. *Speech of Government Budget (2022/23).* [Online]
Available at: https://www.mof.go.tz/uploads/documents/en-1676533687-SPEECH%20OF%20GOVERNMENT%20BUDGET%20FOR%202022-23.pdf
[Accessed 10 October 2023].

Ministry of Health , 1992. *The Food and Nutrition Policy for Tanzania,* Dar es Salaam : The United Republic of Tanzania.

Ministry of Livestock and Development , 2006. *National Livestock Policy ,* Dar es Salaam : The United Republic of Tanzania.

Ministry of Livestock and Fisheries Development , 2015. *National Fisheries Policy of 2015,* Dar es Salaam: The United Republic of Tanzania.

Ministry of Natural Resources and Tourism, 2018. *The National Forest Policy ,* Dar es Salaam : The UNited Republic of Tanzania.

Mtaki, B. & Snyder, M., 2022. *Grain and Feed Annual (Tanzania),* Dar Es Salaam : United States Department of Agriculture and Global Agricultural Information Network .

NBS, 2020. *Tanzanian National Bureau of Statistics.* [Online]
Available at: https://www.nbs.go.tz/index.php/en/census-surveys/agriculture-statistics/661-2019-20-national-sample-census-of-agriculture-main
[Accessed 13 November 2023].

NBS, 2022. *Tanzania Integrated Labour Force Survey 2020/21,* Dodoma: National Bureau of Statistics (Tanzania).

Omondi, P. A. et al., 2014. Changes in temperature and percipitation extremes over the Greater Horn of Africa region from 1961 to 2010. *International Journal of Climatology,* Volume 34, pp. 1262 - 1277. https://doi.org/10.1002/joc.3763

SAGCOT, 2010. *Southern Agricultural Growth Corridor of Tanzania.* [Online]
Available at: https://sagcot.co.tz/index.php/en/about/who-we-are
[Accessed 4 October 2023].

Statista, 2021. *Statista - International Trade.* [Online]
Available at: https://www.statista.com/statistics/1292356/distribution-of-exports-in-tanzania-by-product/
[Accessed 19 October 2023].

The United Republic of Tanzania Ministry of Agriculture, 2019. *The United Republic of Tanzania Ministry of Agriculture.* [Online]
Available at: https://www.kilimo.go.tz/resources/view/preliminary-food-crop-production-assessment-for-2019-2020-food-security-1

Torq Commodities, 2023. *The rise of Tanzania's Agricultural Sector: A look at the numbers.* s.l.:Torq Commodities.

URT, 2013. *National Agriculture Policy (2013),* Dar es Salaam : The United Republic of Tanzania.

URT, 2021. *National Environmental Policy,* Dar es Salaam: The United Republic of Tanzania.

Wambura, F. et al., 2014. *Tanzania CMIP5 Climate Change Projections.* s.l., s.n.

World Bank, 2016. *The World Bank.* [Online]
Available at: https://www.worldbank.org/en/country/tanzania/publication/tanzania-economic-update-the-road-less-traveled-unleashing-public-private-partnerships-in-tanzania
[Accessed 9 October 2023].

World Bank, 2023. *World Bank: World Bank Development Indixators (Tanzania).* [Online]
Available at: https://databank.worldbank.org/indicator/NY.GDP.PCAP.CD/1ff4a498/Popular-Indicators#
[Accessed 9 October 2023].