THE UNITED REPUBLIC OF TANZANIA

NATIONAL AUDIT OFFICE

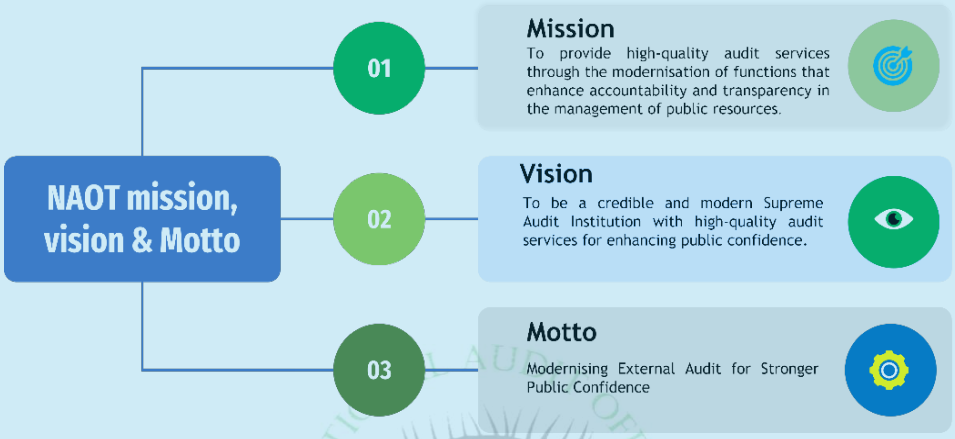
PERFORMANCE AUDIT REPORT ON THE MANAGEMENT OF AGRO-PROCESSING AND VALUE ADDITION OF CROPS

CONTROLLER AND AUDITOR GENERAL

MARCH 2023

About National Audit Office

The statutory mandate and responsibilities of the Controller and Auditor General are provided for under Article 143 of the Constitution of the United Republic of Tanzania, 1977 and in Section 10 (1) of the Public Audit Act, Cap. 418.



Independence and objectivity

We are an impartial public institution, independently offering high-quality audit services to our clients in an unbiased manner.

Teamwork Spirit

We value and work together with internal and external stakeholders.

Results-Oriented

We focus on achievements of reliable, timely, accurate, useful, and clear performance targets.

Professional competence

We deliver high-quality audit services based on appropriate professional knowledge, skills, and best practices

Integrity

We observe and maintain high ethical standards and rules of law in the delivery of audit services.

Creativity and Innovation

We encourage, create, and innovate value-adding ideas for the improvement of audit services.

PREFACE

Section 28 of the Public Audit Act, CAP 418 [R.E. 2021] gives mandate to the Controller and Auditor General to carry out Performance Audit (Value-for-Money Audit) to establish the economy, efficiency and effectiveness of any expenditure or use of resources in the Ministries, Departments and Agencies (MDAs), Local Government Authorities (LGAs) and Public Authorities and Other Bodies which involves enquiring, examining, investigating and reporting, as deemed necessary under the circumstances.

I have the honour to submit to Her Excellency, the President of the United Republic of Tanzania, Hon. Dr. Samia Suluhu Hassan, and through her, to the Parliament of the United Republic of Tanzania, the Performance Audit Report on the Management of Agro-processing and Value Addition of Crops.

The report contains findings, conclusions, and recommendations that are directed to the Ministry of Industry, Trade and Investment and the Ministry of Agriculture.

The Ministry of Industry, Trade and Investment and the Ministry of Agriculture had the opportunity to scrutinize the factual contents of the report and comment on it. I wish to acknowledge that discussions with the Ministry of Industry, Trade and Investment and the Ministry of Agriculture have been useful and constructive.

My Office will carry out a follow-up audit at an appropriate time regarding actions taken by the the Ministry of Industry, Trade and Investment and the Ministry of Agriculture in implementing the recommendations given in this report.

In completing the audit assignment, I subjected the draft report to a critical review of subject matter experts, namely Prof. Valerian C.K. Silayo from Sokoine University of Agriculture and Ms. Bertha John Mjawa, a retired Officer of the Ministry of Agriculture who came up with useful inputs for the improvement of this report.

The report was prepared by Mr. Ishengoma C. Rweyongeza (Team Leader), Mr. Staford A. Kazyoba and Ms. Trust F. Tweve (Team Members) under the supervision and guidance of Ms. Asnath L. Mugassa (Chief External Auditor), Ms. Esnath N. Henry (Assistant Auditor General) and Mr. George C. Haule (Deputy Auditor General).

I would like to thank my staff for their commitment in preparing this report. I also acknowledge the audited entities for their cooperation with my Office, which facilitated the timely completion of the audit.

Charles E. Kichere
Controller and Auditor General
United Republic of Tanzania
March, 2023

TABLE OF CONTENTS

LIST OF ABREVIATIONS AND ACRONYMS

ANSAF	Agricultural Non-State Actors Forum
ASDP	Agricultural Sector Development Strategy
ASIP	Annual Survey of Industrial production
CAMARTEC	Centre for Agricultural Mechanization and Rural Technology
CGS	Credit Guarantee Scheme
CSP	Corporate Strategic Plan
DID	Division of Industrial Development
DSME	Division of Small and Medium Enterprises
EAC	East African Community
FYDP	Five Years Development Plan
GDP	Gross Domestic Product
GDP	Gross Domestic Product
ICIPE	International Centre of Insect Physiology and Ecology
ISSAIs	International Organisation of Supreme Audit Institution
LGAs	Local Government Authorities
MATIs	Ministerial Agricultural Training Institutions
MDAs	Ministries, Departments and Agencies
MITI	Ministry of Industry, Trade and Investment
MoA	Ministry of Agriculture
MoU	Memorandum of Understanding
MT	Metric Tone
MTEF	Medium Term Expenditure Framework
MVA	Manufacturing Value Addition
NAOT	National Audit Office of Tanzania
NEDF	National Entrepreneurship Development Fund
NEMC	National Environmental Council
NFRA	National Food Reserves Agency
NGOs	Non-Governmental Organisation
NPHMS	National Post-Harvest Management Strategy
ODOP	One District One Product
OSHA	Occupational Safety and Health Authority
PH	Post-Harvest
PHMS	Post-Harvest Management Strategy
PO-RALG	President's Office Regional Administration and Local
RRF	Regional Revolving Fund
SACCOS	Serving and Credit Cooperative Organizations
SIDO	Small Industries Development Organisation
SIDP	Sustainable Industrial Development Policy

SMEs	Small and Medium Enterprises
SSR	Self Sufficient Ration
TAHA	Tanzania Horticultural Association
TANIPAC	Tanzania Initiatives for Preventing Aflatoxin Contamination
TBS	Tanzania Bureau of Standards
TCCIA	Tanzania Chamber of Commerce, Industry and Agriculture
TDCs	Technology Development Centers
TEMDO	Tanzania Engineering and Manufacturing Design Organisation
TIRDO	Tanzania Industrial Research and Development Organisation
TRA	Tanzania Revenue Authority
TZS	Tanzanian Shillings
VICOBA	Village Community Banking
WRRB	Warehouse Receipts Regulatory Board

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

The Agricultural sector in Tanzania contributes about 24.1 % of Tanzania's GDP, about 30% of export earnings and employs about 77.5 % of the total labour force (National Agriculture Policy, 2013). Agro-processing is a subsector that transforms agricultural produce into primary or intermediate products for reducing postharvest losses, prolonging shelf life, and improving availability, accessibility and stability of food.

In this regard, proper postharvest management lead to less food loss and waste, food and nutrition security, food safety as well as increased economic opportunities. On the other hand, food processing is a series of mechanical and chemical processes on food crops to change its natural state for either preserving or diversifying into other desired products. Similarly, value addition is the process of increasing the profit value and consumer attraction of a crop commodity.

The main objective of the audit was to assess whether the Ministry of Industry, Trade and Investment and the Ministry of Agriculture were effectively managing the activities for agro-processing and value addition of crops in order to reduce postharvest losses, improve quality, increase national food security, and increase the contribution of agricultural sector to the country's GDP. This is due to the fact that, the Ministry of Industry, Trade and Investment through the Small and Medium Enterprises Department has a supervisory role on food processing. Meanwhile, the Ministry of Agriculture is the sector leading Ministry that ensures the management of agro produce after harvest to enable the availability of quality and safe raw materials to agro-processors.

The audit covered five financial years, which was from the year 2017/18 to the year 2021/22. This is based on the fact that, the time frame selected reflects the period that the Government put more emphasis on industrialisation initiatives, through the Five-Year Development Plan of 2016/17-2020/21.

Main Audit Findings

Generally, the audit noted that, despite the efforts made by the Ministry of Industry, Trade and Investment and the Ministry of Agriculture, performance of the agro-processing industries was low. This situation was contributed by the ineffectiveness in the management of agro-processing and value addition of crops, as elaborated by the following evidence:

The Ministry of Industry, Trade and Investment Lacked Updated Information on the Extent of Implementation of Policy Strategies and Objectives Related to Agro-processing and Value Addition of Crops

The audit noted that, the Ministry of Industry, Trade and Investment lacked the current performance data for the implementation of the Small and Medium Enterprises (SME) Development Policy. For the last time, the SME Policy evaluation was conducted in the year 2017. The Policy Evaluation Report of 2017 revealed that, the overall implementation of objectives and indicators were achieved by 12.5% and 14% respectively, regardless of the key interventions to spearhead the growth of agro-processing and value addition of crops set in the policy.

It was further noted that, objectives and targets for the Small and Medium Enterprise Policy and Sustainable Industry Development Policy were implemented at an average of 25%. This implies that, about 75% of the strategies were not implemented. The strategies which were not implemented were mainly those related to SMEs access to finance, strengthening entrepreneurial culture, and markets for sustainable growth, strengthening the capacity of private sector organisation to achieve effective implementation of SME assistance programmes and interventions and those related to enhancement of rural industrialisation.

Moreover, insufficient funding mechanisms, lack of appropriate agro-processing technologies, and weak market linkages for the processed products were the major impact that resulted from the inadequate implementation of the Small and Medium Enterprise (SME) and Sustainable Industrial Development Policy (1996-2020).

In responding to this observation, the management of the Ministry of Industry, Trade and Investment explained that, in addition to the Policy evaluation that was conducted in 2017, it also, implemented a number of interventions. However, the Ministry could not submit evidence to indicate the interventions implemented after 2017 as a support of its explanation.

The Decreasing Trend of the Contribution of Agriculture Sector to National GDP

According to the Five Years' Development Plan, 2016/17-2020/21, the Ministry of Industry, Trade and Investment and the Ministry of Agriculture were expected to ensure that, the contribution of agricultural sector to GDP increased to 29.4% by 2020 with projected increase to 32% by 2025 through improved agricultural productivity.

However, the audit noted that, the contribution of agricultural sector to the National GDP was fluctuating for the past five years with a continuous decreasing trend. That is, from the Financial Year 2017/18 to the Financial Year 2019/20 it decreased from 28.8% to 26.6%. This performance trend was found to be below the Five Years' Development Plan set contribution target of 29.4% by 2019/20. Meanwhile, there was a slight increase to 29.7%% in the Financial Year 2021/22.

The Slow Rate of Growth of Performance of Agro-processing Industries in Tanzania

The audit noted a slow growth in the performance of the agro-processing industries as evidenced by the following performance indicators:
42% of Sunflower Oil Processing Industries were closed due to Shortage of Raw Materials

The audit noted that, 5 out of 12 sunflower industries assessed, equivalent to 42 %, were closed due to shortage of raw materials. It was also noted that, all of the visited twelve industries were operating at 33% to 83% below their installed capacity due to shortage of raw materials. Similarly, the Edible Oil Sector Report of November, 2022 reported that, for 12

sunflower processing industries assessed had inadequacy of raw of materials of about 1,334 MT. The report further indicated that, 25 % of the required raw materials are produced within the country while 75 % are imported from other countries.

As a result, the government spent a total of TZS 2.6 Trillion within Five Years from 2015/16-2019/20 for the importation of crude edible oil to curb the shortage of oil production. Moreover, the reported inadequacy and unsatisfactory quality of raw materials was linked to the subsistence mode of farming, low knowledge on quality and non-application of block farming that culminated into the provision of raw materials which were not adequate in terms of quality and quantity.

Agro-processing has Inadequately Contributed to the Reduction of Post-harvest Losses

Regardless of the establishment of the National Post-harvest Management Strategy (NPHMS), the audit found that, the established strategy did not indicate how the current levels of post-harvest losses, which account to 40% for cereals and higher for horticultural crops would be reduced annually. Lack of the aggregates of performance indicators over a 10 years' timeframe of implementation of NPHMS, anticipates the encounter of difficulties in assessing the strategy during its final evaluation.

Moreover, the baseline study for establishing Baseline Situation on Post-Harvest Losses of Food Crops undertaken in April, 2022, indicated that, post-harvest losses for different crops were; 15.1% for maize, 15.5% for rice, and 19.3% for cassava. These losses were found to be lower than 20% to the target set by the Malabo Declaration, in which Tanzania is a signatory. Bearing in mind that, the evaluation was undertaken in 7 districts in the country covering few crops hence, it was not an adequate representative sample to provide a national wide picture of the postharvest loss. Moreover, the post-harvest loss was noted to be higher than 40% for horticultural crops, which indicates a need for more efforts to reduce post-harvest loss incidences through improved agro-processing and value addition of crops.

Inadequate Facilitation of the Availability and Accessibility of Technologies for Agro-processing and Value addition of Crops

The Lead Firms Survey Report of 2022 from Tanzania Horticultural Association (TAHA) revealed that, processing machines and operation skills weighed about 50% among the 7 major demands or needs of agro-processors in the crops processing value chain. Regardless of the Ministry of Industry, Trade and Investment being mandated to ensure the availability and accessibility of agro-processing technologies, the audit noted that, the availability of technologies for agro-processing and value addition of crops was still a major setback affecting agro-processing industries. This was indicated by the following shortcomings:

Inadequate Capacity of the Available Technologies to Facilitate Agro-processing and Value addition of Crops

The audit noted that, in all 3 visited Technology Development Centers, the available technologies were inappropriate as they could not cover all processes of the crop value addition chain. In most cases, the available technologies were semi-manual and not holistic as they had no automated system to cover various processes in the value addition chain, For instance, fortification and packaging technology.

In addition, the audit noted that, SIDO inadequately transferred the technologies which it either developed or facilitated. Within the review period, it was further found that, there was no financial year in which SIDO transferred all of the technologies developed since, the rate of transfer ranged from 31% to 42% of all technologies developed. This was found to be contrary to the requirement of its strategic objective 5 (5.1) which requires SIDO to ensure value addition technologies are commercialised annually.

This implies that, the technologies developed by SIDO were inadequately reaching the agro-processors. This resulted in agro-processors using obsolete technologies which were less efficient to curb post-harvest losses and improve the quality of the agro-processed products.

The Shortage of the Required Machine Technologies

The assessment of the available technologies revealed that, there were different technological gaps for agro-processing and value addition of crops. Among the causes for the shortage of technologies was inadequate prioritisation of different technology development in the surveyed Technology Development Centers. Furthermore, the absence of research section at SIDO that could have assessed the technology gaps country wide and make them available in the country affected the accessibility and availability of technologies to agro-processors.

On the other hand, TEMDO is mandated to research and design machines to a level of a prototypes then provide the prototype machines to SIDO for mass production and making them available to the users through its Technology Development Centers. Despite of the said requirement, every institution works in isolation. As a result, technology gap continued to exist while agro processors succumb on obsolete technologies. Among the sampled crops, the noted gaps included technology on packaging, rice polishing and grading, tomato peeling, moisture analyser, fortification, briquettes, husks/by-products processing and oil refining.

The Use of Obsolete Technology for Agro-processing and Value Addition of Crops

It was revealed that, most of technologies used in the domestic industries for agro-processing were obsolete. This posed difficulties to obtain spare parts when there were the needs for the replacement. This claim was confirmed by all interviewed officials from SIDO, other private technology developers, and observation made by the audit team as they found obsolete machines in most of agro-processors with low performance.

Relatively High Price of the Available Local Technologies

The audit noted that, domestic technology developers faced a stiff competition from the imported technologies. This emanates from the fact that, the price of imported technologies was found to be relatively

cheaper compared to the price of domestic ones. For instance, the price of domestic manufactured Maize Hammer Mill with a production capacity of 300-1000 Kilograms per hour ranged from TZS 7.5 to TZS 10.5 million, whereas the imported one with the same capacity was priced at TZS 4.5 million.

Detailed assessment of prices are indicated in Table 3.9 found in section 3.3.2 of this report. Therefore, this was a clear manifestation that, TDCs operated by SIDO were weak to develop technologies that could compete with the imported technologies in terms of quality and prices. This was linked to low scale of production and availability of raw materials which in most cases were to be imported as well.

Moreover, interviews conducted to Officials from the visited SIDO's Technology Development Centers of Kigoma, and Mbeya Regions also confirmed that, the inadequate accessibility of technologies to agro-processors were caused by inadequate performance of Technology Development Centers as they lacked capacity in terms of working tools and shortage of the required human resources which was estimated to range at 81%.

MITI did not ensure the Availability and Accessibility of Adequate Markets for the Processed Products

The audit noted the following gaps related to availability and accessibility of markets to the processed agro-products:

Inadequate Enabling Business Environment that intends to Promote Internally Generated Products to different Consumers within and outside the Country

There was inadequate enabling business environment for promoting internally/locally generated products to different consumers within and outside the country. This was mainly caused by the responsible institutions and others such as the Ministry of Investments, Trade and Industries and Ministry of Agriculture and other stakeholders working in isolation. This is

based on the fact that, there was no coordination among stakeholders to promote an enabling business environment. For instance, farmers would not easily access information on the type and quality of crops or raw materials, which were needed by the available markets timely.

As a result, the farmers produced raw materials for agro-processing which could not meet the quality and quantity needed by the available markets within and outside the country. This led into unacceptance of the crops sold by the market culminating into a lack of markets and post-harvest losses.

Inadequate Market Linkage for Agro-processed Products

Regardless of exhibitions to be recognised as one of the means for improving market linkages, the assessment made by the audit revealed that, market linkages through exhibitions were adequate but highly affected by the inadequate number of exhibitions organised per annum. The audit noted that, SIDO did not manage to conduct 5 exhibitions per year as planned. Interviews held with officials from the visited Zonal Offices revealed that, this shortcoming was associated with inadequate resources, as SIDO depended on own sources set by different regions within the zones.

Inadequate Packaging for Agro-processing Activities

It was revealed that, 80% of small-scale millers did not pack their products, larger and medium scale millers (commercial millers) provided packages, and this accounted to only 20% of all the millers. Site visit to the processors for oil industries observed that, the packaging materials was a challenge as they were sold at a relatively high cost that ranged from TZS 960 to TZS 1100 for 50kgs bag at Songwe Region, compared to the unit cost of production for the small agro-processors. This situation led into individuals re-using the packages in order to serve cost. This ultimately compromised the hygiene of packages and the quality of products as well.

Similarly, Micro and Small-scale millers (toll milling) did not provide packages simply because the customers used to come with their own packages while others claimed that, they could not afford the cost of packages. Based on these facts, it was found that, 64% of small and micro scale millers were not having packages and only 36% of them had packages for their products.

Inadequate Financial Services to Agro-processors

Some of the Loans Services from SIDO were Inadequate and did not cover all the Regions

The interviews with all agro-processors revealed that, they had financial challenges regarding the implementation of their activities. It was further noted that, access to fund was inadequate as either agro-processors could not get fund timely or received inadequate fund to undertake different processing activities.

However, reviewed National Entrepreneurship Development Fund (NEDF) and Credit Guarantee Scheme Reports indicated that, the average financial assistance to SMEs for the 5 years was TZS 2,059,036.31 and TZS 31,611,274.51, respectively. It was noted that, the amount provided by NEDF was inadequate to sustain agro-processing activities. Despite the fact that, the amount supplied by Credit Guarantee Scheme (CGS) was moderate, only few applicants accessed the loan because of the stringent conditions therein, for instance, ago-processors were required to put a bond of a permanent structure as a collateral when applying for CGS loan.

It was further noted that, the amount received by individual beneficiaries was small to sustain agro-processing ventures. The percentage of loans disbursed annually ranged from 49% for the Financial Year 2018/19 and 51% for the Financial Year 2021/22. The applicants receiving National Entrepreneurship Development Fund (NEDF) loans were gradually decreasing when assessed on annual basis. On the other hand, NEDF loan scheme had few applicants not only because of complexity or compliance

to loan conditions but also the maximum amount of loan SME owner can access through this scheme was only TZS 2 million.

This amount was very low compared to the cost of production activities in agro-processing sector. Hence, NEDF loan scheme sounded ineffective for agro-processors perhaps to other SMEs that have activities of different nature. Thus, compel individuals to take CGS or other options.

Furthermore, the assessment made on CGS funding scheme noted that, the scheme was providing funds that could adequately suffice the agro-processing activities. The minimum average ratio of the loan to be issued to agro-processors were indicated to be TZS 26,250,000.00 while the maximum average amount of loan was observed to be 31,611,274.51. Despite the fact that, the amount of loan request funded under this scheme was high in comparison to that funded by NEDF, still it had few applicants due to complexity for compliance with loan conditions.

It should also be noted that, CGS loan scheme was specifically instituted for agro-processing SMEs only to complement NEDF but the amount provided still suffice only micro and to some extent small agro-processing and rarely medium size SMEs.

Inadequate Monitoring of the Performance of Agro-processing and Value Addition of Crops by MITI

In order to monitor effectively the performance of agro-processing, the Ministries were expected to have in place data base and tools for monitoring. However, it was noted that, the Ministry of Industry, Trade and Investment through SIDO Division lacked the database for the list of agro-processors and agro-processing industries, their location and their permanent addresses. Moreover, the audit found that, the Division responsible for Industry Development lacked updated information on the number of industries present in the country.

In an interview with Officials from MITI elaborated that, the absence of database for the industries was caused by inadequate implementation plan

as there were low prioritisation to the sector of agro-processing. However, the Medium Term Expenditure Framework of MITI indicated that, fund disbursement to the Division of Industrial Development was more than 80% for the past 4 years, with an exception of the Financial Year 2020/21 in which the disbursement decreased to 41%.

Despite of this fund disbursement, identification and registration of industries within the country was still slow. This was manifested by the fact that, up to the time of this audit, only 3 regions namely Dar es Salaam, Coastal and Morogoro out of 26 regions in Tanzania Mainland had achieved the target. This achievement was equivalent to 12% of the overall target. The audit further noted that, the identification and registration activity was slow even though it started in the year 2020/21 and was expected to be completed in the year 2021/22.

Furthermore, it was noted that, the last industry survey report on identification and registration of industries present in the country was done in 2012, which is 11 years back. However, in the year 2022, the Ministry undertook a survey to establish a data base of only maize milling industries leaving out industries for other crops. This alone could not adequately help to establish a data base of agro-processing sector in the country.

Inadequate Coordination between MITI and MoA in Managing Agro-Processing Activities

The following challenges related to coordination were noted in the audit:

Overlapping of Functions for Managing Agro processing and Value addition of crops among the Ministries

Overlapping of functions between the Ministries was a challenge in managing agro-processing and value addition of crops. The audit noted the existence of duplication of efforts between the Departments responsible for managing agro-processing and value addition of crops in the Ministry of Industry, Trade and Investment and the Ministry of Agriculture. It was

further noted that, both Ministries had a Department responsible for marketing, with the same functions of searching for markets within and outside the country. It was also noted that, the establishment instruments for these two Ministries could not indicate clear boundaries of roles between them with regard to the marketing of the agro-processed products.

Similarly, some of the functions between these two Ministries overlapped. For instance, in the Ministry of Agriculture, the agro-processing and value addition activities were done through the Division of Agro-mechanisation, while the same activities were also done through the Divisions of Small and Medium Enterprises and Industry and Development in the Ministry of Investments, Industries and Trade. Besides this overlapping of functions, the audit also noted that, the Ministries lacked established formal mechanisms for sharing information regarding agro-processing and value addition of crops.

Absence of *Coordination between SIDO and other Technology Research Institutions*

The audit noted weak coordination between SIDO and research organisations such as TEMDO and TIRDO in order to develop technology research output. Research institutions were supposed to research on different technological needs and then produce prototype machines. The produced prototype machines were supposed to be produced in mass and be disseminated to different users. Despite of these research institutions being in place, SIDO had inadequately acquired technology from these research institutions. This was linked to the absence of coordination mechanisms because these institutions as they were working in isolation and there was no any evidence suggesting adequate sharing of information between these research institutions with SIDO.

However, the absence of coordination between research institutions and SIDO was also attributed to the inherent mentality of production for self-sustainability. Based on this, each institution was not ready to disclose its technology for the fear of creating competition of the same technology

produced with other institutions regardless of all these institutions operating their activities under the same parent Ministry.

Audit Conclusion

The Audit Team acknowledges the efforts shown by the Ministry of Industry, Trade and Investment and the Ministry of Agriculture with regard to the management of agro-processing and value addition of crops. However, several inefficiencies were noted and calls for more interventions for further improvement. Basing on the fact that, agro-processing and value addition of crops is among of the essential elements required to revamp the economy of the country through its contribution to the GDP. Therefore, improvements of the management of this subsector are of vital importance.

Generally, it is concluded that, the Ministry of Industry, Trade and Investment and the Ministry of Agriculture were not effectively managing the activities for agro-processing and value addition of crops in order to reduce postharvest losses, improve farmers economy and increased contribution of agricultural sector to the country's GDP.

The Ministries inadequately ensured the provision of conducive business environment to agro-processors. The needed agro-processing and value addition technologies were still inadequately available to the majority of small and medium agro-processors, and the few available were not easily accessible due to relatively high cost.

As a result, there was insignificant improvement in postharvest losses averaging to 40% of all harvested produce and low quality of processed crops products that were not competitive in the external market. However, inadequate mechanisms for facilitating availability and accessibility of the needed processing and value addition technologies, weak coordination and monitoring were the main causes for the underperformance of the agro processing activities.

Furthermore, increased trend of postharvest losses resulted in the shortage of raw materials for efficient operation of the available agro-processing industries as well as putting risk to the national food security as marked by the marginal food security data/ existence of agro processing industries that were not functional. Similarly, the absence of effective mechanisms for funding and implementation of the available strategies, were also the causes for the ineffective management of agro processing and value addition of crops.

Audit Recommendations

Recommendations to the Ministry of Industry, Trade and Investment

The Ministry of Industry, Trade and Investment is urged to:

1. Foster the Capacity Development Strategy of Technology Development Centers to be able to manufacture machines with sophisticated technologies;

2. Devise mechanisms for reducing cost of internally manufactured machines through lobbying for subsidised imported machinery and raw materials s to enable easy accessibility of the available technologies to agro-processors;

3. Enforce effective implementation of the existing Memorandum of Understanding (MoU) between SIDO and TBS to facilitate timely acquisition of Standard Mark/certification in order to assure quality of the processed agro-products for attraction of internal and external markets;

4. Establish an alternative strategy to supplement exhibitions made at National and Zonal levels to ensure the adequate availability and accessibility of internal and external markets;

5. Provide good working environment to agro-processors in collaboration with stakeholders to ensure the availability of quality

packages in order to improve access to markets for the agro-processed products;

6. Devise mechanisms for coordinating with the Ministry of Agriculture by defining clear boundaries in the functions regarding the activities in various areas especially marketing and agro-processing;

7. Ensure that, SIDO establishes an ICT system for capturing its activities among other being registration of SMEs and consultancy services provided. The system should enable SIDO to keep database and update status of SMEs in order to track their development in the industry sector; and

8. Ensure SIDO has adequate coordination between SIDO and Technology Developers such as TIRDO, TEMDO and CAMARTEC in order to undertake mass production of the prototype researched.

Recommendations to the Ministry of Agriculture

The Ministry of Agriculture is urged to:

1. Ensure agricultural production through block farming is effectively implemented to improve the availability of raw materials to cover the existing gap of variability of raw materials for agro-processing industries. This will also help to provide quality raw materials that suit the existing agro-processing technologies;

2. Devise mechanisms for coordinating with the Ministry of Industry, Trade and Investment to avoid duplication of activities in various areas such as marketing and agro-processing activities; and

3. Effectively implement Postharvest Management Strategy and Report its Implementation to ensure the availability of quality, products for agro-processors.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Audit

The Agricultural sector in Tanzania contributes about 24.1% of Tanzania's GDP, about 30% of export earnings and employs about 77.5% of the total labor force. (National Agricultural Policy, 2013). Agro-processing is a subsector that transforms agricultural produce into primary or intermediate products for reducing postharvest losses, prolonging shelf life, improving the availability, accessibility and stability of food as well.

In this regard, all essential activities involved are collectively termed as postharvest management. Post-harvest management is a complex phenomenon as it has a multiplicity of systems and methods meanwhile, it is also compounded by a diversity of crops and involvement of many key players. Good postharvest management results into less food loss and waste, food and nutrition security, food safety as well as increased economic opportunities.

Despite having a favorable agricultural climate, Tanzania is still lagging behind in agro-processing and as a result, the country highly depends on imported food products. This phenomenon has also contributed to existence of stunted growth among children in Tanzania. Although the percentage of stunted children decreased from 42% to 32% in 2015/16. When considering the nature of the problem, this percentage is still high statistically.

Meanwhile, it is estimated that 2.7 million children are stunted which is equal to 34% of all children in Tanzania. In rural areas, under nutrition is severe since and more children are affected and the stunting prevalence percentage was indicated to be 37.8%. In order to combat malnutrition issues, the use of fortified supplements as a value addition in agro-processed crops is more recommended.

In the Sub -Saharan countries food loss is estimated at 39% at harvesting, 37% at handling and storage, 13% at distribution and marketing. On the other hand, in the sub-Sharan countries food waste is estimated at 5% during consumption and 7% during processing.

Regardless of having a favorable agricultural climate that support a variety of a crops, Tanzania still lag behind in agro-processing as a result, the country is highly dependent on imported processed food products.

Similarly, the edible Oil Sector Report of November, 2022 reported that, 25 percent of the required raw materials are produced within the country while 75 percent are imported from other countries.

As a result, the government has spent a total of TZS 2.6 Trillion within Five Years from 2015/16-2019/20 for the importation of crude oil to curb the shortage of oil production.

The number of agro-processing activities in Tanzania is limited as most of the agro products are exported in their raw forms. Measures should be taken to ensure an increase in processing ventures which will develop Tanzania's economy by reducing the balance of payments through increasing exports while reducing imports (Tanzania Industrial Competitiveness Report, 2015).

According to the East African Community (EAC) Geneva Forum on the Agro-Processing Trade, 2015, it was pointed out that, despite the notable potential loss caused by post-harvest factors, the level of agro-processing is very low. This is mainly linked to inadequate infrastructure development in the rural areas. In this regard, While Tanzania needs to boost agro-processing and resource so as to increase value addition, these manufactured products offer new value capture-opportunities as primary exports tend to be highly vulnerable to the market.

High operational costs mainly because of high prices of imported fuel, unavailability of appropriate processing technology, spare parts and limited knowledge in the operation of the machines. Regardless of these constraints, agro-processing has a great potential for increasing incomes through value added commodities, increased shelf life and increase food

security by improving small-scale agro-processing businesses and rural agro-based industries (Agricultural Marketing Policy, 2008).

After a decade of manufacturing upsurge, Tanzania is today at crossroads. Despite the significant and fast expansion of its manufacturing output, the industrial performances of Tanzanian firms have started slowing down since 2010.

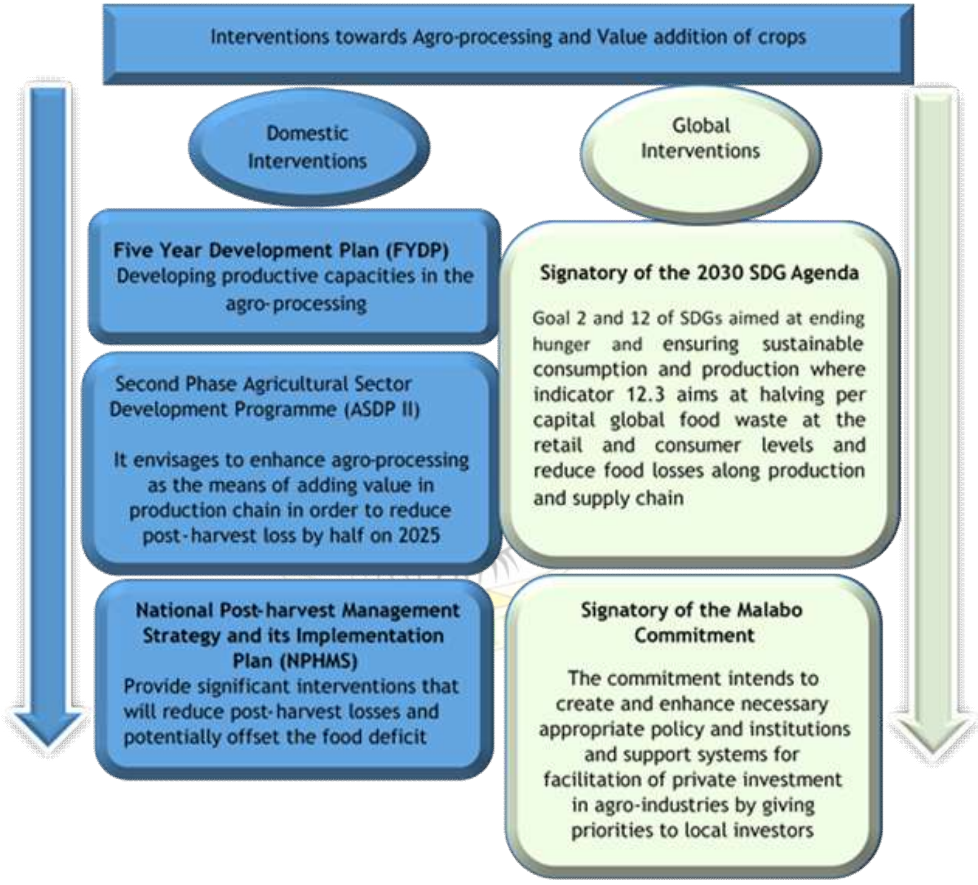
The capacity of manufacturing firms to increase value of crop commodities, diversification of their production output towards more advanced products is also lagging behind. Critically, the domestic production system has remained very articulated and there are no signs of increasing development of backward and forward linkages between local manufacturing industries.

According to Tanzania Industrial Competitiveness Report, 2015, Manufacturing export indicators, both within regional and international markets, have raised similar worries about the nature of the Tanzanian industrialization process.

Furthermore improved agro-processing activities contributes in reducing post-harvest losses in the country. According to the National Post-harvest Management Plan, 2018, it was indicated that, post-harvest losses affect household's food security and erode profit by reducing marketable volumes handled by the actors.

The advantages of increased production and productivity could not be achieved if the actors do not have the capacity to mitigate the high post-harvest losses. This was due to the fact that, if it was mitigated it would have provided an opportunity to improve food security, increased income, better health and a sustainable environment. To halt the effect of post-harvest losses, the Government had come up with different interventions in domestic and globally as demonstrated in **Figure 1.1.**

Figure 1.1: Domestic and Global Interventions on Post-Harvest Loss



Source: *Auditors' Analysis Using Different Strategic Documents (2022)*

1.2 Motivation for the Audit

Agro-processing was the dominant manufacturing sub-sector. The 287 agro-processing companies in the Annual Survey of Industrial Production (ASIP) account for 55% of total formal manufacturing output and 65% of total employment. More than 80% of agro-processing companies were small and served domestic markets.

Different scholars and various reports have pointed out the importance and challenges related to the management of agro-processing and value addition of crops at international and national levels. The audit was motivated by reported challenges of the afore mentioned agro-processing

sector challenges such as declining performance trends of agro-processing activities, which call for more improvements in order to maximise benefits of agricultural sector through improved management of agro-processing and value addition of crops. This is detailed as follows:-

(a) Unsatisfactory Performance of Agro-processing and Value Addition of Crops

The Tanzania Industrial Competitiveness Report 2015 has indicated that, since 2010 Tanzania continued registering an increase in its overall Manufacturing Value Addition (MVA), but the speed at which the industrial sector is expanding, has been reported to be significantly slowed down. This is based on the fact that, the average annual growth rate in Tanzania's MVA has declined from roughly 9% during the first decade of 2000 to under 6% for the years between 2010 and 2013 (Tanzania Industrial Competitiveness Report, 2015).

Moreover, the decreasing trend was also reflected in the main indicator of industrial capacity in Tanzania, which discounts differences in country size. The report further indicated that, Tanzania's Manufacturing Value Addition (MVA) per capita in 2013 stood at USD, 46 million behind other African countries such as Kenya, Mozambique and Zambia which recorded MVA per capita of USD 55 Million, USD 49 Million and USD 55 Million respectively. Furthermore, up to 2022, Tanzania MVA per capita was USD 3,654 Million which was lower compared to the same quarter of the year 2020 which had MVA of USD 4,774 Million.

Therefore, this decreasing trend suggest that, the improvement in the management of agro-processing and value addition of crops are vital for supporting growth of agro-processing firms, extending base of sources of government revenues and increasing food security.

(b) Reported Case for the Loss of 204 Metric Tons of Cassava Due to Lack of Market

In June, 2022, the Tanzanian Independent Television (ITV) reported that, 204 Metric Tons (MT) of cassava was lost due to market unpredictability. It was further reported that, initially the buyer promised to buy more than

300 MT of cassava and that being the case, farmers took loans amounting to TZS 2 billion from the National Microfinance Bank (NMB) so that they could produce cassava as per the buyer's need. Notwithstanding to the efforts put forth by the farmers, the buyer only managed to buy 125 MT of cassava leaving more that 200MT unsold, which resulted in post-harvest losses. Because of this, farmers failed to recover the amount of loans taken from the bank and the security of their collaterals was jeopardized. Hence, the lack of marketing structures, poor market linkages due to informal marketing arrangements and inadequate communication that constrain access to marketing information resulted into this high level of post-harvest losses.

(c) Contribution to the attainment of Sustainable Development Goals

It is anticipated that, the improvement in the management of agro-processing and value addition of crops will facilitate attainment of the Sustainable Development Goals No. 2 and 12 that entail to *end hunger, and achieve food security and improved nutrition and promote sustainable agriculture*. This emanates from the fact that, implementation of agro-processing and value addition of crops will improve food supply to community due to the reduction of post-harvest losses through processing. This in turn, increase shelf life of the respective produce. Also, the nutrition status will be uplifted because the agro-processed produce will have its value added through bio fortification. In this regard, the implementation of recommendations of this audit will increase food and nutritional security.

Similarly, the Sustainable Development Goals ensure sustainable consumption and production patterns, with indicator 12.3 targeting halving per capital global food waste at the retail and consumer levels and reduce food losses along production and supply chain. That being the case, agro-processing and value addition of crops are essential to ensure that, post-harvest losses are reduced along the supply chain by increasing shelf life of the produce that could have been wasted. Tanzania being among the countries that have retained and agreed to the implementation of SDGs is therefore, responsible in ensuring that, these goals are properly attained.

Based on these facts, the Controller and Auditor General decided to carry-out performance audit on the management of agro-processing and value addition of crops. The intention was to examine performance of the Ministry of Industry, Trade and Investment and the Ministry of Agriculture and recommend areas for further improvement.

1.3 Design of the Audit

1.3.1 Audit Objective

The main objective of the audit was to assess whether the Ministry of Industry, Trade and Investment and the Ministry of Agriculture were effectively managing the activities for agro-processing and value addition of crops in order to reduce post-harvest losses, improve quality, increase national food security, and increase contribution of agricultural sector to the country's GDP.

Specific Objectives

In order to address the main audit objective, four specific audit objectives were used. The specific objectives were to assess whether:

(a) MITI has ensured availability and accessibility of adequate technologies for agro-processing and value addition of crops;

(b) MITI has facilitated the availability and accessibility of markets to agro-processors;

(c) There is effective coordination between the Ministry of Agriculture and the Ministry of Industry, Trade and Investment in managing the agro-processing activities; and

(d) MITI monitored and evaluated its performance regarding the management of agro processing industries.

1.3.2 Audit Scope

The main audited entities were the Ministry of Industry, Trade and Investment and the Ministry of Agriculture. The MITI through its Small and Medium Enterprises Department has a supervisory role on agro-processing activities. Meanwhile, the Ministry of Agriculture is one of the sector leading Ministries that ensures the availability of raw materials to agro-processors and value addition of crops.

On the other hand, technology developers such as SIDO and TEMDO being the designated bodies under the MITI responsible for ensuring availability and accessibility of agro-processing technologies were also covered.

Specifically, the audit assessed the extent to which the Ministry of Industry, Trade and Investment manages the activities on agro-processing and value addition of crops. It focused the availability and accessibility of adequate technologies for agro processing and value addition of crops, markets, monitoring and coordination of agro-processing and crop value addition activities.

Regarding the availability and accessibility of adequate agro-processing technologies, the audit assessed the easiness of access to appropriate technologies for agro-processors. Timely availability of technological services was also assessed. Moreover, the audit assessed the interventions put forth by the Ministry of Industry, Trade and Investment to ensure that, markets are available and accessible to agro-processors. In this regard, the audit assessed the availability of enabling business environment for promoting products of the agro processing industries both internally and externally, availability of financial services as well as monitoring of price of products.

Concerning monitoring and evaluation aspect, the audit assessed the plans put in place to ensure the agro-processing activities are adequately supervised by the Ministries and effectiveness of the monitoring and evaluation performed by the Ministries. Lastly, the audit assessed the effectiveness of the coordination between the Ministry of Agriculture and the Ministry of Industry, Trade and Investment in implementing their roles. As such the audit sought of the availability of mechanisms that enables

effective coordination by the Ministries when implementing interventions for the agro-processing and value addition of crops. The assessment has also considered effective sharing of information to enhance business linkage in agro-processing.

The audit also assessed agro-processing at the levels of small and medium processing as these comprise the majority of agro processing activities. The assessment included agro processing activities from the availability of quality raw materials up to marketing of the already processed materials.

With regard to the categories of crops, the focus was on the four categories of agro products falling under cereal, horticultural, root and tubers and oil seed crops. Thus, the focus was on maize, rice, tomatoes, cassava and sunflower as the major crops. Maize and rice were assessed because they are considered to be the main food crops in most of the regions of the country, which in case of their shortage the country is considered to be famine stricken. Bearing in mind that, the country recently run short of edible oil thus, sunflower as the main source of edible oil was assessed. In addition to that, tomatoes being in horticultural group with high perishability tendency, with high need of being processed to increase their shelf life was assessed as well.

However, the audit was supposed to cover the entire country but data was collected from only five regions to establish the effectiveness of the Ministries in managing agro processing and value addition of crops' activities. Detailed sampling criteria is as indicated in section 1.4.1 of this Report. The audit covered the period of five financial years from 2017/18 up to 2021/22 in assessing major interventions as provided by the Ministry of Agriculture and the Ministry of Industry, Trade and Investment, and the organisations under MITI (SIDO and TEMDO) responsible for provision of technology development and other services in agro-processing and value addition of crops.

The five year period was chosen because it is the period whereby the government has put much emphasis on industrialisation initiatives, through the Five Year Development Plan of 2016/17-2020/21. In this regard, the period chosen was considered to be an appropriate timeframe to assess how SMEs mainly agro-processing industries have evolved and changed in

attaining the overall government industrial development objectives. Detailed main audit questions and sub-questions are presented in ***Appendix 2***.

1.3.3 Assessment Criteria

The assessment criteria were drawn from various guiding documents, which provide mandates to the audited entities to perform their functions. Such guiding documents included; policies, legislations, standards, good practices and strategic plans of Small Industries Development Organisation, the Ministry of Industry, Trade and Investment and the Ministry of Agriculture.

The following are the assessment criteria for the management of agro-processing and value addition of crops:

(a) Availability and Accessibility of the Needed Technologies for Agro-processing and Value Addition of Crops

The Government through the Ministry of Industry, Trade and Investment is required to facilitate acquisition and adaptation of technologies as well as to enhance networking between Research and Development Institutions and SMEs in a bid to upgrade technologies so as to raise the productivity and competitiveness of the agricultural and industrial sectors. This is according to Section 5.3.4 of the Small and Medium Enterprises Policy, 2003.

Section 4.1.1.3 of the National Agricultural Policy, 2013 requires MoA in collaboration with Research and Development Institutions to promote research on agro-processing technologies.

Furthermore, Section 5 (k) of SIDO Act of 1973, requires the Ministry of Industry, Trade and Investment through SIDO to be involved or assist any institution or person in undertaking technological research and to encourage and promote techno-logical advancement in Tanzania. This includes the ones used for agro-processing and value addition.

Moreover, Section 5.1 of the Strategic objective 5 of SIDO Corporate Strategic Plan targeted to establish and commercialise five value addition technologies annually.

In addition, the strategic objective B of Post-harvest Management Strategy, 2019 requires MoA and MITI to ensure the promotion of the availability, accessibility, and adoption of tested technologies to reduce post-harvest losses. Under this objective, the targets were to disseminate the available technologies, support and facilitate the usage of proven technologies, and sensitise adoption of efficient processing unit(s).

(b) Availability and Accessibility of Markets for the Processed Products

According to the National Agricultural Marketing Policy, 2013, agricultural products' markets are crucial for the development of agricultural commodities in stimulating agricultural production. In this regard, the policy intends to enhance capacities of agricultural marketing actors in meeting quality grades and standards for the domestic, regional and international markets.

Moreover, the policy intends to strengthen collection, analysis, storage and dissemination of agricultural marketing data at all levels.

In addition, Section 5.3.5 of the SME Policy, 2003, states that, the Government, for this case MITI, shall facilitate support programmes aimed at improving SMEs' access to markets by promoting business linkages between large and small enterprises, strengthen marketing agencies and institutions that support SMEs and create SMEs bulk provision systems through cooperative mechanisms. Also, MITI is required to facilitate SMEs participation in local and international markets through trade fairs and missions and establish SMEs exhibition centres as well.

Furthermore, Section 5 (f) of SIDO Act of 1973, requires the Ministry of Industry, Trade and Investment through SIDO to carry out research in the development of small industries and marketing of products thereof, including the standard and quality of such products. Market research of products includes markets for processed products or value added crops.

In addition, strategic objective 6 of SIDO Corporate Strategic Plan, 2017 targeted to ensure the availability and accessibility of markets. The strategy was set to ensure that, SMEs products are promoted, display centres are established and improved, SMEs are facilitated to fulfil quality and standards of packaging and SIDO Services are promoted.

(c) Coordination between MITI and MoA in the Implementation of Agro-processing and Value Addition of Crops Interventions

The Small and Medium Enterprises Policy, 2003 requires the Ministry of Industry, Trade and Investment to have the overall responsibility for coordinating the implementation of the SMEs Development Policy.

Moreover, Strategic Objective F of the National Post-harvest Management Strategy, 2018 requires the strengthening of institutional capacity, coordination, partnerships and stakeholders' participation of post-harvest management actors to enhance implementation of strategic interventions at national, regional and local government levels by 2020. This strategy targeted to undertake the following interventions:

- Identify and document institutions involved in post-harvest handling;
- Sensitize and create awareness to institutions involved in decision making;
- Strengthen National Coordination in the Ministry;
- Provide sufficient working tools to the National Coordination Unit; and
- Support operations of the National Coordination Unit.

(d) Monitoring of Agro-processing and Value Addition Activities

SME Development Policy (2003) requires MITI to coordinate the implementation of SMEs policy, collection, compilation and analysis of various programmes addressing the policy objectives. The Policy further requires MITI to ensure that, SMEs related components articulated in the SMEs policy are adequately implemented, harmonised and coordinated.

On the other hand, SIDO Corporate Strategic Plan (2018-2022) requires SIDO to monitor the implementation of its activities in order to maintain or improve its performance over time to ensure that, targets are achieved as planned. The Corporate Strategic Plan further requires SIDO to carry out continuous monitoring and evaluation to ensure gradual assessment of implementation progress and realisation of the intended objectives. This is attained by obliging SIDO to track service delivery effectiveness by observing performance indicators on efficiency and productivity, SMEs business growth and product quality as well as indicators on employment creation capacity.

Furthermore, the Agricultural Sector Development Programme Phase II (ASDP II), under its component 3 of commercialisation and value addition, aims at having improved and expanded rural marketing and value addition promoted by a thriving competitive private sector and effective farmers' organisations. Its priority investment area is on development of processing and value addition of crops.

1.4 Sampling Techniques , Methods of Data Collection and Data Analysis

1.4.1 Sampling Techniques

In order to cover targeted and relevant samples that will provide rich and informative information for the audit, the purposive sampling was used to select categories of agro-processing industries, crops and regions covered by the audit as follows:

Sampling of Categories of Aspects (Agro Processing Industries) to be assessed

Purposive sampling was used to select categories of agro-processing industries. Generally, the agro-processing industries were categorised into small, medium and large scale processors. The audit covered two among these three categories, which were small and medium processing industries because the categories comprise the majority of agro-processing activities and provide more employment when compared to large scale agro-processing industries.

Also, the two categories were selected in order to compare the efforts put in place by MITI in developing and promoting the Small and Medium processors to ensure more contribution of the sector to the economy is achieved. Also, it aimed at assessing the efforts put forth by the government to ensure the Small and Medium processors graduate to large scale processors.

Sampling of Categories of Agricultural Crops Assessed

Under the Small and Medium processing industries/activities, the major processed food crops fall under four categories namely; cereals (maize, rice, wheat and sorghum), horticultural crops (tomatoes, onions, vegetables, flowers, fruits, spice, e.tc), roots and tubers (cassava, sweet potatoes, yam potatoes, e.tc) and oil seeds (sunflower, groundnuts, palm e.tc.). The Audit covered all the four categories of crops namely cereals, horticultural crops, roots and tubers and oil seeds in order to obtain a comprehensive assessment of the agro-processing subsector and compare the performance of the Ministries in these categories as well.

Sampling of Agricultural Products to be assessed

The audit selected at least one of agricultural crops from each category, such as maize and rice from cereals category, tomatoes from horticultural category, cassava from roots and tubers and sunflower from oil seed category. The selection considered two factors: level of priority given to the crop by the government and its expected potential for adding value specifically in the contribution of national economy, as elaborated below:

(i) ***Level of Priority Given to the Product:*** Based on the level of initiatives and strategies taken by the government for the past five financial years, the audit ranked the products as high, low and medium prioritised products. Thus, products in which the government had put much efforts in developing and promoting were ranked as highly prioritised, while products which received few initiatives were ranked as medium and products that the government had not taken initiatives were ranked as low prioritised.

In this case, for each category, the audit selected crops that were ranked high, medium and low. The selected crops included maize, rice and sunflower ranked as high priority, tomatoes ranked as low priority and cassava ranked as medium priority crops. In addition, rice and maize were considered the most prioritised crops in the country, because at their deficit, the country is declared famine stricken. Meanwhile, sunflower is the major source of edible oil. Its deficit leads the country to spend more foreign currency for edible oil importation.

(ii) ***Expected Potential Impact for Adding Improvement:*** Under this criterion, crops were assessed and ranked as high, medium and low based on their potentiality in their contribution to the national economy. Therefore, the Audit Team selected all those crops that had indicated high possibility for improvement if well managed. Under this maize, rice, tomatoes, cassava and sunflower met the criteria for selection.

In combining the two factors, crops that were selected included maize, rice, tomatoes and sunflower as detailed in **Table 1.1.**

Table 1.1: Types of Agricultural Crops Assessed under this Audit and Factors Used for their Selection

Category of Agro-Processors	Types of Agro-products processed	Priority Given by the Government (Low, Medium, High)	Potential Impact in National Economy (Low, Medium, High)	Comment on Selection (Yes/No)
Small and Medium Scale Processors	**Cereal Crops**			
	Maize	High	High	Yes
	Rice	High	High	Yes
	Sorghum	Low	Low	No
	Wheat	Low	High	No
	Horticultural Crops (Fruits Vegetables, Flowers, Spice, and Herbs)			
	Tomatoes	Low	High	Yes
	Onions	Low	Low	No
	Vegetables	Low	Low	No

Category of Agro-Processors	Types of Agro-products processed	Priority Given by the Government (Low, Medium, High)	Potential Impact in National Economy (Low, Medium, High)	Comment on Selection (Yes/No)
	Flowers	Low	High	No
	Spices and Herbs	Low	High	No
	Oil Seed Crops			
	Sunflower	High	High	Yes
	Groundnuts	High	Low	No
	Palm	Low	High	No
	Root and Tubers()			
	Cassava	Medium	Medium	Yes
	Potatoes	Medium	Medium	No

Source: *Auditors' Analysis on the Types of the Assessed Agricultural Crops (2022)*

Sampling of Regions Covered in Different Geographical Zones

The sampling of regions involved the following procedures: First, in each zone, regions were analysed and ranked as high, low and medium based on the extent of availability of the selected agricultural crops based on the data provided by National Bureau of Statistics (NBS). Then, the Audit Team selected regions from each zone that was ranked with maximum performance/high score for the sampled agricultural crops.

From the analysis done, out of 25 regions present in Tanzania mainland, five regions were selected namely Shinyanga, Mbeya, Lindi, Dar es Salaam and Dodoma, which had maximum score based on the selected agricultural crops (maize, rice, tomatoes, cassava and sunflower) and availability of technology developers. Summary of the selected regions is as indicated in **Table 1.2** below;

Table 1.2: Selected Regions from Administrative Geographical Zones

Zone	Regions in Zones	Selected Regions	Reasons for Selecting the Region
Lake Zone	Mwanza, Shinyanga, Kagera, Mara, Simiyu and Geita	Shinyanga	Highly producing and processing two of the sampled crops (rice and maize). Moreover, in Shinyanga there is an established Technological Development Center (TDC) that gives added advantage in our selection criteria.
Central Zone	Dodoma, Singida, and Manyara	Dodoma	Dodoma was selected because it produces sunflower to a large extent. Moreover, in Dodoma there are different Ministries responsible in governing agro-processing activities.
Southern	Mtwara, Lindi, Ruvuma, Rukwa	No	No region was selected under this zone as they did not qualify for selection.
Eastern	Dar es Salaam, Morogoro, Coastal	Dar es Salaam	Dar es Salaam is not producing much but it receives more consignment of crops from different production regions for processing and consumption. In Dar es Salaam the team was able to assess the availability of technology compared with other regions.
Northern	Tanga, Arusha, Kilimanjaro	No	Arusha is highly producing and processing maize and tomatoes in the country and has an added advantage as it has technology developer (TEMDO), responsible for different agro-processing technologies but was not selected. Data was collected during the pre-study and further information was collected through the Ministries.
Southern Highlands	Mbeya, Iringa, Songwe	Mbeya	Mbeya is among the main five regions that are highly producing and processing maize, rice, and tomatoes, which were the selected crops. In addition, there is a Technology Development Centre in the region.

Zone	Regions in Zones	Selected Regions	Reasons for Selecting the Region
Western	Kigoma, Katavi and Tabora	Kigoma	According to NBS, 2016, Kigoma is leading in cassava production. For the year 2016/17 it produced 219,708 MT and sold 147,398.Therefore, the Audit Team will be able to assess the efforts put forth by the government to empower cassava producers on the aspect of agro-processing activities.

***Source**: Extracts from Annual Agricultural Sample Survey from NBS, 2016-17 and Auditors' Analysis (2022)*

1.4.2Methods of Data Collection

Three methods were used to collect data, which *were interviews, documentary reviews and observation through physical verifications.* Detailed information for each method used is as presented below.

(a) Interviews

Interviews were conducted in a way that they provide adequate response to the audit questions to enable the drawing of conclusions based on the audit objectives. The interviews assisted in obtaining more information and clarifications on the current and previous practice of the government in managing agro-processing and value addition of crops. The audit team conducted interviews with officials from the Ministry of Industry, Trade and Investment, Ministry of Agriculture, Small Industries Development Organization (SIDO), and Tanzania Engineering and Manufacturing Design Organization (TEMDO), and Agro-processors in the categories of crops selected. (Details regarding officials and other individuals interviewed in this Performance Audit are provided in **Appendix 3.**

(b) Document Reviews

The team reviewed documents from the Ministry of Industry, Trade and Investment, the Ministry of Agriculture, SIDO, TEMDO and Agro-Processors in order to get comprehensive, relevant and reliable information on the

Management of Agro-processing and Value Addition of Crops. However, the documents reviewed were those containing information within the selected audit timeline that is from the Financial Year 2017/18 to 2021/22.

The review focused mainly on implementation reports, strategic and annual plans, documented current challenges facing agro-processors, monitoring and evaluation plans and implementation reports. The documents included: (1) Planning documents, (2) Performance and Progress Reports, and (3) Manuals and Guidelines and other relevant reports. An account of the documents which were reviewed is as provided in **Appendix 4**.

(c) Physical Verifications

Physical verifications were made on the selected agro-processors that were visited by the Audit Team. The Audit Team conducted site visits to the sampled agro-processed products in order to assess the extent to which agro-processing and value addition of crops has been done. The Audit Team purposively visited a total of three agro-processors per region where at every SIDO cluster one agro-processor was selected. In this regard, a total of 15 agro-processors were sampled for assessment. In selecting the agro processors, the audit was guided by the data provided by SIDO regional Offices.

During the verification, the audit team assessed the availability and accessibility of agro-processing technology, and the availability of packaging materials for already processed products. Moreover, through the interviews with agro-processors, the audit team sought opinion of agro processors on the easiness of availability of quality raw materials, financial assistance and markets for already processed products. In visiting the agro-processors, the audit team was linked and accompanied by SIDO officers from the regions visited.

The team also assessed the extent to which developed technology has improved agro-processing due to its availability and accessibility. The statistics/data regarding available agro-processors and agro-processing technology were obtained from respective SIDO offices. In all the visited sites, auditors took notes and photos as evidence of what was observed.

1.4.3 Data Analysis

The collected information was analysed using both qualitative and quantitative methods to obtain facts and sufficient information regarding the overall performance of MITI and MoA in ensuring Management of Agro-processing and Value addition of crops in the country. The audit team used different techniques to analyze qualitative and quantitative data as detailed hereunder:

(a) Analysis of Qualitative Data

- Content analysis techniques were used to analyse qualitative data by identifying different concepts and facts originating from interviews or document reviews and categorise them based on assertion;
- The extracted concepts or facts were either tabulated or presented to explain or establish relationships between different variables originating from the audit questions;
- The recurring concepts or facts were quantified depending on the nature of data they portrayed; and
- The quantified information (concepts/facts) were summed-up or averaged in spread-sheets to explain or establish the relationships between different variables.

(b) Analysis of Quantitative Data

Quantitative data were recorded in Excel-sheets, whereas each selected case was recorded together with relevant variables as was defined by audit team for the purpose of addressing audit objectives. Therefore, the audit team processed data and analysed them, whereby;

- The tabulated data was statistically analysed, for example through normal distribution and presented in figures, graphs and tables depending on the nature of data; and
- Other quantitative data with single occurrence were presented as they are in the reports by explaining the facts it asserts.

1.5 Data Validation Process

The Ministry of Industry, Trade and Investment and the Ministry of Agriculture were given the opportunity to go through the draft audit report and commented on the figures and presented information. All of them confirmed the accuracy of the information and figures presented in this report. The comments and responses of MITI and MoA are presented in **Appendix 1**.

In addition, experts in the field of agro-processing and value addition of crops cross-checked the presented information and data for validation of information obtained and presented in the report.

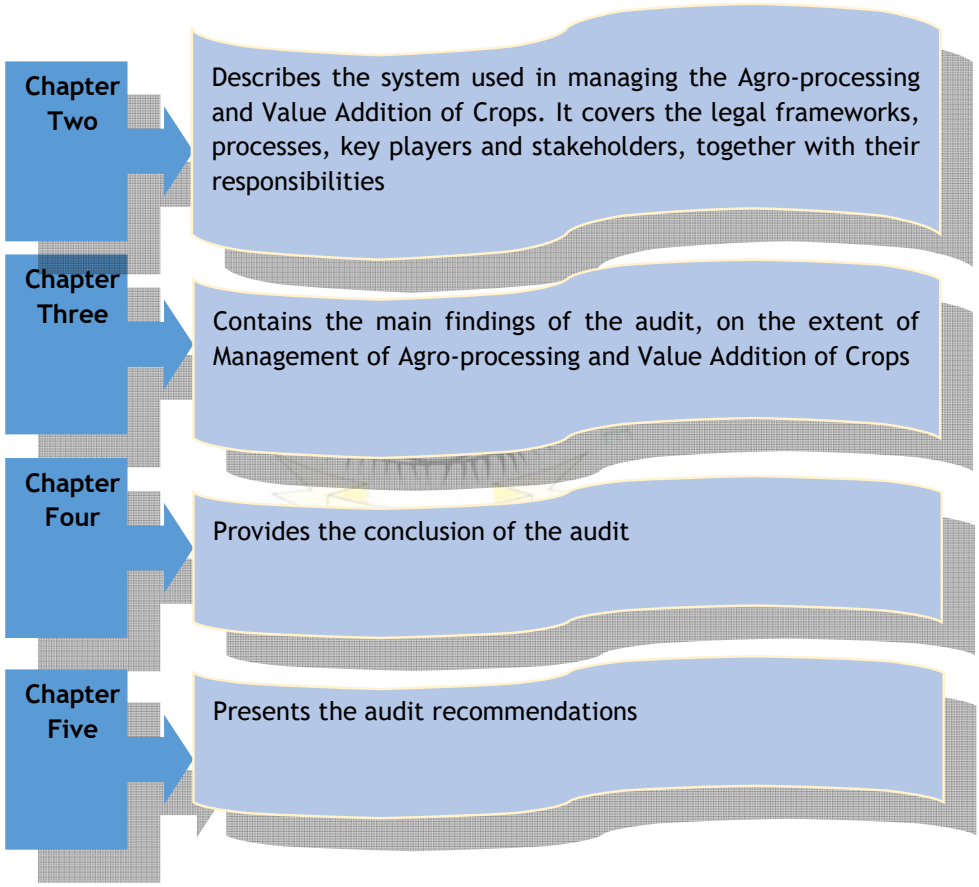
1.5 Standards Used for the Audit

The audit was conducted in accordance with International Organisation of Supreme Audit Institution's (ISSAIs) on performance auditing standards issued by the International Organisation of Supreme Audit Institutions (INTOSAI).

The standards require the audit to be planned and performed in order to obtain sufficient and appropriate evidence that provide reasonable basis for findings and conclusions based on the audit objective(s).

1.6 Structure of the Report

This audit report consists of five chapters as indicated below;



CHAPTER TWO

SYSTEM FOR THE MANAGEMENT OF AGRO-PROCESSING AND VALUE ADDITION OF CROPS

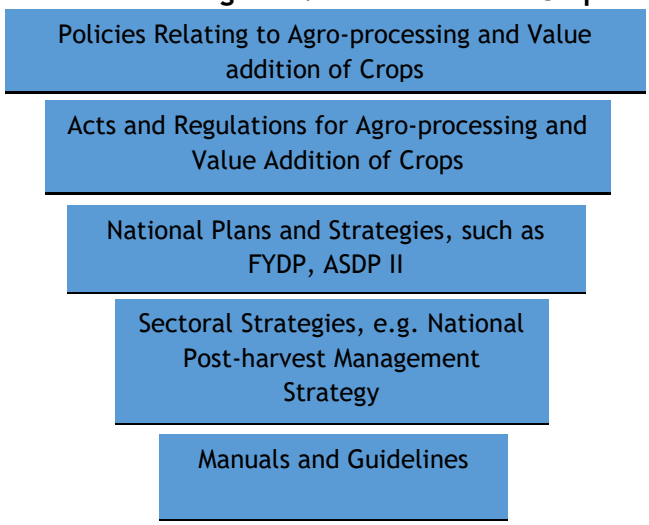
2.1 Introduction

This chapter describes the system for managing the activities for agro-processing and value addition of crops in Tanzania. It highlights the legal framework that includes policies and laws, governing guidelines, the roles and responsibilities of the key actors, and the process for management of agro-processing and value addition of crops. It also presents the resources arrangement in terms of human and financial resources set for implementing the agro-processing and value addition of crops' activities.

2.2 Governing Legal and Regulatory Framework for the Management of Agro- processing Activities

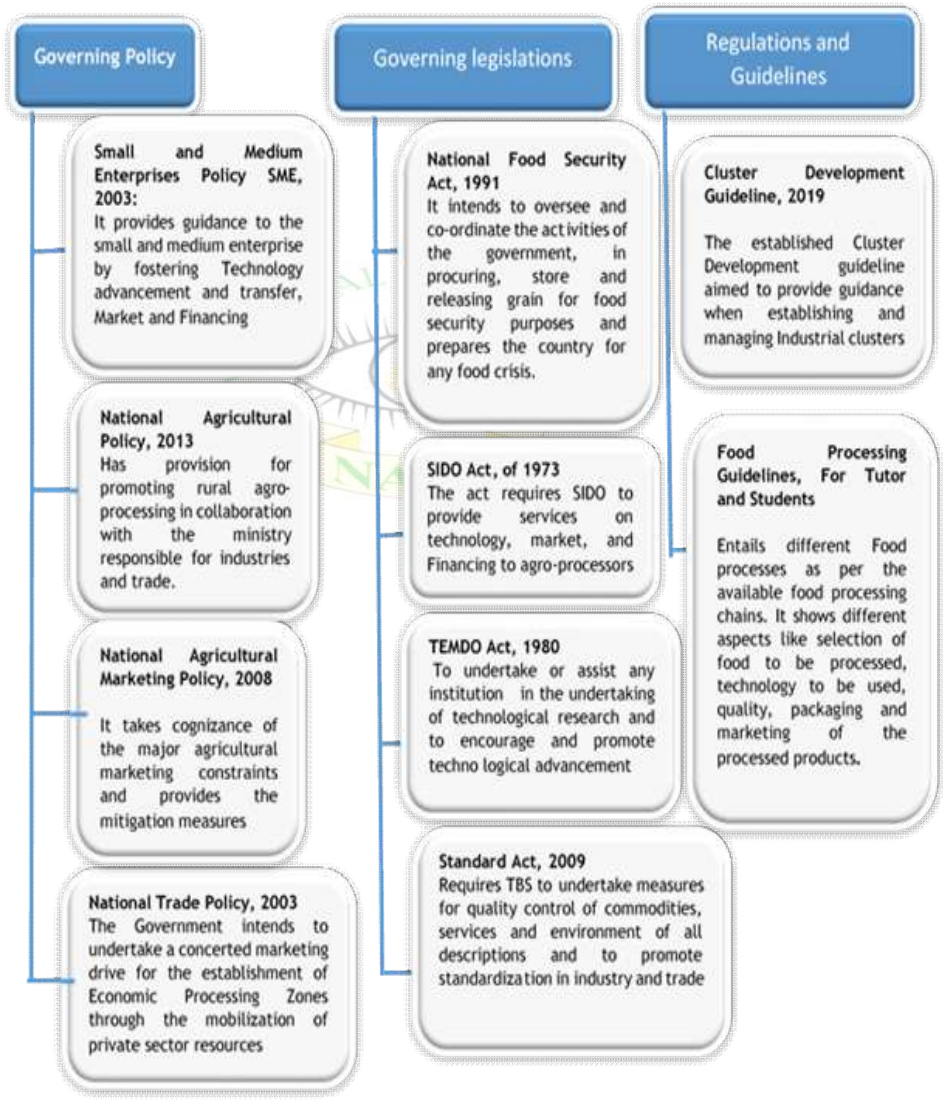
The Management of agro-processing and value addition of crops is guided by the following policies, acts, regulations, guidelines and strategies, as hierarchically presented in **Figure 2.1.**

Figure 2.1: Hierarchical Presentation of Legal Framework Guiding Agro-Processing and Value Addition of Crops



Detailed description of each aspect as per the legal and regulatory framework is as presented in **Figure 2.2**.

Figure 2.2: Summarized Legal and Regulatory Framework for the Management of Agro-processing and Value Addition Activities



***Source**: Auditors' Analysis of the Legal and Regulatory Documents guiding Agro-processing Activities in the Country (2022)*

2.2.3 Strategies

(a) Integrated Industrial Development Strategy 2021-2025

An Integrated Industrial Development Strategy, 2025 is envisaged to improve agro-processing activities and agro-supporting industries. By 2025 it has planned to re-design the Tanzania Development Corridor as an Agricultural Growth Corridor. In this regard, the Agricultural Special Economic Zones are to be developed along this corridor where it will serve all kinds of agro-processing and agro-supporting industry which are expected to flourish. Through this strategy, the big four regions namely Mbeya, Morogoro, Ruvuma and Rukwa will be promoted as the breadbasket for the whole East African Region.

(b) Agricultural Sector Development Strategy (ASDS II), 2015/2016 – 2024/2025

This is the guiding tool for implementation of Agricultural Sector policies for ten years starting from the year 2015/16 to 2024/25. The strategy aimed in operationalizing transformation of the agricultural sector into modern commercial, highly productive, resilient and competitive.

The strategy is envisaged to enhance agro-processing as the means of adding value in the production chain in order to reduce post-harvest losses by half by the year 2025 (Malabo Declaration, 2014). Through this strategy, the agricultural sector leading Ministries are required to promote and disseminate technologies that promote better handling and improved storage and preservation of food and food products at all levels. Moreover, the strategy intends to improve transformation/value addition and marketing support infrastructure for food quality and minimized food losses.

(c) National Post-Harvest Management Strategy, 2019-2029

The National Post-harvest Management Strategy is implemented over ten years period focusing on food crops particularly cereals, legumes, fruits and vegetables, roots and tubers and edible oil crops. The strategy intends to provide significant interventions for reducing post-harvest losses and potentially offset food deficit. The strategy efforts are more focused on demand-driven approaches that explore value addition and appropriate uses of post-harvest products and by-products.

(d) National Horticulture Development Strategy and Action Plan 2021-2031

This strategy covers broad areas of interventions related to horticulture production and productivity, processing and marketing. The strategy calls for coordination, resource mobilisation, and implementation plan. The interventions seek to improve the primary stage of handling and processing the horticulture produces to reduce crop losses, increase production volume, and avail industrial raw materials within and beyond the country.

(e) SIDO Strategic Plan 2016/17-2020/21

SIDO Corporate Strategy Plan VI (2017/18 – 2020/21) represents an expression of full commitment toward strengthening development and growth of SMEs. The plan focuses on improvements in business climate, strengthening of financial support, improved entrepreneurial education and advisory services, provision of infrastructure for development of SMEs, and enhanced innovation.

2.2.4 National Goals and Objectives

(a) National Development Vision, 2025

National Development Vision, 2025 under Section 4.2(vi) focused transformation of the economy towards competitiveness in ensuring infrastructure development through availability of competence and competitiveness in infrastructural investments. The Vision document accorded highest priority on government interventions in agriculture.

The vision is to transform the economy from a predominantly agricultural with low productivity to a diversified and semi-industrialized economy. In line with that, diversification of the economy must be based on a dynamic industrialisation programme focused on local resource-based industries (agro-industries) and capable of meeting the needs of other sectors whilst continuously developing activities that have dynamic comparative advantages.

(b) Five Year Development Plan (2016/17-2020/21)

Tanzania's FYDP II comprised Nurturing Industrialisation for Economic Transformation and Human Development, through four priority areas. Agro-processing and Value addition of crops was more guided by the first and second priority areas, which were aimed fostering economic growth and industrialisation and that of improving the environment for business and enterprise development.

The Plan envisaged undertaking the diversification of the economy based on a dynamic industrialization programme focused on local resource-based industries (agro-industries).

2.3 Roles and Responsibilities of Key Actors and Stakeholders

The Agro-processing and value addition of crops is holistic and requires the participation of different stakeholders including the Private Sector, Civil Society Organisations, CBOs, Non -State Actors and Development Partners, to achieve the overall vision. The detailed analysis of the roles played by every stakeholder when managing agro-processing and value addition of crops is as detailed hereunder:-

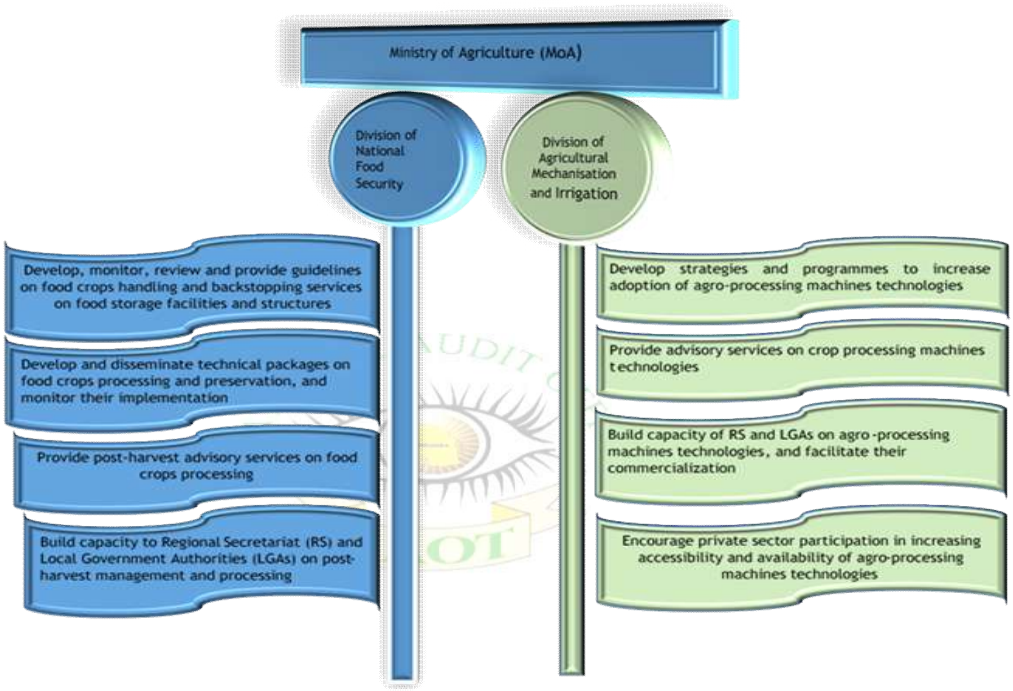
2.3.1 Roles of Key Actors

(i) The Ministry of Agriculture (MoA)

The role of MoA is to deliver quality agricultural and cooperative services, provide conducive environment for stakeholders, build capacity of local Government Authorities and facilitate the private sector to contribute effectively to sustainable agricultural production, productivity and cooperative development.

Among other things, the Ministry of Agriculture is responsible for resource mobilisation, budgets and expenditure plans, and procurement for aspects related to agro-processing and value addition of crops. Agro-processing and value addition of crops is directly managed by two divisions of National Food Security and Agricultural Mechanisation and Irrigation. Functions of each division is as pictorially presented in **Figure 2.3.**

Figure 2.3: Summarised Functions of Divisions from the Ministry of Agriculture responsible for agro-processing and Value Addition of Crops



***Source**: Auditors' Analysis by Using Different Ministerial Documents (2022)*

(ii) The Ministry of Industry, Trade and Investment

The Ministry of Industry, Trade and Investment facilitates regional and international trade, and develops the marketing of agricultural commodities. This Ministry aims to promote the investment opportunities in industrial development and other key sectors by facilitating and maintaining trade relations with foreign countries and formulating a relevant policy framework.

In this regard, the Ministry of Industry, Trade and Investment is responsible for providing every kind of assistance needed by the agro-processors.

Small and Medium Enterprises Division (SME)

The Small and Medium Enterprises (SME) Sector is managed by the Department of Small and Medium Enterprise Development under the Ministry of Industry, Trade and Investment. The Department is responsible for overseeing and coordinating the development of the Small and Medium Enterprises sector through various policies, strategies, plans and programs. The roles of the Division are as stipulated in **Figure 2.4.**

Figure 2.4: Functions of Small and Medium Enterprises in Relation to Agro-processing and Value Addition of Crops

Small and Medium Enterprises Division:

- To facilitate SME sector access to finance and non-financial services;
- To facilitate the availability of integrated SME infrastructural facilities; and
- Develop post-harvest technology to farmers through SIDO so as to add value in produced crops

SIDO specifically focuses on the development of the small industry sector, working on a wide range of tasks from policy formulation to establishing SMEs in rural and urban areas. It is responsible for providing services such as technical services and technology development, and rural small-scale industrial projects establishment. Other services include training, consulting and extension services, marketing and information, and financial services (SIDO Strategic Plan of 2016/17-2020/21).

2.3.2 Roles and Responsibilities of Stakeholders

Other stakeholders involved in the management of agro-processing and value addition of crops include Technology Developers, Regulatory Bodies, Research Institutions, Regulators and Financial provider. The roles and responsibilities of all these stakeholders are described below;

(i) Technology Developers

In order to reduce post-harvest losses, value addition activities through agro-processing and improved post-harvest handling technologies are highly needed. Initiatives in the development of different technologies are done by different governmental and non-governmental technology developers. The government technology developers include Tanzania Engineering and Manufacturing Design Organization (TEMDO), Small Industry Development Organization (SIDO) and Centre for Agricultural Mechanisation and Rural Technology (CAMARTEC). Detailed functions of the individual technology developers are as presented below.

Tanzania Engineering and Manufacturing Design Organization (TEMDO)

The role of TEMDO is to design, adapt and develop machinery and equipment, and to promote their commercial manufacture and use. Also, TEMDO is responsible for transferring technology to manufacturing small and medium-sized enterprises (SMEs). It also offers consulting services and training to industries.

Centre for Agricultural Mechanisation and Rural Technology (CAMARTEC)

CAMARTEC produces and disseminates agricultural technologies in rural areas with some of them used in post-harvest handling and agro-processing of crops. Some of the machines developed are cashew nut shelling machines, sorghum threshers, palm fruits harvester, oil press machines, wheelbarrows, pulling and oxen carts, etc.

2.3.3 Roles and Responsibilities of Other Stakeholders

(i) Research Institutions (TARIs, MATIs and TIRDO)

Several academic and research institutions play important roles such as provision of training in agro-processing and value addition of crops. These institutions include Agricultural Research Institutions (ARIs), Ministerial Agricultural Training Institutions (MATIs), Tanzania Industrial Research Development Organization (TIRDO), and universities like Sokoine University

of Agriculture (SUA) and others. Their main roles include conducting long and short-term training to meet professional needs including specific tailor-made training programmes. They also conduct research, disseminate research results and provide advisory services to the Government and the private sector through consultancies and other means.

(ii) Regulatory Authorities

Tanzania Bureau of Standards (TBS)

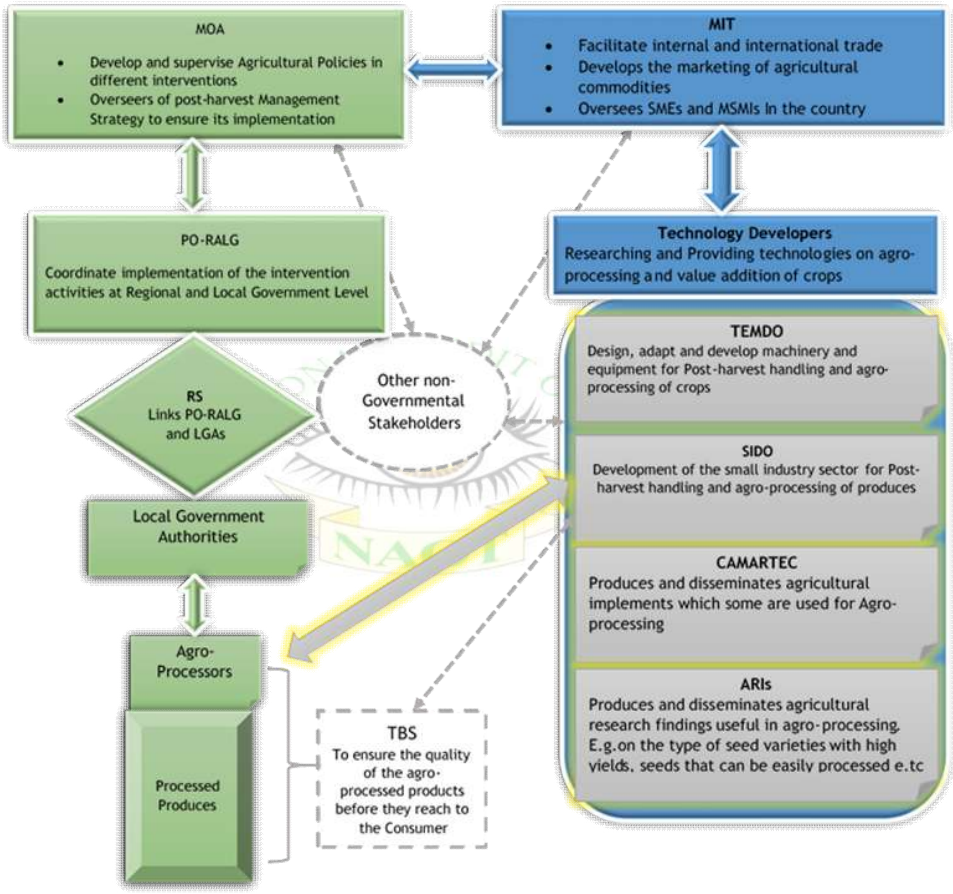
TBS is responsible in formulating and publishing standards and undertakes quality control, testing, calibration and training. With regard to agro-processing and value addition of crops, TBS is responsible for protecting and promoting quality and safety of food. In that sense, the main duties involve enacting, formulating and implementing the national standards that various sectors of the economy should abide (National Post-Harvest Management Strategy, 2019).

(iii) Financial Service Providers

Agro-processing and value addition of crops needs to involve various types of financial institutions such as banks, non-bank, insurance, micro-finance institutions (e.g. SACCOS, VICOBAs) to address the financing (credit) and insurance challenges facing the agro-processing and value addition of crops value chain, including financing the cooperatives, and management of risks. These institutions are responsible for providing financial assistance to agro-processors by supporting technology manufacturers, distributors, processors, transporters, aggregators, farmers, agro-dealers, traders and service providers.

The detailed description of the roles played by stakeholders in agro-processing and value addition of crops is as indicated in **Figure 2.5.**

Figure 2.5: Summarised Relation and the Roles of Actors involved in the Management of Activities for Agro-Processing and Value Addition of Crops



Source: *Auditors' Analysis by Using Different Ministerial Documents (2022)*

2.4 Resources for the Management of Agro-processing and Value Addtion of Crops

The effective implementation of activities for managing agro-processing and value addition of crops requires both human and financial resources. In recognising so, the government has allocated both financial and human resources to both Ministries. This is as detailed below;

2. 4.1 Funding for Management of Agro-processing and Value Addtion of Crops

Funds Allocated at the Ministry of Agriculture

Ministry of Agriculture like other government Ministries is financed by the government through the annual budget approved by the Parliament in every financial year and Development Partners. Funds for managing agro-processing and value addition of crops are mainly channeled to the Divisions of National Food Security and Agricultural Mechanisation and Irrigation as indicated in **Figures 2.6 (a) and (b),** respectively.

Figure 2.6 (and b): Comparison of Funds Budgeted Versus Released for the Divisions of National Food Security and Agro-Mechanization and Irrigation

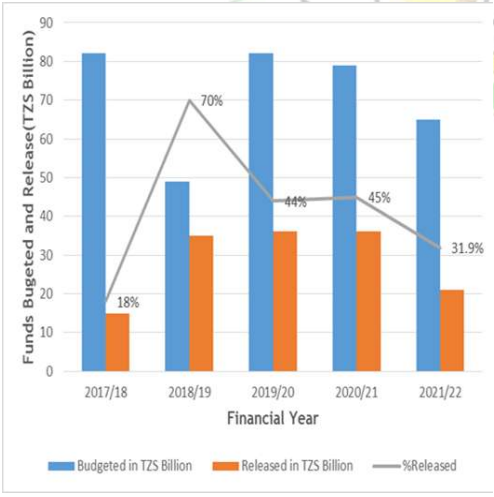


Figure 2.6(a): Funds budgeted and released to implement activities at the division of National Food Security

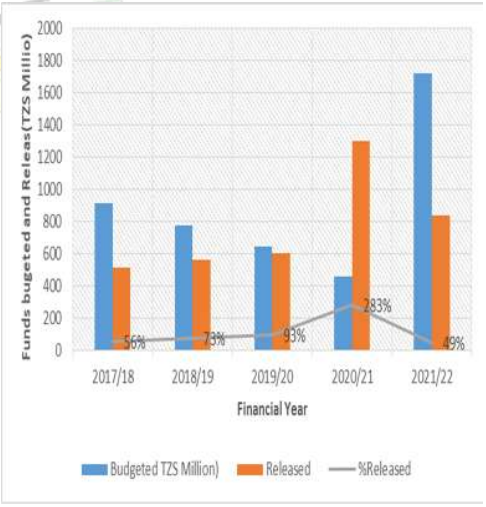


Figure 2.6(b): Funds budgeted and released to implement activities at the division of Agro-mechanisation and Irrigation

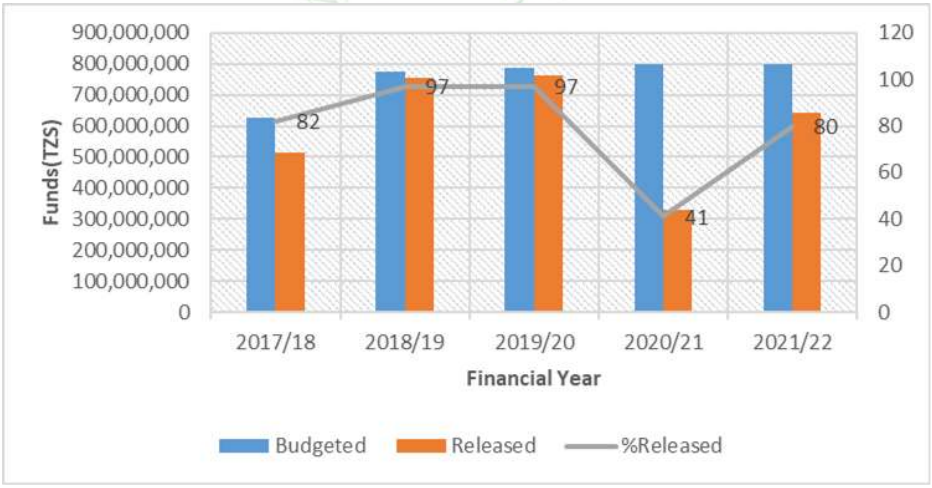
Figures 2.6(a) and 2.6(b) indicate that the maximum noted percentage release of funds to the Division of National Food Security for the Financial Year 2018/19 was 70% of the total amount budgeted. At the same Division, the minimum noted release was for the financial Year 2017/18, where the release was noted to be 18%. Likewise, the maximum noted release for the

division of Agro-mechanisation and Irrigation was 283% for the Financial Year 2020/21 while the minimum release was for the Financial Year 2021/22, which was noted to be 49%.

Funding Allocated at the Ministry of Industry, Trade and Investment

The amount of funds budgeted and allocated at the Division of Industrial Development and the Division of Small and Medium Enterprises at the MITI from 2017/18- 2021/22 are as presented in **Figures 2.7** and **2.8,** respectively.

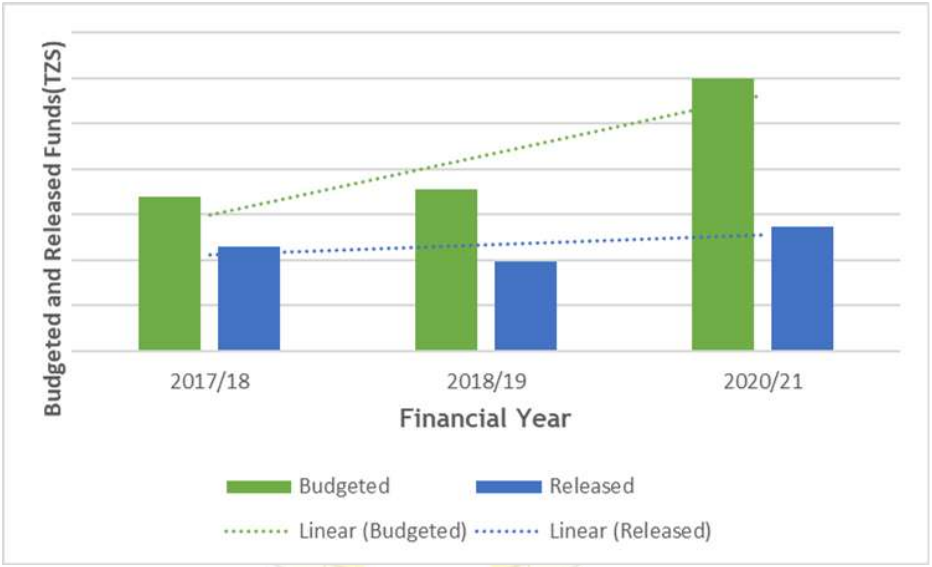
Figure 2.7: Budgeted and Allocated Fund for Division of Industry Development, 2017/18-2021/22



***Source**: Auditors' Analysis from MITI's MTEF Division of Industrial Development (2022)*

Figure 2.7 indicates that funds disbursement to the division of Industrial Development is more than 80% within four years with an exception of Financial Year 2020/21 where the disbursement was noted to be 41%. Moreover, the assessment of funds budgeted versus released for the division of Small and Medium Enterprises (SMEs) is as detailed in **Figure 2.8.**

Figure 2.8: Budgeted and Allocated Funds for Division of Industry Development, 2017/18-2021/22



***Source**: Auditors' Analysis from MITI's MTEF of Small and Medium Enterprises Division (2022)*

As per the indication of **Figure 2.8**, the amount of budget to carter for SME activities were increasing for three years, while the amount released had increased slightly.

2.4.2Allocated Human Resources at MITI and MoA

- **Human Resources Allocated at MoA**

Table 2.1: Status of Human Resources Available against Required at MoA in the Two Divisions

Division	Professional	Total Available number of Staff	Total Required Number of Staff	Percentage of Available Staff Against the Required
National Food Security	Director of National Food Security	1	1	100
	Assistant Director of Agro-processing Post-harvest Management	1	1	100
	Agricultural Engineer I	1	1	100
	Agricultural Officer I	2	2	100
	Agricultural Officer II	3	4	75
	Chemist II	1	3	33.3
	Principal Agricultural Field Officer I	1	1	100
	Principal Agricultural Officer I	3	3	100
	Principal Chemist II	1	1	100
	Principal Chemist I	1	1	100
	Senior Agricultural Officer I	4	7	57
	Sub-Total	**19**	**25**	**76**
Agricultural Mechanization and Irrigation	Director of Agricultural Mechanisation	1	1	0
	Assistant Director of Agro-processing and Renewable Energy	1	1	0
	Agricultural Engineer II	3	5	60
	Agricultural Engineer I	1	3	33
	Agricultural Officer II	2	5	40
	Engineer II	1	4	25
	Principal Agricultural Engineer II	1	1	100
	Principal Agricultural Field Officer I	1	1	100
	Principal Agricultural Technician I	1	1	100
	Principal Engineer I	1	1	100
	Senior Agricultural Engineer I	4	2	200

Division	Professional	Total Available number of Staff	Total Required Number of Staff	Percentage of Available Staff Against the Required
	Senior Agricultural Technician	1	2	50
	Senior Agricultural Technician	1	2	50
Sub-Total 2		**19**	**29**	**66**

***Source**: Auditors' Analysis of Information from MoA's Staffing Level Data, 2022*

Table 2.1 shows that, there is a deficit of 25 staff (a gap of 76% from the Division of National Food Security) required in implementing activities for the management of agro-processing and Value Addition of Crops. Meanwhile, there is a deficit of 29 staff (which is equivalent to 66%) of all officials required in the division of agro-mechanisation and Irrigation.

- **Human Resources Allocated at MITI**

As of June, 2022, the Division of Industrial Development had 18 staff and shortage of 146 staff. This shortage is equivalent to 88% of all staff required to execute MITI activities at the Division of Industrial Development. On the other hand, the Division of Small and Medium Enterprises, at the Ministry of Industry, Trade and Investment, has 12 staff and requires 40 staff. This requirement is equivalent to 70% of all staff required from the division of Small and Medium Enterprises. The details are as shown in **Table 2.2** below.

Table 2.2: Status of Human Resources Available against Required at MITI in the Two Divisions

Division	Professional	Total Available number of Staff (number)	Total Required Number of Staff (number)	Percentage of Available Staff Against the Required
Division of Industrial Developm ent	Economist	5	38	13
	Statistician	1	36	3
	Engineers	8	36	22
	Business Officer	4	36	11
	Sub-Total	**18**	**146**	**12**
Small and	Economist	4	14	29

Division	Professional	Total Available number of Staff (number)	Total Required Number of Staff (number)	Percentage of Available Staff Against the Required
Medium Enterprises	Statistician	1	2	50
	Engineers	3	10	30
	Business Officer	4	14	29
	Sub-Total	**12**	**40**	**30**

Source: *Auditors' Analysis of MITI's Staffing Level Data (2022)*

2.5 Process for Managing Agro-Processing and Value Addition of Crops

Management of Agro-processing and Value Addition of Crops passes through different stages before reaching to the final consumer. At every stage, there are some activities which need to be done to ensure the quality of the agro-processed products is met. The detailed steps on the processes involved in managing agro-processing and value addition of crops are:-

Step 1: Assessment of Availability of Agricultural Raw Material to be used for Agro-Processing

MoA is responsible to ensure the production of crops is in surplus so that, the processors may obtain raw materials for processing. It undertakes the annual assessment of the national food status and makes them accessible by stakeholders. Moreover, it is responsible to reduce post-harvest losses through establishing different post-harvest strategies and training where the harvested produce losses will be reduced, while increasing agro-processing production.

Step 2: Developing and Disseminating Appropriate Technologies for Agro-Processing and Value Addition of Crops

Technologies are developed and disseminated by designated technology developers. These developers are Small Industries Development Organisation (SIDO), Tanzania Engineering and Mechanical Designing Organisation (TEMDO) and CAMARTECH or any other developer. Developers

either produce technologies based on the demands presented or they sell the already finished technologies.

Step 3: Processing Activities

The processors need to comply with guidance of various government institutions aiming at ensuring quality of the agro-processed products and protecting the environment, where the processors will be given various certificates for compliance purposes. The processors are mainly obliged to comply with Tanzania Bureau of Standards (TBS), National Environment Management Council (NEMC), Fire Services, Tanzania Revenue Authority (TRA), Occupational Safety and Health Authority (OSHA).

Step 4: Adding Value of the Processed Crops

Value addition of the processed crops is done so as to improve quality of the processed crops. Value addition may include fortification, where various nutritional supplements are added to the processed crops. The processors may be required to fortify the product with a desired dose of supplements such as vitamins and other nutrients. When the processed product is edible oil, the processors may undertake different refining processes to improve quality as per consumers' protection standards.

Step 5: Packaging and Labelling

Processors are required to choose the materials based on their quality, durability and uniqueness to make the products easily distinguished from others. Uniqueness and quality of the packaging materials intends to improve product marketability.

Proper packaging goes simultaneously with proper labelling required by the consumer(s) to identify the products packed. The label should provide all the necessary information such as production date, expiry date, product logo, logo from Tanzania Bureau of Standards (TBS) and bar and or Quick Response (QR) code to indicate the place of origin.

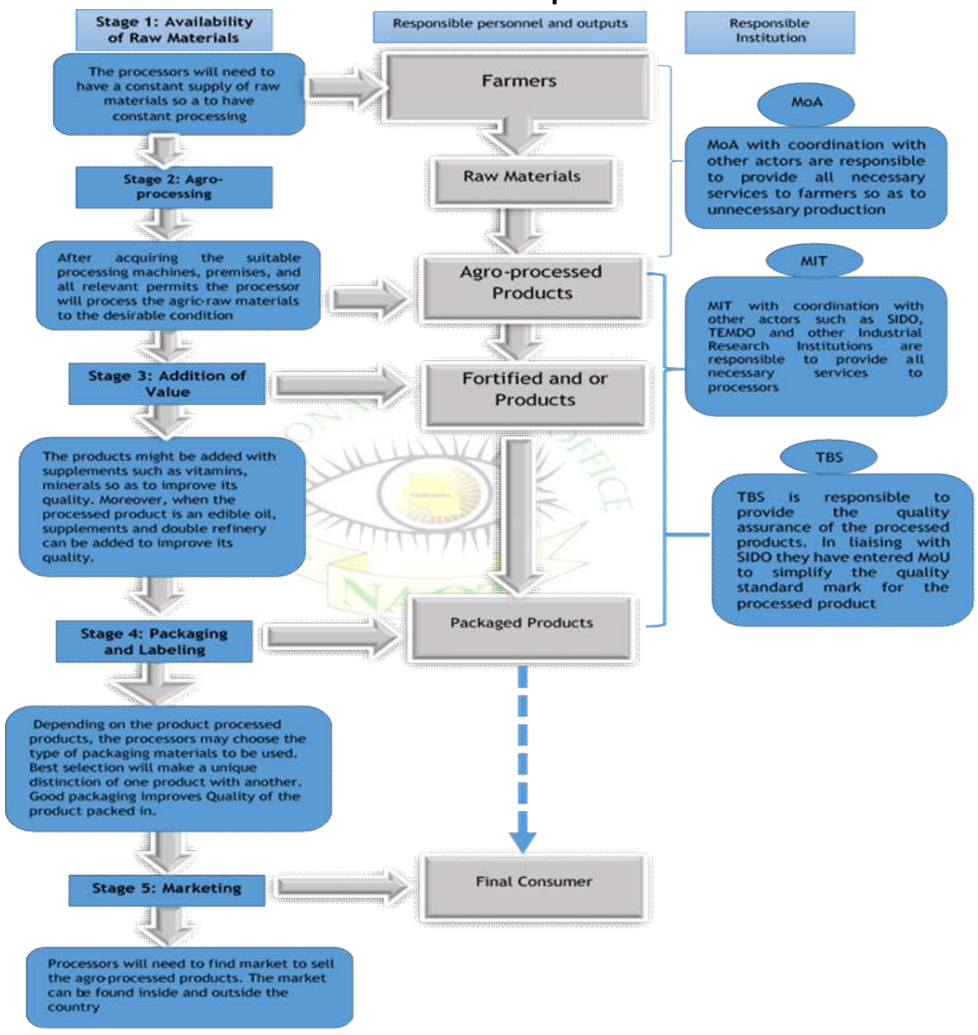
Step 6: Seeking for Quality Standard Mark from TBS

The processors need to acquire the quality certification of the processed products from the government recognised Organisation, which is TBS. This is important for the product to access both internal and external markets. This would also provide assurance to the consumer(s).

Step 7: Marketing

The processors supply the already processed products to the markets that were initially identified. MITI through SIDO and TanTrade, are required to identify markets and provide different market information and market linkages to processors. Detailed steps involved in management of agro-processing and value addition of crops are presented in **Figure 2.9** below;

Figure 2.9: Steps involved in the Management of Agro-Processing and Value Addition of Crops



Source: *Auditors' Analysis of Information from MITI and MoA (2022)*

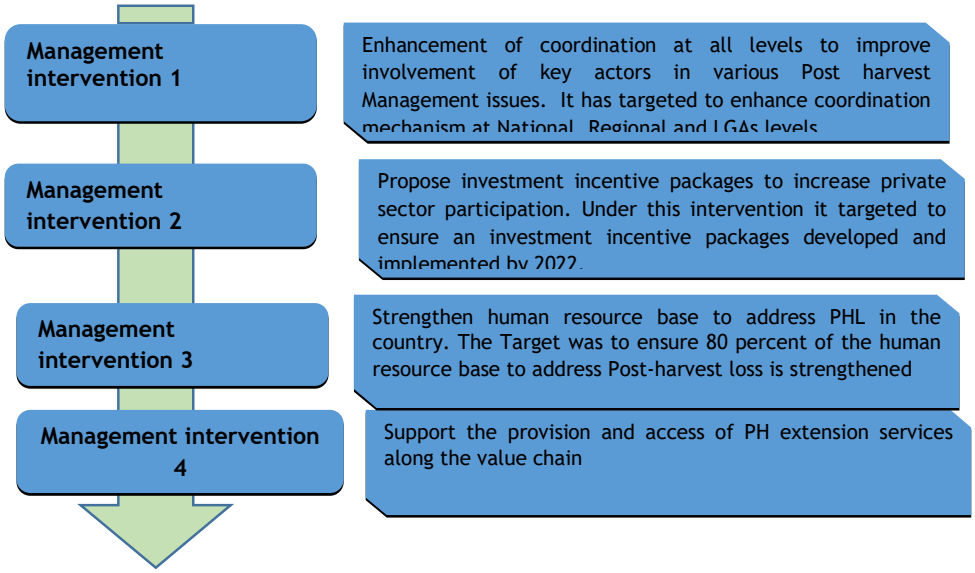
Coordination of Activities for Managing Agro-processing and Value Addition of Crops

The Sector Leading Ministries such as the Ministry of Investment, Industries and Trade and the Ministry of Agriculture are responsible for managing agro-processing and value addition of Crops.

The Introduced Post-harvest Handling Management Strategy requires the Ministry of Agriculture to spearhead the coordination activities in all aspects of post-harvest handling. The strategy was therefore developed to align and coordinate the multiple efforts of various actors along the post-harvest value chain. Strategies were required to strengthen coordination and partnerships among all sectors responsible for post-harvest management in order to ensure efficiency and effective implementation of the agreed actions towards reducing crop post-harvest losses.

To have an effective coordination, the strategy wanted the leading Ministries to undertake four management interventions as described in **Figure 2.10**.

Figure 2.10: Management Interventions for Coordination Activities



Source: *Auditors' Analysis of Information from MITI and MoA (2022)*

Monitoring of the Activities for Agro-processing and Values Addition of Crops

Monitoring of agro-processing and value addition of crops is done through the Ministry of Industry, Trade and Investment and its agency such as SIDO. MITI has established different policies with the aim of improving agro-processing and Value addition of Crops. MITI through the Division of Small and Medium Enterprises (DSME) and through the Division of Industrial Development (DID) is responsible to monitor activities done by the industries including the industries for agro-processing and Value addition.

In order to undertake monitoring activities, the Ministry of Industry, Trade and Investment is required to review different Reports submitted from its agencies and upon satisfaction, those reports should be sent to the Permanent Secretary of the Ministry for further scrutiny and discussion during Management meetings of the Ministry.

In addition to that, the Officers from the Ministry are supposed to plan and budget for verification purposes. Upon implementation of this activity, the Ministry should visit the area so as to undertake physical verification.

Moreover, SIDO is responsible to do the same for its client so as to ensure the adherence of its activities and services issued to its customer and advice accordingly with regard to the quality of machines, agro-processed products, availability of technologies, and markets to agro-processors.

2.5 Categories of Crops

Tanzania has a vast number of crops which are grown in various localities.

Table 2.3 presents a summary of crops grown in Tanzania in their respective categories.

Table 2.3: Categories and Summary of Crops Grown in Tanzania

Category of Crops	Crops Available
Cereals	Maize, Rice, Sorghum, Millets, Wheat
Legumes	Beans, Pigeon Pea, Cow Pea, Green Gram, Peas
Horticultural	All fruits, Vegetables, and Flowers such as, Tomatoes, Leafy Vegetables, Eggplant, African Eggplant, e.tc.
Roots and Tubers	Cassava, Potatoes, Yams, Sweet Potatoes, e.tc.
Oil seeds	Sun flowers, Ground Nuts, Cashew Nuts, Sesame, Oil Palm, e.tc
Cash Crops	Sugarcane, Sisals, Cacao, Coffee, Tea, Tobacco e.tc

***Source**: Auditors' Analysis from National Food Security Reports and National Horticultural Development Strategy (2022)*

CHAPTER THREE

AUDIT FINDINGS

3.1 Introduction

This chapter presents audit findings regarding the management of agro-processing and value addition of crops. The findings address four specific audit objectives as described in Section 1.3 of this report which are related to the availability and accessibility of technology and markets for agro-processing and value addition of crops; and coordination between the Ministry of Industry, Trade and Investment and the Ministry of Agriculture. Lastly it presents findings regarding to monitoring of agro-processing and value addition of crops.

The detailed findings for each specific objective are presented in the subsequent sections as follows:

3.2 Extent of Effectiveness in the Management of Agro-processing and Value Addition of Crops

Agro-processing is of enormous significance for Tanzania's development because of the vital linkages and synergies that it promotes between the two pillars of the economy, namely industry and agriculture. The growth of agro-processing industries brings immense benefits to the economy, raising agricultural yields, meeting productivity, creating employment and raising the standard of living of very large number of people.

Despite the above benefits, the audit noted that, the extent of growth of agro-processing activities and value addition of crops is not adequate. Reviewed Final Report of 2017 on the Evaluation of the Implementation of the Small and Medium Enterprises Development Policy of 2003, pointed that, inadequate management of agro-processing and value addition of crops was associated with inadequate availability and accessibility of technologies, markets for the agro-processed products and fund. The same was pointed out by interviewed Officials from MITI, MoA, SIDO and TEMDO.

Moreover, implementation of different strategies relating to agro-processing and value addition of crops was reported to be inadequate. As a result, different intended objectives could not be achieved.

Similarly, the audit revealed ineffectiveness in the management of the activities for agro-processing and value addition of crops. The effectiveness was measured by the extent of implementation of related strategies, the performance of the agro-processing and value addition of crops in the country as well as the contribution of agro-processing and value addition of crops in the reduction of post-harvest losses. This is detailed as follows;

3.2.1 Ministry of Industry, Trade and Investment Lacked Updated Information on the Extent on the Implementation of Policy Strategies and Objectives Related to Agro-processing and Value Addition of Crops

The audit noted that, the Ministry of Industry, Trade and Investment and lacked the current performance data for the implementation of the Small and Medium Enterprises (SME) Development Policy. For last time, the SME was conducted in the year 2017.

Agro-processing and value addition of crops are cross-cutting activities, and their implementation is guided by two main policies mainly the Small and Medium Enterprise Policy of 2003 and Sustainable Industry Development Policy of 1996-2020. Implementation is also guided by the National Post-Harvest Management Strategy of 2019. Also, MITI through its SME Department is responsible for overseeing and coordinating the implementation of the various policies, strategies, plans and programs for SMEs.

The review of SME Policy and Sustainable Industry Evaluation Reports revealed that, policies guiding the management of agro-processing activities were implemented by 25% as shown in **Table 3.1** below:

Table 3.1: Summary of Overall Implementation of Strategies as of 2017-2021/22

Policy	% of implemented Strategies
Small and Medium Enterprise Development Policy of 2003	14
Sustainable Industry Development Policy of 1996 - 2020	36
Average	**25**

Source: *Auditors' Analysis using Policy Evaluation Reports of SME and SIDP (2022)*

From **Table 3.1** it was found that, objectives and targets for the small and medium policies and sustainable industry development policies were implemented at an average of 25%. This implies that 75% of the strategies were not implemented. Strategies that were not implemented related to improved access to finance, strengthened entrepreneurial culture and markets for sustainable development, strengthened capacity of private sector organisation to achieve effective implementation of SME and programmes and interventions related to Rural Industrialisation.

Furthermore, assessment done by the audit team on the level of implementation of SME Policy of 2003, from the reviewed SME Policy Evaluation Report of 2017, revealed that, the overall implementation of objectives and indicators were achieved by 12.5% and 14% respectively. This implies that 78.5% of the SME Policy strategies were not implemented, regardless of the key interventions to stimulate the growth of agro-processing and value addition of crops being set out by the policy.

Insufficient funding mechanisms, lack of appropriate agro-processing technologies, and weak market linkages for the processed products were the major impact that resulted from the inadequate implementation of the Small and Medium Enterprise (SME) and Sustainable Industrial Development Policy.

In responding to this observation, the management of the Ministry of Industry, Trade and Investment explained that, in addition to the Policy evaluation that was conducted in 2017, it has implemented a number of interventions since then. However, the Ministry could not submit evidence

to indicate the interventions implemented after 2017 as a support of its explanation.

In addition, Interview with MITI Officials pointed out that, agro-processors still lacked sufficient funding mechanisms, appropriate agro-processing technologies, and market linkages for the processed products as the result of inadequate implementation of policy strategies and objectives.

Table 3.2 presents the summary of implementation of the strategies and indicators from their respective policies.

Table 3.2: Percentage of the Implemented SME- Policy Strategies and their Indicators

Objectives and Indicators		Implementation Status		% Implementation
		On and Above Average	Below Average	
Total Objectives	8	1	7	12.5
Total Indicators	**43**	**6**	**37**	**14.0**

***Source**: Auditors' Analysis of SME-Evaluation Report (2017)*

Findings in **Table 3.2** indicate that, the percentage of implementation of objectives and indicators were below 15%. Similarly, the audit noted that, unlike the SME Policy, the Ministry of Industry, Trade and Investment had not yet completed the review process of the Sustainable Industry Development Policy, despite the fact that, it expired two years back. Detailed assessment of the implementation of the SME objectives is as presented in **Table 3.3**

Table 3.3: Assessment of the Implementation Status of SME's Objectives

Objective	Implementation Status of the Objective	Auditors Remarks
Enabling and Legal and Regulatory Framework	Its implementation was noted to be on average	This achievement was reached because it involved targets which had an income generation perspective like establishment of online registration. Moreover, this objective had targets which did not need funding and instead it needed decision to be effected
Improved access to Physical Infrastructure and Work Places	Its implementation was below average	The main causality of slim policy implementation was the absence of Medium Term Strategic Plans and Annual Plans that are based on a strategic plan. In the absence of these two planning tools it was difficult for the Ministry to define policy priorities, targets and benchmarks. Also, the absence of MTSP and APS disabled the Small and Medium Enterprise department to effectively coordinate events across public authorities and to provide a platform for dialogue with the private sector including SMEs.
Strengthened Entrepreneurial culture and markets for Sustainable BDS	Its implementation was below average	
Improved Access to Finance	Its implementation was below average	
Strengthened capacity of Private sector Organization to achieve effective implementation of SME Assistance programs and interventions	Its implementation was below average	
Enhanced Rural Industrialisation	Its implementation was below average	
Cross cutting issues	Its implementation was below average	
Institutional framework	Its implementation was below average	

***Source**: Auditors' Analysis from Final Report on Consultancy Services to Evaluate the Implementation of the Small and Medium Enterprises Development Policy (2022)*

Based on the assessment indicated in **Table 3.3,** it is indicated that, SME policy was inadequately implemented. It is only 1 out of 8 objectives had an average level of implementation. Inadequate implementation of the policy spearheaded for SME development signifies inadequate implementation of SME related activities, be it agro-processing and value addition of crops or other fields.

Interview with MITI officials revealed that, the Ministry conducted the evaluation of the implementation of the SME policy in the years after a number of interventions that were implemented after the year 2017. However, the Ministry could not submit evidence to support this explanation.

Similarly, Auditors' assessment made from the Sustainable Industrial Development Policy Evaluation Report of 2021 indicated that, only 36% of the indicators were achieved. The summarised performance on achievement of the indicators of Sustainable Industry Development Policy related to agro processing is as indicated in **Figure 3.1**.

Figure 3.1: Extent of Implementation of the Sustainable Industrial Development, Policy on Aspects Relating Agro-Processing and Value Addition of Crops

Source: *Auditors' Analysis of Draft Evaluation Report of January (2022)*

Based on the findings in **Table 3.2 and Figure 3.1** above, it is deduced that, different strategies and policies relating to agro-processing and value addition of crops were established, but less than 50% of those strategies were implemented. This was manifested in the Reviewed Evaluation Report of 2017 on assessment of the implementation of SME Policy which indicated that, the awareness of the policy was only 22.8% which was considered to be quite low.

Moreover, the report revealed that, insufficient financial and human resources and inadequate funds set and allocated for the interventions were among the causes for this minimal implementation of strategies. Regardless of this situation, the Ministry of Industry, Trade and Investment and the Ministry of Agriculture did not take into account the insufficient financial and human resources allocation in their MTEF.

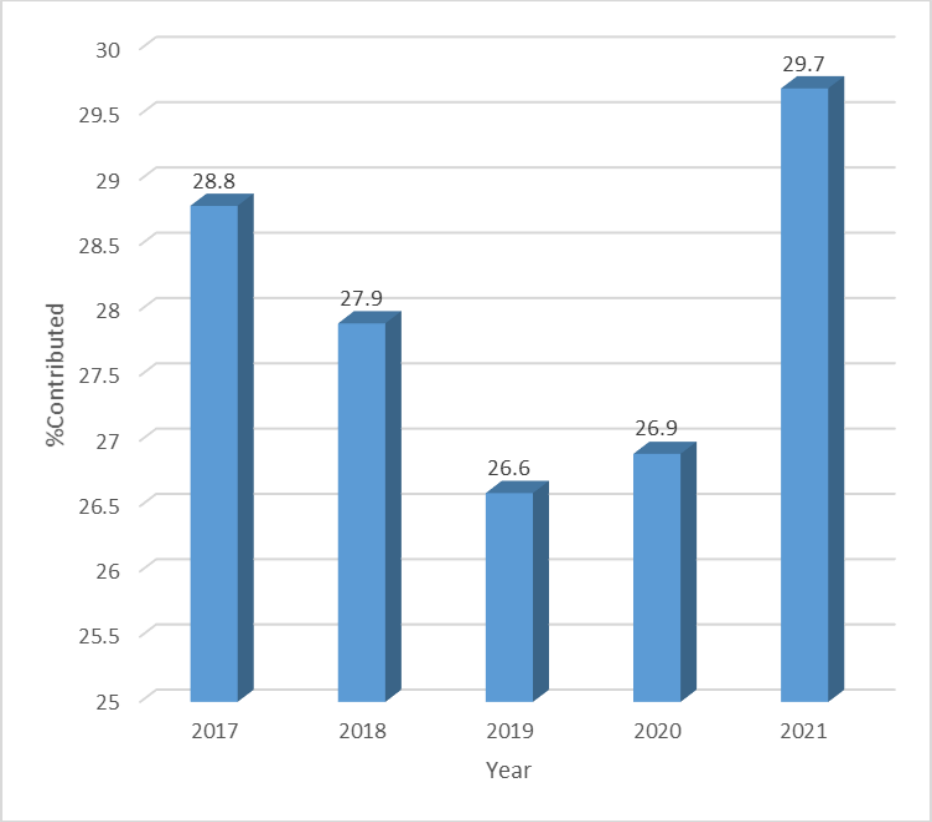
3.2.2 Low Contribution of Agricultural Sector to National GDP

Section 0.6 of SIDO Strategic Plan requires the organisation to enhance continuous monitoring and evaluation to ensure continuous assessment of implementation progress and realisation of the intended objectives. Also, according to the Five Years' Development Plan, 2016/17-2020/21, the Ministry of Industry, Trade and Investment and the Ministry of Agriculture were expected to ensure that the contribution of agricultural sector to GDP is increased to 29.4% by 2020 and 32% by 2025 through improved agricultural production.

However, the assessment of the contribution of agriculture to the National GDP was noted to be fluctuating for the past five years. The highest contribution was for the financial Year 2021/22 which had the contribution of 29.7%, while the least contribution was for the Financial Year 2019/20 which contributed to the GDP by 26.6%, which was found to be below in comparison to the Five Years' Development Plan set target of 29.4% contribution by 2020.

The contribution of agriculture to National GDP for the period of 2017-2021 is as indicated in **Figure 3.2.**

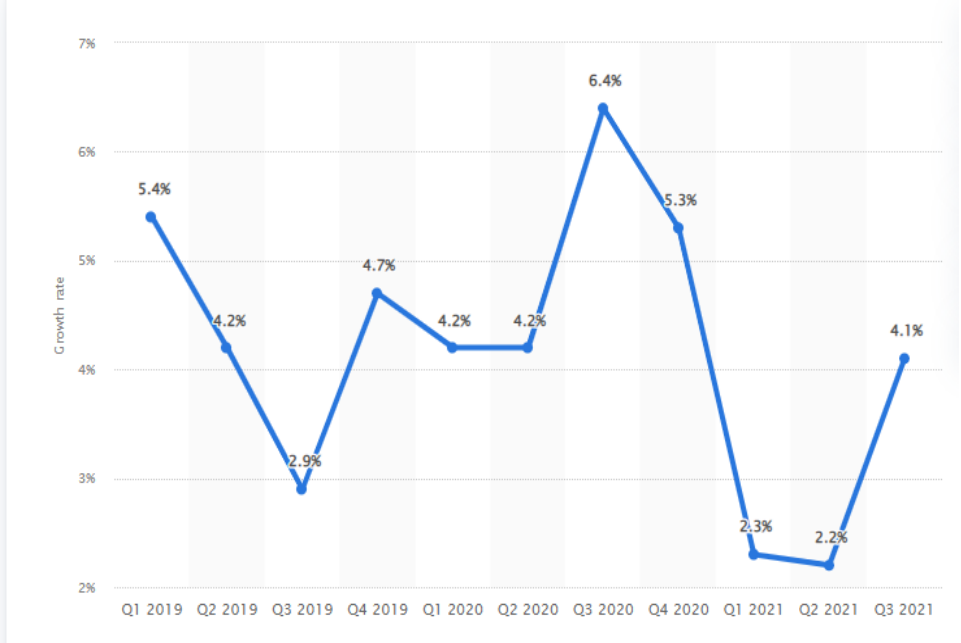
Figure 3.2: Trend of Contribution of Agricultural Sector to National GDP



Source: *www.statista.com as published by National Bureau of Statistics April 2022*

From the findings in **Figure 3.2,** it can be deduced that, the contribution of agriculture to the National GDP indicated was found to have a continuous decrease when assessed from the financial Year 2017/18 to the Financial Year 2019/20, where it decreased from 28.8% to 26.6%. On the other hand, there was a gradual increase of contribution to the GDP from 26.9% in the Financial Year 2020/21 to 29.7% in the Financial Year 2021/22. This fluctuation in trend implies that, the rate of growth of contribution to the GDP from the agriculture sector lacked a positive trend as shown in **Figure 3.3.**

Figure 3.3: Rate of Growth of Contribution of Agricultural Sector to GDP (Q1 2019 to Q3 2021)



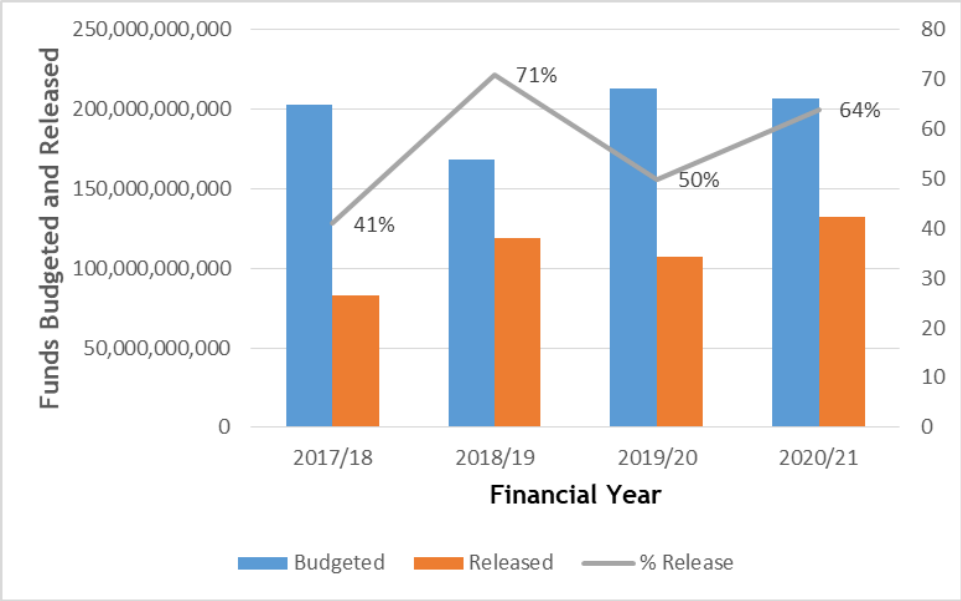
Source: *www.statista.com as published by National Bureau of Statistics, April 2022*

As it is indicated in **Figure 3.3** above**,** Agriculture in Tanzania recorded a Gross Domestic Product (GDP) growth rate of 4.1% in the third quarter of 2021. The sector's performance improved compared to the previous quarters of the year. However, the growth rate decreased compared to Q3 of 2020, where it reached a peak of 6.4%.

However, the inadequate contribution of agricultural sector to the National GDP was linked to an ineffective management of agricultural activities, such as relying more on seasonal rains, use of poor quality seeds, and undertaking subsistence mode of farming. Also, it was attributed to ineffective management of agro-processing and value addition activities, because most of the agricultural produce were still sold unprocessed. Another reason noted was the absence of enhanced strategies to ensure availability of reliable markets so as to stabilise the production and the GDP as well.

Regardless of the importance of the agricultural sector in livelihood, it was noted that, inadequate funds was set and released to carter for different agricultural activities for the Ministry of Agriculture within four Financial Years. The result indicated that, the percentage release variation was 41%, 71%, 50% and 64% when assessed in the four consecutive years starting from 2017/18 to 2020/21 as presented in **Figure 3.4**.

Figure 3.4: Percentage of Disbursement of Budgeted Funds for Four Years



Source: *Auditors' Analysis using MTEF from MoA (2022)*

Based on the findings presented in **Figures 3.3 and 3.4**, a comparative analysis funds released versus GDP growth rate revealed a positive correlation. This phenomenon implies that, the increase of GDP growth rate was directly proportional to the increase of the budget. For instance, the percentage of fund released in 2018/19 was noted to be 71% while the GDP growth rate in first quarter of the same year was 5.4%. Similarly the percentage of fund released in 2020/21 was 64% while the GDP growth rate was noted to be 4.1% when assed in the third quarter of the year 2021. This further implies that, the percentage of fund released to foster

agriculture increased production rate, which ultimately resulted into the increase of the growth rate of the National GDP.

3.2.3 Slow Rate of Growth of Performance of Agro-processing Industries in Tanzania

Effective management of agro-processing of crops is crucial in supporting improvements of social and economic services to the country through improved performance of agro-processing industries. These improvements are crucial towards extending base of sources of government revenues and increasing food security.

The growth of the performance of the agro-processing industries was measured by the rate which the manufacturing Value Addition grows and the operational capacity of the agro-processing industries. The audit noted the following:

(a) Slow Pace of Growth of Manufacturing Value Addition

The improved agro-processing industries were expected to improve the performance of the industrial sectors at large, which was not the case. Based on that fact, MITI was expected to track periodically the growth of the Manufacturing Value Addition (MVA) which measures the speed at which the industrial sector is expanding based on the targets set by the vision 2025 aiming at transforming the country to industrial economy.

However, the audit noted that, the Ministry did not have an updated data of MVA. Further, through the review of the Industrial Competitiveness Report, 2015, it was revealed that, since 2010 the overall Manufacturing Value Addition (MVA) was found to decline from around 9% during the first decades of 2000 to below 6% in the years between 2010 and 2013.

Regardless of this unsatisfactory trend, the Ministry could not avail the updated information thus, the extent of growth to which the industrial sector has attained was not known.

(b) Presence of Agro-processing Industries Operating far below their Capacity

In order for agro-processing industries to operate efficiently they require sufficient raw materials. It should be noted that, about 65% of all raw materials required in different industries are from agriculture. An assessment made by the Audit Team indicated that, agro-processing industries were operating below their installed capacity due to shortage and low quality of raw materials. It was observed that, there was no agro-industry which operated throughout the year without being interrupted with raw materials shortage. The audit team confirmed this through the site visits made to the sampled agro processing industries and indicate in **Table 3.4.**

Table 3.4: Performance of Sampled Agro-processing Industries

Name Agro-processing Industry	Installed Processing Capacity(Tones/Day)	Actual Processing Capacity (Tones per Day)	Deficit (Tones)	Remarks / Associated reasons e.g.
MV Rice Millers	300	200	100	Shortage of materials the industry is operating only 3 months per year
Ilasi Sembe	50	15	35	The shortage of materials has led to increase more costs to buy maize from Morogoro and Iringa regions so as to continue processing
Southern Agricultural Innovation Enterprise-Ubaruku	120	80	40	At this area there are many rice processors, that being the case the competition is high especially during low season
MWISCBITA -Cassava Processing	17	17	0	These processors have confirmed to have no challenges of raw materials, however, the

Name Agro-processing Industry	Installed Processing Capacity(Tones/Day)	Actual Processing Capacity (Tones per Day)	Deficit (Tones)	Remarks / Associated reasons e.g.
				most challenges they face was technology. They do not have material challenges because they are sole cassava processors at Kasulu

***Source**: Auditors' Analysis using Information from Site Verification, 2022*

Based on the findings in **Table 3.4**, the challenges of raw materials observed in three out of four agro-processing industries visited revealed a shortage of 175 MT of raw materials, which is equivalent to 39% of the needed raw materials.

Moreover, physical observation made at MV Rice Millers L.T.D in Morogoro Region, indicated a similar challenge of inadequate availability of raw materials. This emanated from the fact that, the industry was operating below its minimum capacity which was 200 tons in average per day during low season of paddy, which as compared to full operation capacity of 300 tons per day. Despite that, the industry had established collection Centres in the Shinyanga, Mbeya, Morogoro and Katavi Regions to maximise the availability of paddy but still the quantities supplied did not meet the required demands.

Also, through the reviewed documents[1], it was noted that, inadequate availability of raw materials needed in agro-processing industry was among the challenges facing the agro processing activities in the country. Farmers lacked awareness on what kind of crop will be desired for processing. It was further noted that, processing was more preferred to certain varieties while in other varieties processing would be difficult.

[1] Oil sector Assessment Report,2022 and Evaluation of Sustainable Industry Development Policy, 2020

Similarly, raw materials could be available to farmers but in some instances, they were not accepted by processors due to unsatisfactory qualities, which ultimately resulted into inadequate availability of raw materials. These situations compelled processing industries to perform below their expected capacity. This was confirmed by results from interviews in which 14 out of 16 agro-processors accounting to 88% acknowledged that, inadequate raw materials for agro-processing activities was one of their main challenges.

This challenge was also pointed out by all 15 Officials interviewed from the 10 Directorates of MITI, MoA, and SIDO, who confirmed inadequate raw materials for agro processing industries as among the main challenges.

(c) About 42% of Sunflower Oil Processing Industries were Closed Due to Shortage of Raw Materials

Findings from observation and interviews made at SIDO Industrial Areas at Dodoma and Mbeya indicated a shortage of sunflower seeds for oil production. This shortage was also found in the edible oil sector report of November, 2022 where the sunflower processing industries had inadequacy of raw materials amounting to 1,334 MT for the 12 industries surveyed. It was also noted that, 5 out of 12 sunflower industries equivalent to 42% were closed due to shortage of raw materials. Moreover, the audit noted that, all of the visited twelve industries were operating at 33% to 83% below their installed capacity due to shortage of raw materials as shown in **Table 3.5.** This implies that, industries could not operate to their installed capacity of 1,724. Instead these industries managed to process only 540 MT. Detailed assessment is as indicated in **Table 3.5.**

Table 3.5: Performance of Sunflower Processing Industries

Name of Industry	Place	Installed Capacity (tones/year)	Actual Production (Tones/Year)	Deficit in Raw Materials	Raw Materials Deficit in %	Remarks
Kahama Oil Mills	Shinyanga	45,000	25,000	20,000	44.4	Open
Mount Meru	Shinyanga	30,000	Nil	Nil	Nil	Closed

Name of Industry	Place	Installed Capacity (tones/year)	Actual Production (Tones/Year)	Deficit in Raw Materials	Raw Materials Deficit in %	Remarks
Millers Ltd						
Jielong	Shinyanga	60,000	10,000	50,000	83.3	Open
East Coast Oils & Fats Ltd.	Dar es Salaam	540,000	300,000	240,000	44.4	Open
Murzah Wilmar East Africa	Dar es Salaam	120,000	45,000	750,000	625	Closed
Azania	Dar es Salaam	30,000	20,000	10,000	33.3	Open
Bidco	Dar es Salaam	300,000	Nil	Nil	Nil	Closed
G & B Cooking oil Ind.	Dar es Salaam	54,000	30,000	24,000	44.4	Open
Sunshine	Dodoma	50,000	20,000	30,000	60	Open
Mount Meru Millers Ltd	Singida	300,000	90,000	210,000	70	Open
Mount Meru Millers Ltd	Arusha	150,000	Nil	Nil	Nil	Closed
Mount Meru Millers Ltd	Bunda	45,000	Nil	Nil	Nil	Closed

Source: *Auditors' Analysis Using Information from the Industrial Development Division (2022)*

Based on the findings in **Table 3.5**, the audit noted the severity of the shortage of raw materials, which has resulted in the closing up of some of the sunflower oil processing industries.

In addition, the audit noted that, due to a shortage of raw materials for sunflower processing industries, the government spent a total of TZS 2.6 Trillion for Five Years from 2016-2020 to import crude oil. The Review of the Oil Sector Assessment Report further pointed out that, 25% of the oil needed is produced within the country while 75% is imported.

Furthermore, low quality seeds were also noted to be among the factors causing insufficient raw materials as they lead into low yield. Moreover, low quality seeds might produce yield of low quality that cannot be accepted by agro-processors hence, post-harvest loss. For instance, various sunflower oil processors did not prefer mixed sunflower seeds (black and white) as they have low yield compared to black seeds. It was also noted that, black sunflower seeds produced more oil compared to mixed sunflower oil seeds (back and white).

Photos 3(a) and **3(b)** indicate the extent of mixed sunflower seeds, which in most cases was caused by inadequate selection of varieties and uncontrolled cross-pollination between farms because of absence of block farming.

Photos 3.1(a) and 3.1(b): The mixed Sunflower Seeds (black and White) as observed in site Visited

***Photo 3.1(a)**: Sample of Mixed sunflower Seeds varieties (black and white) as observed by Auditors at Dodoma SIDO Industrial Area*

***Photo 3.1(b)**: Sample of Mixed sunflower Seeds varieties (black and white) as observed by Auditors at Mbeya SIDO Industrial Area*

Inadequate availability of raw materials was contributed by the following factors:

Weak Link between the Ministry of Agriculture and Extension Officers: It was noted that, the existing reporting mechanism hinders direct influence of the Ministry of Agriculture to Extension Officers. The Extension Officers are not reporting directly to the Ministry of Agriculture, instead they are reporting to PO-RALG. Therefore, the Ministry of Agriculture cannot ensure that, the extension officers are undertaking their primary mandates of providing proper extension services to farmers.

Subsistence Mode of Farming: In addition to that, the inadequate raw materials and unsatisfactory quality of such raw materials were noted to be caused by the mode of farming. Since farmers were not producing in blocks, the extension services become difficult to be provided, ultimately resulting into provision of raw materials which are not adequate in terms of quality and quantity. The impact of inadequate raw materials is viewed on underperformance of agro-processing industries as well as lack of

continuity in supplying raw materials to different buyers. Detailed explanation is as follows:

- **Inadequate Supply of Contracted Volume of Crops due to Shortage of Raw Materials**

The Audit Team realised that, the Government secured different contracts with different countries to supply raw materials. However, the contracts could not be met because the raw materials could not be supplied constantly. Reviewed summary bulletin from TanTrade indicated that out of Five Memorandum of Understanding (MoU) signed with different countries, the supply was only possible for one contract as further elaborated in **Table 3.6** below;

Table 3.6: Supply of Raw Materials from Different MoU Signed Between Tanzania and other Countries

Agreed Financial Year in MoU	MoU Entered for Supplying				Remarks
	Type/ Nature of Supply	Supply Needed Amount (Tones)	Successfully Supplied Amount (Tones)	Gap of Raw Materials Amount (Tones)	
2017/18 - 2020/2021	Cassava	2,000,000	1,079	1,998,921	MoU between the Government of Tanzania and China (no time frame indicated in the agreement)
2018/19	Maize	1,083,000	67,946	1,015,054	MoU between Tanzania and Different Countries
2019/20	Cassava	1,200	NIL	NIL	MoU with different stakeholders within the country
2020/21	Cassava	40,000	550	39,450	MoU between Tanzania Companies with China and France
2021/22	Rice & Grains	150,000	176,055	-26,055	MoU - inside and outside Tanzania

Source: *Auditors's Analysis Using Information from TanTrade (2022)*

Referring to **Table 3.6**, it is indicated that the export of raw materials outside the country to secure foreign currency is inadequately achieved. The noted gaps are so huge and significant for almost 4 out of 5 years reviewed. The exeption was in the fifth year, where it is indicated that, teh demand was met. This was mainly conributed by various factors such as amount of rice harvested in that year and an exportation ban on rice.

3.2.4 Agro-processing has Inadequately Contributed to the Reduction of Post-harvest Losses

Specific Objective B of the National Post-harvest Management Strategy, 2019 is to enhance the promotion of availability, accessibility and adoption of tested technologies to reduce post-harvest losses. The specific objective of promoting agro-processing along the value chain targeted to increase agro-processing investments by 30 percent by 2027. Despite the establishment of this strategy, the audit found that, there were no indicators showing how the strategy would reduce the current levels of post-harvest losses, which amount to 40% for cereals and even higher for horticultural crops. This would make the strategy immeasurable during its final evaluation.

Though, the NPHMS lacked detailed analysis of post-harvest losses reduction, the African Union Summit of 2014 held at Malabo Equatorial Guinea[2] intended to reduce the post-harvest losses by half in 2025. Similarly, the Agricultural Sector Development Strategy (ASDS II, 2015/2016 – 2024/2025) aimed at enhancing agro-processing as the means of adding value in the production chain in order to reduce post-harvest losses by half by the year 2025.

Contrary to this, the audit noted insignificant reduction of post-harvest losses for various crops. Reviewed correspondent documents from MoA, revealed that, the cumulative post-harvest losses for cereals are amounting to 40% of production annually. Moreover, Baseline Study for Establishing Baseline Situation on Post-Harvest Losses of Food Crops undertaken in April, 2022, indicated post-harvest losses were 15.1% for maize, 15.5% for rice, and 19.3% for cassava. These losses are found to be

[2] Malabo declaration intended to reduce the post-harvest loss by half on 2025

lower than 20% to the target set by the Malabo Declaration, in which Tanzania is a signatory. However, the evaluation was undertaken in 7 out of 169 Districts present in the country, and covers few crops such as maize, pad and cassava, hence not an adequate representative sample to provide a national picture of the postharvest loss. Upon the review made on the submitted Report, the Audit Team had noted that, the study sample left regions which are more producing the respective crops of paddy and maize such as Ruvuma, Mbeya, Katavi, Rukwa e.tc.

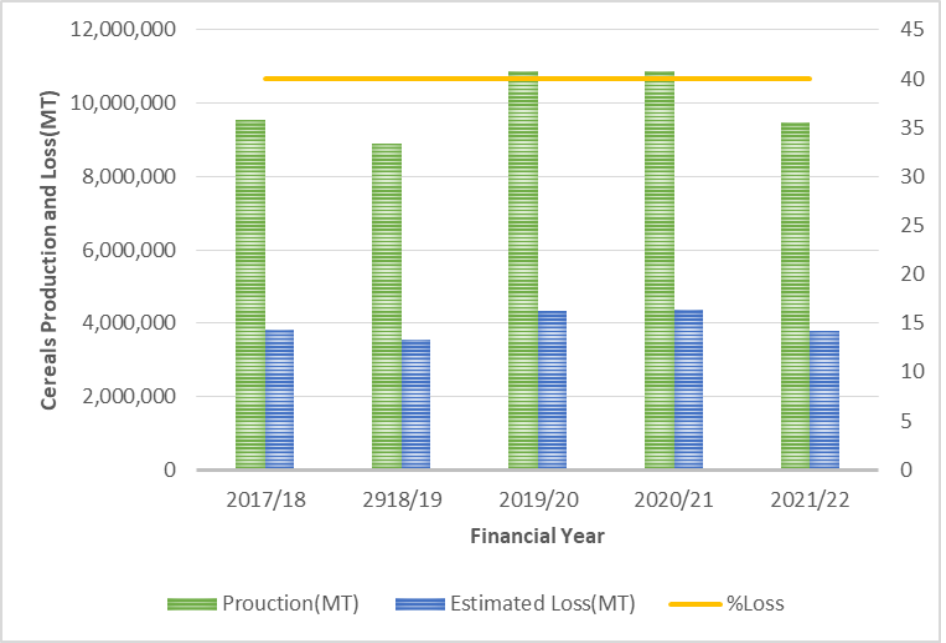
The study indicated that although there was an increase in production from the financial year 2017/18, post-harvest losses remained high. According to the study, this trend was linked to less efforts made by the Ministry of Agriculture to reduce post-harvest loss incidences through improved agro-processing and value addition of crops.

Interview with agro-processors revealed that, cereals were long time ago observed to have post-harvest losses of about 40%, but there was no figure for horticultural crops mentioned. According to the reviewed documents[3], it can be suggested that, post-harvest losses for horticultural crops could be higher than 40% due to their perishability nature.

The audit analysis also indicated insignificant improvement in post-harvest losses for cereal crops for the past five years as shown in **Figure 3.5.**

[3] Post-harvest loss Information

Figure 3.5: Estimated Post-Harvest Losses for Cereal Crops for the Past Five Financial Years



***Source**: Auditors' Analysis Using Post-harvest loss Information from MoA (2022)*

From **Figure 3.5**, post-harvest losses for cereal products stood at 40% for the entire period of five financial years.

The noted post-harvest losses was mainly caused by inadequate implementation of the National Post-harvest Management Strategy, as evidenced by unimplemented interventions. **Table 3.7** indicates a list of different interventions which were not yet implemented by the Ministry of Agriculture.

Table 3.7: Implementation of Different Interventions for Agro-processing Activities

Proposed Interventions in the Monitoring of the implementation of the NPHMS	Action done by the Ministry	Auditors' Inference
Assessment as to whether the implementation of the NPHMS is achieving the intended results	Not Done	These interventions were set to monitor the progress of the implementation of the Post-harvest Management Strategy, there is a risk of inadequately achieving the intended results if an immediate action won't be taken
Assessment of the efficiency and effectiveness of utilizing the available resources	Not Done	
Assessment of the reasons for failures in implementing some of the agreed activities	Not Done	
Assessment of the performance of MoA in spearheading the implementation of the NPHMS.	Not Done	

Source: *Auditors' Analysis using information from Post-harvest Management Strategy (2022)*

It was further noted that, the M&E system would have been reviewed annually to determine elements of the system that need to be reviewed or dropped. Despite this requirement, the Ministry of Agriculture did not take any review within three years of its implementation. Moreover, since the NPHMS was planned to be a strategy of 10 years, it was supposed to have an evaluation of implementation once in every three years using an impartial external evaluator to diagnose potential changes that might affect the performance of NPHMS during the remaining period of its implementation. Also, the implementation of this strategy is in its fourth year without any review to have been carried out.

The impact of not reviewing the implementation of the NPHMS might be continuation of post-harvest losses. However, the noted post-harvest losses were indicated to be caused by different aspects apart from the above generic causes.

Review of the National Post-Harvest Management Strategy 2019-2029, indicated that, there is lack of marketing structures, poor linkages due to informal marketing arrangements and inadequate communication that constrain access to marketing information and hence leading to high levels of post-harvest losses.

Furthermore, review of the Baseline Study Report for establishing situation on post-harvest losses[4] noted that, marketing systems adopted varied grossly with type of target crop and locations. Marketing usually follows after harvesting, depending on the type of crop. Some can stay longer at the hand of the producers or secondary buyers without being spoiled and other crops stay for a short period of time before getting spoiled. That being the case, marketing systems can be one among the factors that cause post-harvest losses. The farm gate market system will cause higher losses compared to other market systems.

Also, the review of baseline study report further reveals that, the farm gate market system dominated, followed by village markets. It was noted that, for maize, paddy, and cassava, the farm gate followed by village markets dominated the marketing systems in all districts. Results showed that, 40.7% followed by 21.2% of the respondents market at farm gate and village markets, respectively. With this type of marketing system at household level, the farmers stay with their crop for a period of time waiting for the buyer to come to their homes. The poor storage facilities at the households' level aggravate post-harvest losses.

The management of agro-processing of crops is crucial in supporting improvements of social and economic services to the country. These improvements are crucial in extending the resource base of government revenues and increasing food security.

In addition, the audit team undertook an assessment on the status of food crops produced to measure the extent of food security status in the country. The audit team realized that, for the assessed production years of 2017/2018- 2021/2022, the country attained SSR of between 118 and

[4] Baseline Study For Establishing Baseline Situation on Post-Harvest Losses of Food Crops, April 2022

126 for respective consumption years, implying sufficient and surplus levels. **Table 3.8** indicates the food security status for past five financial years.

Table 3.8: Food Security Status for Five Financial Years, 2017/18 - 2021/22

Financial Year	Preliminary Forecasted Production(MT)	Final Production(MT)	Self Sufficient Ratio(SSR*)	Auditors Remarks
2017/18	15,900,864	Was not conducted	120	For two consecutive years, the SSR ratio was calculated based on Preliminary forecast and not Final production data. It becomes difficult to conclude whether the food production was sufficient or not
2018/19	16,891,974	Was not conducted	124	
2019/20	16,408,309	16,293,637	118	Sufficient
2020/21	17,859,648	18,196,733	126	Surplus
2021/22	18,425,250	18,665,217	126	Surplus

***Source**: Auditors' Analysis of Information from the National Food Security (2022)*

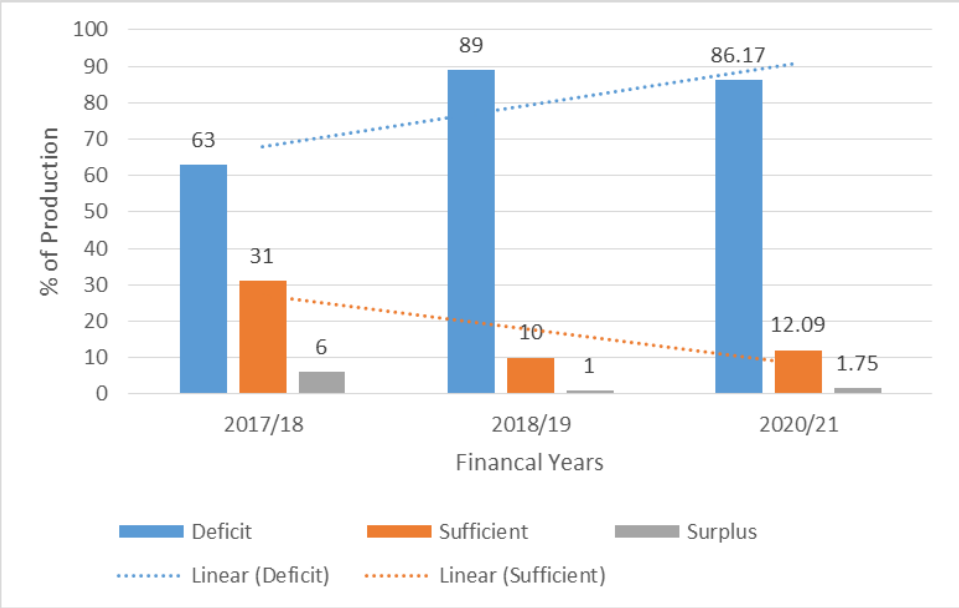
*NOTE: ** SSR means the extent to which a country can satisfy its food needs from its own domestic production, where 0-99% means food shortage, 100-119 means food sufficiency while 120 and above means food surplus.

With reference to the data in **Table 3.8,** the audit team noted different food security status as calculated using Self Sufficient Ratio. Generally, the status indicated that, food security in the whole country was sufficient despite the observed post-harvest losses. The surplus observed was highly

contributed by the low volume of exportation. The observed export was less than 5% of total crop production for five years.

Likewise, an assessment of food security cannot be comprehensive without assessing food vulnerability. In this assessment, the Ministry selected purposively the vulnerable households to assess their production. The audit noted that, despite having an overall success in achieving food surplus, the situation was critical for the sampled vulnerable households. As indicated in **Figure 3.6**, food deficit was noted to be high with an abrupt increase from 63% for the Financial Year 2018/19 to 86.17% for the Financial Year 2020/21. Meanwhile, food sufficiency for the vulnerable households was noted to decrease from 31% for the Financial Year 2018/19 to 12.09% for the Financial Year 2020/21.

Figure 3.6: Assessment of Food Sufficiency for Vulnerable Households, 2017/18 - 2020/21



Source: *Auditors' Analysis using Intensive Assessment Report on the Food Security and Nutrition Status of 2020 and 2022*

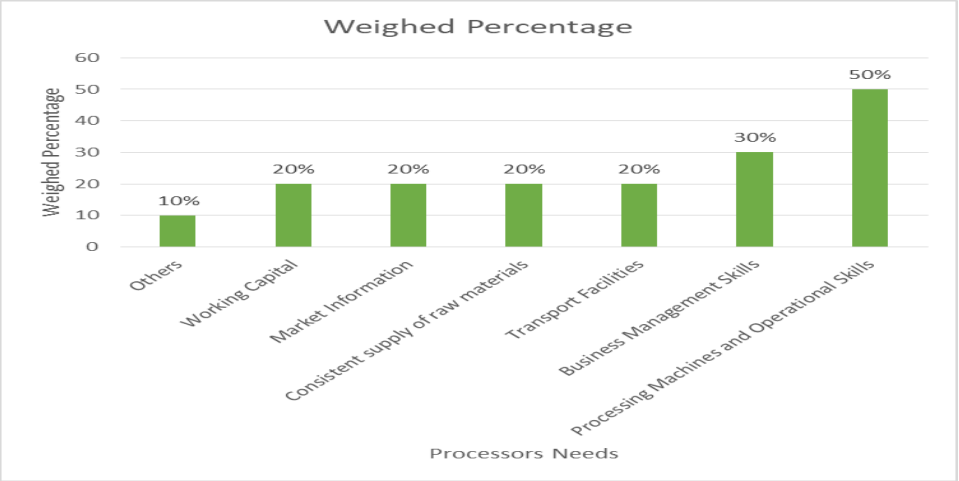
Based on the findings presented in **Figure 3.6**, the indication of food deficit for vulnerable households is high, as there is high percentage of deficit while there is low food sufficiency percentage. Despite the observed surplus at the National level. This implies that, the surplus recorded was only experienced by a segment of households in the overall number of households.

3.3 Inadequate Facilitation of the Availability and Accessibility of Technologies

Availability and accessibility of the agro-processing technologies was noted to be one of the factors that contributed greatly to ineffective management of agro-processing and value addition of crops.

The review of Lead Firms Survey Report, of 2022 from Tanzania Horticultural Association (TAHA) pointed out seven major needs of agro-processors in crop processing value chain such as working capital, market information, consistent supply of raw materials, transport facilities, business management skills and processing machines and operational skills The audit found that, among of these needs processing machines and operational skills were highly needed accounting to 50% weight of the overall needs of agro-processors listed. While, other needs such as cold chain transport, refrigerators and training accounted only 10% weight of the overall needs of agro-processors. This implies that, there was inadequate facilitation of the availability and accessibility of technologies. **Figure 3.7** indicates the weighted percentage of the needs to enhance agro-processing and value addition of crops.

Figure 3.7: Weighted Percentage of Needs for Enhancing Agro-Processors



***Source**: Auditors' Analysis from the Lead Firms Survey Report (2022)*

Figure 3.7 above shows different needs of agro-processors for the better processing activities. It was noted that 50% of all the respondents indicated to need more processing machines and operational skills while 10% of the respondents indicated to need other services such as cold chain transport, refrigerators and training.

Moreover, a detailed assessment of the availability and accessibility of technologies for agro-processing and value addition of crops revealed that the Ministries had not adequately ensured availability and accessibility of the technologies and skills. This is as elaborated in the flowing sections.

3.3.1 Inadequate Availability of Quality Technologies for Agro-processing and Value Addition of Crops

According to specific objective B of the National Post-harvest Management Strategy of 2019, MoA and MITI were required to facilitate/ the availability, accessibility and adoption of tested technologies to promote agro-processing along the crop value chains. This was to be done by SIDO through its Technology Development Centres (TDCs) having responsibilities for ensuring the accessibility and adoption of tested technologies. The

assessment made by the audit team on the availability of the technologies for Agro-processing and value addition of crops noted the following:

Inadequate availability of the Required Technologies for Agro-processing and Value Addition of Crops

According to section 5(a) of SIDO Act, 1975, the MITI through SIDO was required to ensure availability of technologies as per SMEs' requirements to facilitate value addition activities based on locally available resources. Despite this requirement, the audit analysis of the technologies available indicated a gap of technologies which were highly needed in agro-processing and value addition of crops. Detailed analysis of cost of technology as a setback hampering technology availability is as indicated in section 3.3.2 of this report. Generally, at the National level, the missing technologies included the manufacturing technologies for making smaller machines and tools; furnishing of machines; manufacturing of packaging materials, moisture analyser, and briquetting technologies in addition to crop specific technologies.

Specifically, based on the sampled crops, the missing technological gaps is as presented in the **Table 3.9.**

Table 3.9: Assessment of Technological Gaps

Sampled Crops	Technological Gap in Agro-processing and Value addition of crops	Remarks
Paddy/Rice	• Automatic rice processing machines to cover the whole processing value chain and bagging • Technology for sorting • Rice polishing and grading • Husks/by-products processing	SIDO has no capacity of manufacturing the said technologies so as to make them available in the country. Few available technologies were found to be imported outside the country. Because of inadequate capacity, SIDO has not done reverse engineering to compensate the technological gap noted.
Maize	• Automatic maize processing machines from winnowing to bagging	

Sampled Crops	Technological Gap in Agro-processing and Value addition of crops	Remarks
	• Fortification technologies e.g. Dosifier	
Cassava	• Fortification technologies e.g. Dosifier	
Sunflower	• Double refinery plant • Fortification technologies e.g. Dosifier	
Tomato	• Tomato peeling	

***Source**: Auditors' Analysis of Technological Development Centers (2022)*

Based on the findings in **Table 3.9**, the audit team noted different technological gaps for agro-processing and value addition of crops. These were supposed to be bridged by undertaking reverse engineering. It was noted that, SIDO had not managed to make any technology for fortification.

In the country, there was only one private company that supplied the technology for fortification of maize flour leaving out products from other crops such as edible oil and cassava flour which require fortification as well. This was a clear manifestation that, value addition for most of the crops was not adequately done. For instance, all sunflower oil processed by agro-processors was found unrefined due to lack of refining technology. The identified causes for inadequate availability of technology were as follows:

Inadequate prioritisation of different technological development, especially those from the TDCs: Reviewed SIDO's Exhibition Report of 2018, associated the gaps with inadequate prioritisation on different technological development, especially those from the TDCs. This was due to the fact that, for quite long exhibitions have been experiencing presentations of the same kind of technologies. This signifies that, there was limited technological development.

Absence of Research Section within SIDO: The audit noted that there is no research section which could have assessed the technological gaps within the country, and coordinate the stakeholders to ensure their availability in the country. This absence is contrary to section 4 (f) of the SIDO Act, 1975 that requires SIDO to carry out research in the development of small industries and marketing of products thereof, including the standard and quality of such products.

Inadequate Capacity of the Available Technologies to Facilitate Agro-processing and value Addition of Crops

The audit noted that, in all the three visited TDCs, the technologies that were available could not cover all the processes in crop value addition chains. In most cases, the available technologies were semi-manual and while in other areas there were no locally made technologies such as packing and fortification technologies.

Upon the assessment of the available technologies for agro-processing and value addition of crops, the audit further noted that, the developed technologies for agro-processing were semi-manual and less efficient to perform the respective processing tasks. Moreover, existing technologies were observed to be obsolete, with their spare parts not easily available. Their detailed assessment is as indicated as follows:-

(a) The Available Agro-processing Machine Developed by SIDO had no automated system and Less Efficient to Complete the Processing Activities

The Corporate Strategic Plan of SIDO of the year 2016/17-2020/21 emphasised that, the developed machine/technology should be efficient. The observations made by auditors revealed a different case, as it was noted that, all machines developed or been facilitated by SIDO in their development had no automated system as they required individuals for their operations.

Moreover, responses of 15 out of 16 which is equivalent to 94% of the agro-processors interviewed acknowledged the inefficiency of agro-processing machines. For example, it was noted that, the available sunflower seed pressing machines resulted into estimated post-harvest losses of 75%.

Similarly, the reviewed Sunflower Strategy, 2017 also indicated that, the present sunflower oil-pressing machine from SIDO and other local private developers were not able to press sunflower seeds to ensure that all oil is extracted. This was noted when the sunflower cake was pressed for further yielding of oil. Interviews made to the sunflower processors from Mbeya and Dodoma confirmed that neighbouring countries and other local industries and buyers outside the country are buying sunflower seed cake from small agro-processors for sunflower oil extraction through solvent extraction.

In addition to that, the observation made by auditors at Dar es Salaam, Dodoma, Mbeya, and Kigoma and reviewed exhibition reports of 2017 from eastern, southern and northern highland zones noted that, agro-processing machines made by SIDO were less furnished. Moreover, the machines made were noted to be inconsistency in the size of iron sheets used when compared to the imported agro processing machines. Machines manufactured at SIDO were found to have low quality in comparison with the ones from local private manufacturers.

Photos 3.2(a) and **3.2(b)** indicate two oil pressing machines from different points of origin with the homemade found to be of low quality compared to the imported ones.

Photo 3.2(a): Inadequately furnished locally made Sunflower Oil pressing Machine, as taken by Auditors at Mbeya on 3rd October,2022.

Photo 3.2(b): Adequate furnished imported Sunflower Oil pressing Machine, as taken by Auditors at Dododma on 14th September,2022.

As indicated in **photos 3.2(a) and 3.2(b),** the audit noted different machines for sunflower oil processing machine with different outlooks. The audit noted that, machines made by SIDO were observed to be of low quality compared to the imported ones.

It was noted that, locally made machines were inadequately furnished compared to the imported ones due to the use of arc welding technology in the country. The arc welding machines produce inadequate furnished joints whereas welding technologies such as Tig welding, Mig welding and spark welding produce better furnished joints. However, arc welding remains to be the basic joinery technology for metals at the moment for training at small scale manufacturing levels but requires skilful use.

Moreover, the audit realised that, the quality of the materials used to fabricate agro-processing machines was of low standards. For example, 19 out of 20 maize milling machines equivalent to 95% of all maize milling machines were made using mild steel iron. This type of iron is not recommended for making food processing machines because they are easily worn out through abrasion and corrosion, causing contamination of the processed food with iron particles thus, compromise the quality of the products and ultimately endangers human health.

Furthermore, physical verification made at Dodoma, Dar es salaam, Mbeya, and Shinyanga agro processors and TDCs by the audit noted that, machines developed by SIDO and other private firms sponsored by SIDO lacked key aspects of efficiency and quality of the processed products. All 12 locally made agro-processing machines sampled were lacking maintenance manuals and TBS certification marks. **Table 3.10** presents the key items/aspects missing and their associated risks.

Table 3.10: Summary of Missing Items in the Machines and the Associated Risks

Items Missing	Observation	Effect to the Agro-processing and Value addition Activities
TBS certification mark	Not Available as 95% of the maize milling machines were made by mild steel to cut down production cost. This type of steel is not recommended as it is easily corroded by rust and moreover, it wears easily and contaminates the flour thus, compromise the quality of the products and ultimately endangers human health	Both qualities of the machine and of the processed product are jeopardized. It is therefore hard for agro-processors to sell their processed and packed products outside the country without having TBS mark.
User manual	Not Available, instead instructions were provided to various operators verbally.	Inconsistency in the operation of the machines in accordance to the developer's requirements. This can lead to inadequate efficiency of the machine during operation. For example, when the machines are overloaded or under-loaded the performance will be low.
Maintenance manual	No periodic maintenance manual of the agro-processing machines supplied	Maintenance were done in ad hock basis especially when there were breakdowns. This reduces lifespan of the machine

Items Missing	Observation	Effect to the Agro-processing and Value addition Activities
Guarantee card to buyers	No written guarantee	Risk to quality assurance of the machine
Drawings	Machines were made by knowledge and there were no any documented drawing that could permit manufacturing of the machine of the same quality and specifications.	The manufactured machines lack documented specifications in terms of materials to be used and sizes of different parts which contribute to the efficiency in performing the intended functions. It also remains challenging to maintain consistency performance of the produced typical machines.

Source: *Auditors' Analysis on the Summary of Missing Items (2022)*

As presented in **Table 3.10** above, the observed missing or weaknesses have impact on efficiency, quality of the processed products and the sustainability of the machine.

Interviewed Officials from SIDO pointed out that, so far it has not developed guidelines for TDCs and other technology developers before developing agro-processing machines, to develop machines of the same quality at any time. For example, the guidelines could have indicated the size of Iron sheet, power of motor, and type of steel for machines with the same capacity and functions. This could have reduced inconsistency noted for the machines with the same capacity and function.

Also, most of the materials such as stainless steel, which are recommended to be used in manufacturing of food processing machines have to be imported and therefore are procured at high price as compared to those which are not recommended. Due to the capital investment challenge customers opt for cheaper materials which are not recommended for as long as the manufacturer is willing to serve them. This phenomenon hampers performance and quality weaknesses.

(b) Use Obsolete Technology for Agro-processing and Value Addition of Crops

The review of documents[5] revealed that, most of technology used in domestic industries for agro-processing are obsolete to the extent of making it difficult to get spare parts when need of replacement arises. This assertion was further supported by all interviewed officials from SIDO and other private technology developers. Moreover, the physical observation made by the audit team confirmed the existence of machines with outdated agro-processing technologies.

It was further pointed out that, domestic technology developers face stiff competition from imported technology. The price of imported technology was noted to be relatively cheaper compared to the price of domestic technology. Relatively cheaper price of imported technology was linked to low production costs and the economy of scale created in respective manufacturing countries.

For instance, the price of domestic manufactured Maize Hammer Mill machine with production capacity of 300-1000 Kilograms per hour ranges from TZS 7.5-10.5 million whereas a similar imported machine with the same production capacity is sold at around TZS 4.5 million. This discrepancy in quality and price resulted into the centers responsible for technology development unable to compete with imported technologies. The review of documents and interviews from SIDO's TDCs at Kigoma and Mbeya had the same views regarding technology availability and accessibility to agro-processors. They further added that, regardless of locally made machines being outdated and less efficient, they were found to be durable compared to imported ones.

Detailed assessment of price is as indicated in **Table 3.12** of section **3.3.2** of this report.

Moreover, observation made at TDCs of Mbeya and Kigoma indicated the list of machines required to be fabricated. It was observed that, a total of 21 machines were missing while a total of 19 machines were found to be

[5] SME Evaluation Reports,2017,

obsolete. These machines were reported to be operational in respective TDCs since the year 1975. The obsolete machines from the TDCs of Mbeya and Kigoma are as indicated in **Photo 3.3 (a)** and **(b).**

Photos 3.3(a) and 3.3(b) indicate two Sampled Obsolete Machines as Observed at Mbeya and Kigoma

Photo 3.3 (a): Sample of an Obsolete machine as observed from Kigoma-TDC . Photo taken by Auditors on 6th October,2022.

Photo 3.3 (b): Sample of an Obsolete machine as observed from Mbeya-TDC . Photo taken by Auditors on 30th September,2022.

Photos 3.3(a) and **3.3(b),** indicate different machines which are obsolete among 19 obsolete machines observed from Mbeya, Kigoma and Shinyanga.

The audit noted further that, different machines from TDCs that used to develop other agro-processing machines were outdated to efficiently undertake the processing activities. The available machines obsolete technology, and as a result the ago-processing machines developed were of low quality and less efficient compared to the imported ones. Similarly, it was observed that, in almost every TDCs visited, most of its machines were obsolete while others were missing.

Detailed list of the obsolete and missing machines is as detailed in **Table 3.11**.

Table 3.11: Different Obsolete and Missing Machines noted in the Visited TDC

Visited Technological Development Center (TDC)	Obsolete Machine Noted	Missing Machine	Auditors' Remarks
Mbeya	Press break Machine for Bending the iron sheet to 90^0	Foundry for melting different metal	All TDCs visited lacked Foundry machine, resulting in different metals with high melting points not able to be melted in order to be forged. As a result, different spare parts that could be made at the foundry are imported.
	Rolling Machine for Rolling the iron sheet more than 6mm	CNC-Plasmer, Foundry	
	Lathe machine (bed dimension 700mm x 4000mm, and spindle diameter 150mm	Lathe machine (bed dimension 700mm x 4000mm, and spindle diameter 150mm	
	Lathe machine (bed dimension 610mm x 3000mm, and spindle diameter 105mm	Lathe machine (bed dimension 610mm x 3000mm, and spindle diameter 105mm	
	Universal milling machine	Universal milling machine	
	Hydraulic guillotine machine	Hydraulic guillotine machine	
	Radial	Rolling Machine	

Visited Technological Development Center (TDC)	Obsolete Machine Noted	Missing Machine	Auditors' Remarks
	machine	Radial machine	
		Synegic mig	
		Automatic CNC-Plasma cutter	
Kigoma	Power hack saw	CNC-milling, Foundry	
	Two Lathe machines	Milling Machine	
	Grinder Machine	Radial Drill Machine	
	Radial drilling Machine	Shear Machine	
	Rechargeable Hand drill	Mig/Tin with gas	
	Welding machine-pioneer	Foundry	
Shinyanga	Milling	Milling Lathe Radial Drill Angle Grinder Pipe Bender	
	Lathe		
	Radial Drill		
	Angle Grinder		
	Pipe Bender		
	Energy Saver welding		

Source: *Auditors' Analysis from TDCs (2022)*

Table 3.11 above shows that, in almost all TDCs visited there were 19 machines, which were obsolete while 21 machines were missing. However, the audit noted that, all TDCs lacked foundry workshops, which are necessary in the manufacturing of spare parts. These are also used in manufacturing of various kinds of machines including agro-processing machines. This affects the development of technology but also contributed to the unavailability of spare parts which lead to high price of imported spare parts.

The general effect of unavailability of technology as linked to crops available in the respective regions visited was linked to post harvest losses as well as national food insecurity. The effect of the noted weaknesses on the availability of machines and technology was post-harvest losses and selling of crop produces in their raw forms. Because of this, the One District One Product strategy (ODOP) could be impaired. For example, despite the fact that, Kigoma was leading in the production of cassava, there were inadequate technologies developed for cassava.

The only cassava technologies developed by Kigoma TDC were cassava starch extraction and cassava milling machines as indicated in **Photos 3.4 (a)** and **3.4(b).** Because of this, Kigoma exported an approximately 147,398 MT of cassava in raw form to the neighboring countries such as Congo and Burundi.

Photos 3.4(a) and 3.4(b) indicate Cassava Starch Extraction and Diesel Operated Cassava Milling machine at Kigoma

Photo 3.4(a): Starch extraction machine which is manually operated by using hand jerk to press 30 stacks of cassava per week. Photo taken at MWISCBITA Women as taken by Auditors on 7th October, 2022.

Photo 3.4(b): Cassava milling machine operated by Diesel engine as developed by SIDO-Kigoma. Photo taken at MWISCBITA women on 7th October, 2022.

3.3.2 Inadequate Accessibility of Technologies for Agro-Processing and Value Addition of Crops

According to Section 4.1(1) of the National Agricultural Marketing Policy, 2008, the primary agro-processing and value addition activities should be promoted and strengthened. Moreover, paragraph 4.4.5 of the SIDO Strategic Plan, 2016/17-2020/21 intended to ensure the facilitation of technology transfer. It targeted to initiate collaborative networks with technology developers and Research and Development Institutions, to establish new TDCs and strengthen the existing TDCs capacity, and finally it targeted to facilitate transfer of technologies.

The challenge of accessibility of agro-processing technologies was confirmed by all interviewed processors. This challenge was also observed during the site visit of Mbeya where rice and maize millers who purchased processing machines from China experienced difficulties in obtaining spare parts because some of the locally made spare parts were not compatible to imported machines.
The assessment of accessibility of the processing and value addition technologies as measured based on the price and availability revealed that the required technologies were not easily accessible to most of the agro-processors. Detailed description of inadequate accessibility of processing and value addition technologies is elaborated as follows.

- *Locally made agro-processing machines were of High cost compared to imported ones*

Detailed comparative costs between the homemade technologies versus imported agro-processing technologies indicated that, the price of homemade technologies were higher than the imported ones. The details are as indicated in **Table 3.12.**

Table 3.12: Comparison of Cost between the Homemade and Imported Agro-processing and Value Addition Technologies

Sampled Crops	Available Agro-processing and Value Addition Technologies	Capacity of the machine	Domestic Cost (Millions TZS)	Imported Cost (Millions TZS)	% age difference
Sun Flower and Maize	Oil Pressing and Filtration	20TONE/DAY		57.5	
	Cleaner & Destoner	700-1000KG/HR	5.5 - 6.0	3	46
	Sunflower Thresher	311KG/HR		7.5	
	Portable Maize Shellers	5-10 TONES/HR	16-25	13.4 - 19.5	16-22
	Maize Hammer Mill	300-1000KG/HR	7.5-10.5	4.5	40-57
Rice	Rice Cleaner and Destoner	700-1000KG/HR		3	
	Combine Rice Mill	1000-1200KG/HR	50	12 – 14	72-76
Cassava	Processing For the production of Starch	250-300KG/HR	4	1.4	65
	Cassava Solar Drier	1.5TONE	3 5	3.0	14
	Cassava Grater	650-800KG	2.5	2.3	8
	Cassava Chipper		2.5	1.2	52
Tomatoes	Tomato Blender	50-80KG/HR	2.5	1.4	44

***Source**: Auditors' Analysis **of** Sample from different price quotations as obtained from MoA and TDCs (2022)*

Table 3.12 above indicates that variation of cost between domestic and imported technologies for crops processing was range from 8 to 76 percent.

This implies that, agro-processors opted to buy processing machines from importers rather than buying from domestic producers. Despite their cheap price, some of the imported technologies were noted to be weak compared to locally manufactured technologies as they could not last longer when installed in the processing industries.

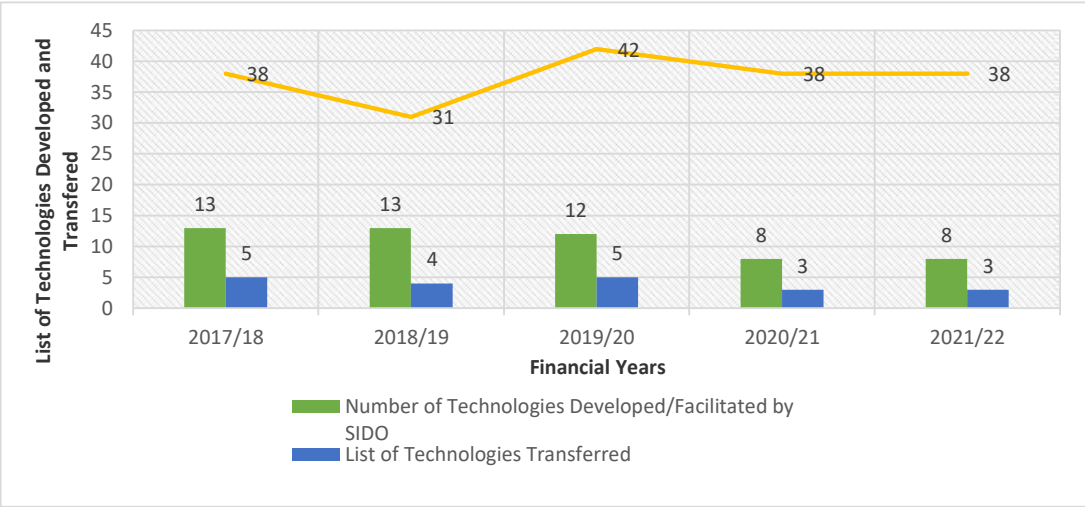
Interview with officials from Dodoma, Dar es Salaam, Mbeya and Kigoma revealed that, the price of imported technologies as compared to those manufactured within the country was cheaper due to the low production cost in the country of origin. Also the materials used in manufacturing of the machines such as steel plates within the country are imported and available at high prices. This situation contributed to the locally made technologies be available at high cost.

- *Inadequate Transfer of Technology to Agro-processors*

In addition to that, the audit had noted that, SIDO inadequately transferred the technologies which were either developed or facilitated by SIDO. The analysis made by the audit team had noted that, there was no financial year where SIDO transferred all of the technologies developed. This is contrary to the requirement of its strategic objective 5 (5.1), which requires SIDO to ensure value addition technologies are commercialised annually.

The percentage of the technologies developed and the technologies transferred fluctuated as indicated in **Figure 3.8.**

Figure 3.8: Technologies Developed versus Transferred for Five Years



***Source**: Auditors' Analysis using Technology Information Submitted by SIDO (2022)*

Based on the findings in **Figure 3.8,** it is deduced that, the number of technologies transferred in five Financial Years varied. The technologies transferred were indicated to be higher for the Financial Year 2019/20, where 42% of all technologies developed were transferred. Low technology transfer was observed for the Financial Year 2018/19 where 31% of all technologies developed were transferred. Because of the indication in Figure 3.6, the technology transferred were noted to be constant for three years where it was observed to be 38% of all technologies developed for 2017/18, 2020/21 and 2021/22.

This implies that, the technologies developed by SIDO were inadequately reaching the agro-processors. As a result, the audit noted that, the agro-processors were using outdated machines which had less efficiency, causing post-harvest losses and compromised the quality of the agro-processed products.

The noted technologies were developed/ facilitated by SIDO but were never disseminated to the agro-processors in the respective year. They include Flour milling machine - food grade as indicated in **Appendix Six.**

This means that, SIDO had inadequately transferred technologies related to agro processing and value addition of crops, despite being dominant technologies compared to other cross-cutting technologies. This could accelerate the continuous use of obsolete technologies for agro-processing and value addition of crops.

The audit noted that, inadequate accessibility of technologies to agro-processors was caused by inadequate performance of Technology Development Center (TDCs) as they lacked capacity in terms of human resources and working tools. The audit noted that, TDCs had a shortage of human resources by about 81% as detailed below;

Table 3.13: Assessment of Staff Present and Requirement at TDCs

Cadre	Total Number of Staff	Present Number of Staff	Shortage	%Shortage of Staff
Engineers	7	6	1	14
Technicians	35	2	33	94
Artisans	175	30	145	82
Total	**207**	**38**	**169**	**81**

***Source**: Auditors' Analysis on the Ministerial Advisory Board Report (2020/21)*

In reference to **Table 3.13**, the audit noted shortage of technical personnel amounting to 81%. It was observed that, TDCs lacked Technicians by 94% and Engineers by 14% only. This implies that, TDCs lack the manpower to implement workshop activities such as machine and spare parts fabrications. Due to this shortage, the capacity of SIDO and TDCs to fabricate agro-processing machines for their customers would be low, eventually resulting in inadequate availability of machines for agro-processors.

Moreover, the audit noted that, despite the inadequate capacity of the TDCs, there was uneven distribution of TDCs in geographical zones. While in the Lake Zone, 1 TDC served 5 regions, the situation was different for the southern highlands and northern zone where 2 TDCs served 3 regions, while the central and southern zones do not have any TDC.

Table 3.14: Geographical Distribution of TDCs and the Number of Regions Served

Geographical Zone	Number of TDC	Number of Regions Served	Service Ratio
Lake	1	5	0.2
Central	0	0	0.0
Southern	0	0	0.0
Northern	2	3	0.7
Southern highlands	2	3	0.7
Western	1	4	0.25

Source: *Auditors' Analysis of the Data from TDCs (2022)*

From the findings in **Table 3.14**, it is indicated that, the service ratio from different TDCs varied from 0 to 0.7. The audit noted the presence of two zones, which lacked TDCs at all. This means there were no technological development services issued to these regions. Absence of TDCs from these zones increased the chance of inadequate availability of agro-processing technologies in those areas. However, the available TDCs could be facilitated to serve the whole country.

3.4 MITI did not ensure Availability and Accessibility of Adequate Markets to Processed Products

Section 4.2 (i) of the National Agricultural Marketing Policy, 2008 requires the enhancement of capacitation of agricultural marketing to actors so as to meet quality grades and standards for the domestic, regional and international markets.

Moreover, SIDO CSP of 2016/17 – 2020/2021, has set the goal to ensure SMES access to markets and information is facilitated. In addition to that, SIDO is required to carry out market research in goods manufactured by small industries in Tanzania (Section 5 (c) of SIDO Act, 1973).

The Audit Team appreciates the continuing efforts of the government in ensuring the markets are available and easily accessed by farmers by putting different initiatives. For example, the Ministry has been actively participating and promoting export of agricultural products in international markets through various forums and Government to Government engagements. In February 2022, during the Expo 2020 Dubai,

three MoU were signed targeting exports and trading of agricultural products.

These MoU on Cooperation in Marketing of Tanzania horticultural products in the Indian market signed between the Tanzania Horticulture Association (TAHA) and the MV AGRO FRESH company. This project aimed at enhancing cooperation in searching for markets of Horticultural crops such as fruits, flowers and vegetables in India. The MV AGRO FRESH company visited the country on 21 March, 2022 and met with TAHA and other stakeholders in the value chain of horticultural crops and agreed to work on various areas especially to opening new markets for these crops in India. Recently, avocado exporters in Tanzania have started to connect with avocado buyers in India.

Despite of the initiatives made by the Government, the audit Team noted gaps which needed rectification for better improvement. As a normal practice after harvesting, storage or processing and packaging the produces will need reliable markets. The audit assessed adequacy of markets and noted the following weaknesses:

3.4.1 Inadequate Enabling Environment that intends to Promote Internally generated Products to different Consumers within and outside the Country

MITI through SIDO was expected to ensure the availability of markets by advertising technologies and agro-processed products through various activities such as exhibitions at Zonal and National level and also to participate in the National Trade Fairs coordinated by TanTrade.
Interview with MITI Officials revealed that, there was inadequate enabling environment for promoting internally generated products to different consumers within and outside the country as the primary stakeholders acted in isolation. There was no coordination among stakeholders to promote business environment.

Interviews conducted further revealed that, stakeholders had no timely access to information on the type and quality of the agro-processed products needed in the markets within and outside the country. For

instance, farmers would need timely information on the type and quality of crops or raw materials, which are needed by the available markets to enable the specification of seed during planting. Whenever such information was missed or availed at inappropriate time, it was difficult to identify the market needs.

As a result, the farmers would prepare raw materials for agro-processing which are quite different from the quality and quantity which are required by the market within and outside the country. This leads to unacceptance of the raw materials which do not meet the required quality of the market for agro-processing, ultimately contributing to post-harvest losses.

In addition to that, the audit found that, the use of exhibitions was pointed to be among the means for improving market linkages. Upon the assessment made, the audit noted that, market linkages were highly affected by various factors because the used means of exhibitions was inadequately performing. Moreover, the agro-processed products lacked TBS certification thus disqualifying the product for export. Detailed analysis of issues observed is as indicated below;

(a) Inadequate Performance of Market Exhibitions

Performance of market exhibitions was assessed based on the number of exhibitions done at the regional, zonal and National levels, the orders received versus orders sold and the amount funds used by SIDO to execute exhibition activities.

(i) An assessment based on the number of exhibitions done at Region, Zonal and National levels

According to SIDO CSP 2019/20-2021/22, SIDO was supposed to undertake Regional, Zonal and National exhibitions. However, it was noted that SIDO has never undertaken regional exhibition contrary to this requirement. Moreover, Zonal exhibitions were not done as frequently as per the requirement. For example, for the period of five years assessed in this audit, all the four zones managed to conduct one out of the five required exhibitions.

Interviews held with Officials from the visited Zonal Offices, revealed the reason for not doing the five exhibitions was inadequate assessment of resources required because SIDO depended on resources contributed by different regions constituting the zone and resources from its own sources. As a result, few agro-processors attended exhibitions.

An assessment made by the audit team realized that, the performance of the exhibitions made in five Financial Years when assessed in terms of orders received and amount sold fluctuated and had no positive trend.

(ii) An Assessment based on the Orders received versus Orders Sold at National Exhibitions

An assessment made on the order varied between actual sales and orders received for machinery and actual sales and orders received for agro-processed products. Upon comparing the orders received versus actual sales to the audit realised that orders exceeded the actual sales in every aspect of machinery and agro-processed products. Furthermore, it was noted that, the number of orders and actual sales in both categories of machinery and agro-processed products was declining. In this regard, the objective of improving markets' availability for other participants was inadequately achieved.

Table 3.15 indicates the orders and actual sales during National Exhibition for the Financial Years of 2017/18 -2021/22.

Table 3.15: Performance Trend of the National Exhibitions, 2017/18-2021/22

Financial Years	Machinery		Agro-processed Products	
	Actual Sell (TZS)	Orders Received (TZS)	Actual Sell (TZS)	Orders Received(TZS)
2018/19	170,520,000	316,680,000	109,620,000	93,380,000
2019/20	115,150,000	213,850,000	106,596,000	90,804,000
2021/22	99,137,500	184,112,500	69,525,000	59,225,000
Total	**384,807,500**	**714,642,500**	**285,741,000**	**243,409,000**

Source: *Auditors' Analysis using Exhibition Reports (2018-2022)*

Based on the finding in **Table 3.15,** there were two Financial Years (2017/18 and 2021/22) in which National Exhibitions were not done. An assessment made indicated the negative trend of the amount of orders received for agro-processing machines as they decreased from 2018/19 to 2020/21.The amount of orders received ranged from TZS 316.7 to 184.1 Million for the financial Year 2018/19-2020/21.

This observation also reflected in the amount of orders received for other agro-processed products. The amount of orders received ranged from TZS 93.4 to 59.2 Million for the Financial Year 2018/19-2020/21.

MITI through its agencies is mandated to ensure markets are available and accessible to agro-processors but the situation was different. The audit noted that, SIDO lacked a display center to showcase its products. This could have allowed SIDO to constantly display its products for all the years. Instead, SIDO relied only on the exhibitions which were found unable to attain the intended objective.

Further, SIDO lacked an updated database to understand the SME's served by SIDO as the participants for the exhibition were repeated yearly. This underperformance implies that, customers were losing interest to the SIDO's product. This might be caused by inadequate strategies put forth by SIDO so as to come up with new technologies that could solve communities' challenges. Moreover, in both aspects of machinery and agro-processed products there is no correlation between the orders

received versus the amount sold. The assessment made indicates that, the amount sold were few when compared to the orders received.

(b) Marketing Limitations due to Absence of TBS Mark

According to the signed MoU between SIDO and TBS, the agro-processors approved by SIDO are required to apply for the TBS certification mark whereby the compliance conditions were reduced and are tax exempted for three years. Being certified by TBS provides assurance to buyers inside and outside the country.

Though TBS and SIDO signed the MoU to facilitate the SMEs to acquire the TBS mark, the MoU was found to be underperforming. The audit noted that, for the period of five years covered in this audit, 65 out 194 applicants for TBS mark were approved by SIDO to have received the TBS mark. The agro-processors who received quality mark were few compared to the applicants applied for the mark.

Despite having MoU, the audit noted that, TBS delayed to respond to the request submitted because all the applications were to be approved at TBS –Head Quarters after testing. It was noted that, in most cases it took long time to receive the testing feedback and the approval as well.

Assessment of the percentage of agro-processors who obtained TBS certification mark is indicated in **Table 3.16.**

Table 3.16: The Comparison of the number of Applicants Applied Vs Applicants received the Standard Mark (TBS) in Five Regions Visited

Region	Number of Applicant for TBS Mark	Applicants Received TBS Mark	%Applicants Received TBS Mark
Dar es Salaam	35	33	94
Kigoma	26	6	23
Dodoma	68	21	31
Mbeya	54	0	0
Shinyanga	11	5	45
Total	**194**	**65**	**34**

***Source**: Auditors' Analysis Using Information from SIDO (2022)*

Based on the findings presented in **Table 3.16,** 65 out of 194 agro-processors who applied for the TBS mark in five regions received TBS mark. This is equivalent to 34% of the total applicants from the Five Regions visited. Upon the assessment, the audit noted 94% of the applicants from Dar es Salaam received the TBS mark and none from Mbeya.

Despite the agreement made in the MoU, obtaining TBS mark was still a serious challenge. For instance, the agro-processors purchasing raw materials from various farmers, found it difficult for the normal farmer to know the cropping year, of the processed varieties, and moreover it was difficult to know whether the crops processed were a GMO variety so as to fill the form provided by TBS. In the actual sense those requirements are difficult to be met by SMEs.

In addition to that, there were parameters other than the building and the arrangement of machines and activities in the production line used by TBS to certify qualities of different products before they offer their certification Mark. These factors also include Lab tests done to ascertain the quality of products and packaging materials used.

Failure to get the TBS mark jeopardised the efforts of securing foreign markets for agro-processed products. For example, an interview made with agro-processors for maize and rice in Mbeya indicated that, they failed to access the markets in Congo and Zambia just because they lacked TBS certification mark. The audit team confirmed this in the visited Regions.

Table 3.17 presents the responses on status of having TBS mark for agro-processors in the visited regions.

Table 3.17: Responses of Agro-processors on Status of Requesting and Having TBS Mark

Visited Region	Type of Visited Agro-processors	Response on requesting and having TBS Mark
Dodoma	Maize and Sunflower seeds millers	They had requested but not yet received the certification mark.
Dar es Salaam	Maize, cassava, rice and sunflower seeds millers	They had requested but not yet received the certification mark. They have limited markets, as for products which do not have the mark it is difficult to sell them outside the country
Mbeya	Maize, rice and Sunflower seeds millers	They had requested but not yet got the certification mark. Because of this they failed to get access to markets in Congo and Zambia
Kigoma	Cassava	Visited cassava processors used more than 8 months to get the comments from TBS. Because of this they failed to get access to markets in Congo, Burundi and Uganda
Shinyanga	Rice, and sunflower	They had requested but not yet received the certification mark.

***Source**: Auditors' Analysis of Interview Minutes of Agro-processors in the Visited Regions, 2022*

From **Table 3.17**, the visited agro-processors faced challenges of markets limitation for products which did not have the TBS certification mark as the issuance of TBS certification Mark was not guaranteed to agro-processors. Moreover, delay in getting the TBS certification mark resulted into inaccessibility to foreign markets for agro-processed products.

(c) Inadequate Packaging and Labeling of Agro-processed Products

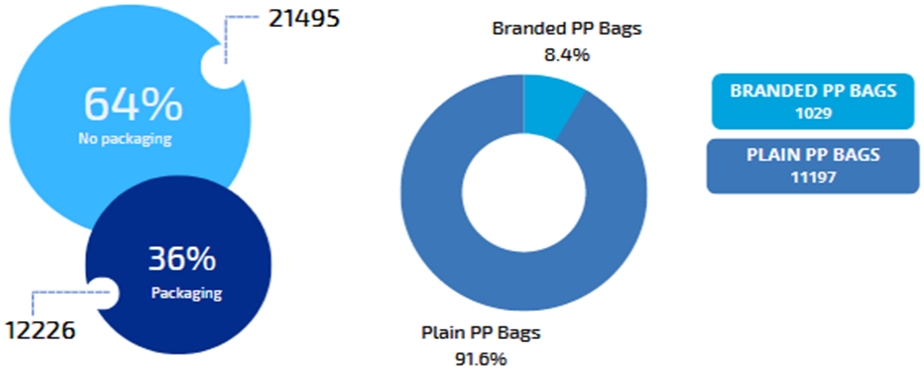
SIDO Strategic Plan Paragraph 4.6.5 intended to ensure that, SMEs are facilitated to fulfill quality and standards of packaging. Basically, it aimed at facilitating SMEs to improve the quality of their products and packaging materials to meet local and international standards. In this regard, it intended to undertake different activities such as need assessment of packaging materials, establishment of packaging outlets and establishment of a packaging center.

The review of SME Policy Evaluation Report, 2017 pointed out that, market and information are prime movers of all economic undertakings and are important determinants of business success. On contrary the production of most SMEs goods and services are not based on the quality and standards, required by the market due to limited access to market information. Furthermore, SMEs face market problems due to low quality of products, and packaging as well.

The review of Tanzania Nationwide Mills Census of April, 2022 revealed that, 80% of small-scale millers did not provide packages while large and medium scale millers (commercial millers) provided packages which account for only 20% of all millers.

Moreover, the Micro and Small-scale millers (toll milling) did not provide packages because the customers usually come with their own packaging materials and others claimed that, among the contributing factors was the inability to afford purchasing packages. The report further reveals that, 64% of small and micro scale millers did not have packaging materials and it was only 36% of them possessed packaging materials for their products. **Figure 3.8** shows status of packaging and non-packaging.

Figure 3.9: Packaging Status for Cereals and Tuber Products



***Source**: Tanzania Nationwide Mills Census (2022)*

Moreover, based on the findings in **Figure 3.9,** the use of branded Polypropylene bags (PP Bags) accounted for 8.4% while Plain PP Bags accounted for 91.6%. This implies that, inability to brand the packages reduced the market preference as customers and have negative consequences on product marketing. This is due to the fact that, customers cannot easily recognise the suppliers of the products.

Similarly, observation through the site visits made by the audit team to the agro-processors, revealed that, the challenge of packaging materials as they were costly and of low quality as some were re-used while improperly cleaned. **Table 3.18** presents packaging status of agro-processors in the visited regions.

Table 3.18: The status of Packaging Materials to Agro-processors in the Visited Regions

Visited Region	Type of Visited Agro-processors	Status of packaging and labelling
Dodoma	Maize and Sunflower seeds millers	They were supported by SANKU company (a private foreign company that provides small scale machines for micronutrient fortification of maize) to get the packaging bags for maize agro-processed product. For sunflower oil they were buying the packaging containers at high cost, sometimes their cleanliness was doubted
Dar es Salaam	Maize, cassava, rice and sunflower seeds millers	They were buying the packaging bags for maize and cassava flour or buying containers at high cost. However, the containers are sometimes re-used which poses risks of the cleanliness of those containers
Mbeya	Maize, rice and Sunflower seeds millers	They were buying packaging bags for maize and cassava flour or plastic containers at high cost. However the containers are sometimes re-used which possess health risks and the safety and quality of oil.
Kigoma	Cassava processors	Packaging materials were ordered from Dar es Salaam. Due to long distance , it affected timely availability of packaging materials to agro-processors

Visited Region	Type of Visited Agro-processors	Status of packaging and labelling
Shinyanga	Rice, and sunflower	Packaging materials were ordered from Dar es Salaam. Due to long distance, timely availability of packaging materials was a challenge

Source: *Auditors' Analysis based on Site visit made to Agro-processors in the Visited Regions*

Based on the findings in **Table 3.18**, the agro-processors were faced with challenges of purchasing packaging materials at high cost and posed health risks as some of the packages were re-used. **Photo 3.5** presents uncleaned packages used for sunflower cooking oil.

Photo 3.5: Sunflower cooking oil packaging containers as evidenced at one of the Agro-processors in Dodoma region. **Photo was taken by Auditors on 14th September, 2022 at 1:48 PM**

Based on what is observed in **Photo 3.5**, uncleaned packages that are re-used in packaging of sunflower cooking oil jeopardised the quality and safety of the products.

In addition, all interviewed officials from SIDO, MITI and agro-processors pointed that, packaging is among the major problems facing the agro-processing industries. It was noted that, agro-processors press orders of few packages instead of bulk quantities because they are faced with the challenge of low capital investments.

On the other hand, packaging industries require large capital investment due to high cost of production for every batch. Each package type was priced based on the specifications provided by agro-processors. A review of a Forum Report on Packaging, 2022, stakeholders and entrepreneurs pointed several challenges faced by agro-processors and packaging producers in their entrepreneurial activities. The audit team grouped challenges for packaging into five groups, as indicated in **Table 3.19.**

Table 3.19: The summary of Packaging Challenges for both Producers and Users (Auditors' Remarks)

Category Challenges	Number of Occurrence
Cost Related package challenges	6
Compliance Related Package challenges	1
Packaging knowledge and Availability of Package Manufacturer	4
Quality of Package materials	4
Package markets	2
Total	**16**

Source: *Auditors' Analysis using Stakeholders' Packaging Report (2022)*

Referring to the findings in **Table 3.19**, the audit noted that, cost related challenge was found to take more weight compared to other packaging related challenges. It was noted that, cost related challenges had 6 occurrences out of 16 total occurrences. Moreover, it was observed that, the quality of packaging materials and knowledge on availability of package manufacturers had 4 occurrences out of 16 total occurrences. This implies that, package stakeholders were more concerned with cost of packages, quality and package availability. Detailed elaboration on every package challenges observed is as indicated in ***Appendix 5***.

It was further noted that, despite the challenges pointed out by agro-processors and package producers, SIDO has established packaging shop at Dar es Salaam. However, this establishment could not suffice the package demands. Moreover, the audit found that, there were no established strategies by SIDO through MITI to diversify the investments of packaging industries to reduce packaging challenges faced by agro-processors.

3.4.2 Inadequate Financial Services to Agro-processors

SIDO Strategic Plan Paragraph 4.7 aims at ensuring financial services are delivered to the clients in an effective and coordinated manner based on demand, with emphasis on strategic sectors. In order to realise this objective, SIDO aims at ensuring the availability of credit funds and delivery of credit and advisory services increased, mobilise funds to support credit activities, conduct study on credit needs, manage credit portfolio, and provide financial advisory services to SMEs.

Based on this fact, a review of Evaluation Report on SME Policy of 2017 revealed that, lack of access to financial services was frequently cited as the main challenge faced SMEs. It further, elaborated that, small enterprises rated insufficient working capital as a critical challenge accounting 27.3%, while other enterprises ranked the issue of insufficient working capital as a second ranked critical challenge 18.2% and other group ranked it as a third critical challenge accounting 45.5%.

On the other hand, financial literacy was a common challenge found, whereby 10.6% of small business owners had access to formal financial service providers, about 10.9% to semi-formal providers, 12.1% informal providers while 66.4% were excluded. The exclusion of a large number of entrepreneurs implies that, many agro-processors fail to access financial services due to high interest rates and prohibitive collateral requirements. Lenders charge high rates as they perceive SMEs as risky business, thus their ability to pay is low. Similarly, a reviewed National Financial Inclusion Report, 2018-2022 indicated that, financial services providers consider effecting lending services to SMEs as too risky.

Furthermore, a reviewed of a research report by Factors Affecting Agro-processing Activities in Tanzania, 2019 pointed one of the challenges being faced by SMEs in most developing countries is lack of access to financial services, particularly from formal institutions (both banks and non-banks). Similarly, the audit team confirmed the persistence of the highlighted challenges among agro-processors. It was further observed that, the problem of access to financial services for agro-processing SMEs arises

when a business activity that would have been internally financed, does not get support from external financial institutions.

According to the interview made with four loan officers from SIDO's offices in Dodoma, Dar es Salaam, Mbeya, and Kigoma, elaborated that, agro-processors lack financial support due to high cost of doing business. In this regard, the SMEs find it too costly to access external financial resources.

It was further pointed out that, most of SMEs lack formal registration of their collaterals and track records of their business performance which are a major requirement for the financial institutions. On the other hand, SMEs are also not well equipped with information on available credit services; the fact which hinders them from accessing the required financial services from respective institutions. Generally, these challenges limit agro-processing SMEs capacity to establish, manage and expand their enterprises.

- **Inadequate Loans Services from SIDO in terms of quantity and coverage in all Regions**

The interviews from all agro-processors indicated to have financial challenges in implementing their activities. It was noted that, access to fund was inadequate since agro-processors could not access fund timely or they received inadequate funds to undertake different processing activities. A review of reports and interviews from SIDO revealed that, there are four loan schemes for SMEs provided by SIDO. These schemes were NEDF, SANVIN, CGS and RRF as summarised and presented in **Table 3.20.**

Table 3.20: The Summary of Performance of Different Loan funding Schemes in the Visited Regions

Presence of Loan Fund	Visited Regions					Auditors' Observation
	Dodoma	Dar es Salaam	Mbeya	Kigoma	Shinyanga	
CGS	✓	✓	✓	✓	✓	Present in all visited regions though inadequately functioning. Country-wise, It has benefited 45 out of 180 applicants, which is equivalent to 25% of all applications made. Despite being a guaranteed scheme, it has all criteria used by other normal bank conditions, and moreover it has an addition cost of 1% of total loan applied as a processing fee. As a result, customers opt to go for normal banking services.
SANVIN	✓	✓	✓	x	X	The fund is issued under Azania bank. The bank is not available in all

Presence of Loan Fund	Visited Regions					Auditors' Observation
	Dodoma	Dar es Salaam	Mbeya	Kigoma	Shinyanga	
						SIDO regions, the situation that possess logistics related challenges. The applications have a significance delay because the application should be sent to Dar es Salaam for processing. For example, since its establishment it has managed to issue loan for one applicant in Shinyanga, 4 in Dodoma, 10 in Dar es Salaam, 4 in Mbeya and none in Kigoma.
NEDF	✓	✓	✓	✓	✓	It is available in all regions visited but the seed capital per region is small and amount of loan issued should not be greater than TSH 5 Millions.
RRF	x	✓	x	✓	✓	It is issued in regions but usually not all

Presence of Loan Fund	Visited Regions					Auditors' Observation
	Dodoma	Dar es Salaam	Mbeya	Kigoma	Shinyanga	
						regions issue this fund because of inadequate capital.

Source: *Auditors' Analysis on the Performance of Different Loans Funding Schemes (2022)*

With reference to the loan schemes provided by SIDO, a reviewed National Entrepreneurship Development Fund and Credit Guarantee Scheme Reports, 2022 indicated that, the average financial assistance to SMEs for five years was TZS 2,059,036.31 and TZS 31,611,274.51, respectively. It was noted that, the amount supplied by NEDF was inadequate to sustain agro-processing activities. Despite the fact that, the amount indicated to be supplied by Credit Guarantee Scheme (CGS) was moderate, it was observed to have few applicants approved to access loan because of the stringent conditions therein.

The audit team noted that, when taking the ratio between the total loans disbursed in each Financial Year compared with the total number of approved applicants the average amount obtained by an individual agro-processor was found to be inadequate to sustain agro-processing activities. **Table 3.21** below indicates the ratio of amount to be disbursed for NEDF applicants is TZS 2 million per applicant. This amount is inadequate to improve agro-processing activities in the country.

Table 3.21: Ratio of Amount Loan Disbursed for Five Years, NEDF Funds (2018/19-2021/22)

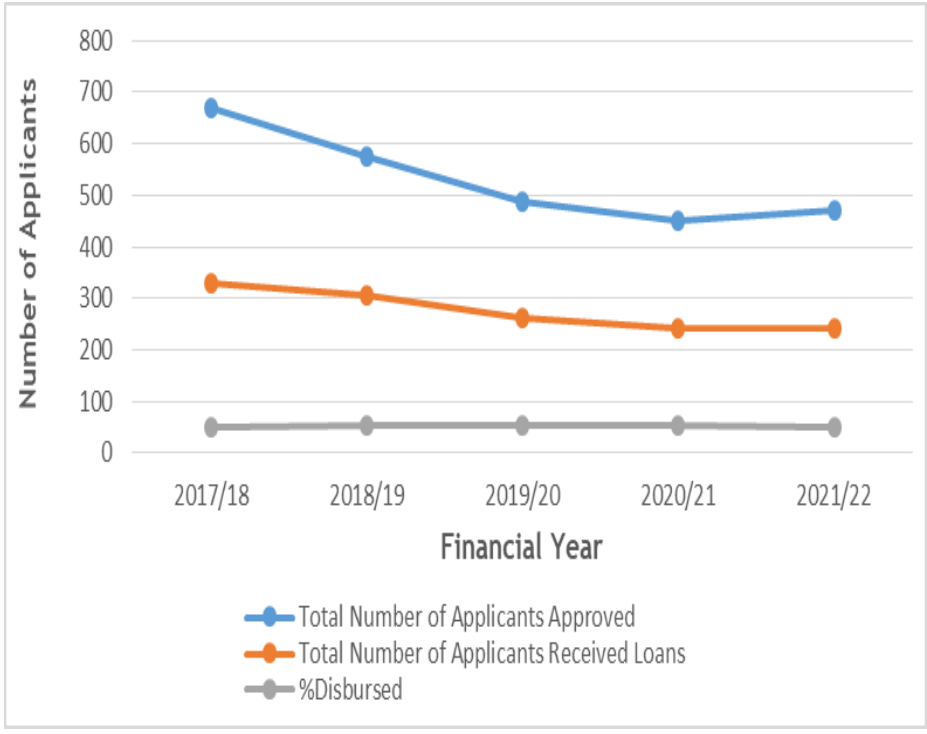
Financial Year	Total Loan Amount Disbursed/Issued(TZS)	Total Number of Applicants Received Loans(TZS)	Disbursement Ration(TZS/Applicants)
2017/18	5,918,500,000	3,306	1,790,229.89
2018/19	5,721,050,000	3,069	1,864,141.41
2019/20	5,234,900,000	2,618	1,999,579.83
2020/21	5,036,500,000	2,423	2,078,621.54
2021/22	6,178,450,000	2,411	2,562,608.88
Average Disbursement			2,059,036.31

Source: *Auditors' Analysis on Loans Disbursed for Five Years (2022)*

With reference to the findings in **Table 3.21,** the audit noted that, NEDF fund despite being reliable it provides inadequate fund. This is due to the fact that, the minimum amount of fund issued was noted to be TZS 1,790,229.89 while the average maximum amount of loan disbursed was TZS 2,562,608.88.

In addition to that, assessment made on the number of applicants qualified to get loans and compared to the actual number of applicants received under NEDF funding scheme. It was observed that, the number of applicants received the loan were almost equal. The percentage of loans disbursed annually ranged from 49% for the Financial Year 2018/19 and 51% for the Financial Year 2021/22. The applicants receiving NEDF loans were gradually decreasing when assessed on annual basis.
Graphical presentation of the applications approved versus the number of applicants who received loans and the percentage of disbursement is as shown in **Figure 3.10** below.

Figure 3.10: Assessment of the Applications Approved, Applicants who Received Loans and % Disbursed (In "0"million)



***Source**: Auditors' Analysis and Computation from NEDF Report, 2018/19-2021/22, (2022)*

Furthermore, the assessment made on CGS funding scheme noted that, the scheme is providing fund that can adequately suffice the agro-processing activities. The minimum average ratio of the loan to be issued to agro-processors was indicated to be TZS 26,250,000.00 while the maximum average ratio of the amount of loan was observed to be TZS 31,611,274.51 as indicated in **Table 3.22.**

Despite the fact that, the amount of loan funded under this scheme is high when compared to that funded by NEDF, still it has few applicants due to complex requirements. For example, having collateral with formal registration, bank account with an outstanding transactions record, e.tc are among the conditions which in most cases are not met by small agro-processors.

It was noted that, the significant advantage of the loan being guaranteed by the government were not clearly reflected in this loan scheme since, CGS was found to be complying with almost the same procedures as the ones in commercial banks. This in turn discouraged agro-processors from accessing fund through this loan scheme, instead they opted accessing loan from other banks.

Table 3.22: Ratio of Amount Loan Disbursed for Five Years, CGS Funds (2018/19 -2021/22)

Financial Year	Total Loan Amount Disbursed/Issued(TZS)	Total Number of Applicants Received Loans	Disbursement Ratio(TZS/Applicants)
2017/18	608,000,000.00	17	35,764,705.88
2018/19	105,000,000.00	4	26,250,000.00
2019/20	510,000,000.00	16	31,875,000.00
2020/21	60,000,000.00	2	30,000,000.00
2021/22	205,000,000.00	6	34,166,666.67
Average Disbursement			**31,611,274.51**

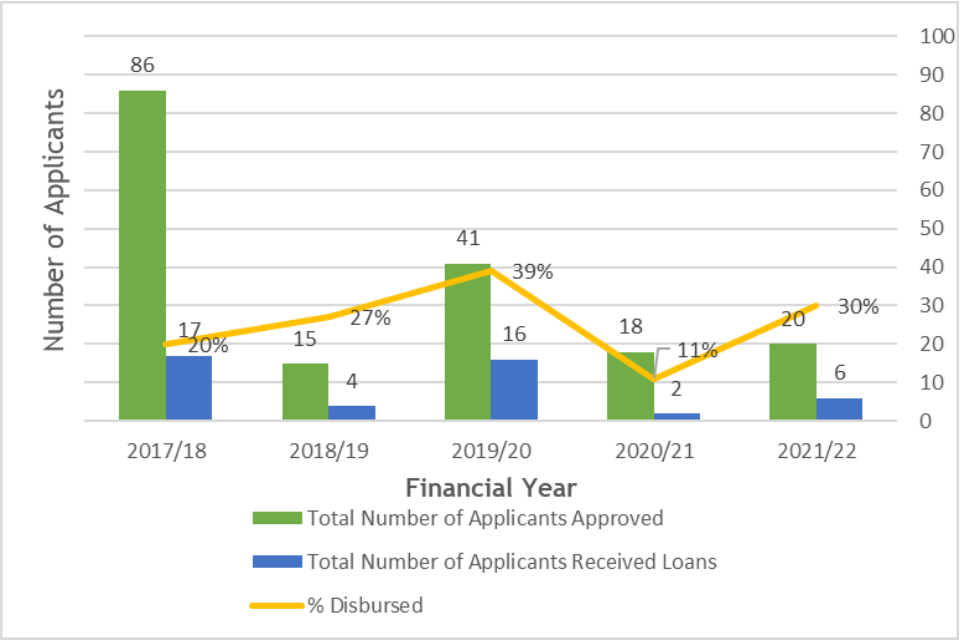
***Source**: Auditors' Analysis of CGS Loan from SIDO (2022)*

In addition to that, the assessment was made on the number of applicants who qualified to get the loan compared to the actual number of applicants who received the loan from CGS funding scheme. It was observed that, the number of loan applicants declined annually. The loan applicants were noted to be 86 for the financial Year 2017/18 and decreased to 20 applicants for the Financial Year 2021/22. Moreover, the applicants who received loans also decreased from 17 for the Financial Year 2017/18 to 6 for the Financial Year 2021/22.

Though the percentage of applicants who received loans may seem to be increasing, there was a decrease in total number of applicants. The noted steep decrease for both the number of applicants applying for the loan and the number of applicants who received loans is clear evidence that this loan scheme is in adequate due to its stringent conditions, which cannot be met by many agro-processors.

The applications approved versus the number of applicants received loan and the percentage of disbursement is as shown in **Figure 3.10** below.

Figure 3.11: Assessment of the Applications Approved Vs Applicants who Received Loans-CGS



***Source**: Auditors Analysis and Computation from NEDF Report, 2018/19-2021/22*

Based on the findings in **Figure 3.11,** it is deduced that, the applicants who received loans gradually increased for the first three years of 2017/18 to 2019/20, and drastically declined to 11% before starting to increase again. Moreover, an assessment indicated that, the number of applicants applying for loans had decreased from 86 in 2017/18 to 20 in 2021/22. The decreased number of applicants has directly affected the number of applicants receiving loans.

3.5 Insufficient Monitoring of Agro-processing and Value Addition of Crops was by MITI

The, Ministry of Industry, Trade and Investment through the Monitoring and Evaluation Unit was supposed to monitor all activities done by either the Ministry or its Agencies. The Ministry further, through Directorate of Trade Development is supposed to monitor, evaluate and review performance of trade and marketing policies, laws and regulations.

Interviewed Officials from the Ministry of Industry, Trade and Investment pointed out that, the Monitoring and Evaluation of Small and Medium Enterprises (Agro-processing activities being included) was inadequately conducted by the officers responsible for the Monitoring and Evaluation. Similarly, it was noted that, SIDO and SMEs department inadequately monitored the agro-processing activities. Detailed explanation regarding Monitoring and Evaluation as performed by both MITI and SIDO is as presented in the following sub-sections:

3.5.1 MITI did not identify and register agro-processors in the country so as to be monitored

SME Development Policy (2003) requires MITI to coordinate the SME policy implementation, collection, compilation and analysis of various programmes addressing the policy objectives. The Policy further requires MITI to ensure that, SMEs related components articulated in the SMEs policy are adequately implemented, harmonised and coordinated.

Ministry of Industry, Trade and Investment through its Division of Small and Medium Enterprise and Industrial Development lacked the database for the list of agro-processors and agro-processing industries, their location and their permanent address. Moreover, the audit found that, the division responsible for Industry Development lacked an updated information data on the number of industries present in the country.

Furthermore, it was noted that, for the last time, the Industry Survey on the number of industries present in the country was done in 2012, which is 11 years back. Moreover, for the year 2022, the Ministry undertook the

survey on the available maize milling industries and their location. It was found out that, the survey had a good coverage as it provides even the coordinates of the location of the industry. However, the Ministry did not survey industries dealing with other crop processing than maize.

However, interviews with Officials from MITI indicated that, the absence of database for the industries was caused by inadequate implementation of the plans set due to inadequate prioritisation. A review of MTEF for the period of 2018/19 to 2020/21 noted that, the disbursement to the division of Industrial Development was more than 80% within four years with an exception of Financial Year 2020/21 where the disbursement was noted to be 41%.

Despite this fund disbursement, the activity for identifying and registering industries within the country, including the address and owners was not done in to the expected pace. This is due to the fact that, it started in the Financial Year 2020/21 and was expected to end in the Financial Year 2021/22 but to the moment of the review period of this report it was still reported as in progress.

Similarly, a review of Action Plan for the Financial Year 2021/22 indicated that, the Ministry through the Division of SME planned to undertake SME mapping so as to determine SME status in Tanzania by June, 2022. At the time of this Audit the activity was not yet done. In addition, the audit noted that MITI through DSME planned to map the existing agro- processing infrastructure along the value chain in mainland Tanzania by June, 2019. Despite this plan, upon the review of the Implementation Reports, the implementation of this activity has not been reported anywhere.

The audit also noted that, the MITI also lacked accurate information on the actual number of industries and SMEs present (including the agro-processing industries) within the country. Because of this problem, it was found difficult to have monitoring activities to assess the performance and advice those industries accordingly.

3.5.2 Absence of Monitoring and Evaluation Framework to Facilitate Implementation of Monitoring Activities

The Ministry has the Strategic Plan with various Key Performance Indicators (KPIs) for every institution under its jurisdiction. SIDO is supposed to have its own KPIs that should be aligned with that of the Ministry. In order to enhance effective Monitoring and Evaluation, these KPIs are expected to be further detailed in the Monitoring and Evaluation Framework as the guiding tool when undertaking monitoring activities.

Interviews held with Monitoring and Evaluation officials from MITI indicated that, the Ministry did not have a Framework for Monitoring and Evaluation activities related to agro-processing and value addition of crops. The last framework used ended in financial year 2017/18, which means that, up to the time of this audit (i.e. five years lapsed), a new framework has not been developed.

The act of not reviewing the Monitoring and Evaluation Framework timely was an indication that, the Ministry did not prioritize this important role. This is due to the fact that, in the absence of the Monitoring and Evaluation Framework, monitoring activities were noted to be inadequately conducted as explained in the following sub section.

Similarly, the audit review of annual operational plans for the two Divisions of SME and DID, and noted that, they did not plan to carry-out monitoring and evaluation of the agro-processing and value addition of crops.

3.5.3 Inadequate Monitoring of the Performance of Agro-processing and Value Addition of Crops by MITI

Ministry's organisation structure requires the Monitoring and Evaluation unit to carry out Monitoring and Evaluation of the Ministries plans and budget and prepare performance report.[6] The audit noted that, the Ministries did not adequately conduct monitoring as detailed below.

[6] Organization Structure of the Ministry of Investment , Industry and Trade for the period of 2016

Inadequate Monitoring and Evaluation by MITI

Interviews with Monitoring and Evaluation Officials from MITI and review of Monitoring and Evaluation reports indicated that, monitoring activities on the performance of SIDO were not sufficiently conducted. This emanates from the fact that; no physical visits were made by MITI to SIDO. Therefore, the Ministry relied solely on SIDO's submitted Implementation reports. It was further noted that, SIDO submitted reports to MITI on quarterly basis through the Directorate of Policy and Planning.

Thereafter, the reports were forwarded to the Permanent Secretary for further actions. A review of Monitoring and Evaluation reports from the Ministry of Industry, Trade and Investment verified that, in the three years' time frame of the review period under review there were no physical visits made to SIDO by MITI for monitoring purposes. This implies that, in the three years period SIDO's activities were implemented without sufficient verification by the parent Ministry.

However, a review of MTEF for the period of 2018/19 to 2020/21 and interviews with Monitoring and Evaluation officials indicated that, budget set to facilitate monitoring activities for three years was TZS 106,500,000, but there were no funds disbursed.

Based on this fact, inadequate disbursement of funds to facilitate monitoring activities at SIDO was caused by low prioritisation of these activities by the Ministry of Industry, Trade and Investment. This is due to the fact that, MITI did not deal with the challenge of undisbursed funds for Monitoring and Evaluation activities. Lack of physical visits for monitoring purposes to SIDO partly contributed to the presence of agro-processed products with low quality.

On the other hand, the Directorate of Small and Medium Enterprises could not monitor the performance of SIDO. This was found to be contrary to the requirements of the Organisation Structure, which among other things it requires the Directorate to ensure compliance and performance of regulatory institutions. Interviews held with officials from Directorate of

Trade Development established that, they only focused on coordinating issues.

However, a review of Action Plans from Directorate of Small and Medium Enterprises did not indicate monitoring activities to its Agencies, in which is SIDO inclusive. When an inquiry was made regarding the reasons as to why they did not include monitoring activities in their Action Plans regardless of being one of their major role, they insisted that the activity of monitoring was supposed to be conducted by the M&E Section. This implies that, there were no significant efforts made by the Ministry with regards to how the two sections were coordinating monitoring activities.

3.5.4 Inadequate Monitoring of Performance of Agro-processing Industries

The Unit responsible for Monitoring and Evaluation is supposed to set Key Performance Indicators (KPIs) so as to measure the performance of the institutions under MITI. These KPIs would have helped SIDO to be accountable for its strategic activities, investments and other efforts (Section 3.3.2 of Strategic Plan, 2016/17– 2020/21).

Interviews held with Monitoring and Evaluation officials indicated that, SIDO lacked Monitoring and Evaluation Framework to facilitate the monitoring activities. Interview with officials further noted that, SIDO did not track the implementation status of its activities envisaged in their plans in a given respective year. Moreover, it was pointed out that, Monitoring and Evaluation Unit at SIDO depended on request for the implementation status from departments during reporting time.

Due to inadequate monitoring by M&E Unit at SIDO the inefficiencies presented from **Section 3.1** concerning agro-processors in this report were not given adequate attention based on the fact that, they were not prioritized as there were no adequate monitoring from the parent ministry for appropriate actions and follow-ups.

3.6 Ineffective Coordination between MITI and MoA in Managing Agro-Processing Activities

Strategic Objective F of the National Post-harvest Handling and Management Strategy requires strengthened coordination, partnerships, and stakeholders' participation to enhance the strategy interventions. With these requirements, the Ministry of Agriculture was supposed to identify and document institutions involved in post-harvest handling, sensitise and create awareness to the institutions, and strengthen national coordination unit in the Ministry. The Audit Team noted, inadequate coordination which resulted in duplication of efforts, inadequate mechanism for exchange of information, and lack of inter-sectorial coordination to enhance business linkage for agro-processing and Value Addition of crops. The detailed information is as explained in subsequent section.

3.6.1 Ineffective coordination of the implementation of different interventions by MITI and MOA to enhance performance of agro-processing industries in the country

Ineffective coordination among the government institutions was noted to be a critical challenge. Different government institutions were working in isolation when implementing activities for agro-processing and value addition of crops. Ineffectiveness in the coordination was evidenced by the followings weaknesses noted;

- **Duplication of Efforts between the Departments from MITI and MoA**

The audit noted that, both the Ministry of Agriculture and the Ministry of Industry, Trade and Investment to have the departments which are performing similar functions. For example, both ministries are having departments responsible for marketing, with the prime functions of searching for markets inside and outside the country as indicated in **Table 3.23** below;

Table 3.23: Identified Similar/Overlapping Activities from MoA and MITI

Roles of Marketing Department from MoA	Overlapping Roles of Marketing Department from MITI
Conduct researches on market intelligence for crops grown in the Country	Develop and Facilitate internal market and research
Coordinate all issues which concern Agricultural marketing from farmers	Advice and coordinate network of trade and marketing institutions and associations
Provide advice to the Government concerning quality way of understanding and using agricultural marketing opportunities for crops produced within the country and giving recommendations which will assist farmers to access domestic and foreign markets	Develop strategies for establishing internal markets for locally produced commodities and services
Be a Data Harmonisation Centre for agricultural markets and price and provide link between the Ministry and various domestic and foreign institutions concerning markets for farmers' crops	Collect, analyse, store and disseminate market information to stakeholders
Coordinate all issues concerned with markets and prices of crops which are produced by domestic farmers	

***Source**: Auditors' Analysis of the Organisation Structures from MoA and MITI (2022)*

It was noted that, the instruments which established these two Ministries could not make a clear distinction of their activities. Based on this fact, there is an overlap of functions performed by these two Ministries. Also there were no formal established mechanisms to enhance the sharing of information between them.

Furthermore, it was also noted that MITI and MoA are undertaking agro-processing functions. Meanwhile at the Ministry of Agriculture, the agro-processing and Value addition functions are undertaken through the Division of agro-mechanisation, also, the same functions are undertaken through the Division of Small and Medium Enterprises and that of industry and development. Moreover, observations noted that, there was inadequate exchange of information between these two Ministries upon undertaking their functions.

- **Presence of Centre for Agricultural Mechanisation and Rural Technology (CAMARTEC) at MITI while its functions relate to MoA**

Reviewed correspondence letter with reference number EA 12/213/01 dated 4th February, 2022 indicated the concern of having CAMARTEC at the Ministry of Industry, Trade and Investment while in actual situation it performs functions responding to the objectives of the Ministry of Agriculture.

Interviewed Officials from the Ministry of Agriculture and the Ministry of Industry, Trade and Investment have both agreed that CAMARTEC was not appropriately allocated. This is based on the fact that, the roles and responsibilities of ensuring the availability of agricultural technologies at rural areas fall under the mandate of the Ministry of Agriculture through the Division of agro-mechanisation.

Because of this, the objective of the Ministry of Agriculture when intending to provide technologies to rural areas is inadequately realized because the entity responsible has a different reporting channel.

3.6.2 Inadequate Mechanisms in place for Exchange of Information between the Ministries of Agriculture, MITI, Research Institutions and Technology Developers

- **Inadequate exchange of Information between MITI and MoA**

As per the Interview done between Officials from MITI and MoA, the audit noted that, the Ministry of Industry, Trade and Investment and the Ministry of Agriculture had no established formal mechanisms for exchanging and sharing information regarding the implementation of agro-processing and value addition of crops. As a result, these two ministries were found to be working in isolation. Such that, the Ministry of Agriculture could not share with the Ministry of Industry, Trade and Investment the crop production data. Meanwhile, the Ministry of Industry, Trade and Investment could not share with the ministry of agriculture, the information on the type and quality of the crops needed for processing.

This has resulted into the prolonged existence of the shortage and unmarketable raw materials and competitive products for agro-processing.

- **Inadequate sharing of Information between SIDO and Research Institutions**

Reviewed SIDO establishment act and SIDO Strategic Plan, 2016/17-2020/21 mandate SIDO to acquire and transfer technologies to different technology users. To make this possible SIDO was supposed to have direct coordination with different research Institutions such as Tanzania Engineering and Mechanical Designing Organization (TEMDO), Tanzania Industrial Research and Develop Organization (TIRDO), and Centre for Agriculture Mechanization and Rural Technology (CAMARTEC).
Research institutions were supposed to conduct research on different technological needs and then produce appropriate technology machines. The produced machines were supposed to be produced in mass and disseminated to different users. Despite this, it was noted that SIDO had inadequately acquired technologies from these researching institutions. It was also noted that these institutions were working in isolation and there is no evidence suggesting sharing information from TEMDO and TIRDO with SIDO as detailed in **Table 3.24.**

Table 3.24: Assessment of the Number of Technologies Shared from Research Institutions with SIDO

Financial Year	Total Number of Agro-processing Tech adopted by SIDO	Number of Agro-processing Tech where Source was TEMDO/TIRDO	
		TEMDO	TIRDO
2017/18	4	NIL	NIL
2018/19	3	NIL	NIL
2019/20	4	NIL	NIL
2020/21	2	NIL	NIL
2021/22	2	NIL	NIL

Source: *Auditors' Analysis using Information from SIDO-HQ (2022)*

Based on the findings in **Table 3.24,** the audit noted that, for the assessed five financial Years, SIDO adopted 15 agro-processing technologies. Out of the technologies developed none were coming from either TIRDO or

TEMDO despite the three institutions being under the same parent (Ministry of Industry, Trade and Investment).

Lack of coordination between the research institutions and SIDO was noted to be caused by the mentality of production for sustainability. Because of this, each institution could not disclose its technology by fearing to be produced by other institutions and compete for the market of the same technology with other institutions. This has resulted in duplication of efforts because most of these institutions kept on producing the same products and have lacked creativity.

3.6.3 MITI and MOA had no Inter-sectorial coordination to enhance business linkage for agro-processing and Value Addition of crops

Through the interviews conducted with MITI and MoA Officials, it was noted that, there was an inadequate inter-sectoral coordination between the actors taking part in agro-processing and value addition of crops. During implementation of agro-processing activities, the audit team noted inadequate coordination between compliant institutions as detailed below;

- **Inadequate Coordination between Compliant Institutions when Managing Agro-processing Activities**

Agro-processors intending to start business ventures are faced with multiple and uncoordinated compliance procedures where the applicant needs to have several permits from various regulatory institutions such as BRELA, TBS, TRA, NEMC, OSHA, Fire, etc. The audit noted that, for an applicant to be issued with BRELA's certification be it for registration or licensing, would require the applicant to go through multiple certification and compliances which are not in the mandate and control of BRELA. For example, if a person intends to start an agro-processing industry such as cashew nuts hulling certification from BRELA, LGA, TRA, Cashew nut board, TBS, Fire, and NEMC will be needed. To acquire permits from all entities take time and are costly to the applicant.
Reviewed TCCIA Annual Report for the year ended 2020, also acknowledge that, the procedures of establishing a business is complicated by, among other things, the multiplicity of Regulatory Agencies with attendant tax

revenue collection procedures. The National Environment Council (NEMC), OSHA, TBS, FIRE Department, WMA and EWURA are some of the authorities that have been pointed out as among the agencies that are sources for a multitude of procedures with the consequence of increasing cost to the business operators.

Like other studies, the TCCIA Report underscores the need for re-aligning the various roles and functions of the Agencies to remove duplicity and multiplicity and consequently cut start-up costs through amending the relevant legislative enactments. Issues relating to unexpected huge annual compliance costs due to the multiplicity of taxes and levies, which escalates operational costs of small and medium agro-processors were also found to be a great challenge to agro-processors.

Moreover, a visited stakeholders confirmed that, the multiple compliances are unnecessary and are used by the issuing authorities as a source of revenue. Visited stakeholder also noted that, such compliances might remain the sole responsibility of such authorities but their certification after fulfillment of such compliances could be merged to BRELA's certification (a one stop center). This would assist to reduce multiple certifications which are normally displayed in business persons' walls.

CHAPTER FOUR

AUDIT CONCLUSION

4.1 Introduction

This chapter draws the audit conclusions on the findings described in Chapter Three. The basis for drawing the audit conclusions is on the overall and specific objectives of the audit as presented in Chapter One of this Performance Audit Report.

4.2 General Conclusion

The Audit Team acknowledges the efforts shown by the Ministry of Industry, Trade and Investment and the Ministry of Agriculture with regard to the management of agro-processing and value addition of crops. However, several inefficiencies were noted and calls for more interventions for further improvement. The fact that, agro-processing and value addition of crops is among the essential elements required to revamp the economy of the country through its contribution to the GDP, improvements are of vital importance.

Generally, it is concluded that, the Ministry of Industry, Trade and Investment and the Ministry of Agriculture are not effectively managing the activities for agro-processing and value addition of crops for reducing postharvest losses and increase in contribution of agricultural sector to the country's GDP.

The Ministries have inadequately ensured the provision of an environment conducive to the agro-processors to carry out their duties. The needed agro-processing and value addition technologies are still inadequately available to the majority of small and medium agro-processors, and the few available are not easily accessible due to relatively high cost. As a result, there has been insignificant improvement in the subsector.

This in turn has resulted into postharvest losses account to 40% of all harvested produces in cereals and unsatisfactory quality of processed

crops products have been observed and makes products (both primary and processed) not competitive in the external market even internal markets. The increased trend of postharvest losses has resulted in shortage of raw materials access for efficient operation of the available industries as well as it puts at risk the national food security as marked by the marginal food security data/existence of agro processing industries that are not functional.

Inadequate mechanisms for facilitating availability and accessibility of the needed processing and value addition technologies, weak coordination and monitoring are the main causes for the underperformance of the agro processing activities.

4.3 Specific Conclusions

4.3.1 The Activities for agro-processing and value addition of crops are inadequately managed

The agro-processing and value addition of crops are inadequately managed. The Ministry of Industry, Trade and Investment and the Ministry of Agriculture inadequately implemented the strategies and policies set, which had direct impact to the agro-processing activities. The SME objectives of the SME policy of 2003 were found to have been implemented by 12.5%, and as the matter of principle different issues stated therein were left unimplemented.

Moreover, there is no significant improvement in the performance of the agro-processing and value addition of crops in the country. The contribution of agro-processing and value addition of crops to the GDP is not consistent. The level of exported raw materials increases yearly and the government has not provided incentives to farmers and processors so as to improve the processing environment. The processors were left unmanaged, the government does not even have the database that shows portfolio of different processors, and as a result, it could not track and measure their performance to see whether they graduate from small to medium or from medium to large processors.

In addition to that, National food security is still at a risk. There is a tendency of the consignment being not accepted by different processing industries because of low quality, and in that regard un acceptance of the consignment ended up being wasted, a tendency that jeopardises the national food security.

4.3.2 The Ministry of Industry, Trade and Investment and Ministry of Agriculture have Inadequately Facilitated the Availability and Accessibility of Technologies for Agro-Processing and Value Addition of Crops

The crop processors are still running short of appropriate technology for agro-processing and value addition of crops. Most of the used technologies for agro-processing are obsolete and less efficient. The Ministry of Industry, Trade and Investment has inadequately facilitated the availability of an appropriate agro-processing and value addition technologies. The available locally made technologies are less effective and costly compared to the imported technologies. The noted costly technologies were the result of shortage of materials and machines for forging, melting and molding cast irons. The government has not put incentives to the imported materials for making machines as the results, the machines becomes expensive compared to the imported machines.

Local technologies were found to be less accessible to processors because of being costly and not easily available in remote areas. Similarly, the technology developers owned by the government are selling their machines to processors at a high price thus not affordable as well.

Moreover, the few developed technologies were inadequately transferred to processors as they lacked extension services. Most of the technologies used by agro-processors were obsolete because the government organs which were supposed to research and come up with good quality and competitive technologies had inadequately performed their roles. Due to this inadequacy, most of the harvested produces are not processed. This situation compels agro-processors to sell them in raw forms while others are lost because of their high perishability level since they could not be stored for a long time.

4.3.3 The Ministry of Industry, Trade and Investment did not ensure the availability and accessibility of markets to agro-processed products

The agro-processed products are still suffering with the market challenges because the processors do not have clear market information on where they should sell their produces. The Ministry of Industry, Trade and Investment has not adequately identified sufficient markets needed by the agro-processors whether within or outside the country. Moreover, most of the agro-processed products from Small and Medium enterprises lacked quality compliance to compete with other exported processed products, as they lacked the quality certification from Tanzania Bureau of Standards (TBS). Furthermore, the homemade agro-processed products are inadequately branded because even the type of packaging materials used and purchased centrally at SIDO shop are similar to the ones packed by different small scale domestic industries. This similarity makes it difficult to distinguish between two products and hence create stiff competition in the market.

4.4.4 Ineffective Coordination between MITI and MoA in Managing of agro-processing and Value Addition Interventions /Activities

The Ministry of Industry, Trade and Investment and the Ministry of Agriculture are working in isolation when implementing their activities related to agro-processing and value addition of crops. There is no point where they do share information between them. The Ministry of Agriculture lack adequate information regarding the amount of crops harvested that it may share with the processors. Moreover, there are no formal meetings where these Ministries coordinate and exchange information, especially when implementing the strategies that have direct impact to agro-processing and value addition of crops.

Moreover, there is duplication of activities implemented by the Ministry of Industry, Trade and Investment and the Ministry of Agriculture, such as roles related to market for agro-processors, agro-processing activities and availability of agro-processing technologies, just to mention a few. Absence of clear demarcation of the roles between the Ministries of

Industry, Trade and Investment and that of Agriculture was noted to be the main cause. As a result the similar activities are performed by the two Ministries without being coordinated.

4.4.5 The MITI and MoA are not Adequately Monitoring and Evaluating their Performance on Management of Agro-processing and Value Addition Activities

The Ministry of Industry, Trade and Investment has been giving low priority to monitoring and evaluating activities implemented by its departments and SIDO. This is because both Department of Policy and Planning and Directorate of Small and Medium Enterprises under the Ministry did not implement Monitoring and Evaluation activities used and submitted reports without undertaking physical visits. The Ministry operates with un-updated Monitoring and Evaluation Framework to facilitate implementation of monitoring activities. There were no efforts shown by the Ministry on how the two sections were coordinating the monitoring activities. The situation was found to be the same for the Ministry of Agriculture. The monitoring activities done were ad hoc and could not cover all the agro processing sub sector areas.

It is further concluded that, SIDO did not ensure Monitoring and Evaluation of its performance through the M&E Unit. This was due to the fact that, SIDO lacks M&E framework and inadequate supervision visits were conducted.

From the noted performance gaps in the implementation of Monitoring and Evaluation activities it is concluded that, the Ministry of Industry, Trade and Investment and SIDO managements were inadequately informed on the progress and performance of implemented activities at SIDO. Moreover, there were no evidence from the Ministry of Industry, Trade and Investment and SIDO's management on the need of being informed frequently on the progress and performance of implemented activities at SIDO.

CHAPTER FIVE

AUDIT RECOMMENDATIONS

5.1 Introduction

This chapter provides for recommendations to the Ministry of Industry, Trade and Investment and the Ministry of Agriculture on what should be done to improve their performance on the management of agro-processing and value addition of crops.

The audit findings indicated areas that need further corrective actions for effective management of activities for agro processing and value addition of crops. These areas include availability and accessibility of processing technologies, markets, coordination as well as monitoring and evaluations of performance of the Ministries in the management of interventions for agro -processing and value addition of crops.

Based on the principles of 3E's of Economy, Efficiency and Effectiveness; the National Audit Office believes that in order to improve the management of agro-processing and value addition of crops in the country, the recommendations made in this report need to be fully implemented.

5.2 Recommendations to the Ministry of Industry, Trade and Investment

5.2.1 To Improve Availability and Accessibility of Technologies for Agro-processing and Value Addition of Crops

The Ministry of Industry, Trade and Investment should:

1. Foster the Capacity building Strategy of Technology Development Centers so as to have improved technologies for manufacturing machines; and

2. Device mechanisms for reducing cost of locally manufactured machines and lobby for subsidy on imported machinery and raw

materials to enable easy accessibility of the available technologies to agro-processors;

5.2.2 To Improve Availability and Accessibility of Markets for the Agro-processed Products

The Ministry of Industry, Trade and Investment should:

1) Enforce effective implementation of the existing Memorandum of Understanding (MoU) between SIDO and TBS to facilitate timely acquisition of Standard Mark/certification in order to assure quality of the processed agro-products to attract internal and external markets;

2) Enhance an improved strategy to supplement exhibitions made at National and Zonal level to ensure the adequate availability and accessibility of internal and external markets;

3) In collaboration with stakeholders, provide good working environment to agro-processors to ensure the availability of quality packaging materials that will improve access to markets for the agro-processed products.

5.2.3 To Enhance Coordination between the Ministry of Industry, Trade and Investment and the Ministry of Agriculture

The Ministry of Industry, Trade and Investment should:

1) Devise a mechanisms of coordinating with the Ministry of Agriculture to avoid duplication of activities in various areas such as marketing and agro-processing activities.

5.2.4 To Improve Monitoring and Evaluation of Activities for Agro-processing and Value Addition of Crops

The Ministry of Industry, Trade and Investment should:

1) Ensure that, SIDO establishes an ICT system for capturing its activities including registration of SMEs and consultancy services. The system should enable SIDO to keep database and update status of SMEs to enable tracking of their development in the industrial sector.

5.3 Recommendations to the Ministry of Agriculture

5.3.1 To Improve Availability and Accessibility of Technologies for Agro-processing and Value Addition of Crops

The Ministry of Agriculture should:

1) Ensure block farming production is effectively implemented to improve the availability of raw materials for agro-processing activities in order to cover the existing gap of raw materials for agro-processing industries, and provide quality raw materials that suit the existing agro-processing technologies.

5.3.2 To Enhance Coordination between the Ministry of Investment, Industry and Trade and the Ministry of Agriculture

The Ministry of Agriculture should:

1) Devise mechanisms of coordinating with the Ministry of Investment, Industry and Trade to avoid duplication of activities in various areas such as marketing and agro-processing activities.

2) Effectively implement Postharvest Management Strategy and Report its Implementation to ensure the availability of quality, products for agro-processors.

REFERENCES

1. International Centre of Insect Physiology and Ecology Policy Brief, No.3/13A
2. NEDF &CGS Report , 2022
3. Report of Lead Firms Survey, (2022), Tanzania Horticultural Association (TAHA)
4. Report on Stakeholders Forum of Packaging Producers and Entrepreneur, 2022
5. The African Union, Malabo Declaration on Accelerated Agricultural Growth, 2014
6. The East African Community, Geneva Forum on Agro-processing Trade, 2015
7. The United Republic of Tanzania, A Report on Assessment of Households Vulnerability, 2019/20 and 2020/21
8. The United Republic of Tanzania, A Report on Assessment of Status of National Food Security, 2017/18-2021/22
9. The United Republic of Tanzania, A Report on, Provision of Consultancy Services to Evaluate the Implementation of the Small and Medium Enterprises Development, 2017 Policy of 2003
10. The United Republic of Tanzania, A Report on, Tanzania Industrial Competitiveness Report 2015
11. The United Republic of Tanzania, Agricultural Sector Development Programme (ASDP II),2017
12. The United Republic of Tanzania, Annual Plans and Reports from Ministry of Agriculture
13. The United Republic of Tanzania, Annual Plans and Reports from the Ministry of Industry, Trade and Investment
14. The United Republic of Tanzania, National Five Year Development Plan II, 2016
15. The United Republic of Tanzania, National Post-Harvest Management Plan, 2018
16. The United Republic of Tanzania, National-Financial-Inclusion-Framework-NFIF-2018-2022

17. The United Republic of Tanzania, Postharvest Management Strategy Implementation Plan, 2019-2024
18. Transformation for Shared Prosperity and Improved Livelihoods, 20

APPENDICES

Appendix One: Responses from the Audited Entities

This part covers the responses from the two audited entities namely, the Ministry of Industry, Trade and Investment (MITI), and Ministry of Agriculture (MoA). The responses are divided into two parts namely general comment and specific comments from the audited entities. These responses are prescribed below:

Appendix 1(a): Responses from the Ministry of Industry, Trade and Investment (MITI)

General Comment

The Ministry has reviewed the report submitted to our Ministry regarding the subject matter. We are appreciating the efforts made by the NAOT as a way of coming up with some observations which hinder the prosperity of the management of agro-processing and the value of additional crops.

Specific Comments

S/N	Recommendations	MITI' Comments	Action(s) to be taken	Timeline
	To Improve availability and Accessibility of Technologies for Agro-processing and Value Addition of Crops			
1.	Foster the Capacitation Strategy of Technological Development Centers so as to have sophisticated technologies for manufacturing machines;	Four (4) Technological Development Centers (TDCs) - Lindi, Kigoma, Shinyanga and Iringa) have equipped with new and modern manufacturing machines, Machines for Two (2) TDCs (Kilimanjaro and Mbeya) have been purchased	Machines for Two (2) TDCs (Kilimanjaro and Mbeya) are installed and continue to manufacture machines. Follow ups of TDC Arusha funds requested for procuring new machines.	June, 2023

S/N	Recommendations	MITI' Comments	Action(s) to be taken	Timeline
		and the installation to be done from March, 2023. Procuring of new Machines for TDC Arusha has been budgeted in the year 2022/23.		
2.	Device a mechanism for reducing cost of internally manufactured machines and lobby for subsidy imported machinery raw materials so as to enable easy accessibility of the available technologies to the agro-processors;	In efforts to reduce the cost of internally manufactured goods, the Ministry is financing her institutions, TEMDO, CAMARTEC, TIRDO and KMTC to develop agro processing machineries which are disseminated widely. Recently, after repossessing the Mang'ula Mechanical and Machine Tools factory, the Government awarded it to NDC for enabling mass production of machineries to include the	Continue to propose subsidized (zero) duty rates for machineries raw materials and components through the annual tax reforms under the Ministry of Finance and Planning.	June 2024.

S/N	Recommendations	MITI' Comments	Action(s) to be taken	Timeline
		agricultural machines. With respect to the imported machines, completely assembled machines are zero rated duty. However, components are charged between 10 and 25 percent duty.		
To improve Availability and Accessibility of Markets for the Agro-processed Products				
3.	Enforce effective implementation of the existing Memorandum of understanding (MoU) between SIDO and TBS to facilitate timely acquisition of Standard Mark/Certification in order to assure quality of the processed agro-products so as to attract internal and external markets;	SIDO and TBS are reviewing the previous MoU to address the observed challenges during implementation. For example, capacity building of SIDO staff, basics skills on standardization and quality assurance that will enforce and enhance effective implementation of the MoU. Also we will	To finalize and sign the new MoU.	April, 2023

S/N	Recommendations	MITI' Comments	Action(s) to be taken	Timeline
		facilitate the enforcement of effective implementation of MOU between SIDO and TBS so as to facilitate acquisition of standard marks in order to assure quality processed agro-products are attracting internal and external markets.		
4.	Come up with an improved strategy to supplement exhibitions made at National and Zonal level so as to ensure the adequate availability and accessibility of internal and external markets	Efforts are being made to advise the government on holding trade fair exhibition in the border area of Mbeya Tunduma that will connect visitors and exhibitors from the AfCFTA and SADC free markets. In addition, the effort to open a training and information center for entrepreneurs to facilitate	MIIT: - i. Participation in AfCFTA exhibitions to be held in November 2023 in Abidjan, Ivory Coast; ii. Coordination of training on entrepreneur skills to facilitate market and production in collaboration with ITC; and iii. Improving performance and productivity of industries through	2023/2024

S/N	Recommendations	MITI' Comments	Action(s) to be taken	Timeline
		marketing and production education has been budgeted for 2023/24 in collaboration with ITC. Also, TanTrade will collaborate with the Coast Region Government and the Confederation of Tanzania Industries (CTI) to coordinate and organize the 8th Tanzania Industrial Products Exhibitions in order to increase productivity and performance of industries. Furthermore, the Ministry through TanTrade intends to do the following as strategies to supplement exhibitions:-	industrial exhibitions coordination. Call a meeting with TCCIA and other Stakeholders. To prepare and circulate a short documentary to targeted Media. • Call a meeting with TAMISEMI. • Circulate letters to Tanzanian Ambassadors through the Ministry of Foreign Affairs and East African Cooperation. • Communication with Tanzania High Commissions and Embassies Abroad so	March – June 2023 March – June 2023

S/N	Recommendations	MITI' Comments	Action(s) to be taken	Timeline
		Collaborating with Tanzania Chamber of Commerce Industry and Agriculture (TCCIA) or any other regional and international organization to establish and operationalize products display centers.	as to identify credible companies.	
			To pay subscription fees to get access to trade information.	March – June 2023
			To organize and coordinate trainings in collaboration with East Africa Green Council (EAGC) in the four (4) zones starting from March 2023.	2023/2024
		Undertake targeted media campaigns to promote Tanzanian products in identified markets and Opportune time.	To participate in the Annual General Meetings as planned.	2023/2024
		To Forge working relationships with Regional Trade Officers, Import Promotion organization, and other trade related organizations to exchange market opportunities	• To identify key and strategic areas for establishing warehousing schemes. • To call a meeting with Stakeholders.	2023/2024
			To coordinate Tanzania participation in the selected National and	

S/N	Recommendations	MITI' Comments	Action(s) to be taken	Timeline
		information and engage Tanzanian Ambassadors in their countries of representation to help find Markets for Products and Services. Subscribe into five (5) source of trade information. Organize and coordinate four (4) trade and market information Sharing session, seminars, meeting and workshop. Participating in three (3) international meetings and forums organize for members of World Trade Promotion Organizations (WPTO) and World Trade Portal	Regional exhibitions from July 2023 to June 2024. • Identification of borders. • To analyze the available market infrastructures. • Selection of participants.	

S/N	Recommendations	MITI' Comments	Action(s) to be taken	Timeline
		Federation (WTPF). In collaboration with the private sector, establish and operate warehousing schemes in neighboring countries such as DRC, Kenya and South Sudan where individual exporters may find it difficult to operate. In collaboration with willing companies, sponsor hosted buyers programs to attend national and regional Exhibitions. In collaboration with Municipal or District Councils, establish markets infrastructures at		

S/N	Recommendations	MITI' Comments	Action(s) to be taken	Timeline
		borders with neighboring countries to Facilitate cross border trade and promotion women in trade.		
5.	In collaboration with stakeholders, to provide good working environment to agro-processors so as to ensure the availability of quality packaging materials which will improve access to markets for the agro-processed products;	The Ministry under SIDO is organizing for shared packaging materials for agro processors, which lowers the cost of packaging materials through mass production of the same. Furthermore, a meeting with packaging stakeholders was held to collect their ideas and challenges, and implementation procedures are in place to find a budget for research and to advise the government on allowing the sector to open packaging factories with	MIIT: - i. To encourage middle and advanced technology packaging companies to invest in Tanzania; and ii. To coordinate training for available industries on the production of simple but high-quality packaging.	2023/2024

S/N	Recommendations	MITI' Comments	Action(s) to be taken	Timeline
		local and foreign investors.		
	To Enhance Coordination between the Ministry of Industry, Trade and Investment and the Ministry of Agriculture			
6.	Devise a mechanism of coordination with the Ministry of Agriculture so as to avoid duplication of activities in various areas such as marketing and agro-processing activities;	It is true that MIIT and MoA do have similar roles with respect to Marketing and Value Addition for Agricultural Products. However, the two ministries collaborate in a number of issues, for instance market prices of agricultural crops collected by MIIT are availed to Ministry of Agriculture where it is used in its various Departments.	i. MIIT have already identified two overlapping areas under Government Instrument GN No. 534 of 2021 together with its Correction of February 2022 between MIIT and MoA. These areas are **Marketing and Value Addition for Agricultural Products**; and **Crop Warehousing Licensing**. ii. The Ministry will continue to collaborate with the Ministry of Agriculture on communicating and conducting various activities of marketing and agro –processing.	2023/2024
	To Improve Monitoring and Evaluation of Activities for Agro-processing and Value Addition of Crops			
7.	Ensure that SIDO establishes an ICT system for capturing its	SIDO is collaborating with International	i. SIDO to request clearance to develop the system from	2023/2024

S/N	Recommendations	MITI' Comments	Action(s) to be taken	Timeline
	activities among other being registration of SMEs and consultancy services provided. The system should enable SIDO to keep database and update status of SMEs so as to track their development in the industry sector.	Finance Corporation (IFC)/World bank to develop the ICT system for SMEs registration and consultancy services provided. The system will enable SIDO to keep database for beneficiaries of SIDO services, update its status and help to track their development. Furthermore, the work of identifying system requirements, initial analysis, TOR for the developer has been done and approval obtained from e Government Authority (eGA).	President's Office- Public service and Good governance ii. Seek clearance to Chief secretary, State House before the implementation. iii. The Ministry will monitor the Implementation of developing ICT system for registering SMEs and developing SMEs database.	

Appendix 1(b): Responses from the Ministry of Agriculture (MoA)
General Comments

We agree with the Auditors' Recommendations regarding Agro-processing and Value addition of crops. Currently the Ministry of Agriculture is doing different initiatives to curb the gaps noted. Detailed initiatives is as indicated in the specific comments.

Specific Comments

S/No	Recommendations	MoA's Comment(s)	Action(s) to be taken	Timeline
To Improve Availability and Accessibility of Technologies for Agro-processing and Value Addition of Crops				
1	Ensure block farming production is effectively implemented so as to improve the availability of raw materials for agro-processing activities in to cover the existing gap of raw materials for agro-processing industries, and provide quality raw materials that suit to the existing agro-processing technologies.	There are current ongoing initiatives to embark into block farming to increase production volumes to feed agro industries in country. Among the initiatives is Building a Better Tomorrow, a youth initiative in agribusiness. The program will engage youth through block farming. Over 180,000 acres of land has been identified for a start in Dodoma, Mbeya, Kigoma and Kagera.	Recruitment of at least 500 youth in 14 Ministry of Agriculture Training Institutes (MATIs) and Farmers Training Centers (FTC) including Bihawana for training for block farming and agribusiness. Acquire at least 150,000 acre of land for block farming	2023-2026

To Enhance Coordination between the Ministry of Industry, Trade and Investment and the Ministry of Agriculture				
2	Devise a mechanism of coordinating with the Ministry of Agriculture so as to avoid duplication of activities in various areas such as marketing and agro-processing activities.	Strengthening inter-sectoral coordination to avoid duplication of activities/effort in areas related to marketing and agro-processing interventions	Establishment of inter-sectoral coordination team	2023 – 2026
3	Effectively implement Postharvest Management Strategy and Report its Implementation so as ensure the availability of quality, products for agro-processors.	The Ministry prepared a Strategy Implementation Plan (SIP) for the purpose of developing an effective and efficient Post-Harvest Management road map that will allow the government and the key stakeholders to have implementation framework, which is practically workable, result oriented	➢ To continue creating awareness and build capacity on Post-Harvest Management to improve efficiency and reduce crop losses along the value chain ➢ To continue promoting the availability, accessibility, affordability and adoption of tested	2023 - 2026

		and measurable both in medium and long term time lines.	technologies and processes to reduce post-harvest losses ➢ To continue strengthening the availability of storage infrastructures in order to improve marketing of food crops and minimize post-harvest losses. ➢ To strengthen existing and establish new District Postharvest Management Platforms to improve coordination, partnerships and stakeholders' participation of PHM	

			actors to enhance implementation of strategic interventions ➢ To continue conducting surveys for estimating food crop postharvest losses in order to inform National and regional decision makers on improving food security	

Appendix Two: Audit Questions and Sub-Questions

This part provides details of the audit questions and sub - questions used in this audit to answer each of the specific audit objective.

Audit Question 1:	**To what extent actvities regarding agro-processing and value addition of crops are effectively managed?**
Sub-Question 1.1	To what extent the available strategies have been implemented?
Sub-Question 1.2	Are there notable improvements in the performance and contribution of agro-processing and value addition of crops in the National GDP?
Sub-question 1.3	To what extent the agro processing has contributed to the reduction of post-harvest loss in the country?
Audit Question 2:	**Does the Ministry of Industry, Trade and Investment facilitate the availability and accessibility of adequate technologies for the Agro-Processing and Value Addition of Crops?**
Sub-Question 2.1	*Does the* Ministry of Industry, Trade and Investment *ensures availability of quality processing technologies of crops?*
Sub-Question 2.2	*Are available processing technologies easily accessible to agro-processors of crops?*
Sub-Question 2.3	*Do the available processing technologies have desired quality and sustainable to ensure efficient operation of agro-processing industries?*
Audit Question 3	**Does** the Ministry of Industry, Trade and Investment ensured **the availabilities and accessibilities of markets to processed products?**
Sub-Question 3.1	*Does the MITI has in place a mechanism for ensuring availability and accessibility of the needed markets by the agro processors?*
Sub-Question 3.2	*Does the MITI monitor the price of different products produced by processors?*
Sub-Question 3.3	*Are enabling environment that intend to promote internally generated products to different consumers within and outside the country in place?*
Sub-Question 3.4	*Does MITI adequately facilitated availability of timely financial services to agro-processors?*

Audit Question 4	**Do the MITI and MoA coordinates effectively when implementing different interventions of agro-processing activities to enhance performance of agro-processing industries in the country?**
Sub-Question 4.1	Has the inter-sectoral coordination functioning effectively to enhance business linkage for agro-processing and value addition of crops activities/products?
Sub-Question 4.2	Do the Ministry of Agriculture and MIT have a mechanism in place to ensure exchange of information related to agro-processing activities?
Audit Question 5	**Does MITI adequately monitored the agro-processing and value addition activities in order to ensure quality of the processed crop?**
Sub-Question 5.1	*Does the MITI adequately identify and register the agro-processors in the country so as to be monitored?*
Sub-Question 5.2	*Does MITI developed monitoring and evaluation plan for interventions put forth for agro-processing activities?*
Sub-Question 5.3	*Does MITI effectively monitor the performance of agro-processing industries in the country?*

Appendix Three: List of Officials Interviewed and Reason for the Interview

This part presents the list of Officials from the entities and institutions that were interviewed during the audit and the reasons for being interviewed

Institution covered	Title of official interviewed	Reasons for interviewing
Ministry of Agriculture	Director and Officers of National Food Security	• To assess performance of the system used by MoA to ensure coordination between the Ministry pf Agriculture and the Ministry of Industry, Trade and Investment when undertaking agro-processing activities
	Assistant Director and Officers of – Post-Harvest handling section	
Ministry of Industry, Trade and Investment	Director and officers from the Division of Small and Medium Enterprises	• Effectiveness of MITI, in preparation of strategies and plans for development and promotion of SMEs • Effectiveness of interventions put forth to strengthen agro-processing activities through SME sectors
	Director and Officers from the Division of Industrial Development	
SIDO	Director General	• Assess the effectiveness of the practice of their interventions in delivering technology, training, marketing and financial support services to agro-processors
	Director of Planning, Marketing and Investment	
	SIDO-Regional Manager	
	SIDO-Loan Officers	• To assess the effectiveness in providing loans to beneficiaries/ Agro-processors
	Agro-processors	• To assess the efficiency of agro-processing activities.

Institution covered	Title of official interviewed	Reasons for interviewing
		• To analyse the challenges faced by agro-processors and the interventions put forth by the government to avert the challenges

***Source*:** Auditors' Analysis, 2022

Appendix Four: List of Documents Reviewed and Reason for the Review
This part provides the list of documents that were reviewed by the Audit Team in order to obtain appropriate and sufficient information to enable them audit team to come-up with the audit findings that are supported by sufficient evidences.

Category of the documents	Title of Documents Reviewed	Reasons for Reviewing
Plans and strategies	• MITI, MoA and SIDO strategic plans • Annual Operational Plan • Inspection plans • Monitoring plans • Budgets set aside for managing agro-processing and value addition of crops. (2017/18-2021/22)	To assess the: • Effectiveness of MITI, MoA, SIDO and TEMDO during preparation of strategies and plans whether they considered agro-processing and value addition of crops. • Adequacy of the inspections and monitoring plans • How adequately MITI, MoA, SIDO and TEMDO budget and prioritize the agro-processing and value addition of crops.
Implementation Reports from MITI, MoA, SIDO and TEMDO	• Supervision Reports conducted by the Ministries (MITI and MoA) • Monitoring and Evaluation Reports conducted at SIDO and TEMDO • Inspections Reports • Annual Internal Audit Reports • Performance Reports • TDC Annual Performance Report	To assess the: • Effectiveness of MITI in supervising SIDO and TEMDO when implementing their activities on agro-processing and value addition of crops • Effectiveness of MITI in monitoring and evaluating activities performed by SIDO and TEMDO • Effectiveness of MITI, SIDO and TEMDO in the implementation of plans for agro-processing and value addition of crops • The capacity of MITI SIDO and TEMDO in terms of human resources, guidelines, tools and funds for managing agro-processing and value addition of

Category of the documents	Title of Documents Reviewed	Reasons for Reviewing
		crops • Available preventive mechanisms used to control unregistered agro-processors • To assess the level of coordination between the MITI and MoA when managing agro-processing and value addition of crops
Funding Scheme	• RRF Performance report • NEDF Performance Report	• Evaluate the extent to which RRF and NEDF are meeting their targets • Assessment on the number of agro-processors requesting and number of agro-processors acquiring funds for different agro-processing activities

Source: *Auditors' Analysis, 2022*

Appendix Five: Identified Packaging Challenges by stakeholders during Stakeholders Meeting

This part identifies challenges faced by agro-processors and package dealers regarding the availability of packaging materials in the country.

Category Challenges	Occurrence	Observed Challenges as Reported by
Cost Related package challenges	6	• The high cost of capital makes it impossible for many to keep up with the pace of existing demand from imports to the redemption of machinery at the port where the measures and costs are high, leaving many of them unable to invest properly in the packaging sector. • The need for packaging to be low. This is due to entrepreneurs liking cheap packaging when the cost of production is high. • Operating costs being high e.g. electricity, water, paying workers and others. The lack of reliable electricity also causes them huge losses when you are cut off and production is ongoing. Other costs lie in importing raw materials including preforms. • The high cost of manufacturing various packaging shapes (moulds) and the ability of the entrepreneur to finance it. Manufacturers of various products love beautiful and unique packaging (unique shape) for packaging their products. The purchase of such moulds has become so expensive that it can reach even 20 million, leading manufacturers to produce fewer varieties and for moulds that are within their capacity. • The cost of packaging being high and thus making them sold at higher prices which has deprived some customers of

Category Challenges	Occurrence	Observed Challenges as Reported by
		the opportunity to purchase them. • Many products fail to be sold in areas with reliable markets and are therefore sold in areas where producers live where they use any packaging to package, such as liquid soap to put in a bottle of already used water
Compliance Related Package challenges	1	• The existence of many government permits in the whole issue of packaging production e.g. OSHA,
Packaging knowledge and Availability of Package Manufacturer	4	• Lack of lists of manufacturers of various packaging leading to many of them becoming unknown • Limited ability of entrepreneurs to purchase the right packaging • Lack of glass manufacturing industries where there is currently only one factory producing such packaging and a large percentage of the packaging produced is for the manufacturing of various beverages such as soda, wine and beer • Lack of knowledge on packaging and packaging
Quality of Package materials	3	• The lack of quality packaging for some packaging manufacturers forces them to use poor quality packaging and thus their products do not attract market attention. • Lack of different packaging for products produced so that they can be easily distinguished • Lack of continuous access to packaging and coverings of certain types leading to packaged products not having a single appearance to make it easier to identify
Package markets	2	• Limited business capital and therefore some entrepreneurs are unable to

Category Challenges	Occurrence	Observed Challenges as Reported by
		purchase packaging at wholesale prices which would reduce costs less. • The absence of different types of packaging and thus more than one product packaged in existing packaging and some are therefore lacking traction in the markets.

Appendix Six: List of Technologies Developed/Facilitated by SIDO

This part identifies list of technologies developed/facilitated and Transferred to Users by SIDO.

Financial Year	List of Technologies Developed/Facilitated by SIDO	List of Technologies Transferred
2017/18	1.Peanut butter 2. Cashew nut electric oven 3. Cashew nut electric grading facility 4. Ginger washing machine 5. Ginger slicing machines 6. Tractor trailer (18 tones) 7. Integrated maize flour processing machine 8. Palm digester 9. Wood planner 10.Spindle molder 11. Wood saw machine 12. Vibrated block making machine 13. Pavement block making machine.	1. Wood planner 2. Spindle molder 3. Wood saw machine 4. Vibrated block making machine 5. Pavement block making machine.
2018/19	1. Leather tanning drum 2. Cashew nut steamer 3. Meat cutting machine 4.Salt grinding machine 5. Ginger dryer 6. Coffee huller 7. Palm nut cracker 8. Gas cooking stove 9. Coffee roaster 10. Sugar can juice making machine 11. Cooking stove 12. Flour milling machine - food grade 13. Peanut butter	1. Peanut butter 2. Sugar can juice making machine 3. Cooking stove 4. Flour milling machine - food grade
2019/20	1. Sweet potatoes slicing machine 2. Sweet potatoes washing machine 3. Spice milling 4. Cashew nut electric steamer (low	1. Foot operated hand washing machine (COVID) 2. Gas cooking stove

Financial Year	List of Technologies Developed/Facilitated by SIDO	List of Technologies Transferred
	pressure) 5. Gold elusion equipment 6.Bar soap making machine 7. Peanut roster 8. Foot operated hand washing machine (COVID) 9. Multiple washing stations system (COVID) 10. Gas cooking stove 11. Honey press 12. Honey sieve machine	3. Honey press 4. Honey sieve machine 5.Bar soap making machine
2020/21	1. Rice husk hammer mill 2. Sisal decorticator 3. Pigeon peas de hulling machine 4. Moring flour milling machine 5. Sisal brushing machine 6. Groundnut stripper 7. Multiple washing stations system (COVID) 8. Chalk making machine	1. Multiple washing stations system (COVID) 2. Chalk making machine 3. Sisal Decorticators
2021/22	1. Metal silos for cereals 2. Palm thresher 3. Palm nut oil expeller 4. Palm sterilizer 5. Mult stations (3) chalk making facility 6. Liquid soap making system 7. Fruits dryer 8. Grape juice making machine	1.Liquid soap making system 2. Fruit drier 3. Metal silos