THE UNITED REPUBLIC OF TANZANIA
NATIONAL AUDIT OFFICE

PERFORMANCE AUDIT REPORT ON THE MANAGEMENT OF QUALITY OF PROCESSED FOOD IN TANZANIA

A REPORT OF THE CONTROLLER AND AUDITOR GENERAL OF THE UNITED REPUBLIC OF TANZANIA

March, 2021

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LIST OF ABBREVIATIONS AND ACRONYMS

CCIC	:	China Certification and Inspection Group Ltd
CCP	:	Critical Control Point
CIP	:	Census of Industrial Production
CPB	:	Cereal and other Produce Board
DI	:	Destination Inspection
DQM	:	Directorate of Quality Management
DTM	:	Directorate of Testing and Metrology
FAO	:	Food and Agriculture Organization
HACCP	:	Hazard Analysis Critical Control Point
HQ	:	Head Quarters
GCLA	:	Government Chemistry Laboratory Agency
GHPs	:	Good Handling Practices
GN	:	General Notice
GSPs	:	Good Storage Practices
ICT	:	Information Communication Technology
INFOSAN	:	International Food Safety Authority Network
INTOSAI	:	International Organization of Supreme Audit Institutions
ISO	:	International Organization for Standardization
ISSAIs	:	International Standards for Supreme Audit Institutions
LGAs	:	Local Government Authorities
MoHCDGEC	:	Ministry of Health, Community Development, Gender, Elderly and Children
MoLF	:	Ministry of Livestock and Fisheries
MIT	:	Ministry of Industry and Trade
MoU	:	Memorandum of Understanding
MTEF	:	Medium Term Expenditure Framework
NFQL	:	National Fisheries Quality Control Laboratory

PVoC	:	Pre-shipment Verification of Conformity
SGS	:	Société Générale de-Surveillance
SIDO	:	Small Industries Development Organisation
SIDP	:	Sustainable Industries Development Policy
SMEs	:	Small and Medium Enterprises
TAFOPA	:	Tanzania Food Processors Association
TBS	:	Tanzania Bureau of Standards
TFDA	:	Tanzania Food and Drugs Authority
TIRDO	:	Tanzania Industrial Research and Development Organization
TMB	:	Tanzania Meat Board
TMDA	:	Tanzania Medicines and Medical Devices Authority
TZS	:	Tanzanian Shillings
UTI	:	Urinary Track Infection
WHO	:	World Health Organization

PREFACE

Section 28 of the Public Audit Act No. 11 of 2008, authorizes the Controller and Auditor General to carry out Performance Audit (Value for Money Audit) for the purpose of establishing the economy, efficiency and effectiveness of any expenditure or use of resources in the Ministries, Departments and Agencies (MDAs), Local Government Authorities (LGAs), Public Authorities and other Bodies. Performance Audit involves enquiring, examining, investigating and reporting on the use of public resources as deemed necessary under the prevailing laws.

I have the honour to submit to Her Excellency, the President of the United Republic of Tanzania, Honourable Samia Suluhu Hassan and through her to the Parliament a Performance Audit Report on Management of Quality of Processed Food products in Tanzania.

The report contains findings, conclusions and recommendations that are directed to both the Ministry of Industry and Trade (MIT) and Tanzania Bureau of Standards (TBS).

The Management of the Ministry of Industry and Trade (MIT) and Tanzania Bureau of Standards (TBS) have been given an opportunity to scrutinize the factual contents and comments on the draft performance audit report. I wish to acknowledge that the discussions with the MIT and TBS have been very useful and constructive.

My office intends to carry out a follow-up audit at the appropriate time with regard to the actions taken by the audited entities in relation to the recommendations provided in this report.

To ensure there is successful completion of this assignment, my office subjected the performance audit report to the critical reviews of the subject matter experts, namely; Dr. Rashid Suleiman from Sokoine University of Agriculture and Dr. Judicate P. N. Ndossi a retired Manager, Food Risk Analysis from Tanzania Food and Drugs Authority who came-up with useful inputs on improving the output of the report.

This report has been prepared by Mr. Victor Mapigano – Team Leader and Ms. Anna Minja – Team Member under the supervision and guidance of Ms. Asnath Mugassa – Acting Chief External Auditor, Mr. George Haule – Assistant Auditor General and Mr. Jasper Mero – Deputy Auditor General.

I would like to thank my staff for their commitment in the preparation of this report. My thanks should also be extended to the audited entities namely, MIT and TBS for their cooperation with my office, which facilitated timely completion of this report.

Charles E. Kichere
Controller and Auditor General
Dodoma, United Republic of Tanzania
March, 2021

EXECUTIVE SUMMARY

The Tanzania Vision 2025 aims at achieving a high quality livelihood for its people. It is envisioned that the high quality livelihood for all Tanzanians is expected to be attained through realization of food self-sufficiency and food security. Safety and quality of food are of great importance to the public, since consuming quality food, which is also safe, contributes to health and economic productivity of the individual and the nation at large. Food quality and safety are the key attributes that influence the value of products to consumers. These include both negative and positive attributes. The negative attributes include microbial contaminants, spoilage, filth, discoloration, off-odours; while on the other hand, positive attributes include product's origin, colour, flavor, texture and the processing method used.

Tanzania Medicines and Medical Devices Authority (TMDA) previously known as Tanzania Food and Drugs Authority's (TFDA) Annual report of 2016/17 pointed out the incidences of outbreak of diseases that were linked to consumption of food that had excess amounts of aflatoxin (*Sumukuvu*). Food with unsatisfactory quality causes, among others, loss of people's lives, loss of resources of victims' families and results into huge costs incurred by the government during their treatment.

The main objective of the audit was to assess whether Tanzania Bureau of Standards (TBS) has Adequate Capacity for the Management of Quality and Safety of Food Control Activities in Tanzania.

The Audit exercise covered the entire country, by involving four (4) TBS Zonal Offices and three (3) Ports of Entry. Study period was five (5) financial years, starting from 2015/16 to 2019/20. This length of time was deemed sufficient to capture the performance trends. TBS has just started to execute this role since 2019, before then the task was performed by TMDA (formerly TFDA).

The methods used for data collection included *interviews, document reviews* and *physical observation at* Ports of Entry and Food Processing premises. Criteria for assessment were based on the existing laws, standards, policies, directives and international convention applicable to food control that Tanzania has ratified.

Based on data collected and analysed in the study, Tanzania Bureau of Standard (TBS) has not fully appreciated its cardinal role of safeguarding public health through deploying effective food safety and quality management in Tanzania. Strategies to implement some of its essential functions are at the initial stage because TBS is yet to build the necessary systems to effectively meet its objectives.

On the other hand, TBS needs to enhance strategies relating to food quality and safety control. A need for having a full-fledged Food Safety and Quality Department at TBS cannot be overemphasized. This commitment will ensure not only prioritization of Food Quality Management and consequent equitable distribution of resources, but also assure consumers and food traders within and worldwide that safety and quality of foods in Tanzania are the attributes that are both efficiently and effectively monitored, as well as being managed.

Main Audit Findings

Presence of Processed Food with Unsatisfactory Quality in the Market

The Audit Team noted an increasing trend of the number of processed food samples that were tested and failed to meet the quality requirements for both locally and imported food. Similarly, the Audit Team noted that 80% of the sampled processed food items from certified food processors (Small and Medium Enterprises - SMEs) in the four (4) visited zones did not meet the required food standard. This conclusion is drawn from samples taken during the initial conducted inspections. While this was case, officials clarified that instead of restricting production in order to promote its obligation in business, TBS provided a letter advising the manufacturer to conform to the requirements. This posed high risk to consumers of the food.

Inadequate Strategies and Plans to ensure Delivery of Quality of Processed Food to the Market

The Audit Team noted that TBS did not have comprehensive strategies and plans for controlling quality of the processed food. It was further noted that TBS did not develop plans and strategies prior to conducting needs analysis that reflected the actual needs. As a result, the developed plans did not capture the actual needed human resources, working tools and equipment for effective implementation of the control measures required to mitigate

the associated food quality risks. Hence, plans were not adequately implemented.

Further, TBS lacked effective collaboration mechanism with other stakeholders like Local Government Authorities (LGAs) and other organisations with accredited food laboratories. Actually lack of such collaboration mechanism limited facilitation with regard to surveying on the effect of consumption of food with unsatisfactory quality. This also included the lack of mechanism to identify risk areas in order to be able to devise a detailed plan on how to address the food quality challenges. Consequently, this potentially limited participation of other stakeholders in planning as well as their fully participation in the implementation of the planned strategies.

Inadequate Implementation of Plans and Strategies for Managing Quality of Processed Food

The Audit Team noted that TBS did not adequately implement its strategies and plans. For the period of five (5) years covered in this audit, TBS did not manage to adequately cover the authorized ports of entry, food processors and food premises through regular inspection as required and in accordance to the plans.

The Audit Team verified this through the twenty-three (23) visited food processors, where it was noted that, TBS managed to conduct 74% of the expected routine inspection activities at twenty-three (23) visited certified food processors. This implies that, TBS did not adequately implement its plan.

Likewise, the reviewed Inspection Reports and interviewed Zonal Officers and Inspectors, revealed that the inspection mechanism at the ports of entry were not effective. The Audit Team noted that although TBS signed a contract whereby the importer had released cargo under conditional release restricting supplying or use of those products. However, in this case, TBS lacked effective follow up mechanism on this contract to avoid further health risk to society.

Inadequate Monitoring and Surveillance System of Processed Food in the Market

TBS is required to establish regulatory measures and performance monitoring system to facilitate continuous improvement of quality of the processed food that is either manufactured locally or imported from abroad. Contrary to this, the Audit Team noted that, TBS did not ensure that food processors on quarterly basis submit food samples for testing. It was only 25% of sampled food processors who complied with this requirement by submitting their food samples to TBS laboratory.

On the other hand, the Audit Team noted that TBS rarely conducts market survey to ensure conformity with standards of food products in the market. This was proved by the fact that no market surveys were conducted for the twenty-three (23) visited certified food processors. Furthermore, the Audit Team noted that TBS did not analyse the extent to which the number of tested food samples from the market complied with the standard, despite having officials responsible for market surveillance. This implies that TBS did not inform much on the extent of conformity of the quality of the certified food processors in the market.

Presence of Food Processors Operating with Expired TBS Food Product Licenses

The Audit Team further noted that five (5) out of twenty-three (23) visited food processors were operating with expired food licenses. The reason for this state of affairs was that, renewal of the license was subject to compliance with the food regulations and standards. Moreover, there was a need for being confirmed after getting the laboratory test results. This implies that quality of the processed food by these food processors with expired licenses was questionable. It also denied collection of revenue from license fee by Tanzania Bureau of Standards (TBS).

Presence of Significant Number of Uncertified Processed Food in the Market

The Audit Team noted that the number of Small and Medium Enterprises (SMEs) engaged in food processing had been increasing. In that respect, the Audit Team noted that from 2015/16 to 2019/20, TBS managed to certify 251 out of 12,121, which is equivalent to 2% of the food processors trained by SIDO. Within that period, TBS registered 91 food products in the country.

Certified food processors basically were those who had an opportunity to attend trainings organized by SIDO.

This implies that majority of the food processors were not regulated by TBS. Thus, assurance that the processed food from these unregulated food processors met the required quality was lacked. Thus risking the health of consumers. This was aggravated by lack of effective mechanisms for certification, since before 2019 certification was not compulsory.

Other reasons for inadequate certification included lack of proper mechanism to effectively identify food processors in the country as well as low sensitization done to the food processors on the need for certifying their food products.

Similarly, the Audit Team noted that TBS was not efficient in certification of food products. Time taken for certification was long, ranging from 9 days to 1126 days (3.5 years). Delay in certification also contributed to increasing the number of uncertified products in the market and extend risk to the health of consumers of substandard food products. Use of manual certification system, weak coordination mechanism with other accredited laboratories and non-attainment of food quality parameters, were reasons for delays in the certification process.

Inefficient Utilization of Available Resources to Manage the Quality of Processed Food

The Audit Team noted that TBS was not efficient in the utilization and distribution of its resources. This was caused by the fact that TBS had limited resources in terms of human resources and working tools. It was further noted there was inequitable allocation of human resources across the TBS Zonal Offices. As a result, some of the Zonal Offices had higher workload compared to others. Inequitable allocation of resources was caused by the fact that TBS did not adequately take into consideration the number of food processors, ports of entry and Regions to be covered in each zone during distribution of food inspectors.

Similarly, distribution of vehicles and funds was not done based on the size of the respective Zonal Offices in terms of coverage and number of food processors. Inadequate planning for resources and ineffective analysis and use of food risks in distribution of resources also contributed to inefficient utilization of resources.

Furthermore, TBS assigned food inspection task to the officials who were neither Health Officers nor Environmental Officers as required by Food Regulation. This impaired professional judgement in determining acceptability against the requirements as the inspectors lacked sufficient and necessary competence to perform the task. While this was the case, the Audit Team also noted that TBS lacked sufficient information on the professionals of the allocated food inspectors at the ports of entry as well as its Zonal Offices. Lack of this key staffing information implied that TBS did not take adequate efforts to strengthen its quality assurance system by ensuring that inspection was done by qualified personnel, including being unable to effectively plan for the same.

TBS was not Efficient in the Provision of Food Test Laboratory Services

The Audit Team noted that TBS was not efficient in the provision of food test laboratory services as evidenced by delay in the issuance of laboratory results. This insufficiency was not only contributed by both shortage of staff and laboratory equipment and facilities, but also insufficient laboratories. The Audit Team noted that TBS possessed one laboratory located in Dar es Salaam, and no laboratory in other Zonal Offices. It was also revealed that TBS food laboratory had a shortage of 32.4% of laboratory facilities for physical, microbiological and chemical analyses. Further to that, TBS had a deficit of 45% of the required staff with qualifications and skills necessary to facilitate efficient delivery, accurate and reliable analytical results.

Moreover, the Quality Management Information System ('Qualimis') used by TBS had low level of data security and was not integrated with other systems used by other departments within TBS. As a result, TBS officials had to use Manual System and the 'Qualimis' system in parallel. Consequently, this affected the performance of activities related to the management of quality of processed food related to delays, bureaucracy, and unacceptable turn around time on service delivery.

Inadequate Monitoring of TBS Performance by the Ministry of Industry and Trade

Despite the fact that the Ministry of Industry and Trade (MIT) had officers dealing with issues related to trade and food processing, for the past five (5) years, MIT did not conduct monitoring and evaluation to track the performance of TBS. It was also noted that MIT lacked monitoring and evaluation plan for tracking performance of TBS, including budget and monitoring tools for such activity. Further to that, MIT did not analyse

reports submitted by TBS to identify performance problems in order to advise properly. Instead, MIT relied on TBS self-evaluation reports submitted to it. Consequently, MIT did not effectively contribute in improving TBS's performance by providing appropriate recommendations and necessary actions to be taken. However, MIT lacked sufficient information for contributing to the strategic issues of TBS. Inadequate monitoring was caused by low prioritization of the activity for monitoring and evaluating performance of her agencies, like TBS.

Overall Audit Conclusion

In our view, does not have effective system for ensuring quality of the processed food in the market in order to safeguard health and well-being of the people from consuming unfit processed food. This is evidenced by the presence of substandard processed food in the market. For the past five (5) years, (2015/16 to 2019/20), the test result for post market survey of processed food product conducted by both TFDA and TBS revealed the presence of processed food subjected to physical, chemical, and microbiological spoilage that affect taste, aroma, appearance, and overall quality of food. These were associated with unhygienic practice during and post processing of food.

This trend justifies that TBS quality control systems such as inspections, certifications, surveillance and monitoring activities are not functioning optimally. As a result, consumers are subjected to health risks associated with food borne diseases. Thus, TBS has not adequately fulfilled its objective of managing quality of processed food in Tanzania. However, TBS has just started to execute this role in 2019, before that, the task was being performed by TMDA (formerly TFDA). In this case, TBS is still in the process of developing the necessary infrastructure and mechanisms for guiding an effective discharge of this mandate. However, TBS needs to enhance its strategies for strengthening quality control mechanisms of the processed food.

Audit Recommendations

Recommendations to the Tanzania Bureau of Standards

The Management of Tanzania Bureau of Standards is urged to:

i) Develop comprehensive strategies and plans for managing quality of the processed food. Strategies and plans should accommodate input of all key stakeholders and match with the growing trend of food processors in the country;

ii) Conduct a thorough need analysis covering all resources required for effective management of quality of processed food and use the result as input for developing plan and budget. The need analysis should among others identify actual human resources, infrastructures and equipment including sufficient laboratories for timely service delivery to customers;

iii) Make use of Food Risk Assessment data from Codex and Food Risk Alerts data from International Food Safety Authority Network (INFOSAN), plan and implement effective and timely proactive Risk Management and Risk Communication activities;

iv) Create mechanisms that will ensure that unregistered or uncertified food processors are captured in the database and necessary actions are taken for compulsory certification of products purposes. This should include timely certification of applications made;

v) Device a clear and effective coordination and collaboration mechanism that will ensure all stakeholders such as LGAs, accredited laboratory, SIDO among others, effectively contribute to the management of quality of processed food in the country;

vi) To improve collaboration with SIDO under the existing MoU to include training of standardization and conformity assessment delivered by TBS personnel. The mechanism should enable TBS to cover a large number of food processors in the country; and

vii) Device a mechanism that will ensure inspection and surveillance activities are effectively conducted by qualified personnel. The

mechanism should provide for reporting of inspection results and proper follow up of the inspection results and corrective actions recommended.

viii) Provide for equitable allocation of its resources such as staff, vehicles and funds based on a pre-determined factors and needs. The factors should include but not limited to food risks, size of zones and number of food processors in the respective zones so that each zone gets its entitled resources according to the size of the available workload;

ix) Ensure that the system for Quality Management Information System (Qualimis) is harmonized with other systems within TBS and is capable of supporting the monitoring of performance of TBS. The system should also be able to accurately and timely produce the required reports necessary for decision making; and

x) Ensure that food test samples are never contaminated in the laboratory by facilitating appropriate storage and professional handling.

Recommendations to the Ministry of Industry and Trade

The Management of the Ministry of Industry and Trade is urged to:

i) Adequately prepare plan and budget for monitoring and evaluation of the performance of TBS with regards to management of quality of the processed food; and

ii) Develop monitoring tools with sufficient details necessary such as reporting formats and key performance indicators. The Ministry to use developed tool to produce a comprehensive monitoring reports that are informative to allow proper corrective action and decision making.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Audit

The Tanzania Vision 2025 aims at achieving a high quality livelihood for its people. It is envisioned that the high quality livelihood for all Tanzanians is expected to be attained through realization of food self-sufficiency and food security.

Food quality is the key attribute that contributes to a product's appeal and value for money to the consumers. Quality can be negatively influenced by attributes such as physical damage caused by breakages and pests (insects and rodents), microbial and chemical contamination, and packaging and labeling among many others.[1]

Quality is a composite term encompassing many characteristics of foods. These include color, aroma, texture, general nutrition, shelf-life, stability, and absence or presence of undesirable constituents. Obviously deterioration of quality may lead to changes in the attributes that characterize the food in its fresh or freshly processed state[2].

Consumption of safe and quality food positively contributes to the health and economic productivity of individual and national at large. Consumption of food with unsatisfactory quality may cause foodborne diseases which may lead to loss of lives, loss of resources of individual and government during treatment of the victims.

According to Census of Industrial Production (CIP) conducted in 2013, agro-processing industry employs about 20,228 people (39.9% of the population) engaged in food and agro processing. The Tanzania Bureau of Standard (TBS) is entrusted to ensure that both imported and locally processed food products meet required standards to protect public health[3].

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[1] http://www.fao.org/3/y8705e/y8705e03.htm accessed on 29th December, 2020
[2] Shahidi, F., Spanier, A.M., Chi-Tang Ho, Braggins, T. (Eds.) 2004 Quality of Fresh and Processed Foods
[3] TBS Strategic plan 2016/17-2020/21

1.2 Motivation for the Audit

Manufacturing and importation of food products are among the sources of government revenue through tax and other duties. These are integral parts of the public health. As such, the nation needs to have confidence in the quality and safety of food which are locally produced and those imported. This audit was motivated by both importance and challenges of quality of the processed food based on the following:

A study conducted by Fabe *et al.*, 2015 reported that the quality of processed food in the country was unsatisfactory. Preparation and processing of food did not align with the urgent priorities of protecting consumers and fostering industry growth and competitiveness. The study indicated that these scenarios in Tanzania included dairy industries that were noted to use poor designed equipment and lack of proper cooling facilities. Moreover, Tanzania Food and Drugs Authority (TFDA) currently known as Tanzania Medicines and Medical Devices Authority (TMDA) Annual Report of 2016/17 reported twenty (20) deaths resulting from consumption of food with unsatisfactory quality.

The Strategic Action Plan for Supporting Competitiveness of Food Processing issued in March 2010, indicated that Tanzania did not have a defined and published policy regarding food safety and quality. In its absence, the basic responsibilities for food standard-setting and food control management are assigned to more than eighteen (18) institutions and seventeen (17) different pieces of legislation. The unsynchronized setting renders the industry from top to bottom to be overburdened with time-consuming, costly licensing, inspection and permit procedures for food production, distribution, imports, exports, and safety issues. Absence of food safety and quality policy not only creates a risk for compromising safety, quality and productivity of processed food, but also negatively impacts on trade.

The Global Goals, for Sustainable Development Target 1 of Goal 2 aims at ending hunger and ensure food accessibility to all people, in particular the poor in vulnerable situations including infants, to safe and quality, nutritious and sufficient food all the year round.

1.3 Design of the Audit

1.3.1 Audit Objective

The objective of the audit was to assess and recommend strategies to improve the capacity of Tanzania Bureau of Standards (TBS) for ensuring safety and quality of the processed food sold in the markets in Tanzania.

Specific Audit Objectives

To satisfy the main audit objective, four (4) specific objectives were set to gain more insight as to whether;

a) TBS has in place effective plans and strategies for ensuring only safe and good quality food is delivered to the market;

b) TBS has adequately implemented quality control systems that ensure availability of quality processed food in the market;

c) Available resources such as staff, guidelines, tools and funds for managing systems for processing of safe and quality foods are sufficient and are used efficiently and effectively; and

d) Monitoring of the Performance of TBS in carrying out its duties is timely and effectively carried out by responsible entities.

The audit questions and sub – questions used in order to answer the four audit objectives are presented in ***Appendix 2*** of this report**.**

1.3.2 Assessment Criteria

In order to assess the performance of the adequacy of measures for managing the quality of processed food, either locally manufactured or imported, assessment criteria were based on legislations, standards, good practices and Strategic Plans of MIT and TBS.

Strategies and Plans for Managing the Quality of Processed Food

The Standard Act No. 2, 2009, gives TBS an obligation of preparing strategies and plans for managing/controlling the quality of processed food that is delivered to the market.

This obligation extends to development of plans that provide for inspection, sampling and testing of locally manufactured and imported processed food to determine whether the processed food comply with the relevant standards.

Implementation of Measures to Control Quality of Processed Food in the Market

Assuring Food Safety and Quality: Guidelines for Strengthening National Food Control Systems (FAO 2003)[4]

Inspectors are responsible for examining at any reasonable time food which is intended for human consumption that has been distributed, sold or offered for sale or manufactured for sale. If the food appears to be unfit for human consumption, inspectors may seize it and take appropriate actions.

According to FAO Guidelines for Strengthening National Food Control Systems, TBS is required to conduct risk analysis as a foundation on which food control policy and consumer protection measures are based. According to FAO[5] Inspection and Monitoring programs are vital in enforcing food safety regulatory systems especially the shift of the modern food safety conception from *reactive* to *preventive*.

Further, surveillance is crucial since it allows the authorities to better understand major food safety risks and to refocus prevention efforts. It also allows early detection of adverse food safety events and implement prompt and effective responses

Food inspector is the key functionary who has day to day contact with the food industry, trade and even the public at large. Inspection should cover premises and process for compliance with hygienic and other requirements of standards and regulations[6].

[4] http://www.fao.org/3/y8705e/y8705e04.htm#bm04.3.3
[5] www.fao.org/food/food-safety-quality/home-page/en accessed on 29th December, 2020
[6] http://www.international-food-safety.com/pdf/Guidelines%20for%20Strenghtening%20National%20Food%20Control%20Sytems.pdf

Resources for Activities Regarding Management of the Quality of Processed Food in the Country

According to FAO, there is need to ensure sustainability of laboratory services by promoting a long term vision that takes full consideration of analytical needs as well as of existing national capacities and resources[7]. Such needs include but are not limited to; modern laboratory with analytical equipment, proper maintenance and staff who able to run, maintain and use it.

Furthermore, there is a need to promote inter-ministerial collaboration and effective engagement with the private sector to jointly define the analytical capacities most needed to protect public health and to support access to markets since control laboratory on its own is unable to meet the need.

TBS's Strategic Plan, 2016/17-2020/21 requires TBS among other things to improve its capacity to manage the quality of processed food; to increase number of accredited food laboratories; to ensure quality of processed food in the country; and to strengthen monitoring and evaluation system by 2020/21.

Monitoring the Performance of TBS with regard to Management of the Quality of Processed Food

According to the guidelines for strengthening National Food Control Systems issued jointly by FAO and WHO, there should be independent Ministry which should act as an oversight board to the food safety and quality control agency.

According to the Ministry's Administrative Structure, The Ministry is required to monitor implementation and carry out impact assessment, and finally prepare performance reports of activities performed by agencies or entities under the Ministry through Policy and Planning Department.

1.3.3 Audit Scope

The main audited entity was the Tanzania Bureau of Standards (TBS) as an Executive Agency under the Ministry of Industry and Trade (MIT). TBS is responsible for undertaking measures for controlling the quality of commodities, services and environment of all descriptions and to promote standardization in industry and trade. Processed food produced locally or

[7] Ibid

imported in the country are among the commodities whose quality and safety have to be controlled.

The audit focused mainly on the management systems for safety and quality of processed food in Tanzania. Specifically, the Audit Team targeted locally processed and imported processed milk and milk products, meat and meat products and cereals and cereals products.

The audit focused on the effectiveness of the available plans and strategies to implement the plans, key stakeholders coordinating mechanisms; how well the available resources were utilized in ensuring that the quality management in processing food is efficient. Also, the audit looked at the extent to which TBS Management performance was constantly evaluated and monitored.

The Audit covered the entire country through involving the four (4) representative zones picked by purposeful sampling whereby data was collected from four (4) TBS Zonal Offices and three (3) Ports of Entry.

In order to capture a possible performance trend, the Audit exercise covered a period of five (5) financial years, starting from 2015/16 to 2019/20. This would enable the Audit Team to develop adequate conclusion based on any performance trend observed. Moreover, the Audit Team intended to assess the challenges faced while food regulatory function was formerly with TFDA. It was expected that through the audit recommendations, TBS, which has assumed part of TFDA functions from July 2019, would assist.

1.3.4 Sampling Techniques, Data Collection Methods and Analysis

Sampling Techniques Used

The purposeful sampling method was used to select four (4) out of seven (7) TBS zones covered by the audit. Zones were stratified based on the geographical jurisdiction i.e. number of regions in a zone, number of processors and number of ports of entry present. Also some regions situated far away from their TBS zonal offices were purposefully picked for the assessment to capture any uniqueness in food control management.

Table 1.1 presents seven (7) zones and their respective regions, number of Ports of Entry and magnitude of Food Processors in that zone.

Table 1.1: TBS Zones, Respective Regions, Ports of Entry and Food Processors

Name of Zone	Regions Within a Particular Zone	Number of Ports of Entry[8]	Magnitude of Food Processors
Northern	Arusha, Kilimanjaro, Tanga and Manyara	6	High
Eastern	Dar es Salaam, Coast Region and Morogoro	4	High
Central	Dodoma, Singida and Tabora	NIL	Medium
Lake Zone	Mwanza, Shinyanga, Simiyu, Geita, Mara and Kagera	6	High
Southern Highland	Mbeya, Iringa, Njombe and Songwe	2	High
Southern	Mtwara, Lindi and Ruvuma	3	Low
Western	Rukwa, Kigoma and Katavi	5	Medium

***Source**: Auditors' Analysis, 2019*

Furthermore, to have representative sample, two additional factors were considered in selecting zones to be visited. These were:

a) Zones with either Ports of Entry, SMEs or both (whereby inspections are mostly done at the source {processing plants and Ports of Entry} and at the market); and
b) Without Port of Entry (Inspections are done at the market).

Also, the Audit Team considered another factor which is the regions with and without TBS's Zonal Offices. The regions with no zonal offices are those regions which do not host in-house TBS Zonal offices.

From the above sampling criteria, the stratified sampling picked out four (4) zones whereby three (3) zones namely; Southern Highlands, Eastern and Lake which have Ports of Entry and a large number of Food Processors. One zone namely; Central Zone was found to have a small number of food processors and had no Port of Entry. Table 1.2 below presents a list of zones and regions that have been visited by the Audit Team during the audit.

[8] Authorized ports of entry as per TBS

Table 1.2: Regions Visited

Name of Zone	Name of Selected Region	
	Region with TBS Zonal Offices	Region without TBS Zonal Offices
Southern Highland	Mbeya	Songwe
Eastern Zone	Dar es Salaam	Morogoro
Central Zone	Dodoma	Singida
Lake Zone	Mwanza	Kagera

Source: *TBS's Website*

In each of the selected eight (8) regions, three (3) food processors were visited by the Audit Team. The food processors were selected randomly. Moreover, three (3) Ports of Entry namely, Tunduma, Mutukula and Dar es Salaam Sea Port were visited by the Audit Team.

1.3.5 Methods for Data Collection

Both qualitative and quantitative data were collected for evidence regarding the performance of TBS in the management of quality of processed foods in the country. The Audit Team used different methods to collect information from the entities and other stakeholders. These methods included *document review*, *interviews* and *observations* as detailed below:

(a) Document Review

The Audit Team reviewed documents from MIT, TBS and its selected Zonal Offices, selected food processors specifically selected SMEs; and selected Ports of Entry.

The reviewed documents from the audited entities and stakeholders were those falling within the period under audit i.e. from 2015/16 to 2019/20. The documents include: planning documents, performance and progress reports, monitoring and evaluation reports as shown in ***Appendix 3*** of this report.

(b) Interviews

Officials from MIT, TBS Headquarters and those from the four (4) selected TBS zone offices and three (3) selected Ports of Entry were interviewed to gain insights and clarification regarding practices and challenges on the

management of quality of processed food in the country. In total four (4) Zonal Managers, twenty (20) Food Inspectors and twenty-four (24) Food Processors from the selected zones were interviewed. Details of officials that were interviewed is provided in ***Appendix 4*** of this report.

(c) Observation

Three (3) Ports of Entry namely; Mutukula, Tunduma and Dar es Salaam were visited and the Audit Team observed how the day to day operations were conducted. The Audit Team also visited food manufacturing premises to observe the effectiveness of food processors in abiding with food quality guidelines. Identified SMEs were also visited to observe the extent of adherence to safety and quality practices.

1.3.6 Data Analysis

The collected information was analyzed using both qualitative and quantitative methods.

a) Analysis of Qualitative Data

Content analysis techniques were applied on qualitative data in identifying different concepts and facts originating from interviews or document reviews. These were further categorized based on their assertions:

- To explain or establish the relationship between different variables originating from the audit questions and the extracted concepts or facts which were either tabulated or presented;
- The recurring concepts or facts were quantified depending on the nature of data portrayed; and
- The quantified information (concepts/facts) was then summed-up or averaged on spread sheets to explain or establish the relationship between different variables.

b) Analysis of Quantitative Data

- Quantitative information with multiple occurrences was tabulated on spread sheets to develop point data and or time series data. Relevant facts and trends were extracted from the figures obtained;
- The tabulated data were summed up, averaged or proportionated to extract relevant information and relationships from the figures; and

- The sums, averages or percentages were presented using different types of graphs and charts depending on the nature of data to explain facts for point data or establish trends for time series data. Other quantitative information/data with single occurrence were presented as they were in the reports and the facts they asserted.

1.4 Data Validation Process

The Ministry of Industry and Trade (MIT) and the Tanzania Bureau of Standards (TBS) were given the opportunity to go through the draft report. They gave comments on the figures and information being presented. This procedure allowed both MIT and TBS to confirm on the accuracy of the figures used and information being presented so as to improve the content and the validity of the audit report.

Furthermore, experts in the field of quality of processed food were used to cross-check the presented information and data so as to further ensure validation of the information obtained and presented.

1.5 Standard Used for the Audit

The audit was done in accordance with the International Standards for Supreme Audit Institutions (ISSAIs) on performance audit issued by the International Organization of Supreme Audit Institutions (INTOSAI). These standards require that the audit is planned and performed in order to obtain sufficient and appropriate evidence so as to provide a reasonable basis for the audit findings and conclusions based on the audit objectives.

1.6 Structure of the Performance Audit Report

In addition to chapter one above, the remaining chapters of this report covers the following:

- *Chapter Two* presents detailed systems and institutional arrangement currently Managing Quality of Processed Food in Tanzania;
- *Chapter Three* presents the audit findings on the Quality of Processed Food in Tanzania;
- *Chapter Four* provides the conclusions for the audit; and
- *Chapter Five* outlines the audit recommendations for improving Management of Quality of Processed Food in Tanzania.

CHAPTER TWO

SYSTEM FOR MANAGING SAFETY AND QUALITY OF PROCESSED FOOD IN TANZANIA

2.1 Introduction

This chapter presents the system for managing safety and quality of processed food in the country. The chapter highlights and discusses the legal framework governing the system, its funding, the procedures and processes used in the management of quality of processed food. Roles and responsibilities of key actors as well as their relationship are also covered in this chapter.

2.2 Governing Policies and Legislations

The management of quality of processed food in the country is guided by policies and legislations detailed below:

2.2.1 Governing Policies

Small and Medium Enterprises Development Policy, 2003

The Policy provides for the responsibility of SIDO which, among others, is to promote SMEs in the country. Moreover, SIDO collaborates with other stakeholders to support establishment of SMEs' association to empower the private sector like Tanzania Food Processors Association (TAFOPA).

Tanzania Bureau of Standards Quality Management Policy, 2002

The policy gives guidance for executing the Tanzania Bureau of Standards (TBS)'s activities. TBS has the responsibility to deliver quality products and services that include standards and quality assurance services that comply with the legal requirements and meet customer expectations. The policy requires TBS to provide resources and continually improve her processes to ensure that there is consistent production of quality products and services that are timely offered.

Sustainable Industries Development Policy (SIDP), 1996-2020

The policy puts emphasis on the promotion of small and medium industries through the following measures: supporting existing and new promotion institutions, simplification of taxation, licensing and registration of Small and Medium Enterprises (SMEs) and improve access to financial services. In addition, SIDP encourages informal sector businesses to grow and be formalised.

2.2.2 Governing Legislations

The management of quality of processed food is guided by the following legislations:

The Standards Act No.2 of 2009

The Act guides the management of quality of processed food in the country. Among key things, the Act provides for functions of TBS, the procedure for appointing food inspectors, the mandate of TBS, powers and duties of the TBS Board of Directors; and sources of fund for implementation of different activities of TBS.

Finance Act, 2019

The audit also referred to Standard Act Cap 130 amendments from Finance Act, 2019 where the role of food safety was placed to TBS and amendment of certain management of food quality laws.

2.2.3 Regulation, Guidelines and International Standards

The Standards (Certification) Regulations, 2009

These Regulations, made under Section 36 of the Standards Act, allow standards marks to be applied to any commodity or process only by a holder of a license granted following the standards framed by TBS. The application form (form A (FO1/CER/001)) for such license is prescribed by these Regulations. The Regulations require the Director-General of the Bureau to decide on the application received after carrying out investigations as described in these Regulations. Further, the Standards (Certification) Regulations of 2009 require TBS to maintain a register of licensed

manufacturers for the purpose of monitoring any act of disregard of standards prescribed in connection with the commodities which are produced under the authority of the license.

The Standards (Compulsory Batch Certification of Imports) Regulations, 2009

These Regulations were made under Section 36 of the Standards Act. The Regulations require that any imported products covered by compulsory Tanzania standard, apply to the Tanzania Bureau of Standards for the batch certificate one week before the arrival of their import shipment. "Batch certificate" means a certificate issued by TBS certifying or attesting that a particular import consignment or shipment of the commodity as sampled and attested conforms to the specified Tanzania standard or international or foreign standard recognized by the Bureau.

Standards (Tested Products) Regulations of 2009 (G.N. No. 404 of 2009)

These Regulations, made under section 36 of the Standards Act, concern issue of a Tested Product Certificates. The Director General of the Tanzania Bureau of Standards may in his or her absolute discretion issue, in appropriate cases, a Tested Product Certificate in respect of any product for which he or she is satisfied that the product complies with all the conditions for issuance of the certificate by the Bureau. The Regulations set out procedures and conditions for the application for and granting of a Certificate. The Certificate shall be in a form prescribed in the Schedule. The Bureau shall carry out surveillance inspections to ensure that the conditions of the certificate are being implemented.

International Standard Organization (ISO)

There are International Standard guiding system for managing quality and safety of processed food. These are such as:

ISO/IEC 17020: 2012. This standard specifies requirements for the competence of bodies performing inspection, for the impartiality and consistency of their inspection activities. It applies to inspection to any stage of inspections that include factory, manufacturing premises and surveillance.

ISO/IEC 17065: 2012: The standard provide requirement to be considered as criteria for certification bodies operating product, process or service

certification schemes; requirement such as health and safety which need to be taken into account are further detailed for certification bodies and certification activities

ISO 22000 on food safety management standards help organizations identify and control food safety hazards. It provides a layer of reassurance within the global food supply chain, helping products cross borders and bringing people food that they can trust.

ISO/IEC 17067:2013 describes the fundamentals of product certification and provides guidelines for understanding, developing, operating or maintaining certification schemes for products, processes and services.

ISO/IEC 17025:2005 specifies the general requirements for the competence to carry out tests and/or calibrations, including sampling. It covers testing and calibration performed using standard methods, non-standard methods, and laboratory-developed methods.

2.2.4 Plans and Strategies for Managing Quality of Processed Food in Tanzania

National Development Plan of 2016/17 - 2020/21

In this plan, social interventions potentially contributing to the desired state of human wellbeing will be prioritized. This includes interventions that facilitate the development of appropriate skills and good health. Quality of life is one of the desired conditions among the aspirations of Tanzania Development Vision 2025.

TBS's Strategic Plan for the period 2015/16-2019/20

In making sure that processed food in Tanzania is of the required quality, the Tanzania Bureau of Standards has an objective of ascertaining that conformity to standards and service delivery is enhanced and improved. This is through promoting public awareness and education on conformity to standards, promoting system certifications; expand quality assurance and metrology activities. Also, improvement in human resource and financial resources management has been one of the set ways to improve management of food quality.

2.3 Roles and Responsibilities of Key Players

There are two (2) main actors in Quality of Processed Food Management in Tanzania. These actors provide different level of services in the whole value chain namely; policy formulation and regulatory services. These actors are the Ministry of Industry and Trade (MIT) and Tanzania Bureau of Standards (TBS). The detailed roles and responsibilities of each one of them are provided and summarized in **Figure 2.1:**

2.3.1 The Main Stakeholders

Ministry of Industry and Trade

The Ministry of Industry and Trade under its Planning and Policy Department has the role of overseeing the performance of Tanzania Bureau of Standards' when implementing its functions. Its role is to ensure that TBS is efficiently and effectively carrying out processed food quality management in the country.

Tanzania Bureau of Standards

Tanzania Bureau of Standards (TBS) through its Directorate of Quality Management (DQM) acts as a key player when it comes to Quality Management of Processed Food. According to Standards Act, 2009, TBS is required to undertake measures for quality control of commodities in the country. In order to implement of this function, TBS is required to:

(a) Formulate Tanzania Standards in all sectors of the country's economy;
(b) Implement the promulgated standards through third part certification schemes;
(c) Improves the quality of industrial products both for export and Local consumption through various certification schemes;
(d) Promote standardization and quality assurance services in industry and commerce through training of personnel in Company Standardization, Quality Assurance and Management Systems, Quality Improvement, Laboratory Techniques and Accreditation, Packaging Technology and Hazard Analysis and Critical Control Points (HACCP);

(e) Undertake testing of product samples drawn by TBS inspectors in the course of implementing standard (Certification Samples), requested by manufacturers themselves (Type-Testing Samples), brought by consumers through consumer complaints Samples) or for checking laboratory proficiency);
(f) Inspect and register food and food premises; and
(g) Certify and register food, food products and cosmetics

2.3.2 Other Stakeholders

Local Government Authorities

The Tanzania Food, Drugs and Cosmetics Act (Delegations of powers and functions) Order, 2015 delegates some of its roles and functions to the LGAs. According to Section 5(1) of the Act, the Regional Secretariat is responsible to oversee the performance of LGAs on the delegated functions. Moreover, the Directors of LGAs are required to perform the delegated functions within the defined institutional arrangement of the LGAs. Some of these functions include; ensuring availability of quality and safe food respectively in their areas of jurisdictions. During its era, TFDA was responsible for conducting meeting with the LGAs at least once per year to facilitate the performance of delegated functions.

Food Importers and Manufacturers

According to Section 21D of Finance Act, 2019, food manufacturers/importers are required to ensure that the processed food supplied in the market are of quality and required standard. It further states that any person who sells or distribute food products which are substandard commits an offence. Moreover, Section 21D of Finance Act, 2019 requires food manufacturers to adhere to the set food standard during processing. This sets an obligation to the importers/manufacturers to strictly follow and abide to all standards and regulations to ensure public health protection.

Small Industries Development Organization (SIDO)

SIDO is the parastatal organization under the Ministry of Industry and Trade. According to the Memorandum of Understanding (MoU) with TBS of 2017, the two (2) parties are jointly responsible for conducting training by inviting each other and share information to food processors. Moreover, the parties

are responsible for conducting semi-annual meetings for evaluation of agreed areas of cooperation. Specifically, SIDO is responsible for submitting to TBS recommendation letters and evaluation reports of food processors who meet criteria for further processes of certification.

Tanzania Meat Board

Tanzania Meat Board (TMB) is a parastatal organization under the Ministry of Livestock and Fisheries (MoLF). The board was established by the Meat Industry Act No. 10 of 2006 with the mandate of restructuring the Meat Industry sector in the country. Mainly the board is responsible for ensuring the provision of high quality meat and their products and all matters associated with meat production for ensuring availability of safe and quality meat supply. According to the Memorandum of Understanding (MoU) with TBS of 2019, TMB in collaboration with TBS is responsible for controlling the safety and quality of meat and meat products for both local and export sales. Among the activities performed by TMB include inspection, registration and permit issuance. Moreover, TMB is responsible for sharing information to TBS on the performed roles as per Memorandum of Understanding (MoU).

Tanzania Dairy Board

Tanzania Dairy Board (TDB) is the public institution under the Ministry of Livestock and Fisheries (MoLF). The board was established by the Dairy Industry Act No. 8 of 2004 which gives it the mandate and powers for production, regulations and promotion of dairy. According to the Memorandum of Understanding (MoU) with TBS of 2020, TDB in collaboration with TBS is responsible for controlling safety and quality of the dairy and dairy products for locally and imported products. Moreover, TDB is responsible to submit quarterly progress reports to TBS on inspection activities conducted in dairy facilities such as dairy farms, milk collections centers, and warehouse as well as a list of licensed business operators.

Cereals and other Produce Board

The Cereals and Other Produce Board of Tanzania (CPB) is a business entity enacted in Tanzania established by the Cereals and Other Produce Act No. 19 of 2009. The Board has two main functions which are commercial and promotional functions. When implementing commercial functions its main activities include: Purchasing and selling cereals and other produce at a competitive price; Import or export cereals and other produce; and provision of services for cereals and other produce such as storage facilities, cleaning, drying, weighing, grading and packaging services according to market standards.

On the other side, promotional activities include: facilitating research on cereals and other produce; providing extension services to growers and dealers of cereals and other produce; disseminating information or data to stakeholders in the cereals and other produce subsector; and providing assistance in the formation of farmer cooperatives and/or organizations.

Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC)

The Ministry's extension workers form the backbone of rapid response teams for the control of foodborne disease outbreaks at grass-root levels. They conduct independent investigations and design plans and strategies for controlling such events in their levels of operation.

Universities and Colleges

Agriculture and Medical Universities and allied training institutions provide a helping hand through training of food processing technologists, food laboratory technicians and food inspectors who provide the majority of technical workers in the field.

Food Outlets (Warehouses, Stores; Food Transporters and Distributors)

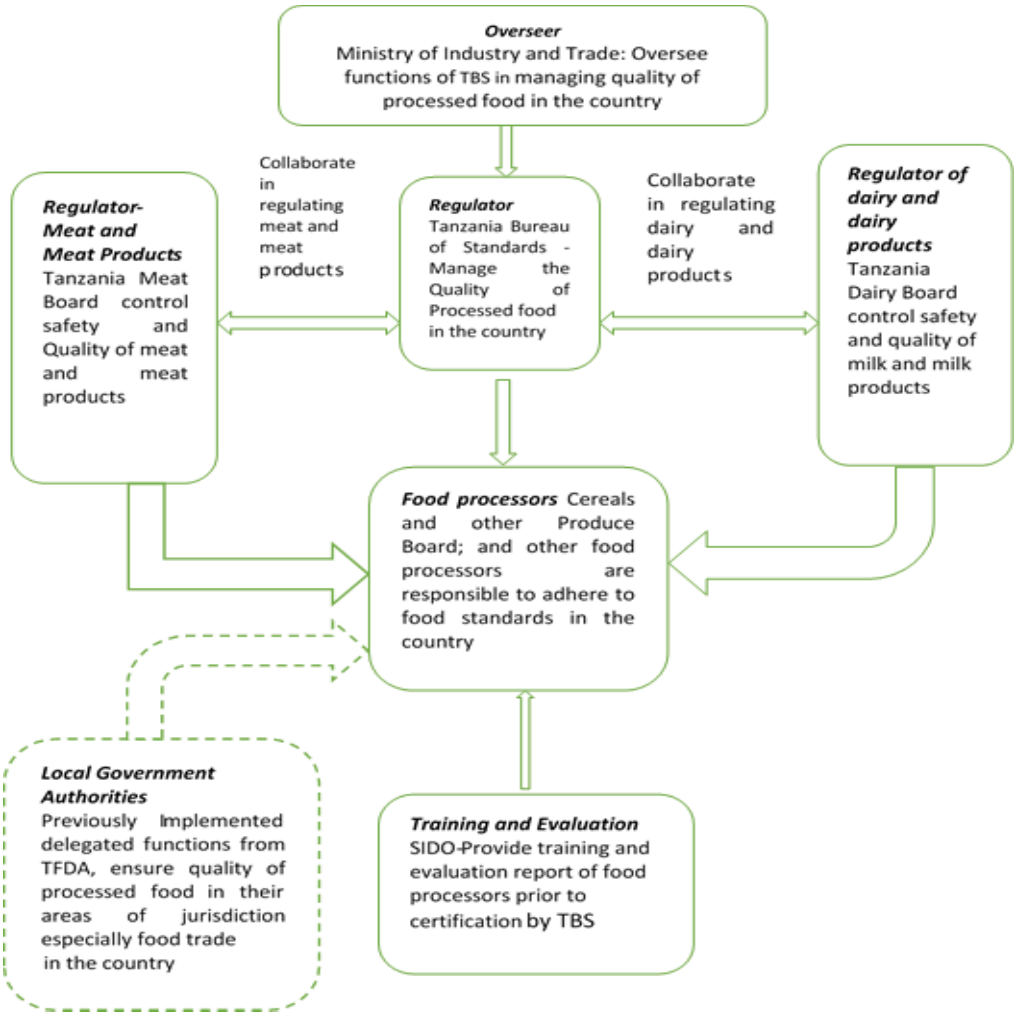
These are businesses whose operations may impact on the quality and safety of food products. Some of these players implement quality assurance guidelines like Good Handling Practices (GHPs) and Good Storage Practices (GSPs), tailored Hazard Analysis Critical Control Point (HACCP) Systems which positively influences the safety and Quality of food in their custody.

The Food Consumer

The consumer is also a key stakeholder in the management of food control. The ultimate focus of any food activity is the final consumer who by legal assumption demands only safe and quality food. The consumers who are the target of any food operation and are also a pressure group in enforcing the quality management of processed food.

Figure 2.1 presents the summarized relationship of stakeholders

Figure 2. 1: Summarized Roles and Responsibilities of Key Stakeholders



Source: Auditors' Analysis of information from MIT and TBS, 2020

2.4 System for Managing Quality of Processed Food in Tanzania

The management system of the imported and locally produced food is explained hereunder;

Planning for Managing Quality of Processed Food

ISO 10005:2018 speaks of planning for managing quality. Under this requirement, TBS is required to have quality plans, either in the context of an established quality management system or as an independent management activity. The sole responsibility over planning for TBS activities is vested to the Finance, Planning & Administration Department.

Planning process begins at the Directorate of Quality Management (DQM) which is vested with the obligation for management of quality of processed food. Therefore, the Planning Department is responsible for consolidating plans from the DQM and other Directorates to come up with the general plan for TBS. The planning involves inspection plans, surveillance plans, sampling and analysis regimes, training plans and public awareness raising and communication plans.

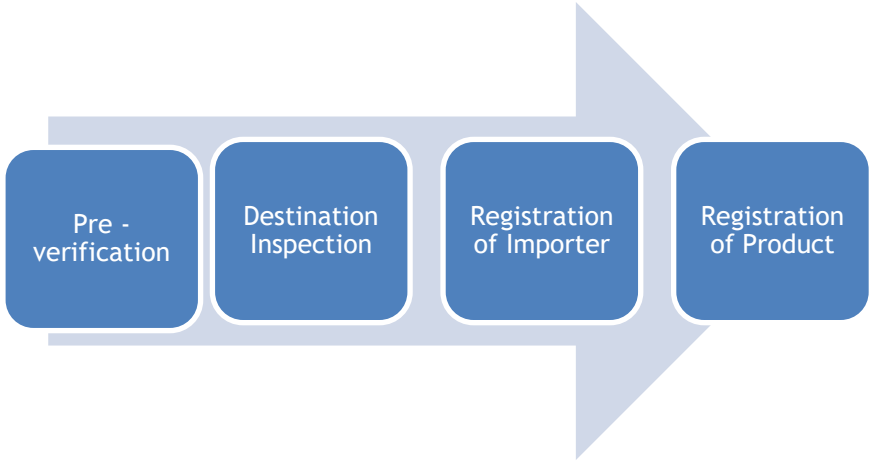
2.4.1 Management of Quality of Imported Processed Food in the Country

These are processed foods which have been produced or manufactured outside the country. Tanzania Bureau of Standards (TBS) ensures that such products are of the required safety and quality standards.

To ensure this, TBS conducts the activities such as pre-verification, destination inspection and registration of importers as per the Standards Act No.2 of 2009 when read together with the Finance Act No. 8 of 2019.

Although not directly mentioned, the laboratory services form an integral part of the systems in place to ensure quality and safety of the processed food products. Market surveillance samples, routine inspection and suspect food samples are more often than not subjected to laboratory testing. Therefore, the capability of the laboratory to test various parameters gives assurance of the quality and safety of food products.

Figure 2. 2: Process for Quality Assurance of Imported Processed Food



a) Steps involves in Managing Quality of Imported Processed Food

Step 1: Pre-Verification

The pre-verification process is conducted on the processed food products before entering the country. TBS has entered into a contract with agents for Pre-Shipment Verification of Conformity (PVoC) for goods imported to Tanzania who work worldwide to inspect, verify, test and certify the conformity to standards on the processed food before importation. Some of the Agents for pre-shipment who worked with TBS include: Bureau Veritas, Société Générale de-Surveillance (SGS), China Certification and Inspection Group Ltd (CCIC) and Intertek. The cargo of processed food which values more than US dollar 5,000 are subjected to "pre-verification procedure" before entering the country.

Step 2: Destination Inspection

The Destination inspection is a type of inspection conducted to food products which were not inspected in their country of origins. Tanzania Bureau of Standards has categorized any processed food cargo with value below US dollar 5,000 to be subjected to destination inspection. In case the product does not conform to their specific standards, TBS has the mandate to either re-export the cargo to the country of origin or to order its destruction at the importers' costs.

Step 3: Registration of Importer

Section 21 (I) and (J) Part VII Amendment of the Standards Act, (CAP.130), requires importers of processed food products to be registered by the Tanzania Bureau of Standards (TBS). The importers are required to apply for registration to the Director General and upon conformity of the criteria, the Director General may grant Registration.

Step 4: Registration of Food Products

According to the Act[9], no person shall manufacture, import, distribute, sell or expose for sale pre-packed food unless products are registered by TBS. The applicants for product registration shall apply online, upon payment the applicant shall submit sample for evaluation. Upon satisfaction of the Safety and Quality of the products the Bureau shall grant approval and registration certificates.

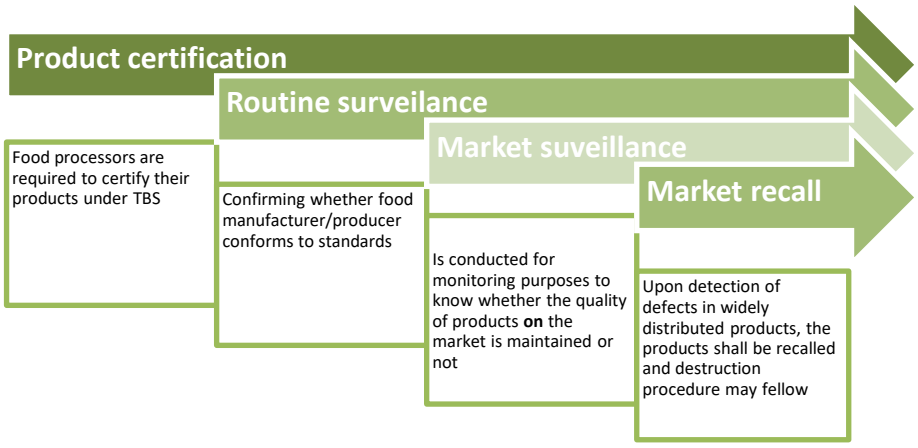
2.4.2 Management of Quality of Locally Processed Food

TBS is also responsible for managing the quality of food produced within the country by the local food processors. The procedure, for ensuring that processed foods in the markets meet the required standards for quality, applies uniformly regardless of the level of producer i.e. whether SME or large scale manufacturers. This is because the objective is to ensure quality, health and safety to the consumers.

Figure 2.3 Presents the process involved in managing the quality of locally produced food:

[9] **Standard Act, No. 2 of 2009 amended by the Finance Act, 2019**

Figure 2. 3: Quality Assurance Process of Locally Processed Food in the Country



Step 1: Product Certification

All processed food products are required to have a quality certification mark from the Tanzania Bureau of Standards before been released onto the market. The food processors are obliged to apply for certification whereby TBS communicate the standards which processors are required to meet before certification.

The TBS certification process covers: inspection of production premises, inspection of the food handling and production processes and laboratory testing of the produced products. Both reports from the inspectors and laboratory are used to decide whether or not to certify the processed products.

Until 2019, certification of the products was voluntary; where Food Processor was left to decide on whether to certify or not to certify his/her products with TBS. But, certification is now a mandatory requirement.

Step 2: Routine Surveillance

These are a normal planned inspections conducted to production areas by TBS inspectors. TBS is required to conduct at least two (2) inspections per year to the food processors.

Step 3: Market Surveillance

These are observations done by TBS to determine the performance of the product in the market. Processed foods on the market are subjected to

planned and unplanned market surveillance to determine endurance to conformity with the quality standards while the product is in the market.

Step 4: Market Recall

This is done when the widely distributed product has been detected with harmful defects or has failed to maintain the required standards. The Standard Act has given TBS the mandate of advising the Minister, who upon the advisory may order for market recall of the defective products.

2.5 Resources Used in Management of Quality of Processed Food in Tanzania

The Directorate of Trade Development apart from its day to day operation is responsible for overseeing the function performed by TBS on behalf of the Ministry. Its function includes:

(a) To develop, monitor, evaluate and review their performance of trade and marketing policies, laws and legislations;
(b) To facilitate and promote the development of internal and external trade and marketing infrastructure;
(c) To facilitate the availability of and dissemination of relevant trade and marketing information;
(d) To conduct market research, market intelligence and value chain analysis of potential goods and service for internal and external markets; and
(e) To facilitate capacity building of private sector to engage in trade, promotion and marketing.

2.5.2 Resources for Managing Quality of Processed Food at the Ministerial Level

Financial Resources for Managing Quality of Processed Food

In ensuring the department achieves its set objectives, the budget and actual disbursement of fund for implementing planned activities for five (5) financial years under the audit (2015/16-2019/20) is detailed in **Table 2.1**:

Table 2. 1: Budget for Trade Development Department

Financial Year	2015/16 [10]	2016/17[11]	2017/18	2018/19	2019/20
Budgeted (TZS in million)	NIL	NIL	553	1,576	1,006
Actual disbursement (TZS in million)	NIL	NIL	550	1,576	882
Actual Percentage disbursed (%)	NIL	NIL	99	100	88

***Source**: MIT's Medium Term Expenditure Framework for respective financial years (2020)*

Table 2.1 shows that, for the last three years under the audit the Ministry managed to receive a minimum of 88% of its budget for Trade Development Department. In 2017/18 and 2018/19 the department received almost 100% of its budget. This department, apart from its day to day activities, is also responsible for supervising activities performed by the TBS.

Human Resources for Trade Development Department

In fulfilling the day to day operation of its activities, Trade Development Department requires various professional cadres. **Table 2.2** indicates the specified professionals who were available and actual required staff:

Table 2. 2: Human Resources required

Professional	Required (Number)	Available (Number)
Director	1	0
Assistance Directors	2	1
Economists	11	9
Trade Officers	17	16
Statisticians	7	4
Total	38	30

***Source**: Staff Establishment Record from Ministry of Industry and Trade (2020)*

Table 2.2 shows Human Resources required and who were available for implementing the activities of the Trade and Development Department. Table 2.2 further shows that the Department had a deficit of 21% (8 out of 38 required professionals) of the requirement.

[10] The ministry could not provide the information
[11] Ibid

2.5.2 Resources for Directorates of Quality Management, Testing and Metrology

Financial Resources for Managing Activities under two Directorates for Five Years 2015/16 – 2019/20

Two (2) Directorates namely; Directorate of Quality Management (DQM) and Directorate of Testing and Metrology (DTM) at TBS are directly responsible for managing quality of processed food in the country. **Table 2.3,** hereunder, shows the allocated budget for the two (2) directorates for the five (5) financial years covered in the study.

Table 2. 3: Budget for Managing Implementing various Activities under the Directorates

Financial Years	Directorate of Quality Management (TZS in Million)			Directorate of Testing and Metrology (TZS in Million)		
	Budget	Actual disbursement	%age	Budget	Actual disbursement	%age
2015/16	1,144	1,165	102	1,069	668	63
2016/17	1,543	1,842	119	1,023	695	68
2017/18	1,958	1,852	95	1,163	1,082	93
2018/19	2,353	2,420	103	1,546	1,367	89
2019/20	2,727	2,163	79	2,094	1,534	73
Total	9,725	9,442	97	6,895	5,346	76

Source: *TBS's Medium Term Expenditure Framework for Respective Financial Years*

Table 2.3 indicates that for the last five (5) financial years, the Directorate of Quality Management (DQM) managed to get more than 100% of the budgeted amount in three (3) consecutive financial years, namely; 2015/16; 2016/17 and 2018/19.

The Directorate of Testing and Metrology (DTM) managed to receive 76% of planned budget. The maximum amount disbursed was noted in 2017/18 at 93% while the minimum disbursement was noted in 2015/16 at 63% of its target.

Human Resources for Managing Quality of Processed Food at TBS

Table 2.4 indicates the number of specified professionals who are available in the two directorates versus the actual required.

Table 2. 4: Human Resources for Managing Quality of Processed Food at TBS

Professional	Directorate of Quality Management		Directorate of Testing and Metrology	
	Required	Available	Required	Available
Food Inspectors	155	98	NA	NA
Food Analysts	NA	NA	48	37
Metrologists	NA	NA	29	23
Lab Assistants	NA	NA	8	2
Total	**155**	**98**	**85**	**62**

***Source**: Personnel Enrolment of Staff from Tanzania Bureau of Standard (2020)*

Table 2.4 shows that the Directorate of Quality Management (DQM) had 63% (98 out of 155) of required human resources, while the Directorate of Testing and Metrology had 73% (62 out of 85) of the required.

CHAPTER THREE

AUDIT FINDINGS

3.1 Introduction

This chapter presents audit findings on the management of safety and quality of food in Tanzania as accrued in the Performance Audit exercise. The findings identify various plans and strategies in operation and their implementation; use of available resources; and monitoring of the overall performance of TBS in carrying out its duties relating to food safety and quality. Detailed findings are provided in the subsequent sections as follows:

3.2 Quality of Processed Food Products in the Market

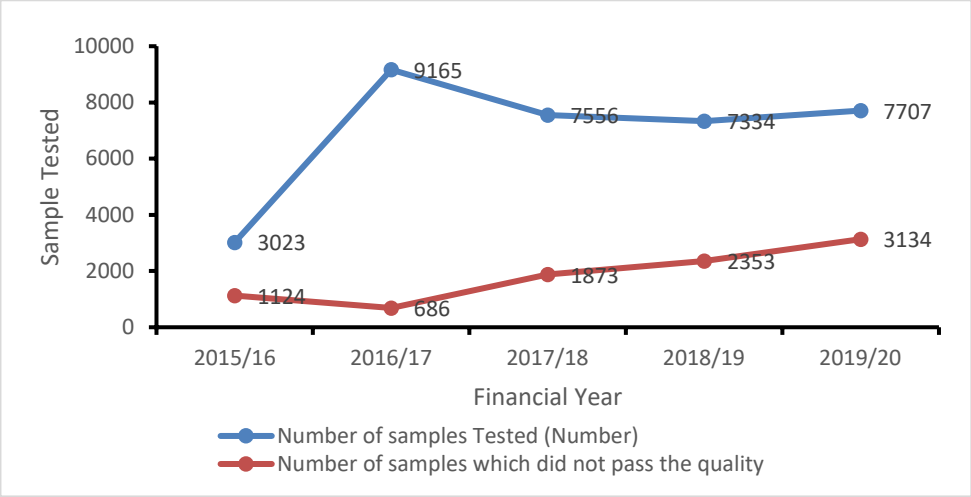
There were reported incidences of food borne disease cases caused by aflatoxins and food with contaminants at levels capable of causing food borne diseases.

The Audit found on the market, foods with physical/common quality defects which also upon laboratory testing were detected to have human health risks. This was evident that TBS had inadequate capacity in managing the quality of processed foods. The details are as elaborated below:

3.2.1 Presence of Low Quality Processed Food in the Market

Reviewed inspection reports of both TBS and TFDA indicated that from 2015/16 - 2019/20 the number of tested food samples (imported and locally processed) with unsatisfactory quality had been increasing as shown in Figure 3.1(a).

Figure 3. 1(a): Number of Tested Food Samples from 2015 to 2020



***Source**: TFDA's Annual Performance Report & TBS's Qualimis 2015/16-2019/20 (2020)*

Figure 3.1 (a) shows that the number of tested food samples has been increasing from 3023 in 2015/16 to 7707 in 2019/20 indicating an increment of 41%. However, the number of food samples which did not meet quality requirement increased by 37% from 1124 in 2015/16 to 3134 in 2019/20. This indicates that, at any one time more than a quarter of tested samples did not meet the required quality and safety standards.

The reasons for having many unsatisfactory tested food samples were several but not limited to:

a) TBS lacked systems to ensure that they interacted and, educated food processors particularly SMEs on product's specific quality standards. Same applied to TFDA who were responsible for safety quality management before 2019; and

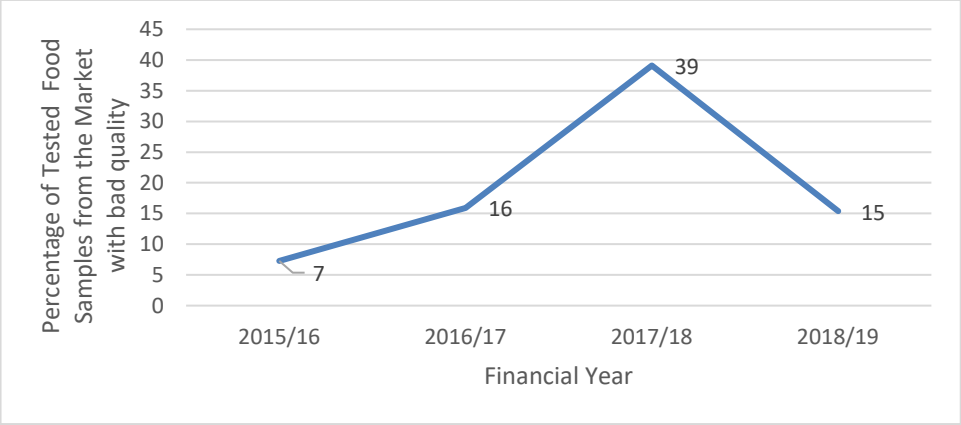
b) Voluntary certification of food products in the period before 2019 could have limited the number of processors seeking for certification, therefore, low quality product might have been placed on the market. Also, without a mandatory certification requirement a few processors were voluntarily adopting quality assurance standards or improved their production processes.

However, TBS had not yet analysed a number of tested samples from the market among the tested samples despite that submitted samples to its

laboratory were well coded and categorized based on the sources such as post market, certified product either from the market, the one submitted for the purpose of certification or inspection. Thus, TBS management lacked sufficient details on the extent of existence of substandard food in the market for timely taking proper action. As a result, it lacked sufficient information to measure the performance of processed food products based on major food categories and the risks.

Similarly, for the past four years (2015-2018), TFDA and TBS conducted post market surveillance for the processed food, and the situation was as provided in Figure 3.1.(b):

Figure 3. 1 (b): Tested Food Sampled from the Market by TFDA



Source: Auditors' Analysis of Data from TFDA (2021)

Figure 3.1(b) shows that for two (2) consecutive financial years 2015/16 and 2016/17 the percent of sampled food from the market increased from 7 to 16. The percent increased to 39% in 2017/18. The increase was partly associated with the increased of food sampled in 2017/18. The results of tested samples in years 2015/16 up to 2017/18 indicated that between 7% and 39% circulating in the market was of bad quality. This might mean that the control systems for the responsible institutions by then TFDA were not effectively functioning to prevent circulation of substandard food in the market.

In 2018/19 tested food samples from the market which failed quality tests were noted to decrease, this partly might be caused by the expected shift of activities relating to quality control of processed food to TBS in 2019/20.

i) *Status of Food Processors in Regions with TBS Zonal Offices*

Interviews of Food Processors in the visited zones revealed that they (food processors) were not restrained from selling/distributing their products even after getting results of non-conformance to standards, specific to their products.

Table 3.1 provides detailed information on the analysis of selected food processors in the visited zones:

Table 3. 1: Percentage of Sampled Food Processors with Unsatisfactory Quality

Name of zone	Number of Sampled Food Processors	Number of samples tested	Number of tested samples with Unsatisfactory Quality[12]	Percent of Tested Samples with Unsatisfactory Quality (%)
Lake Zone	5	7	7	100
Southern Highland Zone	6	12	11	92
Central Zone	6	15	11	73
Eastern Zone	6	17	12	71
Total	***23***	***51***	***41***	***80***

***Source**: Auditors' Analysis of Results of Tested Samples from visited TBS's Zones (2020)*

Table 3.1 indicates that 80% of food samples tested for the first time failed. The zones observed with highest failure rate were Lake Zone (100%) and Southern Highland zone (92%) and ones which were below average were Eastern zone (71%) and Central zone (73%).

Furthermore, **Table 3.1** shows that 80% of samples from certified food processors (SMEs) did not meet the required food standard. These samples had been taken during the initial inspections conducted. The maximum ratio of samples failing was noted in Lake Zone since all four (4) (i.e. 100%) tested samples from five (5) food processors had quality problem, while Eastern Zone was noted with a score of 71% which is minimum when compared with other zones

[12] When tested for the first time during the initial inspections

Although there were several processors (8670) in the visited zones only 2.8% (246 out of 8670 food processors) were in TBS zone data base. **Table 3.2** below shows the number of food processors captured in TBS client's data bases in the visited zones**:**

Table 3. 2: Percentage of Food Processors Covered by TBS in the Visited Zones

Region	Number of SMEs - Food Processors Available	Number of SMEs - Food Processors Covered by TBS/TBS as of 2020	Percentage of SMEs covered by TBS (%)
Eastern Zone			
Dar es Salaam	1974	95	5
Morogoro	351	6	2
Coast/Pwani	630	8	1
Subtotal	2955	109	3.7
Southern Highland Zone			
Iringa	642	16	2
Njombe	646	8	1
Songwe	1101	39	4
Mbeya			
Subtotal	2389	63	2.6
Lake Zone			
Mwanza	492	10	1
Shinyanga	191	7	4
Simiyu	100	2	2
Geita	34	1	3
Mara	124	11	9
Kagera	544	12	2
Subtotal	1485	43	2.9
Central Zone			
Dodoma	394	17	4
Singida	561	6	1
Tabora	883	8	1
Subtotal	1838	31	1.7
Total	8,670	246	2.8

***Source**: Auditor's Analysis of SME's Database of SIDO and TBS-HQ, 2020*

Table 3.2 indicates that, TBS did not cover majority of food processors in the visited regions. Out of 8670 food processors in the visited zones, only 246 (equivalent to 2.8%) were in TBS zone databases.

Table 3.2 also shows that there is overwhelming evidence that TBS had a limited capacity at zonal level to effectively carry out its obligations of safeguarding consumers' health across the country. When processors

submitted the samples for testing either for product certification or renewal of certificate, they would submit the best quality samples to avoid noncompliance.

The Audit Team noted that all three (3) food categories analysed had several parameters beyond the legal/set limits as presented in **Table 3.3**.

Table 3. 3: Food Products and Parameters that Failed the Quality Test

Food Category	Product Tested	Parameter that failed Quality Test
Meat and Meat Product	Frozen Beef	Enterobacteriaceae
Milk and milk products	Plain yoghurt	Yeast and Moulds, cfu/g
	Pasteurized milk	E.coli cfu/g
	Cultured milk	Coliforms cfu/g
		E.coli cfu/g
Cereals and Cereal Products	Fortified Maize flour	Total iron mg/kg
	Maize flour[13]	Yeast and Moulds cfu/g
		Total Iron (Fe) mg/kg
	Maize Flour[14]	Yeast and Moulds cfu/g
	Fortified Maize flour	Yeast and Moulds cfu/g
	Nutritious flour[15]	Yeast and Moulds cfu/g
	Fortified Maize flour[16]	Total iron mg/kg
	Maize flour	Yeast and Moulds cfu/g
		Total iron mg/kg

***Source**: Auditors' Analysis of Data on Inspection Conducted by TBS (2020)*

Table 3.4 hereunder shows the extent of deviation from prescribed standards of the tested food:

Table 3. 4: Actual Versus Standard Quality Parameter for Product Tested

Food Category	Product Tested	Parameter that failed Quality Test	Legal limits/ Standard	Results
Meat and Meat Product	Frozen Beef	Enterobacteriaceae	Max 10^2	6.7 x 10^2
Milk and milk product	Plain yoghurt	Yeast and Moulds cfu/g	Max.10	3.1 x 102
	Pasteurized milk	E. coli cfu/g	Absent	4
	Cultured milk	Coliforms cfu/g	<10	2.7 x 10^3

13 Fail in marking and labeling
14 Ibid
15 Fail marking and labelling
16 Ibid

Food Category	Product Tested	Parameter that failed Quality Test	Legal limits/ Standard	Results
		E. coli cfu/g	<10	2.7 x 10^3
	In addition a total of 7 tests failed in Marking and Labeling while all other parameter passed			
Cereal and Cereal Products	Fortified Maize flour	Total iron mg/kg	21-41	10.4
	Maize flour[17]	Yeast and Moulds cfu/g	Max 103	1.8 x 10^4
		Total Iron (Fe) mg/kg	21-41	7.0
	Maize Flour[18]	Yeast and Moulds cfu/g	Max 10^3	1.5 x 10^3
	Fortified Maize flour	Yeast and Moulds cfu/g	Max 10^4	1.8 x 10^4
	Nutritious flour[19]	Yeast and Moulds cfu/g	Max 10^4	2.6 x 10^4
	Fortified Maize flour[20]	Total iron mg/kg	Max 21-41	5.2
	Maize flour	Yeast and Moulds cfu/g	Max 10^4	<2.2 x 10^4
		Total iron mg/kg	Min 7	6.3
	In addition a total of 10 tests had failed on Marking and Labeling while all other parameters passed			

Source: Auditors' Analysis of test results from files of sampled food processors (2020)

Table 3.4 shows that all quality parameters for the tested food samples recorded a significant variation from the required standard. For detailed information on the number of tests conducted, standard required and standard obtained after tests see ***Appendix 7.***

Causes and Consequences for non-attainment of Required Quality Standard

The Audit Team further analysed probable causes of non-compliance and likely effects to human health as indicated in **Table 3.5**:

17 Fail in marking and labeling
18 Ibid
19 Fail marking and labelling
20 Ibid

Table 3. 5: Likely Consequences to Human Health for the Noted Quality Problems

Food Category	Test result not met	Possible Causes	Consequences To The Health Of Public
Meat and meat products	*Enterobacteriaceae* However test results indicated conformity for *Salmonella, Vibrios* coliforms and *E. coli*	During the meat value chain Inadequate processing ineffectiveness of sanitation programs	Positive test for *Enterobacteriaceae* implies the presence of non-pathogenic microorganisms which do not cause any health effect.
Milk and milk products	Yeast / moulds	Inadequate heat treatment Recontamination after heat treatment	Spoilage of the food product which may affect organoleptic properties.
	E. coli	Inadequate heat treatment Recontamination after heat treatment ineffectiveness of sanitation programs	Spoilage of the food product which may affect organoleptic properties
	Coliform	Inadequate heat treatment. Recontamination after heat treatment ineffectiveness of sanitation programs	Spoilage of the food product which may affect organoleptic properties
Cereal and cereal products	Total Iron	Inadequate fortification	Lack of iron may lead to anaemia.
	Yeast/moulds	Infestation during pre-harvest and post-harvest operations	Affects organoleptic qualities

***Source**: Auditors' Analysis of Test Results of Food Processors from TBS's Files, (2020)*

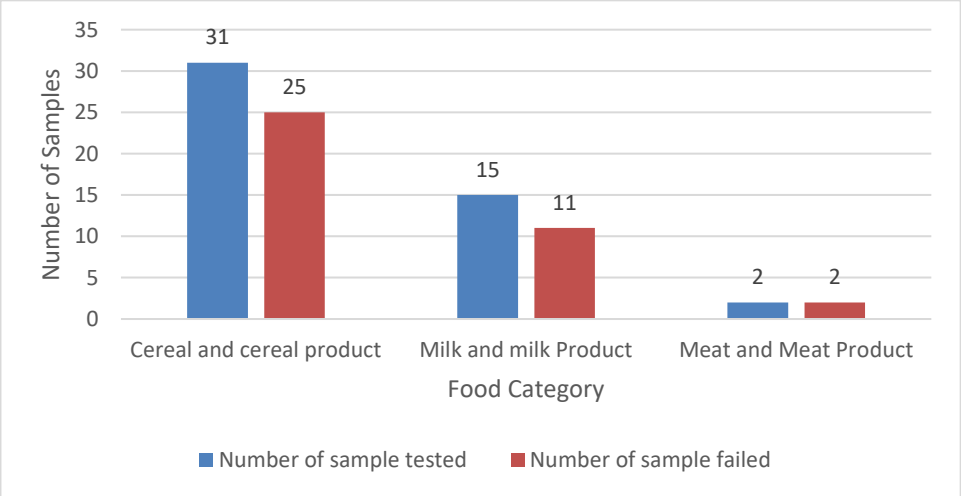
As it is provided in **Table 3.5** above, the common causes were associated with unhygienic practices (ineffectiveness of sanitation programs) and inadequate heat treatment. Good practices at processing and post processing of food could have eliminated or reduced them to safe levels.

This implies that food processors were not adequately adhering to good manufacturing practices. It is also revealed that the systems for control such as inspections and certification were not functioning effectively. Therefore, consumers were possibly subjected to various health risks associated with food borne disease pathogens such as pneumonia, systemic poisoning, Urinary Track Infection (UTI), cardiac, diarrhoea, cancers and others.

Trend analysis of Locally Processed Food with Unsatisfactory Quality

The Audit Team analyzed food test results (from 2015-2020) of three (3) categories of the locally processed food that did not comply with the set standards (Table 3.6). It was expected that the information would be availed from TBS quality management system, namely; *Qualimis*. However, the system could not provide adequate information based on the major food categories. Therefore, the analysis was based on the twenty-three (23) sampled food processors who were involved in processing cereal and cereal products, meat and meat products and milk and milk products. Result of the analysis is presented in **Figure 3.2** below:

Figure 3.2: Quality Gap noted for the Tested Food Samples



Source: Auditors' Analysis of Processed Food Test Result Report from Visited Food Processors, (2020)

The analysis showed in Figure 3.2 indicated that for all product categories tested from 2015-2020, samples taken from cereals and cereals products failed by 80% (25 out of 31), milk and milk products failed by 73% (11 out of 15) and 2 samples from meat and meat product failed the tests.

Trend Analysis of Imported Processed Food with Unsatisfactory Quality

The Audit Team noted that, TBS lacked comprehensive records on quality test results of imported foods. Of the three (3) ports of entry analyzed, only one port of entry namely; Dar es Salaam had records of food quality test results of the imported food. According to TBS Officials, there was no integrated record keeping system, every port of entry had a different system. **Table 3.6** indicates a trend analysis (2015-2020) of unsatisfactory imported food product through Dar es Salaam port entry.

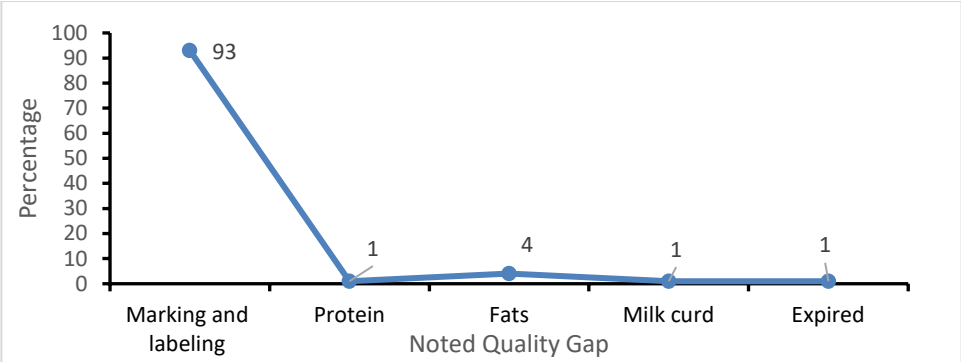
Table 3. 6: Imported Food with Unsatisfactory Quality for Dar es Salaam Port

Financial Year	Number of samples Tested (Number)	Number of samples that met/passed Quality	Number of samples failed	Percentages of Food Samples with Unsatisfactory Quality (%)
2015/16	81	47	34	42
2016/17	53	19	34	64
2017/18	48	4	44	92
2018/19	45	23	22	49
2019/20	46	28	18	39
Total	273	121	152	56

Source: Auditor's Analysis of Data of Food Stuff from TBS – Import Section (2020)

Analysis from **Table 3.6** indicates that, about 56% of tested food samples failed to meet the standard, and only 44% of tested food samples met quality requirement. Percentage of unsatisfactory quality of imported food ranged from 39%-92%. Anomalies causing the failures included poor marking and labeling, low protein and fat content levels and milk curd content levels. Others were expired foods. Figure 3.3 shows the distribution of the identified defects from 152 samples.

Figure 3.3: ***Distribution of Identified Defects***



Source*: Auditors' Analysis of data from TBS - import section (2020)*

Figure 3.3 shows the highest quality defect which was observed in marking and labelling (93.4%) of all defects (152) followed by fat contents (4%) and the rest (protein contents, milk curd and expired food) contributed 0.7% each.

Consequence of the noted quality defects is described below:

Absence of Mark and Label: Marking and labelling is one of the key requirements before the product enter the market as prescribed in TZS 538. It was observed that absence/incorrect of mark and label in the food container could have been done intentionally by the importer to deceive consumers. This could endanger the health of consumers because it might contain ingredients that were impermissible (poisons) or expired products and caused side effects to the consumers, including death.

Non-attainment of milk curd contents: Milk curd reduces cholesterol levels, thus lowers the risk of high blood pressure and hypertension. It helps in keeping the level of cholesterol balanced and the heart healthy. Thus non-attainment of Milk Curd contents will reduce health benefits of the product.

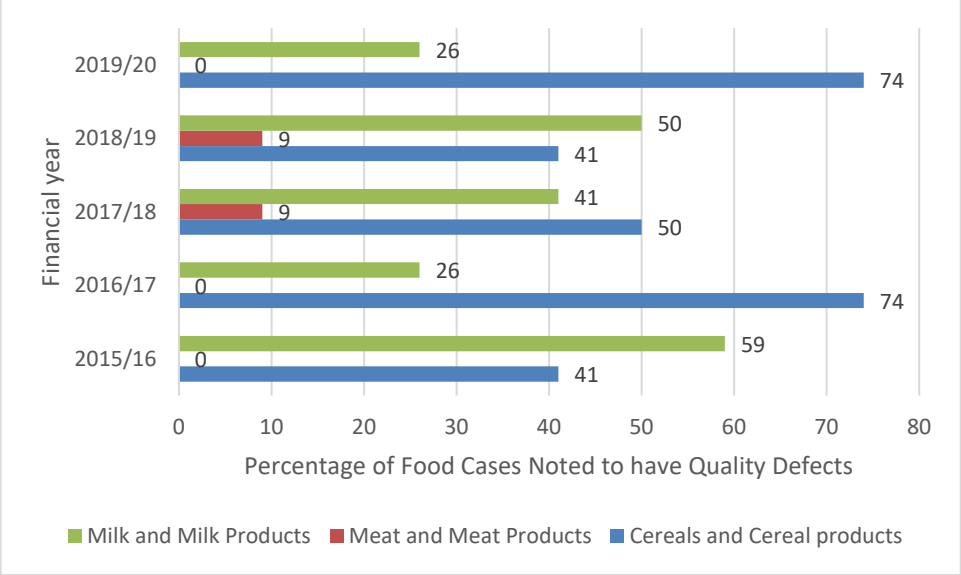
Low Level of Protein Contents in the processed Milk product: Consumption of food with low contents of protein might have effect to the consumers of such food. For instance, children require high contents of protein for growth. For example, when the protein in milk for children is below the minimum recommended level, this could effectively hinder their growth and development, hence putting their health at risks.

High Fat and Acid Contents: Eating food with high fat contents is associated with several health problems such as heart diseases, cancers (colon cancer), and obesity among others. Thus, non-compliance with fat and acid contents may result not only to health hazard to consumer, but also economic losses to the country due to the high cost of medical health treatment.

Trends of Imported Processed Food with Unsatisfactory Quality

As observed in Figure 3.4, the Audit Team analyzed three (3) categories of imported food (meat, milk and cereal products) for five (5) years (2015-2020) from the port of Dar es Salaam. The result shows that higher quality defects were detected in cereals and cereal products for instance, in 2016/17 and 2019/2020 the percentage defect level was over 70%. Likewise, milk and milk products the average quality defects were about 40%. The results for meat and meat products for two (2) years were below 10%, this was contributed by the low level of imported meat and meat products in the country.

Figure 3. 4: Imported Food Category with Quality Problems



Source: Auditors' Analysis of Processed Food tests results from TBS – Import Section (2020)

Most of the analyzed data were from the Dar es Salaam Port where most of the imported food products pass through.

In response to this, officials from TBS indicated that since the aim of inspection of imports was to catch the unfit products, having high percent of noted unfit imported products implied that the Bureau had achieved its objective. However, with the existing gaps in the mechanism for controlling these products to circulate in the market, indicated the high chance of having food with unsatisfactory quality in the market.

3.2.2 Unsatisfactory Quality Test Results were Common among the Tested Processed Food Samples

The data presented in the previous subsection (3.2.1) identified several quality defect parameters of the locally and imported food products. This subsection asks specific questions to capture what were the most common parameters for the failure in the quality tests.

What are the quality parameters that commonly fail in tested food samples from the market?

FAO Guideline Number 9 for Food Safety and Consumer Protection requires States to take measures to ensure that all foods, whether locally produced or imported, freely available or sold on markets, are safe and consistent with national food safety standards.

Table 3.7 shows the most common quality defects observed by audit team for three (3) categories of food. These kinds of quality defects were mainly associated with ineffective management and monitoring of the potential food safety hazards and critical control points (CCPs) in food processing.

Table 3. 7: Common Quality Defects of Processed Food

S/No	Processed Food Category	Common Quality Defects
1.	Cereal and Cereal products	Low Iron contents, yeast and moulds, marking and labelling
2.	Meat and Meat products	Enterobacteriaceae, poor or missing mark and label
3.	Milk and Milk products	Failure in E.coli, coliforms, Yeast and Moulds, marking and labelling

Source: Auditors' Analysis of data from TBS Laboratory Test Results, (2020)

As shown in the **Table 3.7** microbiological hazard was major quality defects in all categories. Normally, microbiological hazard is associated with poor

handling and hygienic practices, for instance, E. coli in food product links to post processing contaminations through dirt hands while yeast and moulds are mainly due to poor storage conditions.

Further, **Table 3.8** hereunder gives more information on the percentage of samples with noted quality defect as observed here under;

Table 3. 8: Percentage of Sample Tested Noted with Quality Defects

S/No	Common Quality Parameters observed	Percentage (%) of Sample with Quality Defect
1	Yeast and Moulds	17
2	Aflatoxin Levels	4
3	Iron Contents	8
4	E.Coli	10
5	Coliforms	4
6	Enterobacteriaceae	2
7	Marking and labelling	48

***Source**: Auditors' Analysis of Test Results of Samples Tested, 2021*

Table 3.8 shows that for the tested 48 food samples there were common defects noted. The highest percentage was noted in marking and labeling of foods at 48%. The minimum common defect was noted to be enterobacteriaceae with 2%. Further, Yeast and Moulds, coliform; and E. Coli were noted to be among the common quality defects at 17% and 10% respectively. See ***Appendix 7*** of this Report for more details**.**

Further analysis from Tables 3.8 and 3.9 indicates that marking and labeling contributed to the majority defects among the tested samples of the locally processed food. However, these defects presented a lesser risk to consumers than (with the exception of yeast) the rest when considered together or individually. Actually, each quality defect contributed to a critical parameter in such a way that when detected in food above the standard levels, the foods, from which the samples had been drawn, were condemned for destruction.

The main contributing factors for the above mentioned quality defects included:

i) **Ineffective Strategies for Managing Quality of Processed Food**: The Audit noted that TBS had ineffective strategies for managing quality of processed food. This was probably because TBS did not adequately

conduct a thorough need analysis, which might have evolved training strategies, including establishing the needed resources for implementation of the strategies.

TBS Officials stated that, in 2019/20 the Bureau spent most of time to review laws, regulations and policies while implementation was under way. Officials further added that they were preparing various strategies and plans to ensure effective management of food quality in the country like Cooperation and Execution regulations; Certification of products regulations; Compounding regulations; Imports Batch Certification; Recall, Seizure and Disposal; the Cooperation and Execution regulations aimed at giving Powers to Local Government Authorities as it was a practice under TFDA.

From the explanation given, it shows that TBS was given mandate to implement the activity without prior preparation of mandatory strategies and plans for effective management of quality of food in the country.

(ii) Ineffective Inspection Mechanisms at both Port of entry and food Processors: The Audit noted that the inspection mechanism used by TBS was ineffective as indicated by the presence of uncertified and unregistered processed food in the market. It was also noted that TBS did not conduct inspections regularly as expected due to shortage of qualified food inspectors as well as equipment and tools including laboratories to test quality of food. These partially contributed to the presence of food processors who did not adhere to the standards and therefore increased the chances of having unsatisfactory quality food in the market.

(iii) Inadequate Monitoring of the Performance of TBS

Ministry of Trade and Industry

It was further noted that MIT did not adequately monitor the performance of TBS regarding the management of quality of processed food. The Ministry did not have monitoring and evaluation plans, and it was not well informed on the performance of TBS regarding the management of quality of processed food.

3.3 Strategies and Plans to Ensure Quality of Processed Food in the Market

Are the plans and strategies for ensuring good quality of processed food in the market effective?

Effective plans and strategies are key in attaining the management of quality of processed food in the country. Among the component of effective strategies and plans include conducting needs analysis and involvement of stakeholders in the provision of inputs to support effective system for managing quality of processed food in the country. The Audit noted that the plans developed by TBS were not effective as indicated by the following:

3.3.1 Ineffective Needs Analysis for Managing Quality of Processed Food

Does TBS effectively conduct needs analysis when preparing plans and strategies for managing quality of the processed food?

Having effective plans and strategies for managing quality of processed food include conducting needs analysis before developing plans and strategies. The audit team revealed that TBS did not conduct effective needs analysis before developing plans and strategies for managing quality of processed food.

However, the Audit Team acknowledges that TBS managed to set up plans for improvement of food laboratory services through capacity building and accreditation; plan for capacity building to SMEs through support to access domestic and international markets.

On the other hand, the Audit Team was not availed with the evidence showing TBS conducted comprehensive needs analysis. The needs analysis could indicate the required resources to facilitate the necessary survey on the size of the problem of food with unsatisfactory quality in the market, effectiveness of decisions made, risk areas and detailed action plan on how the identified needs would be implemented.

In addition, the Audit Team observed that quality control of processed food was not a priority in the strategies and plans of TBS rather than combined with other non-food commodities, which reduced the effectiveness of TBS to monitor quality of processed foods in the country.

Furthermore, there was no needs analysis on strategies and plans to ensure uniform database for imported processed food in the country at all ports of entry.

Due to inadequate needs analysis, TBS set target to increase certification from 250 in 2017/2018 to 400 in 2020/2021, however, this was an unrealistic target given the fact that the food processing industry is one among the biggest growing industry in Tanzania, especially for SMEs.

Therefore, this is the clear evidence that plans and strategies to manage the quality of processed food were not effective, hence TBS did not conduct thorough needs analysis prior to development of plans and strategies. In addition, the following were also noted during the audit;

(a) *Key stakeholders like LGAs were not identified during the planning for activities for managing quality of processed food:* LGAs are closer to the community; their involvement would help in identification of food processors, awareness creation of quality processed food and its effectiveness in implementation.

(b) *TBS did not analyze the actual needed resources for effective implementation of the strategies:* key areas like food laboratories were not prioritized to ensure they were adequate and had the capacity to issue timely results. The objective to ensure quality possessed food was not adequately implemented.

(c) *Risk factors were not adequately determined:* identification of risks could efficiently and effectively help in control of potential hazards related to foodborne diseases.

3.3.2 TBS did not have Effective Mechanisms to involve Stakeholders During Preparation of its Plans and Strategies

Does TBS have mechanism in place to ensure that stakeholders are involved in the provision of inputs to support efficient system for managing the quality of processed food in the country?

According to the Guidelines for Strengthening National Food Control Systems,[21] effective food control systems require policy and operational

[21] Assuring Food Safety and Quality: issued by FAO and WHO, 2003

coordination at the national level to develop and implement an integrated national food control strategy. There is no evidence that TBS involved stakeholders during the preparation of plans and strategies such as agreement with *Accredited Laboratories* and *Local Government Authorities* and also food processors and public to enhance effective system for managing quality of processed food in the country.

The Audit Team observed some agreement between TBS and other stakeholders like Tanzania Meat Board, Tanzania Diary Board and SIDO. But TBS seemed to have overlooked very important institutions and agencies, like TIRDO, Government Chemist, Sokoine University of Agriculture and others, and Local Government Authorities where food processors were located, and community at large, who are the consumers of processed food.

These are as explained below:

(a) ***Accredited Laboratories:*** Despite the low capacity of TBS's laboratory in providing services timely, TBS did not see the need for involving other accredited laboratories through the agreed terms for testing samples.

According to interviewed stakeholders, accredited laboratories can help TBS to test samples to specific areas in which they are accredited. These laboratories include TIRDO laboratory, Government Chemistry laboratory, Nyegezi Fish Laboratory, TPRI and others could reduce TBS workload significantly.

Furthermore, the interviewed stakeholders such as TIRDO and TAFOPA suggested that TBS was not willing to outsource laboratory services because it was a key source of income. According to TBS officials, it was difficult to outsource the laboratory services due to cost implications as many Institutions charge higher rates compared to TBS. In the view of TBS such higher rates meant more cost to customers that would hinder certification process. The Audit believes that TBS could be in a better position to make use laboratory services from other institutions if it had signed MoUs with such other stakeholders.

In response to this, TBS officials clarified that that there were initiatives which were under way including preparation of Memorandum of Understanding (MoU) with the National Fisheries Quality Control Laboratory (NFQCL) of Nyegezi – Mwanza. The draft MoU was submitted to the Ministry of Livestock and Fisheries. Further, TBS subcontracted testing works to

other laboratories as per ISO/IEC 17025 e.g. Government Chemistry Laboratory (GCLA) and Tanzania Industrial Research Development Organisation (TIRDO)

However, the Audit Team noted that, TBS did not have MoU with TIRDO and GCLA, like the one it had with NFQL. It was further viewed that the claim for the higher laboratory service rates from TIRDO and GCLA could have been resolved if TBS had MoU with these institutions where such things like laboratory test price could be agreed.

(b) ***Local Government Authorities:*** TBS had not included Local Government Authorities (LGAs) in the management of quality of processed food, especially in the areas which TBS could not be frequently accessed. Further, involvement of LGAs could help TBS in identifying and tracking the unknown food processors within the jurisdiction of the respective LGAs. TBS did not use the experience and the strategies used by TFDA which had agreed with LGAs in managing quality of processed food through inspection of the processors' premises, food markets and retailers and other food outlets.

According to TBS officials, it was not possible at the moment to involve LGAs because the agreement was between LGAs and TFDA. However, non-involvement of LGAs limited the capability of TBS to capture all information about food processors in their respective zones. As result, it meant inadequate monitoring and non-compliance of many food processors in the jurisdiction of LGAs.

Further, TBS clarified that it had issued various regulations; Cooperation and Execution regulations; Certification of Products Regulations; Compounding Regulations; Imports Batch Certification; Recall, Seizure and Disposal; The Standards Fees and Charges; The Tested Products Certification Regulations; and Government Notice No. 1 which are under the national consultations stage to engage stakeholders. This would improve cooperation and execution of regulations that aimed at giving powers to Local Government Authorities (LGAs) as it used to be the practice under TFDA. However, this explanation proved that TBS was still in the initial stages of involving stakeholders.

(c) The Community/Public Representatives: TBS did not effectively engage with consumer protection group and the community to ensure supply of high quality food. The Audit Team noted that TBS planned to conduct awareness programs during the period 2016/17 to 2020/21, but it did not

effectively conduct them. The awareness programs were intended to educate the communities on the importance of using TBS certified products and reporting of unlicensed (unauthorized) food products on the markets. This would help to create consumer awareness and automatically force food processors to certify their product to avoid reduction or boycotts. With such a pressure group acting also as a watch dog, that would cause competition among food processors to certify their product for fear of boycotts on their products.

Failure of the planned trainings was possibly due to low prioritization of food quality management activities particularly in the allocation of resources, in terms of human resources and transport, to facilitate implementation of the activity.

3.4 Implementation of TBS Plans and Strategies

Are plans and strategies for ensuring 'only good quality processed food reach the market' implemented adequately?

The plans and strategies developed by TBS aimed at ensuring good quality of processed foods are available in the market. The Audit Team noted that, TBS developed plans and strategies were not adequately implemented. Among the planned activities and strategies that were not implemented include agreements (MoUs) between TBS and other government entities, monitoring and surveillance plans, food risk assessments, and certification of food processors.

3.4.1 Ineffective Inspection Mechanisms at the Ports of Entry and Food Processors

Are mechanisms for inspecting the quality of food at Ports of Entry working effectively to ensure importation and exportation of good quality food?

The analysis of the effectiveness of mechanism for inspection was divided into two sections (i.e. inspection at the ports of entry and inspection of locally produced food).

(a) Ineffective Inspection at the Ports of Entry

Reviewed inspection reports and interviewed TBS Zonal Officers and Inspectors, revealed that TBS had ineffective inspection mechanism at the ports of entry. The ineffectiveness was indicated by the following weaknesses:

i) TBS did not Regularly Conduct Inspections to All Ports of Entry and Borders

The Audit noted that, not all ports of entry and borders were regularly inspected by TBS. Officials from the TBS zonal offices revealed that they rarely conducted food inspection at the borders where TBS had not yet established permanent offices. This is contrary to Standard Act of 2009 where TBS is required to conduct inspection, sampling and testing of imported commodities with a view to determining whether the commodities comply with established standards. TBS inspectors were expected to conduct inspection on temperature of food products hygienic conditions, and labeling, among others.

According to TBS Strategic Plan of 2016-2021, the Bureau has nine (9) border offices namely Sirari, Namanga, Holili, Horohoro, Mutukula, Rusumo, Kabanga, Tunduma and Kasumulu. The TBS Strategic Plan shows that, TBS also offers services to border posts where they have no permanent offices with minimal volume of imports like Mtwara Port, and Mtambaswala.

ii) It was also noted that, at ports where TBS does not have permanent offices inspection is conducted on request from nearby port

TBS Inspections Plans were not Risk Based

The audit team noted that only one out of four (4) visited zone offices (Central Zone) had inspection plan. However, even though the Central Zone had Inspection plans, the plans were not based on food risks assessment. Instead, they were based on the present food processors without considering food risks associated. It was further noted that the inspection plan covered only food premises and cereal and cereal products which were classify as medium risk food products.

iii) Inspections were not Conducted Effectively as Required

In order to effectively perform inspection activity TBS needed to have effective procedures; adequate number of officers, and necessary tools and equipment such as cold boxes, refrigerators, focal lifts etc. All these were necessary for supporting effective inspection activities.

For the visited ports of entry namely; Dar es Salaam and Tunduma border, the Audit Team observed that as of October, 2020, TBS officials lacked basic tools for inspection such as storage facilities for perishable foods before they were sent to laboratory for testing, this reduced effectiveness of the inspections.

Interview with TBS official at border and ports of entry declared that some of the inspected food items were released under conditions that owners would use/sell the food upon receiving satisfactory (passed) sample results. This system had several weaknesses which included the following:

- *Poor control of conditional released cargo*:
  Conditional released cargo are cargo consignments imported in the country but released on a condition of not to be supplied/used before a certificate of compliance is issued from TBS indicating that the food imported is fit for human consumption. The audit noted that TBS did not have the system to follow up the commitment by the importer. While waiting for TBS approval of such cargo (food products) were stored at the owner premises/ warehouses, however there were no actual control to make sure that the cargo would not be supplied or used. The interviews conducted indicated that, there was no effective follow-up of the conditional released cargo.

- *Inadequate Control Food Quality and Safety in Porous Borders*:
  The Audit noted that TBS did not have control mechanisms away from border posts with official Points of Entry. Beyond these points, there are porous borders with numerous and continually shifting unofficial entry points. Such situation provides a loophole for importation of goods without approval of TBS. The interviews conducted with the inspectors from the ports of entry revealed that most of importation through porous borders was made up of small quantities. However, such small quantities can lead to major health

risks because an imported small but contaminated consignment of food may be used as an ingredient in making a composite of other foods, so exposing even more people to danger.

- *Inadequate Actions taken to Food Products found with Unsatisfactory Quality*:
  The Tanzania Bureau of Standard has the mandate to cease and order destruction of any substandard food products. Section 25 of Standard Act 2009, states that the Minister may, upon the recommendation of the Bureau, require the supplier of any defective commodity certified by the Bureau to recall it from the market in the manner, and within a specified period time.

The Audit Team observed that, TBS managed to seize several non-compliance consignments which were proved to lack the required quality. According to TBS standards such consignments either were re-exported or destroyed under TBS supervision.

iv) Inadequate Implementation of Plans for Inspection of Food Processors

Section 4 (d) of the Standard Act, 2009 requires TBS to approve, register and control the use of standard marks. In order to comply with this provision and in accordance to Para 4.2.7.1 of the Product Certification Procedure Manual, TBS is required to conduct routine surveillance inspection at least twice a year to clients holding valid licenses/tested product certificates.

Furthermore, the TBS inspection guidelines requires at least four (4) inspections to a particular product; two inspections at the factory and two inspections at the market annually. The inspections aimed at observing whether the production process and the product conform to the set standards and regulations. Despite the above and contrary to it, TBS through its Certification Department sent a memo dated 1st April, 2015 to inspectors to remind them to conduct routines inspection to seven (7) factories as per plans. However, even at this downgraded number, the inspectors did not conduct a single inspection to the specified factories despite having the plans to do so. Indeed, TBS officials did not have the report showing the extent to which the bureau had complied with this requirement.

Instead, officials provided data to auditors showing planned against the actual inspections conducted without any detail on whether they were

conducted at the food processing premises or markets as shown in **Table 3.9.**

Table 3. 9: Percentage of Inspections Conducted from 2015/16 - 2019/20

Year	Planned number of Inspection	Actual number of Inspections Conducted	Percentage of Inspections Conducted (%)
2015/16	-	-	-
2016/17	8	8	100
2017/18	94	91	97
2018/19	322	311	97
2019/20	745	668	90

***Source*:** *Analysis of Data Obtained from 6 TBS Zonal Offices, 2020*

Table 3.9 shows that in 2019/20, TBS managed to conduct 90% and above of its planned inspections. The analysis in Table 3.10 indicates that in the period before 2018/19, TBS performed fewer inspection activities. Interviewed officials indicated that the drop was because in 2016/17 TBS focused only on the certified food processors, and TBS certification was voluntary before the amendments of Standard Act in 2019.

Number of food processors was higher in Dar es Salaam than in many other areas. Also the data did not include Western Zone since it was established in early 2020. Although the performance was noted to be good in terms of percentage of planned inspections conducted, the inspection reports from most zones focused on factories rather than SMEs who were expected to have high risk for non-compliance.

***Analysis of TBS Performance on Inspections of Sampled Food Processors* in the Zonal Offices Visited**

The Audit Team reviewed sampled files of food processors to check the actual number of inspections conducted against those planned to be conducted as shown in **Table 3.10:**

Table 3. 10: Level of Compliance with Inspection Activities in Zones

Inspection at the Industry (Food Processors)					
Zone	**Region**	**No. of Food Processors Sampled**	**Required total Number of Inspections[22]**	**Actual Inspection Conducted**	**% age of Inspection Conducted**
Eastern Zone	Dar-es-Salaam	3	25	15	83
	Morogoro	3	22	18	82
Southern Highland Zone	Mbeya	3	3	3	100
	Songwe	3			N/A[23]
Lake Zone	Kagera	3	12	10	83
	Mwanza	3	11	10	90
Central Zone	Dodoma	3	25	15	64
	Singida	2	20	11	55
		Total	***111***	***82***	*74*

Source: Auditors' Analysis of Inspection Reports from visited Food Processors (2020)

Table 3.10 shows that for the four (4) visited zones, TBS managed to conduct 74% of the expected and required inspections. Singida region had the least with 55% inspections while Mbeya region had the highest with 100% of the planned inspections as indicated in **Table 3.10**.

Despite of this achievement, the inspections conducted by TBS focused on certifying food processors only. The Audit noted that food processors who were not certified were processing food and distributing their food products to the market. As a result, there were no assurance of quality of processed food supplied to the market especially from uncertified food processors,

The Audit further observed several weaknesses for the visited food processors such as:

- SMEs had no procedures to handle clients/customers' complaints;
- Failure to submit quarterly scheduled samples for testing;
- Absence of mini quality control laboratory for laboratories at peripheral offices to allow onsite preliminary quality testing of products;

[22] From the sampled food processors (SMEs) (3 SMEs from each Region)

[23] Certification were given out of the scope of the audit

- Absence of medical examination for the staff work involved in food processing area production;
- Poor hygienic practices at food processing plants; and
- Improper documentation of maintenance services.

For more information about what were mainly observed during the site visit made by the Audit Team, refer ***Appendix 5***.

The main reasons, observed by the Audit Team, that hinder implementation of the inspection activities were lack of resources such as manpower and working tools i.e. vehicles. As a result, there were food processors who were neither certified nor inspected. This was due to the fact that most of the routine inspections were done to food processors upon the application for certification or renewal of licenses.

Analysis of the data on the ratio of actual versus the scheduled inspections done at the market is as detailed in **Table 3.11.**

Table 3. 11: Level of Compliance to Surveillance Activities

Zones	Inspection at the Market			
	Region	No. of Food Processors Sampled	Required total Number of Inspections[24]	Actual Inspection Conducted
Eastern	Dar-es-Salaam	3	25	0
	Morogoro	3	22	0
Southern Highland	Mbeya	3	3	0
	Songwe	3		N/A[25]
Lake	Kagera	3	12	**0**
	Mwanza	3	11	**0**
Central	Dodoma	3	25	0
	Singida	2	20	0
Total			***111***	

Source: Auditors' Analysis of Inspection Reports, 2020

Data in **Table 3.11** above shows that for the period covered by the audit there was no market surveillance conducted to the food processors. The audit noted that, more efforts were given to the routine inspections rather than market surveillance as shown in **Table 3.11**.

[24] From the sampled food processors (SMEs) (3 SMEs from each region)
[25] Certification were given out of the scope of the audit

According to interviewed officials from TBS, priority was given to the routine inspections (premises) due to the availability of resources. The other reasons included the following:

i) Requirement for renewing licenses that were usually accompanied by routine inspection prior to issuance;
ii) Certification of products were normally accompanied by routine inspection prior to certification of the respective products; and
iii) The two conditions above drew a fee, thus bringing revenue to TBS while market surveillance was sponsored from own (TBS) funds.

Similar finding was observed in the zonal offices. For instance, in the Eastern Zone, it was noted that there were no reports on market surveillance. The interviewed official from the Inspection and Enforcement section revealed that market surveillance reports could be obtained from the respective food processors' files. Despite this explanation, the reviewed individual food processors files did not have the reports on conducted market surveillance as claimed.

Moreover, in the Southern Highland Zone mid-year reports show that for the financial year 2018/19, about 36 market surveillance were conducted. In addition, for the financial year 2019/20, the zone managed to conduct 154 market surveillance. Despite several surveillances conducted, the report did not show any non-compliance with the observed situation during the inspections.

Furthermore, in the Central Zone, there was one market surveillance conducted in the financial year 2017/18 which covered seven (7) food processors products. One takeaway point from inspection was low awareness on the importance of using TBS mark. The Audit Team noted that the coverage of food inspectors was inadequate since no data from other years under the audit had market surveillance inspection report.

Likewise, in the Lake Zone there was one general report that showed seventeen (17) market surveillance inspections conducted in 2019/20. The report indicated that 85 samples were taken for testing without further details. The Audit Team noted that the conducted inspections were not specific to food. Moreover, the report was not informative as they did not show what was observed and the actions taken, and therefore not useful for decision making by TBS management and other users. For further details on the conducted market surveillance refer to **Table 3.16**.

The data given from TBS for the justification to conduct the routine inspections was noted to have various weaknesses. The schedule for routine inspections was mainly focused on industries/factories. Moreover, the schedule was not specific to food rather than a mix of different commodities. The schedules prepared and the actual inspection done were focused on factories/industries and not SMEs dealing with processed food.

Reasons for the inadequacies inspection include

a) ***Lack of clear demarcation of duties between Officials at the Headquarters and Eastern Zone***

The Audit Team noted that the setup of the Eastern Zone was different from other zones since there were no specific staff who could be responsible for food quality and safety related operations. Unlike other TBS zonal offices which had Zonal Managers and own inspectors, the Eastern Zone had neither a manager nor inspectors. There was no clear demarcation of the zonal activities and activities conducted by the TBS Headquarters. It was also observed that TBS Headquarters had an Inspection Section which was responsible for conducting all inspections and surveillances on all kinds of trade commodities in the eastern zone.

This same Inspection Section is a Unit in the Directorate of Quality Management of TBS Headquarters. Also the unit has a head of inspection, but there are no specific inspectors attached to it. The Head of the Unit conducts inspection activities by assigning officials who are also inspectors attached to other Departments.

The audit observed that the mechanism used to allocate inspectors for inspection activities by the Inspection Section was not efficient because there was a risk of low commitment of the makeshift inspectors whose obligations were attached to their core activities/functions.

b) Non enforcement of Implementation of Delegation Order of 2015

According to Tanzania Food, Drugs and cosmetics (Delegation of powers and functions) order, 2015, the defunct TFDA had statutory powers to delegate some of its core functions. Such functions included but not limited to; registration of business premises, offering of business permits, inspections of premises and products etc. The Local Government Authority was the biggest benefactor.

Transferring the food quality and safety control function from TFDA to TBS in 2019, made the Tanzania Food, Drugs and cosmetics (Delegation of powers and functions) order, 2015 no longer operative. Therefore, the inspectors at the TBS zonal offices were then responsible to inspect even at council level. Under TFDA this was done by Council Health Officers specialized in public health inspections including food safety and quality inspections.

The audit observed that inspection at council level was not effectively conducted and this was due to inadequate resources, for instance vehicles and human resources to reach all food processors in their areas.

Analysis of the number of food processors against the available officials/inspectors in the sampled zone is in **Table 3.12** below:

Table 3. 12: Ratio of Food Inspectors to Food Processors

Zone	Region	Number of Food Certified Processors	Number of TBS Inspectors	Ratio
Eastern Zone	Dar-es-Salaam	562	97	1:6
	Morogoro	39		
Southern Highland Zone	Mbeya	78	16	1:7
	Songwe	28		
Lake Zone	Mwanza	51	23	1:4
	Kagera	32		
Central Zone	Dodoma	56	11	1:8
	Singida	25		

***Source**: Analysis of Statistics of SIDO Food Processors and TBS Official Allocation Data (2021)*

As indicated in **Table 3.12**, the Eastern zone had the higher number of food inspectors (97) compared to the Southern highland zone with the least number of inspectors (5). Table 3.13 also indicates that there were more food inspectors allocated to the Central zone with fewer numbers of food processors when compared to the Southern highland zone. Furthermore, the nature of processed food in the Southern Highlands was of high risk (milk and milk products) as compared to those processed in the Central zone which mostly were cereal and cereal products.

c) Inadequate Number of Food Inspectors

According to ISO/IEC 17020 for import inspections, ISO/IEC 17065 for product certification and ISO/IEC 17067 that provides for various certification schemes, requires the use of qualified personnel to carry out inspection activities. For this case, for effective inspection process of food at all levels (factories or on the market), qualified and sufficient number of TBS inspectors are required.

According to TBS inspection reports, TBS was mostly using a single inspector in conducting inspections to the food processors which was contrary to the requirement. The reason stated in all visited zones was that, there was inadequate number of inspectors compared to the number of food processors in their areas. Therefore, there was high risk for the food inspectors to come up with wrong information or got influence by money to change the outcome of the reports.

The Audit further noted that in other areas, non-food quality and safety trained personnel inspected food processing plants and food market outlets contrary to the ISO/IEC 17020. Although TBS Management has a view that because during surveillance, inspectors verify and confirm that the agreed certification criteria are consistently adhered to, any trained inspector can be assigned to carry out normal surveillances, i.e. routine factory and market surveillance inspections, that is globally a recognized practice.

However, this response is against the ISO requirement, because the use of non-technical officials for inspection had some limitations in providing appropriate recommendations and consultations that may be needed. Moreover, the usefulness of reports issued by such people was also questionable.

The analysis of shortage of food inspectors indicated that the biggest deficit was noted in the Central zone, where the number of food processors was higher compared to the inspectors available in the other zones as shown in **Table 3.12**.

3.4.2 Ineffective Monitoring and Surveillance System of Processed Food in the Market

Are TBS's monitoring and surveillance systems effectively working to support presence of good quality of processed food in the market?

The Audit Team noted the followings:

a) Inadequate Compliance to submission of food samples on quarterly basis

TBS regulations require food processors to quarterly submit their samples for testing. This is a compulsory requirement especially to SMEs who were believed not to have effective means (i.e. laboratory) to consistently test quality and conformity to standards of their produced products.

However, upon reviewing several documents in the visited zones, the audit revealed that, despite this requirement, TBS had no effective system to ensure samples from food processors were submitted on time.

Moreover, four (4) out of twenty-four (24) interviewed food processors were not aware of the requirement of submitting annual-quarterly food samples to TBS laboratory for testing. However, even twenty (20) food processors who knew about this requirement did not completely comply with it. This proved that TBS did not have effective system for tracking the sample, including plans for awareness programs.

Table 3.13 shows analysis of extent of compliance to submission of samples by the food processors.

Table 3. 13: Status of Quarterly Samples from Food Processors to TBS

Zone	Number of Sampled Food processors	Level of Compliance to sample submission (%)
Eastern Zone	6	8
Southern Highlands	6	42
Lake zone	6	17
Central Zone	6	33

***Source**: Auditors' Analysis of Files of Sampled Food Processors (2020)*

Table 3.13 shows the average level of compliance for submission of food sample to TBS laboratory was only 25%. This further implied that TBS did not put adequate effort to ensure that food processors submitted samples quarterly for checking the conformity to standards. Interviewed food processors indicated that delay of TBS in providing test results contributed to noncompliance.

It was noted that inadequate submission of quarterly food samples to TBS was due to low enforcement by TBS to ensure that food processors, specifically SMEs submitted samples for quality monitoring of the processed food. Moreover, inadequate testing of submitted samples was mainly caused by the low capacity of TBS laboratory.

It also was noted that majority of the visited food processors had quality control laboratory to test their samples before food was sent to the market. However, this carried a high risk of supplying substandard food to the market. The observation was made to the producers of milk and milk products revealed that some of them had inadequate tools and lacked knowledge on what constituted the hygienic practices for processing milk and milk products.

Further observation was made to the processors of cereal and cereal product. To these processors, it was noted that some of them processed cereals but did not have the means to test for defects such as aflatoxins, moisture, pesticides residues levels etc. Hence, noncompliance of food processors with the requirement for submission of the food samples for quality monitoring poses health risks to the consumers.

b) Presence of Expired TBS Food Product Licenses

The Audit Team noted that five (5) out of twenty-three (23) visited food processors were operating using expired licenses because of TBS delays in providing test results to them. It was further observed that, the renewal of the licenses depended on compliance with the food regulations and standards which should be confirmed by the laboratory test results. Delaying in renewal of licenses denied TBS revenue.

c) Presence of Significant Number of Uncertified Processed Food

The Audit noted that there were a high proportion of uncertified food processors indicating a poor performance of TBS in its duties of protecting and promotion of public health through food quality and safety management. According to TBS's Product Certification Procedure Manual, 2019 TBS is responsible for certification of food.

Table 3.14 shows the number of SIDO trained food processors in each year.

Table 3. 14: Status of Certified Food Processors in the Country

Financial Year	Number of SIDO Trained Food Processors	Number of Certified Food Processors (Number)	% of certified Food Processors by TBS
2015/16	1,766	35	2
2016/17	2,146	30	1
2017/18	2,515	52	2
2018/19	3,075	43	1
2019/20	2,619	91	3
Total	12,121	251	2

***Source**: Auditors' Analysis of Data from SIDO & TBS Certification Information (2020)*

Table 3.14 shows that TBS managed to certify 2.1% of food processors who were trained by SIDO. The report reveals that SIDO was obligated to recommend for certification of SMEs food processors after graduating their trainings.

The low level of certification of food processors was caused mainly by:

i) Inadequate Collaboration between TBS and SIDO during Training of Food Processors

The Audit noted that TBS lacked mechanisms to effectively collaborate with SIDO so as to synchronize its operations with food processors' training programs. The training could have been a platform used by TBS to convince food processors to certify their food products. This was also noted to be contrary to the entered Memorandum of Understanding between SIDO and TBS in 2017. According to this MOU, TBS and SIDO were supposed to invite each other and collaborate during such trainings to impart the necessary knowledge and information to SMEs.

ii) Lack of Proper Mechanism to effectively identify Food Processors in the Country

Although since 1989, certification of food products has been compulsory due to the fact that all standards for food products are compulsory, the Audit revealed that, emphasize on compulsory certification of products was made

in 2019/20. Further, TBS does not yet have an effective mechanism to certify all food processors in the country.

Through market surveys, TBS inspectors were required to inspect all food products in the market and seize uncertified ones. TBS has, however, not been able to effectively utilize market surveillance as a means of identifying food processors in the country. A product found in the market could easily be tracked to its processor in the field.

The Audit Team further analyzed data on food processors captured in TBS database. The results are as presented in **Table 3.15** below:

Table 3. 15: Number of Food Processors Captured in TBS Database

Zone	Categorization (High, Medium, Low)[26]	Regions	Number of Food Processors[27]	Number of Food Processors -TBS	(%) coverage
Eastern	High	Dar-es-salaam	1974	95	5
		Morogoro	351	6	2
Southern Highland	High	Mbeya[28]	1101	39	4
		Songwe			
Lake Zone	Medium	Mwanza	492	10	2
		Kagera	544	12	2
Central Zone	Medium	Dodoma	394	17	4
		Singida	561	6	1
Total			5417	185	3

Source: Analysis of SIDO SMEs' Statistics and Certification Records by TBS

Table 3.15 indicates that TBS has managed to capture only 3% (185 out of 5417) of the total number of food processors. The lowest coverage was observed in the Singida region with 1% of those availed in SIDO's SMEs records.

iii) Inadequate Sensitization on the need to use Certified Food Product

It was further noted that, TBS lacked an effective mechanism for sensitizing the community on the importance and need to use certified food products. If this mechanism was there, then this could motivate food processors to certify their product since they will lack the market for uncertified

[26] Low 1-500, Medium 500-1000, High 1000>_
[27] Number of Food processors as per SIDO (2015/16-2019/20)
[28] Number of Processors indicated in Mbeya include those from Songwe since there is no SIDO office in Songwe

processed food products. Inadequate certification of food processors has various consequences to TBS and community at large. Among these consequences include but are not limited to:

- *Increased Health Risks*

Certification of a product is a proof that the foods in question satisfy safety and quality requirements and specifications, hence low risk of health hazards.

- *Loss of Revenue to TBS*

Food certification when effectively carried out may satisfy financial needs of running food control operations at TBS so saving government budget for other competing priorities like purchase of medicines etc.

- *Unfair Competition in Trade*

Competition of safe and good quality food with uncertified and, therefore, unfit foods destroys the financial base of the legal food processors. For a product to be certified, TBS requires a processor to have an effective production system with, a proper flow of production of a specific product, as well as organization structure showing a quality control unit, Business License etc. all of which reflect to the cost of production. Since the cost of production of uncertified food product is low it allows the product to be sold at lower price compared to the certified product. The Audit Team noted that bakeries owners in two (2) out of four (4) visited zones had complained of unfair competition from uncertified bakeries owners who underpriced their products.

- *Damage to the National Economy*

To limit trade protectionism WTO requires that States should not invoke higher quality demands on imported products than those prescribed for local goods. This implies that strict enforcement of standards and specification on imported food should as well apply to locally processed ones. The negligence in local enforcement of food quality control when extended to imports would inundate Tanzania with substandard foods so seriously damaging the national economy in many ways.

d) Inadequate Market Surveillance Conducted by TBS

While interviewed TBS Officials claimed that they did conduct market surveillance, they could not avail compiled surveillance report indicating what was specifically done and the results of the surveillance. For the period under the audit no compiled report from TBS Headquarters regarding the conducted market surveillance could be viewed.

The same was noted for the four (4) visited zones, whereby the audit noted that market surveillance was not implemented effectively. **Table 3.16** provides analysis of the conducted market surveillance.

Table 3. 16: Analysis of Conducted Market Surveillance

Name of Zone	No. of Food Processors	Required number of Inspection	Actual Reports on Market Surveillance Conducted	Observation from Inspection Conducted	Remarks
Eastern Zone	601	1,202	No single report prepared for all financial years under the audit		No report from Eastern Zone on conducted market surveillance
Central Zone	141	282	One (1) report on conducted market surveillance for financial year 2017/18 which covered 7 food processors	The report indicated that there was low awareness on the use of TBS marks and managed to collect 7 samples	The coverage by food inspectors was inadequate
Southern Highland Zone	168	336	• 36 inspections in mid-year for 2018/19 as per quarter report 154 inspections for the 2019/20 as per quarter report	Nil	The quarterly reports do not indicate what was observed instead these reports just state the number of conducted inspections. The

Name of Zone	No. of Food Processors	Required number of Inspection	Actual Reports on Market Surveillance Conducted	Observation from Inspection Conducted	Remarks
					inspections were not specific to food products.
Lake Zone	115	230	1 General Report for the conducted 17 inspections in 2019/20	85 samples were taken for testing without further details	No details regarding what they observed during inspections. Inspections were not specific to food products. The report is not informative

***Source**: Auditors' Analysis of Quarterly Report and Surveillance Report from TBS (2020)*

Table 3.16 shows that the Eastern zone did not prepare a consolidated report on conducted market surveillance. The interviewed officials indicated that they did not consolidate reports regarding the conducted market surveillance, instead, the reports were retrieved from the respective food processors' files.

This deficiency was partly caused by the unclear demarcation of roles and activities of the Eastern zone and those at TBS-Headquarters. Inspectors summoned to Headquarters department for the purpose of conducting inspection, and thereafter, returned to their desks elsewhere within its set up.

Further, interviewed officials from zonal offices revealed that it was not compulsory for them to prepare specific reports on the processed food market surveillance conducted. It was further indicated that the surveillance conducted involved other commodities and the management of processed food was not given the priority as a stand-alone activity. Even the review of few market surveillance reports revealed were they were not adequately informative on the actual observations and necessary follow

recommendations by the inspectors. The reason for this is partly due to lack of harmonized reporting formats and lack of a requirement for periodic reporting to TBS- Headquarters on the conducted market surveillance targeting processed food.

The comparative analysis of the depth of reporting for the inspection and surveillance, based on the period when food activity was managed by TFDA and the current period by TBS was done. The result is as presented in **Table 3.17:**

Table 3. 17: Comparison of Report Inspections implemented by TFDA and TBS

Areas Covered	TFDA	TBS	Remarks
Inspection of factories processing food in the country	Each year consolidated report was prepared and reports on the number of inspections conducted and noted weaknesses, refer data on tested samples as shown in Table 3.2(a).	No consolidated report specific to processed food.	TBS's mechanisms of reporting their role of managing quality of processed food is inadequate.
Market surveillance	Each year a consolidated report provides information on the conducted market surveillance and noted weaknesses.	No consolidated report on conducted market surveillance, mostly conducted factory and routine inspection were based on client request.	Most of conducted routine inspection by TBS was done upon request to renew licenses which have to be accompanied with checking conformity of the products.
Post market surveillance	Each year reported on areas where market surveillance were conducted and the actual situation to affected people as cited in parts of this report.	Has plans for periodic conducting and report on market surveillance and observations therefrom.	This is partly caused by less priority given to role of managing quality of food in the country.

Areas Covered	TFDA	TBS	Remarks
Action taken for the noted food products with unsatisfactory quality	Each year reported various actions taken to noted food with unsatisfactory quality. Further, TFDA reported action taken for community affected by food borne diseases outbreaks.	No general report on action taken for noted food products with unsatisfactory quality. Further, general report on the noted food borne diseases on various areas in the country and actions taken were not reported.	TBS has not prioritized the role of managing quality of processed food in the country partly caused by not having action plan for noted food weaknesses during post marketing surveillance.

Source: Auditors' Analysis of Various Reports from TFDA and TBS (2020)

Table 3.17 shows that, TBS had neither planned nor issued inspection reports for all kinds of inspection conducted. Thus, it lacks an overall picture on general performance of food safety and quality in the country. This denies it the opportunity to effectively manage this area. Unlike TBS, TFDA plans for inspections and reports were prepared showing recommendations and corrective actions for remedial of anomalies observed.

3.4.3 Ineffective Certification of Food Products by TBS

Does TBS's certification process effectively being conducted?

The Standards (Certification) Regulations, 2009 allow standards marks to be applied to any commodity or process only by a holder of a license issued by TBS.

However, it was observed that TBS did not effectively perform certification activities. This ineffectiveness was indicated by the delay and inadequate certification of food products. The analysis of time taken for certification of a food product from the visited regions is shown in **Table 3.18**.

Table 3. 18: Certification Time of Food Products for the Visited Regions

Zone	Region	Range of Time taken for Certification (Days)	Availability of Zonal Office within the Region (Yes/No)
Eastern	Dar es Salaam	13 - 553	Yes
	Morogoro	148 – 1126	No
S. Highland	Mbeya	180 – 463	Yes
	Songwe	9 - 845	No
Lake	Mwanza	110 – 665	Yes
	Kagera	276	No
Central	Dodoma	143 – 856	Yes
	Singida	89 - 623	No

***Source**: Auditors' Analysis of data from sampled Files of Food Processors (2020)*

Table 3.18 shows that the time taken for certification ranged from 9 days to 1126 days (3.5 years). The average time taken for certification process was noted to be 359 days. Table 3.19 also indicates that, for the Eastern and Southern Highland zones, the certification took longer time particularly in the regions other than those where TBS zonal offices are located as further detailed in ***Appendix 6***.

Analysis of quarterly reports from the visited zones suggests the existence of delays on issuing certifications. Consequently, this caused delays in releasing some products into the market creating a shortage of products and eventually loss of government revenue that could have been collected from these foods. On the other hand, such delays caused supply vacuum to the extent of tempting the processors to release products into the market knowingly, risking both punitive consequences and public health.

Reasons for the delays in certification process mentioned were;

a) Use of manual system in certification process

Interview with the Certification Manager at TBS showed that during the certification process, TBS had mostly used manual processes which led to delay of the process and poor tracking of certifications in the electronic data base systems. This makes certification not only long but also cumbersome process.

b) Weak collaboration with other accredited laboratories in Tanzania.

Stakeholders' interviews revealed that there were four food accredited laboratories in the country capable of assisting in food testing. It was, however, observed that TBS has monopolized all the food testing activities.

Clients wishing to test the quality of their food products can submit samples to any accredited laboratories such as TIRDO food laboratory but to have TBS certification, TBS requires testing to be done in its laboratories although the procedures are the same. Sharing sample testing work with the other accredited food laboratories would fasten and improve the tendency of delays and so save time, health and the economy of the nation.

c) Food Processors Failed to Meet Quality Standards

According to interviewed officials from TBS certification unit, it was noted that most of the food processors (SMEs) did not meet the set food standards and regulations. Rectification of noted anomalies sometimes takes time to achieve. According to TBS officials and the interviewed food processors, some of the reasons that delayed such corrective activities were, among others, inadequate capital to finance the projects immediately as per standard requirement.

d) Newly invented product

According to interviewed TBS officials, it was noted that, in most cases when a product is new it requires establishment of its own standard. The process of establishing a new standard involves several stages and phases depending on availed data and complexity of the composite materials in the food. In this regard certification of such a novel product awaits the development of its specific standard by TBS.

e) Inefficient mechanism to communicate desired corrections from failed samples results

According to the visited food processors, when their tested samples fail to meet standard requirements often TBS sends the test results without explanation on the failed parameters and appropriate action to be taken. This causes delays in rectification of noted anomalies. The interviewee revealed that the food processors had to seek consultation from experts who could explain to them the details of failed parameters and what had to be rectified in order to meet standards.

Such consultation of experts involved costs which could not be afforded by all food processors particularly SMEs. Therefore, it took time to take action on anomalies noted. Sometimes they gave up trying but business went on as usual, since TBS has no capacity to make follow-ups.

3.4.4 Ineffective Food Risk Assessments conducted by TBS

Does TBS effectively conduct food risks management and risk communication to address known food hazards in order to safeguard health of consumers?

According to Food Safety and Quality Guidelines for Strengthening National Food Control Systems, 2003, TBS was expected to conduct food risk analysis particularly risk management and risk communication as a basis upon which food control policy and consumer protection measures are based. Obtaining Food Risk Assessment data processed centrally at Codex, and Risk Alerts from INFOSAN and other International Organizations TBS can determine different type of foods in the market with risks that require heightened surveillance.

It was noted that TBS lacked a system that could efficiently and effectively identify and control foods with high risk potential, characterize the risks accordingly, plan, and timely execute appropriate risk management options.

Through interviews with officials from TBS, it was noted that there was no specific unit or department responsible for analyzing and dealing with food risk analysis, particularly food risk management and food risk communication. Consequently, TBS lacked proper systems, plans and strategies for proactive intervention of foodborne diseases outbreak

Recently TBS officials have taken some measures to ensure risk assessment is conducted by assigning officer who is in charge of managing risk. The initiative taken includes to establish Food Safety Monitoring and Surveillance Programme 2020/21 – 2022/23 and taking some measures for reported cases of foodborne diseases as noted in Kilindi and Handeni.

Despite the initiatives taken, the Audit Team noted that some of the role of the risk assessment are yet to be implemented like follow up of records of health problems linked to food borne diseases. The results from the noted cases could be an important input for making various decision regarding risk assessment function. Furthermore, the activity was also previously implemented by TFDA had value to risk department.

3.4.5 TBS does not have Sufficient number of Food Laboratories

Does TBS have adequate food laboratory to ensure smooth and efficient testing of samples of food products in Tanzania?

According to TBS Strategic plan, 2015/16-2020/21, TBS planned to increase its number of accredited food laboratories in order to improve efficiency in service delivery.

During the audit it was noted that, TBS had only one laboratory located at the TBS headquarters in Dar-es-Salaam. The laboratory is responsible to test all samples collected from all over the country. Inspectors collecting samples from the TBS zones were required to send collected samples to Dar-es-Salaam for testing.

Interview with TBS officials indicated that, the TBS laboratory was overwhelmed with the number of samples received. This contributed to delay in activities such as certification of food processors and delay in issuing of import permits and food processing licenses based on results from the tested samples.

The maximum number of days to produce sample results according to the TBS client service chatter is 21 days. But there have been challenges in achieving this goal as discussed herein previously.

3.5 Utilization of Available Resources for Managing Quality of Processed Food

Are resources (staff, tools, guidelines and funds) for managing quality of processed food being spent efficiently?

According to ISO 9001:2015, TBS is required to determine and provide, in a timely manner, the resources (such as infrastructure, finance, personnel, transportation facilities, IT equipment etc.) necessary to implement and improve the quality management system processes and to address customer satisfaction. The analysis of the utilization of available resources at TBS such as tools, vehicles and inspectors indicated that, the Bureau did not utilize the available resources efficiently. This was evidenced by the fact

that TBS, did not equitably distribute available resources based on the food risks and the workload in each of the respective zones. As describe hereunder:

3.5.3 Inequitable Allocation of Resources based on Food Risk Categories

Does TBS allocate its resources based on the level of food risks in their respective zones?

For effective utilization of resources, TBS is expected to allocate its resources equitably based on possible source of food risks such as number of food processors particularly number of SMEs and ports of entry in the respective areas. The Audit Team noted that contrary to this, TBS did not equitably allocate the available TBS resources such as officials, vehicles, tools and funds to its zonal offices based on the above condition. Interviewed officials from TBS indicated that, it did not conduct needs analysis prior to the allocation of resources. Before July 2020, TBS had no personnel or system designated to conduct risk analysis at the Bureau.

Same situation was observed at TBS Headquarters where the Eastern zone office is located. Food quality and safety operation seemed to be downplayed across the country as far as the allocation of resources was involved. **Table 3.19** shows the analysis of distribution of resources such as vehicles in each zone.

Table 3. 19: Analysis of Allocation of Vehicles in the TBS Zones

TBS Zones	Number of Regions covered (number)	Number of Vehicles available (number)	Number of Vehicles needed
Northern Zone	4	3	5
Eastern Zone	3	4	10
Central Zone	3	3	5
Lake Zone	6	3	4
Southern Highland Zone	4	3	6
Southern Zone	3	2	3
Western Zone	3	2	4

Source: *Auditors' Analysis of information from TBS (2020)*

Table 3.19 indicates that the allocation of vehicles did not consider the magnitude of the area covered and density of food processors in the regions. The TBS office located at the Lake zone, which has six regions to be

covered, only three (3) vehicles to assist inspection activities while the central zone office had three regions with the same number of vehicles (3), like in the Lake zone. The highest allocation of vehicles was observed in the Eastern zone where the reason mentioned was that it had the highest number of processors than the rest of the zones as indicated in **Table 3.19.**

Inefficient allocation of the vehicles consequently caused fewer number of inspections conducted by the TBS inspectors. Allocation of vehicles were not based on reasons of workload and distances covered limited the inspectors reaching food processors located in the remote areas. This increases chances of having food with unsatisfactory quality in those regions due to less enforcement to compliance through inspections.

3.5.4 Inadequate Allocation of Human Resources in the Zonal Offices

Are Professionals responsible for quality assurance of food allocated to Zonal Offices to ensure smooth operations of ensuring quality of the processed food?

According to ISO 9001:2015 7.12, TBS is required to determine and maintain the resources needed.

TBS is expected to increase human resource productivity by 2020/21 through review and implementation of staff development plan whereby its Key Performance Indicator (KPI) is the percentage of implementation of development plan [TBS Strategic Plan, 2015/16-2020/21].

The Audit Team observed that, TBS had no defined criterion used to determine allocation of human resources at the zonal offices. This was due to the fact that there was no correlation between the number of inspectors allocated in the zonal offices and the average number of food processors in the areas as observed in **Table 3.20** hereunder.

Table 3. 20: Allocation of Inspectors in the TBS zonal Offices

Zone	Number of Food Processors	No. of Inspectors	Ratio of Inspector to Food Processors	No. of Regions Servicing	Number of Port of Entry
Eastern Zone	601	97	1:7	3	2
Central Zone	141	11	1:13	3	0
Sothern Highlands	168	16	1:11	4	4
Lake Zone	115	23	1:5	6	2
Northern Zone	173	26	1:7	4	6
Western Zone	49	3	1:17	3	2
Southern Zone	50	5	1:10	3	4

Source; *Auditors' Analysis (2020)*

Table 3.20 shows distribution of inspectors to TBS zones. The maximum ratio was noted in the Western zone where one (1) inspector was dealing with seventeen (17) food processors, whereby the minimum ratio was noted in the Lake zone where one (1) inspector was dealing with five (5) food processors.

*i) **Inequitable Allocation of Number of Staff among the TBS Zonal Offices***

This is through confirming that the Bureau provides adequate staff necessary for the effective implementation of the management system and for the operation and control of its processes.

The Audit Team noted that TBS allocated its human resources in various zones without taking consideration of risks and intensity of the tasks available in the particular zones.

It was also noted that, TBS did not take into consideration availability of ports of entry in the particular zones during the allocation of human resources. This is despite the fact that the existence of ports of entry increases chances and risk for importation of substandard food especially when the controls such as inspection are not strengthened. As a result, some

of the zones were noted to have relatively higher work load as compared to other as indicated in **Table 3.21** below:

Table 3. 21: Workload Ratio for Inspectors across TBS Zones

TBS Zones	Number of Food processors in the Zones	Number of Boarders/Ports	Number of Allocated Food Inspectors	Inspector: Food Processor
Northern Zone	173	6	26	1:7
Eastern Zone	601	2	97	1:7
Central Zone	141	Nil	11	1:13
Lake Zone	115	6	23	1:5
Southern Highland Zone	168	4	16	1:11
Southern Zone	49	4	5	1:10
Western Zone	50	2	3	1:17

***Source**: Auditors' Analysis of TBS Zonal Coordinator's Report, 2020*

The analysis on **Table 3.21** shows that, although there was inadequate number of inspectors in TBS generally, but the available officials were not effectively distributed to the zones as per the demand and risks. From the **Table 3.21**, it can be seen that the workload of inspectors in Western zone is high whereby one (1) inspector deals with seventeen (17) food processors (1:17), the minimum ratio was noted in Lake zone where one (1) inspector deals with five (5) food processors (1:5). This indicates that TBS did not allocate inspectors based on the available food processors and ports of entry/borders in the respective zones

The interview with TBS officials revealed that the inspection activity was overwhelming to the inspectors due to high number of food processors to be inspected. Consequently, TBS used all type of inspectors regardless their education background to inspect food processing industries as explained in details hereunder:

Inspections were conducted by officials with unrelated food professions
There was a tendency of inspectors with no food skills background conducting food inspection activities. According to the interview, it was explained that, TBS has been involving all type of inspectors because of inadequate number of food inspectors. In implementing these activities, TBS developed checklists and guidelines which were used to assist inspectors during food inspection activities.

The audit observed that, this practice was contrary to the International Organization for Standardization (ISO/IEC 17020:2012) on conformity assessment (*Requirements for the operation of various types of bodies performing inspection*). The ISO indicated that, most of the conducted inspections involve professional judgments to determine acceptability against general requirements, for which reason the inspection body needs the necessary competence to perform a specified inspection.

The interview revealed that, officials with food skills background were assigned to conduct the pre-license inspections before certification of the product. It was only when conducting routine inspection inspectors other than food inspectors were being involved. The same was mentioned during the interview with the SMEs visited, whereby it was stated that they used to get visit from TBS inspectors with very little knowledge on the inspected product and its processes.

The Audit observed that, during the pre-license inspections, clients had the pressure to ensure their products were certified hence abided with all necessary standards and requirements unlike during the routine inspections. This is because professional judgment required was based and beyond the contents of the checklists used. It implied that even the checklists were not comprehensive enough to capture food quality and safety parameters.

It was further elaborated that, when technical assistance was required by the clients inspected, non-trained inspectors failed to offer proper advice and solutions due to limited skills and knowledge in the areas of food processing.

3.5.5 TBS did not have Well Equipped Food Laboratory

Does TBS have well equipped food laboratory to guarantee smooth, efficient reliable services?

Guideline for Effective Quality Food Systems of 2003, states that food laboratories should have adequate facilities for physical, microbiological and chemical analyses. This includes having working systems and experts with qualification and skills who will help in producing efficient, accurate and reliable analytical results.

Despite that TBS had one laboratory located at its offices in Dar es Salaam, the Audit Team noted that the laboratory was not sufficiently equipped with the required laboratory facilities. The laboratory also had shortage of infrastructures and qualified human resources as described below:

i) Shortage of 32.4% of Laboratory Equipment as of June 2020

The audit noted that there was shortage of equipment in the TBS food laboratory. There were 57 types of equipment needed in the food laboratory (chemistry and microbiology laboratory). Among these the chemistry laboratory needed 48 type of equipment and the microbiology laboratory needed 9 type of equipment for effective performance.

The Audit Team noted deficiency of the laboratory equipment for both microbiology and chemistry laboratories. The Chemistry Laboratory was 27.3% under equipped and microbiology was 5.1% underequipped. This was also evidenced by the report from microbiology inventory report which showed that the available incubators were not enough and therefore being overwhelmed and shared with food, water and cosmetics samples.

The Audit Team analyzed the common type of missing laboratory equipment for both microbial and chemistry laboratories. The result is as presented in **Table 3.22:**

Table 3. 22: Missing Lab Equipment

Critical/Common Missing Type of Lab Equipment	Its Application	Consequences/Implications
Chemistry Laboratory		
Bom Calorimeter	Used to measure energy	Failure to measure energy
LC – MS/MS	Analysis of vitamins, pesticide residues, drug residues and mycotoxins	Failure to analyze the mentioned parameters
NITROGEN CONCENTRATOR	Sample preparation for pesticide residues and mycotoxins	Failure to analyze nitrogen concentrator
Microbiology Laboratory		
Carbon dioxide incubator	Analysis of anaerobic microorganisms in food	Failure to analyze anaerobic microorganisms in food, the mandate to ensure quality of

Critical/Common Missing Type of Lab Equipment	Its Application	Consequences/Implications
		processed food will not be attained
Water Ionizer	Production of deionized water used for analysis of samples	Affect efficiency in performing general laboratory test including sample of water

Discussion with TBS officials revealed that, TBS planned to procure the equipment that were missing. They also indicated that, when they were mandated to manage food control TMDA was expected to handle over food laboratory equipment to TBS. The Audit Team noted that TBS requested some equipment which were used by TFDA when implementing the mandate of managing the quality of processed food. Such handover was demanded through letter with Reference Number TBS/TCD/CORP/VOL XIV/199 dated -20th February, 2020. Apart from writing the letter to TMDA, TBS made follow-ups in that respect including delivering the call to TMDA to hand over all the necessary equipment to TBS e.g. Vacuum pump at Lake zone. However, TMDA did not handover the pump, the reason given was that the pump was directly connected to vacuum oven and if disconnected would affect the performance of vacuum oven. For detailed information on the received equipment see ***Appendix 8*** *of this Report*.

ii) About 10% of the Available Laboratory Equipment were not Functioning

The Audit Team further noted that 9 out of 89 available equipment in both chemistry and microbiology laboratory were not working for various reasons including breakdowns as shown in the **Table 3.23.**

Table 3. 23: Summary Available Lab Equipment not functioning

Category/Number of Equipment that were not Functioning	Period from which the equipment was not working (months)	Reasons
Chemistry Laboratory		
Nitrogen concentrator	Over one year	Broken
HPLC- SHIMADZU	2 months	Broken
GC- FID	1 month	Broken
Microbiology Laboratory		
Hot air oven	Over a month	Broken

Source*: Auditors' Analysis of data from TBS (2021)*

Table 3.23 shows that, the common reason for having equipment that is not functioning was mainly due to breakdown. It also indicates that the equipment was not working and it had remained idle/not functioning for a period ranging from one month to over a year. TBS officials indicated that some of the broken equipment, could be repaired by local technicians. They also indicated that some complex machines like ICP - MS require the suppliers or manufacturers to do services or repair. Because most of them comes from outside the country such a process is expensive and takes a considerable length of time.

Food laboratory officials further stated that, Fume hoods are working however the extraction system in the new test house requires re-design to ensure effective extraction of fumes. Therefore, the Laboratory is currently using the old Laboratory buildings which has functioning fume hood for the testing activities

Shortage of equipment together with having broken equipment contributed to delays in provision of test results. This also led to complaints from clients.

The audit analyzed the extent of delays from 2015/16 to 2019/20, and the result is as presented in **Table 3.24** below:

Table 3. 24: Percent of Delay in Providing Lab Test Results

F/Year	Total Number of Samples (Number)	Total Number of Samples delayed Results	Percentage delayed Samples (%)
2015/16	2601	520	20
2016/17	3992	1317	33
2017/18	4086	1210	30
2018/19	4855	1988	41
2019/20	7707	2787	36
Total	23241	7822	34

Source: *Auditors' Analysis from Qualimis Report, 2020*

Table 3.24 indicates that in 2018/19 the maximum tested samples results delayed was 41% of all submitted samples. It also shows that in 2015/16 test samples results delayed was 20% of submitted samples. The average delayed samples for the five financial audited years was 34% of submitted samples (7,822 out of 23,241 of submitted samples).

It was explained that the delay was also due to the increasing number of samples currently submitted to TBS. According to TBS officials, the 2019

amendment of Standard Act made certification a mandatory requirement leading to increased number of food samples submitted for testing.

According to TBS Client Service Chatter test results would be availed to clients within a period of from 9 days to 1126 days (3.5 years) depending on test parameters requested by client.

iii) TBS laboratory has Shortage of 45% of Staff Required

The Audit Team noted shortage of staff for both Chemistry and Microbiology Laboratory when compared to the requirement as per its establishment. For effective and efficient performance of food testing laboratory at TBS (chemistry and microbiology) a list of then required food laboratory staff additional Laboratory officials are required; 41 officials in the Chemistry laboratory and 19 for microbiology laboratory. **Table 3.25** presents the shortage of staff. However, with the requirement for mandatory certification of food products, the number of submitted samples has increased demanding even more staff.

Table 3. 25: Percentage of Shortage of Laboratory Officials

SN	Cadre	Number of available staff	Required Number of staff required	Deficit of staff in percentage
Microbiology Laboratory				
1	Quality Assurance Officers	3	5	40
2	Laboratory Technicians	3	10	70
3	Laboratory Assistants	1	4	75
Food Chemistry				
1	Quality Assurance Officers	20	30	33
2	Laboratory Technicians	5	7	29
3	Laboratory Assistants	1	4	75
	Total	**33**	60	45

Source*: TBS Human Resource Plan for Food Laboratory*

Table 3.25 shows that there was inadequate number of TBS laboratory officials. Actual deficit of officials to specified cadres range from minimum 34.3% of Quality Assurance Officers to 75% of Laboratory Assistants. Overall, the deficit to laboratory officials is 45% on average.

iv) Quality Management System ('Qualimis')

The assessment made by the Audit Team on the performance of the Quality Management Information System *('Qualimis'* used by TBS laboratory. The following deficiencies were observed:

a) *Low Level of Data Security*: The TBS laboratories use this electronic system in receiving samples and providing test results. The audit noted that system was not fully automated and there is a possibility for tempering with test results information. This indicates low level of data security in the system which may lead to unfair trade competition. The 'Qualimis' system does not have reliable, efficient and effective security for clients patents' data privacy protection;

b) *Lack of integration of Quality Management Information System (QUALIMIS) with other systems:* It was observed that the Quality Management Information System did not have the means to integrate between departments at the Bureau. There was no link of data between the department of testing and calibration, department of standard development and department of quality management. The departments depend on each other information for their operations. From the observation the audit noted that TBS is yet to effectively use the system for its operations. There is interchangeable use of the manual system and the *Qualimis system* and this has contributed to delays in the respective departments outputs associated with bureaucracy, and unacceptable turn-around time on service delivery; and

c) *In-ability of the system to show the extent of delays and classification of tested food:* The audit also observed that the Qualimis system was not able to reflect the extent of delays of the submitted samples. Although the system had ability to change status of process according to the clients' service chatter it had failed to show the exact number of the test samples delayed days. This led to failure in prioritizing the already delayed samples result. Further, one cannot access tested food product based on category of food. This also hinders access to the performance of different category of food at higher level.

v) Poor handling of Received Samples for Testing

The Audit Team visited samples storage area at TBS laboratory and observed that storage of samples was poor. The area was noted to be small and congested with samples while some of them were handled unprofessionally. For example, samples of maize and other cereals products were placed on the floor.

The audit observed that the storage conditions of the samples were not conducive possibly impairing the quality that the samples had when they were brought for testing. See ***Photo 3.1***

Photo 3.1: Samples awaiting to be tested improperly stored
Source: TBS laboratory (photo was taken on 24th October, 2020)

Photo 3.1 shows the storage room at the TBS food laboratory where the samples are first received while awaiting testing. The samples were seen to be inappropriately (not placed of the palates) dumped on the floor. This could impair the quality of samples by negatively influencing test results. It cannot be overstated that test results from such an environment are unreliable but also useless.

3.6 Inadequate Monitoring of TBS Performance by the MIT

Does the performance of TBS in managing the quality control of processed food being adequately monitored?

The Ministry of Industries and Trade had a responsibility to ensure that TBS effectively performs its activities. This includes monitoring the TBS performance in managing systems for quality and safety control of processed foods in the country. In analyzing this role, the audit noted the following:

3.6.1 Ineffective Planning of Monitoring and Evaluation Activities

Does MIT effectively plan the activities for supervising and monitoring the activities performed by TBS relating to the management of quality of processed food in the country?

According to the MIT's strategic plan of 2016/2017 to 2020/2021, the Ministry was expected to conduct monitoring and evaluation activities to the agencies it oversees i.e. TBS. It was obliged to provide administrative, business and legal advice among others. In order to implement this strategic plan, the Ministry was expected to have developed annual plans indicating how monitoring would be done. The plan was expected to include modality, performance indicators to be used and the reporting format.

However, through interviews held with officials from the Ministry, the Audit Team noted that MIT did not have annual plans to implement the monitoring and evaluation activity stipulated in the strategic plan. The Ministry did not have key performance indicators and reporting format as tools to be used in tracking the performance of TBS. As a result, the Ministry did not perform M&E to TBS as expected. This might have happened if there was a special project or an arising matter that needed urgent follow up. To say the least, the MIT did not prioritize preparation of M&E plans for monitoring TBS.

3.6.2 Ineffective Monitoring and Evaluation of TBS Performances

The Ministry is required to monitor the implementation and carry out impact assessment of activities performed by agencies or entities under it through

its Policy and Planning Department. It is also required to prepare performance reports based on the monitoring.

Interviewed officials indicated that in evaluating the performance of TBS, the Ministry has been relying on TBS self-evaluation reports. However, the Ministry did not provide evidence to the Audit Team showing the performance self-monitoring reports. The audit team observed that, by relying on these reports the Ministry has abdicated its supervisory role over TBS resulting in absence of any Monitoring and Evaluation report on TBS. This gap has denied MIT the opportunity to effectively contribute toward improving TBS through recommendations and actions for its rectification. Thus, TBS has lacked external push to make it implement its functions efficiently and reliably.

3.6.3 Inadequate communication of the Monitoring and Evaluation results

The audit noted that, since the Ministry of Industry and Trade did not effectively conduct Monitoring and evaluation to TBS, thus, TBS did not effectively receive inputs from the Ministry.

However, TBS officials revealed that, there is normal correspondence between TBS and the Ministry. TBS is responsible to submit quarterly implementation reports on its activities.

CHAPTER FOUR

AUDIT CONCLUSION

4.1 Introduction

This chapter gives the audit conclusion based on the findings presented in chapter three. The conclusions are based on both the overall and specific objectives of the audit presented in Chapter One of this report.

4.2 Conclusion

The audit can conclude that based on data collected and analysed in the study, TBS has not fully appreciated its cardinal role of safeguarding public health through effective food safety and quality management in Tanzania. Capacity to implement its functions is not adequate as TBS is yet to build the necessary systems to effectively meet its objectives.

The objective was not met since TBS has just started to execute this role since 2019, before then the task was performed by TMDA (formerly TFDA). In this case, TBS is still in the process of developing the necessary infrastructure and mechanisms that can effectively guide in discharging this mandate. However, TBS needs to enhance its strategies for strengthening mechanisms for ensuring delivery of quality processed food in the country.

The Bureau needs to put more efforts in matters relating to food quality and safety control. Similarly, TBS needs to improve its resources, systems and strategies for better output. This commitment will ensure not only equitable distribution of resources but also assure consumers and food traders within and without that safety and quality of foods in Tanzania is efficiently, effectively monitored and managed.

4.3.1 Specific Conclusions

4.3.2 TBS Lacked Comprehensive Strategies and Plans to ensure Quality Processed Food is delivered to the Market

Although Tanzania Bureau of Standards has strategies and plans as stated in its strategic plans, it has not yet ensured that the processed foods delivered to the market meet the required quality and standards. This is because TBS

did not develop plans and strategies prior to conducting needs analysis that reflected the needs and reality on the ground.

Further, TBS did not adequately involve key stakeholders such as Local Government Authorities who could have valuable inputs in supporting efficient management of quality of processed food in the country. Also, TBS is lacking collaboration mechanism with organisations with accredited food laboratories that could facilitate surveying on the effect of consumption of food with unsatisfactory quality, including identification of the risk areas. Through collaboration mechanism, TBS could be able to provide the detailed plan on how to address the challenges by using the inputs provided by other stakeholders in order to improve its strategies and plans.

Further, TBS did not take into consideration the increasing growth of SMEs in the food industry, and plan for adequate human resources, working tools and equipment for effective implementation of control measures required to mitigate the associated food quality risks. As a result, the plans were not adequately implemented and key stakeholders could not fully participate in implementation of the planned strategies.

4.3.3 Inadequate Implementation of TBS Plans and Strategies

The audit acknowledges the effort made by TBS in developing plans and strategies for managing quality of processed food such as strengthening certification and its monitoring and surveillance mechanisms. However, TBS did not adequately implement its strategies and plans. This was evidenced by the presence of ineffective inspection mechanisms at the ports of entry as indicated by the absence of food inspectors in twelve (12) out of twenty-six (26) authorized ports of entry. Similarly, TBS zonal offices had a shortage of the required food inspectors.

Further to that, TBS lacked effective follow up mechanism for the conditional released cargo and the ceased consignments which were proved to lack the required quality to avoid further health risk to society.

Moreover, the certification process is not efficient as it was associated with delays, whereby majority of applicants took up to 350 days to be certified. Use of manual certification system, and delays in testing sample in the laboratory due to low capacity of food laboratory contributed much to delay in certification. Further, TBS managed to certify only **2%** of the food processors, implied that 98% of food processors operated without being

certified. It was also noted that some of the food processors were using expired licenses. Thus, there is no assurance that the processed food produced by uncertified food processors meet the required standards. Inadequate certification was associated with ineffective mechanisms of TBS to capture the available food processors, absence of effective coordination mechanisms with stakeholders like SIDO, accredited laboratories and weak enforcement of certification activity.

Further, the Bureau did not effectively conduct food risk assessment so as to build foundation on which food control and consumer protection measures can be more enforced. One of the major reasons was the absence of specific unit or individuals within TBS that is responsible for assessing risks facing processed food.

Consequently, inadequate implementation of available plans and strategies is likely to pose a risk for substandard processed food in the market. Thus, TBS needs to put more effort for effectiveness implementation of certification, monitoring and surveillance activities that could help in reducing the risk of having food with unsatisfactory quality in the market.

4.3.4 Inefficient Utilization of Resources for Managing Quality of Processed Food

Despite the fact that TBS had limited resources in term of human resources and working tools, TBS is not utilising the available resources in an efficient manner. There is inequitable allocation of human resources across the TBS zonal offices, as a result some of the zonal offices have higher workload as compared to others. Inequitable allocation of resources was caused by the fact that TBS did not adequately take into considerations the number of food processors, ports of entry and the regions to be covered in each zone while distributing food inspectors. Similarly, the distribution of vehicles and funds was not made based on the size of the respective zonal offices in terms of coverage and number of food processors. Inadequate planning for resources and ineffective analysis and use of food risks also contributed to inefficient utilization of resources.

Further, TBS was using inspectors with unrelated food professions to conduct inspection activities to food processors. This impaired professional judgement in determining acceptability against general requirements, for

which reason the inspection body needs the necessary competence to perform the task.

4.3.5 Inefficiency in Delivery of Laboratory Services

TBS is not efficient in providing laboratory services. The audit observed that TBS food laboratories had inadequate facilities for physical, microbiological and chemical analyses. Also, TBS did not have adequate number of experts with qualifications and skills that can help it in producing efficient, accurate and reliable analytical results on time.

This was evidenced by the performance of the food laboratory and the extent of delays in producing test results. There have been delays in producing laboratory test results due to a number of reasons such as inadequate number of laboratory officials, whereby there was a demand of fifteen (15) staff in the Chemistry Laboratory and twelve (12) in the Microbiology Laboratory. In total the food laboratory had a deficit of 36% of the required staff.

Inadequate Laboratory equipment and breakdowns in the TBS laboratories were also noted, whereby the Chemistry Laboratory was under equipped by 27% and Microbiology Laboratory by 5%. The Quality Management Information System ('Qualimis') used by TBS had low level of data security and lacked integration with other systems in TBS departments such as testing and calibration, department of standard development and department of quality management which work on dependence to each other's information. This led to use of Manual System and the 'Qualimis' system in parallel. This contributed to delays in performance of the activities related to management of quality of processed food in the country.

Further, Quality Management System (Qualimis) is not capable enough to support monitoring of performance of TBS, which contributed to inefficiency of laboratory services. The system could not provide exactly number of delays for the submitted sample, despite having the client charter which states the maximum number of days allowable. Moreover, the system could not categorise the tested sample based on main food category which could help in assessing the performance of each category at higher level. In totality, all these contributed to ineffective Management of Quality of Processed Food in the country by TBS.

4.3.6 Ministry of Industry and Trade does not adequately monitor the Performance of TBS on managing Quality of Processed Food

Despite the fact that the Ministry has officers dealing with issues related to trade and food processing, for the past five (5) years the Ministry did not conduct monitoring and evaluation to track the performance of TBS. Ministry of Industry and Trade lacked monitoring and evaluation plan for tracking the performance of TBS that included budget and monitoring tools. Further, the Ministry did not analyse the reports submitted by TBS in order to identify the performance problems so as it could advise properly. Instead, the Ministry relied on TBS self-evaluation reports submitted to it.

Consequently, the Ministry did not effectively contribute in improving TBS's performance through the provision of the appropriate recommendations and necessary actions to be taken. This was caused by the fact that the Ministry lacked sufficient information to use for contributing to TBS strategic issues. Inadequate monitoring was caused by low prioritization of activity for monitoring and evaluating the performance of her agencies like TBS.

CHAPTER FIVE

AUDIT RECOMMENDATIONS

5.1 Introduction

This chapter provides recommendations to the Tanzania Bureau of Standards and recommendations to the Ministry of Industry and Trade.

The audit findings pointed-out areas that need further improvements for effective management of quality of processed food in the country. The areas include; strategies and plans for ensuring quality food is delivered to the market; adequacy of implementation of quality control plans to ensure availability of quality processed food in the market; utilization of resources such as staff, guidelines, tools and funds for managing quality of processed food; and monitoring and evaluation of performance of TBS with regard to the management systems for quality control of processed food in the country.

The National Audit Office believes that based on the principles of 3Es of Economy, Efficiency and Effectiveness, these recommendations need to be fully implemented to ensure improvements in the management of quality of processed food in the country.

5.2 Recommendations to the Tanzania Bureau of Standards

5.2.1 To improve Strategies and Plans for Management of Quality of Processed Food

The Management of Tanzania Bureau of Standards is urged to:

i) Develop comprehensive strategies and plans for managing quality of processed food. The strategies and plans should accommodate inputs of all key stakeholders and match with the growing trend of food processors in the country;

ii) Conduct thorough need analysis covering all resources required for effective management of quality of processed food and use the result as inputs for developing plan and budget. The need analysis should, among others, identify actual human resources,

infrastructures and equipment including sufficient laboratories for timely service delivery to customers; and

iii) Make use of Food Risk Assessment data from Codex and Food Risk Alerts data from International Food Safety Authority Network (INFOSAN), plan and implement effective and timely proactive Risk Management and Risk Communication activities.

5.2.2 To Improve Effectiveness of Implementation of Strategies and Plan

The Management of Tanzania Bureau of Standards is urged to:

i) Create mechanisms that will ensure that unregistered or uncertified food processors are captured in the database and necessary actions are taken for compulsory certification of products purposes. This should include timely certification of applications made;

ii) Device a clear and effective coordination and collaboration mechanism that will ensure all stakeholders such as Local Government Authorities (LGAs), accredited laboratory, Small Industries Development Organisation (SIDO), among others, effectively contribute to the management of quality of processed food in the country;

iii) To improve collaboration with SIDO under the existing Memorandum of Understanding (MoU) to include trainings on standardization and conformity assessment delivered by TBS personnel. The mechanism should enable TBS to cover a large number of food processors in the country; and

iv) Device a mechanism that will ensures inspection and surveillance activities are effectively conducted by qualified personnel. The mechanism should provide for reporting of inspection results and proper follow ups of the inspection results and corrective actions recommended.

5.2.3 To Improve Utilization of Resources for Management of Safety and Quality of Processed Food

The Management of Tanzania Bureau of Standards to:

i) Provide for equitable allocation of its resources such as staff, vehicles and funds based on pre-determined factors and needs. The factors should include but not limited to food risks, size of zones and number of food processors in the respective zones so that each zone gets its entitled resources according to available workload;

ii) Ensure that the system for Quality Management Information System (Qualimis) is harmonized with other systems within TBS and is capable of supporting the monitoring of performance of TBS. The system should also be able to accurately and timely produce required reports necessary for decision making; and

iii) Ensure that food test samples are never contaminated in the laboratory by facilitating appropriate storage and professional handling.

5.3 Recommendations to the Ministry of Industry and Trade

5.3.1 To Improve Monitoring and Evaluation of TBS Performance

The Management of the Ministry of Industries and Trade to:

i) Adequately prepare plan and budget for monitoring and evaluation of the performance of TBS with regards to management of quality of the processed food; and

ii) Develop monitoring tools with sufficient details necessary, such as reporting formats and key performance indicators. The Ministry to use the developed tool to produce a comprehensive monitoring reports that are informative to allow proper corrective action and decision making.

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Appendices

Appendix 1: Responses from the Audited Entities

This part covers the responses from the two audited entities namely, the Ministry of Industry and Trade (MIT), and Tanzania Bureau of Standards (TBS). The responses are divided into two parts namely general comment and specific comments. This is detailed in Appendices 1(a) and 1(b) below:

Appendix 1(a): Responses from the Ministry of Industry and Trade (MIT)

General Comment

Management concurs with the auditor's recommendation M&E of the performance of TBS with regards to management of quality of processed food will be developed and implemented starting from the financial budget of the year 2021/2022

Monitoring and Evaluation (M&E) is rarely given the weight it deserves both at the planning and budget processes stage and at the actual resource allocation stage for the meagre resources approved for M&E. M&E is more than often the victim of funds reallocation to other activities in most MDAs despite its vital role in ensuring effective budget execution. Casual visits to projects by Politicians and other Government leaders have been erroneously termed M&E although such visits do not adhere to the laid down principles and guidelines as provided from time to time by the Ministry of Finance and Planning. The low priority given to M&E across Ministries and Agencies has evidently led to poor implementation of Government projects, outright loss of public funds and delays in achievement of socio-economic development goals.

Specific Comments

s/n	Recommendation to the Ministry of Industry and Trade	Comments from the Ministry of Industry and Trade	Planned actions	Implementation Timelines
1.	Adequately prepare Plan and Budget for monitoring and evaluation of the performance of TBS with	Management concurs with the auditor's recommendation M&E of the performance of TBS with regards to management of	-Action Plan and budget for M&E of the performance for TBS management of quality processed food will be developed and	Based on the approval and release of the budget 2021/2022 M &E for TBS management of quality

	regards to management of quality of processed food	quality of processed food will be developed and implemented starting from the financial budget of year 2021/2022	implemented based on the activities which cover the aspects of qualities and other related quality issue	processed food will be conducted Quarterly
2.	Develop monitoring tools with sufficient details necessary such as reporting formats and key performance indicators. The Ministry to use the developed tool to produce a comprehensive monitoring reports that are informative to allow proper corrective action and decision making	Weak Monitoring and Evaluation (M&E) of implementation of the Ministry's Plans and Strategies emanates from the low priority accorded to this function in resource allocation. This also adversely affects the Ministry's capacity to track progress in implementation of projects implemented by the 15 Institutions under the Ministry.	- Update the MIT M&E Framework as the key tool for all M&E activities in line with the guidelines issued by the Ministry of Finance and Planning. - Develop and implement Annual M&E Plans with adequate funds allocated and ring-fenced for this key function. Develop M&E Tool for tracking progress in implementation of Industry and Trade related directives in the CCM General Elections Manifesto, 2020 - 2025 and other directives by Top National Leaders. - Comprehensive M&E Reports prepared and presented to MIT Management Quarterly.	- MIT M&E Framework updated and implemented by June, 2022. Annual M&E Plan for FY 2021/2022 developed by June, 2021. M&E Tool for implementation of CCM General Elections Manifesto and other directives by Top National Leaders developed by June, 2021. - Quarterly M&E Reports prepared and submitted to MIT Management by June, 2022.

Appendix 2: Detailed Main Audit Questions with Sub-questions

The objective of the Audit Inspection and therefore the principle question was whether TBS has Adequate Capacity for the Management of Safety and Quality of Food Control Activities in Tanzania. Follow up Specific questions and their respective sub-questions are as detailed below:

Audit Question 1	**Does TBS have adequate capacity in terms of plans, systems, strategies and resources for the management of safety and quality of processed food in Tanzania?**
Sub question 1.1	***Do the available processed foods in the market meet the required quality and safety?***
Sub question 1.2	*What are the common results emanating from tested samples that were suspected to lack the required quality in the market?*
Sub question 1.3	*Are mechanisms for inspecting the quality of food at Ports of Entry working effectively to ensure importation and exportation of good quality food?*
Sub question 1.4	*Does TBS have adequate food laboratory to ensure smooth and efficient testing of sampled food products?*
Sub question 1.5	*Are officials responsible for quality assurance of food allocated to Zonal Offices according to the defined factors to ensure smooth operations of ensuring quality of the processed food?*
Sub question 1.6	*Does TBS effectively conduct food risk assessments to address food hazards in order to safeguard health of consumers?*
Audit Question 2	**Does TBS effectively and adequately run the systems, draw and implement workable plans and strategies for the control of processed food in the market?**
Sub question 2.1	*Does TBS effectively conduct needs analysis when preparing plans and strategies for managing quality of the processed food?*
Sub question 2.2	*Does TBS have mechanism in place to ensure that stakeholders are involved in the provision of inputs to support efficient system for managing the quality of processed food in the country?*
Sub question 2.3	*Are TBS's monitoring and surveillance systems effectively working to support the presence of good quality processed food in the market?*
Sub question 2.4	*TBS's certification process effectively conducted?*
Sub question 2.5	*Does TBS have well equipped food laboratory to guarantee smooth and efficient services?*
Audit Question 3	**Are available resources such as staff, guidelines, tools and funds sufficient equitably distributed based on needs and efficiently used?**

Sub question 3.1	*Does TBS allocate its resources based on the level of risks in their respective zones?*
Audit Question 4	**Is monitoring of TBS Performance with regard to the management system for quality control of processed food adequately carried out?**
Sub question 4.1	*Are results from monitoring and evaluation of the activities performed by TBS effectively considered through different actions?*
Sub question 4.2	*Does MIT effectively plan the activities for supervising and monitoring the activities performed by TBS relating to the management of quality of processed food in the country?*
Sub question 4.3	*Does MIT effectively monitor and evaluate the performance of TBS in ensuring quality of processed food in the country?*

Appendix 3: Different Documents Reviewed and Reasons for 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 the audit team to come-up with clear findings which are supported by collaborative evidences.

Entity	Title of Documents Reviewed	Reasons for Review
Reports from TBS HQ	• TBS strategic plans • Annual Operational Plan • Inspection plans • Monitoring plans • Budgets set aside for managing the quality of processed food in the country (2015/16-2019/20)	To assess the: • Effectiveness of TBS and MIT in preparation of strategies and plans for ensuring quality of processed food in the market • Efficiency of the inspection and monitoring plans • How well TBS budget and priorities food activities
	• Inspections Reports • Annual Internal Audit Reports • Performance Reports • Certification reports	To assess the: • Effectiveness of TBS in the implementation of plans for quality control of processed food • The capacity of TBS in terms of human resources, guidelines, tools and funds for managing the quality of processed food • Available preventive mechanisms used to safeguard the public against substandard processed food in the market
Reports from TBS Zonal Offices	• Quarterly Reports from Zonal Offices • Reports on the Number of Cases Reported on identified processed Food which lack quality • Inspection plans and reports	To assess the: • Effectiveness of TBS in the implementation of plans for quality control of processed food • The capacity of TBS in terms of human resources, guidelines, tools and funds for managing the quality of processed food

Entity	Title of Documents Reviewed	Reasons for Review
	• Inspection reports from ports of entry	• Effectiveness of preventive mechanisms used to safeguard the public against substandard processed food in the market
Reports from MIT	• Monitoring and Evaluation plans • Supervision Reports conducted by the Ministry • Monitoring and Evaluation Reports conducted at TBS	To assess the effectiveness of MIT: • in supervising TBS when implementing its activities on managing quality of processed food • in monitoring and evaluating activities performed by TBS
Small and Medium Enterprises	• certification documents of their products and respective application • covering letters for quarterly submission of samples of their products	To assess • Duration taken by TBS in certifying food products • Effectiveness of TBS in enforcing food processors to submit samples of processed food quarterly
Publications and Reports on the Management of Quality of Processed Food – Research and Higher learning Institutions	Research Papers and Reports	To assess the: • the extent to which of TBS is managing the quality of processed food in the country • effectiveness of zonal offices in managing the quality of processed food from food processors within the country • The capacity of inspectors at the Port of Entry in inspecting imported food in the country.

Appendix 4: Officials Interviewed and Reasons for Interviews

This part provides the list of officials interviewed by the audit team to get a broader understanding of the audit area and identify existing challenges, root causes and eventually the consequences to those problems and challenges

S/N	Entity	Official Interviewed	Reasons
1.	Ministry of Industry and Trade	• Director, Policy and Planning • Director, Trade Development Department • Official from Trade Development Department	To examine • Effectiveness of supervising the activities performed by TBS • The development, monitor, evaluate and review implementation of policies, strategies, guidelines, standards and legislation for industrial development concerning processed food in the country
2.	Tanzania Bureau of Standards HQ	Director, Quality Management	To examine the performance of TBS in managing the quality of processed food in the country
		• Head, Food Safety Section • Two officials from Food Safety Section	To assess the: • Effectiveness of TBS in ensuring that there the quality of processed food in the markets • Effectiveness of TBS in taking appropriate actions upon identifying food which does not meet standards • Effectiveness of TBS in planning and executing inspections of processed food in the markets and processing plants.

S/N	Entity	Official Interviewed	Reasons
		• Head, Food Inspections and Enforcement Section • Two Officials from the Inspection and Enforcement Section	To examine: • Effectiveness of TBS in planning and executing inspection on the quality of processed food in the markets. • The extent of actions taken by TBS on the identified processed food which do not meet standards
		• Head, Product Certification Section • One Official from Certification section	To examine: • Effectiveness of TBS in the certification of processed food • The extent of enforcement on the adherence to requirement of certification for produced process food in the country
		• Heads from Chemistry lab • Head from microbiology Lab • Two Officials from Chemistry and Microbiology Labs	To examine: • Effectiveness of TBS in testing samples of processed food in the country • Involvement of other accredited food laboratories in the country in testing samples of processed food in the country.
		• Head, Import Section • Two Officials from Import Section	To examine: • Effectiveness of TBS in inspecting and issuing import permits for imported processed food in the country • Effectiveness of TBS in inspecting availability of quality processed food at the Points of Entry
3.	TBS Zonal offices	Managers from 4 Zonal Offices	To examine the effectiveness in ensuring the quality of processed food in their areas of jurisdictions

S/N	Entity	Official Interviewed	Reasons
		Two Officials dealing with Quality of Processed Food from each zone	To examine the effectiveness of TBS in managing quality of processed food
		Inspectors at Ports of Entry in Tunduma, Mutukula, and Dar es Salaam Seaport	To examine the functioning of available mechanisms of inspecting substandard imported food; and also check whether were working effectively at the respective authorized port of entry
4.	Small and Medium Enterprises	• Head of food processors • Officials from food processors	To examine • Effectiveness of TBS in testing submitted samples from food processors • Effectiveness of TBS in certifying product after receiving application from food processors • Effectiveness of TBS in ensuring food processors produce food with satisfactory quality
5.	Tanzania Industrial Research and Development Organization (TIRDO)	• Head of Food Processing and Biotechnology Division • Officials working in the Food and Biotechnology Division • Officials working in the Training and Consultancy Division	To obtain information on the extent of the existence of the problem of poor quality of the processed food

S/N	Entity	Official Interviewed	Reasons
6.	Cereals and other Produce Board (CPB)	Two Quality Assurance Officers	To examine • The available challenges when producing cereals and cereals product • The available challenges when working with TBS
7.	Tanzania Food Processors Association (TAFOPA)	Chairman of the Association	To examine • Challenges when processing food • Challenges when interacting with TBS especially in ensuring processed food meet the required standard
8.	Sokoine University of Agriculture (SUA)	Senior Lecturer/expert in food science	To share knowledge regarding processed food in the country including: • Challenges facing food processors • Aspects of quality of processed food

Appendix 5: Food Quality Defects Noted from site Visits Conducted

This pat presents the common food defect noted from the sampled food categories (Milk and milk products, cereal and cereal product, and Meat and meat products)

Food category	Food processors visited	Noted observation
Cereals and Cereals Cereal products	Raphael Group Co. Ltd	0nly 1 out of 16 visited cereals food processors had moisture meter for testing moisture in cereals to be processed
	Katundu traders	
	Chalanda LTD	1 out of 16 visited cereals food processors had no specific area for storage of raw materials
	Tunduma Investment	
	Super Mwarabu Mills	3 out of 16 visited cereals food processors was not having evidence of schedules for regular maintenance of machines used.
	HEFSIBA	6 out of 16 visited cereals food processors had no any quality control system for checking raw materials supplied
	Dadi Metro Entrprises	
	Jasab Backary	4 out of 16 processors had did not understand a requirement of quarterly submission of the samples to TBS for quality check
	Anepa Agriproducts	
	Gigi Bakery	
	Jasaby Bakery	
	Caren Food Products	
	Super Marabu Mills	No maintenance schedule in 1 out of 16 visited processors.
	Matabitha food processor	1 out of 16 visited food processors mixed storage of important raw materials with other things like bicycle
	Ndogosa Co. Ltd	
	Buhaya Coffee Processing	
Milk and milk products	MISENANI	1 out of 5 visited milk processors had no Mini laboratory for quality check
	Prophet Investment	food processor was noted to have a mini laboratory which had rusty tools, hence risking sabotaging the milk test results
	Delco Co. Ltd	
	SEBADOM	
	Shambani Milk Limited	
	SEBADOM	

Food category	Food processors visited	Noted observation
		 Photo 3.2: Mini laboratory for preliminary milk testing with rusty equipment at Prophet Investment *Photo was taken on 21st October, 2020*
		Only 2 out of 5 visited food processors had specific centers for collecting milk from farmers
		2 out of 5 visited food processors had no routine for maintenance of the machines
		The auditors found pets in one of the visited milk processing areas which can easily risk contamination
		All visited processors had o tool to measure antibiotic residual from the harvested milk
Meat and Meat products	Max Blue Halal Meat	The visited meat processor had no sterilizer of the equipment used such as knives, meat saw etc
		The visited meat processor had no Mini laboratory for quality check (if necessary for microbiological testing)

Source: Auditors' Analysis of Data from Site Visits (2020)

Appendix 6: Analysis of Time taken for Certification of Food products

This part presents the time taken to certify food product as analyzed from the sampled food processors

Name of region	Name of food processor/product	Date applied for certification	Date certified	Number of days taken
Dar es Salaam	Profase Investment	01/02/2019	14/02/2020	13
	Galaxy Food and Beverage Ltd	15/08/2018	20/03/2019	215
		25/02/2019	06/08/2019	110
	Mercibel Cassava Flour	22/09/2016	13/04/2018	553
Morogoro	Shambani Milk Limited	04/12/2018	03/11/2019	330
		03/02/2020	17/07/2020	148
	Katundu Traders Limited	20/09/2013	26/05/2016	1126
Mbeya	Raphael Group Co. Ltd	07/06/2019	14/01/2020	190
	Dadi Metro Entreprises Co. Ltd	10/08/2019	20/11/2020	463
	SEBADOM	11/12/2018	18/09/2019	180
Songwe	Tunduma Investment	17/07/2018	Nil[29]	845
	Ndogosa Co. Ltd	11/08/2020	20/08/2020	9
	Hungry Lion Freight	28/04/2020	Nil[30]	238
Mwanza	HEFSIBA			
	Max Blue Halal Meat	16/01/2019	16/10/2020	665
	MISENANI	08/01/2020	28/04/2020	110
		14/02/2019	06/05/2020	171
Kagera	Buhaya Coffee Processing	24/09/2019	29/06/2020	276
	Delco Co. Ltd			
Dodoma	Matabitha food processor	10/03/2015	25/02/2018	856
	Caren Food Products	09/10/2018	28/03/2019	187
	Kikundi cha kijamii kiboko	25/10/2013	19/03/2014	143
Singida	Super Marabu Mills	25/10/2013	28/10/2014	363
	Jasab Backary	21/08/2013	27/01/2015	623
	Zin oils Mills	03/07/2019	03/10/2019	89

***Source**: Auditors' Analysis of data from sampled Files of Food Processors (2020)*

[29] To-date not certified

[30] ibid

Appendix 7: Analysis of test results against set standards (legal limits)

Name of food processors	Year	Product tested	Test	Standard require	Standard obtained after tests	Remarks
Maxi Blue Halal Meat	2018/19	Frozen Beef	Total plat count cfu/g	Max 1x 105	5.0x 104	Pass
			Coliforms cfu/g	Max 1 x 103	5.1 x 102	Pass
			Enterobacteriaceae	Max 102	6.7 x 102	Fail
			E.Coli cfu/g	Absent	<1.0 x 101	Pass
			Salmonela spp./25g	Absent	Not detected	Pass
			S. aureus cfu/g	Absent	<1.0 x 102	Pass
			Vibrio cholera cfu/g	Absent	Not detected	Pass
	2019/20	Frozen Chicken [31]	Total plat count cfu/g	Max 1x 105	6.7 x 103	Pass
			E.Coli cfu/g	Absent	<0.3	Pass
			Salmonela /25g	Absent	Not detected	Pass
			Yeast and Moulds cfu/g	Max. 103	1.1 x 101	Pass
			Lisberia Monocytogenes	Nil	nil	Pass
			Staphylococcus aureus		1.0 x 102	Pass
Delco Limited	2019/20	Cultured Milk[32]	Coliforms cfu/g	Absent	<1.0 x 101	Pass
			E.Coli cfu/g	Absent	<1.0 x 101	Pass
			Salmonela spp./25g	Absent	Not detected	Pass
			S. aureus cfu/g	Absent	<1.0 x 102	Pass
			Yeast/Moulds cfu/g	Max. 102	<1.0 x 101	Pass
			Lead as Pb mg/kg ICP-MS	Max 0.1	0.012	Pass
Misenani[33]	2019/20		E.Coli cfu/g	Absent	<1.0 x 0.3	Pass

[31] Failed marking and labeling
[32] IBID
[33] IBID

		Strawberry flavour	Yeast/Moulds cfu/g	Max. 10	<1.0 x 101	Pass
			Salmonela spp./25g	Absent	Not detected	Pass
			S. aureus cfu/g	Absent	<1.0 x 102	Pass
			Milk fat content, % m/m	0.5-0.3	2.5	Pass
			Solid non-fat %m/m	8.2	15.1	Pass
Profate Investment		Plain yoghurt	E.Coli cfu/g	Absence	<1.0 x 101	Pass
	2019/20		Yeast and Moulds cfu/g	Max. 10	3.1 x 102	Fail
			Salmonela /25g	Absent	Not detected	Pass
			Staphylococcus aureus cfu/g	Absent	<1.0 x 102	Pass
			Milk fat contents %mm	Min. 3.0	3.8	Pass
			Milk solids non-fat	Min 8.2	17.5	Pass
	2018/19	Pasteurized milk	Total plate count cfu/g	Max 3 x 104	6.4x 101	Pass
			Coliforms cfu/g	Max 10	7	Pass
			E.Coli cfu/g	Absent	4	Fail
			Milk fat contents %mm	Min. 3.25	3.6	Pass
			Milk solids non-fat	Min 8.5	8.7	Pass
			Density g/cc at 200 C	1.028-1.036	1.028	Pass
	2019/20	Sweetened vanilla Yoghurt	E.Coli cfu/g	Absence	<0.3	Pass
			Yeast and Moulds cfu/g	Max. 10	1.0 x 101	Pass
			S. aureus cfu/g	Absent	<1.0 x 101	Pass
			Salmonela /25g	Absent	Not detected	Pass
			Milk fat contents %mm	Min. 2.7 – 3.7	2.8	Pass
			Milk solids non-fat	Min 8.2	44	Pass
	2019/20	Sweetened	E.Coli cfu/g	Absence	<0.3	Pass

		vanilla Yoghurt	Yeast and Moulds cfu/g	Max. 10	<1.0 x 10^1	Pass
			S. aureus cfu/g	Absent	<1.0 x 10^1	Pass
			Salmonela /25g	Absent	Not detected	Pass
			Milk fat contents %mm	Min. 2.7 – 3.7	2.8	Pass
			Milk solids non-fat	Min 8.2	44	Pass
	2018/19	Strawberry	E.Coli cfu/g	Absence	<0.3	Pass
			Yeast and Moulds cfu/g	Max. 10	1.0 x 101	Pass
			S. aureus cfu/g	Absent	<1.0 x 101	Pass
			Salmonela /25g	Absent	Not detected	Pass
			Milk fat contents %mm	Max. 3.0	2.8	Pass
			Milk solids non-fat	Min 8.2	16.4	Pass
	2019/20	Strawberry	E.Coli cfu/g	Absence	<0.3	Pass
			Yeast and Moulds cfu/g	Max. 10	<1.0 x 10^1	Pass
			S. aureus cfu/g	Absent	<1.0 x 10^1	Pass
			Salmonela /25g	Absent	Not detected	Pass
			Milk fat contents %mm	Max. 3.0	2.8	Pass
			Milk solids non-fat	Min 8.2	16.4	Pass
Shambani Milk	2019/20	Cultured milk	Coliforms cfu/g	<10	2.7 x 10^3	Fail
			E.Coli cfu/g	<10	2.7 x 10^3	Fail
			Yeast and Moulds cfu/g	Max 102	<1.0 x 101	Pass
			S. aureus cfu/g	Absent	<1.0 x 102	Pass
			Milk fat contents %m/m	Min. 3.25 - 5.1	3.5	Pass

			Milk solids non-fat m/m	Min 8.2 – 9.9	9.6	Pass
			Acidity and lactic acid %	Max 0.9	0.8	Pass
	2016/17	Cultured milk[34]	Coliforms MNP/g	Absent	<0.3	Pass
			E.Coli MNP/g	Nil	<0.3	Pass
			Yeast and Moulds cfu/g	Max 102	<1.0 x 101	Pass
			Salmonella spp/g	Absent	Not detected	Pass
			Milk fat contents %m/m	Min. 3.25 - 5.1	3.25	Pass
			Milk solids non-fat m/m	Min 8.2 – 9.9	8.2	Pass
			Acidity and lactic acid %	Max 0.9	0.9	Pass
	2019/20	Pasteurized milk	Total plate count cfu/ml	Max 3 x 10^4	1.2 x 10^3	Pass
			Coliforms MPN/ml	Max 10	4.6 x 10^1	Fail
			E.Coli MPN/ml	Absent	2.1 x 10^2	Fail
			Milk fat contents %mm	Min. 3.25	3.5	Pass
			Milk solids non-fat	Min 8.5	33.2	Pass
			Density g/cc at 200 C	1.028-1.036	1.036	Pass
	2017/18	Pasteurized milk[35]	Total plate count cfu/ml	Max 3 x 10^2	9.5 x 10^1	Pass
			Coliforms MPN/ml	Max 10	<0.3	Pass
			E.Coli MPN/ml	Absent	<0.3	Pass
			Milk fat contents %mm	Min. 3.25	3.9	Pass
			Solids non-fat	Min 9.9	9.9	Pass
			Density g/cc at 200 C	1.028-1.036	1.028	Pass
	2018/19	Pasteurized milk	Total plate count cfu/g	Max 3 x 10^4	1.4x 10^1	Pass
			Coliforms cfu/g	Max 10	<0.03	Pass
			E.Coli cfu/g	Absent	<0.03	Pass

[34]Failed marking and Labeling
[35] IBID

			Milk fat contents %mm	Min. 3.25	3.4	Pass
			Milk solids non-fat	Min 8.5	38	Pass
Katundu Traders Ltd	2017/18	Fortified Maize flour	Density g/cc at 200 C	1.028-1.036	1.029	Pass
			Yeast and Moulds cfu/g	Max 104	6.0 x 102	Pass
			Salmonella spp/g	Absent	Not detected	Pass
			Moisture 1 % m/m	Max 13	10.35	Pass
			Total ash m/m	Max 0.75	0.1	Pass
			Acid insoluble ash	Max 0.15	0.03	Pass
			Residual through 1000, microsieve, % m/m	Max 0.5	Nil	Pass
			Crude protein	Min 7	7.0	Pass
			Total iron mg/kg	21-41	10.4	Fail
			Aflatoxin B1	Max 5 ppb	6.4	Pass
			Total Aflatoxin	Max 10 ppb	8.03	Pass
	2019/20	Fortified Maize flour	E.Coli MNP/g	Not detected	2.4×10^1	Pass
			Yeast and Moulds cfu/g	Max 10^4	2.7×10^2	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Moisture 1 % m/m	Max 13	11.5	Pass
			Oil content %m/m	Max 3.0	0.5	Pass
			Total ash m/m	Max 0.75	0.41	Pass
			Acid insoluble ash	Max 0.15	0.08	Pass
			Residual through 1000, microsieve, % m/m	Max 0.5	Nil	Pass

			Crude protein (Nx6.25) %m/m	Min 7	22.5	Pass
			Total iron mg/kg	25	23.3	Pass
Tennis Bakery	2019/20	White bread[36]	E.Coli MNP/g	<1	<1.0 x 10^1	Pass
			Yeast and Moulds cfu/g	Max 103	6.3 x 10^2	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Moisture, %m/m	Max 40	4.0	Pass
			Ph of aqueous exctract	5.3 – 6.0	5.5	Pass
			Acid insoluble ash	Max 0.2	0.05	Pass
	2019/20	White bread[37]	E.Coli MNP/g	<1	<1.0 x 101	Pass
			Yeast and Moulds cfu/g	Max 103	9.8 x 102	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Moisture, %m/m	Max 40	4.0	Pass
			Ph of aqueous exctract	5.3 – 6.0	5.7	Pass
			Acid insoluble ash %m/m	Max 0.2	0.05	Pass
Anepa Food Product		Peanut butter	Fat contents[38]			Failed
Tundu ma Investment Limited Dadi Metro Enterprises	2018/19	Maize flour[39]	E.Coli MNP/g	Absent	<0.3	Pass
			Yeast and Moulds cfu/g	Max 103	1.8 x 104	Fail
			Salmonella /25g	Absent	Not detected	Pass
			Total Iron (Fe) mg/kg	21-41	7.0	Fail
			Moisture 1 % m/m	Max 14	9.9	Pass
			Crude fat on a moisture free basis % m/m	Max 3.1	1.0	Pass

[36] The sample failed due to marking and labeling
[37] The sample failed due to marking and labeling
[38] Only letter stating the failed parameter was availed, no lab test results
[39] Fail in marking and labeling

			Total ash m/m	Max 3.0	0.2	Pass
			Acid insoluble ash	Max 0.4	0.09	Pass
	2018/19	Maize Flour[40]	E.Coli MNP/g	Absent	<0.3	Pass
			Yeast and Moulds cfu/g	Max 103	1.5 x 10^3	Fail
			Salmonella /25g	Absent	Not detected	Pass
			Total Iron (Fe) mg/kg	21-41	28.9	Pass
			Moisture 1 % m/m	Max 14	11.4	Pass
			Crude fat on a moisture free basis % m/m	Max 3.1	1.4	Pass
			Total ash m/m	Max 3.0	0.6	Pass
			Acid insoluble ash	Max 0.4	1.4	Pass
	2019/20	Maize Flour[41]	E.Coli MNP/g	Absent	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^4	8.1 x 10^2	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Total plate count cfu/g	Max 105	4.8 x 10^3	Pass
			Staphylococcus aureus cfu/g	Absent	<1.0 x 10^1	Pass
			Moisture 1 % m/m	Max 14	12.1	Pass
			Total ash m/m	Max 1.0	0.4	Pass
			Acid insoluble ash% m/m	Max 0.15	0.08	Pass
			Aflatoxin B1 content, mg/kg	Max 5	Not detected	Pass
			Total aflatoxins	Max 10	Not detected	Pass
	2019/20	Maize Flour	E.Coli MNP/g	<10	5.0 X 10^1	Fail

[40] Fail in marking and labeling
[41] IBID

			Yeast and Moulds cfu/g	Max 104	10 x 103	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Total plate count cfu/g	Max 105	4.8 x 103	Pass
			Moisture 1 % m/m	Max 13.5	10	Pass
			Crude fat on a moisture free basis % m/m	Max 3.0	2.2	Pass
			Total ash m/m	Max 4.0	0.7	Pass
			Acid insoluble ash% m/m	Max 0.4	0.05	Pass
			Aflatoxin B1 content, mg/kg	Max 5	Not detected	Pass
			Total aflatoxins	Max 10	Not detected	Pass
SEBADOM	2018/19	Cultured milk[42]	Coliforms, cfu/g	Absent	<1.0 x 10^1	Pass
			E.Coli MNP/g	Absent	1.0 X 10^1	Pass
			Yeast and Moulds cfu/g	Max 10^2	5.5 x 10^1	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Milk fat %m/m	3.25 – 5.1	3.3	Pass
			Solids non-fat %m/m	8.2 – 9.9	9.2	Pass
			Acidity as lactic acid%	Max 0.9	0.8	Pass
	2018/19	Yoghurt [43]	E.Coli MNP/g	Absent	1.0 X 10^1	Pass
			Yeast and Moulds cfu/g	Max 10	1.0 x 10^1	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Milk fat %m/m	3.0	3.0	Pass

[42] The sample failed marking and labeling

[43] IBID

			Solids non-fat %m/m	8.2	12.4	Pass
Ndogos a	2019/2 0	White bread[44]	E.Coli MNP/g	<1	<1.0 x 10^1	Pass
			Yeast and Moulds cfu/g	Max 10^3	1.0 x 10^2	Pass
			Salmonella /25g	Absent	Not detecte d	Pass
			Moisture, %m/m	Max 40	23.43	Pass
			Ph of aqueous exctract	5.3 – 6.0	5.43	Pass
			Acid insoluble ash %m/m	Max 0.2	0.06	Pass
	2019/2 0	Fortified Maize flour	E.Coli MNP/g	<1	<1.0 x 10^1	Pass
			Yeast and Moulds cfu/g	Max 10^4	1.8 x 10^4	Fail
			Salmonella /25g	Absent	Not detecte d	Pass
			Moisture, %m/m	Max 14	10.2	Pass
			Acid insoluble ash %m/m	Max 0.15	0.04	Pass
			Crude fat contents, m/m on dry basis	Max 2.25	1.9	Pass
			Crude protein	Min 7	7.5	Pass
			Total iron mg/kg	21-41	10.4	
			Aflatoxin B1	Max 5 mg/kg	6.4	Pass
			Total Aflatoxin	Max 10 mg/kg	8.03	Pass
Hungry Lion					Yet to be licensed	
Matabit ha Food Process ors	2016/1 7	Nutritio us flour[45]	E.Coli MNP/g	<1	<1.0 x 10^1	Pass
			Yeast and Moulds cfu/g	Max 10^4	2.6 x 10^4	Fail
			Salmonella /25g	Absent	Not detecte d	Pass
			Moisture, %m/m	Max 14	9.3	Pass
			Total ash on dry matter basis %m/m	Max 4.0	2.4	Pass

[44] Ibid

[45] Fail marking and labelling

			Acid insoluble ash %m/m	Max 0.4	0.2	Pass
			Aflatoxin B1	Max 5	1.2	Pass
			Total Aflatoxin ppb	Max 10	2.2	Pass
	2018/19	Nutritious flour	E.Coli MNP/g	<1	<0.3	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Moisture, %m/m	Max 14	8.7	Pass
			Total ash on dry matter basis %m/m	Max 4.0	2.1	Pass
			Acid insoluble ash %m/m	Max 0.4	0.2	Pass
			Aflatoxin B1 ppm	Max 5	Not detected	Pass
			Total Aflatoxin ppm	Max 10	Not detected	Pass
Kimolo Super Rice Products	2016/17	Rice[46]	E.Coli MNP/g	Absent	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^4	<1.0 x 10^1	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Moisture, %m/m	Max 14	9.9	Pass
			Paddy	Max 0.3	Nil	Pass
			Other contrasting varieties %	Max 1.0	Nil	Pass
			Broken kernels %mm	Max 5.0	1.8	Pass
			Heat damaged kernels % m/m immature kernels %m/m	Max 3.0	0.1	Pass
			Chalky kernels %m/m	Max 1.0	Nil	Pass
			Red streaked kernels. %mm	Max 2.0	Nil	Pass
			Damaged %m/m	Max 2.0	Nil	Pass
			Inorganic Matter %m/m	Max 1.5	0.1	Pass

[46] Ibid

			Live weevils %mm	Max Nil	Nil	Pass
			Filth %m/m	Max 0.1	Nil	Pass
			Organic Matter %m/m	Max 0.1	0.01	Pass
			Aflatoxin B1 ppb	Max 5	Not detected	Pass
			Total Aflatoxin ppb	Max 10	Not detected	Pass
	2018/19	Rice[47]	E.Coli MNP/g	Absent	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^4	<1.0 x 10^1	Pass
			Salmonella /25g	Absent	Not detected	Pass
			S. aureus /25g	Absent	<1.0 x 10^1	Pass
			Moisture, %m/m	Max 14	10.8	Pass
			Paddy	Max 0.3	Nil	Pass
			Other contrasting varieties %	Max 1.0	Nil	Pass
			Broken kernels %mm	Max 5.0	Nil	Pass
			Heat damaged kernels % m/m immature kernels %m/m	Max 3.0	Nil	Pass
			Immature kernels %mm	Max 1.0	Nil	Pass
			Chalky kernels %m/m	Max 2.0	Nil	Pass
			Red streaked kernels. %mm	Max 2.0	Nil	Pass
			Damaged %m/m	Max 2.0	Nil	Pass
			Inorganic Matter %m/m	Max 0.1	0.1	Pass
			Live weevils %mm	Max Nil	Nil	Pass
			Filth %m/m	Max 0.1	Nil	Pass

[47] Fail in Marking and labeling

			Organic Matter %m/m	Max 0.1	0.01	Pass
			Aflatoxin B1 ppb	Max 5	Not detected	Pass
			Total Aflatoxin ppb	Max 10	Not detected	Pass
	2018/19	Rice[48] microbiological results	E.Coli MNP/g	Absent	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^4	<1.7 x 10^2	Pass
			Salmonella /25g	Absent	Not detected	Pass
			S. aureus /25g	Absent	<1.0 x 10^1	Pass
			Moisture, %m/m	Max 14	10.8	Pass
Jasaby Bakery	2015/16	White Bread[49]	E.Coli MNP/g	<1	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^3	1.0 x 10^1	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Moisture, %m/m	Max 40	36	Pass
			pH of aqueous exctract	5.3 – 6.0	5.7	Pass
			Acid insoluble ash on dry basis %m/m	Max 0.2	0.02	Pass
	2017/18	White Bread[50]	E.Coli MNP/g	<1	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^3	1.0 x 10^1	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Moisture, %m/m	Max 40	35.3	Pass
			pH of aqueous exctract	5.3 – 6.0	5.7	Pass
			Acid insoluble ash on dry basis %m/m	Max 0.2	0.06	Pass
	2018/19	White Bread	E.Coli MNP/g	<1	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^3	5.0 x 10^1	Pass

[48] Fail in Marking and labeling
[49] Fail marking and labelling
[50] Ibid

			Salmonella /25g	Absent	Not detected	Pass
			Moisture, %m/m	Max 40	28.3	Pass
			pH of aqueous exctract	5.3 – 6.0	5.6	Pass
			Acid insoluble ash on dry basis %m/m	0.2	0.03	Pass
Super Mwarabu	2017/18	Fortified Maize flour[51]	E.Coli MNP/g	Absent	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^3	<1.0 x 10^1	Pass
			Salmonella spp/g	Absent	Not detected	Pass
			Moisture 1 % m/m	Max 13	11.1	Pass
			Total ash m/m	Max 1.0	0.4	Pass
			Acid insoluble ash	Max 0.15	0.11	Pass
			Total iron mg/kg	Max 21-41	5.2	Fail
			Aflatoxin B1 ppb	Max 5	0.3	Pass
			Total Aflatoxin ppb	Max 10	2.5	Pass
			Fat acidity, mg KOH per 100g of product, on dry basis	Max 50	2.5	Pass
	2017/18	Maize flour	E.Coli MNP/g	Absent	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^3	<8.5 x 10^1	Pass
			Salmonella spp/g	Absent	Not detected	Pass
			Moisture 1 % m/m	Max 13	9.9	Pass
			Total ash m/m	Max 0.75	0.41	Pass
			Acid insoluble ash	Max 0.15	0.05	Pass
			Residual through 1000-micrnsieve, % m/m	Max 0.5	Nil	Pass
			Crude Protein (N x 6.25)	Max 25	37.6	Pass

[51] Fail in Marking and labeling

			Total iron mg/kg	Min 7	10.2	Pass
			Aflatoxin B1 ppb	Max 5	0.3	Pass
			Total Aflatoxin ppb	Max 10	2.5	Pass
			Fat acidity, mg KOH per 100g of product, on dry basis	Max 50	2.5	Pass
	2018/19	Maize flour	E.Coli MNP/g	Absent	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^4	<2.2 x 10^4	Fail
			Salmonella spp/g	Absent	Not detected	Pass
			Moisture 1 % m/m	Max 13	10.8	Pass
			Total ash m/m	Max 0.75	0.3	Pass
			Acid insoluble ash	Max 0.15	0.03	Pass
			Residual through 1000-micronsieve, % m/m	Max 0.5	0.0	Pass
			Crude Protein (N x 6.25)	Max 25	37.6	Pass
			Total iron mg/kg	Min 7	6.3	Fail
			Aflatoxin B1 ppb	Max 5	0.6	Pass
			Total Aflatoxin ppb	Max 10	0.7	Pass
GIGI BAKERY	2016/17	White Bread[52]	E.Coli MNP/g	<1	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^3	<1.0 x 10^1	Pass
			Salmonella /25g	Absent	Not detected	Pass
			Moisture, %m/m	Max 40	40	Pass
			pH of aqueous extract	5.3 – 6.0	5.8	Pass
			Acid insoluble ash on dry basis %m/m	Max 0.2	0.1	Pass
	2017/18	White bread[53]	E.Coli MNP/g	<1	<0.3	Pass
			Yeast and Moulds cfu/g	Max 10^3	<1.0 x 10^1	Pass

[52] Fail in marking and labelling
[53] Ibid

			Salmonella /25g	Absent	Not detected	Pass
			Moisture, %m/m	Max 40	35.5	Pass
			pH of aqueous extract	5.3 – 6.0	5.3	Pass
			Acid insoluble ash on dry basis %m/m	Max 0.2	0.04	Pass

Food Processor	Year	Product tested	Test	Maximum Limit			Results	Remarks
				Grade 1	Grade 2	Grade 3		
Raphael Group Limited	2019/20	Milled rice	Moisture contents %m/m	14	14	14	9.9	Pass
			Paddy	0.3	0.3	0.3	Nil	Pass
			Other contrasting varieties	1.0	2.0	3.0	Nil	Pass
			Broken kernels %m/m	5.0	15	25	0.01	Pass
			Immature kernels %m/m	1.0	1.5	2.0	Nil	Pass
			Chalk kernels, %m/m	2.0	4.0	10	Nil	Pass
			Red streaked kernels, %m/m	2.0	4.0	6.0	Nil	Pass
			Damaged, %m/m	1.5	2.0	3.0	Nil	Pass
			Inorganic matters	0.1	0.1	0.1	Nil	Pass
			Live weevils	Nil	Nil	Nil	Nil	Pass
			Filth	0.1	0.1	0.1	Nil	Pass
			Organic matters	0.1	0.2	0.5	Nil	Pass
			Total Aflatoxin ppb	10	10	10	N/D	Pass
			Aflatoxin B1, ppb	5	5	5	N/D	Pass
	2019/20		Moisture contents %m/m	13	13	13	10.3	Pass

		Milled rice[54]	Paddy	1	2	2.5	Nil	Pass
			Other contrasting varieties	1	2	5	Nil	Pass
			Broken kernels %m/m	2	5	7	0.01	Pass
			Immature kernels %m/m	1.5	1.5	2.0	Nil	Pass
			Chalk kernels, %m/m	2	4	6	Nil	Pass
			Red streaked kernels, %m/m	1	4	12	Nil	Pass
			Damaged, %m/m	1	2	4	Nil	Pass
			Inorganic matters	0.1	0.1	0.1	Nil	Pass
			Live weevils	Nil	Nil	Nil	Nil	Pass
			Filth %m/m	0.1	0.1	0.1	Nil	Pass
			Organic matters	0.1	0.5	0.1	Nil	Pass
			Total Aflatoxin ppb	10	10	10	Nil	Pass
			Aflatoxin B1, ppb	5	5	5	Nil	Pass
Kimolo Super Rice Products	2018/19	Rice (chemical requirement)	Moisture, %m/m	14	14	14	9.1	Pass
			Paddy	0.3	0.3	0.3	Nil	Pass
			Other contrasting varieties %	1.0	2.0	3.0	Nil	Pass
			Broken kernels %mm	5.0	15.0	25.0	Nil	Pass
			Heat damaged kernels % m/m immature kernels %m/m	1.0	1.5	2.0	Nil	Pass
			Immature kernels %mm	1.0	1.5	2.0	Nil	Pass
			Chalky kernels %m/m	2.0	4.0	10	0.2	Pass
			Red streaked kernels. %mm	2.0	4.0	6	Nil	Pass
			Damaged %m/m	1.5	2.0	3.0	0.1	Pass
			Inorganic Matter %m/m	0.1	0.1	0.1	0.02	Pass

[54] Fail marking and labelling

			Live weevils %mm	Nil	Nil	Nil	Nil	Pass
			Filth %m/m	0.1	0.1	0.1	Nil	Pass
			Organic Matter %m/m	0.1	0.2	0.5	Nil	Pass
			Aflatoxin B1 ppb	5	5	5	Not detected	Pass
			Total Aflatoxin ppb	10	10	10	Not detected	Pass

Appendix 8: Laboratory Items Received from TMDA

This part provides summary of Laboratory Equipment handled over to TBS from TFDA

S/No	Equipment Type	TFDA Code No.	QUANTITY	Model/serial /Brand	Value for each Equipment (TZS)	Total Value in (TZS)	YEAR PURCHASED	STATUS
	FOOD LABORATORY -DAR-ES-SALAAM							
1.	CHARM II System included vortex mixer, centrifuge incubator, CPU, monitor	1897,1899,1900,1898,1893,1905	1	CHARM	175,000.	75,000.	April,2011	Good
2.	Cryoscope	1913	1	MODEL	270,000.	270,000	Jan,2012	Good
3	Tecator Scrubber	2071	1	FOSS	457,500.	457,500	June,2012	Good
4	Carbon Analyzer, including Compressor	4750	1	ANTON PAAR	6,500,000.	6,500,000	Dec,2017	Good
5	Waring blender model No.8005	3002	1	-	2,247,872	2,247,872	April,2016	Good
6	Digital ultra	3004	1	IKA	9,834,440	9,834,440	Dec,2017	Good
7	Soxhlet System, for extraction including compressor 5203	4744	1	GERHARDT	12,644,280	12,644,280.	Dec,2017	Good
8	Soxhlet System for fat extraction	4705	1	GERHARDT	12,644,280	12,644,280	Dec,2017	Good
9	Romer mill machines	5718,2027	2	ROMERLAB	24,744,720	49,489,440	July,2016	
10	Lovibond Tintometer	2044	1	MODELF	4,200,000	4,200,000	March,2007	Power supply faulty
11	Refractomer RFM340	2072	1		375,000	375,000	March,2007	Good
12	Manifold	2809,2810	2		51,750	103,500	March,2007	Good

	systems							
13	Homogenizer model 2096 Foss	2061,1941	2		1,200,000	2,400,000.00	March,2007	Good
14	Viscometer	SBN 317756002	1	S/N 17756002	11,499,950	11,499,950	July,2000	Good
15	Geber Centrifuge	1706	1		6,950,000	6,950,000	July,2005	Good
16	Muffle Furnace	2058	1		11,590,590	11,590,590	November,2016	Good
	FOOD LABORATORY LAKE ZONE -MWANZA							
17	KjeltecTM8400 Foss machine	TFDA4661	1	TM8400	36,700,000	36,700,000.	Dec,2017	Faulty
18	Fibertec analyser TM800	5183	1	TM800	25,500,000	25,500,000.	Dec,2017	Good
19	Digester, automatic. machine	4660	1	-	17,580,000	17,580,000.	Dec,2017	
20	Extraction unit,E816,Buchi model	6517	1	E816	5,400,000	5,400,000.	Dec,2017	
21	Stomacher 400 circulator	4635	1	-	1,500,000	1,500,000.	Dec,2017	
22	Hydrolysis unit, E416	5193	1	-	51,750	51,750.	Dec,2017	
23	Solid phase extraction	5186,5185,	1		51,750	51,750.	Dec,2017	
24	Ultra turax(IKA)machine	4648	1	IKA	9,834,440	9,834,440.	Dec,2017	
26	Evidence Investigator	004669	1	RANDOX	98,286,920.	98,286,920.	Dec,2017	