



# SURVEY ON NEEDS FOR

## Quality Infrastructure services among Food Processing Industries in Western Nepal

FINAL SURVEY REPORT  
**MARCH 2019**

CONDUCTED BY



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We are hopeful that the results of the survey will prove useful for PTB in planning and implementing the new Quality Infrastructure (QI) project.

**Bhushan Shah**

CEO

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# CONTENTS

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Acronyms	4
Executive Summary	5
1. Background	8
2. Survey Objectives	8
3. Methodology	9
3.1 Team Structure and Schedule	9
3.2 Desk Review	9
3.2 Inventory Finalization and Determination of Sample	10
3.3 Questionnaire	10
3.4 Observation Checklist	10
3.5 Training	11
3.6 Pilot Testing and Finalization of Survey Tools	11
3.7 Field Work	11
3.8 Data Processing and Analysis	11
4. Limitations of the Survey	12
5. General Information	13
5.1 Number of Surveyed Industries and Key Informant Interviews (KII) according to Districts	13
5.2 Number of Industries in Each Segregated Sector	13
5.3 Respondent Designation	14
5.4 Registration of Surveyed Industries	14

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6. Survey Data and Analysis	15
6.1 Status of Internal Quality Assurance/Management	15
6.2 External “QI” Relations	25
6.3 Outlook/ Future Needs	28
7. Key Informant Interviews (KII)	30
8. Key Results and Recommendations	31
8.1 Results	31
8.2 Suggested Action Areas and Action Points by Stakeholder Group	32
References	36
ANNEX	37
Annex 1. TOR	37
Annex 2. Survey Team Members	39
Annex 3. Survey Questionnaire	40

# ACRONYMS



<b>DCCI</b>	District Chamber of Commerce and Industries
<b>DCSI</b>	Department of Cottage and Small Industries
<b>DFTQC</b>	Department of Food Technology and Quality Control
<b>DOI</b>	Department of Industries
<b>FTQCO</b>	Food Technology and Quality Control Office
<b>GDC</b>	German Development Cooperation
<b>HACCP</b>	Hazard Analysis and Critical Control Points
<b>HVAP</b>	High Value Agriculture Project
<b>ISO</b>	International Organization for Standardization
<b>MOALD</b>	Ministry of Agriculture and Livestock Development
<b>NABIC</b>	Nepal Agribusiness Innovation Centre
<b>NBSM</b>	Nepal Bureau of Standards and Metrology
<b>NS</b>	Nepal Standard
<b>PD</b>	Project Director
<b>PTB</b>	Physikalisch-Technische Bundesanstalt
<b>QA</b>	Quality Assurance
<b>QI</b>	Quality Infrastructure
<b>QM</b>	Quality Manager
<b>QMS</b>	Quality Management System
<b>RISMFP</b>	Raising Incomes of Small and Medium Farmers Project
<b>SMEs</b>	Small and Medium Enterprises
<b>SMO</b>	Standards and Metrology Office
<b>SOPs</b>	Standard Operating Procedures
<b>SSOPs</b>	Sanitation Standard Operating Procedures
<b>TOR</b>	Terms of Reference

# EXECUTIVE SUMMARY

A survey entitled “Survey on Needs for Quality Infrastructure Services Among Food Processing Companies in Western Nepal” was commissioned by Physikalisch-Technische Bundesanstalt (PTB) to support preparation of a new German Development Cooperation (GDC) sector project on sustainable economic development. This survey was carried out by Nepal Agribusiness Innovation Centre (NABIC) and covered 75 enterprises in four districts of Banke, Bardiya and Dang (Province 5) and Surkhet (Karnali Province). Taking into account the country’s move to a federal structure, the overarching goal of the survey was to explore to what extent quality-related extension services could be supported or established at provincial or local level.

The specific objectives of the survey were:

- to provide insights into the actual application of quality standards and quality assurance practices at factory level;
- to identify actual or potential demand for external support services in terms of testing, calibration and quality management among food processing companies;
- to serve as baseline study and orientation for future project support on micro and meso- level.

The surveyed enterprises were categorized into nine food sub-sectors, namely: Beverage/Processed Drinking Water; Meat, Honey, Cereals, Fruits and Vegetables, Spices, Snack Food, Oil/Ghee and Bakery.

Key Informant Interviews (KII) with key stakeholder groups in the target survey districts were held to prepare for and support the enterprise survey. Key informants included government personnel from FTQCO, Standards and Metrology Office (SMO) and leaders from Local Government, business associations and agriculture projects. Key results of the survey findings are summarized below:

## **Awareness:**

- lack of knowledge regarding food laws and regulations;
- lack of awareness about guidelines, directives and provisions set by government;
- lack of awareness regarding Quality Management Systems.

## **Quality Infrastructure/Resources:**

- lack of technology and human resources within government agencies regarding metrology, standardization, testing, QMS, certification and accreditation.

**Capacity Development:**

- lack of training programmes regarding food safety, quality, product development and innovation;
- insufficient academic and training institutions for food safety, quality, product development and calibration;

**Policies:**

- lack of financial support from government agencies;
- lack of coordination among FTQCO, SMO and Local Governments.

**Food Law Compliance:**

- registration of food business operators at the local level has not started yet;
- lack of guidelines and updated standards for all food commodities;
- focus on end product testing and not on the overall process.

The key findings from the enterprise survey are divided into four categories and are presented as follows:

**Status of Internal Quality Assurance/Management System**

- insufficient facilities with regards to calibration of measuring equipment used in the laboratory testing and processing facilities;
- lack of qualified personnel for testing and processing of food products;
- limited cases of voluntary quality certifications such as ISO and HACCP;
- lack of service providers in the surveyed districts;
- enterprises who having established facility have basic testing equipment and focus on limited parameters.

**External QI Relations**

- calibration of processing and laboratory equipment other than weighing machines were almost nonexistent;
- external testing and calibration of food products and equipment is rare;
- most industries are unaware of mandatory food standards;
- deficiency in coordination between government authorities resulting in haphazard monitoring activities and services where control is applied in the end process neglecting the root cause.

**Outlook (Future Needs)**

- dire need for supplementary services regarding testing and calibration;
- critical need for training programs regarding processing, testing, Quality Assurance as well as awareness programmes regarding food standards and regulations.

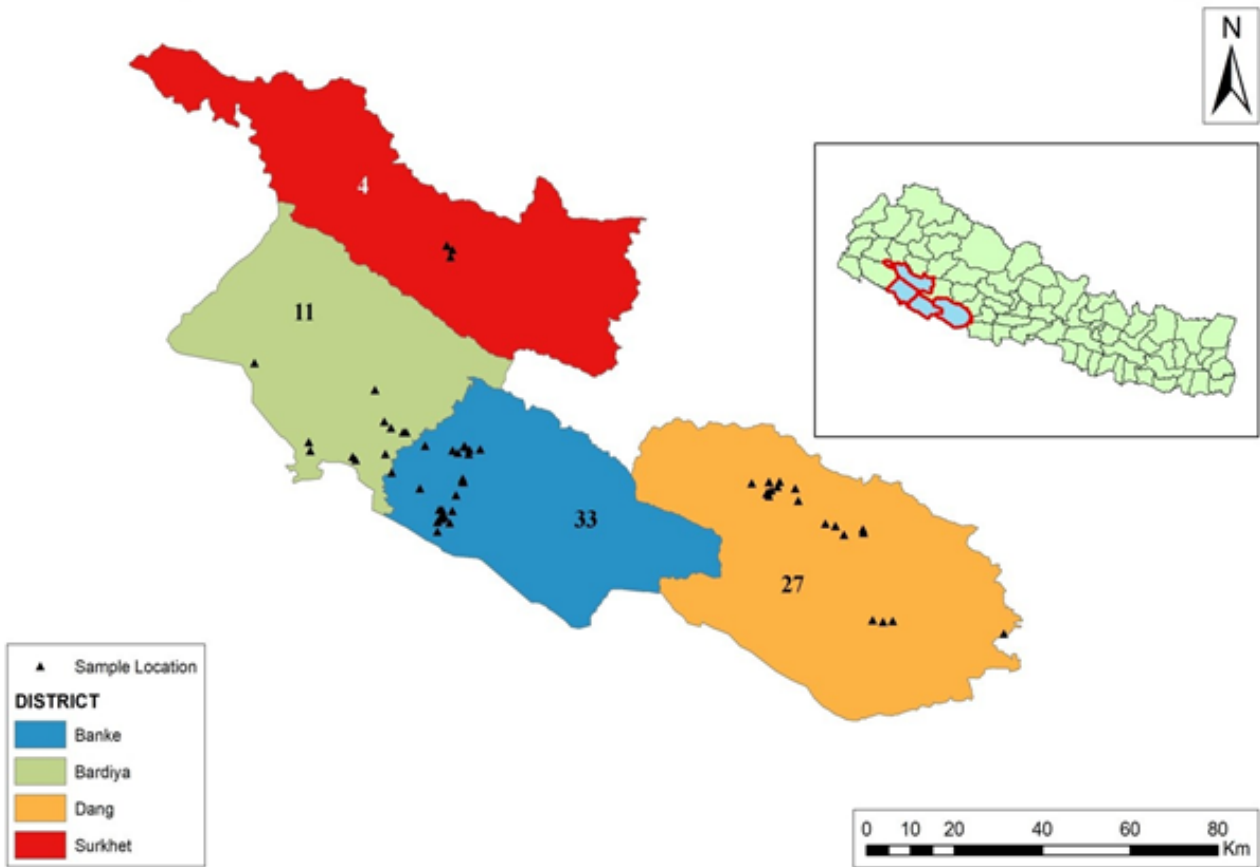
A set of recommendations have been formulated per stakeholder to provide ideas for implementing the planned QI project.



### Map of Surveyed Districts

The survey included four districts, namely Banke, Dang, Bardiya and Surkhet. The survey sample in each of the surveyed districts consisted of 33, 11, 27 and 4 enterprises respectively.

*Survey on Needs for Quality Infrastructure Services Among Foods Processing Enterprises*



# 1

## BACKGROUND

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Services related to standardization, measurements, testing, inspection and certification - which in short are referred to as Quality Infrastructure (QI) - are vital for economic and social development. In the context of Nepal, these services are mostly focused within the capital. There is scarcity of and low usage of QI services at the provincial and local levels. This has adverse effects on production, marketing and trade. Most importantly, this leads to concerns about product quality, fair business dealings and concerns regarding health and public well-being. This becomes a particularly important issue in the case of food production and consumption.

Physikalisch-Technische Bundesanstalt (PTB), the national metrology institute of Germany with scientific and technical service mandates, has been facilitating capacity development in quality infrastructure in Nepal since 2007. With funding from the German Federal Ministry for Economic Cooperation and Development (BMZ), PTB's focus during Project Phases 1 and 2 was on strengthening national reference laboratories in measurement and testing which represents the main pillar of national QI. In view of the ongoing preparations of a new German Development Cooperation (GDC) sector programme on sustainable economic development as well as the overall decentralization process in Nepal, PTB has been tasked in Phase 3 (2018-2021) to explore to what extent quality-related extension services could be supported or established at provincial and/or local level in the western provinces.

Nepal Agribusiness Innovation Centre (NABIC) has been nurturing small and medium enterprises (SMEs) and innovators in the agribusiness sector through provision of a wide-range of business development services. Its core activities include business counseling and advice, business

incubation and agribusiness sector eco-system building. Within a short period of time, NABIC has accumulated substantial experience working with clients in the agri-food sector to improve food safety, hygiene and product quality.

NABIC has been assigned by PTB to carry out a survey on the needs for quality infrastructure service among food processing companies in Western Nepal. The survey is intended to ensure the sustainability and user orientation of the planned capacity-development of the Food Technology and Quality Control Office (FTQCO) and other potential QI service providers. The survey particularly focuses on testing and calibration services as well as the implementation of Quality Management Systems (QMS) among food processing enterprises. Furthermore, a summary of the regulatory framework was also prepared to support the survey; this report has already been submitted to PTB. The survey itself was preceded by Key Informant Interviews (KIIs) with actors from major stakeholder groups in the four districts where information was collected. The findings from the KII have also already been shared with PTB through a separate document. This report is the final output of the assignment. The TOR for the assignment has been attached in Annex 1.

## SURVEY OBJECTIVES

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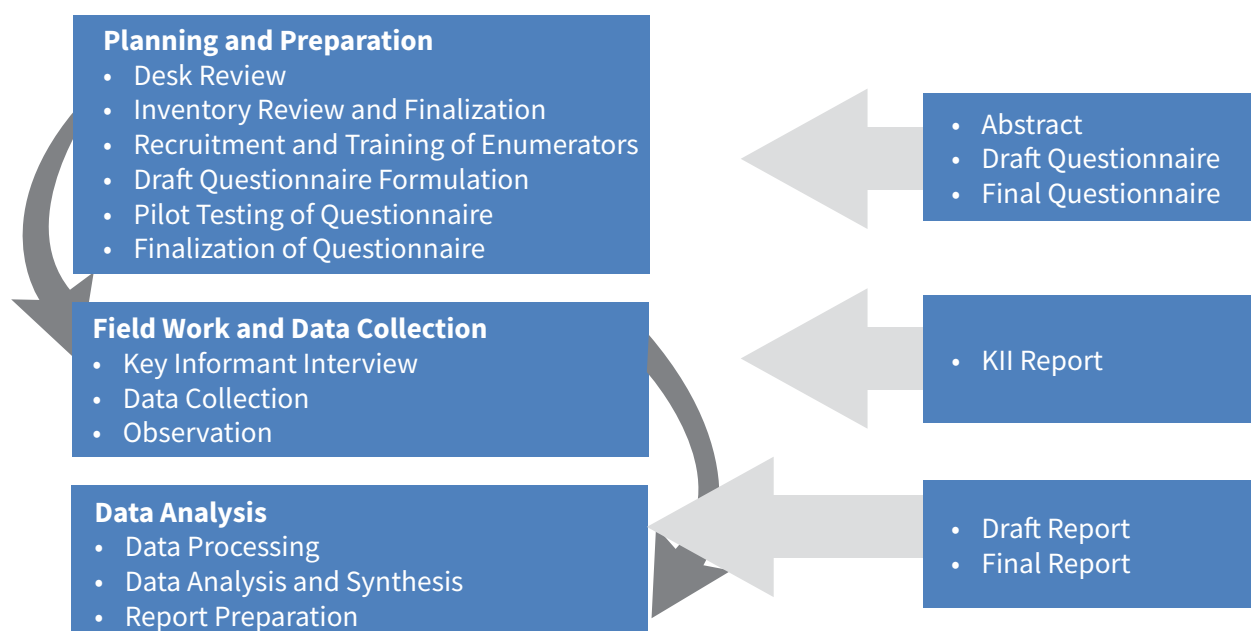
# 2

- To provide insights into the actual application of quality standards and quality assurance practices at factory level;
- To identify actual or potential demand for external support services in terms of testing, calibration and quality management among food processing companies;
- To serve as a baseline study and orientation for future project support at micro and meso levels.

# 3

# METHODOLOGY

The methodological framework of the survey is presented below:



## 3.1 TEAM STRUCTURE AND SCHEDULE

The assignment team consisted of a total of six members, including four Food Technologists as enumerators and the Technical Team Leader (TTL). Back-stopping support was provided to the team throughout the assignment by the CEO of NABIC. The guiding principle in selection of enumerators and the TTL was relevant work experience in food technology and quality control.

The assignment commenced in Kathmandu in August 2018. Data collection in the field was carried over a period of about 3 weeks. The team composition is attached as Annex 2.

## 3.2 DESK REVIEW

Various policies, acts, rules and regulations regarding the agri-food sector were collected and analyzed. Furthermore, the mandates of Department of Food Technology and Quality Control (DFTQC) and Nepal Bureau of Standards and Metrology (NBSM) were collected, organized and synthesized. Desk review activities also included scanning of literature such as relevant studies and reports,

regional and global practices, analyzing secondary data and creating reference lists so as to organize and provide efficient accessibility to all team members.

The Desk Review contributed to preparation of the abstract on regulatory framework for food sector in Nepal. It also contributed to the formulation of the survey questionnaire.

### **3.2 INVENTORY FINALIZATION AND DETERMINATION OF SAMPLE**

The draft inventory of existing food processing enterprises, prepared by PTB in cooperation with FTQCO, was reviewed and the final inventory was agreed in consultations with PTB.

The enterprises selected as respondents were located in three districts from Province 5, namely, Banke, Dang, Bardiya and one district from Karnali Province, Surkhet. The selected sample comprised of 75 enterprises which were categorized under nine (9) sectors.

The sample size for survey was set at 75 food processing enterprises meeting the following criteria.

- A minimum of 10 employees;
- Registered as licensed food industry enterprise with relevant regulatory authority: Food Technology and Quality Control Office (FTQCO), Department of Food Technology and Quality Control (DFTQCO).

Membership of one of the chambers of the District Chambers of Commerce and Industries in the four districts of Banke, Dang, Bardiya and Surkhet was considered as being preferred (optional). Interviews were held with technical representatives and/or management personnel of enterprises in the sample.

### **3.3 QUESTIONNAIRE**

The main survey instrument was a questionnaire. The question was designed to collect both quantitative and qualitative responses. The questionnaire itself was divided into four sections namely, General Information, Internal Quality Assurance, External QI relations and Outlook/ Future Needs. There were 57 quantitative and 13 qualitative questions.

The questionnaire was administered through face to face interviews by two teams with two Food Technologists each. The interviews took place at the premises of the concerned enterprise and lasted from 50 minutes up to 2 hours. The questionnaires were pre-loaded onto a tablet device and responses to the quantitative questions were keyed into the device. The responses to the qualitative questions were voice recorded.

The final questionnaire used in the survey is attached to this report as Annex 3.

### **3.4 OBSERVATION CHECKLIST**

An assessment template formulated by NABIC was also used during the survey. This tool subjectively assesses quality parameters of enterprises such as plant layout, infrastructure, facilities and sanitation as well as environmental safeguards. The purpose of the observation was to benchmark each of the surveyed enterprises against their peers in the sector and also to enable comparison of relative standing of each sector vis-à-vis other sectors.

### 3.5 TRAINING

Training was conducted for field survey team prior to field mobilization. The purpose of the training was: (i) orient the survey team about the objectives of the survey focusing on QI aspects to be covered, (ii) enable them to understand the sampling process and (iii) familiarize them with data collection tools and techniques. The training was conducted by the TTL, PTB expert and an external professional (on use of data device).

Training content included:

- Overview of survey objectives and different QI aspects;
- Roles and responsibilities of the enumerators;
- Team exercises: practice sessions of the questionnaire in pairs or groups;
- Mock interviews: conducting mock interviews with trainer and holding discussion sessions afterwards.

### 3.6 PILOT TESTING AND FINALIZATION OF SURVEY TOOLS

Prior to the actual survey in the field, the survey team spent two days pre-testing the questionnaires in Kathmandu. All the enumerators including TTL were involved in pilot-testing of the survey tools and field procedures. Two teams consisting of two Food Technologist field researchers were formed. Each team carried out two pilot interviews. The results obtained from the pilot testing were then analyzed. The draft questionnaires were revised and updated.

### 3.7 FIELD WORK

Field data collection commenced with KII meetings with representatives of key stakeholder groups. These included elected mayors of the municipalities, chiefs of FTQCO and SMO and presidents of District Chambers of Commerce and Industries (DCCI). Interviews were also held with the Project Directors (PDs) of the Raising Income for Small and Medium Farmers Project (RISMFP) and High Value Agriculture Project (HVAP).

Industries were also visually observed to assess their status in terms of processing premises and layout, machineries, laboratory equipment, storage facilities as well as other factors for scoring against NABIC's observation template.

The exact location of the industry was captured in data capture tablet devices through GPS (Global Positioning System) for future reference. KIIs were not held in Surkhet due to the small sample size of interviews in the district.

### 3.8 DATA PROCESSING AND ANALYSIS

Data collected in field was captured and tabulated through the Survey Solutions application. The obtained data was then further processed using SPSS (Ver. 18.10) software. The final report itself is based on analysis and synthesis of data by the team.



## 4

# LIMITATIONS OF THE SURVEY

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- The survey was based on non-probability purposive sampling method. Hence, the resulting results cannot be taken as being representative of the situation within each of the surveyed districts or sub-sectors covered.
- Data collection is based on self-reporting. Thus, the reliability of the information from the survey cannot be guaranteed.
- The questionnaire included qualitative questions. Hence, interpretation and reporting of certain information can be subjective.
- Accessibility to some industries was hindered due to the festival season and limited time for the survey.
- In reporting, comparative analysis between the districts have been done between three districts. Surkhet data was not taken into account as it did not have a sufficient sample size for making meaningful comparison.
- Identification of enterprises meeting the employment criteria (10 or more) was a challenge.
- KII and survey interviews were conducted only between government agencies and enterprises. The views of relevant academic institutions, training centres and private service providers (if any) are not reflected in the survey.

# 5 GENERAL INFORMATION

The first section of the survey included general information regarding respondent designation, number of employees, registration, and markets covered.

## 5.1 NUMBER OF SURVEYED INDUSTRIES AND KEY INFORMANT INTERVIEWS (KII) ACCORDING TO DISTRICTS

Details of the survey interviews/observations at enterprise level and KIIs are summarized in the table below.

TABLE 1 Number of Surveyed Industries According to Districts								
S.N	District	Food Industry Survey/ Observations	KII				Interview	
			Local Bodies	DCCI	SMO	FTQCO	HVAP	RISMFP
1	Banke	33	1	1	1	1	0	1
2	Dang	27	1	2	0	0	0	0
3	Bardiya	11	1	1	0	0	0	0
4	Surkhet	4	0	0	0	0	1	1
	<b>Total</b>	<b>75</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>

## 5.2 NUMBER OF INDUSTRIES IN EACH SEGREGATED SECTOR

The segregated sectors have been divided according to the nature of the surveyed industries with regards to the processing technology and similarity to supplement comprehensible data.

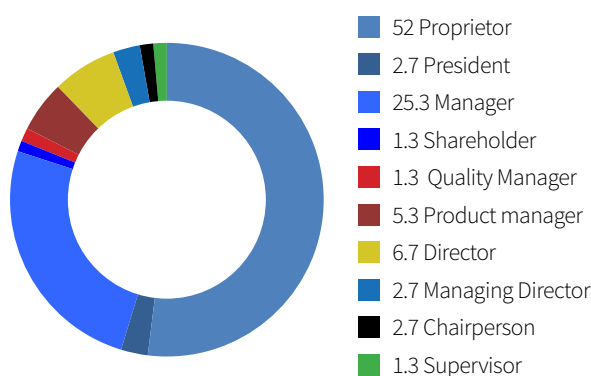
TABLE 2 NUMBER OF INDUSTRIES IN SEGREGATED SECTOR		
Industries/ Sector	Number	Percentage (%)
Beverage/Processed Drinking Water Industries	18	24
Cereals Industries	12	16
Snack Food Industries*	11	14.6
Spices Industries	9	12
Fruits and Vegetables Industries	7	9.3
Oil and Ghee Industries	5	6.6
Bakery Industries	5	6.6
Meat Industries	4	5.3
Honey Industries	4	5.3

\*Snack Food industries include the ready to eat and semi-cooked products such as Instant noodles, Chowmein, Dalmoth, Potato chips, Banana chips etc.

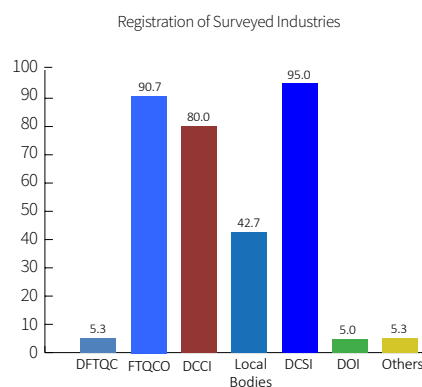
### 5.3 RESPONDENT DESIGNATION

The survey interviews were conducted with various respondents with responsibility for overall aspects of Quality Management/Infrastructure. The designations of interviewees are presented in the chart below.

**Figure 1 : Respondent Designations**



**Figure 2 Registration of Surveyed Industries**



### 5.4 REGISTRATION OF SURVEYED INDUSTRIES

The variations in registration of the industries in different entities can be seen in Figure 2. Most of the enterprises were registered with multiple entities. A few enterprises which did not have a license were in the process of obtaining a license and during the survey had proper processing equipment and facilities. As can be seen from the above figure, 90.7% of the surveyed industries were registered at the FTQCO for statutory food licensing while 5.3% (mostly large ones) were registered at the DFTQC in Kathmandu. Regarding enterprise registration, 95% were registered with the Department of Cottage and Small Industries (DCSI) and 5% at the Department of Industries (DOI). Furthermore, in terms of legal form, 5.3% of the enterprises were incorporated at the Office of the Company Registrar. Almost half (42.7%) of the enterprises were also registered at the local level. Almost 80% of the surveyed industries were also affiliated with DCCI (which is voluntary).

Industries are classified on the basis of size of their fixed assets and nature/ sector of business (Industrial Enterprises Act 2016). Additionally, this Act requires all business activities falling under the definition of “industry” to be undertaken only after registration with the DOI or DCSI. Among the 75 surveyed food industries, only 4 industries were registered in the DOI and the licenses for such ventures are issued by DFTQC as per its mandate. The other enterprises were registered with the DCSI and the regional FTQCO. Only 5% of the enterprises were incorporated with the Office of Company Registrar. This indicates the small nature and size of businesses in the surveyed districts. According to FTQCO about 70% of food establishments in its jurisdiction have applied for food industry licensing. It is reported that the trend of food industry licensing is increasing (DFTQC Bulletin, 2016/17).

Though voluntary, affiliation of enterprises with District Chamber of Commerce and Industries is high at 80%. DCCIs encourage and support their members to obtain licenses and also coordinate and support capacity-building activities conducted by FTQCO. Thus, DCCIs are an important enabling actor for the agri-food sector.

Local governments at province and local levels have been formed after the promulgation of the Constitution of Nepal, 2015. These governments possess clearly spelled out rights and responsibilities and corresponding authority. Provincial and local governments have started the process of registering enterprises. However, this matter is not accorded high priority at present.



# 6 SURVEY DATA AND ANALYSIS

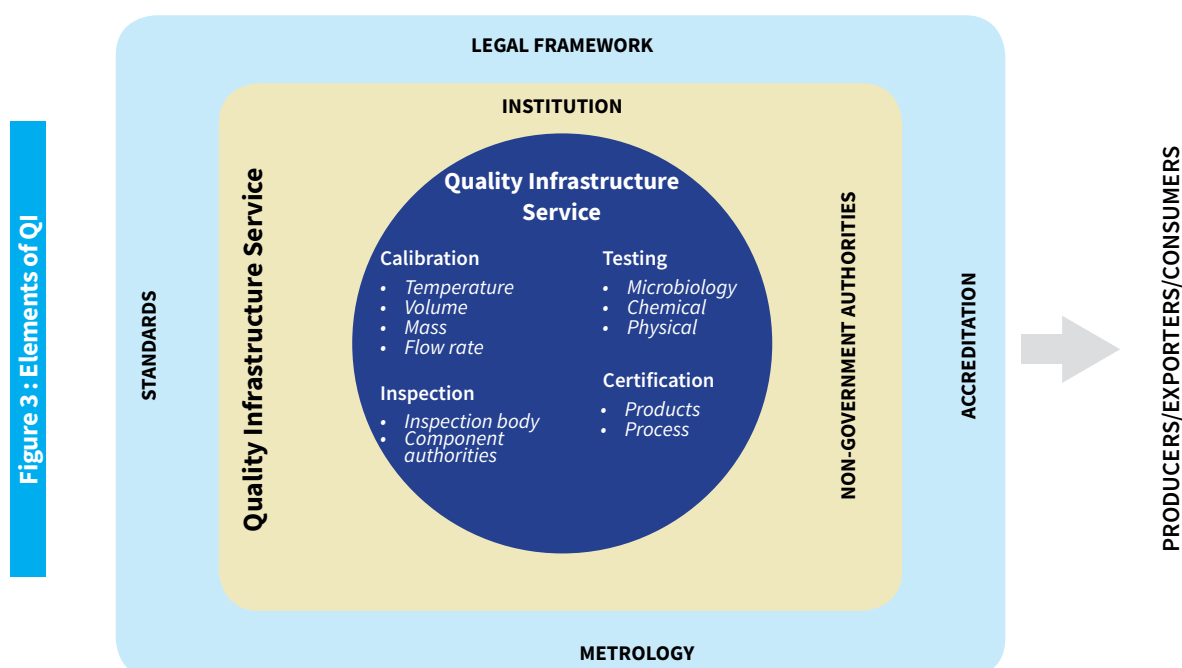
This section presents the actual findings of the survey. The information is presented in three subsections, namely:

- Status of Internal Quality Assurance/Management System
- External QI relations
- Outlook: Future Needs

The questionnaire for the survey was prepared to cover all the three sections and the data was analyzed by segregating the surveyed industries into various food sectors keeping their nature, similarities and processing technologies in mind.

## 6.1 STATUS OF INTERNAL QUALITY ASSURANCE/MANAGEMENT

This section focused on the status of Quality Assurance (QA) and Quality Management System (QMS), process controls, product standards, testing facilities, status of calibration and participation in quality upgrade programs.



For purpose of this survey, QI is taken as referring to all aspects of metrology, standardization, testing, quality management, certification and accreditation which has a bearing on conformity assessment (see figure 3). This includes both private and public institutions within the regulatory framework within which food operators operate. The major focus of the survey was on metrology, calibration, standards, quality assurance, process control, quality management system, traceability, external services received, etc.

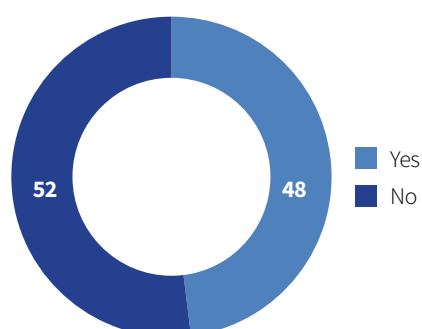
### Quality Assurance/Management Systems

Figure 4 presents the status of QA section present in the surveyed industries. Only 48% of the surveyed industries claimed that they had a QA section. However, as presented in Figure 5, only 14.7% of the surveyed industries had a QA System in place. For the survey, a QA system was defined as having at-least the basic documented systems for all the processes of the enterprises, such as processing, laboratory, storage etc.

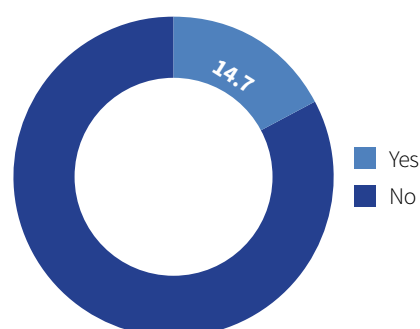
Enterprises in the Cereal, Oil/Ghee and Fruits and Vegetable and Processed Drinking Water/ Beverage sectors had implemented some level of minimal requirements of a QA system. These sectors have minimal QA system because currently drinking water industries are being strictly monitored for compliance by the FTQCO. The cereal and fruits/vegetable sectors are highly saturated as well; hence to provide good quality of products and to be competitive in the market they have a comparatively higher focus on quality. Examples for enterprises with at least a basic QA system are: Apik Mineral Water, Prativa Rice Mill, Vikash Flour Mills, Saurav Oil Mill, Hitesh Khadhya Udhyog, Krishnasar Pani Prasodhan and Beverage, Hulas Khyadhya Udhyog, Navajeevan Agro Pvt. Ltd and CG Foods Enterprises. Enterprises in the Honey, Bakery and Meat sectors did not have a formal QA system in place.

In the surveyed industries there were various reasons as to why the implementation of a QA system was proving to be difficult. A major reason seems to be the small scale of business and low volumes of production. Most of the enterprises were organized as a proprietorship with no clear segregation of roles and responsibilities. In such situations, a single individual was overseeing both, management as well as production responsibilities. Hence, according to the discernment of the entrepreneurs, they do not prioritize a QA system. This highlights the need for awareness about the necessity of a QA system and its resulting benefits. (Those who had some level of QA seemed to focus the most on the raw material and the finished products.)

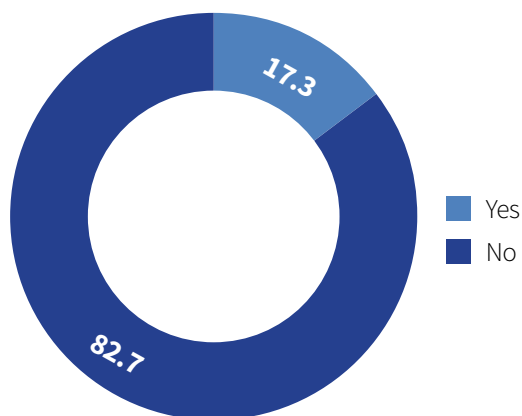
**Figure 4 :Presence of Quality Assurance Section**



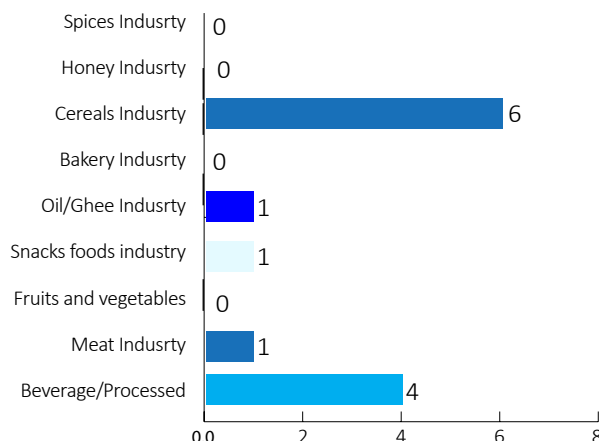
**Figure 5 :Presence of Quality Assurance System**



**Figure 6 :Employment of Quality Manager (%)**



**Figure 7 :Employment of Quality Manager According to Sector (Number)**



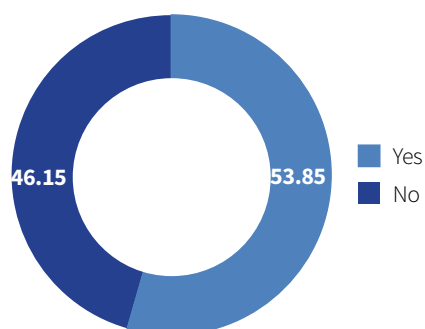
### Employment of Quality Manager

Figure 6 presents employment of a Quality Manager (QM) in the surveyed industries. Almost 82.7% of the industries had not employed a QM. Figure 7 represents employment of a Quality Manager according to the segregated sectors. It can be seen that industries employing a Quality Manager include 6 Cereal industries, 1 Meat industry, 4 Beverages and Processed Drinking Water industries, 1 Oil/ Ghee industry and 1 Snack Food industry. On the other hand, none of the enterprises in the Spice, Honey, Bakery and Fruits and Vegetable sectors have employed a QM. While 48% of the respondents said they had a quality Assurance Section, only 17.3% employed a QM. This is because of the lack of segregation of duties and these sections were also handled by the proprietor or the manager, hence the lack of a suitable QM.

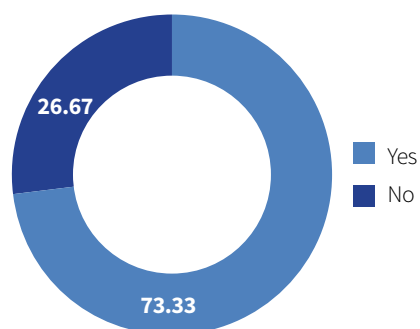
### Internal Quality Audit and Review Meetings

Among the surveyed industries more than half (53.85%) stated that they hold internal quality audits and as represented in Figure 9, majority (73.3%) of the surveyed industries stated that they hold review meetings periodically. The internal audits and the meetings were mostly conducted by the manager or the proprietor for most of the smaller scale industries.

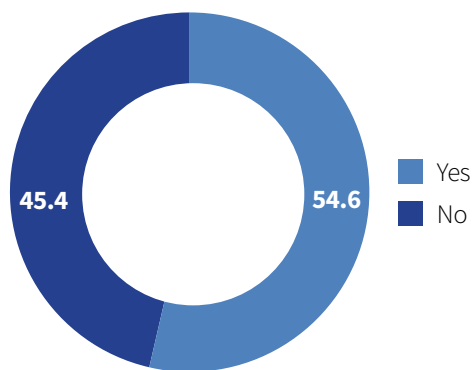
**Figure 8 :Internal Quality Audit**



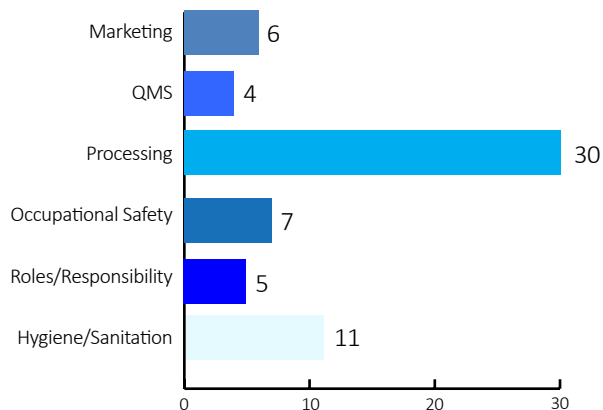
**Figure 9 :Review Meetings**



**Figure 10 :In-House Training (%)**



**Figure 11 :Training Topics (Number)**



**In-House Training**

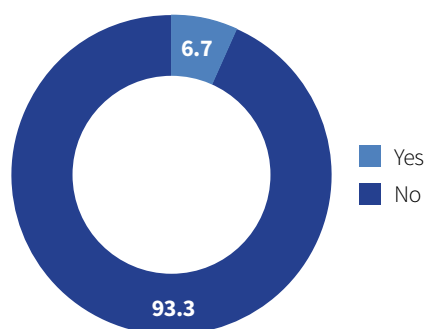
Figure 10 represents organization of In-House training for employees in the surveyed enterprises. More than half (54.6%) reported that they hold In-House training programs. Figure 11 presents information on the topics covered by the industries carrying out In-House training programmes. About 30 industries focused on the processing aspect, whereas 11 focused on hygiene and sanitation, 7 on occupational safety, 6 on marketing, 5 on roles and responsibilities and 4 on quality management systems. Two of the surveyed industries claimed they had conducted trainings on QMS. These are Prativa Rice Mill and Vikash Flour Mill which are both located in Banke district.

**Quality Management System Certification**

Among the surveyed industries, only about 6.7% (5 enterprises) had obtained certifications such as ISO 9001, ISO 22000 and NS Mark. The majority (93.3%) of the enterprises had not obtained any Quality Management System certification.

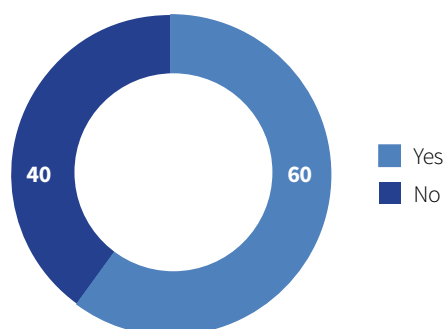
Out of the surveyed enterprises, only a small percentage had obtained a QMS certification. The main reasons for this are small scale of the business, low volume of production, lack of qualified personnel and lack of awareness. Another significant reason is the lack of provisions regarding QMS in the current food law. Another contributing factor is lack of authorized certification agencies in the surveyed districts. According to the respondents, service providers are mostly based in the capital Kathmandu. Though services are provided outside the valley, activities like proper management procedures, internal quality audits, review meetings and in-house training programs do not receive due attention.

**Figure 12 :Quality Management System Certification**

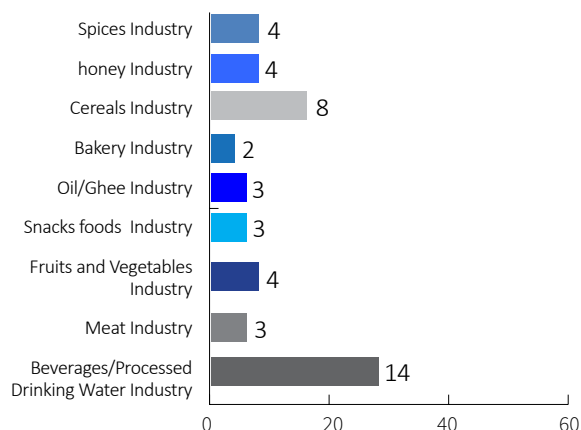


NBSM has recently initiated introduction of ISO 9001, 14001, 50001, 22000 certifications utilizing their own expertise. This is expected to positively impact the food sector in the coming years.

**Figure 13 :Presence of Process Control (%)**



**Figure 14 :Presence of Process Control According to Sector**



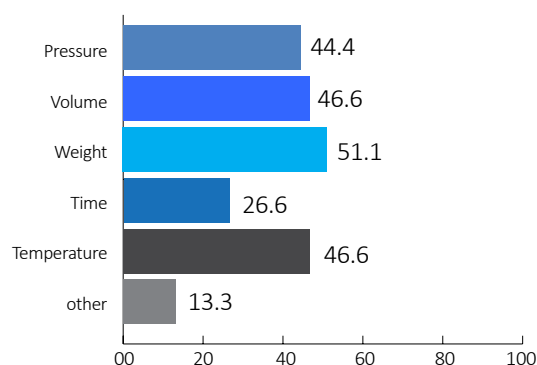
**Process Control**

Out of the 75 industries surveyed, 45 claimed they had some controls over the process. As presented in Figure 13, more than half of the surveyed industries had applied at-least some sort of process control systems. Figure 14 presents information on the presence of process controls according to sectors. As can be seen, 14 of the Beverage and Processed Drinking Water industries had implemented some process controls. Similarly, 3 Meat, 4 Fruits and Vegetables, 3 Snack Foods, 3 Oil/Ghee, 2 Bakery, 8 Cereals, 4 Honey and 4 Spices industries had implemented process control systems.

Figure 15 presents data on the focus of the surveyed industries with regards to various aspects of process controls. More than half (51.1%) of the surveyed industries seemed to focus on weight while 46.6% focused on volume as well as the temperature. Other parameters of process controls in use were: pressure (44.4%), time (26.6) and other parameters such as speed, pH, etc.

Food produced should be of high quality to prevent contamination and adulteration. Thus, proper process controls play an important role in quality of product. Even the smallest incident where quality of products has been compromised can tarnish a firm’s image. Such an incident can result in loss of sales and result in decreased consumer trust. Though a QA system was absent, some enterprises had procedures for process controls present. It was observed that the focus seemed to be more on a few parameters rather than on the overall process. For example, Beverage producers mostly had effective controls on volume. Similarly, Cereal enterprises had controls on pressure whereas Honey enterprises seemed to have effective controls on temperature. The lack of necessary process controls is a matter of great concern as it is responsible for non-conformance with applicable mandatory standards. The key reasons behind low levels of application of process controls are lack of awareness regarding the necessity of process controls and its overall impact

**Figure 15 :Process Controls**



on quality of the food products. The lack of qualified personnel, equipment and knowledge regarding equipment were also other key factors contributing to absence of process control systems.

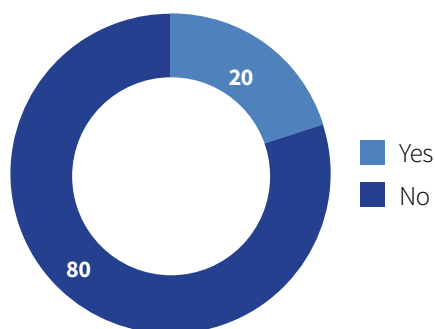
DFTQC has recently implemented Directives on Processed Drinking Water Industry requirements throughout the country. Additionally, the Ministry of Agriculture and Livestock Development (MOALD) launched the “Food Safety and Quality Campaign” on September 22, 2018. This priority initiative focuses on three major commodities: dairy products, fats and oils and processed drinking water. (Please refer to Annex 8) for news article on “Food Safety and Quality Campaign” article). This new development requires food industries in the three sectors to strictly comply with all applicable standards regarding the overall processes for manufacturing of the products. This challenges enterprises focusing on just the quality of finished products to also prioritize applicable individual processes. Hence, this situation creates demand for the adoption of a QA system and adoption of the necessary QI elements.

### Documented System for Monitoring

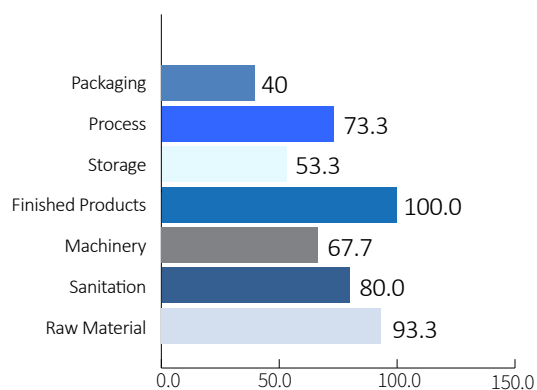
Figure 16 presents information on existence of a documented system for monitoring regarding process, equipment, raw materials, finished products, etc. The majority (80%) of the surveyed industries stated that they did not have a formal documented system for monitoring procedures. Only 20% of the respondents stated that they have some sort of documented system in place. Figure 17 presents data on the priority areas of surveyed industries for monitoring. Out of those enterprises that implemented a documented system, all of them focused on monitoring of finished products. On the other hand, 93.3%, 80%, 73.3%, 66.7%, 53.3%, 40% of the respondents with monitoring systems also focused on raw material, sanitation, process, machinery, storage and packaging respectively.

As expected, proper Standard Operating Procedures (SOPs) were not in place where QA systems did not exist. This ultimately affects the overall quality of production, creates hurdles for compliance with mandatory standards and also impacts overall performance of the processing system. Only 20% of the surveyed enterprises had provisions for a documented monitoring system. Most enterprises seemed to perform monitoring activities informally and only on occasions when problems occurred. The most important monitoring area was finished products with storage conditions accorded the least priority. The key reason for not implementing a monitoring system seems to be the perception that implementing such a system will provide unnecessary difficulties; hence, the reluctance to improve upon existing procedures.

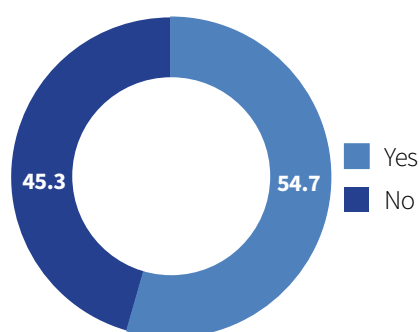
**Figure 16 : Documented System for Monitoring**



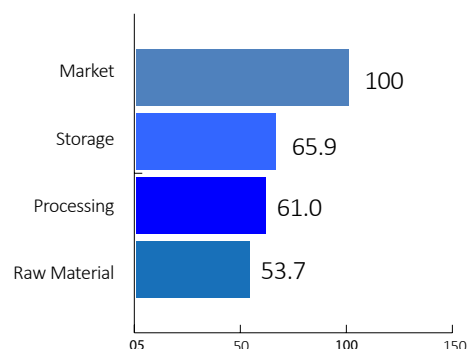
**Figure 17 : Monitoring Areas**



**Figure 18 :Traceability**



**Figure 19 :Traceability Areas**



### Traceability

Traceability refers to the ability of the enterprises to trace products being produced throughout the production cycle, starting from raw materials to final products and markets. Figure 18 presents data regarding status of traceability within surveyed enterprises. About 54.7% of the surveyed industries stated that they had a traceability system in place. Similarly, Figure 19 presents areas emphasized for traceability among industries that have such a system in place. All enterprises having a traceability system placed emphasis on market traceability. At the same time, other important aspects included storage (65.9%), processing (61%) and raw material (53.7%).

It was noted that most enterprises seemed to be unaware of the importance of traceability of other parameters such as storage, processing and raw materials. Most enterprises were under the impression that labeling information (such as batch number/lot number; date of manufacturing etc.) were key parameters for traceability. This points to the existence of a distinct misperception and confusion regarding the traceability process. Though the industries claim to have traceability systems, it seems to be contrived and inefficient. It leaves a lot of room for improvement.

An effective traceability system relies on being able to trace products one step forward and one step back at all stages of the production, processing and distribution chain. It allows demonstrating and guaranteeing quality and safety of products and services. A good traceability system can promote innovation of products and processes and provide cognitive bases for decision- making.

### Standards Followed

Figure 20 presents information on standards (product related) maintained and followed. The majority (81.3%) stated that they followed national standards for their products whereas 25.3% have also set internal standards for their products. About 25.3% also stated that they followed international standards; 1.3% stated that they follow third party standards. Here, third party standards means the standards set by customers.

There are different types of standards namely, mandatory, voluntary and industry standards. The majority of the survey respondents stated that they followed mandatory standards for their products. Most of the products have standards set by the government. In such cases, national standards were followed. However some products such as puffed rice, beaten rice, soya chunks and ginger paste etc. do not have national standards till date. Therefore these industries follow their own internal set standards wherever possible. However during discussions it was also found that there is a need for awareness programs regarding mandatory and voluntary standards set by the government.

The Fundamental rights under the Constitution of Nepal, 2015, and the prevailing food regulations ensure that consumers have rights to availability of quality, safe and nutritious food. Thus, they rightfully expect food to be safe for consumption. Taking this fact into consideration, all food businesses have an important role to play in controlling hazards, adulteration and maintaining required standards.

**Internal Testing Facilities**

Figure 21 represents information on the presence of internal testing facilities. More than half (64%) of the respondents do not have testing facilities within their premises; 36% reported that they have on-site testing facilities.

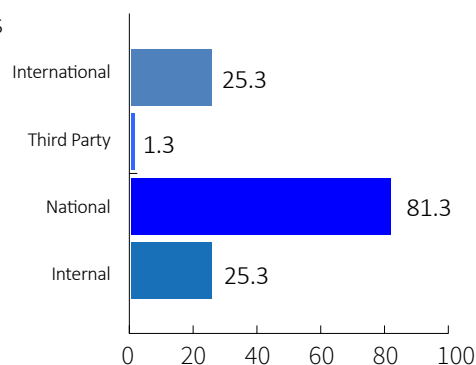
As can be seen in Figure 22, none of the surveyed enterprises in the Spices, Bakery and Meat sectors have internal testing facilities. A large majority (78%) of the Beverage/Processed Drinking Water enterprises have in-house testing facilities. About 75% of Honey enterprises also have some basic testing equipment; similarly, 58% of the Cereal industries have testing facilities. The majority of the Oil/Ghee industries do not have testing facilities with only 20% having provision for internal testing. Similarly, 91% of the Snack Food industries do not have testing facilities while only 9% have this provision. More than half (57%) of the fruits and vegetables industries have the necessary testing facilities.

Some enterprises seemed to test their products only during the time of food license renewal at the FTQCO. The key reasons for lack of testing facilities seemed to be the lack of financial resources and shortage of qualified personnel. Some enterprises also seemed unaware of the need for regular product tests and its subsequent effects on the quality of food products. Among the enterprises having facilities, the equipment and testing parameters were very basic due to the lack of qualified manpower, financial insufficiency and lack of availability of required chemicals and equipment.

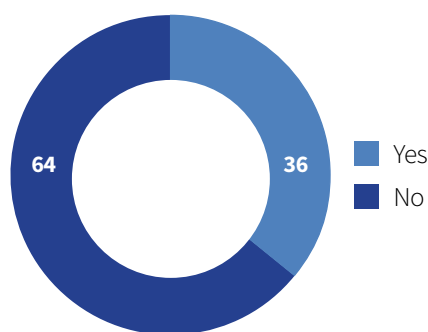
Noticeably, Beverage and the Honey producers seemed to have at least some basic facilities for laboratory tests. On the other hand, enterprises involved in Spices, Bakery and Meat sectors did not have any sort of testing facilities.

The Directive on Milk and Milk Products and Processed Drinking Water places emphasis on a few parameters of product testing that should be conducted internally. This makes it mandatory for the availability of testing facilities for such parameters within such enterprises. It is expected that similar directives will be issued for other food products. Thus, food industries will have to strictly adhere to such guidelines/directives in the future.

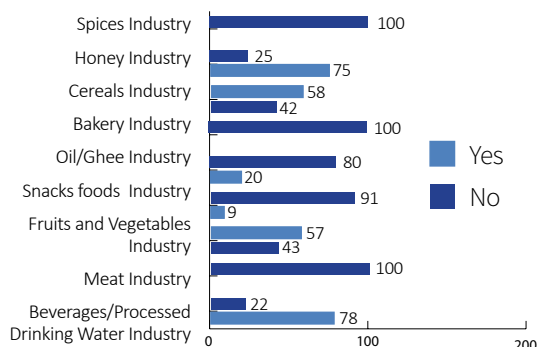
**Figure 20 :Standards followed by the Surveyed Industries**



**Figure 21 :Internal Testing Facilities**

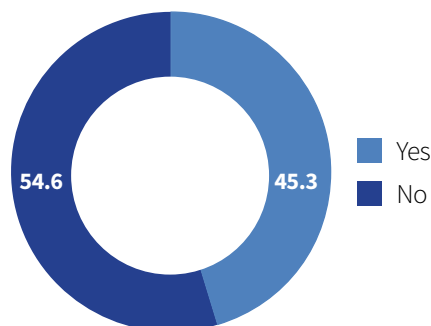


**Figure 22 :Internal Testing Facilities According to Sector According to Sector**

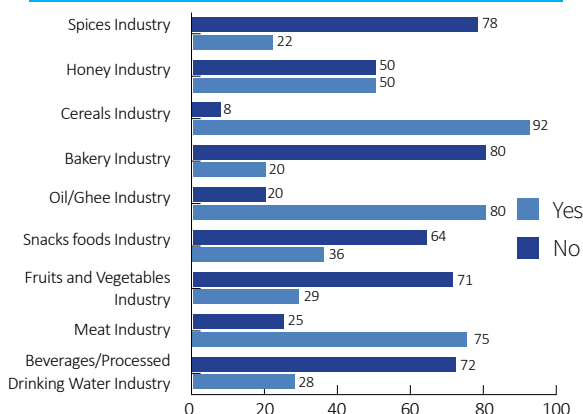




**Figure 23 :Calibration of Measuring Equipment in Processing**



**Figure 24 :Calibration of Measuring Equipment in Processing According to Segregated Sectors**



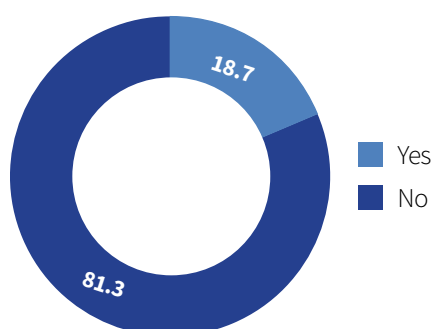
### Calibration of Process-related Measuring Equipment

Figure 23 presents information regarding calibration of process-related measuring equipment. More than half (54.6%) of the industries stated that they did not have calibrated measuring equipment. On the other hand, 45.3% of the respondents stated that they have calibrated equipment. Similarly, as presented in Figure 24, about 22% (2 industries) of the Spices industries have calibrated their equipment. Exactly half of the honey (2 industries) industries have calibrated equipment. About 20% (1 industry) of the Bakery industries have calibrated their equipment. About 92% (11 industries) of the Cereals industries have calibrated their equipment. Similarly, 80% (4 industries) in Oil/Ghee industries, 36% (4 industries) in the Snack Food industries, 29% (2 industries) in the Fruits and Vegetables industries, 75% (3 industries) in the Meat industries and 28% (5 industries) of the Beverage/Processed Drinking Water industries have also calibrated their equipment.

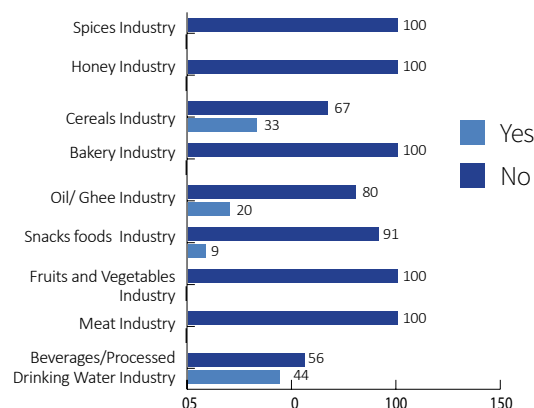
### Calibration of Laboratory Equipment

It was found that 81.3% of the industries had not calibrated their laboratory measuring equipment. Similarly, as figure 26 represents, not a single enterprise in the Spice, Honey, Bakery, Fruits and Vegetables and Meat Industries had calibrated laboratory equipment. Only 33% (4 industries) of the Cereals industries had calibrated laboratory equipment. Similarly, 20% (1 industry) in the Oil/Ghee, 9% (4 industries) in the Snack Food and 44% (5 industries) in the Beverage/Processed Drinking Water sector had calibrated their laboratory equipment.

**Figure 25 :Calibration of Measuring Equipment Used in Laboratory**



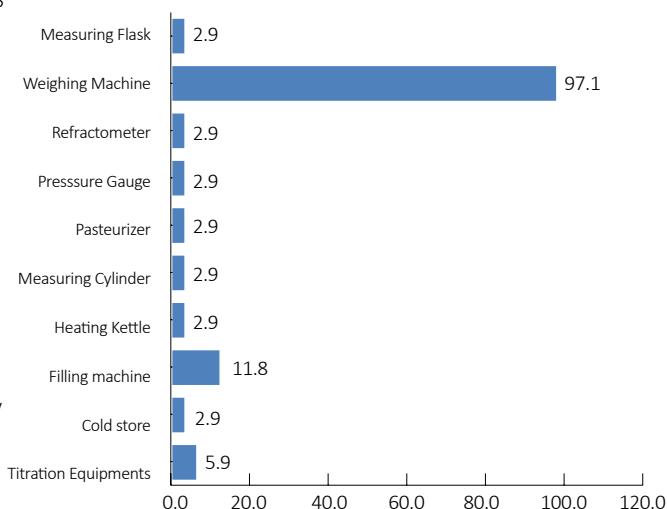
**Figure 26 :Calibration of Measuring Equipment Used in Laboratory According to Segregated Sectors**



As presented in Figure 27, the most commonly calibrated equipment was weighing machines (97.1%). The calibration of other equipment was reported as being very low in the surveyed districts.

More than half of the surveyed enterprises did not calibrate their processing and laboratory equipment. Industries which had calibrated their equipment seemed aware of the necessity of calibration of weighing machines but seemed uninformed of the necessity for calibration of other processing and laboratory equipment. Among enterprises surveyed which had calibrated their equipment, 97.1% (73 industries) had done so for their weighing

**Figure 27 :Calibrated Measuring Equipment**



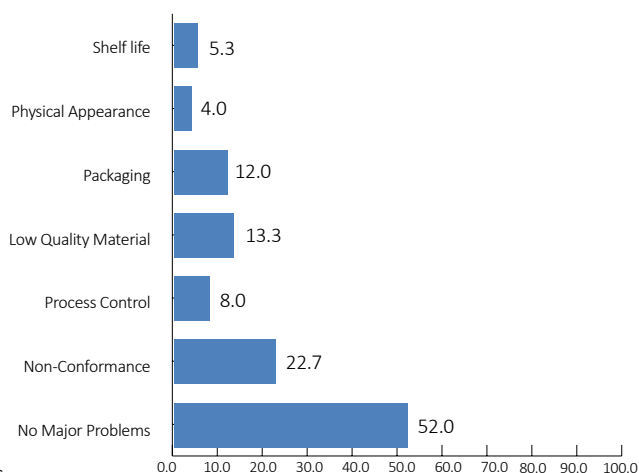
machines. Other factors behind low levels of calibration besides lack of awareness include lack of service providers and qualified personnel to operate calibration equipment.

Currently, only the mass and volume laboratory of NBSM has acquired international accreditation. Most of the calibration services for temperature, pressure, length, volume are at present voluntary and only available through the scientific laboratory at Kathmandu. Currently, the regional office at Nepalgunj does not provide these services. Hence, enhancing the capacity of public agencies will obviously further improve the capacity, skills and knowledge of individuals and the overall food sector eco-system.

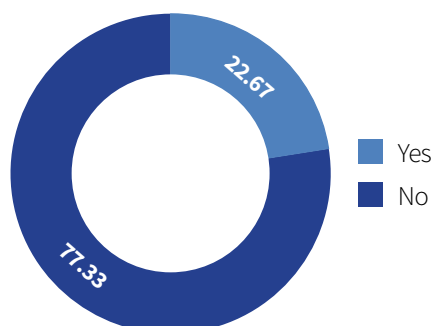
**Major Challenges Faced While Maintaining Quality**

As presented in Figure 28, about 22.7% of the industries stated non-conformance to mandatory food standards as being one of the challenges in maintaining quality. Other challenges mentioned included low quality of raw materials (13.3%), packaging (12%), process controls (8%), shelf life (5.3%) and physical appearance (4%). On the other hand, 52% of respondents stated that they had not faced any major challenges. The major sectors which stated they had not experienced major challenges were the Beverage/Processed Drinking Water and the Cereals industries. The lack of awareness regarding control of processes and packaging as well as the lack of calibration services cause challenges such as non- conformance and short shelf life.

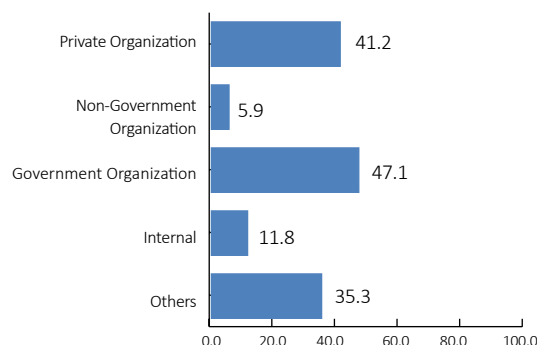
**Figure 28 :Challenges Faced while Maintaining Quality**



**Figure 29 :Participation in Quality Upgrade Programme**



**Figure 30 :Training Providers**



### Participation in Quality Upgrade Programs

As presented in Figure 29, only 22.67% of the surveyed industries had participated in quality upgrade programmes. Figure 30 presents information on Quality Upgrade training providers. Almost half of the enterprises involved in upgrading (47.1%) had received training from government organizations. At the same time, 41.2% of respondents have also undergone training from private organizations. Non-Government organizations had trained 9% of the enterprises. Some enterprises (11.8%) also provided internal training programmes for their employees as well. Lastly, 35.3% of the respondents had participated in training programmes conducted by relevant business associations.

The government organizations which provided the trainings were, FTQCO (Trainings on product development, labeling regulations, Food Act and regulations), NBSM (training on calibration) and RISMFP (training on post-harvest management, accounting etc.,) The Non-Government Organizations were, USAID (farming technology), NABIC (GMP and capacity development), Samartha Project (training on ginger processing), GIZ (training on beekeeping) and PUM Netherlands (training on dairy and meat processing). Others included relevant associations such as, Federation of Nepal Beekeepers, Flour Mill Association, Taaza Chowmein Association, etc.

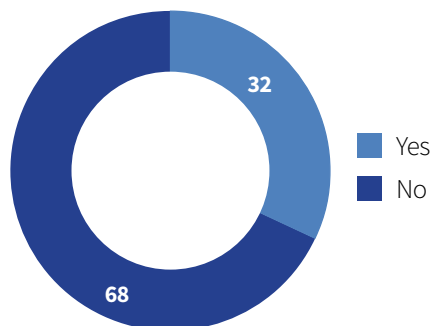
## 6.2 EXTERNAL “QI” RELATIONS

This section provides data on relations with external Quality Infrastructure providers for calibration, laboratory tests, challenges faced by the industries as well as services received from government agencies.

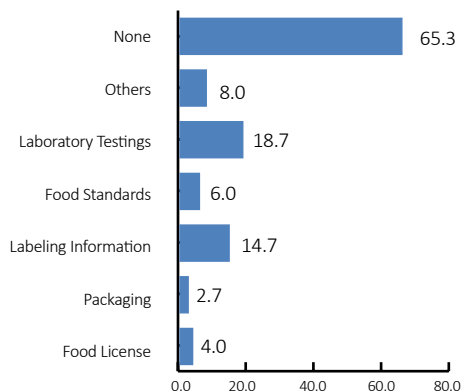
### Knowledge and Challenges Relating to Mandatory Food Regulations

Only 32% of surveyed enterprises had knowledge on mandatory food standards whereas 68% did not have required knowledge regarding mandatory standards. Figure 32 presents data on challenges faced by industries regarding mandatory food regulations. Among various challenges faced 18.7% of the enterprises stated lack of laboratory testing facilities as being the biggest challenge faced. Similarly, incorrect labeling information, food standards, difficulty in obtaining food licenses and packaging were mentioned by 14.7%, 6.0%, 4.0% and 2.7% respectively. On the other hand, 65.3% of the surveyed industries claimed that they had not faced any major challenges. On observation, it was noted that respondents had some basic knowledge regarding the products they have applied the license for, but did not have relevant knowledge for the other products they were producing (for example, bakeries had knowledge regarding bread, but not for other products like biscuits).

**Figure 31 :Knowledge on Mandatory Food Standards**



**Figure 32 :Challenges Faced Regarding Mandatory Food Regulations**



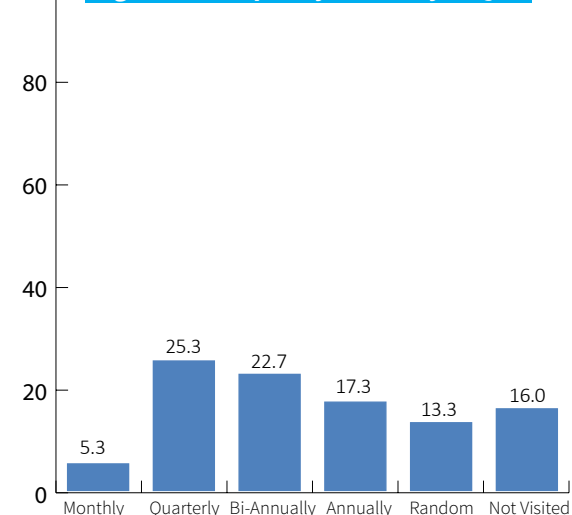
**Frequency of Visit by FTQCO**

Figure 33 presents information on the frequency of visits to enterprises by FTQCO. As can be seen, 25.3% of the enterprises stated that FTQCO officials visited them quarterly. Similarly, the other frequency of visits mentioned were: bi-annually (22.7%), annually (17.3%) and monthly (5.35). Around 13.3% of respondents mentioned that visits were random. On the other hand, 16% respondents stated that FTQCO had not yet visited their enterprises till date. Typically the FTQCO visits for regulatory services, industry inspections, licensing inspections and training programs. It is also important to note that the FTQCO has insufficient personnel to visit all the industries in the province.

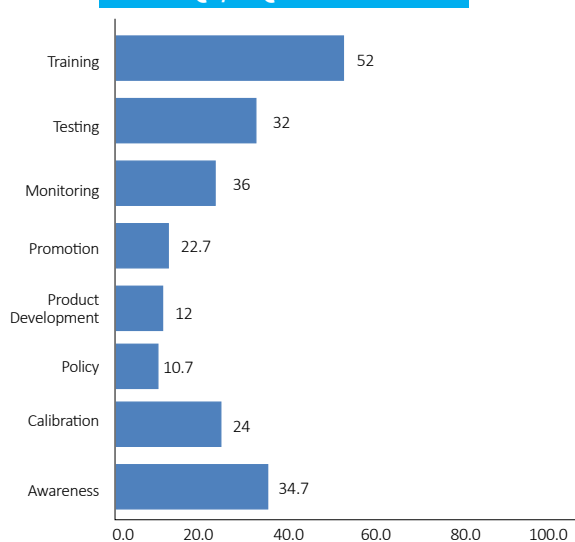
**Expectations towards DFTQC/FTQCO and NBSM**

Figure 34 presents the expectations of enterprises from DFTQC/FTQCO and NBSM. A majority (52%) of the respondents indicated that DFTQC/FTQCO and NBSM should provide training programs with emphasis on quality management, processing and calibration. Similarly, 36% indicated that FTQCO should provide regular monitoring services. Such monitoring visits should prioritize counseling and

**Figure 33 :Frequency of Visit by FTQCO**



**Figure 34 :Expectations towards DFTQC/FTQCO and NBSM**



support rather than focusing on strict supervision only. Expectations regarding awareness services related to quality with processing, mandatory standards and regulations being mentioned by 34.7% of the respondents. Regular laboratory tests of products were said to be a major role by 32% of respondents. However, most industries had little or no knowledge regarding the actual tests required. The FTQCO should provide a wide range of tests according to the commodities since there is an absence of internal laboratories and private (external) laboratories. NBSM’s role in calibration of processing and laboratory equipment was mentioned by 24% of survey respondents. NBSM should provide calibration for other measuring equipment along with weight measures. About 22.7% of the industries stated that DFTQC/ FTQCO and NBSM should promote domestically produced goods and control imports through the open border, control fake and sub-standard products. The need for guidance and counseling regarding product development was mentioned by 12%. Lastly, around 10.7% enterprises expected FTQCO and NBSM to support policies that favored food industries to flourish rather than inhibiting them.

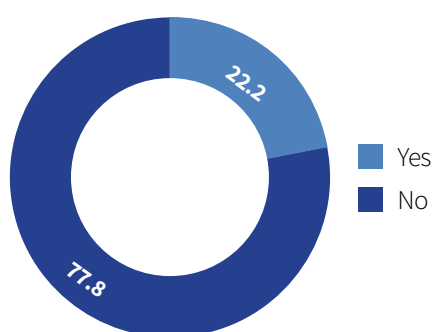
### External Testing Services – Product Testing

Figure 35 presents information on usage of external testing services by surveyed enterprises. As can be seen, only 22.2% of those surveyed use external laboratory testing services. Some external testing facilities mentioned were: Intertek Delhi, Himshree Foods Pvt Ltd (Pokhara), Butwal Water Supply, Cemat Water Lab (Kathmandu), Zest Laboratories (Kathmandu). The majority (77.8%) still depend on DFTQC/ FTQCO for product testing.

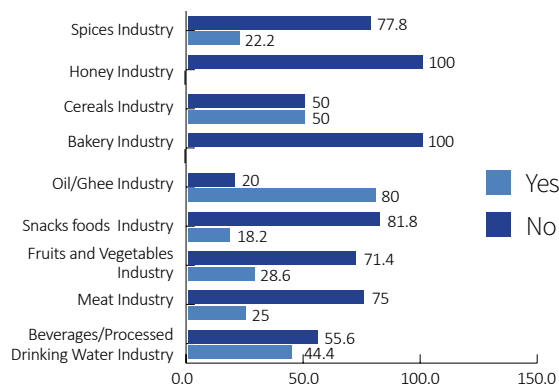
Figure 36 presents information on use of external services by the food sectors. As shown, 22.2% (2 industries) of the Spices industries had conducted external testing practices. Similarly, 50% (6 industries) in Cereal industries, 80% (4 industries) in Oil/Ghee industries, 18.2% (2 industries) in Snack Food industries, 28.6% (2 industries) in Fruits and Vegetables industries, 25% (1 industry) in Meat and 44.4% (8 industries) in Beverage/Processed Drinking Water industries. Conversely, none of the surveyed Honey and Bakery industries had used any sort of external testing practices.

The major causes for the low percentage of external testing practices are the absence of such service providers in the surveyed region as well as high service costs. Among the industries which resorted to external testing, enterprises in the Beverage/Processed Drinking Water and Cereals sectors actively used external testing services. The reason behind this is that in the case of processed drinking water, recent directive has made mandatory provisions for external testing once a year. Some Cereal enterprises have implemented voluntary Quality Management Systems. This has become a necessity for some enterprises that export certain commodities.

**Figure 35 :External Testing Services**



**Figure 36 :External Testing Practices According to the Segregated Sectors**

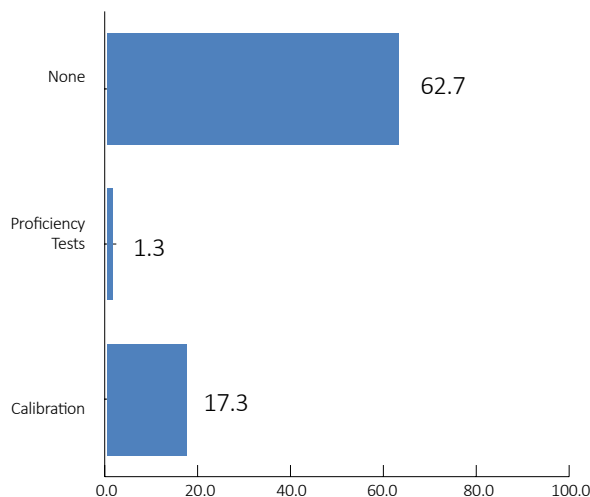


**Use of External Services – Other Services**

Figure 37 presents information on other external services utilized. As shown, 17.3% of the surveyed industries had obtained calibration services from external sources. Only 1.3% of the industries had performed proficiency tests (CG held proficiency tests within its own internal testing facilities nationwide). A majority of those surveyed (62.7%) had not employed any sort of external services.

Among the surveyed industries only a minimal percentage had received external services for calibration. The major reason for this is the lack of such service providers as well as lack of qualified personnel. Most of the industries which employed external services were of larger scale. Most of the calibrated equipment were weighing machines whereas other processing and laboratory equipment were not prioritized.

**Figure 37 :Use of External Services**



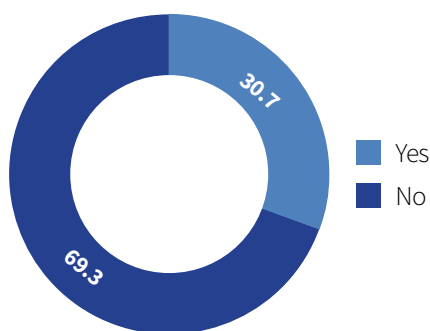
**6.3 OUTLOOK/ FUTURE NEEDS**

This section provides information on future needs of surveyed enterprises regarding Quality Infrastructure.

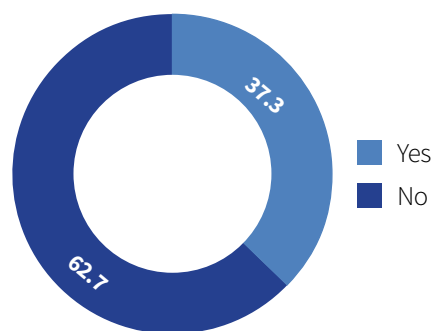
**Research and Development (R&D)**

Figure 38 presents information on whether or not the surveyed industries performed research and development related activities, (e.g., production of ready to serve juice in place of fruit squash, mushroom powder, multigrain flour, packaging variations, honey candy, etc.). The focus of R& D seemed to be more on product development. On the other hand, more than two thirds (69.3%) of respondents stated that they have not carried out any research and development activities/ till date.

**Figure 38 :Conduction of Research and Development**



**Figure 39 :Future Plans for Quality Management System**



### Future Plans for Upgrade/Establish Quality Management System

As can be seen in Figure 39, more than half (62.7%) of the enterprises had no plans to establish a QMS. About 37.3% stated that they had plans to establish or upgrade existing system with the majority contemplating ISO certifications such as ISO 9001, ISO 22000 or HACCP.

Most of the respondents seemed satisfied with their current operational systems and seemed reluctant to upgrade their system as the process requires significant financial resources and substantial changes in infrastructure. Furthermore, market reach of surveyed industries is limited and production is of smaller scale. Hence, the application of a QMS is seen as economically unfeasible. However, enterprises are willing to introduce QMS at subsidized costs or if government grants are made available. The belief that having a certification enhances brand name/ image as well as market competitiveness is the main reason behind plans to establish QMS. The beverage and drinking water sector had plans for obtaining a QMS, predominantly.

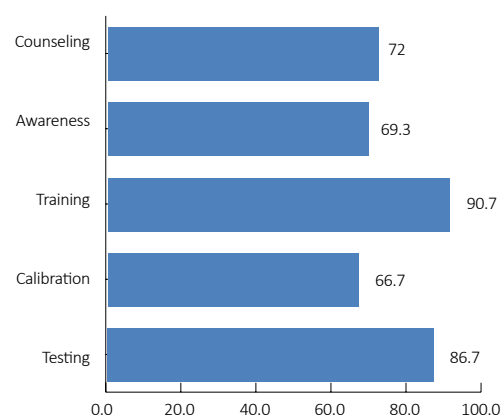
The proposed Food Safety Policy is expected to enforce adoption of Food Safety Management System and will address “farm to fork” approaches and traceability. Furthermore, NBSM has also been developing product and process standards. This will create opportunity for possible interventions in the area of system certification.

### Demand for QI Service

Figure 40 presents information on stated demand for QI services. As can be seen, the majority (90.7%) indicated that training programs regarding processing, laboratory tests, calibration, process controls etc. were critical and a must in the current context of food sector situation. The next most demanded QI service (86.7%) was testing facilities for food products as most industries were facing difficulty setting up internal testing facilities. About 72% of the industries stated that in-depth counseling regarding food processing was necessary for production of quality food products; the lack of this service was said to be a factor behind not meeting consumer expectations. Counseling regarding product development, training opportunities, business planning and improvement of operations were also major areas of demand as well as counseling support to set up QMS. A majority of enterprises (69.3 %) also stated that awareness regarding food regulations and standards along with QI were a must as most were still unaware regarding these topics. About 66.7% of the industries stated that regular services for calibration of processing and laboratory equipment were necessary but critically low.

On analysis, most of the enterprises stated that they require training programs regarding processing, QI, and product development and innovation as most seemed to be lacking in these aspects. As there is substantial lack of adequate testing facilities, there is also a high demand for testing and calibration facilities with adequate equipment, personnel and subsidized cost. There is also high demand for awareness programs regarding food standards and regulations as knowledge on these topics is low. Currently, there is a lack of such service providers within the region. The costs of such services when obtained from abroad will be significantly high. It was learned that most of the enterprises currently depend on the supply side (DFTQC/FTQCO and NBSM/RNBSM). Therefore, there is a strong rationale to upgrade their capacity and resources. This has to be supplemented by stimulation of demand for QI services.

**Figure 40 :Actual Potential Demands for QI Services**





## 7

# KEY INFORMANT INTERVIEWS (KII)

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The field work was preceded by KIIs with key actors from food sector related stakeholder groups. The report from the KIIs has already been submitted as a separate deliverable.

The KII complemented the field work with interviews being held with Mayors of concerned municipalities, chief of FTQCO, head of the regional office of NBSM and president/chairperson of DCCIs. Discussions were also held with Project Directors of two government agriculture projects – High Value Added Project (HVAP) and Raising Incomes of Small and Medium Farmers Project (RISMFP).

According to the stakeholders, the progress in food production has been commendable. However, lack of emphasis on quality as well as necessary quality infrastructure stand as major hurdles in the growth and sustainability of such enterprises. The unavailability of proper QI and resources include qualified technical personnel and facilities results in sub-standard food production. The lack of awareness regarding food law and calibration of equipment also act as obstacles in the advancement of the food processing industries. There is a need for review and formulation of policies focused on the food processing sector to support the sectors growth and sustainability. Policies should benefit the sector rather than inhibit it. Awareness and training programmes can play an important role in the development of food enterprises.



## 8

# KEY RESULTS AND RECOMMENDATIONS

## 8.1 RESULTS

### a. Awareness

- Lack of knowledge regarding food laws and regulations. The consumers were also unaware of the need for quality food products.
- Lack of awareness regarding the benefits and needs of calibration and hygiene and sanitation.
- Conduct awareness programs in coordination with government agencies regarding mandatory food laws, regulations and standards, calibration and GMP for the enterprises as well as awareness campaigns for the consumers. Currently the consumers are focused on the price of the product rather than quality of the product. Consumers should be made aware of the need of quality food products so that the enterprises too shall focus on the production of quality food products without cutting corners.

### b. Quality Infrastructure/Resources

- Insufficient technology and human resources within government agencies for laboratory tests, monitoring and calibration.
- Lack of testing facilities, processing equipment, qualified personnel and system certification in surveyed enterprises.
- Lack of accredited laboratories.
- Strengthen capacity of government agencies; upgrade technology, human resource development and update of standards.
- Provide services for testing at micro-level, capacity building programs for human resources and services related to QI at a subsidized rate.
- Prioritize policies to encourage accreditation of laboratories.

### c. Capacity Development for QI Service Providers and SMEs

- Lack of qualified human resources regarding training programs in the area of food safety, quality, product development and innovation.
- Insufficient academic and training institutions related to food safety, quality, product development and calibration in the surveyed districts.
- Organize general and specific training programs in coordination with government agencies and DCCI.
- Provision for coordination with private sectors to provide subsidized services for QMS, laboratory testing and consultancy.

- Identify demand for technical institutions and recommend to related educational authorities, e.g., Science and technology as well as related colleges, CTEVT and other technical institutions as well as food related training institutions.

#### **d. Policies**

- Lack of financial support from government agencies with regards to grants and access to finances for small enterprises regarding processing and laboratory equipment and quality certification.
- Difficulty in accessing loans with subsidized interest rates from banks is not in practice.
- Lack of proper coordination among FTQCO, SMO and local government in the sector of food safety and quality. There seems to be a gap regarding coordination of regulatory services being provided by the individual agencies such as training programmes, capacity development workshops and other similar programmes.
- Subsidized programs should be considered for updating quality management practices in enterprises and coordination between financial organizations and related agencies for financing agribusiness.
- Initiatives should be taken to ensure cooperation between various relevant government agencies.
- Authorization of competent laboratories by the government. Existing or new laboratories could be authorized and the test results obtained could be validated and accepted by the FTQCO as the services provided by the FTQCO is currently limited.

#### **e. Food Law Compliance/ Regulations**

- Registration of food business operators at local level has not started yet.
- The registration process was found to be complex and time consuming.
- Lack of updated standards for all food commodities.
- Lack of guidelines regarding COPs, SOPs, SSOPS and directives for all food processing sectors.
- The Food Act is said to be reactive rather than proactive, focusing on end product testing and consequent punishment.
- Coordination among stakeholders and awareness regarding registration of food business operators.
- Regulatory mechanisms should be routine and diligent. Regulatory services provided by the government agencies should be conducted routinely and diligently such as market monitoring, control of substandard and fake products as well as unregistered/inadequate enterprises.
- Update standards and formulate guidelines for all food commodities in coordination with related government agencies and stakeholders. Guidelines regarding the processing and testing for all commodities could be formulated (which could be supported by PTB in collaboration with DFTQC), e.g., the current directives/technical guidelines drinking water processing industries and milk and milk products industries.
- Monitoring should focus on counseling and related supportive activities rather than with a punitive mindset. Supportive activities could include counseling services, guidelines for processing and tests, interactive workshops etc. by the FTQCO.

## **8.2 SUGGESTED ACTION AREAS AND ACTION POINTS BY STAKEHOLDER GROUP**

Suggested action areas can be clustered into 5 themes: Awareness, quality infrastructure/resources, capacity development, policies, and food law compliance/regulations.

### Awareness

Key Issues	DFTQC	NBSM	Local Government	DCCI	PTB
<p>Lack of knowledge regarding food laws and regulations</p> <p>Lack of awareness on guidelines, directives and provisions set by government</p> <p>The consumers were also unaware of the need for quality food products</p> <p>Lack of awareness on QMS</p>	<p>Launch additional awareness programmes for consumers and producers</p> <p>Coordinate with other government organizations and agencies for awareness programs.</p>	<p>Conduct awareness programmes for calibration of equipment</p>	<p>Support and coordinate for proposed programmes</p>	<p>Coordinate with related agencies for awareness programmes</p>	<p>Provide technical assistance to design and launch public awareness in collaboration with DFTQC, Local government, DCCI and other related stakeholders.</p>

### Quality infrastructure / resources

Key Issues	DFTQC	NBSM	Local Government	DCCI	PTB
<p>Lack of technology and human resources within government agencies regarding: Metrology Standardization Testing QMS Certification Accreditation</p>	<p>Provision for additional facilities for testing</p> <p>Human resource development</p> <p>Update and formulate new food standards</p> <p>Encourage entrepreneurs to adopt certification</p> <p>Accreditation of laboratory</p>	<p>Calibration services for instruments other than weighing machines</p> <p>Human Resource development on QI related services</p>	<p>Human resource development in the area of food safety and calibration</p> <p>Food testing laboratory facilities</p> <p>Encourage entrepreneurs applying for QI services</p>	<p>Coordinate with private and public agencies for infrastructure and resource development</p>	<p>Provide assistance on QI services of government agencies Coordinate with certifying bodies</p> <p>Assistance for accreditation.</p>

**Capacity Development**

Key Issues	DFTQC	NBSM	Local Gov- ernment	DCCI	PTB
<p>Lack of training programmes regarding food safety, quality, product development and innovation</p> <p>Lack of subsidized facilities for QMS, laboratory and consultancy</p> <p>Insufficient academic and training institutions for food safety, quality, product development and calibration</p>	<p>Linkage with private sector for subsidized facilities for QMS, tests and consultancy</p> <p>Development of TOT, MTOT</p> <p>Organize training programmes regarding QI to ensure legitimate compliance with food safety</p>	<p>Human Resource development</p> <p>Organize training programmes regarding calibration, certification and testing</p>	<p>Support/promote training programmes.</p> <p>Develop resource personnel to support capacity development activities</p>	<p>Coordinate with government and related agencies for proposed programmes related to capacity development.</p>	<p>Provide technical assistance to DFTQC, NBSM and Local bodies for CD training programmes related to food safety, product development, innovation and laboratory tests</p> <p>Support and supplement NBSM for infrastructure of scientific methodologies regarding calibration</p> <p>Help create a database of experts in each related field.</p> <p>Identify demand for technical institutions and recommend to related educational authorities</p>

## Policies

Key Issues	DFTQC	NBSM	Local Government	DCCI	PTB
<p>Lack of financial support from government agencies</p> <p>Subsidized interest rates for agribusiness from banks is not in practice</p> <p>Lack of coordination with RFTQCO, NBSM and Local Government</p> <p>Lack of authorized laboratories</p>	<p>Coordinate with Ministry of Agriculture and Livestock Development for budget allocation</p> <p>Authorization of competent testing laboratories at national and provincial level</p>	<p>Coordinate with Ministry of Industry Commerce and Supplies for policy update and formulation</p>	<p>Ensure enforcement of food safety norms to drive demand for QI services.</p> <p>Provide budget for implementing QI, investments and upgrades.</p> <p>Coordinate interaction between relevant stakeholders</p>	<p>Coordination with financial agencies for subsidized agricultural loan</p> <p>Participate in policy formulation, policy advocacy</p>	<p>Provide technical assistance for policy review and analysis.</p> <p>Support organization of policy related stakeholder meetings.</p> <p>Coordination between financial organizations and related agencies for financing agribusiness</p>

## Food law compliance / regulations

Key Issues	DFTQC	NBSM	Local Government	DCCI	PTB
<p>Registration of food business operators at the local level has not started yet</p> <p>The registration process was complex and time consuming</p> <p>Lack of guidelines and updated standards for all food commodities</p> <p>Focus on end product testing and not the overall process</p>	<p>Increase efficiency in the licensing and renewal process</p> <p>Update standards and formulate guidelines for all food commodities</p> <p>Monitoring should focus on counseling and supportive activities</p> <p>Focus on proactive approaches</p>	<p>Set up NS mark standards for all major food commodities</p>	<p>Prioritize market monitoring activities</p> <p>Initiate food business operators registration process along with other stakeholders.</p>	<p>Coordinate and prioritize registration with other stakeholders</p> <p>Coordinate and promote food industry licensing and registration</p>	<p>Support on preparation of standards, guidelines, code of Practices (COPs) for food industries.</p>



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# ANNEX



## ANNEX 1. TOR

### Support to Nepal in the field of quality infrastructure

*Survey on needs for quality infrastructure services among food processing companies in Western Nepal*

#### DRAFT TOR

##### Background

Services related to standardization, measurements, testing, inspection and certification – in short: quality infrastructure (QI) – are vital for economic and social development. In Nepal, these services are largely concentrated on the capital Kathmandu, while on the provincial and local level, service providers are often lacking. This situation has negative consequences for business, regulatory authorities and consumers alike, as it limits their capacity to ensure, monitor and avail products of high quality.

Within the framework of German Development Cooperation (GDC) in Nepal, PTB has been facilitating capacity development in quality infrastructure since 2007. Project activities focused on strengthening national reference laboratories in measurement and testing, representing the backbone of the national QI. Main project partners are Nepal Bureau of Standards and Metrology (NBSM) and Central Food Laboratory of Department of Food Technology and Quality Control (DFTQC).

In view of the preparation of a new GDC sector program on sustainable economic development as well as the overall decentralization process in Nepal, PTB has been tasked to explore to what extent quality-related extension services could be supported or established on provincial and/or local level. Given the regional focus of GDC, special attention will be paid to the Western provinces with the Regional Food Technology and Quality Control Office (RFTQCO) Laboratory in Nepalgunj being one of the main project partners.

To ensure the sustainability and user-orientation of the planned capacity development of RFTQC and other potential QI service providers, a survey on QI needs, particularly with respect to testing and calibration services, is planned among food processing companies. The survey should be complemented by an abstract on the regulatory framework for the food sector, including major laws and (selected) mandatory standards, and the respective QI-related requirements arising from that framework.

##### Objectives of the survey

- To provide insights into the actual application of quality standards and quality assurance practices at factory level
- To identify actual or potential demand for external support services in terms of testing, calibration and quality management among food processing companies
- To serve as baseline study and orientation for future project support on micro and meso level.

**Target group and geographical focus**

- Food processing companies in the districts of Banke, Dang and possibly a third district (Surkhet?) with a minimum of 10 employees, i.e. small and medium-sized enterprises (SMEs), registered as licensed food industries customers of the RFTQC Nepalgunj and/or members of the District Chambers of Commerce and Industries
- A special focus shall be put on processing facilities of the dairy industry, including private enterprises and cooperatives, for which an additional consultant directly contracted by PTB shall be involved

**Sample size and implementation period**

- At least 50% of the overall number of targeted SMEs in the selected districts should be interviewed (absolute number to be defined after SME inventory has been set up)
- July – September 2018 (3 months)

**Survey method and sample size**

- Desk study: Review and finalisation of the draft inventory of existing SMEs in food processing industry that is currently prepared by PTB; selection of companies to be visited & interviewed (jointly with PTB)
- Data collection: Interviews with technical management of selected companies by groups of enumerators in accordance with semi-structure questionnaire
- Evaluation and reporting: Compilation of gathered data, formulation of major findings and conclusions, preparation of draft report (format to be agreed with PTB), concluding meeting with PTB

**Aspects to be covered in questionnaire (selection)**

- Basic company data: name, contact details, year of establishment, scope of products/services, no. of employees, market(s) covered
- Status of internal quality assurance/management: Degree of QMS implementation, type of implemented product standards, available testing/measuring instruments, type of performed in-house tests/calibrations, status of calibration, type of process control, actual challenges to maintain product/process quality ...
- External “QI relations”: Current use of external testing, calibration & consulting/training services, experiences with licensing process & transport of testing samples, number and type of demanded corrective actions, contacts with universities, technology centres and donor agencies, knowledge on relevant food regulations
- Outlook: Future plans regarding QMS/GMP certification, perceived quality demands from buyers/regulators, actual/potential company demand for QI services (testing, calibration services, interest in information on QM standards, ...)

**Tasks of the contractor**

- Preparation of survey design, including proposed time-frame and (draft) questionnaire
- Provision of an abstract on the regulatory framework for the food sector, including major laws and (selected) mandatory standards, and the respective QI-related requirements arising from that framework (2-3 pages)
- Review & finalisation of draft SME inventory in major segments of food industry (draft inventory to be provided by PTB)



- Selection and provision of trained enumerators (4-6 pax); profile: food technologist or graduated students with a background in engineering, food science, or similar
- Organisation of travel arrangements for enumerators to Nepalgunj, including flights, accommodation and per diem (to be agreed beforehand with PTB)
- Data collection and preparation of final report, including quality assurance through technical experts (Ms. Jiwan Prava Lama)

### Contributions by PTB

- Provision of draft SME inventory
- Support to finalise design of questionnaire
- Sensitisation of selected enumerators with respect to quality infrastructure, survey objectives, etc. (0,5 d)
- Participation in selected company visits (by Ms. Poonam Thapa)
- Logistical support to hire vehicle(s) for company visits
- Overall funding

### Expected deliverables

- Draft concept on survey method, including time frame and company questionnaire: by end of June
- Abstract on regulatory framework for food sector in Nepal: by mid-July
- Finalised SME inventory (in cooperation with PTB): by mid-July
- Final draft survey report: by mid of September

### Additional remarks

- Depending on the total number of SMEs to be interviewed, 2 or 3 groups of enumerators with 2 pax each should be employed.
- Interviews should start with a pilot-testing phase to allow for adjustment of questionnaire or interview techniques.
- For the companies of the dairy sector, an additional national consultant (to be selected by PTB) shall be involved in the survey
- Interviews should be regularly supervised by NABIC to ensure quality control
- Apart from a concluding meeting with PTB to present and discuss findings, an interim meeting should be arranged to facilitate monitoring and implementation progress
- The interview results should be scored in accordance with NABICs methodology to facilitate monitoring and evaluation

## ANNEX 2. SURVEY TEAM MEMBERS

Name	Designation
Ms. Jiwan Prava Lama	Senior Food Technology Advisor (NABIC)
Mr. Padam Baral	Food Technologist Field Researcher and Analyst (NABIC)
Mr. Jenish Mehar Shrestha	Food Technologist Field Researcher and Analyst (NABIC)
Mr. Kanchan Sitaula	Food Technologist Field Researcher and Analyst (NABIC)
Mr. Bhuwan Katuwal	Food Technologist Field Researcher and Analyst (NABIC)
Mr. Bhushan Shah	CEO, NABIC

## ANNEX 3. SURVEY QUESTIONNAIRE

Survey on Needs for Quality Infrastructure services among Food Processing Companies In Western Nepal.

### Section A. General Information

99. Please specify Industry Type: \_\_\_\_\_ (List down 15 industry types for the interviewer to select)

100. Name of the company: \_\_\_\_\_

101. Establishment year: \_\_\_\_\_

102. Company address: \_\_\_\_\_

102.1. Contact Details (Ph. No/Email): \_\_\_\_\_

102.2. Name of Interviewee: \_\_\_\_\_

103. Designation: \_\_\_\_\_

104. Where is the enterprise registered? (Multiple Response Allowed)

- DFTQC
- RFTQC
- DCCI
- Local Bodies
- NBSM
- Department of Small and Cottage Industries
- Department of Industries
- Other (Specify...)

105. What is the License renewal status of this Company (Single Response only)

Renewed

Not Renewed

In Process

106. Please specify your Major Product and service (Open ended response):

107. Please specify the markets covered by your Company (Multiple Response Allowed)

- Local Market
- Domestic/National Market
- International Market

108. Please specify your Target Consumer group (Multiple Response Allowed):

- Local Consumers
- Domestic/National Consumers
- International Consumers

109. HR employed

109.1. Number of employees:

109.2 Administration and Management \_\_\_\_\_ Production and Labour \_\_\_\_\_

109.3. Gender: Male : \_\_\_\_\_ Female: \_\_\_\_\_

110. Departments within the company dedicated to QA \_\_\_\_\_

**Section B. Status of internal quality assurance/management:**

*200. Management role in maintaining quality of products/services*

200.1. Does the enterprise have a Quality Assurance System?

- Yes (Skip to 200.3)
- No
- In Process

200.2 If No, please specify why you do not have a Quality Assurance System. (Multiple Response Allowed)

- Small Business enterprise
- Small Volume of Production
- It is voluntary
- Unavailability of Qualified Personnel
- Other (Specify...)

200.3. Does the enterprise employ a quality manager/ personnel?

- Yes
- No (Skip to 200.7)

200.4. Does the management / Quality Manager (QM) perform internal quality audit?

- Yes
- No

200.5. Does the management/ QM take necessary actions for problem solving?

- Yes
- No (Skip to 200.7)

200.5.1 If yes, please give an example (AUDIO RECORD RESPONSE)

200.6. Does the management hold review meetings? (Single Response only)

- Yes
- No

200.7. If yes, how often? (Single Response only)

- Weekly (delete)
- Bi-monthly
- Monthly
- Quarterly
- Bi-annually
- Annually
- Other (Specify...)

200.8. Does the management conduct regular in-house training?

- Yes
- No (Skip to 201.1)

200.8.1 If yes, who are the trainees? (Multiple Response Allowed)

- Employees
- Management
- Other (Specify...)

200.8.2 How often are the trainings conducted?

- Monthly
- Quarterly
- Bi-annually
- Annually
- Other (Specify...)

200.8.3 What are the topics covered? (AUDIO RECORD RESPONSE)

*201. Number and Qualification/ background of the QA personnel:*

201.1 Please specify the number QA personnel: \_\_\_\_\_

201.2 What is the qualification of the QA personnel?

- Academic
- Non-Academic

201.2.1 If Academic, please specify the number

201.2.2 Specify the qualification (Specify Degree and Faculty)

201.2.3 If Non Academic, please specify the number

201.2.4 What are the qualifications, if any (Specify Degree and Faculty)

## *202. Provision of quality assurance or quality control*

202.1 Does the enterprise have a Quality Management System Certification?

- Yes
- No (Skip to 202.3)

202.2 If Yes, please specify (Multiple Response Allowed)

- HACCP
- ISO 9001
- ISO 22000
- Nepal Standard
- Other (Specify...)

202.3 Please specify the certification issuance body

202.3. Is there a provision for Quality control/assurance Procedures?

- Yes
- No (Skip to 202.4)

202.33. If yes, please specify? (Multiple Response Allowed)

- Raw material
- Process Control
- Finished Products

202.4. Is there a quality manual and supporting documented quality procedures?

- Yes
- No

202.5. Is there a documented system for inspections/monitoring?

- Yes
- No (202.6)

202.5.1 If yes, please specify (Multiple Response Allowed)

- Raw material
- Sanitation
- Machinery
- Finished Products
- Storage
- Process
- Packaging

202.6. Is there a system of traceability throughout the production cycle?

- Yes
- No (203.1)

202.6.1 If yes, please specify (Multiple Response Allowed)

- Raw material
- Processing
- Storage
- Market

### 203. *Process control*

203.1. Does the enterprise employ any process control system?

- Yes
- No (Skip to 203.4)

203.2. What are the process controls? (Multiple Response Allowed)

- Temp
- Time
- Weight
- Volume
- Pressure
- Others (Specify)

--

203.3 Please elaborate (Process, Equipment)

--

203.4 Does the enterprise employ any statistical process control? (Assume that very few industries employ this process)

- Yes
- No (Skip to 202.4)

203.5 If yes, please specify the tools for implementing the statistical process control system. (Multiple Response Allowed)

- Check Sheet
- Control Chart
- Fishbone (Cause and effect)
- Other (Specify....)

#### *204. Types of processing equipment (Major Equipment)*

204.1 What are the types of processing equipment? (Multiple Response Allowed)

- Manual
- Semi-automatic
- Automatic

204.2 What are they? (\*List Options from the “Processing and Machinery Section” for the relevant food products)

204.3 If more specify

#### *205. Type of implemented product standards*

205.1. What product standards does the enterprise follow? (Multiple Response Allowed)

- Internal
- National
- Third party
- International

205. 2. Please name the standards (\*List Options from the “Mandatory Standards Section” for the relevant food products)

205.3 If more please specify

### 206. Testing facilities related to products

206.1. Does the enterprise have testing facilities related to the products?

- Yes
- No (Skip to 206.4)

206.2. If Yes, what are the types of tests conducted? (\*List Options from the “Mandatory Standards Section” for the relevant food products)

206.3 If more please specify:

206.3 What laboratory equipment are used? (\*List Options from the “Basic Laboratory Instruments Section” for the relevant food products)

206.4 If more specify

206.5. From where do you receive your MAJOR reference materials/ chemicals/ equipment? (Multiple Response Allowed)

- Local Supplier
- International Supplier

206.55 If local supplier, please mention Names

- 1.
- 2.

206.56 If International supplier, please mention Names

- 1.
- 2.

### 207. Status of calibration/verification of processing and laboratory equipment.



207.1. Are the processing equipment periodically calibrated/ verified?

- Yes
- No (Skip to 208.1)

207.2 If yes, what were the equipment? (Open ended response):

207.3 Who does the calibration? (Multiple Response Allowed)

- Internal Skip to 207.5
- External

207.4 If external, where is the calibration done? (Open ended response):

207.5 Are the laboratory equipment periodically calibrated?

- Yes
- No

207.6 If yes, who does the calibration? (Multiple Response Allowed)

- Internal Skip to 207.8
- External

207.7 If external, where is the calibration done? (Open ended response):

207.8 Are preventive and corrective actions taken?

- Yes
- No

### *208. Major problems faced in maintaining product/process quality*

208.1. What were the major problems faced during maintaining product/ process quality related to?  
(Multiple Response Allowed)

- Non-conformance to standards
- Weight/Volume
- Temp
- Other (Specify...)

208.2. What methods were used to mitigate the problems? (Multiple Response Allowed)

- Internal
- External

208.3 Whom did you contact to solve the problems? (Open ended response):

*209. Participation in quality upgrades programs/trainings.*

209.1. Does the enterprise participate in quality upgrade programs/trainings?

- Yes
- No (Skip to 300)

209.2 If Yes, what were the focus areas/topics of those trainings?

209.22 Who were the main training providers?

- Self/Management
- Govt. Organization
- Non-Govt. Organization
- Private Organization
- Other (Specify...)

### **Section C: External “QI relations”**

300. Do you have any knowledge on existing mandatory food regulations (food act/food regulation)?

- Yes
- No

301. What are the challenges faced by the enterprise regarding the mandatory food regulations (food act/food regulation)?

- Food Industry License
- Packaging
- Labelling information
- Food standards
- Laboratory testing
- None
- Others

If others specify,

302. How often does RFTQCO visit the enterprise?

- Monthly
- Quarterly
- Bi-Annually
- Annually
- Other (Specify...)

302.1 What are the reasons as to why the RFTQCO visits your enterprise? (Open ended response):

302.2 What are the types of services received from RFTQC? (Multiple Response Allowed)

- Regulatory services
- Sample testing
- New Product Development
- Counselling
- Other (Specify...)

303. What do you think the role of DFTQC/FTQCO should be in quality management to promote quality of products and production? (Multiple Response Allowed)

- Licensing
- Training
- Monitoring
- Testing
- Awareness
- Other (Specify...)

304. Have you participated in any external product/ laboratory testing practices?

- Yes
- No (Skip to 303.2)

304.1 If yes, name the tests (Open ended response):

304.2 Does the enterprise employ external services for the following? (Multiple Response Allowed)

- Calibration /Verification
- Proficiency testing
- Product Testing

304.2a For Calibration, Verification, please specify name of provider (Open ended response):

304.2b For Calibration, Verification, please specify the types of services received (Open ended response):

304.2c How often is the services for Calibration/Verification services received?

304.2d For Calibration, Verification, please specify your satisfaction with service delivery (Single Response only)

- Very Satisfied
- Satisfied
- Neither Satisfied nor dissatisfied
- Dissatisfied
- Very Dissatisfied

304.4a For Proficiency testing, please specify name of provider (Open ended response):

304.4b For Proficiency testing, please specify the types of services received (Open ended response):

304.4c For Proficiency testing, please specify the frequency of services received.

304.4d For Proficiency testing, please specify your satisfaction with service delivery (Single Response only)

- Very Satisfied
- Satisfied
- Neither Satisfied nor dissatisfied
- Dissatisfied
- Very Dissatisfied

304.5a For Product testing, please specify name of provider (Open ended response):

304.5b For Product testing, please specify the types of services received (Open ended response):

304.5c For Product testing, please specify the frequency of services received.

304.5d For Product testing, please specify your satisfaction with service delivery (Single Response only)

- Very Satisfied
- Satisfied
- Neither Satisfied nor dissatisfied
- Dissatisfied
- Very Dissatisfied

304.6 What are the types of sample (product) sent for external testing: (Multiple Response Allowed)

- Pre-packing
- Packaged (whole product)

304.7 Mode of transportation of sample: (Multiple Response)

- By air
- By Road (specify vehicle) please remove specify vehicle
- Both

305. Have you participated in any calibration training?

- Yes
- No (Skip to 306)

305.1 If yes, specify the Number of trainings received (with frequency): \_\_\_\_\_

305.2 If yes, specify the training provider.

305.3 Have you implemented any of the corrective actions? (Quality/testing/ weight and measures)

- Yes
- No (skip to 306)

305.4 If yes, describe the recent corrective actions implemented. (AUDIO RECORD RESPONSE)

306. Do you maintain any relationships with other organisations for improving quality?

- Yes
- No (Skip to 400)

306.1 If yes please specify the type of institutions (Multiple Responses Allowed)

- Academic Institutions
- Government Organization
- Non- Government Organization
- Private Organization
- Other (Specify...)

306.2 Please specify the name of the institution (Open ended response):

306.3 Please specify the activities undertaken by the institution for improving quality (Open ended response):

## Section D: Outlook

400. Does the enterprise conduct research and development of products?

- Yes
- No (Skip to 401)

400.1 If yes, kindly elaborate on the process

401. Does the enterprise have future plans regarding Quality Management?

- Yes
- No (Skip to 401.2)

401.1 If Yes, kindly specify the standards (Multiple Responses Allowed)

- HACCP
- ISO 9001
- ISO22000
- Nepal Standard
- Other (Specify...)

401.2 Are there plans to upgrade existing certification system?

- Yes
- No (Skip to 401.4)

401.3 If yes, what are they?

401.4 What are the perceived quality demands from buyers/ regulators? (Open ended response):

402. Is there a feedback/complaints collection system?

- Yes
- No (Skip to 402.5)

402.1 Under whom does the system function?

- Customer service executive
- Quality Manager
- Quality Officer
- Other (Specify.....)

402.3 Is there an effective implementation/action upon the collected feedback/complaints?

- Yes
- No

402.4 What will be the impact of feedback/complaints collection upon the quality? (Open ended response):

402.5 If no, is there any future plan for the establishment of the system?

- Yes
- No

403. Have you experienced any issues with competitors regarding quality of products and services?

- Yes
- No (Skip to 404)

403.1 If yes, what were the issues? (Open ended response):

403.2. If yes, how were the issues addressed? (Open ended response):

#### *404. Demand for QI Services*

404.1 What are the actual/potential company demands for QI services? (Multiple Responses Allowed)

- Testing
- Calibration
- Information
- Training
- Awareness
- Counselling

404.2 What are your expectations towards DFTQC/FTQCO and NBSM in this regard?

405. Does the enterprise put emphasis on advertisement/marketing for their products?

- Yes
- No

405.1 If Yes, what are they? (Multiple Responses Allowed)

- Quality
- Content
- Pricing
- Packaging
- Weight
- Other (Specify.....)





