Japan International Cooperation Agency (JICA)

Data Collection Survey on Food Hygiene and Food Safety in Bangladesh

Final Report

September 2019

IC Net Limited

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SUMMARY

1. Background and objective of the Survey

1. In Bangladesh, interest regarding food safety has increased in recent years along with an increase in the urban population and the expansion of the middle class. Because 140 processed food products from Bangladesh are exported to 144 countries worldwide, food hygiene and safety in Bangladesh is attracting overseas attention. The government of Bangladesh passed the Food Safety Act in 2013 and established Bangladesh Food Safety Authority in 2015. BFSA, a supervisory authority in the field of food safety, leads discussions regarding legal system design and operation. BFSA coordinates the efforts implemented by government entities, such as the Directorate General of Health Service, Department of Agricultural Extension, Bangladesh Standard and Testing Institute, and establishes the implementation system for food safety administration.

2. In Bangladesh, on-site inspection, monitoring guidance, testing, food hygiene dissemination, and raising awareness about food processing companies, restaurants, retailers, and systematized inspection systems for imported food products are not fully implemented. Since the establishment of the BFSA, it has been supported by the FAO-USAID project; however, BFSA has not yet fulfilled its expected role because of the continued shortage of personnel.

3. JICA is shifting its cooperation policy for Bangladesh from increased production of agricultural products to support for high value-added products and commercialization. JICA is involved in food hygiene and safety for the production of high-quality processed food products. JICA is considering providing technical assistance for BFSA. Moreover, JICA is considering providing technical assistance for food sanitation and safety for food processing companies.

4. This survey will collect information regarding the current state of food hygiene and safety in Bangladesh. The study team focuses on both the role played by administrative agencies in the establishment of related laws, regulations, systems, and inspection systems and the role played by companies in improving the production process of food processing companies and complying with applicable guidelines. Based on the survey results, JICA will propose cooperation schemes for both BFSA and the food processing industry.

5. The survey team set the following four policies for the survey: (1) For BFSA, confirm the strategic plan up to 2021 and the achievement points on its roadmap; (2) Analyze food safety administration through the concept of "risk analysis"; (3) Carefully consider priorities while investing limited BFSA personnel and funds into a project; and (4) For corporate support, focus on the training business.

2. Food Safety Administration in Bangladesh

2.1 Food Safety Administration

6. There are 24 ministries and departments involved in food safety administration, and the division of jurisdiction varies based on the food value chain. The production stage involves the DAE, DLS and DoF, whereas the domestic distribution and market stage involves entities, such as DGHS, the Regional Autonomy General Administration, NCRPD, and BSTI.

7. DAE, DoF, and DLS located in Districts and Sub-districts are responsible for safety at the production stage. At the domestic market stage, DGHS placed the Sanitary Inspector at the District/Sub-district level, thus playing a central role. However, after the Food Safety Act was formed in 2013, all Sanitary Inspectors are also designated as Food Safety Inspectors by BFSA. FSIs are also located in City Corporation and *Porshova*.

8. Currently, the food safety administration in Bangladesh does not explicitly show the perspective of risk analysis. However, if the current state of food safety operations is considered from the perspective of risk analysis, BSTI and BCSIR will evaluate the risk and set hazard standards. Risk management is considered to be carried out by the relevant ministries, such as DAE and DoF.

2.2 Administrative institutions for food safety

9. To make up for the shortage of human resources during the establishment of BFSA, on March 2014, a project funded by USAID through technical cooperation with FAO was started. The project has been responsible for creating guidelines, manuals, Food Safety Act bylaws, and offering training for FSIs. The project will end in December 2019.

10. The BFSA Strategic Plan (2017–2021) shows the direction of BFSA's progress, based on the Food Safety Act. Among the steps listed in this strategic plan, the establishment of detailed regulations for the Food Safety Act and the appointment of the FSI are proceeding smoothly; however, slow progress has been noted on the MoU with related ministries/departments/institutes.

11. The BFSA executives comprise the Chairman, Secretary, and four Members. Following these executives, 5 departments are planned to have jurisdiction: (1) Monitoring and Appeal Department, (2) Inspection Organization Coordination Department, (3) Quality Standards Adjustment Department, (4) Consumer Response Risk Management Department, and (5) General Affairs and Accounting Human Resources Department. However, they have not been staffed thus far and therefore, are not currently functioning. BSFA is in the process of hiring staff; 103 recent university graduates and 241 supporting staff will be hired. Some of the hired staff will serve as headquarters personnel and 72 staff will be stationed as Food Safety Officers in 8 regions and 64 districts.

12. MOHFW plays the role of maintaining the safety of food in the market, such as the manufacturing process of processed food, restaurants, and retail stores, in the food manufacturing and distribution channels. In DGHS the National Food Safety Laboratory at the Public Health Institute is in charge of food safety testing; however, samples collected during on-site inspections are rarely tested.

13. The primary role of DAE is production technique guidance. However, there is no dedicated department dealing with food safety. The Field Service Wing manages the overall food safety, whereas the Plant Protection and Horticultural Wings teach the proper use of pesticides. The FAO project created a document related to "Bangladesh GAP." DAE wants Pesticide Inspectors and Fertilizer Monitors to work as GAP Auditors after receiving GAP training; however, the budget has not been secured.

14. DoF has four staff members in the Sub-district office. The activities conducted through DoF include aquaculture process control (GAP). The DoF has stationed three Inspection and Quality Control Officers at Dhaka, Chittagong, and Khulna. There are also test laboratories that can detect microorganisms, chemicals, and heavy metals. In recent years, the number of violating samples has gradually decreased. Through the 2010–2014 BEST project conducted using technical assistance from UNIDO, the development of inspection equipment and human resource progressed.

15. The DLS is raising the productivity of livestock and ensuring the safety of livestock farmers by enforcing legal compliance, providing guidance, supervision, and controlling livestock diseases. Eleven people are assigned to the sub-district; however, due to the lack of manpower, efforts, such as Good Animal Husbandry Practice are not progressing. The joint project between the FAO and the government of Netherlands implemented a food safety program for broiler producers in 25 pilot sub-districts; however, it has not been developed on a nation-wide scale.

16. BSTI is an organization under the Ministry of Industries. BSTI is responsible for the standardization, inspection,

and approval of industrial products, chemical products, electrical appliances, processed agricultural products, and processed food products that are manufactured, distributed, and consumed in Bangladesh. There are 194 product categories that are required of BSTI's approval, among which 72 categories are related to processed food products. BSTI conducts on-site inspections during product approval; they also conduct on-site inspections for approved products at the factory, manufacturing, and sales outlets. BSTI has laboratories in Dhaka, Chittagong, Rajshahi, and Khulna and conducts standard testing.

17. NCRPD is under the control of MoC and aims to protect consumers' right to enjoy products and services of reasonable quality and price. There are 233 staff members, among whom approximately 84 people are in charge of or concurrently serving in the food sector. Although there are District Consumer Right Protection Officers in each district, not all of them are responsible for food safety.

2.3 Food safety administration at the local level

18. For local food safety administration, the District FSI works under the District Health Officer (Civil Surgeon). In a sub-district, the FSI works under the Sub-district Health Officer. The method used for on-site inspection varied based on the person in charge. Tests are conducted only in some areas around Dhaka.

19. Regarding agricultural and livestock products, extension officers in DAE and DLS provide guidance on the proper use of agricultural chemicals to farmers and examine the antibiotics contained in the feed. The efforts provided by GAP and GAHP are limited to a small part. For fisheries, extension staff in the DoF provide guidance based on GAP to aquaculture farmers and conduct on-site inspections.

20. FSI not only provides consultation to the food processors and restaurants but also acts as a public prosecutor at the mobile court. If adulterated food is found at these facilities, the business license is revoked. For administrative measures, the penalties are determined by judges. Because the fines set by the Food Safety Act are too high for ordinary people, judges may apply other laws.

2.4 Issues in food safety administration

21. The Food Safety Act 2013 contains confusing expressions, such as the use of the terms “adulterated food” and “sub-standard food.” Eleven bylaws have been enacted thus far; however, they have yet to be enforced. In addition, there are insufficient implementation policies, plans, and practical guidelines that embody the bylaws.

22. The BFSA is unclear about whether it is a coordinating or execution agency. To strengthen functions as an executing agency, coordination with other related organizations is required. The BFSA emphasizes crackdown on adulterated food and its focus on teaching through the scientific perspective is still weak. BFSA has yet to develop a training plan for the recently graduated staff members.

23. Since the discussions between BFSA and related organizations are insufficient, there is limited agreement regarding the division of roles and the implementation system. Regarding coordinating meetings that serve as forums for discussions with related organizations, there are many cases where participated officials did not have the right to make decisions.

24. The BSTI has developed standards primarily aimed at processed food products. The BFSA is also independently developing standards. As part of the standards development process, the BFSA established a technical working committee. This committee does not include BSTI staff and the two agencies do not share information.

25. On-site inspection issues include the shortage of on-site inspectors, i.e. FSI, insufficient ability among on-site inspectors, lack of standardization in on-site inspection and sample collection procedures, and lack of risk analysis perspective during the inspection. These problems occur because the budget allocated for on-site inspection and sample delivery to laboratories is insufficient and sample delivery to laboratories is a difficult physically.

26. Problems in the test laboratory include shortage of laboratories, limited skilled personnel in the laboratories, inadequate maintenance costs, and lack of coordination between laboratories. Moreover, the problems related to administrative measures include lack of guidance and monitoring for the FSI, lack of grace period in administrative guidance, and very limited concreteness in the instruction.

27. In addition to the lack of constant reporting by the FSI to host organizations, such as BFSA, the content of the report is limited to the number of punishments. Therefore, actual food safety situations and problems have not been reported. The FSI's efforts to ensure that restaurants, retail stores and food processors comply with the laws and bylaws are insufficient.

28. The FAO's efforts in the field of food safety are outstanding. In addition to technical cooperation projects since the establishment of BFSA, four related projects have been completed or implemented. In addition, the ADB has trained job seekers for food companies and the World Bank has started a large-scale project regarding food safety in the livestock sector.

3. Priority issues of BFSA and recommendations for a JICA project supporting BFSA

29. Based on the results of this survey and the priority discussions, the survey team concluded that the request sent by the government of Bangladesh to the government of Japan in 2018 was generally appropriate. The survey team proposes the JICA Technical Cooperation Project shown in the table in the next page.

30. The following points should be noted while implementing the project: (1) The project should show the presence of the project in Bangladesh by targeting approximately 10 districts, which constitutes 15% of the 64 districts throughout the country; (2) The project should enhance the capacity of the project implementation system primarily through local consultants; (3) Considering the speed of development thus far, JICA needs to establish a cooperation period of a minimum of 5 years; (4) Training to newly hired staff of BFSA should be carried out as soon as possible, and the BFSA’s ability should be shown early on both inside and outside Bangladesh.

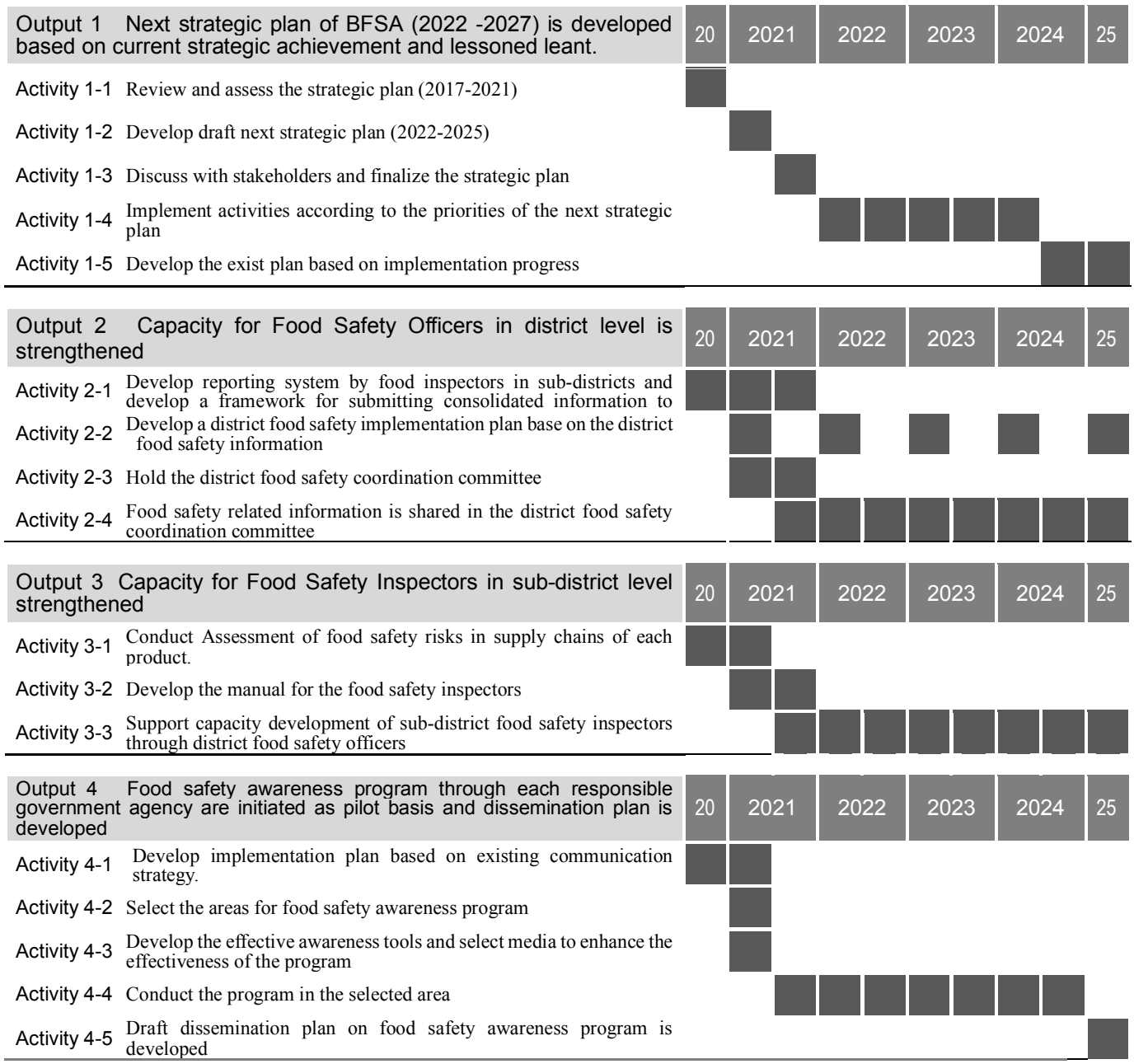
4. Assessment of food safety management by food processors

31. After visiting 14 major food processing factories in Bangladesh, the following facts were noted. Many factories that produce high-moisture drinks or jelly use continuous automatic machines, and as long as the machines are operating normally, the propagation of bacteria is inhibited. Bacterial growth leads to increased difficulty while heating baked confectionery and achieving high dryness in dry noodles.

32. However, even in large enterprise factories, the spatial density of the environment wherein machines are located is low. There were considerable observations regarding factories wherein doors and windows were opened, and workers entered and exited without changing footwear. Soil and vectors, such as insects and small animals, easily entered the manufacturing environment, thus leading to the potential risk of foreign matter entering during machine cleaning or continuous pre-processing, or bacteria adhering to the product surface after packaging.

Overall Goal National food control system to ensure safety of food supply is improved

Project Purpose Implementation capacity of BFSA is strengthened



33. The production areas of the fisheries-related factories were well-closed physically by closing doors and windows with air conditioner. Adequate investment was made in the manufacturing environment, such as disinfecting tanks installed at the entrances and drainage channels that can wash the floor. Thorough hand washing, the use of protective clothing, and freezer temperature control and recording were performed. These efforts were made to fulfill the requirements for exports to European countries.

34. Many factory quality control managers have bachelor's or master's degrees in chemistry, biology, food engineering, and other similar backgrounds, and specific scientific knowledge. However, a company with a similar quality control manager has a factory working in a manufacturing environment with low closure, as described above. In addition, many of the workers are illiterate and many quality control managers stated that it is not easy to raise the workers' hygiene awareness.

35. Investment decisions for improving sanitation depend on the top management. While the top management in some companies attempt to improve hygiene in response to new business developments, such as starting exports, some top management among companies that primarily produce food for the domestic market seemed reluctant to invest.

5. Recommendations on a JICA food safety training program for food processors

36. The following order of priority is determined for implementing the body of training: (1) BAPA or SMEF and (2) BSCIC. Both BAPA and SMEF have the function and track record of arranging training instructors and venues themselves. They can also employ human resources and set up a project secretariat outside the organizations.

37. Although general training through lectures can only be performed by local human resources, there are limits to their effectiveness. Moreover, high-level communication devices and deeper technical knowledge are required, and Japanese experts should adopt this role.

38. Top and middle management and workers are assumed to be the primary target of the training on food hygiene and safety. Because the top management is in a position to determine the investment toward factory facilities, training is required to compare the risks and costs, and the benefits obtained through investment. For middle management and workers, the training team should provide many case studies to help them understand how the principle may appear in the factory settings.

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Abbreviations

ADB	Asian Development Bank
BAB	Bangladesh Accreditation Board
BAPA	Bangladesh Agro-Processors Association
BAU	Bangladesh Agricultural University
BCSIR	Bangladesh Council of Scientific and Industrial Research
BDS	Bangladesh Standard
BDT	Bangladeshi Taka
BSCIC	Bangladesh Small and Cottage Industries Corporation
BFSA	Bangladesh Food Safety Authority
BSTI	Bangladesh Standards and Testing Institution
DAE	Department of Agricultural Extension
DAF	Department of Fisheries
DGHS	Directorate General of Health Service
DLS	Department of Livestock Service
DNCC	Dhaka North City Cooperation
DSCC	Dhaka South City Corporation
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FSI	Food Safety Inspector
FSO	Food Safety Officer
GAP	Good Agricultural Practice
HACCP	Hazard Analysis Critical Control Point
IEDCR	Institute of Epidemiology, Disease Control and Research
IFST	Institute of Food Sciences & Technology
ILO	International Labor Organization
IPH	Institute of Public Health
IPHN	Institute of Public Health and Nutrition
ISO	International Organization for Standardization
JICA	Japan International Cooperation Agency
LGD	Local Government Division
MoA	Ministry of Agriculture
MoF	Ministry of Food
MoH&FW	Ministry of Health and Family Welfare
MoI	Ministry of Industry
MoU	Memorandum of Understanding
NCRPD	National Consumer Right Protection Directorate
NFSL	National Food Safety Laboratory
SMEF	Small and Medium Enterprise Foundation
TOR	Terms of Reference
USAID	United States Agency for International Development
WFP	World Food Programme
WHO	World Health Organization

1. Background and Objectives of the Survey

1.1 Current situation on food safety

In Bangladesh, arable land has been decreasing because of the spread of urbanization. To improve farmers' income and meet the growing demand for food, the country needs to increase agricultural productivity, diversify crops, and produce high value-added agricultural products.

In addition, as the middle class has come to account for one-third of the country's total population and the number of urban residents has increased, the people of Bangladesh have started paying attention to food safety. To meet the people's demand for safe food, the Government of Bangladesh has started regulating the use of harmful pesticides. The people request food products with quality control at the stages of production, processing, and distribution. The sales of products that meet such standard have increased. In addition, Bangladesh exports 140 processed food products to 144 countries. The country's food export value is expected to increase, and the world pays closer attention to the hygiene and safety of Bangladesh's processed foods.

Figure 1.1 Administrative Geography of Bangladesh

Source: IC Net

1.2 Establishment of the Bangladesh Food Safety Authority (BFSA) and the needs of food processing companies

In the National Agriculture Policy 2012, the Government of Bangladesh emphasized ensuring the safety of agricultural products. In 2015, it established the Bangladesh Food Safety Authority (BFSA). Subsequently, the National Agriculture Policy 2018 cited food safety as one of its highest priorities.

BFSA has the mandate to ensure the safety of agricultural products, foods, and imported food products distributed in the Bangladesh market, as well as to lead discussions on designing and operating a legal system for food safety. In addition, BFSA is responsible for coordinating the independent inspection systems of the following ministries: Ministry of Health and Family Welfare; Ministry of Agriculture; and Ministry of Industries. BFSA is expected to play a role in eventually establishing a common inspection system.

Since its establishment, BFSA has issued food safety regulations and standards on vegetables, fruits, livestock, and fish. It has also appointed food inspectors and provided training to them. Furthermore, BFSA signed a Memorandum of Understanding with food control agencies and accreditation bodies. In addition, according to a JICA survey, among 502 companies that belong to the Bangladesh Agro-Processors Association (BAPA), almost all of the 267 companies that responded to the survey cited the need for technical cooperation on food safety. Thus, awareness and momentum for food safety are increasing in both the public and private sectors.

1.3 Issues of food safety administration

BFSA has just started reviewing the existing food hygiene and safety regulations and systems formulated by relevant ministries and agencies. In addition, a systematic inspection system has not worked well in the entry, surveillance, and inspection of imported food, as well as promotion of food hygiene awareness for food processing companies, restaurants, and retailers. Therefore, it is urgent to formulate a proper inspection system.

The Bangladesh Standards and Testing Institution (BSTI) is the best-known accreditation body in Bangladesh to certify the safety and quality of both domestically produced food and imported food. However, BSTI does not cover all the necessary measurement items for securing food hygiene and safety. In addition, some processed products are distributed to the market without being inspected or certified by BSTI.

A few private companies provide certification services on international standards such as Hazard Analysis and Critical Control Points (HACCP) and Good Agricultural Practices (GAP). It is necessary to investigate the status of various certification systems and set clear and mandatory accreditation standards in Bangladesh.

1.4 Previous cooperation by Japan

Japan has helped Bangladesh maintain an appropriate food self-sufficiency rate, mainly through grains, even in years of poor harvest caused by natural disasters. The Small Scale Water Resources Development Project (2007–2016) and the Small Scale Water Resources Development Project Phase 2 (2017–2024), both of which are Official Development Assistance (ODA) loans, have helped Bangladesh invest in agricultural infrastructures such as irrigation systems and rural roads to improve agricultural productivity. The Small and Marginal Sized Farmers Agricultural Productivity Improvement and Diversification Financing Project (2014–2021), another ODA loan, has provided a microfinance scheme for small scale farmers to improve their access to credit, increase productivity, and diversify crops. Meanwhile, in light of Bangladesh's self-sufficiency in rice, economic growth, and prospects for development, the JICA cooperation policy has shifted to support for high value added and commercialized agricultural products. The JICA development study for high quality industrial growth and economic development (2017) projected that food processing will be one of the growing industries with an impact on Bangladesh's economy, employment, and exports. Based on the study, in July 2018, the Prime Minister's Office hosted a meeting on how will food processing industry grow. Then, JICA started to consider providing Bangladesh with technical assistance on hygiene and safety for high-quality processed food products.

1.5 Objectives of the Survey

The survey aims to help strengthen the roles of 1) the public sector in setting up rules and regulations, making institutional arrangements for implementing them, and establishing an inspection and testing system and 2) the private sector in improving food hygiene management in factories and complying with the rules and regulations. Based on information that it will collect, the survey team proposes JICA projects to apply the relevant knowledge, experience, and resources of JICA and Japan as a whole for BFSA and food processing companies in Bangladesh. Among the survey's prospective results, information on the public sector will be used for formulating a project for BFSA and information related to the private sector will be applied to prepare a project for improving food hygiene for food processing companies.

1.6 Technical Approach for the survey

1.6.1 Strategic Plan and its Roadmap

To collect overall data on governmental activities on food hygiene and safety, the survey team will check the achievement of BFSA regarding its Strategic Plan and the Roadmap until 2021. The team will confirm the progress on these goals, then following the steps below, the team will discuss issues, and propose appropriate support measures to be funded by JICA.

- Clarify the achievement of BFSA since its establishment in 2015.
- Discuss with BFSA relevant issues and its priorities in addressing them.
- Propose projects with objectives, activities, input of resources, and the period of time during which JICA should help address priority issues in consideration of what other donors and BFSA itself have been doing. The projects proposed by the team must be feasible and sustainable under economic trends facing Bangladesh and the efforts on food safety in Bangladesh and its neighboring countries.
- Examine the capacity of BFSA with regard to human resources, technical skills, granted power and authority, budget and implementation mechanism, and clarify the capacity that it needs to acquire by the time of starting the proposed projects above to be funded by JICA.

1.6.2 Risk analysis

To discuss how to arrange governmental activities by multiple institutions, emphasis should be placed on the concept of risk analysis. The risk analysis approach aims to prevent and minimize risks of harmful microorganisms and chemicals in food rather than responding to hazards when they come out. Food and Agriculture Organization of the United Nations (FAO) and World Health Organization (WHO) initiated the concept of risk analysis and it became prevalent in food hygiene and safety activities around the world. The survey team will identify insufficient functions and resources of governmental institutions on food hygiene and food safety through the viewpoint of risk analysis.

1.6.3 Priority issues

Because many issues must be addressed in strengthening BFSA while available resources are limited, it is critical to choose priority issues carefully. The survey team will clarify selection criteria and their reasons such as actual demands in Bangladesh and short- and long-term feasibility.

1.6.4 Training for food processors

In addition to the technical cooperation for BFSA, this survey examines the possibility of providing assistance for food processing companies, which will be part of the project scope for the ODA loan project. In accordance with the initial instructions, the survey team primarily proposes outlines for training. After the start of this study, another study team on the ODA loan project has started a detailed study; as of August 2019, this remains an ongoing study. Therefore, this report avoids providing details, such as training curriculum and schedules. This report instead focuses on revealing the actual situation of food processing companies and confirming the needs of companies for improving food safety. In addition, the survey team describes the points to be considered while designing the project and the potential for the training implementation modality.

According to JICA, the primary modality of supporting activities for food processors in

Bangladesh is training. The survey team will propose the training program.

1.7 Work Plan

As shown in Table 1.2 below, the survey is divided into three parts.

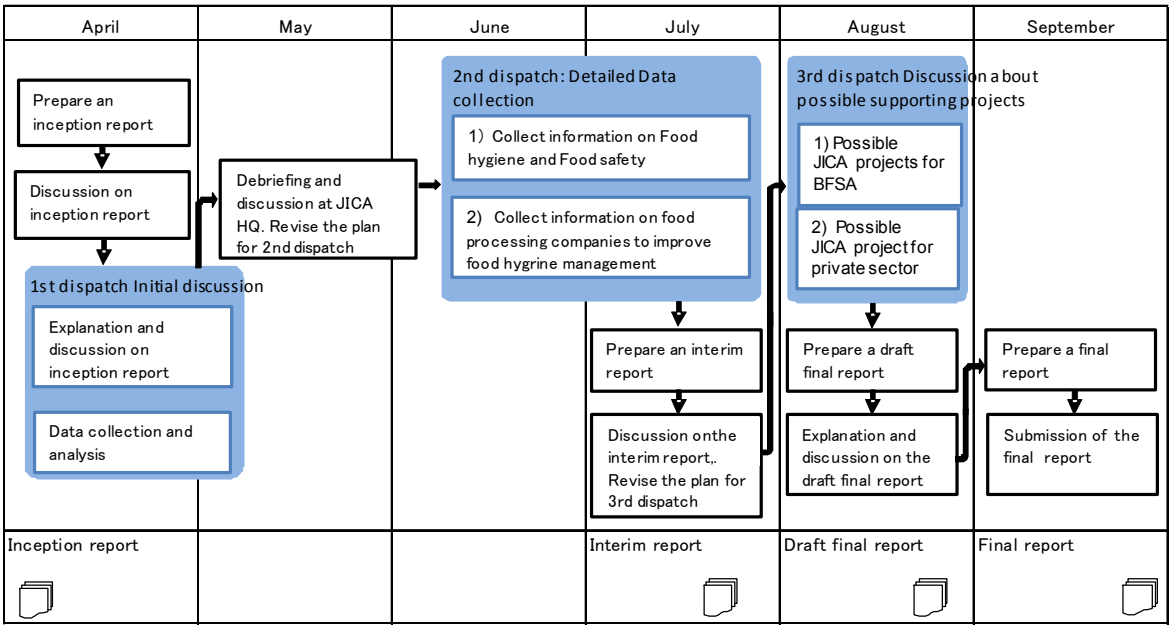

Figure 1.2 Work Plan of the Survey

1.8 Survey Team Members, the Periods of Their Dispatch to Bangladesh and their responsibilities

The tables below present the Survey Team members and the periods of their dispatch to Bangladesh.

Survey Team

Name	Affiliation	Role in Project	Dispatch
Mr. Atsushi KOYAMA	IC Net Ltd.	Team Leader/ Food Safety	April 19–May 5, 2019; June 8–July 12, 2019; Aug. 17–Sep. 2, 2019
Ms. Kanako TANIGAKI	Fujita Planning Co., Ltd	Food Hygiene 1	June 8–July 16, 2019; Aug. 17–30, 2019
Ms. Mana ISHIGAKI	IC Net Ltd.	Food Hygiene 2	April 19–May 6, 2019; June 8–July 19, 2019

National Consultant

Name	Role in Project
Mr. Ali Imam Majumder	Senior Advisor
Mr. Waseq Villah	Survey Assistant
Ms. Mim Rahman	Survey Assistant
Ms. Tanjina Farhana	Survey Assistant

Table 1.1 below indicates the responsibilities of the Japanese Experts.

Table 1.1 Responsibilities of the Survey Team Members

Survey item	Team Leader/ Food Safety	Food Hygiene 1	Food Hygiene 2
Survey Management	✔✔		
(1) Current Situation of Food Hygiene and Food Safety Administration			
A. Law and bylaws on food hygiene and food safety	✔✔		✔
B. Bangladesh Food Safety Authority	✔✔		✔
a. Inspection system	✔	✔✔	
b. Awareness raising and training	✔		✔✔
c. Testing		✔✔	
d. Application of testing results to law and bylaws		✔✔	✔
e. Awareness raising program			✔✔
C. Certification	✔✔		✔
D. Governmental institutions other than BFSA	✔✔		✔
E Major partners in food safety	✔	✔	✔✔
(2) Priority Issues of BFSA and Recommendations on a JICA Project	✔	✔✔	
(3) Assessment of Food Safety Management by Food Processors	✔✔	✔	
(4) Recommendations on a JICA Food Safety Training Program for Food Processors	✔✔	✔	

2. Assessment of Food Hygiene and Food Safety Administration in Bangladesh

2.1 Food Control Agencies

2.1.1 Food control agencies in the central government

2.1.1.1 National Policy

A. Bangladesh Vision 2021

The Hasina government formulated a comprehensive long-term plan called "Vision 2021" that aims to make Bangladesh a middle-income country by 2021, the year of the 50th anniversary of the country's independence. In the field of food safety, emphasis is being placed on expanding the exportation of processed agricultural products to reduce poverty. In addition, food safety has been cited in recent years as an issue that the government should solve immediately in its aim to develop a healthy nation-state.

B. Seventh Poverty Reduction Strategy (2016–2020)

Since 1973, Bangladesh has formulated five-year national growth plans as a national development strategy. The Seventh Five-Year Plan (2016–2020) is currently being implemented. In the area of food safety, the plan aims to promote processed agricultural products as well as nutrition security in the agricultural sector.

C. Election campaign Manifesto 2018

In the Hasina government's 2018 election manifesto, the government pledged to focus on supporting agricultural processing companies, food safety, and nutrition. As pledged, the government has prioritized supporting the Bangladesh Food Safety Authority (hereinafter referred to as the BFSA).

D. Food Policy 2006

The government focuses on food access and nutrition with the goal of achieving comprehensive food security. The government aims to ensure that even the poorest people have access to food by increasing incomes and agricultural development. The National Food Policy 2006 has three goals and food safety is categorized under the third pillar, "sufficient nutrition for all people, including women and children."

As Bangladesh is a member of the Codex Alimentarius Committee (International food safety committee) and of the World Trade Organization, it is responsible for meeting food safety standards. To provide safe, high quality food, risk assessment and risk prevention are necessary throughout the food chain, from production to consumption.

E. The Bangladesh Second Country Investment Plan 2016–2020

The Bangladesh Second Country Investment Plan is integral to the multisectoral approach needed to tackle hunger and malnutrition and achieve the Sustainable Development Goals. The plan is used as a tool to mobilize funds and align sectoral and cross-sectoral food and nutrition security-related programs. The overarching goal of the plan is to achieve improved food security and nutrition for all at all times by making food systems nutrition-sensitive and sustainable. Food safety is categorized under the fifth pillar, "strengthened environment and crosscutting programs to achieve food and nutrition security." Its objective is to "improve food safety, quality control and

Table 2.1 List of Food Control Agencies

1. Ministry of Food
2. Ministry of Agriculture
3. Ministry of Fisher and Livestock
4. Ministry of Science and Technology
5. Ministry of commerce
6. Ministry of Environment and Forest
7. Ministry of Industry
8. Ministry of Health and Family Welfare
9. State Ministry
10. Cabinet Division
11. Local Government Division
12. Directorate of Environment
13. Department of Agriculture Extension
14. Department of Fisheries
15. Department of Livestock service
16. Directorate of National Consumer Protection
17. Bangladesh Standards and Testing Institution
18. Bangladesh Accreditation Board
19. Department of Public Health Nutrition
20. Institute of Epidemiological Disease Control and Research
21. Directorate General of Health Services
22. Bangladesh Atomic Energy Commission
23. Bangladesh Atomic Energy Authority
24. Directorate General of Food

Source: Food Safety Act

assurance, and awareness on food safety and hygiene."

2.1.1.2 Responsibility of each food control agency

The food hygiene and food safety administration in Bangladesh reached a major turning point with the announcement of the Food Safety Act in 2013 and the establishment of the BFSA in 2015. The BFSA has taken over the responsibilities of the Ministry of Health and Family Welfare (hereinafter referred to as the Ministry of Health) and the Ministry of Agriculture, vertically coordinating functions among ministries and departments in the area of food safety. However, the BFSA is currently in the preparatory stage before being launched as a full-fledged organization.

Bangladesh has 24 ministries and departments related to food safety management (Table 2.1). The responsibilities of departments within ministries are not duplicated or overlapped, as the mandates of each department are developed in accordance with the same ministry.

The BFSA is developing several laws and regulations to coordinate food control agencies.

Table 2.2 shows the stage at which each food control agency is involved in the food chain.

Table 2.2 Involvement of Food Control Agencies in the Food Chain Stage

Ministries and Departments	Food chain				
	Production	Processing	Domestic distribution/ marketing	Export	Import
Department of Agriculture Extension (DAE)	✔✔			**	**
Department of Livestock service (DLS)	✔✔			**	**
Department of Fisheries (DoF)	✔✔	✔✔	**	✔✔	
Directorate General of Health Services (DGHS)		✔	✔✔		
Local Government Division (LGD)		✔	✔✔		
Bangladesh Standards and Testing Institution (BSTI)		✔✔	✔✔		✔
National Consumer Right Protection Directorate (NCRPD)		✔	✔		
Bangladesh Food Safety Authority (BFSA)	**	**	**	**	**
Custom Authority				✔	✔✔

*BFSA is under recruitment of officers.
✔✔ : implementing ✔:Partly implementing **: Responsible, but limited implementation

Source: Survey Team

Responsibility for the "production stage" is assumed by the Ministry of Agriculture and the Ministry of Fisheries and Livestock.
The "domestic trade/retail stage" includes licensing, surveillance, and inspection. Many ministries and departments are involved according to their own mandates specified in their own acts and regulations, such as the Director of Health Service, Local Government Division, National Consumer Right Protection Directorate, and Bangladesh Standards and Testing Institution (BSTI). BSTI plays the largest role in the "processing stage," including licensing and surveillance, although this stage also involves the Director of Health Service, Local Government Division, and the National Consumer Right Protection Directorate.
The export quarantine system corresponds to requests from buyers and export destination

countries. Imported food is primarily controlled by the customs authorities, and certain specified items are controlled by BSTI.
Table 2.3 shows the responsible departments according to food safety-related operations.

Table 2.3 Responsible Departments by Food Safety Related Operation and Regulation

Food chain	Mandate	Ministries and Departments	Related acts and regulations
Production	Feed registration and inspection	DoF, DLS	Livestock feed act 2010, Aquaculture feed regulation 2011
	Pesticide・fertilizer registration and inspection	DAE	Pesticide (Amendment) ordinance 2009, Fertilizer (control) Act 1999, Fertilizer (control) Ordinance 1999, Import Policy Order
	Standard for pesticide residue	BFSA（Plan）	Pesticide (Amendment) ordinance 2009
	Control of genetically modified crop	the Ministry of Forest and Environment	National Biosafety Guidelines 2007 Biosafety Rules 2012
Processing	Standard for food additives	BFSA（Plan）	Food Safety Act 2013
	Inspection and testing for food additives	None	Food Safety Act 2013
	Standard for process food	BSTI, BFSA（Plan）	Food Safety Act 2013, BSTI Act 2018, BSTI rules 1989
	Standard for other food	BFSA	Food Safety Act2013, BSTI Act 2018, BSTI rules 1989
	Inspection and testing for process food	BSTI	BSTI Act 2018
	Sanitary management including food poisoning	BFSA	Regulation on food hygiene 2018
	Standard for packaging	BSTI, BFSA	Food Safety Act 2013, The standards of Weights and Measures (Amendment) Act 2001, The Bangladesh Standards of Weights and Measures (Packaged Commodities) Rules 2007
	Inspection for process company	City Corporation, District Health Department, Sub-district Health Department, District National Consumer Right Protection Department, DoF	BSTI Act 2018, National Consumer Right Protection Act 2009
Domestic distribution /marketing	Inspection for public market.	City Corporation, District Health Department, Sub-district Health Department, District National Consumer Right Protection Department	Food Safety Act 2013, Local Government Act 2009, National Consumer Right Protection Act 2009
	Inspection for restaurant, retail shop, supermarket	City Corporation, District Health Department, Sub-district Health Department, District National Consumer Right Protection Department	National Consumer Right Protection Act 2009
	Inspection for food venders	None	None
Overall	Administrative measures	District magistrate, Sub-district magistrate, NCRPD	Food Safety Act 2013, National Consumer Right Protection Act 2009, Local Government Act 2009, Mobile Court Act 2009, Atomic

	Mobile court	City Corporation, District magistrate, District Health Department, Sub-district magistrate, Sub-district Health Department, NCRPD, Police	Safety and Radiation Control Act 1993, Nuclear Safety and Radiation Control Rules 1997, The Special Powers Act 1974, Formalin control Act 2015
	Accreditation of laboratory	BAB, Private accreditation agencies	Bangladesh Accreditation Act 2016
	Food testing	IPH, BSTI, BSCIR	Food Safety Act2013
Export	Testing for export food	DAE, Custom Office, DoF	Plant Quarantine Act 2011, Export Policy Order 2015–2018
Import	Testing for import food	Custom office, BSTI	Plant Quarantine Act 2011, Import Policy Order 2012–2015

Source: Survey Team

2.1.2 Food control agencies in local government

The administrative structure of Bangladesh is divided into 8 divisions, 64 districts, 489 sub-districts, and 4,547 unions. Major cities (City Corporation) and rural cities (Paurashava) are located in urban areas. There are 24 sector-related offices of the central government that provide various administrative services at the sub-district level. At the local level, food safety is ensured, with particular emphasis on extension services at the production stage and surveillance at the marketing stage of the food chain.

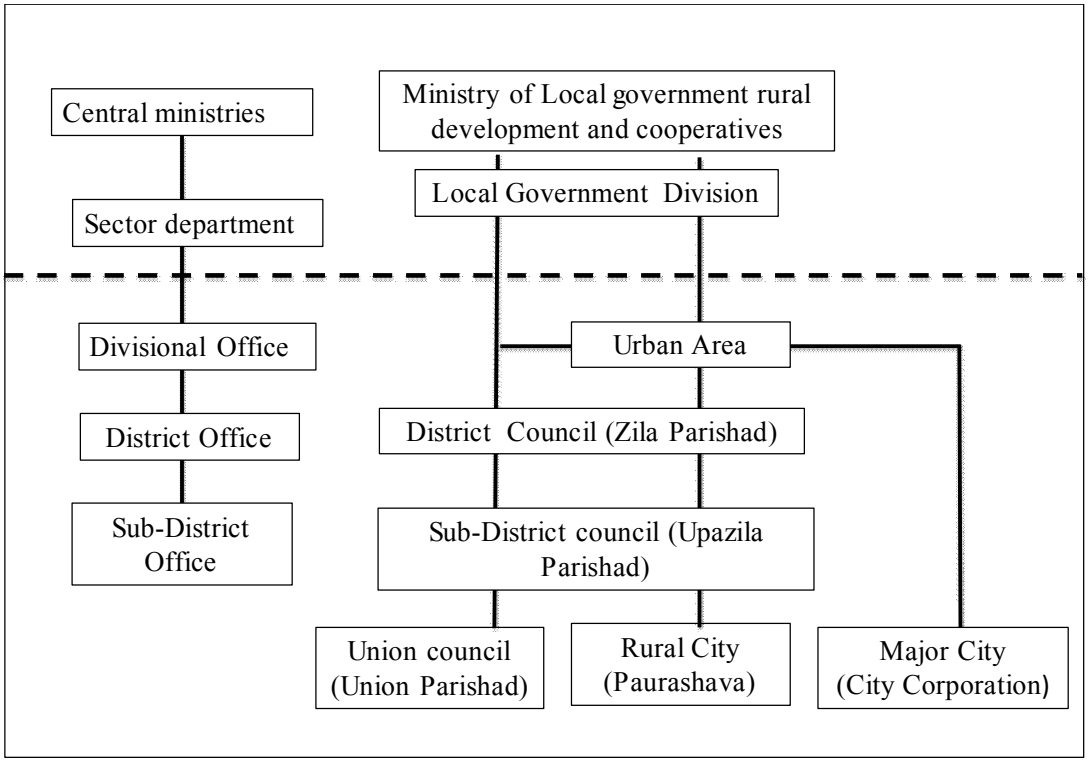

Figure 2.1 Local Government Structure in Bangladesh

Source: IC Net Limited

Table 2.4 shows the arrangement of food safety officials in rural areas.

Table 2.4 Allocation of Food Safety Officials at Local Levels under Central Government

	Administrative structure				
Central government/ Department	Division	District	Sub-district	City Corporation	Rural city
Directorate of Agriculture Extension		✔	✔		
Department of livestock service		✔	✔		
Department of fisheries	✔*	✔	✔		
Directorate General Health Service		✔	✔		
Ministry of Food		✔	✔		
Local Government Division				✔	✔
BSTI	✔				
BFSA	**	**			
National consumer right protection directorate	✔	✔			

*Allocate inspectors only where is laboratories. In Dhaka, Khulna and Chittagong
✔:allocated **: currently under recruitment

Source: Survey Team

2.1.3 Coordination with International Food Safety Management

In recent years, exports of agricultural products, fishery products, livestock products, and processed foods have expanded in Bangladesh. According to World Bank statistics, the value of food exports, which was only US$ 11.04 million in 2003, has increased yearly, reaching US$ 244.28 million in 2015 (Figure 2.2). Exports are expected to increase in the future, and attention is given to food hygiene and food safety for processed food in Bangladesh not only from the domestic market but also from overseas markets. Exported food products must meet the food hygiene and food safety standards of the countries to which they are exported. In Europe, the United States, and Japan, there are standards and inspection systems for pesticides or antibiotic residue. Therefore, it is necessary to ensure that food safety meets Codex standards in order to increase the exportation of Bangladeshi food products to these countries.

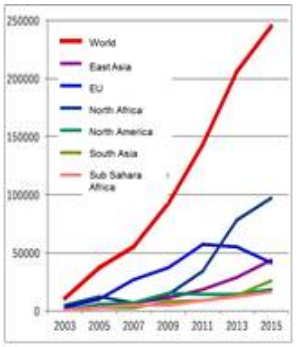

Figure 2.2 Export Value of Processed Food from Bangladesh (Unit: US$ 1,000)
Source: World Bank

In particular, the BFSA is formulating regulations to comply with European Union (EU) laws. The Agricultural Extension Department aims to introduce Good Agricultural Practices (GAP) to expand exportation. BSTI also promotes the certification of processed foods that meet the Codex standard; 16 items currently meet the Codex standard. Food processing companies, especially export-oriented companies, tend to obtain the International Organization for Standardization (ISO). In this way, food safety is beginning to be promoted through the public and private sectors.

2.1.4 Risk Analysis

To classify and analyze food hygiene and food safety administration in Bangladesh, we adopt the concept of "risk analysis." The Japanese government also uses the concept of risk analysis in its framework for food hygiene and food safety administration.

Risk analysis consists of three components: risk assessment, risk management, and risk

communication. Each component is shown in Table 2.5.

The current situation of food safety operations in each ministry in Bangladesh is as follows from

Table 2.5 Definitions of Risk Analysis Components

Component	Definition	Responsible Ministry /organization in Japan
Risk Assessment	To evaluate scientifically the effects of harmful substances for human health such as food additives, pesticides and microorganisms that may be contained in food. ・ Identification of risk ・ Daily allowance, setting of tolerable daily intake ・ Evaluation of risk management measures ・ Unified collection and arrangement of internal and external hazard information	Food Safety Commission
Risk Control	To control risks based on the results of "risk assessment" and "risk communication"	Ministry of Health, Labor and Welfare, Ministry of Agriculture, Forestry and Fisheries, Consumer Affairs Agency
Risk Communication	To share information and exchange views among risk assessors, managers and related parties such as consumers and food-related businesses based on the results of risk assessment.	All stakeholders

Source: Website of the Ministry of Health, Labor and Welfare

the viewpoint of risk analysis.

A. Risk assessment

BSTI and the Bangladesh Council of Scientific and Industrial Research (BCSIR) are the main institutions involved in risk assessment. BSTI has the role of establishing development standards and inspection methods considering safety, as well as international and regional standards. When new products and parameters are confirmed, BSTI develops new standards and inspection methods based on the updated technologies.

If BSTI faces difficulties in the development of specific parameters or testing methods, BSTI requests that BCSIR formulate a testing method. BSTI standards cover processed foods for mandatory registration and some for voluntary registration, but does not cover all foods. No other organization is responsible for the remaining foods. In addition, since the purpose of BSTI is to set the standard, the measurement of harmful substances is not always included.

Table 2.6 Implementation Status of Risk Assessment by Food Category In Bangladesh

Food category	Executer	Status
Mandatory process food	BSTI	Set harmonized with Codex, ISO, HACCP
	BFSA (Plan)	To be implemented
Other food	BSTI	Bangladesh standard
	BFSA (Plan)	To be implemented
Vegetable・Fruits・crop	DAE	Not implemented
	BFSA (Plan)	To be implemented
Meat・Meat products	DLS	Not implemented
	BFSA (Plan)	To be implemented
Fisheries	DoF	EU standard
	BFSA (Plan)	To be implemented
Harmful material which measurement method is unconfirmed	BCSIR (FSTL)	Based on request
	BFSA (Plan)	To be implemented
Overall coordination	BFSA (Plan)	Not implemented

Source: Survey Team

In the fishery sector, risk parameters are set based on EU standards. The Laboratory of the Plant Protection Wing at the Directorate of Agricultural Extension plans to set standards for pesticide residues in the future after human capacity building.

The BFSA is responsible for coordinating risk assessment while managing domestic ministries as well as international trends in food safety. At present, with the support of FAO, the BFSA launched a technical committee to which external experts were invited, and set the Codex to harmonize standards for all foods. However, coordination is not sufficient because of the absence

of existing implementers such as BSTI or the Ministry of Health.

B. Risk management

In Bangladesh as well as in Japan, food-related ministries and departments are responsible for risk management. Among the food groups, vegetables, fruits, grains, and livestock products are supervised by sector ministries and departments until the production stage. Pesticides and feed for animals are registered, but the pesticide residue or antibiotic residue of products are not inspected.

For fishery products, the department of fisheries focuses on export products and conducts inspections at processing factories. They also conduct inspections of products by collecting samples.

Table 2.7 Implementation Status of Food Safety Risk Management in Bangladesh

Food chain	Food	Executer	Status
Production	Vegetable・Fruits・crop	DAE	Not implemented
	Meat・Meat products, milk products	DLS	Not implemented
Production Processing	Fisheries	DoF	Testing of feed and processed seafood
Production Processing Trading	Mandatory process food	BSTI	Testing of sample by inspector
	Other food	DGHS NFSL NCRPD LGD	Testing of sample by inspector
	Harmful material which measurement method is unconfirmed	BCSIR (FSTL)	Based on request
	Overall coordination	BFSA	Not implemented

Source: Survey Team

C. Risk communication

Within risk communication, BSTI is responsible for setting standards that correspond to risk assessment. BSTI holds a technical committee of experts and reflects the advice the committee provides when formulating or revising the standards.

In addition, the BFSA also consults a technical committee consisting of relevant experts and works to harmonize Bangladeshi standards with Codex standards. On the other hand, regarding risk management, the plans and results of consolidated food safety management have not yet been documented. Moreover, the target of risk communication is limited to relevant experts, and food safety information is not widely shared or exchanged with civil society or the general public.

In conclusion, three components of risk analysis in Bangladesh are not yet functioning well. From now on, the BFSA should take a strong lead to implement each component.

2.2 Current Situation of Food Hygiene and Food Safety Administration

2.2.1 Bangladesh Food Safety Authority

2.2.1.1 Background of establishment and objectives of the authority

On February 2, 2015, the BFSA was established under the Ministry of Food. The objective of the organization is to effectively monitor the food safety of the entire food chain to protect the health of consumers and to ensure that food-related agencies comply with food safety legislation. The BFSA is responsible for the horizontal coordination of food safety management with other organizations on the basis of scientific analysis, which was previous implemented vertically by the respective ministries.

The responsibilities of the Food Safety Agency, as stated in paragraph 13 of the Food Safety Act 2013, are to regulate and monitor the activities related to the manufacturing, importation,

processing, storage, distribution, and sale of food.

To compensate for the shortage of human resources and expertise at the establishment, FAO-USAID "Institutionalization of Food Safety in Bangladesh Project," funded by the United States Agency for International Development (USAID), and with the technical cooperation of the United Nations Food and Agriculture Organization (FAO), has been implemented since March 2014. The project aims to enable the BFSA to fulfill its administrative functions and provides guidelines, manuals, and the development of various regulations under the Food Safety Act. The project also provides training for BFSA personnel, food safety inspectors, and supports the BFSA in recruiting its own officers. The project is scheduled to end in December 2019.

2.2.1.2 Strategic Plan (2017–2021)

The BFSA Strategic Plan (2017–2021) was formulated in 2017. The plan presents the direction in which BFSA will proceed based on the Food Safety Act. The Strategic Plan sets out the six goals shown in Table 2.8, and the BFSA's current efforts are based on this plan. FAO's "Institutionalization of Food Safety in Bangladesh Project" also provides support in line with the strategic plan. A roadmap has been created as part of the implementation of the strategic plan, and progress has been managed.

Table 2.8 Strategic Plans, Activities, and Their Progress

Strategy	Activities	Progress
1. To develop BFSA as a Centre of excellence and as the national competent authority for control of food safety	• Drafting and finalization of Rules and Regulations	on track
	• Staff requirement and development of division	on track
	• Signing MoU	suspended
	• Procurement of mobile laboratory	delayed
2. To strengthen food regulations and food safety standards and ensure that all food inspectors are appropriately trained on enable them to undertake their duties competently	• Designation of food safety inspector and training	on track
	• Setting up technical working groups	on track
	• Opening the food safety management course in Bangladesh Agricultural University	achieved
3. To ensure the effective and consistent enforcement of food regulations and coordination of food control activities across all government agencies currently involved in official control	• Develop a formal procedure of working relationships with other food control agencies	delayed
	• Standard Operational Procedure in conformity with regulation is developed	achieved
	• Provide technical and scientific support to government agencies	target in 2020
4. To develop a national scientific advisory system/structure for the provision of the best independent scientific advice to support food safety policy and enforcement decisions	• Establishment of scientific and technical committee to provide a risk assessment capacity	on track
	• Develop policy on commissioning Research and Development	delayed
	• Share finding of R&D with food control agencies	delayed
5. To enhance capacities of food labs and strengthen the national food labor network to enhance an adequate laboratory capacity for supporting food control functions.	• MoU with Food testing laboratories	not achieved
	• Coordination with BAB for accreditation	completed
	• Designate public food analysist	completed
	• Develop practical guidance for food analysist	delayed
6. To communicate and engage with all stakeholders; specifically, with the food industry to encourage the adoption of the highest standards of food safety compliance and promoting food safety awareness among consumers and the general public.	• Organize a training workshop on strengthening INFOSAN activities in Bangladesh	on track
	• Conducting food safety conference	on track
	• Conduct training on HACCAP	achieved
	• Observance on National Food Safety Day	on track
	• Formation of central food safety management coordination committee	on track

Source: FAO

2.2.1.3 Coordination of food control agencies

A. National Food Safety Management Advisory Council (NFSMAC)

The National Food Safety Management Advisory Council (NFSMAC) as defined in article 3 of the Food Safety Act 2013 undertakes the highest level of decision-making within the BFSA. The council provides advice and directions to the BFSA in food safety-related laws and policies. The council has been held three times since August 2015. The participants are defined in the act and the heads of 30 ministries and departments, such as the Minister of the Ministry of Food, the Cabinet Secretary, the Speaker of the Parliament, and other Secretaries and Director Generals are council members. At the first meeting, the BFSA Strategic Plan (2017–2021) was formulated.

B. Central Food Safety Management Coordination Committee (CFSMCC)

The Central Food Safety Management Coordination Committee (CFSMCC), as defined in article 15 of the Food Safety Act, was formulated to ensure that the necessary institutional support is provided from relevant authorities or organizations for successful performance of the duties and functions. The committee has met four times since April 2015. The participants are defined in the act, which assigns 28 members, including the chairman of the BFSA.

C. Memorandum of Understanding

The BFSA has signed a memorandum of understanding (MoU) for the purpose of cooperative alliance with food safety-related ministries and associations. As of June 2019, seven related organizations[1] have singed the MoU.

Discussions with other organizations regarding MoU have been stagnant since 2018. In particular, the agreements with ministries that are necessary for laboratory networking such as the Ministry of Health and Family Welfare or BSTI and BSCIR have not progressed.

2.2.1.4 Food safety act 2013 and other regulations

A. Food safety act 2013

The act was enacted as a revision of Pure Food Ordinance 1959. The previous ordinance had not been revised for the past 55 years and lacked a basis in current food safety concepts. Coordination between agencies was not included. Furthermore, Bangladesh had already achieved food self-sufficiency in terms of grains and now aims to become a middle-income country. Under this situation, the position of food safety has significantly changed. As the need for a new act and new organizations covering these issues has grown, the government adopted the new act. The main objectives of this act are to secure food safety and coordination among stakeholders in the food chain from food production, importation, processing, storage, distribution, and sales. With the establishment of the BFSA, efficient and effective food safety management is expected.

B. Related regulations and rules

Chapter 5 of the Food Safety Act 2013 contains 20 prohibitions on food safety management. However, because there is less specific description of the actions that should be taken, the following ten regulations and rules have been formulated under the act. Three of these are currently waiting for regulatory approval.

[1] Directorate General of Food (June 2017), Department of Livestock Service (October 2017), Bangladesh Shrimp and Fish Association (December 2017), Department of Fisheries (February 2018), Department of Agriculture Marketing (May 2018), National Consumer Right Protection Directorate (June 2018)

Table 2.9 Regulations and Rules of BFSA

	Name of regulation and rule
1.	Food Safety (Technical Committee) Rules 2017
2.	Food Safety (Use of Food Additives material) Regulation 2017
3.	Regulation on food hygiene 2018
4.	Regulations for collection, examining and analysis of food sample 2017
5.	Regulations for labeling of packed food 2017
6.	Food Safety (Chemical Contaminant, Toxin and Harmful Residues) Regulation 2017
7.	Regulation on microbiological criteria (draft)
8.	Food Safety (Procedure to seize food and taking administrative measures) Rules 2014
9.	Food Safety (Food Contact Materials) Regulation 2017
10.	Food Safety (Obligations of Food Business Operators) Regulation

Source: BFSA documents

The above-mentioned related regulations and rules are formulated under the initiative of the FAO-USAID project, with the main focus being on harmonization with international food standards, in particular with the Codex Food Standards Commission. Sections that are not mentioned in Codex International Food Standards comply with EU law or American law. As a consultant supporting the formation of these regulations, FAO dispatches a short-term international expert who is an advisor from the Food Safety Standards Agency in India, and ex-chairman of the Codex Alimentarius, FAO headquarters.

In Bangladesh, it takes about one to two years for a regulation to be approved after a draft is completed. After drafting, the legal officer at the FAO headquarters confirms the regulation, translates it into the Bengali language, obtains the approval of the BFSA, and receives the approval of the Ministry of Food. An inter-ministerial meeting is then held to obtain the approval of the Ministry of Justice, and then the regulations are finally officially released.

The BFSA has spent much time formulating these regulations. Actual enforcement, dissemination, and coordination with relevant ministries will be the next step.

2.2.1.5 Organization and personnel

A. Current status of human resources

The senior executives of the BFSA consists of the chairman, secretary, and four members who are positioned as advisors and decision-makers. Under this group, there are five departments, including 1) surveillance and adjudication affairs, 2) laboratory network coordination affairs, 3) standardization coordination affairs, 4) consumers' food safety system and risk management affairs, 5) finance, human resources, and corporate affairs. Although the directors of each departments are appointed, the departments are not ideally functional, as officers or staff are under process of recruitment.

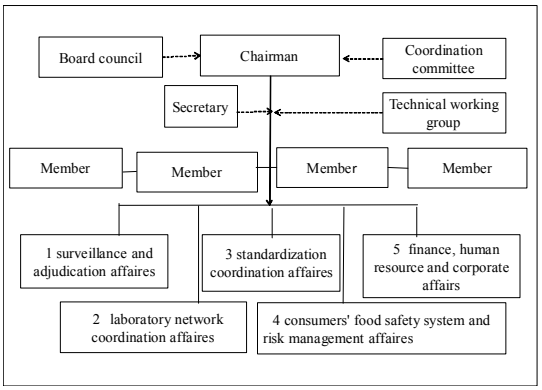

Figure 2.3 Structure of BFSA
Source: BFSA

As of June 2019, only the chairman and four members have officially been assigned at the BFSA on deputation. These seniors will be transferred to different Ministries after 3-4 years. Besides

these seniors, there is one secretary and five directors. However, these middle-class officers are filling temporary posts; when official personnel are assigned, they will return to their affiliated ministries. In addition, IT assistants and accounting staff are also temporary dispatches from other ministries or from temporary staff service companies.

In 2016, the BFSA designated 728 officers as food safety inspectors to secure human resources at the local level. The breakdown of these officers are 64 district sanitary inspectors and 548 sub-district sanitary inspectors from the Ministry of Health, 31 sanitary inspectors in City Corporations and 28 sanitary inspectors in rural

cities from the local government division, and 40 food inspectors from the Ministry of Food.

In addition, there are 16 airport and sea port inspectors and one inspector from the medical university. Under the support of the FAO project, a basic three-day training on the Food Safety Act and food sanitation were implemented for all designated staff by December 2018.

B. Progress of recruitment of new human resources

To secure human resources, the BFSA is in the process of recruiting 364 people based on the "Table of Organization & Equipment" approved in August 2018. The hiring process is implemented in two phases. In the first phase, 241 supporting staff who assist the daily work of BFSA staff are employed. These staff are assistant accountants, data entry assistants, receptionists, drivers, cleaners, and others. They will work either at headquarters or districts. The BFSA plans to start employment from September 2019.

In the second phase, the BFSA will hire 103 new officers who will engage in the BFSA's core activities. Some of the staff will be assigned to the BFSA headquarters, but most of them (72 officers) will be food safety officers located in either eight divisional office or district offices. The food safety officer is a professional position requires at least a bachelor's degree or above in natural sciences. These officers are expected to play a role in coordinating the food control agencies at the local level. The BFSA plans to complete the recruitment process by December 2019.

The BFSA is outsourcing the recruitment process to the University of Dhaka until the document screening and written examinations phase, and only the final interview will be handled by the BFSA.

As for the office of the new staff at the headquarters, in addition to the current BFSA office on the 13th floor, another office on the 16th floor has been secured for additional officers and staff. The number of additional officers employed by the headquarters will be around 31. Thus, the BFSA will use two floors without moving to a new office for the time being.

Table2.10 The list of human resource at BFSA headquarters

Category	Position	Number of the post	Filled post	Remarks
1) High official	Chairman	1	1	deputation
	Member	4	4	deputation
	Secretary	1	1	deputation
	Director	3	5	deputation
	Additional Director	6	0	deputation
	Deputy Director	12	0	
	Sub total	27		
2) Technical Officer	Personal secretary of the chairman	1		2nd batch of recruitment
	Food Analyst	1		
	Assistant Director	6		
	Scientific Officer	10		

	Monitoring officer	5		
	Research Officer	4		
	Law Officer	1		
	Public Relation Officer	1		
	Statistic Officer	1		
	Accountant Officer	1	1deputation	
	Sub total	31		
3) Assistant officer	Assistant Accountant	1		1st batch of recruitment
	Assistant Librarian	1		
	Personal Assistant	9		
	Accountant Assistant	1		
	Data entry Operator	8		
	Cataloger	1		
	Office Assistant computer operator	23		
	Telephone Operator/ Receptionist	1		
	Sample collector Assistant	1		
	Driver	12	1deputation	
	Office Assistant	27	Deputation	
	Guard	2		
	Cleaner	2		
	Sub total	89		
	Total 1)+2)+3)	147		

Source :Table of Organization & Equipment (approved in August 2018)

Table2.11 The list of human resource to be recruited by BFSA in rural areas

Category	Position	Division	District	Sub total	Remarks
2) Technical Officer	Food safety Officer	8	64	72	2nd batch of recruitment
3) Assistant officer	Sample collector Assistant	8	64	72	1st batch of recruitment
	Driver	8	-	8	
	Office Assistant	8	64	72	
	Total	32	192	224	

Source :Table of Organization & Equipment (approved in August 2018)

C. Training plan for new officers and staff

After new employees are hired, they must be provided with basic training. The BFSA believes that food safety officers need specialized training in the area of food safety. Basic training will be conducted using the FAO budget and using training materials for food safety inspectors. In the previous training, not only FAO consultants, but also BFSA officers participated as trainers. Therefore, it is possible that existing BFSA officers will take part in the introductory training for new staff.

2.2.1.6 Major Activity of five departments

As mentioned in "2.2.1.5 Organization and personnel," five departments are not yet functional due to a lack of officers and staff.

2.2.1.7 Budget

Bangladesh's fiscal year starts in July and ends in June of the following year. The budget plan for

the next fiscal year is formulated around February every year and is executed after the budget approval of the parliament at the end of June. The budget is disbursed by the accountant general at the Ministry of Finance on a quarterly basis. At the end of the second quarter, the budget is reviewed, and if there is a shortage, an additional budget can be requested. The finance, human resource, and corporate affairs of BFSA reports the budget execution status quarterly. Progress reports on activities are compiled annually.

Table2.12 Budget allocation of BFSA (Unit: BDT 10,000)

Item	2015/16	2016/17	2017/18	2018/19	2019/20
Personnel	450	1,731	1,896	2,181	2,399
Training	600	350	385	419	461
Inspection	25	100	110	470	517
Research	0	0	0	0	0
Other	50	1,000	1,100	1,300	1,430
Total	1,125	3,181	3,491	4,370	4,807

Source: BFSA

The budget is accumulated for each item. As each budget item is not divided into budgets for the headquarters and the local level, it is not possible to identify the amount of the budget that is used for local level. All personnel expenses for the food safety inspectors in the sub-district level are covered by the Ministry of Health and Family Welfare.

In the budget for 2019, personnel expenses are budgets for existing employees. New employees will be funded through additional budget requests. As new staff recruitment has already been approved by the government, additional funds will be allocated without any problems.

2.2.1.8 Ongoing activities

A. Development of rules and regulations

Details are described in "2.2.1.4 Food safety act 2013 and other regulations"

B. Technical Committee

For the purpose of analyzing the food safety issues in each sector and formulating drafts of regulations, seven working groups were formulated from 2015 to 2016. The sectors include vegetables and fruits, poultry and livestock, certification, food safety analysis services, standard quality control, research procedures, and training procedures.

As an example, the vegetables and fruits technical working group was held five times from April to December 2015. The group examined food contamination and substances that should be considered for food safety in the value chain of horticultural crops and fruits. Further, the group developed a draft of "Food Safety (Chemical Contaminant, Toxin and Harmful Residues) Regulation 2017."

Since the Food Safety (Technical Committee) Rules were formulated in 2017, the establishment of technical committees in the following seven fields based on Article 15 of the Food Safety Act 2013 has been underway. At the time of the survey, new committee meetings have not been held at the selection stage of the new committee members.

(a) food additives, flavorings, processing aids, and materials;

(b) pesticides and antibiotic residues;

(c) genetically modified organisms and foods;

(d) biological risk and biosecurity;

(e) contaminants in the food chain;

(f) labeling and packaging;

(g) methods of sample collection and analysis; and

(h) any other subject prescribed by rules.

C. Training

Table 2.13 shows the training lists that FAO has implemented to strengthen capacity, including BFSA and food safety inspectors since February 2015. Training is continuous so that all newly designated food safety inspectors attend the training at least once.

Table 2.13 List of Training Sessions Conducted by FAO

Training Title	Participants	Date and duration
Training of Awareness on ISO 22000:2005 Food Safety Management Systems- Requirements for Any Organizations in the Food Chain	Officials from Regulatory Body	Feb. 2015, 4 days
Institutionalization of Good Agricultural Practices (GAP) for Safe and Quality Food Production: Horticulture and Poultry as per Food Safety Act 2013	Officials from Regulatory Body	March 2015, 4 days
Training of safe food inspection on risk-based food inspection	Designated Food safety inspectors	May 2016, 3 days; May 2016, 3 days; July 2016, 3 days; March 2017, 3 days; March 2017, 3 days; April 2017, 3 days; April 2017, 4 days; Feb. 2018, 3 days; March 2018, 3 days; April 2018, 3 days; July 2018, 3 days, Nov 2018, 3 days
Food Safety Management System (FSMS), ISO/TS 22003 & ISO/IEC 17021	Officials from regulatory body, FAO's consultants, BAB personnel, Laboratory personnel	July 2016, 3days
Food Safety Management System, Lead Auditing Skills Training	Officials from regulatory body, FAO's consultants, BAB personnel, Laboratory personnel	August 2016, 2 days
Food Safety Management System (ISO 22000:2005)	Food safety professionals from public and private sectors	Sep. 2016, 3 days
FSPCA Preventive Controls for Human Food	Food safety professionals from public and private sectors	Nov. 2016, 4days
Role of media for food safety awareness	Journalists	May 2017, 1 day
Training program for Hotel-restaurants workers on hygiene and food safety to keep food safe	Hotel-restaurants workers	June 2017, 1 day Oct. 2018, 1 day Oct. 2018, 1 day Nov. 2018, 1 day
Training on hygiene and sanitation for food business operators	Representatives from FBO's	Aug. 2017, 2 days
Training on Global GAP and Bangladesh GAP	Representatives from DAE, BARC, NATA, BINA, BAU, Hortex, BAB, FAO	Aug. 2017, 4 days
Role of media for safe slaughtering during sacrificing animals in kurbani	Journalists	Aug. 2017, 1 day
Training on HACCP based FSMS	Private food industries, academia and BFSA	Nov. 2017, 3 days
Training on Basic Food Hygiene, HACCP and Inspection System	Private food industries, academia, BFSA and Designated Food Safety Inspectors	Dec. 2017, 5 days Aug. 2018, 5 days
Training on Good Hygienic Practice in Poultry Slaughterhouse	DLS, BFSA and Private Food Industries	Dec. 2017, 3 days

Training on Implementation and Application of Food Safety Act, 2013 for the executive magistrate	Executive Magistrates	July 2018, 2 days July 2018, 2 days
Safe livestock fattening, food safety, nutrition and economic benefit	Cattle Farmers	July 2018, 2 days
Training on Survey Study of restaurants to establish safe zone in 6 piloted area		Oct. 2018, 1 day
Safe street food vending	Govt. officials, University teachers, BFSA	Oct. 2018, 1 day
Training on good hygienic practices and food safety for restaurants	Restaurants owners and workers	Oct. 2018, 1 day Oct. 2018, 1 day Nov. 2018, 1 day
Achieving Leadership in business on SPS, TBT and Codex		Oct. 2018, 1 day
Training on understanding codex process	BFSA, Private Industries, FAO	Dec. 2018, 2 days

Source: FAO

D. Food Safety Inspection

At the local level, food safety inspection is conducted mainly by food safety inspectors. Details are shown in "2.3 Food control agencies in local government in details."

E. Baseline survey for Food Safety Act and consumer awareness

A survey was conducted throughout Bangladesh in 2016 to examine consumers' awareness of the Food Safety Act and food safety. The results showed that consumers' understanding of the act is still low, and further action to increase awareness is necessary. As effective means of awareness creation, TV programs, newspaper advertisements, educational posters, leaflets, banners, meetings, and workshops are recommended at the local level. The need for coordination among central ministries, the training of staff at the local level, and regular market inspections have also been identified. The introduction of a system that directly connects public institutions and consumers, such as a help desk or information booth, is also recommended.

F. Act and regulation analysis in crop sector

A study was conducted in 2017 to analyze the relevant acts and regulations of the agricultural sector. The results reveal the absence and duplication of laws, which have been classified into five categories: agricultural input, import and export, genetically modified crops, penalties, and agricultural policies. In the conclusions and recommendations section of the report, it was shown that the present acts and regulations in the crop sector emphasize penalties for offenders. The report suggests that the law should show measures to avoid penalties. In the future, focusing on monitoring, research, quality control, preventive measures, and consumer education will prevent adulteration and lead to the provision of higher quality and more nutritious foods for consumers.

G. Laboratory inventory

The determination of harmful substances in the laboratory is essential to guaranteeing a safe food supply. Therefore, with the support of FAO, the BFSA conducted a study to compare the functions of laboratories and institutions related to food safety starting in 2015. The study developed inventory indicating information on equipment, target samples, and indicators. Based on this report, the BFSA aims to assess the capabilities of each existing laboratory and develop a network of laboratories. However, as discussions with relevant ministries has not progressed, the laboratory network has not yet been realized.

H. Communication Strategy

A communication strategy was created in order to allow more consumers and stakeholders to

properly understand the role of the BFSA as well as the Food Safety Act. Targets of the strategy are government officials, processed food companies, researchers in the food sector, the media, and the general public, and different activities are directed at each target. Providing training for the mass media has been a focus of communication strategies. The contents of the training are shown in Table 2.14.

Table 2.14 Training for the Mass Media by BFSA/FAO

Training Content	Target	Date and duration
Role of media for food safety awareness	Journalists	May 2017, 1 day
Role of media for safe slaughtering during sacrificing animals in *Kurbani*	Journalists	Aug. 2017, 1 day

Source: FAO

I. Restaurant grading in Dhaka city

From October to November 2018, the BFSA conducted food hygiene training for 297 restaurant owners and food handlers. The BFSA then introduced a grading system based on the sanitation status of restaurants in six districts in Dhaka. Of the 57 restaurants implemented as pilots, 19 received the highest, A+, while the rest received an A. The restaurants that were certified are able to show the grades they have received to their customers, who can determine the hygiene conditions of the restaurant from the grade. After assigning a grade to a restaurant, the BFSA sometimes visits and re-evaluates the restaurant to check whether it has maintained its hygiene. Public awareness about food safety is increasing and restaurants are also improving sanitation conditions.

Table2.15 Restaurant sanitation grading system

Grade	Sanitation	Color	Score
A＋	Excellent	Green	Over 90
A	Good	Blue	80-89
B	Normal	Yellow	60-70
C	Need to improve	Orange	Below 50

Resource: BFSA

J. National Food Safety Day

On February 3 and 4, 2019, National Food Safety Day was held throughout the country on the BFSA's second anniversary. On these days, the BFSA conveyed a message to the public to ensure safe food to eliminate adulterated food. In Dhaka city, in the exhibition materials used for safe food, safe model markets, and posters were displayed. Prime Minister Hasina also gave a speech reaffirming that the government is committed to food safety and pledged to build a central laboratory and eight divisional laboratories for the BFSA.

K. Mobile laboratory

The BFSA aims to introduce a mobile laboratory and is currently in the process of procuring one with the support of FAO-USAID. The mobile laboratory will consist of a sink and various types of test kits in a large wagon. The BFSA will use this vehicle to visit markets and schools in local areas and inspect the sanitation status of samples collected from food business operators. It also aims to improve the awareness food safety for the public. Items to be inspected in the mobile van are being confirmed with the BFSA.

Test Kit for Salmonella

2.2.1.9 Future human resource and capacity development

A. Bangladesh Agricultural University

Under the support of the FAO-USAID project, the Bachelor of Science in Food Safety Management was established in January 2019 within the Faculty of Agriculture at Bangladesh

Agricultural University, and 30 students enrolled. This is the first department specialized in food safety management in Bangladesh. The department will continuously develop human resources with expertise in food safety. Graduates are expected to work in food-related public sectors or companies to lead food safety management in the country.

The Dublin Institute of Technology was involved in the development of the curriculum for the Food Safety Management Department. The four-year bachelor's course covers a wide range of food safety-related topics such as agriculture, livestock, water sanitation, food hygiene, chemistry, IT, statistics, waste control, quality control, food legislation, and inspection procedures. In addition to learning theory, students are expected to engage in an internship program at food companies.

At the time of this survey, the first semester of the first year has ended. It is now necessary to improve the curriculum, assign permanent professors, and train professors.

B. Other Universities

Several national and private universities have opened food-related departments, such as the Institute of Food and Nutrition at the University of Dhaka, the Department of Food Technology and Rural Industries at Bangladesh Agricultural University, and the Department of Applied Nutritional Food Technology at the Islamic University.

2.2.2 Ministry of Health and Family Welfare

2.2.2.1 Objectives of the organization, related acts and regulations

The Ministry of Health and Family Welfare (MoHFW) plays a role in ensuring the safety of processed foods for food manufacturing and distribution channels in the market (restaurants, retail stores, supermarkets).

The MoHFW had worked on food safety in accordance with the Bangladesh Pure Food Ordinance since it was enacted in 1959. Based on the Food Safety Act 2013 (enacted in 2013 as an extension of the Bangladesh Pure Safe Ordinance), activities related to food safety are currently being carried out.

2.2.2.2 Organization and personnel

At the MoHFW, the Department of Primary Health Care under the Directorate General of Health Services (DGHS) oversees food safety. Under the jurisdiction of the MoHFW, the Institute of Public Health (IPH) was established in 1948, and the Institute of Public Health and Nutrition (IPHN) was established in 1974. These institutes share laboratory testing tasks. In 2009, the National Food Safety Laboratory (NFSL) was established as an organization of the IPH by the Food and Agriculture Organization's (FAO) -EU Project. After taking over the FAO-EU Project, the FAO-Netherland Project was committed to the equipment installation and technical support for the NFSL, as well as to the coordination among the food safety related departments for six years and leading of the establishment of Food Safety Unit.

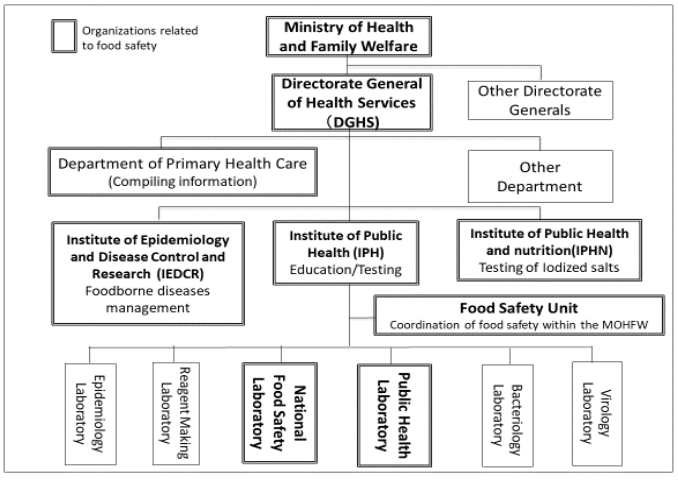

Figure 2.4 Institutes related to food safety under the Ministry of Health and Family Welfare

Source: Health Bulletin 2018

There are currently six laboratories in the IPH: the reagent making, virology, microbiology, epidemiology,

public health, and the NSFL laboratories. The NSFL conducts examinations for food safety, while the Public Health Laboratory (PHL) examines the food composition/ingredients. The IPHN measures the iodine content in iodized salts.

With regard to the occurrence of foodborne diseases, the Institute of Epidemiology and Disease Control Research (IEDCR), a research institute under the jurisdiction of the DGHS, oversees surveillance and emergency responses to mass outbreaks of foodborne diseases.

Table 2.16 Institutes under the Institute of Public Health related to food safety

Institute	Role
National Food Safety Laboratory (NFSL) Public Health Laboratory (PHL)	• Testing of foods and water (NFSL: safety parameter, PHL: components and forms) • Investigation • Training • Making standard of testing • Supports for Institute of Epidemiology, Disease Control and Research: IEDCR (Responses and survey for emergency cases related to food safety) • Supports for other institutes and universities to conduct researches and making academic articles
Food Safety Unit	Technical supports and coordination shown below; • Food safety activities under the DGHS • Communication with other institutes • Formulation of manuals, guidelines, strategies, policies and plans related to national food safety and quality control • Executing implementation plan of national nutritional services on health, population and nutrition sector program
Institute of Epidemiology, Disease Control and Research	• Surveillance • Emergency responses during epidemic of food-borne diseases

Source: Health Bulletin 2018

There is one Sanitary Inspector in the District level, one in the Sub-district level, and several in the City Corporation depending on the size of the population. These Sanitary Inspectors have been also designated as the Food Safety Inspectors, in addition to the tasks of the Sanitary Inspectors. The Food Safety Inspectors in the field are in the Sub-district and City Corporation. The Sub-district Food Safety Inspectors report their activities to the District Food Safety Inspectors and Health Officers. The District-Sub-district and City Corporation belong to different ministries. The health and food safety activities in the District-Sub-districts are under the jurisdiction of the primary health department of the DGHS in the MoHFW, and the City Corporation is under the supervision of the Department of Local Government (DLG). Food Safety Inspectors at the city level have no obligation to report their activities to the DLG, and their activities are self-contained.

2.2.2.3 Major activities on food safety

A. Inspection

Inspection work by the Sanitary Inspector under the MoHFW is described in "Section 2.3: Food control agencies in local government ".

Under the MoHFW's jurisdiction, seven health-related educational institutions throughout the country, including the IPH, develop the role of the Sanitary Inspectors. The Sanitary Inspector training course is a three-year diploma, and those who complete the course qualify for the position of Sanitary Inspector. Those who are eligible to apply to the course are required to have around five years of experience as health assistants and to have passed pre-screening.

The head of Food Safety Unit at the IPH has raised the following issues regarding food safety in Bangladesh:

- Diversification of food-induced health effects.

With regard to health hazards from food causes, the past effects of naturally occurring harmful substances such as

microbes and molds were mainstream. However, in recent years these effects have diversified and the types of harmful substances are increasing, such as the addition and contamination of chemicals in food, the chemicals contained in the feed of aquaculture and poultry, and the effects of resistant bacteria from chicken and fishery products that have been reared using large amounts of antibiotics.

- Inadequate food safety management and supervision.

There is a shortage of personnel in food safety administration. There is currently only one inspector assigned in each Sub-district, which is insufficient to properly implement food safety regulations and inspections. There are also issues with inspection methods that need to be designed and implemented for efficient and effective inspections in terms of risk analysis.

- Insufficient awareness, knowledge, and understanding of food safety for both consumers and producers.

The awareness, knowledge, and understanding of food safety among consumers, producers, processors, and distributors are not developed enough.

B. Laboratory testing

As food safety laboratory tests are under the jurisdiction of the MoHFW, the NFSL (under the IPH) is responsible for food safety examinations, and the PHL is responsible for investigations into food ingredients. The subjects of tests for both laboratories are food, feed, and water, and are sampled by Sub-district Food Safety Inspectors or requested from other ministries, agencies, and private companies. Samples are received once by the PHL, and those that require measurements of food safety indicators are sent to the NFSL. Both laboratories examine 6,000 to 8,000 food samples, and 600 to 800 water samples per year.

Table2.17 Number of food safety tests in NFSL (2013–2018)

Year	Number of samples	Number of testing by parameters
2013	214	1,284
2014	363	2,541
2015	1,814	33,875
2016	1,134	13,706
2017	835	9,726
2018*	539	1,390

*by October 2018
Source Health Bulletin2018

The NFSL was established in 2012 with the support of FAO, the EU, and the Netherlands, and

aimed for a reference laboratory on food safety; acquiring the ISO 17025 in 2018. The laboratory staff totals 20 people, of which 10 are laboratory technologists engaged in testing, and the remaining 10 oversee management and assistance. With regard to the technical level of personnel, there was an opportunity to receive training on testing techniques with the support of the FAO and the Netherlands, but because the requirements of the ISO state that there must be only one person

in charge of one testing method, each laboratory's testing technique is transferred only to the one person in charge and so it is impossible for other people to cope with the specific tests.

Regarding the results from testing, requests from private companies, other ministries, and agencies are returned directly, and the results of the inspections are submitted to the DGHS together with an annual report. As the BFSA is a different ministry, the results are shared only when requested by the BFSA.

Although this laboratory predominantly handles processed food, for research purposes and outsourcing (such as from the private sector) the testing of fresh food or other items is also conducted. The NFSL is able to measure key parameters in food safety, such as heavy metals, pesticide residues, formalin, aflatoxins, antibiotics, food additives, feed mixtures, stains, illegal

dyes, and microorganisms. In addition, high-performance testing methods that are capable of

detecting trace amounts of content, such as Atomic Absorption Spectrometry, [2] gas chromatography, [3] high performance liquid chromatography,[4] gas chromatography-mass spectrometry,[5] and liquid chromatography-mass spectrometry,[6] have been introduced.

However, under the present circumstances, the NFSL is mainly compatible with paid samples, and the samples removed by the inspections have not seemingly been tested. Even for paid samples, the NFSL does not accept anything after May due to lack of reagents, etc., and only the tests for research purposes are conducted.

Table 2.18 Outline of NFSL

Items	Contents
Function	Testing, investigation, training, making standard
Financial supports	Foundation: EU Operation: Netherland (by 2018)
Technical supports	FAO (by 2018)
Accreditation	ISO accreditation by BAB (ISO/IEC 17025: 2005)
Testing	Residual pesticide, heavy metals, antibiotics, formaldehyde, food additives, fungi, toxic substances causing food-borne diseases
Sample collection	Monitoring for contamination, food-borne diseases and responses to emergency food issues, Gathering information through surveillance and information from private sector and international organizations

Source: Health Bulletin 2018

The issues raised by responsible persons of the NFSL are as follows:

- Staff shortages and the need for technological improvement.

The number of laboratory technicians is small. A request has been submitted to increase the current 10 positions to 59 positions since 2013, but this has not been achieved. In addition, overseas training is necessary to study new parameters and improve technical levels.

- Insufficient budget for laboratory operations.

In the ISO acquisition, it is necessary to prove that laboratory tests are properly conducted through a third-party inspection organization, which involves a significant cost. The costs of purchasing reagents, gases, consumables, and so on as required for testing is high, alongside the costs of repairing equipment. Although liquid chromatography tandem mass spectrometers are combined with Shimadzu and Indian instruments, they are not compatible with each other and cannot be used. There is a Shimadzu distributor in Bangladesh, and personnel have already confirmed that there are no issues with this equipment, however, for the Indian-made equipment, the cost of calling maintenance personnel from India hampers the solution. In addition, some malfunctioning equipment has been identified.

[2]Atomic Absorption Spectrometry (AAS) is a method of quantifying the elements in the sample by atomizing the sample in high temperature, irradiating it with light, and measuring its absorption spectrum. In food safety, it is mainly used for the determination of heavy metals.

[3] Chromatography is an analytical method that uses gas and liquid as the mobile phase, and uses supercritical fluid to separate and detect a mixture by the interaction between a stationary phase held in a tube called a column and a substance. When a gas is used for the mobile phase, it is called a gas chromatography method, and when a liquid is used, it is called a liquid chromatography method. In food safety testing, it is used to measure residual antibiotics, additives, pesticides, etc.

[4] This is a method that the mobile phase of the liquid is pressurized by a pump or the like and passed through the column, and the analyte is separated and detected with high performance using the difference in the interaction (Adsorption, distribution, ion exchange, size exclusion, etc.) with the stationary phase and the mobile phase.

(Source for the three cases above: Partial modification from website of Japan Analytical Instruments Manufacturers' Association)

[5] This is a method that can perform qualitative and quantitative determination of components from mass information, by using a mass spectrometer to detect components separated by gas chromatography. In food safety inspection, it is mainly used for detection of trace organic synthetic substances that easily evaporate, such as residual pesticides.

[6]This is a method in which components in a liquid are separated using a difference in interaction between a stationary phase and a mobile phase and detected by a mass detector, and is classified into one type of high performance liquid chromatography (HPLC). In food safety inspection, it is used for detection of organic synthetic substances such as residual antibiotics and additives.

(Sources for the two cases above: Partial modification from website of Foundation for Promotion of Material Science and Technology of Japan)

- Sending perishable samples.

The transport of milk and dairy products among processed food samples is an issue. During the delivery process, the sample is often spoiled because the cold chain is not secured. The transport of other processed foods is acceptable. It is considered that the issue of improving the delivery is to be addressed by the BFSA.

- Insufficient coordination among laboratories.

It is observed that the coordination among laboratories is to be improved. Collaboration of laboratories is desirable. An FAO project attempted to network the laboratory, but it has not been realized. One of the reasons might be that the purpose, object, and analysis method of each laboratory are different, and the thoughts or policies of the parties tend to conflict.

- Function of laboratory tests.

As the NFSL is a reference laboratory for food hygiene, its function needs to be further enhanced. Approximately 300 types of colorants are subject to regulation, but this laboratory deals with only around 8 types of measurement, which is not enough to cover all the necessary testing. Specifically, it should have the ability to measure more pesticides.

C. Food Poisoning

The IEDCR in the IPH oversees the control of food poisoning. Although there are no regulations directly related to food poisoning measures, the Epidemic Disease Act 1897 stipulates that all measures are to be taken, such as isolation, quarantine, closure, and so on, to prevent the spread of infectious diseases and large outbreaks. The Public Health Ordinance Act 1944 stipulates that in the event of a public health emergency, the government should take action to prevent the spread of diseases, safeguard against public health, and provide medical services as essential to community health.

When an epidemic of a foodborne disease was confirmed, an emergency response team was organized within the IEDCR, and the affected areas were visited to assess the situation and investigate the cause, in order to discuss with the DGHS and other relevant agencies so that necessary measures were taken. Diarrheal diseases and hepatitis A and E were identified as foodborne diseases in the endemic diseases of 2017.

2.2.3 Department of Agricultural Extension, Ministry of Agriculture

2.2.3.1 Objectives of the organization, related acts and regulations

The Ministry of Agriculture is responsible for the production and management of food such as grains, vegetables, and fruits, among which the Department of Agricultural Extension (DAE) is directly involved with the producers at the field level. The main task of the DAE is to share the correct knowledge and technology about agricultural production with farmers, aiming to be able to produce agricultural products in an appropriate manner and to increase agricultural productivity. There is no department that specializes in food safety, but the DAE tackles food safety issues. The Ministry of Agriculture specializes in production relations, and processed products are not in the Ministry of Agriculture's control.

The Ministry of Agriculture implemented an agricultural policy based on the agricultural policy of 2016/2017, a new agricultural extension policy (decided in 1998), and utilizes the general control policy and agricultural extension manual of 2017. The relevant laws and regulations of the Ministry of Agriculture includes the Pesticide Regulation Act, the Fertilizer Act, the Seed Act, and the Quarantine Act 2011. The DAE promotes the policies in compliance with these acts. The basis

of the laws and regulations for import and export are the Quarantine Law 2011 and the Quarantine

Regulations 2018.

2.2.3.2 Organization and personnel

In its vision, the DAE states that "Food safety is provided as one of the priorities, providing environmentally friendly, safe, climate change resistant, sustainable, and productive agriculture." The DAE consists of the following eight wings: Administration and Financing, Field Services, Crops, Horticulture, Plant Protection, Plant Quarantine, Training, Planning, Project Implementation, and ICT Wings. Approximately 14,000 Sub-assistant Agriculture Officers are located in the Sub-district office. The current percentage of female extension workers is around

10%, and the department wants to allocate 30% of females among the workers in the future. It is also said that 30% of women are adjusting to participate in farmer training.

Table 2.19 Rural Agricultural Extension System

Post	level	number
Additional Director (Region)	3	14
Deputy Director (E&D*)	5	14
Senior Agricultural Engineer	6	14
Deputy Director (District)	5	64
District Training Officer	5	64
Additional Deputy Director (Crop)	6	64
Additional Deputy Director (PP**)	6	64
Additional Deputy Director (Hort)	6	64
Agricultural Engineer	9	64
Upazila Agricultural Officer	6	487
Additional Agricultural Officer	6	487
Agricultural Extension Officer	9	495
Metropolitan Agricultural Officer	6	24
Assistant Agricultural Extension Officer	10	487
Sub-assistant Plant Protection Officer	11	509
Sub-assistant Agricultural Officer	11	14,092

* Establishment and Development ** Plant Protection
Source: Agricultural Extension Manual 2018

- Laboratories are only in Dhaka, setting up the Plant Protection Division, and the Plant Quarantine Division

The DAE has four senior officials at the Sub-district level, two middle class government officials, and 14,000 Sub-assistant Agriculture Officers (extension officers) across the country, when compared to other ministries. It can be seen that this number of staff is substantial. The Ministry of Agriculture and the DAE have not yet achieved the GAP response, but they are willing to train senior officials to be GAP internal auditors with the ability to respond to internal audits in the future.

2.2.3.3 Major activities on food safety

The main role of the department concerns production technology guidance, and there are no dedicated departments dealing with food safety in the eight Wings. However, the Extension Wings manage the entire food safety process, and the Plant Prevention and Horticultural Wings each give instruction in the appropriate usage of pesticides. At the field level, six of the Sub-district DAE workers are selected and designated as pesticide inspectors and fertilizer monitors. The DAE plans to provide these personnel with GAP training to act as GAP inspectors.

Pesticides are controlled by the Pesticide Regulation Act. It is said that illegal pesticides may be imported by land from the Indian border. Since there is only one testing laboratory for pesticide residue in Dhaka, samples are sent to the BSTI testing laboratory if necessary.

Regarding the GAP, in 2016, an FAO short-term project created a related document of the Bangladesh GAP based on the ASEAN GAP, incorporating the concepts, structures, and training manuals.

The DAE interviewer explained that the government must first establish a GAP policy and provide a budget in order to fully implement the Bangladesh GAP throughout the country. Currently, the government is interested in promoting the GAP. A number of extension officers should be trained to enable inspections of GAP compliance, based on the GAP policy. One testing laboratory per region needs to be established where pesticide residues can be measured from nine regions.

The Plant Quarantine Wing in the DAE oversees pesticide management and predominantly issues insecticide product registrations and business permits. After the product is registered, the manufacturer is required to obtain a license. The issuance of a license will also be conducted by

the same department. The license is issued for each company and has a two-year validity period.

Inspectors visit the stores and may collect samples and test products that may be suspected. The measurement items are the main components in the composition table, and assess whether these components are within the specifications. It is not confirmed whether there are any mixes of other harmful ingredients. The Maximum Residual Level (MRL) does not have a standard for Bangladesh, so EU standards are used if necessary. If there is an issue among the products, registration will not be given, and all the products from the same batch will be withdrawn and legal proceedings will be taken.

Plant quarantine is implemented by the DAE Plant Quarantine Wing in ports and inland ports. However, it covers agricultural products that are close to raw materials, and their byproducts, rather than processed foods.

Importers of agricultural products are obliged to obtain and submit a sanitary certificate from exporting countries. For exports from Bangladesh, the DAE issues sanitation certificates in accordance with requirements of recipient countries at the request of the exporting company.

At the site, the Agricultural Extension Officers conduct training for farmers in their jurisdiction. They are instructed in the appropriate amount of pesticide usage, and to record the amounts of pesticides used based on the Pesticide (Amendment) Ordinance 2009. However, there are many farmers who cannot read or write, and at present, the number of farmers who can record pesticide consumption is limited. The Extension Officers monitor and instruct the amount of fertilizer used on site.

2.2.3.4 Coordination with the Bangladesh Food Safety Authority

The DAE understands that with regard to role sharing with the BFSA, the agricultural product stage is classified with the Ministry of Agriculture, and after the agricultural products become food, they are classified by the BFSA to control adulterated foods and food additives. The DAE considers that there is no duplication of the tasks among the BFSA and the DAE since they have different roles, and that the DAE is able to carry out the division of roles by continuing what has been done before the establishment of the BFSA.

2.2.3.5 Outstanding food safety issues in the department

The DAE currently considers the following as necessary to improve food safety under its jurisdiction.

As the production stage is important to secure food safety, it is necessary to introduce the Bangladesh GAP. At the field level, there are issues such as a no-trace function due to a lack of recording of the products, and no-approval mechanism of the products. The DAE believes that the introduction of the GAP solves these problems and will lead to the provision of safe food.

To introduce the GAP, the DAE considers that it is necessary to train the GAP auditors and provide training for producers, distribute manuals, secure markets, and support the application fees to be paid to the Accreditation Body. The DAE aims to train its staff as GAP auditors and become a GAP Certification Body.

A laboratory is indispensable for GAP introduction, yet there is only one small-scale laboratory in Dhaka at present and sufficient responses cannot be performed. As the technical focus of the GAP is on pesticide residue, this needs to be tested in line with pesticide residue standards. To realize the GAP, the DAE thinks that it is necessary to establish at least one laboratory at the Sub-district level.

2.2.4 Department of Fisheries

2.2.4.1 Objectives of the organization, related acts and regulations

It is responsible for the Ministry of Fisheries and Livestock to formulate and implement policies, supervise production, and manage and distribute fishery and livestock products.

The Department of Fisheries (DoF) aims for poverty reduction, supply of animal protein, the earning of foreign currency through exports, and the maintenance of ecological balance and diversity, alongside increasing fishery and aquaculture production and promoting the Bangladesh fisheries industry.

Acts related to food safety under the jurisdiction of the Ministry of Fisheries and Livestock include the Aquaculture Feed Rule 2011 of the Livestock Feed Act 2010, and the Juvenile Fish Rule 2011 of the Juvenile Fish Act 2011. The Fishery inspection quality control guidelines apply to juvenile fishermen. There is no need for permission to start aquaculture, but permission is required to start producing feed and fry. The quality of seafood for domestic consumption is controlled by the National Control and Monitoring Plan and the Farm Monitoring Plan.

Under the Fish Protection and Conservation Act 1950, catching small fish is banned for resource protection. To fully enforce the Act, the DOF staff visit markets to check if any of the prohibited fish is sold.

2.2.4.2 Organization and personnel

Although the DoF has a total capacity of 5,927 positions, the number of staff is 4,227 as of 2017.

There are four officers: the Sub-district Fishery Officer, Assistant Fishery Officer, Fishery Extension and Quality Control Officer, and the Field Assistant at each Sub-district office, who are responsible for day-to-day tasks. Some of the activities include Good Aquaculture Practice. Aside from the Sub-district office, there are Fish Inspection and Quality Control Offices in Dhaka, Chittagong, and Khulna, and three Inspection Quality Control Officers in each office. There are also three Fish Quality Control Laboratories in these three areas, which can detect microorganisms, chemicals, and heavy metals.

2.2.4.3 Major activities on food safety

As the middle class has come to account for one-third of the country's total population and the number of urban residents has increased, the people of Bangladesh have started to become more aware of food safety. To meet the people's demand for safe food, the Government of Bangladesh has started regulating the use of harmful pesticides. The people request food products with quality control at the stages of production, processing, and distribution. The sales of products that meet such standard have increased. In addition, Bangladesh exports 140 processed food products to 144 countries. The country's food export value is expected to increase, and the world is paying closer attention to the hygiene and safety of Bangladesh's processed foods.

The DoF is currently preparing a new project: Promoting Safe Compliance for Fish and Fisheries Products in Bangladesh, as implemented by the Government of Bangladesh, with a budget allocation totaling BDT 2,345 million over four years.

The DoF visits sites for inspections, tests samples, and publishes results. Items for tests and inspections include pathogenic microbes, chemicals, heavy metals, and others. The DoF can issue an order to remove them from the market if they detect harmful substances that are above the threshold. The results of the sample test conducted until 2017 is shown in Table 1.20.

Training for aquaculture farmers is currently underway with two projects. One is the Winlock safety project funded by the United States Agency for International Development (USAID),

which targets fish aquaculture farmers. The other project is funded by the World Bank for the sustainable coastal marine fishery project, which targets fishery and aquaculture.

The DoF has established a mechanism to register and certify all stakeholders in the supply chain. This system is used in the shrimp aquaculture industry, and 220,000 aquaculture farmers have been registered. The project, which will start next year, will target 500,000 new farmers. Furthermore, the Winlock project targets 200,000 farmers. Registered farmers will be given a unique number to score and identify their locations on a website using GPS. Buyers can determine where to go to get expected items.

Cow and goat manure were previously used as feed for aquaculture but now through the management of Good Aquaculture Practice, either domestic or imported feeds are used instead. Some aquaculture farmers provide feed from the hides discarded from leather tanning. These contain high protein, but are prohibited for use as they contain chemicals. With the introduction of sophisticated testing equipment, it has become possible to inspect whether the chemicals used in leather tanning bait are contained, making it possible to easily issue a sanitary certificate on the safety of exported marine products.

The Fish Quality Control Laboratories are located in Dhaka, Chittagong, and Khulna. All three laboratories have obtained the ISO 17025 certification from the Bangladesh Accreditation Board (BAB). They have also passed the Quality Control Test from a third-party organization and received high praise when visited from the EU office. These laboratories will also inspect the safety of exported fish products and issue a sanitary certificate. The certificate issued by this laboratory can be used as a document required for the export of fishery products.

There are two types of samples: samples that the inspectors have taken based on the National Residual Control Plan formulated by the DoF, and samples from private companies as requested by themselves. In the Factory Residual Control Plan, parameters to be measured are specified for each factory, and each company requests testing to any accredited laboratories.

The on-site inspection is conducted by the inspection department in the Dhaka, Chittagong, and Khulna offices. The sites of inspections are fishery processing plants, and samples are collected during the on-site inspection of the plant.

The laboratories conduct chemical and microbiological tests. The main test items are antibiotics, mycotoxins, anthelmintic, heavy metals, and so on. Of the total staff in the Dhaka laboratory, nine are engaged in testing work. Owing to insufficient laboratory technologists, the laboratories are requesting a review of the system and an increase in positions.

The issues listed from this laboratory are as follows:

LC-MS/MS has been recently introduced into the laboratories in Khulna and Chittagong. However, it cannot be used since there are no technicians with the knowledge of how to use this equipment. The Khulna and Chittagong staff need training in this technique.

The GC-MS in the Dhaka laboratory requires the replacement of spare parts, but the cost is approximately Bangladeshi Taka (BDT) 5 million and the laboratory cannot purchase it due to lack of budget.

There are shortages of personnel, equipment, maintenance costs for the laboratory, and training opportunities. The EU inspection team suggested that the laboratories should examine eight new parameters, but the need is rather to develop the examination methods of these parameters.

The laboratory quality assurance manager, who has been recently established, would like to receive manager training.

2.2.4.4 Observation against the Bangladesh Food Safety Authority

Even after the establishment of the BFSA, the DoF conducts on-site inspections and quality

controls under its own authority same as before. The DoF has already signed the MOU with the BFSA to clarify the division of roles.

2.2.5 Department of Livestock Service

2.2.5.1 Objectives of the organization, related acts and regulations

The Department of Livestock Services (DLS) is responsible for the enforcement, guidance, supervision, and disease control of livestock for livestock farmers, and is working to improve livestock productivity and to ensure quality and safety. The supervision scope of the DLS is until the production stage of livestock farmers, with the slaughter control, market management, distribution, and sales being understood as the jurisdiction of other ministries.

The DLS conforms to four laws and regulations: The Animal Disease Law, Animal Feed Law, Quarantine Law, and Slaughter Law.

2.2.5.2 Organization and personnel

The DLS has 11 staff members at the Sub-district level: a senior officer, a Sub-district Livestock Officer and a Veterinarian Officer, three Livestock Extension Workers, one Artificial Fertilizer and one Animal Pharmacist. The Veterinary Officers are Veterinarians, but the Sub-district Livestock Officers may not have a Veterinarian status. The extension staff are not Veterinarians but have completed a four-year diploma at a veterinary training center under the authority of the livestock department. At the field level, only microbial testing is possible. There are 200 Veterinary Officials in 500 Sub-districts providing consultation services to the farmers.

2.2.5.3 Major activities on food safety

The DLS is mainly responsible for the regulations until the production stage of livestock farmers. They do not apply to distribution and sales after the market.

The staff of the Sub-district Livestock Offices communicate with livestock farmers in the field. Large livestock animals are examined at the animal hospital set up at the Sub-district Livestock Offices, and small livestock animals such as chickens will be examined in the field. The DLS is working on food safety throughout the department, but there is no dedicated food safety department.

The DLS also performs feed registration and feed safety and quality control based on the Livestock Feed Act 2013 and the Aquaculture Feed Act 2010. They have also dealt with violations of the law, and last month 25 brief trials were held. Although legal power is sufficient, laws and regulations have not been fully implemented due to lack of manpower.

Although there are nine laboratories under the jurisdiction of the DLS, only one laboratory in Dhaka is able to conduct chemical tests, and the others are only able to examine microbiological tests.

The DLS also oversees the import and export management of livestock products. There are 24 livestock quarantine stations, each with three or four staff members. There is not a great deal of import and export of livestock products. There is an issue of illegal imports as identified at the Indian border.

As part of the FAO-Netherlands project from 2013 to 2018, 25 of the Sub-districts, as pilot sites, implemented a food safety program for broiler producers, processors, and distributors. In line with the guidelines, training was conducted to raise awareness of livestock control measures, the biosafety of farmers and other stakeholders in the supply chain, and to enhance the safety of

microorganisms. This project introduced a certification system of excellent farmers who practice hygiene management properly without inappropriate usage of antibiotics.

The DLS is willing to extend this experience, but it is unable to do so because of a lack of funds and resources. The DLS would like to secure funds and human resources in order to expand these efforts to 200 Sub-districts.

The Livestock and Dairy Development Project, funded by the World Bank, has been implemented from January 2019 to the end of 2023. This project mainly supports 20 Sub-district slaughterhouses and milk collectors, establishes biosecurity of livestock, and raises farmers' awareness. It is the largest project in the livestock sector with a budget of USD 500 million.

2.2.5.4 Observations against the Bangladesh Food Safety Authority

Under the Food Safety Act 2013, the BFSA is developing a framework for implementing food safety and has signed an MOU with the DLS. According to Dr. Md. Abu Sufian, Assistant Director of the Department of Livestock Service, since there are shortages of human resources, there are aims to work with the BFSA, but nothing has started yet. As the BFSA is collaborating with the reference laboratories, it would be beneficial if the department used a reference laboratory with a low price.

2.2.5.5 Outstanding food safety issues in the department

- Shortage of human resources in the Department.

The largest challenge is the lack of human resources in the Sub-district Livestock Offices. The livestock industry is developing rapidly, thus it is crucial to increase personnel. Double the amount of current staff is needed. The number of 9,497 staff positions has not changed since 1982, and although they seek an increase in personnel, it has not yet been approved.

Ideally, 4,000 Livestock Veterinarians are required, but there are currently only 2,000 human resources in the DLS. Since human resources are limited, it has not been possible to test poultry in the market. Six hundred million broilers and five million tons of feed are produced each year without any tests or inspections. It is necessary to work with the BFSA to ensure food safety.

- Improper slaughtering processes in the retail market.

The issue is that the slaughtering process is inappropriate in traditional retail markets. People focus on freshness. There are 230 markets in Dhaka for buying and selling live chickens. However, this is not desirable from the point of view of livestock epidemic prevention. An established slaughter system is needed in the designated areas.

- Rising prices due to uneven production times.

During Eid al-Adha, livestock is traded with prices up to five times higher than usual. As a result, farmers are interested more in this period and less in other times, resulting in higher livestock prices.

2.2.6 Bangladesh Standard and Testing Institution (BSTI)

2.2.6.1 Objectives of the organization, related acts and regulations

The Bangladesh Standard and Testing Institution (BSTI) is a public institution under the Ministry of Industry. The BSTI is in charge of standards development, inspection, and certification of obliged industrial products, chemical products, electrical products, processed agricultural products, and processed foods which are manufactured, distributed, and consumed in Bangladesh.

There is a total of 194 product categories requiring the BSTI approval and logo marking, of which 72 (approximately 37%) are processed foods.

Among the laws and regulations that the BSTI complies with, that regarding food safety is as follows:

- The BSTI (amendment) Act 2018 and Rules 1989.

Manufacturers and importers are required to inspect products and imports for compliance with the standard, obtain a logo display permit, and display logos on all products.

- The Bangladesh standards of Weights and Measures (amendment) Act 2001 and the Bangladesh Standards of Weights and Measures (Packaged Commodities) Rule 2007.

This stipulates the display of information as required by package manufacturers, product manufacturers, exporters, sellers, and consumers. The manufacturer's name, address, raw material, weight, date of manufacture and shelf life, retail price, display language and so on, are specified.

2.2.6.2 Organization and personnel

The BSTI is headquartered in Dhaka and has six regional offices,[7] six district offices,[8] and four laboratories.[9] The agency has 607 employees nationwide, of which around 70 are involved in food safety. However, 20 positions are vacant due to financial constraints. The organization has five departments: the Standard, Physical Testing, Chemical Testing, Metrology, and Certification Marks Wings. The Chemical Testing and Certification Marks Wings are particularly relevant to food safety administration.

The Standard Wing, together with technical committees in the field, prepares the standards for processed foods. The Chemical Testing Wing oversees the testing of samples submitted for obtaining approval as well as samples collected by the inspectors. The Certification Marks Wing oversees quality control and compliance with domestic standards and is responsible for the inspection and issuance of approval at the start of the production and renewal of processed foods.

In addition to the 22 inspectors being assigned to the Certification Marks Wing of the Dhaka headquarters, other inspectors are also assigned to each Regional and District Offices and carry out inspections of jurisdictions.

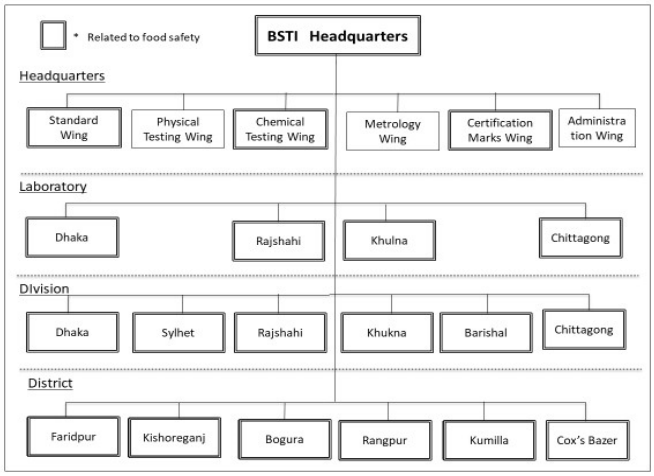

Figure 2.5 BSTI Organization chart
Source: BSTI Annual report

2.2.6.3 Major activities on food safety

A. Formulation of standards for processed foods

The Standard Wing is responsible for the new formulation and review of processed food standards, excluding primary products. In the past, the Bangladesh Standard (BDS) has been used, but in recent years it has adopted international standards such as those of the EU, the Codex

[7] Regional offices are located in Dhaka, Chittagong, Khulna, Rajshahi, Barisal, and Sylhet.
[8] District offices are located in Rangpur, Comilla, Kishoreganj, Faridpur, Cox's Bazar, and Bogra.
[9] Laboratories are located in Dhaka, Chittagong, Rajshahi, and Khulna.

Alimentarius Committee, and the ISO, in anticipation of exports. A total of 18 items from the 72 processed food products that require accreditation are standardized to be consistent with international standards.

In addition to the 72 items required to be licensed, the BSTI has established standards for 600 processed foods. These can also be inspected and approved based on the standards developed by the BSTI. New standards will be formulated for newly developed processed foods as needed.

New standards will be reviewed and approved by the technical committees that are established for each processed food field. The formulation of the standard is performed through procedures such as (1) examination and approval in the section committee about the proposal of the new standard development from the concerned parties, (2) preparation of the draft standard by technical committee, (3) examination of the draft standard in each committee, (4) holding public hearings, and reflection upon the opinions, (5) committee approval, (6) finalization and publication.

B. Authorization flow

The Certification Marks Wing oversees a series of approval processes. It monitors each product for compliance with standards so that consumers can comfortably buy approved products. Only authorized products can display the logo.

The flow of approval is as follows:

(1) Submission of application and attached documents.

(2) Primary documents examination.

(3) Factory inspection by inspectors, determination and sealing of samples.

(4) Submission of sealed samples to the BSTI laboratory and operation of inspection.

(5) Confirming compliance with food standards and issue of a permit.

BSTI Logo mark

The licensing period is three years, and companies are required to renew the license every three years. To obtain a permit, they must pay the inspection fees, permit issuance fees and renewal fee. The cost depends on the types of products or the production scale of the factory, which can be confirmed before the application[10].

In addition to the approval of processed foods, the BSTI also performs the ISO certification as a governmental agency. Currently, the BSTI issues ISO 9001 (Quality Control System), ISO 14001 (Environment Management System), and ISO 22000 (Food Safety Management System) certifications. In the fiscal year 2017, ISO 9001 was issued to five food processing companies, and ISO 22000 to one company[11].

C. Inspection by the BSTI

The BSTI conducts inspections of factories, manufacturers, dealers at the time of product approval, and for approved products to secure quality and safety. The inspectors are assigned at the headquarters in Dhaka, and each regional and district offices to conduct inspections of the jurisdiction area. There are 22 inspectors at the Dhaka headquarters.

The sanitation and environment of the manufacturing factories, management status of equipment,

[10] These service charges are clarified in Citizen Charter. For example, when applying for fruit juice, it is necessary to pay the license issuance fee is from BDT 1,875 to 1.5 million depending on the scale of factory production, renewal fee from BDT 93,750 to 500,000, and inspection fee BDT 1,398 (22 days) or BDT 2,796 (11 days).
[11] According to the size of the factory, ISO certification costs from BDT 50,000 to 75,000 for application fee and approval fee. There is an additional labor cost of BDT 300/person per day for this.

inspection of transportation, and laboratory testing of products by sampling from the market, are conducted once a year for every product and manufacturer that has issued approval. The inspection is conducted as the same process when acquiring a new authorization, and is after the acquisition itself.

For an inspection of a manufacturing plant, after advance notification of inspection to the companies, the inspectors visit and carry out inspections on sanitary and safety aspects of the plant based on standardized assessment items. During this time, the inspectors select a sample to be brought into the BSTI, seal it so as not to replace the product, and attach a document signed by the inspector to the product. The manufacturer later brings the corresponding goods to the BSTI and performs the inspection procedures. There is an implementation procedure for each item as to how to conduct these inspections, and the inspectors perform on-site inspections in accordance with this procedure.

The inspection is handled by the regional office in charge, depending on the location of the factory. In principle, the laboratory in the corresponding area will oversee the inspection, but if a neighboring laboratory cannot handle to examine samples, it will instruct them to submit a sample to an inspection-enabled laboratory.

The inspection cost and the number of inspection days are set for each item, and when an urgent inspection is necessary, the inspection is accepted for half of the expected period with a double cost. The product to be inspected is brought to a reception counter set up at the BSTI's office, and a prescribed amount is paid to apply for the inspection.

If there is an issue with the inspection, re-examination is to be conducted based on the implementation procedure manual, and if the issue still persists, the BSTI informs the company. If this does not improve the issue, legal proceedings will be taken through the cancellation of the authorization or the mobile court trials. The mobile court trial will be conducted by a Judge with the presence of the inspector.

The BSTI's inspectors and related parties raised issues as the following points regarding performing on-site inspections:

- The document preparation work after inspection is huge, which is large burden.
- The means of transportation to the inspection site (such as arrangement of vehicles, payment of transportation expenses and so on) are not provided, and the costs are borne by the inspector.
- The number of computers is not sufficient, with four or five people using each computer.
- The senior management comes from other ministries or agencies and the BSTI's operations are less understood, which makes it difficult to have their full cooperation. Work improvement or reviewing efforts are also difficult because the permission or approval from senior management is hard to gain. For example, the introduction of the automation system is considered, but it has not been introduced, even after three years. Even if there was an opportunity for overseas training, it will not benefit the people in charge of the operation because the senior staff members from other departments will participate, not the relevant technicians.

D. BSTI laboratories

There are one central laboratory in Dhaka and the three regional laboratories in Chittagong, Rajshahi, and Khulna for the BSTI. These laboratories conduct testing of items approved by the BSTI, including food.

The laboratories of the BSTI are broadly divided into the Chemical Test Wing and the Physical Test Wing, with the chemical laboratory overseeing the food safety tests.

There is a statement of standards for each food type, and the sample collection method, parameters to be tested, and test methods are specifically described. In accordance with the standards, the necessary testing will be conducted on time, and the results will be reported to the Certification Marks Wing on a paper basis, and subsequent procedures will be performed by the Certification Marks Wing.

Food safety analysis is mainly divided into microbiological tests, physicochemical inspections (heavy metal inspection, chemical substance inspection), and component and quality inspections. The laboratory conducts these tests based on the BDS as formulated by the Standard Wing and includes advanced tests such as high-performance liquid chromatography or gas chromatography. The Standard Wing sequentially reviews the standard testing methods such as BDS-CAC and BDS-ISO in accordance with international standards such as the Codex standard and the ISO. Half of the parameters are currently set to be consistent with the international standards. The BSTI Central Laboratory, through the NABL,[12] has obtained the ISO 17025.[13] The system to ensure data consistency and accuracy has been developed and practiced. The BSTI has also obtained BAB approval.

E. Human resource development in the BSTI

Two types of training to develop human resources are available in the BSTI: the BSTI-sponsored training, and the external training (including overseas). If donors provide training opportunities, personnel are dispatched overseas to learn the international standards, and domestic training is conducted based on the findings. Domestic training aims at (a) strengthening individual skills, (b) improving equipment performance, and (c) enhancing lab capacity, and are held across four sessions a year and invite staff from BSTI-related organizations across the country. Training content is decided on an ad-hoc basis, and is based on past training results, with the trainings being implemented.

The BSTI points out the importance of training as an issue in food safety testing and it assumes the internal training conducted within the organization and the external training conducted overseas. Conformity assessments conducted by the BSTI include (1) testing (shapes), (2) testing of chemical substances, and (3) weighing tests. It is considered necessary to conduct training on the standards and testing methods that are updated daily in these three fields, and to constantly upgrade knowledge and technology. It is believed that if the BSTI has a training facility, it can train more staff.

2.2.6.4 Observations against the Bangladesh Food Safety Authority

The BSTI recognizes the role of the BFSA as a food safety coordination and advisory body. If there is advice from the BFSA, the BSTI reviews its contents and formulates standards, conducts tests, and issues permits. The BFSA aims at securing food safety and has indicators and standard settings that are specialized for safety. The BSTI believes that its objectives are different from the BFSA's because it verifies safety, but also secures quality.

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[12] NABL (National Accreditation Board for Testing and Calibration Laboratories)
[13] ISO / IEC 17025 is called "laboratory certification" and has requirements for testing laboratories that carry out product inspections, analysis and measurements, etc. and calibration institutes that carry out calibration services for measuring instruments. PJLA is an accreditation body that has signed a mutual recognition agreement (MRA) with ILAC and APAC, and conducts examinations in accordance with the requirements of the standard. Then, it determines whether the laboratory or calibration organization is appropriate to obtain accreditation. Accredited organizations can add accreditation symbols to test reports and proofs of calibration. The certification demonstrates that the management ability of an organization to perform product control and quality control and the ability to produce reliable test and calibration results are internationally recognized.

Both the BFSA and BSTI are public institutions and operate according to government policies, and collaboration between them is required. There is a place for mutual communication with the BSTI-sponsored coordination committee inviting the BFSA high officers and the BFSA-sponsored coordination committee attended by the BSTI directors. Thus, since information sharing between organizations has already been established and each organization has only to play its own role, the BSTI does not recognize the need to advance coordination with the BFSA in other frameworks such as the MOU.

2.2.7 Bangladesh Council of Scientific and Industrial Research

2.2.7.1 Objectives of the organization, related acts and regulations

The Bangladesh Council of Scientific and Industrial Research (hereinafter referred to as BCSIR) is a research institute under the Ministry of Science and Technology (MoST) and aims to develop new technologies related to the development of chemical technology and industry. BCSIR has 11 research institutes, including the Institute of Food Sciences and Technology (IFST) in Dhaka, which conducts food-specific research and development. The food-related departments of the BCSIR, including the laboratory, works to secure food with high nutritional value and develops science and technology which contributes to social and economic development through the promotion of technology, technology transfer, and technology loans, to the food industry and companies.

Although the BCSIR understands that there is a Food Safety Act 2013 as a related law, the BCSIR has its own law to which it complies: the BCSIR law 2013.

2.2.7.2 Organization and personnel

Research and development related to food and food safety within the organization of the BCSIR is at the IFST located in Dhaka City and the BCSIR regional research institutes located in Chittagong and Rajshahi. The BCSIR employs people who have a master's degree or higher in chemistry or science. Human resources are hired by the BCSIR Dhaka and assigned to each research institute. Staff development is conducted through practical work, and if necessary, each institute may hold their own specialty training for staff in other institutes within the BCSIR. There are opportunities for overseas training with the assistance of donors, but the opportunities are limited.

2.2.7.3 Major activities on food safety

The major responsibility of the BCSIR in food safety is research and development, and there is no oversight function of food safety in the market. When requested by other ministries or companies, for a fee, it can conduct testing of food samples, and provide training or technology transfer to the employees of the clients. Shrimp quality standards in Bangladesh are reported to meet import country standards, to which the IFST contributes through inspection services and technical guidance. In collaboration with the Ministry of Livestock and Fisheries, the Fishery Inspection and Quality Control (FIQC) methods are prepared, and training and inspections are conducted for the private companies involved in shrimp export.

2.2.8 National Consumer Right Protection Directorate

2.2.8.1 Objectives of the organization, related act and regulation

The National Consumer Rights Protection Directorate is under the jurisdiction of the Ministry of

Commerce. There are four Wings under the directorate; the Food, Product (including processed foods), Pharmaceutical and Service (including restaurants and hotels) Wings. The Directorate aims to protect the rights of consumers to enjoy goods and services of an appropriate quality and price.

The Directorate complies with the Consumer Rights Protection Act 2009, and officials follow this law as a guideline. Based on the law, there are severe measures taken against the "no price list, selling with price above regular prices, sale of adulterated food, false advertising, falsehood of products' weight, sale of expired products, and the sale of food products causing health damage."

2.2.8.2 Organization and personnel

The personnel at the District level are allocated from a total of 172 people, and each District has one Consumer Rights Protection Officer and two assistants, but only 71 people are in charge of food safety. However, 17 out of 64 Districts are vacant, and no personnel are assigned to the City Corporation or the Sub-district level. The Consumer Rights Protection Officers monitor markets, restaurants, retailers, and food processing plants for violations. As their scope of work is so broad, they would like to have an officer in the Sub-district. At the district level, 80% of the Consumer Rights Protection Officers are in charge of tasks related to food safety. The Consumer Rights Protection Officers oversee around 10 Sub-districts alone, and the area under consideration is wide. Therefore, in practice, there is seldom an overlap between the District Consumer Rights Protection Officers and the Sub-district Food Safety Inspectors.

2.2.8.3 Major activities on food safety

The Consumer Rights Protection Officers and Sub-district Food Safety Inspectors differ in the level of education they have completed, and the rights granted. The Sub-district's Sanitary Inspector is a diploma graduate with the only instructional authority. The Consumer Rights Protection Officers are graduates or higher, and some have master's or doctoral degrees. The field of specialization is not limited. The Consumer Rights Protection Officers have the right to impose fines on their part and deprive them of their certificates, but only the Judge can enforce prison sentences.

The National Consumer Rights Protection Directorate conducts inspections upon notification from the consumers. When a company's violation is confirmed, 25% of the fines are paid to consumers as compensation for damages. Therefore, there is much notification from the customers, but because of lack of personnel it is impossible to collect evidence at each time. The Consumers copy the evidence with photos and so on, and report them by e-mail or at the office. After reviewing these notices, the call the defendant for verification. If the defendant has committed a violation, they will be fined.

The Directorate received a special award from the Cabinet Division for a new initiative using social media in which all Consumer Rights Protection Officers have Facebook accounts and are linked to the District, Region and headquarters official accounts. This enables the headquarters to confirm the activities and cases of officials at the Sub-district level. In addition, the public may send a photo of the violation to the District Officer, which is also subjected to enforcement.

2.2.8.4 Observations on the Bangladesh Food Safety Authority

Food Safety Officers are responsible only for food, while the areas covered by the National Consumer Rights Protection Directorate include those other than food. Once the Food Safety Officers are assigned at the District level in the future, they hope to collaborate with the Food Safety Officer and reduce the workload in the food sector.

The Consumer Rights Protection Officers in the district have some overlap in the targeting fields

with the Food Safety Officers. The degree of collaboration between the National Consumer Rights Protection Directorate and the Institute of Public Health or the BFSA has been low.

2.2.9 Bangladesh Accreditation Body

2.2.9.1 Objectives of the organization, related acts, and regulations

The Bangladesh Accreditation Board (BAB) is a relatively new organization established in 2006 under the Ministry of Industries. It is the only public accreditation organization and mainly certifies in three areas: test laboratories, external certification bodies, and inspection systems.

The organization complies with the Bangladesh Accreditation Act 2006. As the Food Safety Act states that "the BFSA advises the BAB on the accreditation of the food safety field," the organization recognizes the necessity to work with the BFSA.

2.2.9.2 Organization and personnel

The organization chart shows a capacity of 20 people; 14 of those are in full-time employment and includes staff and senior staff, and 6 are vacant.

As the evaluators of accreditation are required to have a high level of expertise depending on the field and purpose, 16 internal evaluators from the organization and 600 external registered evaluators formed an evaluation team, and a minimum of two or more people monitored the accreditation process.

2.2.9.3 Major activities on food safety

Although accreditation by the organization is not mandatory in Bangladesh, the credibility of the third party greatly differs depending on whether the accreditation has been obtained. Therefore, the number of public organizations and private companies that apply for certification increases yearly. Specifically, laboratory accreditations are a main area to issue a certification in the organization. Although only one laboratory obtained accreditation in 2006, at the time of the survey, 55 laboratories and 10 calibration laboratories had been accredited. Of these, eight are food-related laboratories.

After application, the accreditation process goes through a primary evaluation, an improvement of the indicated matters, and a secondary evaluation. The accreditation period is for three years; the results of the first and second-year inspections will decide whether to issue a renewal certificate in the third year.

The organization established a system for the external certification of ISO 22000, which is an accreditation for food safety management, with technical support from the FAO-USAID project. There was a track record of certifying the standard inspection institution to an ISO 22000 accreditation body.

2.2.9.4 Observations against the Bangladesh Food Safety Authority

The BAB looks forward to the future of the BFSA and aims to have better coordination and monitoring among central ministries under the Food Safety Act. The organization also hopes to be instructed in the areas that the BFSA advises.

2.2.10 Private certifications and certifying organizations

The number of private accreditation organizations in Bangladesh is increasing yearly. There is no

system that requires obtaining certification or company registration.

In particular, global companies with headquarters in the USA and Europe and Indian companies have made inroads in Bangladesh. These companies have set up representative offices in Bangladesh and support the operations according to the needs of customers, based on instructions from the headquarters and regional offices.

The Survey Team interviewed Alcumus ISOQAR, which has certified 52 companies in five years since its establishment in 2014. There are various types of accreditation, such as ISO 22000-2005, British Retail Consortium: BRC accreditation, HACCP, Good Manufacturing Practice: GMP, ISO9001, Organic Product Certification, and Halal certification. In recent years, there is high demand to obtain accreditation for not only export companies but also companies that are specialized in domestic production. The cost of obtaining certification varies according to the size of the plant, and estimates are conducted at the headquarters in the United Kingdom.

Table 2.20 below shows other private certification companies in Japan. SGS Bangladesh has its own laboratory and is accredited by the BAB. The food processing company that was visited by the Survey Team aimed for ISO acquisition by SGS.

Table 2.20 Sample Private Accreditation Companies

Name of Company	Accreditation Body
SGS Bangladesh	NABL (Indian Accreditation Body) Laboratory is accredited by BAB.
Alucumus ISOQAR	UKAS (British Accreditation Body)
Intertek	Not Identified
Anglo Japanese American	UKAS (British Accreditation Body), SAC (Singapore Accreditation Body), NAC (Thailand Accreditation Body), TURKAK (Turkish Accreditation Body)
Advanced Assessment Service	UKAS (British Accreditation Body)

Source: Prepared by the Survey Team

2.3 Food control agencies in local government

2.3.1 Objectives of the organization, related acts and regulations

At the local level, overcrowded parts in urban areas are divided into the City Corporation while the other areas are roughly divided into districts, and Sub-districts are located under districts. The City Corporation and rural city (Pourashava) are autonomous and have administrative authority. While the City Corporation is under the control of the DLG, the districts and Sub-districts have personnel under the jurisdiction of each ministry, which is the difference between the City Corporation-rural city (Pourashava) and the district-Sub-districts. Interviews were conducted at six local level offices in the study: Dhaka South City Corporation, Dhaka North City Corporation, Rajshahi City Corporation, Bogra District, Gabtali Sub-district (Bogra District), [14] and the Keraniganj Sub-district (Dhaka District), and the results are described as follows.

[14] General Data in Gabtali Sub-district: The population of the county is about 500,000, and the county has one local city and 11 unions.
There are 25 public markets in the Sub-district and 12 supermarkets. As food related companies, there are 10 rice milling companies, 1 fish feed manufacturing company, 1 chicken feed company, and 4 traditional yogurt (Doi) manufacturing companies.

The City Corporations are under the control of the DLG and provide administrative services directly to the people in the areas. The offices of the City Corporation play a major role as a direct implementer of food safety.

Local Government Law is a law to which the City Corporation complies. The City Corporation adheres to the Food Safety Act 2013 with regard to food safety. The Consumer Rights Protection Act 2009 also applies to penalties for breach cases, and the Judge considers and determines the appropriate treatment by combining the administrative laws and the regulations of the local government.

The Districts and Sub-districts have branches of the central implementation agencies, and conduct food safety operations in accordance with the laws and regulations of the organization.

2.3.2 Organization and personnel

Dhaka City Corporation has human resources related to food safety under the MoHFW. Assistant Health Officers are assigned to each zone[15] in the director of health's department and two Food Safety Inspectors are assigned to each zone under the Health Administrative Officer. A navy or army doctor is on loan to the Health Director every two to three years. Health officials oversee the health department of each district, and the Food Safety Inspector falls under this category.

The Health and Hygiene Section includes Sanitation Control, Mosquito Control, and the Primary Health Unit. The position of the staff is prescribed, but in reality, there are vacancies, and thus lack of staff.

At the District level there is one District Health Officer, and at the Sub-district level there is one Food Safety Inspector under the Sub-district Health Officer.

The requirements to become a Food Safety Inspector include high school graduation qualifications. First, if the person has a minimum of six years' experience as a health assistant in the community, he/she can participate in the IPH-organized three-year course for the Sanitary Inspector training diploma. Those who complete the course can work as a Sanitary Inspector and concurrently work as a Food Safety Inspector.

2.3.3 Major activities on food safety

A. Issuance of registration

It is necessary to obtain a business permit from the City Cooperation or District when starting a food-related business, such as a restaurant, store, hotel, or a manufacturing industry. After filling out the necessary information to the prescribed form and submitting it to the City Corporation/District, the Food Safety Inspector will visit the facility to check its sanitary condition. If it is found to be eligible, a permit will be issued. The Food Safety Inspector conducts sanitation-related inspections before the license is issued. The license is valid for one year, and the business owner is required to renew the license every year. The renewal procedure when continuing the business requires the submission of documents, but when the business content or the business owner changes, another on-site inspection is performed.

Food Safety Inspectors can inspect the store issuing the license at any time, and if a violation is found, an improvement order or administrative penalty is issued. Process of the administrative orders or penalty is not standardized but differed by region/district. Unauthorized business is also

[15] The population of each zone is approximately 1 to 10 million.

subject to administrative action.

Street sellers have not had stern measures enforced. Street sellers do not have a specific location of business, and often sell food at a time zone other than 9:00 to 17:00, which is the working hours of the officers. There is a lack of human resources, thus it is difficult to respond to.

B. Inspection

The Food Safety Inspector conducts the inspections and removal of food samples according to the Food Safety Act 2013 and guidelines prepared by the BFSA. The inspections check food production, distribution, sales, sanitation management at each catering establishment, and waste drainage from food processing facilities and restaurants. The inspection targets all business owners related to the food industry such as retailers, meat shops, fish shops, restaurants, and hotels. A selection of the inspection places are unannounced or reported by the media or general citizens. There are no manuals or checklists to use when checking the sanitation status and adulterated foods, and the Food Safety Inspectors make a visual judgment based from their past experiences. There were both cases in which the total number was estimated, and in which the number was not estimated, regarding the number of targets for inspection. The implementation status of the on-site inspection as based on the plans are largely different depending on the person in charge; there are cases where inspection is conducted without a plan, and cases where a monthly plan of inspection is formulated. The food sampling method as implemented in Dhaka City is in accordance with the provisions of the Food Safety Act bylaws. Four identical products are purchased as samples, and two are stored in the laboratory, one by the Food Safety Inspector, and one by the storekeeper. If the content of the advertisement and the product is different, the samples stored by the Food Safety Inspector is utilized for testing.

The number of samples collected differs depending on the administrative organization; approximately 450 samples per year in the Dhaka North City Corporation, around 200 in the last three years in the Dhaka South City Corporation, zero samples a year in Rajshahi city, and 24 a year in the Keraniganj Sub-district. The items are processed foods such as confectionery, bread, juice, oil, bottled water, milk, and sauce. These items are examined to see if they meet the BSTI's quality standard.

However, currently there are only laboratories in the Dhaka South City Corporation and Chittagong City Corporation among local administrations. However, Dhaka South City Corporation has had its laboratory function suspended for the past eighteen months due to a lack of personnel and reconstruction of the laboratory, and Chittagong City Corporation has newly established a new examination room where no examination of samples has been conducted at the local level. In the other regions, samples are to be sent to the NFSL in Dhaka, but in practice, most samples are not sent, and the results are not provided even if they are sent. In the Rajshahi City Corporation, for example, although the previous law specified the number of samples to be collected in a month and the laboratory in charge of testing the samples, these regulations became invalid after the Food Safety Act 2013 was implemented. The City Corporations requested the BFSA to instruct how to conduct food inspections, but could not get reply. In the case of the Keraniganj Sub-district, the Food Safety Inspectors brought samples to the NFSL for around two months and around 24 times a year, but only around three test results were provided. Refrigerated products such as dairy products are transported using the cool box provided by the FAO-Netherlands project.

In the management of livestock production, the District Veterinary Service Department instructs on safe livestock production and checks the hygiene conditions of feed mills, slaughterhouses, and meat dealers. At the Sub-district level, the Veterinary Inspector, Veterinary Officer, and Veterinary Surgeon belonging to the Veterinary Unit are in charge and carry out the slaughter and slaughter safety management. The Sub-district is strengthening the control of antibiotics contained in feedstuffs for food safety in the livestock sector. The Veterinary Surgeons and the Veterinary

Expert collaborates to confirm whether the antibiotic used is as prescribed based on the prescription that is issued by the Veterinary Surgeon, or whether the antibiotic in violation is not used. At the same time, livestock farmers are provided with the correct knowledge of antibiotics and the treatment of sick animals. However, especially in rural areas, people kill and disassemble livestock freely, regardless of place and time, and it is difficult to manage slaughters.

As for agricultural products, while promoting the GAP, the District has instructed on safe crop production, including proper use of pesticides. At the Sub-district level, farmers are encouraged to use certified products for pesticides and fertilizers. The dissemination of the GAP may require a budget and has not been implemented.

As for fisheries, in addition to the guidance based on the GAP given to aquaculture farmers, the DOF has conducted inspections at feed factories and checked whether formalin is used in the fish dealt in the market.

At the Sub-district level, controlling feeds with illegal antibiotics has particularly been sternly measured against and inspections at fish feed factories have been conducted.

As with the District, the Sub-district promotes the GAP and supports the handling of safer aquatic products based on the guidelines. The Sub-district has used test kits and so on in the fishery market to confirm the use of illegal substances such as formalin. No formalin has been detected in the past year.

Food officers are assigned to the Districts and Sub-districts as jurisdiction officers of the Ministry of Food. In Bogra, for example, the food officers oversee the management of 23 food storages in the district and the release of stored grains and so on. A food safety coordination meeting is held once quarterly. At the Sub-district level, the quality and quantity of three food warehouses in Gabtali are controlled, and the release of the stockpile is also managed.

C. Laboratory testing

As shown in Section B: Inspection, the central NFSL or the NFSL of the Dhaka South City Corporation and Chittagong City Corporation is to inspect the food samples as collected by the Food Safety Inspectors, yet there has been almost no testing in reality. The outline of the Modern Food Testing Laboratory in the Dhaka South City Corporation is described. The same analysis equipment as this laboratory is installed in the laboratory in Chittagong.

With the financial support of the Asian Development Bank (ADB), a German company received an order for the renovation and maintenance of the facilities of the Dhaka South City Corporation. Because of the reconstruction work and the long absence of a Public Health Analyst, the inspection has not been conducted for one and a half years. Public Health Analysts were hired recently, so testing is expected to resume soon.

Among the staff members of the laboratory, four people in total are from the Dhaka South City Corporation: one Public Health Analyst, one examination staff and two clerks. Currently, support from the ADB includes service delivery, and eight laboratory staff members are employed for the task, but their employment will end at of the end of the project in June 2020. The laboratory has submitted requests for increased personnel to the City Corporation since 2014, but no response has been received.

The laboratory has a (1) basic laboratory, (2) microbiological laboratory, (3) high performance equipment room, and (4) a BSE laboratory, and it also provides training.

Since the laboratory has not yet received samples, laboratory staff sometimes purchase their own food and practice examinations. They hope to receive samples and begin testing in a short time. Now that the laboratory is understaffed, the number of samples that can be tested in one day is to be around eight to ten, but if the human resources are replenished in the future, the operation rate will be expected to increase. The testing targets only processed foods, and the laboratory performs

tests with the method of the testing standard institution. With the budget from the ADB, gas chromatography-mass spectrometry, high performance liquid chromatography, atomic absorption spectrometry, etc. are purchased, which enables measurement of most food safety testing. There are no issues with equipment reagents. With regard to maintenance, the laboratory can be inspected and repaired free of charge for two years.

Although the laboratory is a training center, there is no training plan or curriculum, and no training has been conducted. It is desirable to create a module and carry out training if the budget is reached.

The issues observed in the laboratory testing are as follows:

- Insufficient staffing.

Currently, only two inspection engineers belong to the Dhaka South City Corporation. The laboratory has tried to increase positions and manpower to improve inspection capabilities, but there is no response from the City Corporation.

- Less opportunities to acquire new testing techniques.

Further training opportunities are needed regarding inspection capabilities. There is a shortage of skilled technicians, and there is insufficient coordination between laboratories. Experienced scientists have limited opportunities to teach their skills and knowledge to the next generation. They might have opportunity to learn techniques or knowledge in classes, but not have opportunity of on-site training to learn how to use these techniques and knowledge practically on their works.

D. Administrative action

The Food Safety Inspectors strive to achieve food safety. There are administrative measures by circuit trial and those by ordinary trial, and the punishment is decided by the Judge.

The mobile court trial is held when the Judge decides implement it himself, when instructed by the director, or when the citizen or the media has reported a suspected violation. The mobile court trials are conducted by teams of Judges, Prosecutors, and Food Safety Inspectors. If a violation of the law is confirmed, the Judge immediately gives an order and takes action. The use of illegal chemical dyes and chemicals in food during Ramadan is regulated annually. If there is evidence of formalin use in the field, the food processors will be arrested immediately. The usual court proceedings are conducted when the Food Safety Inspector finds a violation during an inspection. They then submit an application for legal proceedings to the Zonal Health Officers, and to the Health Officers with the permission of the Zonal Health Officers, who formally approve the legal proceedings.

Table 2.21 Penal Provisions of Food Safety Act 2013

Violation	Fines (BDT)	Penal Servitude
First offense (adulterated food)	500,000-1,000,000	4-5 years
Repeated offense (adulterated food)	2,000,000	5 years

Source: Food Safety Act

The Food Safety Act 2013 should be used in administration action, but in reality, the Local Government Law and the Consumer Rights Protection Act 2009 are applied in combination.

Judgment is passed by the Judge. Since the penalties stipulated in the Food Safety Act 2013 are not realistic, they are often penalized according to the Local Government Law or the Consumer Rights Protection Law. A person who cannot pay a fine or a felony may be arrested and imprisoned. The fines for food safety violations range from BDT 5,000 to 10,000 in the Local Government Law and the Consumer Rights Protection Act, while the Food Safety Act imposes a fine from BDT 500,000 to 1,000,000 for the first offense.

E. Education and enlightenment activities

Regarding education and enlightenment activities, different responses are taken at each local level. As observed from the Dhaka North City Corporation, programs that aim at raising public awareness on food safety, such as holding meetings, placing posters, and distributing leaflets were carried out and targeting people who handle food, people who are involved in food business, and general citizens. In the Dhaka South City Corporation, an NGO held a briefing session 10 years ago about food safety laws of restaurants, hotels, and manufacturers, but it has not been implemented since then.

F. Reporting to the higher organizations

Although the City Corporation is under the jurisdiction of the Local Government Division (LGD), it has no obligation to report because there is no department in the LGD that handles health relations. It only responds appropriately when information is sought from the higher level. According to the explanation by the Dhaka South City Corporation, the Food Safety Inspector is obligated to report to the Health Officer, and the Health Officer to the Health Manager. However, in practice, reporting is not regularly conducted, and the submission of a report is only required when the Health Manager is requested to submit materials from a higher-level organization or the media. In the Sub-district, the Sub-district Food Safety Inspector reports to the Sub-district Health Officer, and the Sub-district Health Officer reports to the District Health Officer. The contents of the food safety report concerned only punishments such as the number of patrols conducted, the number of arrested people and the number of fines, and no specific confirmed issues were reported.

G. Collaboration with other organizations

There is no interaction, such as sharing information, among the Food Safety Inspectors of the City Corporations and of the Districts/Sub-districts. At the Sub-district level, food safety related coordination meetings are held once a month, and information is shared with people in agriculture, fisheries, and livestock. The minutes of the meeting will then be submitted by the Sub-district Health Officer to the District Health Officer. Cases in the Sub-district may also be reported by the Sub-district Health Officer at a meeting on health in the district. At the District level, information sharing is regularly conducted in the health sector, but collaboration and information exchange with the agriculture, fishery and livestock sectors has not been achieved. The Consumer Rights Protection Officers are at the District level, but there are few opportunities for on-site inspections in the Sub-districts, and there is a lack of collaboration. One or two annual inspections come from inspection standards organizations.

H. Collaboration with the BFSA

In the Dhaka South and North City Corporations, inspections may be conducted in collaboration with the BFSA. The Rajshahi City Corporation submits monthly reports on food safety in the area to the BFSA by e-mail. Although the BFSA's approach to the Rajshahi City Corporation has not been confirmed, the City considers that staff allocation of the Food Safety Officer is pleasing because of the current insufficient manpower.

In the Keraniganj Sub-district case, the District collects information on food safety as reported

from each Sub-district every month and reports it to the BFSA. The contents of the report concern, as stated above, information on legal dispositions such as the number of trials conducted, the number of prosecutions, amounts of fines, and the number of people arrested.

2.3.4 Outstanding issues

The issues presented by the stakeholders in the interview survey are as follows:

A. Insufficient staffing

At the local level, the Food Safety Inspectors are deployed but there is a shortage of personnel for the position. The Food Safety Inspector originally works as a Sanitary Inspector, and it is difficult to handle only food safety. As food safety is diversifying, the number of inspections and patrols is increasing and the burden on the Food Safety Inspector increases. There are few formal positions, as it takes time for employment, and no personnel for such positions are allocated. It usually takes around one to two years until employment, and nearly 10 years to increase the number of personnel.

B. Less training opportunities for Food Safety Inspectors

The insufficient training opportunities for Food Safety Inspectors were noted at all levels of the City Corporation, District, and Sub-district. The inspectors do not think that they have been able to fulfill their duties at this time, and that the training is sufficient. The two-day or three-day training session was conducted three years ago, and has not been followed. As food contamination and kinds of adulterated foods are becoming diverse, training opportunities are needed.

C. Support for introduction/practice after training

Food Safety Inspector training by the FAO and EU/Dutch projects has been conducted in the past and theoretical learning has been completed in the classroom, but there is no budget or equipment necessary for practice. The inspectors have continued to carry out inspections with the methods from the past because they do not know how to practice what they have learned. Inspectors have learned evidence-based sampling and risk-based planning for on-site inspections, but there are no checklists or instructions available for practice, and there is no way to develop evidence. Therefore, visual inspections are still conducted to identify suspected adulteration as was done in the past.

D. Budget constraints and undeveloped tools for inspection and sampling

For inspection and sampling, the travel costs for the inspection, sample purchase costs, and transportation costs of sending samples are required but there are not enough of these budgets. The Food Safety Inspectors conduct inspections outside of the budget, and there is a bias in how to conduct inspections. In addition, there are no means for sending samples. In the suburbs of Dhaka, the inspectors carry the samples themselves, and in the other areas, they do not send samples.

E. Insufficient inspection function

There are currently no laboratories in the City Corporation and Districts except for the Dhaka South City Corporation and Chittagong City Corporation, and it is impossible to utilize the laboratories of other ministries and agencies, thus sample inspection cannot be conducted. In the Dhaka South City Corporation and Chittagong City Corporation, there are laboratories with high-performance inspection equipment. Although the Dhaka South laboratory has requested the City Corporation to increase the number of personnel since 2014, there is no prospect that the necessary number of personnel is allocated. Furthermore, the sharing of test results for samples brought in by the Food Safety Inspectors is limited.

F. Issues on current Food Safety Act 2013

The current Food Safety Act is not realistic for punishment of violation as it is too severe. The penalties are for retailers and cafeterias operating at low interest rates, not the fines they can pay. At the Judge's discretion, it seems that other laws are applied to issue a judgment based on the amounts of fines that can be paid, but the amount of the fine depends on the Judge's individual decision.

G. Necessity for sanitation improvement in the meat sector

Sanitation improvement is necessary, especially in the meat sector. Many butchers are dismantling meat without regards to sanitation. It is necessary to provide guidance and monitoring on a daily basis in order to perform hygienic slaughters.

H. Leaderless in food safety administration

As there is no "leader" guiding the total food safety administration in the districts, a leader is necessary.

I. Insufficient coordination and communication of related organizations

The District Food Safety Officer heard that Food safety coordination meetings have been instructed to be held at the District level thus she//he tried confirm if they are planned in the past, but not yet implemented.

2.4 Outstanding Issues in Food Safety Management

2.4.1 National level

2.4.1.1 Food Safety Act 2013 and other regulations

As the middle class has come to account for one-third of the country’s total population and the number of urban residents has increased, the people of Bangladesh have started to become aware of food safety. To meet the people’s demand for safe food, the Government of Bangladesh has started to regulate the use of harmful pesticides. The people would like to be ensured to reach safe food products.

- Inappropriate description of the contents of the Food Safety Act 2013.

Article 13 of the Food Safety Act 2013 states that the role of the BFSA is that of a coordinating body which only provides advice and does not include the authority to direct other ministries. The Food Safety Act needs to state the BFSA is an authority of food safety issues to other ministries.

Articles 44 and 45 of the Act describe that adulterated foods and substandard foods are at the same level and are subject to equal administrative action. Adulterated foods contain substances that are harmful to the human body, while substandard foods do not have a direct effect on the human body and therefore should not be disposed of at equivalent levels.

The penalties under Article 58 of the Act are set to be stricter than the actual situations in Bangladesh. The penalty for the production of adulterated foods is either to be sentenced to four or five years in prison or to be fined between BDT 500,000 and one million. The precedents handled by the Sub-district Food Safety Inspectors show that no restaurant owners or food processing companies can realistically pay such amounts, and there is no choice other than to apply reasonable acts such as the Consumer Rights Protection Act 2006, or charge a fine of BDT 5,000.

Issues of the legal descriptions can not be improved unless the law is revised. Without improving the contents of relevant laws, Issues resulted from the description of laws can only be solved by revision of the law. Unless the law is revised, appropriate food safety administrations cannot be implemented.

- The law has been made but not executed.

With the support of FAO, 11 detailed bylaws have been made but have not been implemented yet. From now on, the BFSA needs to provide workshops and training sessions in order the relevant implementing agencies to follow laws and bylaws.

- The bylaws are not covered all the contents of food safety.

There are 11 bylaws made until now. However, these bylaws do not cove whole area of food safety and there are missing parts which should be regulated by law. The BFSA needs to identify areas not covered by the current laws and bylaws and work for making all the necessary bylaws.

- Duplications among the relevant laws.

As described in the report of the analysis of agricultural regulations as conducted by FAO, there are duplications or omissions in the related laws of other ministries in addition to the laws that are under the control of the BFSA. There are no descriptions of superiority among the relevant laws in case there are duplications among the relevant laws. For example, there is an overlap between the packaging regulations for whole industrial products as issued by the BSTI and the labeling regulations for foods as issued by the BFSA.

2.4.1.2 Food safety policy and framework

- Lack of a food safety implementation system, implementation policy, concrete plan, and practical guidelines.

As mentioned above, the bylaws have been formulated but have not yet been implemented. It is to be determined in the future how to use the staff of the new employment and how to reflect the bylaws in the implementation system, policy, and guidelines.

2.4.1.3 Functions of the Bangladesh Food Safety Authority

- Is the BFSA a coordinating or implementing agency?

The Food Safety Act defines the BFSA as a coordinating body. However, the BFSA plans to have Food Safety Officers at the District level and to construct a laboratory. These directions mean that the BFSA intends to have executing functions. When the BFSA strengthens its function as an implementing agency, duplication and confusion may occur with respect to tasks overlapping with those of other implementing agencies, and this should be conducted with caution. The roles of the BFSA should be clarified with other ministries.

- The regulatory mindset of the BFSA.

The BFSA intends to control food safety based on scientific evidence. However, the Survey Team could not confirm that food safety was controlled using scientific evidence in the field. Rather, the Food Safety Inspectors tended to find whether prohibited items had been found in the field and took a regulatory administrative stance in judging the criminals. The contents of reports submitted to the BFSA from the districts and city corporations are mainly the number of mobile courts, charges, and fines. It is necessary to change these administrative actions from punishments into giving administrative instructions, for food-related companies and individuals to follow the Food Safety Act.

- Temporary assignment of senior staff members in the BFSA.

Currently, senior staff members at the BFSA have been temporarily assigned. These members are temporarily assigned from other ministries to carry out daily tasks. Once formal personnel are assigned, they will return to their original ministries. According to the BFSA, if the hiring process of new staff is halted, it will gradually appoint the official staff to the senior staff position.

- Senior staff as defined by personnel rules are seconded employees.

Even if the above-mentioned temporary arrangement becomes a formal arrangement, all the senior staff members as defined in the personnel rules are seconded employees and will be transferred to the next department after a certain period of time. This condition makes it difficult for the Agency to accumulate experience and expertise and make proper decisions. The revision of personnel regulations requires approval from the Ministry of Food but it is not impossible to revise the regulation since the BAB could strengthen its functions by assigning all senior staff members as professionals in long-term employment.

- Unclear roles and division of duties of staff and departments in the BFSA.

The roles and division of duties are unclear among departments and staff members in the BFSA. For example, the Food Safety Act stipulates that the commissioner appoints a person with a food safety-related specialty as an advisor. However, as shown in Table 1.25, there are few experts assigned as members.

- TOR for the new employers has not been decided.

Most of the new staff currently being recruited will be new graduates. The food safety officer positions in particular are newly established at the local level and are expected to play a role in providing food safety advice to and coordination with relevant sectors. However, the training and development plan has not been decided for new employees. The new employees are science majors, but they have little knowledge of food safety; thus, training for food safety area is needed.

2.4.1.4 Coordination with food control agencies

- Lack of consensus from the BFSA and the relevant ministries/organizations about the mutual roles and implementation systems.

As shown in Section 1.2, there are 24 ministries and organizations related to food safety issues. It is not easy to coordinate these organizations. So far, with the support of the FAO-USAID project, the BFSA intends to get an agreement between the BFSA and other relevant organizations respectively, by signing the memorandum of the tasks and cooperation. Issues have been raised by both the BFSA and other ministries. It might be due to insufficient discussions between the two parties in failing to achieve mutual agreements.

- Coordination meetings do not function as a coordination mechanism.

The BFSA organizes coordination meetings with relevant ministries. However, participants from each organization are not officials as defined by the Food Safety Act, and in many cases, are general staff members without the decision-making authority who participate on behalf of them. As a result, there are no coordination functions among facilities as expected.

2.4.2 Assessment of food hygiene and food safety activities

2.4.2.1 Standards and license

A. Standards

The table shows the food groups of the Bangladesh Food Classification, for which the BSTI has mandated approval and the food groups for which the BFSA is formulating standards. The BFSA

aims to integrate all food classifications into Codex standards by August 2020.

The following items are issues under the standards and its development process, as identified by the Survey Team:

- Two agencies are involved in the development of food standards and standards.

Although the BSTI has formulated standards based on processed foods as before, the BFSA is also developing standards in parallel without any coordination with the BSTI.

- The BSTI does not participate in the Technical Working Group held by the BFSA for developing standards.

The process of developing standards is carried out by members of a Technical Working Group Committee, consisting of experts from ministries, research institutes, universities, and private companies. The committee members do not include staff of the BSTI. There is no opportunity to share information between the two organizations.

B. Relationship between existing license and the BFSA inspection

Currently, only the BSTI gives certification of processed foods. The BSTI oversees the standards approval of 72 compulsory processed food products and other food products.

However, the BFSA also plans to provide approvals for food products in the future. In conjunction with the development of the above-mentioned food standards, coordination with the BSTI is essential. As the BFSA does not have a testing laboratory, it is also crucial to coordinate among laboratory institutions for testing.

2.4.2.2 Surveillance

A. Inspection

Regarding on-site inspections at the production and wholesale stages, agricultural crops are handled by the Department of Agriculture Extension in the Ministry of Agriculture; fisheries are handled by the Department of Fisheries in the Ministry of Fisheries and Livestock; and meats and milk are handled by the Department of Livestock Service in the Ministry of Fisheries and Livestock. Extension officers are located at the District and Sub-district levels. However, systematic on-site inspections have not been conducted for agricultural and livestock products. As for fisheries, there is an on-site inspection department under the Department of Fisheries in three locations—Dhaka, Chittagong, and Khulna—which conducts on-site inspections of fish processing plants.

With regard to processed foods, on-site inspections are conducted at the manufacturing and marketing stages by the BSTI under the jurisdiction of the Ministry of Industry, and Sub-district Food Safety Inspectors under the jurisdiction of the Ministry of Health concurrently. The BSTI conducts on-site inspections once a year after issue of certification, and Sub-district Food Safety Inspectors conduct on-site inspections when appropriate. The Consumer Rights Protection Agency allocates the Consumer Rights Protection Officers in the district level, conducting on-site inspections from the perspective of consumer protection, such as the appropriateness of prices and labeling. When a factory acquires or renews an international certificate such as ISO, an inspection is performed.

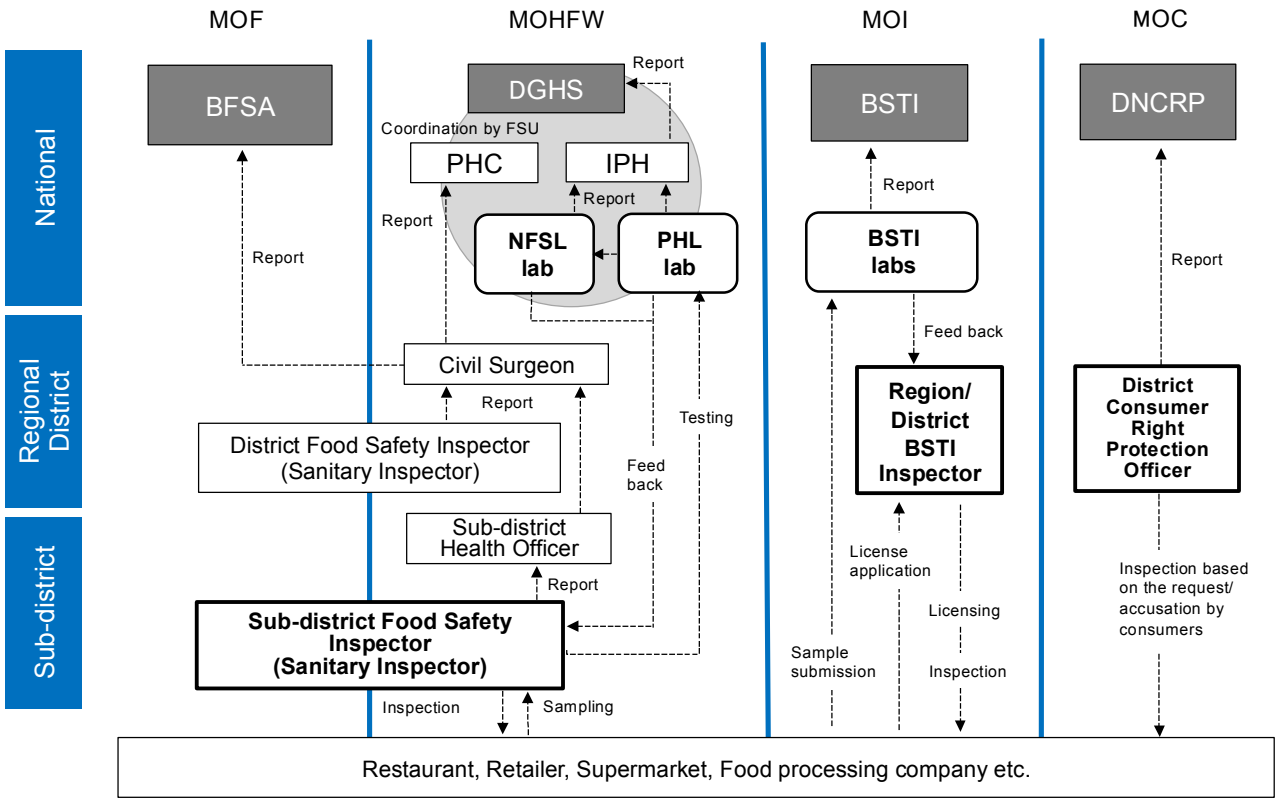


Figure2.6 Inspection and Testing System for processing foods

Source: survey team

The following issues under the inspection are identified by the Survey Team:

- Insufficient number of inspectors.

The number of human resources in food safety administration and especially the number of on-site inspection personnel is insufficient, meaning that the necessary on-site inspection cannot be conducted comprehensively.

- Insufficient expertise of the Food Safety Inspectors.

The Food Safety Inspectors do not have sufficient knowledge of food safety, such as recognizing the difference between adulterated and substandard products. The Survey Team had the impression that the purpose was not to aim for legal compliance and establishment by the administrative guidance on the site but to detect the adulterated and substandard food products based on the sense of the individual inspectors.

- Procedures for on-site inspection and sample collection are not standardized.

The method of performing on-site inspections has not been decided, and each on-site inspector carried this out with the experience and sense of the past. Procedures for conducting on-site inspections and sample collections are not standardized. On-site inspections and samplings are conducted based on the on-site inspector's perspective, not on a random basis that can be considered representative of the entire target area.

Booklet for food safety inspectors

- Inspections are not conducted based on risk-analysis.

In situations where the number of on-site inspectors and inspection capacities are insufficient, it is necessary to confirm high priority of foods and safety indicators based on risk analysis, taking into consideration the amount of work available with existing personnel and resources. However, no on-site

inspection based on risk analysis has been conducted.

- Insufficient budget allocation for on-site inspections and sending of samples.

A sufficient budget is not allocated for costs for traveling and sample purchases required for on-site inspections. Thus, the inspectors tend to visit laboratories nearby.

- Insufficient logistics to send samples to laboratories.

The transportation costs, cold chain, and transportation logistics needed to send samples are not secured.

- Not all information has been accumulated to understand the food safety situation.

The Sub-district Food Safety Inspectors are supposed to report their activities to the BFSA through the District Health Offices. However, the contents of the report only contained information of punishments, such as the number of patrols, the number of people imprisoned, and the total amount of fines.

- Duplication of on-site inspections.

Although the purposes of the on-site inspection for the BSTI, Sub-district Food Safety Inspectors and the District Consumer Rights Protect Officers are different, the object of the on-site inspection and the contents of the inspection often overlap.

- Under development of inspection mechanism for crops and livestock products.

Regarding agricultural products and livestock products, there is no mechanism to ensure food safety due to the lack of an inspection system.

Table 2.22 Responsible organizations of inspection for processed foods

	Responsible Organization	In charge	Target	Target for inspection	Period of Validity	Remarks
Business license	MoHFW DGHS District City Corporation	District Food Safety Inspector	Factories Shops	Factories Shops	One year	Inspected at the time of acquisition and renewal of license
Registration of the BSTI Certificate	BSTI	Regional and District Inspector	Products	Factories (Manufacturing Process)	3 years	Inspected annually
Inspection of food industry 1	MoHFW DGHS	District Food Safety Inspector	–	Shops, Restaurant, hotels	–	Randomly inspected
Inspection of food industry 2	Consumer Right Protection Directorate	Consumer Right Protection Officer	–	Shops, Restaurant, hotels	–	Inspected by District Officer
International Certificate (ISO)	BSTI	Regional and District Inspector	Factories	Factories	3 years	Inspected at the time of acquisition and renewal of license

Source: Survey Team

B. Testing

The collected samples are examined at laboratories under each ministry. For agricultural and livestock products, no samples have been collected, so no testing has been conducted. Table 2.23 shows laboratories and the types and parameters of samples tested in each.

As for the actual condition of the examination, the sampled items are tested at the laboratories of

the ministries which the inspectors belong to. The DoF has clear targets for inspections, focusing on processed fishery products for export, and conducts inspections based on two Testing Plans; the National Residual Testing Plan and the Factory Residual Testing Plan. The BSTI, on the other hand, has not clearly stated the planning and implementation of on-site inspections, and it is difficult to inspect all the products licensed and target companies and stores that have obtained a product license by the BSTI.

Table 2.23 Outline of the National Food Safety Laboratory (NFSL)

Target food	Parameters	Laboratory name	Jurisdiction	Number of laboratory technologists	Location	Accreditation	Evaluation by survey team*	
							Hard	Soft
all foods	antibiotics food additives dye microbe	NFSL	MoHFW	10	Dhaka	BAB	5	2
all foods	composition	PHL	MoHFW	No survey	Dhaka	Not acquired	1	3**
Fishery processed foods	composition antibiotics microbe heavy metals dye	Fish Quality Control Laboratory Dhaka	Department of Fisheries	9 staff + Assistants: 2	Dhaka	BAB	5	4
		Chittagong Khulna		No survey	Chittagong Khulna	BAB	4	3**
Processed foods	standard parameters	BSTI Chemical Wing Dhaka	MoI	Need to confirm		NABL	5	4
		Rajshahi		4			3	1
Processed foods Milk	standard parameters	Dhaka South City Corporation laboratory	Dhaka South City Corporation	2	Dhaka	Not acquired	4	1
Processed foods Milk	standard parameters	Chittagong City Corporation laboratory	Chittagong City Corporation	–	Chittagong	Not acquired	4	1**

Source: Survey team

According to the interview results of the Sub-district Food Safety Inspectors and the NFSL, virtually no inspection has been conducted on the items taken up by the Sub-district Food Safety Inspectors. One factor is that the laboratory must spend a lot of the budget on ISO certification, maintenance, and management of high-priced equipment and cannot cope with the sample testing. According to the interview with the director of the NFSL, the Laboratory only examines samples when parameters are specified. Because of lack of instruction, it is impossible for Food Safety Inspectors to specify safety parameters. Thus, in most cases, only the food components are examined by the Public Health Laboratory.

If it is difficult for the designated laboratories to measure specific parameters, the following research and inspection institutes can be asked to measure them. The following research institutes mainly deal with research, but they will examine samples based on requests from other institutes, including private companies.

Table 2.24 List of the public research institutes with advanced laboratory technologies

Laboratory name	Jurisdiction	Location	Target foods	Parameters
Analytical Chemistry Laboratory	MoI	Dhaka	foods	heavy metals, electrolytes
Atomic Energy center	MoI	Dhaka	foods	radio-active substances
Institute of Food and Radiation Biology	MoI	Dhaka	Agriculture crops	residual pesticides
			Feed sea products meats spices	microbe
Institute of Food Science and Technology (IFST)	Ministry of Science and Technology (BCSIR)	Dhaka	Foods	composition antibiotics residual pesticides microbe heavy metals food additives
BCSIR	Ministry of Science and Technology	Chittagong Rajshahi	Foods	composition antibiotics residual pesticides microbe heavy metals food additives
Chemistry	Dhaka University	Dhaka	Foods	residual pesticides
Microbiology	Dhaka University	Dhaka	Foods	Microbe

Source: Survey team

The following issues are identified by the Survey Team under laboratory testing:

- Shortage of laboratory.

Most laboratories are located in Dhaka and its suburbs, and accept specimens as normal inspection work. The Department of Fisheries has a laboratory in Dhaka, Chittagong, and Khulna, and has the necessary functions to check the safety of aquatic products in other major cities. Since samples collected by Sub-district Sanitary Inspectors are only accepted freely in the PHL and NFSL in Dhaka, all of the Food Safety Inspectors have to send samples to Dhaka if necessary.

- Insufficient personnel and technology in the laboratory.

Most laboratories have a small number of positions and do not have enough staff for laboratory testing. Some laboratories seem to be unable to use their functions fully. Although many laboratories have introduced high-performance testing equipment, only the person in charge of the equipment can conduct the tests, and the laboratory techniques are not transferred to the other staff within the laboratory.

- Insufficient laboratory maintenance costs.

Many laboratories have introduced expensive equipment, but it seems difficult for them to purchase reagents, spare parts, and spend on maintenance costs. The NFSL and the Fisheries Quality Control Laboratory, which have obtained ISO certification, must spend huge amounts of money to obtain and maintain the certification. Some laboratories are not available for their intended use due to the lack of maintenance costs.

- Lack of collaboration between laboratories.

As there is little coordination among the laboratories, it is inefficient to conduct joint-training or to exchange opinions for improved laboratory techniques.

- Limited laboratory certification.

Only three laboratories of the Department of Fisheries are certified as having laboratory standards: the BSTI Dhaka Laboratory, the Pesticide Analysis Laboratory under the Ministry of Agriculture, and the NFSL. The other laboratories are not certified.

- Duplication of testing work.

It was confirmed that multiple laboratories examined that the same components, such as iodine in the iodized salts and processed foods.

C. Administrative actions

There are three processes for administrative actions: (1) direct administrative action from the High Court, (2) a violation that is confirmed at the time of inspection, and (3) a violation that is confirmed as a result of the examination.

The High Court may request the inspection agency to carry out the inspection if there is a suspicion of claims from the general public or companies, or if there is suspicion of adulterated or substandard foods. Based on the request, inspectors from each administrative organization take procedure of the legal process under the direction of the High Court.

If a violation is identified during the inspection by the inspectors, they can apply for a fine for the violation. In the case of a serious violation, a mobile court is executed.

It is also subjected to administrative sanctions if contamination from harmful components and substandard foods are identified. Under the current Food Safety Act 2013, substandard foods and adulterated foods are treated as the same; thus, legal action is taken in case some ingredients are not within the standard.

The following issues can be raised as issues in implementing administrative actions:

- Lack of administrative guidance on the transition to new legislation.

Administrative sanctions are taken on compliance with the law after applying the new law without guidance.

- Lack of guidance and monitoring for Food Safety Inspectors for implementation of administrative measures.

Table 2.25 Records of legal action related food safety

Legal actions	07/17-06/18	10/18-12/18
Mobile court	2345	18
Number of cases	4209	160
Number of the arrested	239	27
Total amount of Penalty (BDT)	20 million	8.4 million

Source: Dhaka Tribune, Feb. 2, 2019

In situations where inspections and samplings are not properly conducted, administrative sanctions are being conducted regardless of adulterated and substandard foods being evident. The standards for administrative sanctions are not clear. The Food Safety Inspectors do not conduct objective administrative sanctions but judge subjectively.

- Lack of probation period for administrative guidance.

In many instances, when a case is found, administrative action is taken immediately regardless of the level of severity, and without provision for improvement from administrative guidance.

- Contents of administrative instruction.

It seems that there are no concrete and feasible improvement measures provided by the Food Safety Inspectors as administrative guidance. Thus, the food service providers cannot understand

what they should do in order to improve conditions. It is necessary to instruct food service providers in feasible measures that can be implemented.

2.4.2.3 Information flow and utilization

Information on food safety is to be compiled and used by the BFSA. Information on food safety includes (1) information managed by relevant agencies such as relevant ministries and laboratories related to food safety and (2) activity reports of Food Safety Inspectors. Such information is to be reported to the BFSA.

With regard to the information managed by each department or agency, the memorandum of understanding currently being drafted by the BFSA is to agree on the report, but the MOU has not been concluded by the major ministries, and the information has not been shared with the BFSA. Many of these ministries share information as requested by the BFSA.

The Sub-district Food Safety Inspectors perform on-site inspection work for the BFSA. They shall report to the District Health Director through the Sub-district Health Director, and the District Health Director shall report to the BFSA. Similarly, at the City Corporation, the health manager also reports to the BFSA. However, not all Districts and City Corporations submit reports to the BFSA.

Only the number of executions such as mobile courts, legal actions, and the amounts of fines are reported to the BFSA. This information is sent to the BFSA's e-mail address, and the BFSA summarizes the past results. There are no important food safety issues such as contents of violations or legal incompliance shared in the reports.

- No standard reporting forms and systems submitted to the BFSA.

Regular reports from all District and City Corporations have not been thoroughly conducted; thus, it is not possible to grasp the situation of the whole country. It is necessary to establish an information collection system so that the necessary information can be submitted to the BFSA promptly.

- Implementation of on-site inspection focusing on legal action by activity reports of penalty matters.

The Food Safety Inspectors only report the results of the legal executions. It might cause misunderstanding among the Food Safety Inspectors to be evaluated by the number of legal actions and might increase number of legal actions. The Food Safety Inspectors should not focus on finding violations and implementing legal actions but providing administrative guidance for legal compliance.

2.4.2.4 Awareness raising and training

The BFSA has carried out various activities for consumers and the public with the support of the FAO project. After confirming the low level of awareness in the food safety by results of the baseline survey among the public, the BFSA planned a communication strategy, implemented a food safety day, and created brochures, posters, and food safety awareness videos on YouTube and other social networks. However, the concept of food safety is relatively new, and most of the general public have not yet understood it.

The issues related to training and educational activities for food safety businesses and the general public are shown below:

- Insufficient efforts to comply with laws and bylaws for legally adapted parties such as restaurants, retail stores, agricultural livestock and fisheries producers, and processors and importers

There is no training which covers all the information necessary for food safety and food hygiene for companies and individuals. It is necessary to give instructions to employers, producers and company owners to work on the voluntary hygiene management of the sales facilities and efforts to provide safe and hygienic food.

- Low awareness for food safety among the public

It is necessary for the general public to acquire food safety knowledge and the ability to identify safe food to be aware of the risks of harmful food and health hazards and to encourage them to choose safe food. It is necessary to inform the general public so that they can correctly recognize and judge without being misled by mass media reports.

2.4.2.5 Importers and exporters

With regard to processed food for export, standards are different by the country exporting; thus, quality and sanitary inspections are not mandated. If the customers or the export country require food safety certificates or analysis results, a laboratory certificate is prepared by the testing organizations such as the BSTI or BCSIR.

2.5 Food Safety issues in media

2.5.1 Substandard processing food

On May 2, 2019, the BSTI announced that 52 processing foods out of 406 in the market are substandard. After this announcement, discussions continued as the following table summarizes.

Table 2.26 History of events concerning withdrawal of 52 processed foods

Date of Issue	Movements
May 2, 2019	The BSTI unveiled a report on the substandard products at a press conference.
May 6, 2019	The citizen rights organization sent legal notices to the respondents on May 6.
May 9, 2019	The High Court bench of Justice and Justice passed the order after hearing a writ petition filed by rights organization Conscious Consumer Society (CCS), seeking the court's directive to withdraw 52 food products from the markets, on Thursday.
May 12, 2019	The court asked BSTI, BFSA, and the Directorate of National Consumer Rights Protection (DNCRP) to take immediate action to remove these products from the market and stop their production until they meet mandatory BSTI standards. Ordering BFSA and DNCRP to submit a progress report by May 23 with implementation of the order, the court asked the three organizations to ensure food safety and proper standards for all products in the market.
May 23, 2019	The High Court summoned the chairman of the BFSA for failing to recall the 52 food products a recent BSTI test found substandard, from the market.
May 27, 2019	Many items still on sale in Khulna market
June 11, 2019	The BSTI has retested food products previously reported to be substandard, following a High Court bench order to do so.
June 11, 2019	The BSTI has withdrawn suspension of 26 companies, clearing them to sell their products, barely a month after it found the same products substandard. BSTI also said that 22 of the 93 other food items, currently being sold in the market, were found substandard in the second phase of testing.

Source: made by Survey Team based on the local newspaper

2.5.2 Contamination of milk and milk products

On February 10, 2019, the National Food Safety Laboratory announced a research report which proved the existence of antibiotics in milk, lead in curd, above-permissible level of pesticides in fodder, and other contaminants. After this announcement, discussions continued as the following table summarizes.

Table 2.27 History of events and discussions related to contamination of milk and dairy products

Date of Issue	Movements
Feb. 10, 2019	NFSL published a research report—which proved the existence of antibiotics in milk, lead in curd, above-permissible level of pesticides in fodder, and other contaminants—on February 10
Feb, 11, 2019	The High Court ordered the authorities (BFSA and BSTI), including the Anti-Corruption Commission, to identify the companies responsible in a suo moto rule. The same High Court also ordered the authorities concerned to form a committee and find out how much contaminated milk, dairy products and cow fodders are supplied and sold across Bangladesh. It also wanted those responsible identified.
Feb. 17, 2019	BFSA formed a 16-member committee on February 17, but it did not identify those responsible for the adulteration in its report.
May 8, 2019	BSFA report, submitted on May 8, said harmful chemical lead and antibiotics were found in 96 samples of unpacked milk.
	The High Court had directed the BFSA and BSTI to submit a detailed report on milk adulteration before it by May 15.
May 15, 2019	The BSTI and the BFSA filed a petition seeking more time from the court to submit the report. The High Court then ordered BSTI and BFSA to submit the report_ including the name of companies involved in adulteration of milk, dairy products and fodders within June 23. The court also asked head of National Food Safety Laboratory (NFSL), to appear before it on June 21 and describe the methods used to collect samples of milk.
May 21, 2019	On Tuesday, chief of NFSL appeared before the court and handed over a report listing the companies or persons responsible for producing adulterated milk and milk products.
June 25, 2019	The BSTI has submitted a report to the High Court finding no traces of dangerous elements in 18 pasteurized milk samples from 14 brands. The High Court announced suspension of the process by June 27. The latest DU study that found antibiotics, detergent and coliform and other hazardous bacterial organisms in the pasteurized milk products of five popular brands sold in the capital was announced.
June 28, 2019	State Minister for Local Government, Rural Development and Cooperatives Swapan Bhattacharjee on Thursday said: "A Dhaka University report claimed to have found arsenic in Milk Vita's milk. This is a lie." The DU Pharmacy Department issued a press release, signed by its Chairman Prof Sitesh Chandra Bachar, saying: "The Pharmacy Department is not taking any responsibility for the research that was published in different mass media outlets, as the findings were prepared based on a teacher's personal research and the department has no involvement with it."
June 30, 2019	The High Court asked the lawyer of BSTI to collect the DU report findings and submit those before it on July 7. Four departments under the Faculty of Pharmacy at Dhaka University have expressed deep concern and protested the statement of State Minister for Local Government, Rural Development and Cooperatives regarding a recent study of the university.

Source: made by Survey Team based on the local newspaper

2.5.3 Others

2.5.3.1 Example of the KFC

On May 28, a mobile court of the Bangladesh Food Safety Authority (BFSA), led by

Executive Magistrate Hosne Aara Popy, imposed KFC BDT 4 lakh fine for keeping expired chicken at its Baily Road outlet.

KFC Bangladesh on Thursday said all their products are safe for consumption.

"The safety of our consumers is our top priority. We have stringent processes to ensure products served to our consumers are of the highest quality," KFC said in a statement. The KFC added that "We follow a formal process to discard products that have crossed their expiration date and time; and these are never served to consumers. We would like to assure our consumers that all our restaurants use fresh ingredients, ensuring all our products are safe for consumption".

2.5.3.2 Example of destroying 400 maunds mangoes

Rapid Action Battalion (RAB) mobile court destroys 400 maunds (15 tons) of mangoes in Jatrabari, Dhaka on May 22. During the drive on Wednesday, the court also fined nine wholesale depots around BDT 2,400,000 for selling mangoes before the scheduled time and using chemicals to ripen them. The mobile team was accompanied by officials from the BSTI, Department of Agriculture, and Dhaka South City Corporation.

2.5.3.3 Example of destroying fruits

The BSTI submitted a report to the High Court that it did not find any presence of formalin, a harmful chemical for humans, as the organization tested 265 seasonal fruits. However, presence of carbide in mango was found which is used for artificially ripening the fruit in different warehouses across the country including Dhaka's Jatrabari area. In different drives, BSTI and Department of Agricultural Extension (DAE) along with the Rapid Action Battalion (RAB), destroyed 600 maund of mangoes and fined the culprit fruit traders BDT 30 lakh.

The High Court has ordered the BFSA to comply with its directives to the National Bureau of Revenue (NBR), to install chemical testing units at all land and sea-ports across the country within two months about the advancement of its directives.

The court also asked the BSTI to conduct random drives round the year, and to submit reports to the HC every two months.

2.5.4 Political statements

2.5.4.1 Sheikh Hasina, Prime Minister

Prime Minister Sheikh Hasina has pledged to put more effort into stopping food adulteration – calling it another form of corruption, establishing central food laboratory in Dhaka and food laboratories in all regions.

2.5.4.2 Mohammed Nasim, Minister of Health and family Welfare

Awami League Presidium Member and spokesperson of 14-party alliance Mohammed Nasim has termed food adulterers as enemies of the country and nation.

Nasim, also chairman of the parliamentary standing committee on Food Ministry, was addressing an iftar party hosted by the Bangladesh Tariqat Federation at the Members' Club ground in Jatiya Sangsad on Monday. He said "Those who push the countrymen to death by adulterating food, are enemies of the country as well as the nation. Capital punishment should be executed against them."

2.5.5 Analysis of incidents reported by media

Food safety issues are identified by the above confusion as caused by media announcements.

- Misleading announcements by ministries or institutes

One of the major causes of confusion is the information disclosure based on the misleading announcements by ministries, inspection agencies, and research institutes. In the case of the 52 items and the milk and dairy products, the BSTI, and the NFSL and Dhaka University, respectively, have announced the test results. However, these test results have been published from a single test without any coordination or confirmation. In the case of 52 items, the BSTI presented different test results in the first and second rounds, causing further confusion. Despite the immense impact and damage to the people and businesses that resulted from these announcements, the relevant authorities need to be extremely cautious when reviewing and disclosing such information as national responsible bodies.

- Confusion between adulterated foods and substandard foods

The 52 items of foods announced by the BSTI are not adulterated but substandard foods. Therefore, the BSTI should have given instructions to the companies regarding the products that were recognized as substandard foods. This has caused confusion from the BSTI making it public. Additionally, the BSTI did not clarify the explanation of substandard foods at the time of the announcement, or the media assumed these problems as adulterated foods, causing further confusion. In the food safety area, which includes the laws in Bangladesh, adulterated foods and substandard foods are treated same. Therefore, substandard foods that do not contain harmful substances are also treated as adulterated foods. The confusion between adulterated foods and substandard foods has led to further confusion and unnecessary punishment.

Similarly, the High Court also confuses substandard foods and adulterated foods and raises the issue further by taking events regarding substandard foods to be a major problem. It is causing a great deal of damage to the food industry, as well as raises public mistrust and anxiety about food.

- Inappropriate administrative measures

As with the Kentucky Fried Chicken example, it is common practice to store expired items in a warehouse refrigerator in preparation for return. It should not be punishable, without concrete evidence, if expired products are provided to customers. Thus, this matter should not be regarded as an illegal activity.

2.6 Development partners

2.6.1 Major partners in food safety

The following table shows a list of development partners that support the food safety sector along with their target fields. Currently, only the FAO-USAID Project for Institutionalization of Food Safety in Bangladesh directly supports the BFSA. Other initiatives support food safety and food hygiene as components of the project. FAO has provided much technical cooperation in the fields of agriculture, livestock and fishery in Bangladesh, and is considered as a neutral donor.

The Netherlands and the EU have provided food safety assistance to DGHS through FAO.

Currently, besides JICA, IFAD is also forming a project that links business support with food hygiene and safety by lending to small-scale farmers and livestock farmers. This is awaiting approval from its headquarters in Rome and is expecting adoption as early as September 2019.

Table 2.28 List of projects that support food safety field and the target field

	Name of the Project	Progress	Main Support Areas						
			BFSA	Food Inspectors	Laboratories	Livestock	Agriculture	Food Processing Enterprises	City Corporation, Market System
1.	Institutionalization of Food Safety USAID-FAO	Ongoing	✔✔	✔✔		✔	✔	✔	
2.	USAID-USDA	Completed		✔✔					
3.	Improving Food Safety Netherland-FAO	Completed		✔✔	✔✔				
4.	Emergency Centre for Transboundary Animal Diseases FAO	Ongoing				✔✔			
5.	Dhaka City Corporation, Support for Modeling, planning and improving Dhaka's food system EU-FAO	Launched							✔✔
6.	Skills for Employment Investment Program ADB	Ongoing						✔✔	
7.	Livestock and Dairy Development Project WB	Launched				✔✔			✔✔
8.	IFAD	Planning				✔✔	✔✔	✔✔	
9.	JICA Technical Cooperation	Planning	✔✔	✔✔					
10.	JICA Yen Loans	Planning					✔✔	✔✔	

✔✔Targeted ✔ Support only policymaking

Source: Prepared by the Study Team

2.6.2 Food and Agricultural Organization

A. Institutionalization of Food Safety in Bangladesh (FAO-USAID)

The project budgeted US$5 million from March 2014 to December 2019 with the aim of strengthening the capacity of the BFSA. The project is staffed by one director and four full-time local consultants. The target areas are food safety, food chemistry, horticultural crops, and poultry farming.

The Project has the following three outputs. The Project has been flexibly responding based on necessity and request from the Government.

Output 1: Support to strengthen inter-ministerial and inter-agency collaboration and coordination in the field of food safety control to prepare the way for operationalizing the BFSA;

Output 2: Effective integrated approached to food safety in all primary sources of production (fish, animal and crop);

Output 3: Enabling environment for improved third party verification/inspection and certification to national food control.

Table 2.29 Summary and Progress of "Institutionalization of Food Safety in Bangladesh for Safer Food" Project

Impact		The Impact of this project is improved availability of safe food in domestic markets thus improving food and nutrition security and enhancing the position of Bangladesh in regional and international food trade.	
Project Outcome		· Setting-up governance for science-based food safety systems in Bangladesh · An enabling environment that fosters safe and sustainable food production chains and trade. · Greater consistency in enforcement of food safety regulations	
Output	1	Support to strengthen inter-ministerial and inter-agency collaboration and coordination in the field of food safety control to prepare the way for operationalizing the BFSA;	
	2	Effective integrated approaches to food safety in all primary sources of production (fish, animal and crop);	
	3	Enabling environment for improved third party verification/inspection and certification to national food control.	
		Activities	Progress (As of March 2019)
Output 1A	Indicator 1	No. of MOU signed with different agencies/ministries for proper implementation the food safety acts 2013 and clarity in roles of different ministries/agencies	100% Targeted seven MOUs signed
Output 1B	Indicator 1	BFSA established and functioning	
		・Nos. of people recruited under the BFSA Apex Body	100%
		・BFSA Organogram analyzed	100%
		・ Regulations for requirement of BFSA's manpower drafted	100%
		・ Stakeholders consultations on BFSA recruitment regulations.	100%
		・BFSA Organogram finalized and recruitment regulations approved.	100%
		・BFSA manpower is reflected as per approved organogram and regulations.	As per organogram partial manpower reflected and others recruitment is ongoing.
	Indicator 2	5-Year Statement of Strategy and its Plan of Action developed	
		・Number of strategy reviewed and analyzed	100%
		・5 years statement and action plan drafted	100%
		・Stakeholders consultation	100%
		・5 years statement and action plan approved	100%
		・5 years statement and action plan implemented	Implementation is on going

	Indicator 3	Formal mechanism for collaboration established amongst ministries/agencies under the Food Safety Act, 2013; (Nos. National Food Safety Management Advisory Council (NFSMAC) meeting held (yearly 2 meeting from 2016)	43% (3 meetings)
	Indicator 4	Reformed and modernized legal framework developed ・Number of existing legal frameworks and relevant policies/rules/regulation/COP Analyzed ・Stakeholders consultation or public debate ・Number of existing legal frameworks and relevant policies/rules/regulation/COP drafted ・Number of existing legal frameworks and relevant policies/rules/regulation/COP approved ・Number of existing legal frameworks and relevant policies/rules/regulation/COP implemented	95% (20 policy/rules/regulation/ Strategy/ COPs) 90% (19 policy/rules/regulation/ Strategy/ COPs) 90% (19 policy/rules/regulation/ Strategy/ COPs) 81% (17 (policy/rules/regulation/ Strategy/ COPs) 67% (14 policy/rules/regulation/ Strategy/ COPs)
	Indicator 5	Voluntary and other food safety standards developed; (Nos. of food safety standards reviewed)	114% (55 Voluntary food safety standard reviewed)
	Indicator 6	Knowledge of personnel in key stake-holding ministries and agencies on food safety governance; (legal analysis and drafting increased; Nos. of civil servants/people trained)	102% (1,108 civil servants trained)
	Indicator 7	Increased awareness of the new regulations in the country; (People trained on food safety rules/regulations)	116% (1,731 People trained of different sectors/agencies or institutions)
Output 2	Indicator 1	Food safety dimensions integrated the current strategic framework and action plan (2012) of One Health approach to infectious diseases (Nos. of gap analyzed and made recommendation)	80%
	Indicator 2	Integrated approach in poultry supply chain reviewed	100%
	Indicator 3	Food safety risks for poultry supply chains assessed with an assessment of risks as detailed in a gender analysis	0%
	Indicator 4	Food safety risk assessment in other supply chains reviewed (Fruits and vegetable)	60% (ongoing)
	Indicator 5	Number of institutions/organizations undertaking capacity strengthening in risk management in poultry and other sectors as a result of USG assistance, FTF	75% (30 Institution/ organizations)
Output 3	Indicator 1	Awareness to develop the legal framework for 3rd party certification and procedures increased (Nos. workshop/event organized)	100% (6 workshops)
	Indicator 2	Legal framework for third party verification and certification reviewed and drafted (Nos. of workshop/meeting held to review and make recommendation by TWG)	100% (6 workshops)
	Indicator 3	Accreditation schemes drafted by BAB (Nos. of workshop/meeting held to review and make recommendation by TWG)	100% (6 workshops)
	Indicator 4	Active BAB accredited third party certification (Nos. of third party accredited by BAB)	100% (1 external organization accredited)
	Indicator 5	Specific standards (private or mandatory) to enhance domestic and international market access identified (Nos. of mandatory standards reviewed)	100% (59 food safety standard reviewed)
	Indicator 6	Training curriculum/module/courses for food safety and quality conformity (including gender dimensions in food supply chain assessment) developed by the national universities and tertiary education institutions, piloted and accredited to international standards (Nos. of training curriculum/module/courses)	100% (1 course curriculum for four years B. Sc. on Food Safety Management System developed and implemented by Bangladesh Agriculture University)

Source：FAO Project Progress Report (March 2019)

B Improving Food Safety in Bangladesh Project (FAO-Netherlands)

This project was implemented from July 2012 to December 2018, with the MoH as its counterpart. The EU initially assisted the IPH in establishing the National Food Safety Laboratory (NFSL), and

the Netherlands took over subsequent assistance. The budget is US$ 12.5 million. The main activities are: 1) the provision of laboratory equipment and support for acquisition of ISO 17025; 2) support for formulating BSTI standards; 3) activities for the increasing food safety awareness in schools and other institutions; 4) implementation support for foodborne disease surveillance; 5) training for food safety inspectors; 6) implementation of training and monitoring for farmers; 7) the provision of 1,200 carts along with training for street sellers, and issuing them licenses; and 8) the development of internal coordination functions within the MoH.

The key issues of the project that have been observed are: 1) the NFSL was designated as a reference laboratory, but it has not been possible to test samples because of a number of problems, such as the cost required for collecting and sending samples, the delivery method, and the shortage of testing costs, and these problems have not been solved; 2) although the project trained BFSA staff, those who received the training were transferred and knowledge is not accumulated (at least five technical personnel are required in order for the BFSA to function properly); and 3) although inspectors have been trained they still find and punish violations without scientific basis.

C. Dhaka City Corporation, Support for Modeling, Planning and Improving Dhaka's Food System (FAO-EU)

The project was launched in June 2019 and is to last until December 2024. The counterpart of the project is the Dhaka City Corporation. This project aims to establish an urban food system for the Dhaka City Corporation to ensure the distribution of safe and fresh food. The specific activities are: 1) modeling and mapping of food distribution/trading to identify places where food safety risks occur; 2) developing the capacity of food safety for City Corporation to apply to city planning capacity development for city planning; and 3) other necessary activities in response to 1) and 2). As for 2), the goal of this activity is to strengthen the capacity of the executing agency, the Department of Local Government.

D. Emergency Center for Transboundary Animal Diseases: ECTAD

The Emergency Center has been established within the Ministry of Fishery and Livestock and supports the Bangladesh Office. The project promotes the "One Health" concept advocated by FAO and WHO. This is the idea that human health is realized by comprehensively considering the effects of livestock health and the environment. The concept is promoted by the MoHFW, the MoFL, and the Ministry of Environment, Forest and Climate Change; the BFSA is a participant in the plan. The Center examined the poultry production chain in Bangladesh and analyzed at what stage contamination and pathogenic infection occurred. As a result, it was confirmed that most poultry farmers run small-scale farms and that improvements in the traditional breeding method are needed. Therefore, the Center supports breeding cages and watering systems for safe breeding.

2.6.3 ADB

A. Skills for Employment Investment Program: SEIP

Refer to 5.1.1.

2.6.4 World Bank

A. Livestock and Dairy Development Project

The project has been launched with an implementation period from July 2019 to September 2023 and a project unit is being constructed. It holistically supports the value chain of livestock and dairy farming. At the production stage, it aims to improve productivity by improving livestock health, nutrition, and fattening technology. At the consumption stage, it provides high quality, safe

livestock products to high margin markets, aiming to reduce intermediate costs. The project also deals with risk management and climate control for livestock production systems. The amount of project budget is US$ 5 million. Farmers also pay half of the total investment to receive benefit.

2.6.5 United States Agency for International Development and USDA

A. HACCP and Sanitary and Phytosanitary Measures Training

The United States Department of Agriculture's (USDA) Foreign Agricultural Service has conducted training in Bangladesh since 2012 which will continue until 2020. Training on HACCP or Sanitary and Phytosanitary Measures (SPS) is conducted in conjunction with the project supported by USAID, and in cooperation with the University of Kansas. These activities are currently being conducted in Jessore in southwestern Bangladesh. The project aims to achieve its goals by combining USAID-supported projects such as market construction, construction of access roads, accreditation of market with good sanitary condition and inspector training. Thereafter it is planning to advance its activities to the support of private processing companies through training for private accreditation organizations.

2.6.6 ILO

A. Skill 21

This is a successor to the Technical and Vocational Education and Training (TVET) Reform Project implemented by the EU from 2007 to 2015. The project is scheduled from 2018 to 2021 with a budget of 19.5 million Euro. In the previous project, the technical vocational training institutions were incorporated into the Bangladesh National Skills Development System. This project continues to support technical vocational training institutions to meet the growing demand for vocational training and to position the training in a national accreditation framework. The needs survey showed that vocational training for human resources in food related industries is not in the top nine areas required; thus, Skill 21 does not include support for the field. Among TVETs across the country, two TVETS are defined as hub institutions in Dhaka and Bogra under the Bangladesh National Skills Development System,[16] and Skill 21 has directly supported seven model institutions in Bangladesh.[17]

[16] Technical Teachers Training College (TTTC)- Dhaka, Vocational Teacher's Training Institute (VTTI)- Bogra
[17] Bagerthat, Khulna, Chittagong Hill Tract, Sylhet, Jamalpur, Gaibandha, Feni

3. Priority Issues of BFSA and Recommendations on a JICA Project for Supporting BFSA

3.1 Request by Bangladeshi government

The request for technical assistance submitted by the Government of Bangladesh in 2018 is shown in Table 3.1.

Table 3.1 Outline of the Project Requested by the Government of Bangladesh in 2018

Overall Goal		National food control system to ensure safety of food supply is improved
Project Purpose		Capacity of Bangladesh Food Safety Authority (BFSA) is strengthened.
Output	1	Coordinal management capacity of BFSA is strengthened to comply with the food safety standard for each government responsible agency
	2	Capacity for food safety inspectors is strengthened
	3	Food safety awareness program through each responsible government agency are initiated as pilot basis and dissemination plan is developed
Activity 1	1-1	Review and assess the activities related to food safety, which is conducted by other government agencies
	1-2	1-2 Develop draft Food safety control management guideline for effective coordination and food safety control
	1-3	1-3 Verify operational feasibility based on the draft guideline
	1-4	1-4 Develop final version of Food safety control management guideline
	1-5	1-5 Food safety control management guideline is approved by Central Food Safety Management Coordination Committee (CFSMCC)
	1-6	1-6 Conduct workshop in regards to Food safety control management guideline
Activity 2	2-1	Food safety risks in the food supply chain are identified and assessed based on the current food safety practices
	2-2	Develop the manual for all the food inspectors
	2-3	Conduct workshop for food safety inspectors to introduce the manual
Activity 3	3-1	Review conventional food safety awareness program in Bangladesh
	3-2	Select the areas for food safety awareness program
	3-3	Develop the effective awareness tools and select media to enhance the effectiveness of the program
	3-4	Conduct the program in the selected area
	3-5	Draft dissemination plan on food safety awareness program is developed.
	3-6	Final dissemination plan is approved by CFSMCC

3.2 Assessment of priority Issues and request

3.2.1 Priority issues and solution

The following issues, which were identified through the survey, were described in "2.4 Outstanding issues in food safety management".

The following three tables summarize the possible solutions based on three categories; (1) national level administration, (2) local level administration, and (3) the target agents of local administration, such as food processing companies, restaurants, and retailers, who are directly involved in food safety, as well as consumers who are the beneficiaries of food safety.

Table 3.2 Issues of the National Food Safety Administration System

	Issues	Countermeasures
Implementation of Act and regulation	• There is inappropriate expression in the contents of the Food Safety Act 2013 • Regulations and rules have not exercised. • The regulations are not enough • There are duplications or leaks with related laws	• Review of the act • Exercise bylaws and find out the corrections • Support for formulation of sufficient bylaws • Identify and improve duplicates and leaks
Implementation policy and framework	• There is no food safety implementation structure, implementation policy, concrete plan, practical guidelines, etc.	• Preparation of implementation policy, plan and practical guidelines of food safety administration (Prioritize development of the manual for district food safety officer, and sub-district food safety inspectors)
Function of BFSA	• Is BFSA a coordinating or implementing agency? • BFSA senior officers' position are temporal. • Executive officer's position defined by staff regulation is deputation • TORs of BFSA departments and staff are unclear • TOR of the new staff has not been decided • Training plan for new employers has not been decided	• Clarify organizational mandate • Clear temporal position. • Revise the staff regulation • Specify TOR of BFSA departments and staff • Development of staff allocation plan and training plan based on it, implementation of training
Coordination with other ministries and departments	• As there is not enough discussion between BFSA and related organizations, agreement on mutual ro le sharing and implementation system has not been achieved • Coordination meeting with related organizations is not functional to coordinate food control agencies • No coordination or networking between laboratories	• Separated discussions and agreement with related organizations. • Increase the meeting to discuss specific issues. • Establish the laboratory networking

Table 3.3 Issues of the Local Food Safety Administration System

	Issues	Countermeasures
Administration system in local level, capacity building for human resource, monitoring of regular work	• Coordination is not strengthened in district level • Number of food safety inspector is not enough • Knowledge of food safety inspector is not enough • Supervision for food safety inspector is not enough • Training provided by other donors is not put into practice	• District coordination committee will be launched with food safety officer as secretary • Capacity building for food safety inspector • Supervise, conduct on the job training and monitor food safety inspector • Review training module prepared by other

		donors
Business license, surveillance	• Standardization of inspection for license does not exist • All inspection targets are not covered properly. • Criteria of inspection are inappropriate • Selection method of inspection target is vague. Not proper random selection, not risk based inspection, not standardized. • Effective sampling method are not settled.	• Implementation of license and inspection according to the manual for food safety officer or food safety inspector. • Settle effective sample method
Administrative actions	• Objective administrative measures are not implemented • Much emphasis on punishing the wrong-doers	• Develop check list and guideline to conduct proper administrative measures • Change to guidance administration through training and monitoring.
Testing	• Prioritized testing items are not set. • Function for testing is not adequate	• Set the prioritized testing items • Accept samples based on testing capacity in laboratories • Develop mid-term and long-term plan for capacity development of laboratories
Information flow	• Information from district and sub-district is not submitted to BFSA in standard	• Collect and submit information based on manuals for food safety officers and food safety inspector.
Utilization of information	• BFSA does not utilize information submitted	• Support BFSA to utilize information

Table 3.4 Application of Laws and Regulations to the General Public

	Issues	Countermeasures
Introduction and compliance of acts and regulations	• There is no plan for the enforcement of laws and regulations • Efforts to comply with laws and regulation for food handlers such as restaurants, retail stores, agricultural livestock and fisheries producers, processors, importers are not enough • It is unclear how to handle cases when overlapping laws and rules	• Formulate a plan • Training to food handlers, on the job training • Organize and propose realistic measures through coordination and dialogue
Awareness creation of food safety to the public	• Awareness raising for food safety for the general public is not enough	• Awareness raising activities for food safety for the general public

When the aforementioned issues are broadly divided, the following three points are considered important for food safety:

A. Establishment of an implementation framework for food safety administration at the national level by BFSA.

B. Strengthening field-level practical skills for food safety administration.

C. Enforcement of food safety awareness and legal compliance for the subject of the law by food safety stakeholders and the general public.

The priority of these potential solutions was examined from the perspectives of “urgency” and “feasibility.” Urgency refers to the degree of urgency, based on social needs. Feasibility refers to

the ease of effort based on factors, such as funds, procedures, technology, and number of targets. Both urgency and feasibility are not based on fixed standards; however, there are comparison images between various elements. We scored the positions of representative issues within the two axes of urgency and feasibility. Table 3.5 shows the scores, and Figure 3.1 illustrates this in the format of a scatter diagram. In Figure 3.1, as it reaches the upper right, the urgency and feasibility become higher, and it is determined that the priority is generally higher.

"Strengthening the functions of BFSA" and "Improvement of manuals" are noted as high priorities at the country level. In terms of the ground level, "Strengthen sub-district Food Safety Inspectors," which plays a primary role in the surveillance flow and can be considered the heart of food safety administration, "Strengthening of District Food Safety Officer" and "The construction of information flow" from FSO are considered high priority. In "Awareness raising of Food processor, Restaurant & Retailers," which features the leading actors of food safety, has the highest priority; however, "Awareness raising of Magistrate & Media," which has considerable social influence, is also in the same position.

Table 3.5 Priority Issues

Category	Solutions	Urgency	Feasibility	Average
A National	Implementation of law and by-laws	4	2	3.0
A National	Improvement of manuals	3	4	3.5
A National	Strengthening BFSA	4	4	4.0
A National	Coordinating with other food control agencies	3	2	2.5
A National	Strengthening laboratory network	3	1	2.0
B Ground	District coordination of food control agencies	2	3	2.5
B Ground	Strengthening District FSO	3	3	3.0
B Ground	Constructing information flow	3	3	3.0
B Ground	Strengthen sub-district FSI	4	3	3.5
B Ground	Improvement of test and inspection system	3	2	2.5
B Ground	Construction of new laboratories	2	1	1.5
C Awareness	Awareness raising of food processor, restaurant & retailer	3	3	3.0
C Awareness	Awareness raising of agricultural producers	3	2	2.5
C Awareness	Awareness raising of Magistrate & Media	3	3	3.0
C Awareness	Awareness raising of consumers	2	2	2.0

4 = very high, 3 = high, 2 = medium, 1 = low
Source: Survey Team

The medium priority issues are "Coordinating with other food control agencies" at the national level, "Improvement of test and inspection system," and "Awareness raising of agricultural producers." The urgency of these issues is 3, which is not low; however, the low feasibility is the bottleneck, and many of them require time. "Coordinating with other food control agencies" has been an initiative since the establishment of the Food Safety Agency; however, only 7 out of 24 organizations have signed memorandums of understanding with BFSA, and coordination has not progressed as expected. "Improvement of the test and inspection system" is an improvement in the flow of "sample collection => sending sample to laboratory => testing => feedback of the results." In the original surveillance flow of "on-site inspection => testing => administrative measures," test and inspection system plays an important role; however, the system is hardly functioning due to the lack of adequate sample collection know-how and limited budget to send samples to the test laboratory to ensure that they do not deteriorate. For its improvement, it is necessary to improve conditions, such as human resource development and improvement of traffic conditions. Regarding "Awareness raising of agricultural producers," the agricultural, livestock, and fisheries producers are important because they are at the starting point of the food value

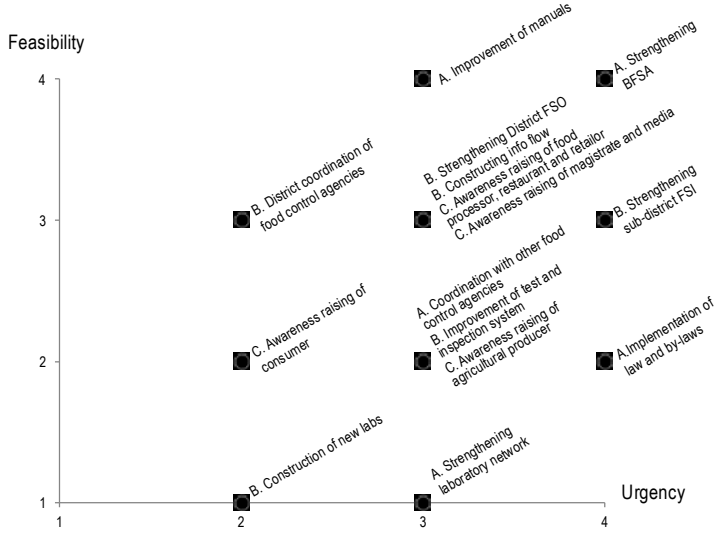


Figure 3.1 Priority in scatter diagram format
Source: Survey Team

chain. Residual pesticides and antibiotics present a major food safety problem. However, the number of agricultural producers in Bangladesh, with a population of 160 million, is extremely large, and the agricultural extension and livestock service departments cannot obtain a budget to promote GAP nationwide.

"Strengthening laboratory network" is relatively low because many testing laboratories of some related organizations in Dhaka have limited maintenance budgets and inspection personnel, with the exception of the laboratory of DOF. Introducing changes in a short period of time will be difficult. Because there are almost no test laboratories in the regions and districts in Bangladesh, "Construction of new laboratories" is important. However, while considering fancy laboratories in Dhaka that are not operated effectively, although a new facility can be constructed immediately, it is unlikely that it will be operated effectively.

Based on the aforementioned priorities, the technical cooperation project framework will be examined in the following section. The activities that were determined to have a relatively high priority here seem to be generally consistent with the outcomes of the projects listed in the request by the government of Bangladesh.

3.2.2 Project proposal as of 2018

3.2.2.1 Overall goals and project objectives

We consider that the proposal is generally appropriate. We added some modifications to the project purpose as its statement was vague. If there is any difficulty setting indicators etc., these will be corrected if necessary.

3.2.2.2 Output 1

Request in 2018

- Coordinal management capacity of BFSA is strengthened to comply with the food safety standard for each government responsible agency

Proposal by the Survey Team

- Next strategic plan of BFSA (2022–2027) is developed based on current strategic achievement and lessoned leant.

The "strategic plan 2017–2021" which was formulated three years after the establishment of the BFSA has passed the middle of the target period. The issues faced during that period have been identified and prioritized in order to optimize the use of limited funds and human resources Therefore, there is a need to develop a new strategic plan. In the latter half of 2020 when the JICA project starts, the period for the first strategic planning will be 80% completed. Starting in its first year, the project needs to develop a new strategy based on achievement and lessons learned.

By improving the BSFA's coordination capacity, the Bangladesh government ensured that its agencies complied with food and safety standards. In fact, BFSA has put much energy into coordination since its establishment. However, as mentioned in "2.4 Outstanding issues in food safety management," coordination with related ministries has not progressed as originally planned. One reason for this is time-consuming work, such as issuing new regulations and rules. The next strategic plan should be revised to reflect this current situation.

The recruitment of necessary human resources is stated in Section 1.2 of the current Strategic Plan. In line with the Strategic Plan, BFSA has been hiring staff to become the first generation of staff

directly hired by BFSA as of August 2019, and will have officer-class personnel who will serve as headquarters personnel and district staff in 2019. Although the new staff have graduated from related departments, such as microbiology, chemistry, and food engineering, they are primarily university graduates and have no working experience. Hands-on guidance is essential in daily field activities, including on-the-job training. In addition, when staff are assigned as Food Safety Officers to districts, it is expected that the new support requirements for field activities by FSO will connect FSO to the headquarters of the BFSA. After completing the "recruitment" phase, it is necessary to formulate the next strategic plan that includes details regarding how to utilize the recruited personnel.

In the laboratories of other institutions, the "laboratory system" is highlighted as a problem, instead of the equipment. Laboratory system here includes the maintenance budget and the technical skills of operation personnel. These factors are in shortage at many laboratories; therefore, these laboratories do not function effectively. Under these circumstances, it is necessary for BFSA to design the next strategic plan from 2022 to establish effective steps, both in the long-term and short-term, for functional test and inspection systems for surveillance.

3.2.2.3 Output 2, 3

Request in 2018

- Capacity for food safety inspectors is strengthened

Proposal by the Survey Team

- Capacity for food safety officers in district level is strengthened (Output 2)
- Capacity for food safety inspectors in sub-district level strengthened (Output 3)

The request by the Bangladesh government was the capacity building at the sub-district level, of a food safety inspector who is designated by the BFSA and who was originally a sanitary inspector working under the Ministry of Health. Sub-district food safety inspectors play an important role in surveillance on the ground level, and the Survey Team has no objection to this proposal.

However, it is necessary to consider that the agency's efforts thus far are not functioning in the field and determine the cause. In addition to providing general training and distribution of manuals, the project needs to consider how to establish instruction methods and dissemination media that enable increasingly effective training and practical training.

On the other hand, how soon the food safety officer will be recruited and deployed in a district is strategically important with regard to linkage between the central and local levels. Their responsibilities and educational backgrounds are also different from that of a sub-district food safety inspector. Therefore, the capacity building of a district food safety officer should be added as an independent output.

3.2.2.4 Output 4

We think that Output 4 is generally acceptable. The activities should be implemented according to BFSA's "Communication Strategy" formulated by the FAO project. In this communication strategy, targets are widely covered among (1) administrative officials and mass media who are involved in food safety, (2) food processors, restaurants and retailers who are food business operators, and (3) general consumers.

With regard to concerns about recent incidents related to food safety in Bangladesh, there was some confusion caused by inappropriate judgments made by government officials and the mass media who lack basic knowledge of food safety (see 2.5). The BFSA' awareness programs should

target not only food handlers, but also government officials and the mass media.

3.3 Modified project proposal

3.3.1 Possible design of a JICA project

Based on the above results, we propose the new project of JICA as follows.

Output 1 Next strategic plan of BFSA (2022–2027) is developed based on current strategic achievement and lessoned leant.

Activity 1-1 Review and assess the strategic plan (2017–2021)

Review the current "strategic plan 2017–2021" and its road map and identify achievements and bottlenecks caused by delayed activities. Prioritize the remaining activities.

Activity 1-2 Develop draft next strategic plan (2022–2025)

Formulate a draft of the next strategic plan. It is important to consider how to improve activities that were difficult to accomplish in the current strategic plan. If insufficient information within the law or regulation is the main factor, this needs to be addressed. If lack of manpower is a factor, the plan needs to differentiate whether capacity building for new staff is relevant today or if it should only be implemented after several years. It is necessary to make a realistic road map according to the difficulty of the activities and factors.

Activity 1-3 Discuss with stakeholders and finalize the strategic plan

While discussing strategic plans within the BFSA, discussions with experts and relevant government agencies will continue, and the plans revised for appropriateness of content. Then, complete the strategic plan based on discussions with BFSA and stakeholders.

Activity 1-4 Implement activities according to the priorities of the next strategic plan

Agree the prioritized areas in the strategic plan with BFSA and stakeholders and implement activities.

Activity 1-5 Develop the exist plan based on implementation progress

According to the implementation progress of activity 1-4, the existing plan will be developed in order for BFSA to continue activities after the project completion.

Output 2 Capacity for food safety officers in district level is strengthened

Activity 2-1 Develop data collection system from food inspectors in sub-districts, and develop a framework for submission of consolidated information to BFSA

Based on reports by sub-district food safety inspectors, district food safety officers must add countermeasure comments relevant to district level and report to the BFSA.

Activity 2-2 Develop a district food safety implementation plan base on the district food safety information

Based on the actual state of food safety information raised from sub-districts, the district food safety officers will create an implementation plan for food safety administration. The

implementation plan should include setting prioritized targets and items that factor the seasons, and should also include awareness activities.

Activity 2-3 Hold the district food safety coordination committee

Under the deputy commissioner, a district food safety coordination committee will be established, and the district food safety officer will work as secretary for the committee. In addition to the food safety department, members of the committee will be from the departments of health, consumer right protection, agriculture extension, livestock service station, and fisheries at a district level.

Activity 2-4 Food safety related information is shared in the district food safety coordination committee

Promote the coordination of food safety administration officials at the district level through the district food safety coordination committee. For example, imparting information gained from inspection to consumer right protection officers will make it possible to share which districts or food business operators are having problems with food safety. Alternatively, if excessive use of pesticides at the crop production stage becomes a problem in the district, the committee can request intervention from the department of agricultural extension at a central level to challenge farmers.

Output 3 Capacity for food safety inspectors in sub-district level strengthened

Activity 3-1 Conduct Assessment of food safety risks in supply chains of each product

Analyze the risks at each stage of the supply chain by itemization and identify areas with particularly high risk. These are the key points to check in on-site inspections.

Activity 3-2 Develop the manual for the food safety inspectors

Create a checklist based on the identified risks. The degree of harm should be classified into three general levels, draft manual should be developed and should include administrative measures ranging from guidance to penalties. The manual should also include the sample collection method.

Activity 3-3 Support capacity development of sub-district food safety inspectors through district food safety officers

To develop capacity for sub-district food safety inspectors, training should cover basic knowledge of food safety, surveillance, administrative measures, sample collection, compliance with law, and report writing.

As for the inspection manual, which is a core tool for the main activity of sub-district food safety inspectors, many sample case studies should be included.

At the same time, with regard to inspection practices, the district food safety officer should visit the sub-district and accompany the sub-district food safety inspector to conduct on-site training.

Prepare a format to assess the capacity of sub-district food safety inspectors and conduct a baseline survey at the beginning. After training, an end line survey will be conducted with the same evaluation format.

Output 4 Food safety awareness program through each responsible government agency are initiated as pilot basis and dissemination plan is developed

Activity 4-1 Develop implementation plan based on existing communication strategy

Under the initiative of the FAO project, the BFSA communication strategy has been formulated.

Based on this strategy, the project will develop an implementation plan of awareness program for each of the following: (1) administrative officer, media; (2) food handler; and (3) the general public.

For government officials and the media, the program will focus on basic food hygiene knowledge and appropriate measures based on regulatory cases. For food business operators such as restaurants, street food vendors, food processors, and retail markets, the program focus will be on key items based on risk analysis.

Activity 4-2 Select the areas for food safety awareness program

Select a pilot area from the target areas of Activity 2 and Activity 3.

Activity 4-3 Develop the effective awareness tools and select media to enhance the effectiveness of the program

Select tools and media according to the activities based on the implementation plan. In particular, for food safety handlers and the general public; (1) consider illiterate people and consider using events or visualization, and (2) consider how to be effective with low cost such as SNS, etc.

Activity 4-4 Conduct the program in the selected area

Conduct awareness raising activities based on the implementation plan.

Activity 4-5 Draft dissemination plan on food safety awareness program is developed

Based on the lessons learned from the results of the awareness program, the project will review the implementation plan and formulate and disseminate a plan that incorporates the activities, the necessary personnel, and the budget.

The proposed project from 2020 to 2025 is shown in Figure 3.2.

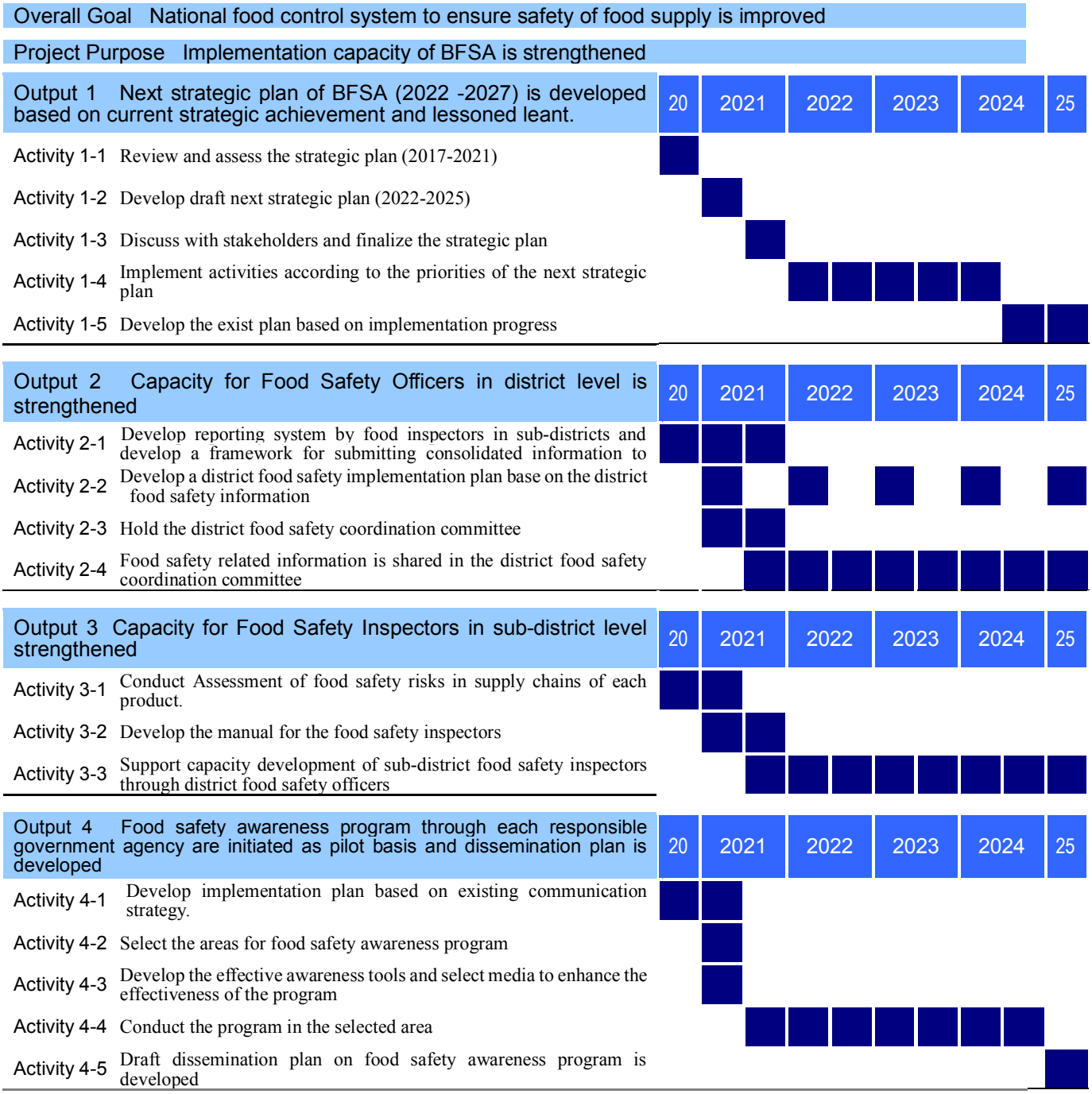


Figure 3.2 Proposed Project from 2020 to 2025

Source: Survey Team

3.3.2 Pre-condition to Bangladesh counterpart

3.3.3.1 Allocate counterparts at the BFSA

A project director and a project manager should be assigned as counterparts throughout the project period before starting the JICA technical cooperation. As a requirement for selecting project managers, we request the assignment of specialists with degrees in natural sciences, such as food processing, microbiology, and chemistry related to food safety.

The project director is responsible for procuring funds and human resources necessary for the project, revising the legal system, and instilling the results of the project throughout the country, while properly communicating with the relevant government agencies.

On the other hand, project managers responsible for day-to-day project operations are required to have expertise and experience in food safety. It is difficult for a project manager to lead a project if they do not understand recent occurrences in the field from the perspective of a food safety professional. Among the four members, two members, "Public Health/Nutrition" or "Food Industry/Food Manufacturing," are considered strong candidates.

3.3.3.2 Complete recruitment of new human resources

The BFSA is in the process of recruiting 364 staff and plans to complete the recruitment process by December 2019 (Refer to 2.2.1.5.B. Progress of recruitment of new human resources). These officers will engage in the BFSA's core activities and these officers will be target for new JICA project.

We request recruitment will be completed without delay and the vacant posts will be filled according to the official recruitment plan.

3.3.3.3 Secure the budget for local activities

We request BFSA secure enough funds for new employees, especially for the Food Safety Officers and Assistants in the district level. JICA is not able to cover personnel expenses for these officers. BFSA needs to secure ample budget for activities including allowance and transportation cost for officers.

3.4 Workshop on proposals for a new JICA project

On August 28, 2019, the Survey Team held a workshop in Dhaka City to present the survey results and discuss proposals for a new project with related organizations. The number of participants was 27. The participants included the following: Ms. Syeda Sarwar Jahan, the new chairperson of the Bangladesh Food Safety Authority (BFSA)[18]; representatives of the Bangladeshi government agencies engaged in food safety such as the Directorate of General Health Service (DGHS), Directorate of Agricultural Extension (DAE), Department of Fisheries, Bangladesh Standards and Testing Institution, and Standards Inspection Organization; USAID, FAO, and other donors; and BAPA. The workshop's chairperson was Mr. Ryuichi Katsuki of the JICA Bangladesh Office.

In her opening remarks, Ms. Jahan explained how food safety became an important policy issue under the threats of adulterated food, chemicals, and microbial contamination. She stated that the

[18] On August 18, 2019, Ms. Jahan assumed her post as chairperson of BFSA.

Food Safety Act was enacted in 2013, and BFSA had been working to improve its technical and organizational capabilities since 2015. She also expressed gratitude to Japan, especially JICA, for being one of Bangladesh's most reliable partners since its independence. She noted that "I hope the upcoming project will allow us to strengthen our relations with relevant stakeholders and improve the food safety situation of the country in order to enhance trade and economic development" and concluded "Many things are already being processed but BFSA is truly in need of help. We have seen that the Survey Team has found most of the problems and have already provided recommendations to overcome those problems. Therefore, we hope that Japan will contribute and work with us, and we will be able to overcome our constraints."

The Survey Team presented the survey results. Then, the following major remarks and questions were made.

- "The DAE is working on Bangladeshi GAP and has signed a MoU with BFSA. Is it possible to have the next JICA project include GAP training for the field extension officers of DAE?" (DAE)
- "The DAE has 14,000 extension officers nationwide, and it is difficult to promote GAP to all of them because the budget of a JICA project is limited. However, promotion of GAP is important for food safety. Therefore, we will consider conducting pilot activities for that purpose." (Survey Team)
- "Whether Bangladeshi GAP can be endorsed globally is an important question. Businessmen will want to export their products. First, we need to harmonize Bangladeshi GAP with global GAP." (FAO project)
- "Bangladeshi GAP has not been implemented nationwide yet, and it is premature to discuss harmonization with global GAP." (DAE)
- "First, improving food safety in the domestic market should be prioritized. International certification is not the first thing to do. When I went to Japan for training, Japanese officials emphasized that each country should start from the basics. In Japan, farmers used a very simple tool called 'Farmer Calendar' to record the agricultural chemicals and fertilizers they used. The extension staff visited the farmers from time to time to check details. This simple method does not require much budget. I would request DAE to work together based on the MoU already signed." (A BFSA official)
- "The FAO Project conducted training for officers at DAE at the central level. I request the JICA project to expand this training to other extension officers. FAO also created food safety related training materials for government officers. Is it possible for the JICA project to include training for street venders?" (An FAO project officer)
- "Street venders move and it is difficult to register them. However, they are important for food safety in Bangladesh. There are initiatives regarding street venders in other countries. Based on such initiatives, we will consider how to target street venders as well." (Survey Team)
- "Manuals for food safety inspectors have already been created by various donor projects within DGHS. Manuals are about risk categorization, food production, food hygiene management, etc., and some of them are used on site. It is necessary to improve their contents, but there is no need to create a new one. Each ministry also conducts many awareness raising activities. Therefore, it may be better to spend money on other purposes." (DGHS)
- "We know that manuals already exist, but food safety inspectors do not perform very well on site. It is necessary to examine the cause of this problem. For example, food safety inspectors at the sub-district level do not seem to understand the principles in the manuals while applying them. With regard to awareness raising, BFSA is at the forefront of raising food safety awareness of the general public. BFSA needs to determine which activities are necessary."

(Survey Team)

- "First, we should understand that the media plays a major role. The media affects people's behavior. Secondly, BFSA needs to consolidate its expertise. For example, Mr. Mahfuzul Hock, a former BFSA chairman, was assigned to the Ministry of Shipping. The ministry has nothing to do with food safety. This is just a waste of valuable taxes.

  It is also important to raise children's food safety awareness, for example through cartoons. Food safety may be included in the educational curriculum. In addition, Bangladeshi companies should promote joint ventures with Japanese ones. Japan's food safety quality is the best in the world, and Bangladesh can learn a lot by working with Japanese companies." (BAPA)
- "There are many issues, but there is only one JICA project and it cannot address all of them. Priorities need to be set. The JICA project will first support BFSA." (Workshop chairperson)
- "BFSA is the controlling and coordinating body but various agencies and departments need to declare what their functions are. In the future, they should become self-compliant. BFSA will check if they are in compliance. If any non-compliance is found, then BFSA as the controlling authority should take steps. I think this is the way forward. Individual agencies will implement most activities on their own." (BFSA)
- Food safety inspectors in the sub-district level do not have adequate budget and need logistical support. They need sample collection tools, and regulations that specify sample size and procedures. Does the JICA project include such activities?" (DGHS)
- "Food safety inspectors are the key targets of our activities. We will consider including them in a new project." (Survey Team)
- Most of BFSA's higher-level officials BFSA are seconded from other government entities, and they do not have much scientific knowledge regarding food safety. What will the new JICA project do about the capabilities of these officials?" (FAO project)
- "The government's recruitment system itself is not something the project can intervene. We believe that BFSA personnel with scientific background should support higher-level officials and help them make correct decisions." (Survey Team)
- "JICA does not need to worry much about this issue. Secondment is inevitable in our system and higher-level officers can be trained with the help of BFSA and JICA projects. In addition, decisions that require high-level scientific knowledge are made by technical committees and working groups. Top-level scientists participate in such groups. Such decisions and recommendations will be implemented by the administrative officers." (BFSA)

4. Assessment of Food Safety Management by Food Processors

4.1 Bangladesh Agro-Processors Association

The Bangladesh Agro-Processors Association (BAPA) was established in 1998 by 13 food processing companies. Subsequently, the number of member companies increased to over 500 at one time, but recently, 268 companies have joined, with a policy of narrowing down to only active members. The secretariat has 13 staff members. As of 2017–18, the total annual exports by member companies will be US$ 371 million.

In addition to the daily activities of the 17 subcommittees, the association co-hosts exhibitions, supports member companies' exhibitions, and conducts conferences, seminars, and training programs to improve production technology and food safety. The association is hosting a food trade show "Food Pro" at the Dhaka International Trade Fair. In 2018, this was held from October 25th–27th. For seminars and workshops, for example, plans such as “The path to development of the Bangladesh agricultural food processing industry,” “The prospects and barriers for exporting processed food in Bangladesh,” and “The possibility of cold-chain of vegetables and fruits” were implemented in 2018. Training programs may be implemented directly or by outsourcing. As a large-scale training program to set up a dedicated office outside the company, the Asian Development Bank-funded "Skills for Employment Investment Program (SEIP)" has been implemented since 2017. This will be explained in 5.1.1

The present situation based on the factory inspection of food processing companies is summarized below.

4.2 Rice and Wheat

4.2.1 Company A: Milled rice

4.2.1.1 Outline

Company A is a new rice mill that started operations in April 2019 with five partners. A total of 95 employees—including 5 managers, 40 machine operators, and 50 workers—are engaged in this company.

The company’s milling capacity is 12 tons per hour and it operates 24 hours a day in 3 shifts. Thus, the daily production amount is 288 tons. As for the machines, rice parboiling equipment was made in India and rice mill equipment was made in China. The total investment is BDT 150 million, which will be depreciated over a period of four to five years.

Considering food safety, the ground water used by the company was sent to the Bangladesh Institute of Technology’s laboratory for testing the hardness, iron content, presence of microbes, etc., but no particular problem was observed.

Eighty percent of the paddy are purchased from nearby agricultural cooperatives. An agricultural cooperative consists of 5-10 farmers. The remaining 20% are bought from distant farmers and middlemen. Seventy percent of the milled rice produced will be sold to wholesalers and retailers. The remaining 30% will be sold to the MoF for stockpiling. Sales volumes to the MoF are determined according to the mill's capacity.

The district foods security officer explained that there are 300 rice mills in the district, 14 of which are continuous automatic mills and the rest are small-scale rice mills. In a small-scale rice mill, after soaking, the boiler sends steam to a drum, parboils, and spreads the rice in a concrete-bed

yard to dry naturally. Dried paddy is milled two or three times through a traditional Engelberg miller, and then finished through a single destoner. The production volume of small-scale rice mills in the district is roughly half of the production volume of continuous automatic rice mills, but the former is said to be increasing rapidly.

b.c.Parboiling

4.2.1.2 Human Resources and Quality Control

At this rice mill, no human resources are involved in food safety. Thus, no training is necessary.

4.2.1.3 Inspection and Testing

The establishment of a rice mill requires the permission of the MoF, which is implemented by the government for understanding the supply capacity of rice mills from a food security viewpoint. It is not a permission from the food safety perspective. The MoF conducts on-site inspections about twice a month. There are no on-site inspections by government agencies other than the MoF.

Although the company has not obtained ISO or other certifications, management says that they might consider it in future.

There have been no complaints from customers regarding quality or safety thus far.

d.Drying

h.Polishing

k.Length grading

l.Color sorting

m.Packaging

4.2.1.4 Production Process

a. Remove light paddy with gravity sorter
b. Soak paddy in the water at room temperature for 4 hours
c. Steam paddy at 200° C for 10 minutes
d. Dry paddy in the dryer for 8 hours to 14% moisture
e. Remove the stones
f. Remove the stones again
g. Remove foreign matter
h. Remove rice husks
i. Remove rice bran
j. Polish
k. Remove broken rice with length grader
l. Remove discolored rice with color sorter
m. Pack milled rice into a jute bag

4.2.1.5 Hazard Analysis

1. Milled rice is a traditional staple food that is eaten by everyone after washing and cooking. In addition, milled rice has a moisture content of about 14%, so propagation of pathogenic microorganisms is difficult. In this sense, serious hygiene problems are unlikely to occur with rice. In the past, consumers were inconvenienced: they had to manually remove foreign substances such as stones before washing. This inconvenience has now been addressed with the introduction of de-stoners by most of the rice mills.

2. The Government of Bangladesh encourages traditional jute bags following the polyethylene ban, and this mill also puts finished milled rice in jute bags. In particular, milled rice for the domestic market is placed in porous jute bags that are not lined with polyethylene bags. In this state, small insects may enter the

bag, and water may soak in during the wet rainy season. According to the mill, such problems would not occur because the rotation cycle of rice is fast. Because most of the rice in Bangladesh is parboiled, the surface of the rice grains is gelatinized, and therefore, less susceptible to insects and water than white rice. The results should be confirmed through surveys and experiments, and if necessary, measures such as lining the jute bags with polyethylene bags should be implemented.

4.2.2 Company B: Bakery, Confectionary, and Noodle

4.2.2.1 Outline

Company B is in Chittagong city. Its operation started in 2008. It produces biscuits, noodles, cakes, and breads, and has 250 employees. As a group, there are two plants in Chittagong, one plant in Dhaka, and one plant in Sylhet. There are around 3,000 people working in this group.

The company caters to the domestic market only and none of its products are exported. Products are distributed to retailers through wholesalers all over the country. The monthly sale is BDT 30–40 million.

4.2.2.2 Human Resources and Quality Control

The head of quality control has a bachelor's degree in food science and nutrition from the University of Dhaka. Some of the staff have a bachelor's degree or diploma in food science.

The ILO provides a one-time food safety training for workers. Along with on-site inspections, ISO auditors also provide several hours of training.

Here, the quality control issue is that the education level of non-skilled workers is low. They join the company without any knowledge of food hygiene. Many of them cannot read or write at all, and explanations or displays using printed matter are not effective. The company believes that food hygiene can only be explained verbally at manufacturing sites.

There is a small lab that checks the quality of the main ingredients such as flour and oil, and the quality of products based on the BSTI standards. For wheat flour, water content, gluten content, ash content, etc. are defined. They have their own layer farm for egg production and eggs are purchased from there. As eggs are used immediately after being stocked, no quality inspection is conducted.

4.2.2.3 Inspection and Testing

This factory's cake, biscuit, and noodle processing department has obtained ISO 9000-2015 certification from BSTI. The bread making department does not have an ISO certification. None of the departments are HACCP-certified.

4.2.2.4 Production Process

Sponge cake

a. Mix dough ingredients (separate room)
b. Put the dough into the machine and drop onto the tray
c. Bake in the oven
d. Cool

e. UV sterilization
f. Pack

Putting the dough into the mixer, including breaking of the eggs, is done manually. The rest of the process, step b onwards, is continuous.

Dry noodles

a. Mix dough ingredients
b. Knead and stretch with a machine
c. Cut the dough
d. Dry (24 hours)
e. Pack

The entire process for dry noodles is continuous, from mixing ingredients to final packaging. The drying process takes time as the noodles move very slowly inside the drying chamber.

4.2.2.5 Hazard Analysis

1. With regard to noodle production, the whole process is continuous and the moisture content of the product is low. Therefore, bacterial contamination is hardly observed.
2. In case of sponge cake, only the mixing process of materials is done in a separate room; from then onward, the process is continuous, and because UV sterilization is done just before packing, bacterial contamination is hardly observed.
3. As mentioned above, capital investment for manufacturing machines depends on the item to produce, and the possibility of bacterial contamination is minimized through continuous processes. However, when looking at the manufacturing environment, we observe that the floor and lower walls inside the production area are not rinsed by water or disinfected.
4. Even in the sections where continuous production machines are used, the production environment is insufficiently closed, the entrance is open, and unhygienic animals, insects, and dust can easily enter from the outside. Although the room where the sponge cake is mixed is air-conditioned separately, the door is not closed. There is a possibility of foreign matter contamination before the start of the continuous process. The entire machine is placed in an insufficiently closed space and the production materials are exposed in one of the processes; thus, the possibility of foreign matter contamination still remains.

4.3 Fruits and Vegetables

4.3.1 Mango pulp: Company C

4.3.1.1 Outline

Company C's mango pulp mill is located in the northwestern part of the country, which is famous for mangoes.

Mango pulp refers to a highly viscous liquid obtained by finely crushing mango flesh. This is then used by drink-makers to produce mango drinks and the like. The current machinery was introduced from India and Pakistan in 2000. The machinery will be upgraded soon, and new machines have already arrived.

Raw mango varieties are Guti during June–July and Asina during July–August. This plant uses 13–16 degrees sugar, especially 14–15 degrees in bricks. The production volume is 50 tons/ day, and it produced 1,600 tons of plastic drum products and 120 tons of can products last year. The unit price is about BDT 60–90/ kg for plastic drum products and about BDT 90–120/ kg for can products.

There are 15 staff members and 150 seasonal workers in this company. Executives are considering exports as the demand for mango pulp is high both at home and abroad, but this has not yet been realized.

4.3.1.2 Human Resources and Quality Control

After getting a bachelor's degree in food technology, the director of quality control has completed a master's degree in food engineering. One quality control officer now has a master of philosophy (M.Phil.) degree in microbiology. This person lives in Dhaka and occasionally visits Rajshahi. Both quality managers have a bachelor's degree in food manufacturing technology. Additionally, other staff members have similar bachelor's degrees and diplomas.

This factory is equipped with a work manual that includes hygiene management. The staff record the heating temperature of the sterilization process in the daily report. Even if foreign matter enters at this stage, it is removed during the crushing process. A new mechanical system to be installed nearby has a machine called decanter, which can also remove larvae lurking inside the fruit.

The use of Formalin for maintaining freshness and enzymes for faster ripening of raw mangoes was observed until several years ago, but these are rarely seen now because of severe government controls. The purchased raw mangoes are inspected using a test kit; if Formalin and other ingredients are found, they will be disposed, a complaint will be raised with the supplier, and such purchases would be stopped thereafter.

The shelf life of plastic drum products and can products is two years after production. A few experiments were conducted to arrive at this number. Each month, the sample was inspected to judge whether the product could be stored without problems for two years.

4.3.1.3 Inspection and Testing

The company has received ISO 22000 (Food Safety Management System) certification from BSTI; BSTI also conducts on-site inspections. However, mango pulp is not intended for general consumers, so it is not on the BSTI list and there is no manufacturing standard. There are about 15 types of business permits, including permits for electrical equipment, but there are no business permits from the viewpoint of food safety and food hygiene.

4.3.1.4 Production Process

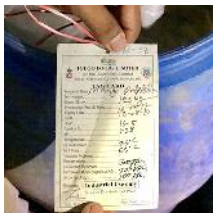
a. Washing raw mango with water, disinfecting with aqueous sodium hypochlorite solution, and rinsing
b. Stem cutting by workers
c. Removal of peel and seed using a rotary crusher (10 mm diameter of the hole in the cylindrical part) while crushing the fruit
d. Chopping the crushed fruit fibers with a rotary crusher (5 mm diameter of the hole in the cylindrical part)
e. Using the rotary crusher (3 mm diameter of the hole in the cylindrical part) to further chop the fruit fibers
f. Further cutting of the fruits fibers with a rotary crusher (1 mm diameter of the hole in the cylindrical part)
g. Using a degassing device to remove oxygen generated during fruit crushing
h. Tube-type heat sterilization at 90–100 °C to devitalize the enzymes
i. Cool mango pulp to 65 °C for plastic drum products
j. Add preservatives, pH adjusters, etc.
k. Refrigerate for seven days and then inspect the sample.
l. For can products, store mango pulp at around 80 °C
m. After sealing, put in cans of hot water at 100 °C for 20 minutes, sterilize, and store at room temperature


a. Washing


c. Crushing


g. Degassing


h. Pasteurization


k. Spec tag

4.3.1.5 Hazard Analysis

1. The whole plant has low closure; for example, the plant entrance is not closed, and small animals or insects may come inside. Raw mangoes after stem cutting process move inside a continuous pipe, but a possibility remains that foreign matter may enter the machine while it is being cleaned or shut down.
2. The floor at the site was explained as being cleaned, but there was no evidence of water cleaning and disinfection. Washing and disinfection are not performed on the lower inner wall near the workspace, and there is no air conditioning. Thus, molds can easily propagate under a hot and humid climate.
3. Mangoes move in a continuous pipe after washing and stem removal, and the pulp is heat-sterilized before sealing. Therefore, bacterial management problems would not occur if sterilization temperature is properly controlled.
4. The plastic drum products stored in a cool and dark place are considered to be resistant to decay, because they use two types of preservatives.

4.3.2 Mango drink: Company D

4.3.2.1 Outline

Company D's factory is located in the north of Dhaka City. The total number of employees is 250,

of which 134 are workers.

The plant produces mango, orange, and lychee drinks. Mango pulp is used for mango drinks. It is also used for making the orange drink, which does not have any orange pulp or juice. Instead, an aromatic flavor is added. Lychee drinks do not contain fruit pulp or juice and are made with sugar, acidulant, and flavor. The production volume of drinks is about 30 million bottles a month.

Currently, the company mainly caters to the domestic market and also has a small volume of exports. The company exports spices to South Africa, the United Arab Emirates, Singapore, among others, and mango drinks to Malaysia and the United Arab Emirates.

4.3.2.2 Human Resources and Quality Control

The head of quality control is currently pursuing a major in biochemistry. Two staff members in quality control have a diploma in food engineering.

The factory has its own laboratory, where microbiological testing, water hardness testing, acidity testing, among others, can be performed. Products are sent for advanced examinations to the science laboratory at the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDRB). It takes approximately seven days to get the results and the cost depends on the item being inspected.

Although the company follows food safety guidelines developed by BAPA, it is not easy to do so. The environment at the factory is not conducive to fulfill the requirements. For example, employees are not highly educated and need training. Although BAPA can provide the requisite training, it is not sufficient to fulfill the gap. Moreover, it is not easy to match the training schedule of BAPA. In addition, the company needs funding and proper training. The training should focus on raising the sanitation level at large. In particular, the company would like to have training for record keeping and quality monitoring.

4.3.2.3 Inspection and Testing

Automaric machine

The company is BSTI certified. ISO and Halal certification have not been obtained yet. It is difficult for the company to maintain records and adhere to guidelines. However, to obtain these certifications at the earliest possible, the company is trying to maintain records of daily work.

The company believes that the certification would help in marketing in the domestic market as well as the international market. People's awareness of food hygiene has improved in the past few years, and it is expected to further increase in the future.

4.3.2.4 Production Process

Because of brief on-site inspection, detailed production process was unknown. It was determined that the company has a continuous manufacturing plant that carries out tasks from mixing of materials to heat sterilization and sealing in plastic containers.

Products put on the floor directly

4.3.2.5 Hazard Analysis

1. The mango drink production line is automated, so it seems unlikely that bacterial contamination in the product can occur as long as the heat sterilization process and the requisite conditions such as temperature and time are followed as needed, until encapsulation.
2. However, when it comes to the manufacturing environment, there are a number of problems. There is no interception of the outside air at the entrance of the

building. This can lead to the possibility of small animals and insects entering the facility undetected. At the manufacturing site, the windows are not sealed and these also provide easy passage for small animals and insects. There is no plastic curtain, swing door or foot bath, and workers do not change their shoes at the entrance. The floor was said to be cleaned before and after the start of the eight-hour operation, but it is only wiped clean. There is no drainage system, hence it cannot be washed. Drinks that have been contaminated by the mouths of consumers while drinking are piled up on the floor.

4.3.3 Mango drink: Company E

4.3.3.1 Outline

The factory of Company E, located in the north of Dhaka City, was opened in 1982. There are about 2,000 workers and they have two shifts of 8 hours each. It has a generator for power failure. Products include mango and lychee drinks, powdered soft drinks, mango pudding, mango jelly, instant tea, puffed rice, vermicelli, biscuits, spices, and others. The largest quantity produced is that of the mango drink, which has a shelf life of one year at room temperature, after production. Export destinations are mainly Asian countries such as Singapore, Malaysia, Hong Kong, and India. Other countries that it is exported to are Oman, Qatar, other Middle Eastern countries, and the United Kingdom.

The main raw material used is crushed mango fruit known as mango pulp. This is purchased from northern Bangladesh and West Bengal in India, and is used for 300 to 500 tons of annual production. Water, sugar, citric acid (E-330), preservative (sodium benzoate E-211), pigment (beta-carotene E-160), pH buffer (sodium citrate E-331), a viscosity stabilizer (Kitan Gum E-415), flavor, and others, are mixed to make the drink. The content of mango pulp is about 10%.

Mango pulp is stored in a plastic drum, and the sugar content is about 18 to 22% on average. This may change depending on the season and production area, so after measuring the sugar content, the amount of sugar that needs to be added is determined. The company purchases the flavor from Germany and Denmark.

4.3.3.2 Human Resources and Quality Control

The factory is equipped with a laboratory for quality control. While the laboratory was set up at the same time as the factory, then it has been gradually upgraded. Currently, there are 12 staff members. Samples are taken daily at each step of production. Basic microbiology and chemistry tests can be conducted in the laboratory. There are three bacterial incubators. In addition to pathogenic bacteria such as E. coli, yeasts that can cause alcohol production and are not approved by the Muslim community have to be eliminated. The production is stopped if any problems are identified during the testing. This is rare and at the most happens once a year. Chemical tests are based on reagents and test kits and cannot be quantified by chromatography. The company sends samples to the Dhaka Science Research Institute under the Ministry of Science and Technology or the BSTI if advanced chemical testing is required.

Food safety and hygiene guidelines are adhered to and good hygiene is maintained throughout the production processes. The factory is cleaned at the beginning and end of production, including proper cleaning of the machines and disinfecting the floor. New workers undergo a week of training, and all workers have to undergo three days of follow-up training every month. Workers may be trained by the BAPA.

4.3.3.3 Inspection and Testing

a. Mango pulp

Quality certifications, namely, BSTI, ISO, and Halal have been obtained. BSTI is updated annually, ISO and Halal are updated once every three years. Certification is required for each product. Expenses required for certification vary depending on the item, but this is not a major issue. Halal certification is issued by the Halal Service Center in Bangladesh. ISO certification is issued by the American Global Standards and is required to export products. In the early days, the company received certification for mango drinks, jellies, and energy drinks, from the Anglo Japanese American Registrars. It takes between two to three months to get each certification. The certifications entail a number of procedures. The staff of the certification body inspects the plant several times to check the hygiene level and production aspects.

The company has a consumer response person to deal with complaints and address questions. There are very few complaints about quality, while there are many requests such as whether larger packages or bottles of the product are available.

c. Sterilization

4.3.3.4 Production Process

a. Mix raw mango pulp with water, sugar, pigment, flavor, and others.

b. Homogenize the particles with a homogenizer

c. Sterilize with a pasteurizer for 20 seconds at 95 degrees

d. Seal in plastic bottle with automatic filling machine

e. Cool down

This entire process is fully automatic.

f. Packaging

4.3.3.5 Hazard Analysis

1. The production line for water-based products such as mango drinks and jellies is automated from homogenization and pasteurization to sealing in sales containers, and it moves at a constant speed. As a result, there are less chances of contamination by bacteria through hands of workers. In addition, bacteria from raw materials are considered to be inactivated before sealing if the heating condition of 95 degrees and 20 seconds is satisfied.

2. However, from the viewpoint of production environment, the floor is wiped with sodium hypochlorite but it is not washed with water, and neither are the inner walls washed. The manufacturing facility is an open space without air conditioning.

Floor in the campus

3. Workers change their footwear to factory-specific sandals before entering the site, and they also change their clothes when entering a series of work processes on each floor. However, as there are multiple buildings and the aisle between them is completely exposed, bacteria from soil can intrude into the manufacturing process through the sandals. There is no change or disinfection of sandals at the entrance of the buildings. In addition, as the building entrances are not sealed, small animals and insects, as well as bacteria, can easily enter.

4. Summarizing the above, in terms of the production process, contamination is largely avoided as the process is automated. With regard to hygiene management of the manufacturing environment, there is scope for

improvement.

5. In the process of manufacturing low-moisture products such as baked goods, workers use gloves while molding the dough and using the oven. The final packaging process is semi-automated. When a worker puts contents into the hopper section in the upper part of the packaging machine, the product falls into the packaging bag which is sealed immediately. As these products have low moisture levels, chances of propagation of bacteria in the bag after packaging are negligible.

4.3.4 Mango drink: Company F

4.3.4.1 Outline

Company F, located in the northeast of Dhaka, was founded in 2009. The current facility was completed in 2014. The owner started the business with the export of baked goods. The main product of the new plant is a mango drink. Currently, 60 types of products including mango drinks, traditional snacks like *Chanatur* (fried beans + peanuts + seasoned dry noodles + puffed rice), biscuits, rusks, spices, among others, are manufactured.

The company manufactures a small quantity of *ghee*-rusk which is coated with *ghee*, and a salty biscuit that is made using cumin. Those are unique in Bangladesh.

The total number of employees is 1,200, of which around 120 are managers and middle managers. The plant operates around the clock with shifts of 8 hours each. The annual trade is BDT 3.5 billion. Out of the total production, 95 % is exported and the rest is sold in the domestic market.

The products are exported to 41 countries including, Saudi Arabia, UAE, Qatar, Britain, Italy, New Zealand, Kuwait, Malaysia, Oman, Bahrain, South Africa, Burkina Faso, Brunei, and Singapore. The company aims to increase this to 50 countries by the end of the year.

4.3.4.2 Human Resources and Quality Control

The quality control team consists of 30 people, including 9 staff members, and is responsible for hygiene management. Two people, the quality control manager and the deputy manager, have a bachelor's degree and a master's degree in chemistry. They both have previously worked with the largest food manufacturer in Bangladesh. The remaining staff includes people with degrees in food processing, chemistry, and microbiology. Other than the laboratory staff, the rest of the team works on the production line.

At the start of every shift a meeting of 10 to 15 minutes is conducted and checks about basic operations like washing hands, are carried out. To ensure thorough hygiene management, hour long training sessions are conducted twice a month.

A number of the workers cannot read or write. As most of the children are now attending school, the expectations are that in the next several years most of the employees will be able to read and write.

In addition to checking whether the quality of water, pH level, and other matters specified in the BSTI standards are met, and checking whether the raw materials are as indicated, the laboratory also conducts microbiological tests on samples.

d. Sterilization

4.3.4.3 Inspection and Testing

In the past, the company only adhered to the BSTI manufacturing standards and did not obtain any other certification. However, at present, the company is in the process of acquiring the ISO 22000, HACCP, and GMP certification. The certification body for these is SGS. To ensure that all prerequisites are met, special measures are taken: for example, the floor is upgraded with products such as water resistant epoxy paint, and signs such as "dangerous goods," "hand-washing methods," among others, are used.

f. Up-side down

4.3.4.4 Production Process

a. Mix ingredients such as mango pulp, sugar, and additives
b. Check pH, sugar content, and acidity
c. Homogenize the particles with a pressure homogenizer
d. Heat-sterilize with a pipe-type pasteurizer for 15 seconds at 98 degrees
e. Seal in plastic containers at 85 degrees
f. Turn the plastic container upside down for sterilizing at 83 degrees and make the drink touch
the inside of the lid
g. Cool to 25 degrees
h. Dry
i. Label

Hand bath at the entrance

4.3.4.5 Hazard Analysis

1. From the above mentioned details regarding mango drinks, bacterial contamination is considered to be unlikely if the processes are managed properly. Points to consider are as follows: (i) The entire process from mixing of raw materials to filling is a continuous automatic process; (ii) A foot and hand bath filled with disinfectant at the entrance, and proper hats, masks and clothes, are provided; (iii) The part of the mixing process of raw materials is separated by a wall and the facility has air conditioning, and plastic curtains are lowered at the entrance, hence it is difficult for small animals and insects to enter; (iv) The floor is coated with epoxy paint and wiped down with a chlorine disinfectant, and a certain level of bacteria control is carried out in a manufacturing environment; (v) After hot-sealing, the container is turned upside down for sterilizing the inside of the bottle cap.
2. The company is working to improve the closure of the entire factory, such as by providing plastic curtains at the entrance, so foreign objects from the outside are unlikely to enter. However, at the moment, it is not completely sealed such as with a double door.

Plastic curtain at the entrance of the production area

Floor with drainage for washing

From Company D to Company F, we mentioned three companies with the same mango drink manufacturing process. We have compared the hygiene management of the companies. As for the machines used for production, all three companies use continuous

automatic machines, and as long as the sterilization temperature and transit time in the process are properly controlled, major problems with bacterial contamination are unlikely to occur.

However, there were considerable differences in the manufacturing environment of the companies. The floor and inner wall of only Company F were washed and disinfected. On the other hand, Company D and Company E only wiped the floor with a mop. In addition, in case of Company D, the products that will be put on the mouth of consumers directly were left on the floor without packaging.

Differences were also seen in the management of the entrance. The entrances of Company D and Company E were almost open, and small animals and insects had easy access. Workers did not change their footwear at the building entrance, so bacteria from dirty footwear could enter the plant. Both the companies had no air conditioning, so the windows were open, and company E had a screen, but company D did not. Company F, on the other hand, had air conditioning and the windows were closed.

Company D had no export record, and it only had BSTI certification, while Company E had various certifications and had an export record. Company F mainly catered to foreign markets, but the certifications were being acquired. The situation with respect to seafood processing companies discussed later are similar. If they are export-oriented, they have to meet the requirements of the destination country, so they aim to obtain certification and, as a result, hygiene conditions have to be improved. Just like company E, there were cases where problems remained in the manufacturing environment even if they had obtained ISO and other certifications and had export experience.

4.3.5 Frozen vegetables: Company G

4.3.5.1 Outline

Company G's frozen vegetables and snack plant started operations in 2014. It is a sister concern of a seafood processing unit that commenced operations in 2002. The group also has a biscuit factory, a flour milling factory, and an aquaculture feed factory. The total number of employees is 3,000.

Vegetables such as okra, green mango, green papaya, and taro are frozen after cutting. These can be cooked by the consumers right away. Frozen snacks that are consumed after baking or frying include *paratha, samosa*, spring rolls, and others.

The market for these is the United States, the United Kingdom, Italy, and Canada, among others. The main buyers are Bangladeshis living in those countries. The company ships four or five, 40 feet containers that holds 18 to 20 tons of goods each, every month. One container sells between US$ 30,000 and 35,000, and the quantity of frozen snacks and frozen vegetables sold is roughly equal.

4.3.5.2 Human Resources and Quality Control

The factory operates in two shifts of eight hours each. Both shifts begin with a 20-minute session to check the quality of raw material and ensure that hygiene practices are adhered to before work begins. It is ensured that none of the workers are ill or have rough skin, proper hand washing and dressing guidelines are followed. In addition to daily cleaning, they perform deep cleaning once a week by thoroughly cleaning machinery and disinfecting floors and walls. Records are maintained for these activities.

This factory does not have a laboratory, but the group has one in the seafood processing factory, which can carry out microbe inspection. As chemical substances cannot be checked, samples are sent to BCSIR laboratory if required.

The technical manager responsible for the group's multiple plants and the general manager of the frozen snack and frozen vegetable plant are both from the group's seafood processing plant.

4.3.5.3 Inspection and Testing

ISO certification has not been acquired as it is not required by foreign customers. Currently, the company is working towards HACCP acquisition. The group's seafood processing plant has been certified by the British Retail Consortium (BRC). This requires a high level of demand for hygiene level and includes an inspection by an inspector from the UK. This certification is accepted in almost all countries including the US and Europe.

4.3.5.4 Production Process

Frozen vegetables

a. Manually wash vegetables
b. Manually cut vegetables
c. Some vegetables blanched with 90-100 degrees steam for about 5-10 minutes
d. Blast freeze at minus 40 degrees (IQF)
e. Pack by hand
f. Pass through a metal detector
g. Keep frozen at minus 18 to 25 degrees

Paratha

The production is not continuous and stand-alone machines are used for each process.

a. Manually shake the flour
b. Mix ingredients for dough such as flour, salt, sugar, vegetable oil, and others.
c. Cut the dough into one size
d. Let it rest for some time
e. Knead and stretch the dough
f. Attach the film on stretched dough one by one
g. Workers visually inspect if there is any foreign matter or not
h. Wrap 10 sheets
i. Pass through a metal detector
j. Blast freeze at minus 33 to 40 degrees
k. Keep frozen at minus 18 to 20 degrees

4.3.5.5 Hazard Analysis

As the frozen vegetable facility was not operational on the day of the visit, information has been collected only through an interview with the factory manager. On the basis of the observation of the paratha manufacturing unit, the following points have been observed:

1. Although passing wheat flour through a sieve is manual work, it is carried out

in a closed space operated by workers with proper clothing, and tools are reportedly cleaned and disinfected. The possibility of bacterial contamination is minimal.

2. A series of tasks are performed in a wide space that range from mixing the material to product completion. The space is mostly closed, and has air conditioning. The kneading machine is a single unit, and the kneaded dough is put into the stretching machine manually. As mentioned above, a number of processes are carried out manually, but it is assumed that the possibility of bacterial contamination is low because: (1) workers wear proper clothes and a cap to prevent hair fall; (2) daily status of hygiene management is checked at the start-up meeting; (3) the floor and the lower part of the inner wall are cleaned and disinfected; and (4) the contents of work are recorded by the person in charge of quality control.
3. The dough that has been stretched and sandwiched with film is inspected individually. As the dough is white and thin, if there is any foreign matter, chances are that it would be visible during the inspection. In addition, after packaging, the product passes through a metal detector, and hence the possibility of any metal in the finished product is extremely low.
4. The temperature of blast freezing and storage are appropriate.


a. Spice mill 1

4.4 Spice

4.4.1 Spice: Company F

4.4.1.1 Outline

Same as Company F in 4.3.4.1


a. Spice mill 2

4.4.1.2 Human Resources and Quality Control

Same as Company F in 4.3.4.2

4.4.1.3 Inspection and Testing

Same as Company F in 4.3.4.3


c. Packaging

4.4.1.4 Production Process

a. Feed raw material into spice mills
b. Pass the mill two or three times depending on the type of items
c. Manually put in the container
d. Manually apply labels

4.4.1.5 Hazard Analysis

1. Generally, spices are dry so bacterial contamination is less likely to occur.
2. Company F's spice manufacturing room is located at the same site as the air-conditioned mango drink manufacturing facility as described in 4.3.4.5 However, unlike the mango drink manufacturing facility, the spice manufacturing room is almost open and there is no air conditioning. Spice manufacturing is carried out by old-fashioned methods that are largely manual, so there is a possibility of contamination with foreign objects.

4.5 Fisheries and livestock products

4.5.1 Frozen seafood: Company H

4.5.1.1 Outline

Company H was founded in 2017. The founder managing director started the company by gathering experienced seafood processing staff. Currently, there are about 150 employees, of which 30 are staff and the rest are workers.

The annual production is 700 tons, of which 650 tons is fish and the rest is shrimp. Most of the fish are caught locally, and the shrimps are mainly farmed black tigers. It produces individual quick freezing (IQF) products, in which shrimps are separated and frozen individually, and block products, in which they are frozen in chunks.

Most of the products are exported to countries including the United States, Canada, the United Kingdom, Germany, the Netherlands, Italy, Australia, and Japan. The average price is around US$ 16 per kg for shrimp and US$ 5 or 6 for fish.

In the long run, the company would like to increase shrimp that brings higher profit margins than fish. Currently, the purchasing power of the people in Bangladesh has risen, hence domestic prices have surpassed international prices.

According to executives, the company's biggest challenge is international marketing. Although the production capacity of the facility is twice that of the current production volume, the international marketing ability is low, so the facilities are not fully used. Currently, the products are sold to intermediaries, and there is no direct relationship with international buyers. The company has never conducted marketing activities outside the country with a responsible person or a person in charge. Another challenge is to be able to make and sell high value-added products such as *nobashi* shrimp.

4.5.1.2 Human Resources and Quality Control

The company received technical advice from fishery experts from Bangladesh Fisheries Development Corporation (BFDC) when setting up the company, and followed the advice regarding facilities, equipment, employee education, and others.

The company is also making food safety manuals. Training is conducted for some of the staff a few times a year by the Department of Fisheries (DoF). The trained staff conducts internal training sessions for workers about once a month. The training centers on basic content such as how to wash hands and proper clothing.

The lab is run by three staff members. They check viable bacteria count, vibrio, salmonella, E. coli, and others. Each month, two samples from the raw material and 10 to 15 samples from the product are collected and bacteria are cultured. Antibiotics and other chemical substances cannot be detected in their laboratory.

4.5.1.3 Inspection and Testing

The DoF has established a system to check samples from each shipping container. As a result, there is a rare possibility of antibiotic of the standard value or more being detected which would lead to rejection of the shipment by the importing country. This is because the DoF is strictly managing fish farms. After obtaining HACCP issued by the DoF, Company H also acquired HACCP issued by SGS as the latter certification is recognized internationally. ISO 9000 was also obtained from SGS. It also has certain approvals that are required by some of the importing countries. For example, export to the UK requires the British Retail Consortium (BRC) certification.

4.5.1.4 Production Process

On the day of the visit, there were no landings of fish, hence the factory was not operational. The following is based on the information an interview with management.

a. Receive raw materials
b. Manually clean raw materials
c. Manually cut raw materials
d. Blast freeze at minus 38 to 40 degrees
e. Keep frozen at minus 20 to 22 degrees

Hand washing area and foot bath at the entrance

4.5.1.5 Hazard Analysis

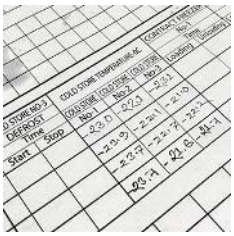
1. Workers are required to wear special clothing, cap, and boots in the changing room. They have to wash their hands in the next dedicated washroom and then step inside the disinfecting tank. As multiple disinfecting tanks are installed in the aisle in the factory, bacterial contamination from feet is unlikely to occur. The lower part of wall and floor of the workroom are washed and chlorinated. The trays used at the time of processing are kept in a dedicated storage area when not in use.

2. On the day of the visit, it was difficult to conduct a detailed hazardous analysis because the actual processing work was not carried out, but it is a facility structure based on the three principles, "Do not put on bacteria," "Do not increase bacteria," and "Kill bacteria" in bacterial management.

   "Do not put on bacteria" -- Wearing proper clothes, washing hands, dipping feet in disinfectant foot bath, arranging work space with high closure

   "Do not increase bacteria"--Washing the worktable, floor and lower inner wall of the workplace, collective control of air conditioning and temperature monitoring

   "Kill bacteria" -- Disinfection of the worktable, floor and lower inner wall,



Temperature management record of freezers

disinfection of tools and storage in a dedicated place

4.5.2 Frozen seafood: Company I

On the day of the inspection, an important person came to the office and the executives were busy with the same. Thus, it was a short visit and it was not possible to inspect the factory. We conducted interviews with quality control personnel.

4.5.2.1 Outline

Company I was established in 2000 and its affiliate in 2006. Company I produces frozen shrimp and fish, and the affiliate produces frozen snacks and vegetables. Both the companies export the products to factories in the United Kingdom and United States, where they are repackaged and exported to other countries.

The average monthly production of frozen shrimp is about 20 containers, 8 containers of frozen snacks, and 3 containers of frozen vegetables. In terms of production volume, they say that it has the highest production in Bangladesh's fish industry.

4.5.2.2 Human Resources and Quality Control

After obtaining a bachelor's and master's degree in botany from the University of Chittagong, the quality manager was in charge of the Master of Philosophy (MPhil) in microbiology at the same university. In 1998, he received HACCP training organized by the DoF.

The company receives training provided by BAPA and by foreign companies that are buyers. The DoF also offers various training opportunities. For example, the company notification in March 2019 states that "two-hour in-house training will be conducted based on the fact that Mr. XXXX, who is an in-house manager, has received food safety and health training externally." There were signatures of 95 participants in the second sheet attached. It is said that such group training sessions are conducted twice a year. In Bangladesh, the fishery industry has relatively advanced sanitation management. The fact that the DoF promoted the improvement of the production site after the 1997 EU ban on import of Bangladeshi seafood has had a significant impact. Food factories in other fields do not have the same level of hygiene management as these factories.

According to a report issued by the United Nations Conference on Trade and Development in 2017, “Fishery Exports and the Economic Development of LDCs: Bangladesh, Cambodia, the Comoros, Mozambique, Myanmar and Uganda,” the EU dispatched an on-site inspector to Bangladesh in 1997, resulting in revealing the deficiencies in facilities for fish processing companies and it was decided to prohibit the import of fishery products from Bangladesh because of inadequate sanitation management and poor quality assurance by the government. A fishery processing company in Bangladesh that realized the implication of this decision immediately made a total of US$ 17.6 million worth of capital investment to improve its facilities. With the support of donors, the DoF spent a total of US$ 450,000 on developing laboratories that meet HACCP standards and training of industry personnel. Following these measures, the EU ceased importing bans in 1998, and Bangladesh fish products were exported again.

4.5.2.3 Inspection and Testing

No information was available.

4.5.2.4 Production Process

No information was available.

4.5.2.5 Hazard Analysis

No information was available.

4.5.3 Milk and butter: Company J

4.5.3.1 Outline

Company J, located in the northwestern part of Bangladesh, is a state-owned enterprise under the jurisdiction of the development cooperative sector of the Ministry of Local Administrative Village Development and Cooperatives. There are a total of 400 employees in the factory, including 38 managers. The company consists of 600 cooperatives, with each having between 20 and 200 union members. It is reportedly the largest milk processing company in Bangladesh.

The factory collects milk twice in the morning and once in the evening totaling 130,000 liters a day. There are 46 chilling points throughout the country, but the factory collects milk from only 16. A tank lorry is used for recovery and is transported to the factory while being maintained at 3 to 4 ° C. The heat-killed raw milk is sent as is to a milk processing company in Dhaka as raw material for milk. Milk processing companies also sterilize and package in aliquot packs and ship to retailers nationwide.

Company J has three production lines besides raw milk; butter is manufactured at 3,000 kg/day, cane (grilled butter) is canned at 1,500 kg/day, and milk powder is produced at 8,000 kg/day. The production line operates 24 hours a day, 365 days a year, and is comprised of three shifts: from 6 a.m. to 2 p.m., 2 p.m. to 10 p.m., and 10 p.m. to 6 a.m.

It plans to expand its business in the future and to increase production by 2,000 tons. It is planning to partner with more cooperatives.

Company J supports union members' management of cattle. The member's cow is a breed of Holstein breed and Jersey breed, which have excellent milk yield, crossed with heat-resistant native species. They produce about 20 liters milk per day. Considering that it did not reach 10 liters in the past, it has made great progress.

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Milk a. Collection


Milk b. Pouring


Milk d. Sterilization


Butter b.XXXXXX


Butter d. Packaging


Ghee d. Packaging

4.5.3.2 Human Resources and Quality Control

Training for workers is based on on-the-job training (OJT). They do not have their own training guidelines. Guidelines on the health status of workers are distributed by the district health department to factories. They feel that there is a need for training among the factory workers and union members. Quality management indicates that training is needed in many areas such as hygienic milking methods, quality improvement, quantity improvement, and safe feed. At the moment, a minimum of necessary information is distributed to union members in the form of brochures.

District sanitation inspectors and the director of the health department have conducted on-site inspections and instructions on improvements have been provided for workers' clothes. Changes were made to masks, hats, and work clothes.

4.5.3.3 Inspection and Testing

Company J's products are 100% domestic and not exported. ISO certification has not been acquired. BSTI certification has been obtained for each product required. Customers of Company J have not been asked for certifications such as ISO. All certificates (commercial licenses, etc.) defined and required by the government meet the criteria.

For milk quality, inspection at the chilling point is always performed. Milk component testing and chemical testing, among others, are conducted, and all test records are stored. In the chilling point test, one or two cases per month out of 600 cooperatives do not meet the quality standard and the milk cannot be received. In that case, a penalty is imposed on the union to encourage improvement. The regional farms have staff with veterinarian qualifications and provide union members with technical advice for quality improvement.

4.5.3.4 Production Process

Milk

a. Receive the milk that the union members carry and measure the milk fat content. Buy milk fat of 3.0-6.0%. The price varies depending on the milk fat content; for example, currently, if it is 3.0% milk fat, the price is BDT 32/liter, and if it is 6.0%, it is BDT 60/liter.
b. Manually feed raw milk received into the line through a filter net.
c. Separate raw milk into milk and milk fat and adjust milk fat to 3.2%.
d. Heat and sterilize the milk at 80 ℃ for 15 seconds. The heat sterilizer uses two machines at 10,000 liters/hour and one machine at 3,000 liters/hour.
e. Send the sterilized milk to another factory in Dhaka where it is homogenized and packaged.

Butter

a. Sterilize the milk fat separated in step c of the milk process at 80 ℃ for 15 seconds.
b. Churn milk fat with an automatic churning machine for 90 minutes and divide into butter and buttermilk with 82% fat content.
c. Add salt to the butter.
d. Manually package into 200 g packages.

Ghee

a. The butter before salt addition is heated to around 110 ℃ to make it smell.
b. Precipitate solid portion.
c. Take only the top part by workers.
d. Packing into a can by workers.

Powdered milk

a. Reduce moisture at 55 ℃ to 69 ℃ with a low-pressure evaporator to bring total solids of about 11% to about 48%.
b. Apply a spray-type heat dryer (Sprayer) to remove additional moisture at 160 ℃ to 170 ℃ to make powder.
c. Receive and package powdered milk falling from the hopper into paper bags.

4.5.3.5 Hazard Analysis

1. The area from receiving the milk to feeding the line is completely open, so there is a possibility that pests and foreign matter could get mixed in. The transportation cans carried by nearby farmers need to be moved into a tightly enclosed space separated by double doors or vinyl curtains; they need to be placed in a line that is inside the enclosed space.
2. The heat sterilization process of milk is continuous and automatic, so the problem of bacterial contamination is unlikely to occur as long as the machinery is controlled.
3. The production of butter and ghee is not continuous. In particular, the packaging process is done manually. Workers wear special clothes, hats, and gloves; but the door of the workroom is basic; there is a problem with its closure. Thus, there is the possibility of contamination with pests and foreign matter.
4. Powdered milk is free from contamination by bacteria and foreign substances as long as the machinery and equipment are sufficiently managed because the whole process from raw material input to packaging is fully automatic, and the final product has a low moisture content.
5. As the lower part of the inner wall near the work space in the factory is not washed and disinfected with water and there is no air conditioning, mold can be easily propagate under high temperatures and in a high humidity environment. Thus, the lower part of the inner wall needs to be washed and disinfected to reduce germs inside the plant.

a. Cooking

b. Drainage

d. Cutting

e. Cooking in syrup

f. Soaking in syrup

4.5.4 Traditional milk sweets: Company K

4.5.4.1 Outline

Company K is in the city of Chittagong. It makes biscuits and traditional confections of milk ingredients, such as cakes and other items, and sells them in domestic, directly managed stores and exports them. The ratio of domestic sales to exports is around 8: 2.

Exports of about 20 containers of 40-foot are shipped a month. Export destinations include the Middle East, Europe, the United States, Africa, the United Kingdom, and Australia.

Items include 70 types of traditional confectionery, 20 types of biscuits, 10 types of breads, 6 types of cakes, and 4 types of sponge cakes, and so on.

4.5.4.2 Human Resources and Quality Control

Four staff members of the Quality Control Department are involved in food safety management. The quality control manager has a bachelor's degree in food engineering and a master's degree in food science and technology from Chittagong Veterinary and Animal Science University. There is a lab and sample testing of the product is done on a BSTI basis. The factory uses 6,000-7,000 liters of milk daily, the main ingredient of traditional

confectionery, from about 15 companies. The raw materials are also inspected.

The staff members believe that a training program focusing on quality control personnel, raw materials, manufacturing processes, and products is necessary. Other executives indicated that 5S and Kaizen training would also be effective.

According to the president, as the company literally processes traditional foods made from milk in a traditional way, the need for food safety training is high. The president thinks that further training is necessary for managers down to general workers.

Some processes, such as the mixing and stirring of the dough and the decoration of the cake, are performed in an air conditioned partitioned room, but other work is performed in an open space without air conditioning. The amount of work with air conditioning is planned to increase gradually in the future.

4.5.4.3 Inspection and Testing

At present, certifications, such as ISO, have not been obtained. With regard to exports, a health certificate may be obtained by satisfying the requirements of the importing country.

4.5.4.4 Production Process

***Mishiti* (Sweet Meat)**

a. Put milk fat in the pan and boil it for about 30 minutes while stirring.
b. Remove the heat-denatured milk fat through a cloth and drain for about 30 minutes.
c. Add a little flour and knead.
d. Cut into different sized chunks.
e. Cut small ones by machine and cut large ones manually.
f. Boil 30 minutes with 50 to 60% sugar solution. Some chunks are fried in oil instead.
g. Soak in 50 to 60% sugar solution for about 12 hours.
h. The shelf life is three days at ambient temperature.

4.5.4.5 Hazard Analysis

1. The production process of traditional food made from milk is considered less likely to cause the problem of pathogenic microbes breeding in the product because it is soaked in a thick sugar liquid after long heating.
2. However, the whole plant is not managed for bacteria; for instance, the floor and lower wall of the plant are not cleaned and disinfected. Since cakes and the like have a relatively large amount of water and the process is not continuous, bacterial contamination may occur during handling by workers.
3. In addition, the work area, including the entrance, is not enclosed, and many windows with no net attachments are open; thus, it becomes easy for pests and insects to enter. There is the possibility of foreign matter contamination.

4.6 Others

4.6.1 Drink and jelly: Company L

4.6.1.1 Outline

Company L mainly produces and sells jelly and drinks that last at room temperature in domestic and foreign markets. The plant has 80-90 employees and an annual turnover of about US$150,000. In addition, it has three factories in the country. In all, it has around 250 employees.

Major export destinations include Malaysia, India, the United Arab Emirates, Qatar, Singapore, and Europe. Shipment volume is 3-4 containers (40ft) every month. As for marketing, it has exhibited at various trade fairs such as the Gulf Fair held in Dubai, the Mega Trade Fair in India, SIAL in France, and JEDDA in Saudi Arabia.

The president has traveled to markets around the world and has developed new products based on locally produced products. For example, in Japan, "a weight-loss drink" was sold, so the company made "a weight-loss drink" with a low calorie and high fiber content. In the Philippines it took a month to learn how to make Nata de coco. Company L was the first company to manufacture Nata de coco in Bangladesh. In addition to receiving orders for 12 tons each month from India, there are also inquiries from major domestic food manufacturing companies for Nata de coco.

4.6.1.2 Human Resources and Quality Control

After getting a bachelor's degree in biochemistry/biotechnology, the plant manager received a master's degree in biotechnology/genetic engineering. The company received training on a food safety management system from the Ministry of Industry, and training on the quality control of fisheries inspection from the DoF. The president holds a bachelor's degree in chemistry, and has since joined ISO inspection management training and FAO HACCP training.

Many factory employees cannot read or write. The president thinks that the problem is that their daily lives are totally unsanitary. He says “It is not easy to train people who live such daily lives. I think that there will be little effect unless the training is designed and implemented to change their daily lives.”

Footbath at the entrance

Well-closed production area

4.6.1.3 Inspection and Testing

The factory acquired ISO 22000 for the first time in 2008. It was also selected by the Asian Productivity Organization (APO) in 2011 as one of four SMEs implementing pilot projects in the Asian region.

4.6.1.4 Production Process

a. Mix the ingredients in the machine.
b. Filling in a plastic container by the machine.
c. Add in hot water and heat sterilize.
d. Cool down.
e. Package.

4.6.1.5 Hazard Analysis

1. The building is old and small, as it was the founder's remodeled grandfather's home; among the rooms, the manufacturing room is a closed space with air

conditioning. Among its processes, production is carried out at a constant speed by an automated machine. The possibility of bacterial contamination is considered to be minimal, as heat sterilization is carried out immediately after sealing, and when someone enters the work room he/she passes through a foot bath with chlorine disinfectant.

2. To move the product between workrooms, it passes through a hole associated with the height of the box, trying to maximize the enclosure in a narrow space. The possibility of foreign matter contamination seems to be minimal.

4.6.2 Chocolate: Company M

4.6.2.1 Outline

Company M was founded in 2001 and is located in the Narayangganj district, about 15 km east of the Dhaka center. It is known as the first company to make jelly in Bangladesh. It moved to its present location in 2005. Its current main products are chocolate and candy. Its annual trade is BDT 600 million. Although the market is mostly domestic, export negotiations with Saudi Arabia, Nepal, and Malaysia have started recently. There are over 400 employees in the factory including about 30 managers. There are 30 employees in the head office management department and 400 sales personnel around the country.

4.6.2.2 Human Resources and Quality Control

The director in charge of manufacturing, who is responsible for the factory, has a master's degree in information systems (from Australia), and the director of manufacturing has a diploma in electrical engineering. The director of the compliance department has a master's degree in chemistry, as does the director of quality control. The lab is handled by six staff headed by a master's degree holder in microbiology. “Now that the plant manager post is vacant, I am trying to hire a specialist in the field of food and nutrition,” says the director in charge of manufacturing.

One lab performs standard examinations and another lab performs microbial examinations. Until now, the spaces for these labs have been small, but the current renovation will be able to create more than twice the current space.

Training is conducted based on an annual plan. Some training is for executives, some for middle managers, and some for general workers. In general, the instructor is the director of the compliance department.

4.6.2.3 Inspection and Testing

Company M acquired ISO 9001 in 2016 from KGS in Malaysia. At the same time, the company obtained Halal certification. Currently, it is preparing to obtain ISO 22000: 2005 from BSTI. For example, changing the floor material and the lower part of the inner wall to water resistant tiles, making it possible to wipe clean the wall with a chlorine disinfectant, and preparing a processing machine that is placed separately to create one flow through process.

The top management investment gradually. Production is currently on the 4th floor, but the building was initially single story. While expanding the business, it has increased its investment ability and grown little by little. To obtain ISO 22000, companies that have changed gradually have to be further reviewed and reorganized. Currently, this work and interior construction are in progress.

4.6.2.4 Production Process

Chocolate

a. Mix the ingredients.
b. Make particles 30-35 micron in diameter by conching.
c. Make particles 20-25 micron in diameter in a ball mill.
d. Pour into plastic molds.
e. Cool to 12-15 °C.
f. Package primarily by hand (wrapping in silver paper).
g. Finish packaging by machine.

Raw materials are flowing in the pipe in a continuous automatic process from a to e.

b. Conching

c. Ball mill

f. Primary packaging

4.6.2.5 Hazard Analysis

1. Although the chocolate production site is partitioned in a part of the plant and air conditioning is used, the enclosure is not complete. Since the raw materials flow through the pipes, contamination is unlikely to occur, but after cooling, it becomes a manual process, leaving the possibility of contamination from incomplete partitions.
2. To date, factories have had a structure that makes it difficult to carry out sanitation management, such as cleaning floors and the lower part of the inner walls with chlorine agents, but repair work is currently in progress at various plant locations and acquiring ISO 22000 is underway. The investment in this is moving towards dealing with soluble chocolate at normal temperatures in Bangladesh; and although separating the production process for air conditioning has been done, it is not in a completely enclosed space. If the enclosure of the production process is further enhanced and sanitation management of the floor surfaces and the lower part of the inner walls can be easily performed, sanitation management in the factory will improve.

4.6.3 Prawn chips: Company N

4.6.3.1 Outline

Company N is a food company in the city of Chittagong, whose main products are shrimp and potato chips. There are four factories and 400 employees. It sells both domestically and abroad, with the Middle East countries and Malaysia among its main export destinations. Group N is engaged in several businesses, including orchards, such as mangoes and bananas, fry production of cultured carp, hotels, and restaurants.

At Company N, raw materials are procured based on an annual procurement plan. The lead time is 15 days for domestic purchasing and three months for foreign purchasing.

Company N has contracts with 30 farmers in Bogra and other sites in the northwestern part of Bangladesh for the potatoes as raw material for potato chips. Two or three employees stay and instruct farmers on how to grow and how to use pesticides. Procurement volume is 650 tons a year. For raw materials, wheat flour is produced domestically (wheat itself is imported), and shrimp is imported from Thailand. The company also makes chips with chicken in place of shrimp.

4.6.3.2 Human Resources and Quality Control

In addition to conducting standard inspections on BSTI, the lab conducts strength tests on packaging materials. Finished products are placed in the lab every day and, after a certain period of time, they are inspected for quality. Two lab staff members are responsible for having food safety diplomas. On the day of the inspection, lab staff inspect the moisture of the products.

Training for workers is based on Training of Trainers. Many executives, including the president, have received two weeks of quality control training in Japan at the Association for Overseas Technical Cooperation and Sustainable Partnerships (AOTS), a Japanese organization for human resource development.

Laboratory

Consumer-facing telephone numbers may appear on products, through which consumer feedback may come. As an example, in response to the statement that "the product got damp," for products that are prone to moisture absorption, the company changed to a method where packaging machines made in Japan were introduced and packaging done in a room with air conditioning.

According to management personnel in Company N, the entire industry needs training: (1) training for executives who drive the company; (2) training for middle management personnel who carry out quality control on the production lines; and (3) training for workers with a focus on people who cannot read or write. In the case of Company N, there are 15-20 people in middle management (2), and the quality control manager feels that more training is necessary. With regard to the workers who cannot read (3), many are illiterate, and it is not easy to train them. However, persistent training can be done through the development of new teaching materials.

b. Frying

4.6.3.3 Inspection and Testing

To start operations, various permits are required. Permits are valid for one to three years, such as a business permit, BSTI permit, and fire department permit. Company N has a legal department, which handles such correspondence. On-site inspectors from relevant government agencies come for the inspections.

The company complies with BSTI standards and the ISO9001: 2015 quality control system manual. During daily work, the company uses a variety of checklists on plant and machine cleaning status and worker health. Currently, it is preparing to obtain ISO 22000 certification (Food Safety Management System).

c. De-oiling

4.6.3.4 Production Process

Prawn Chips

a. Put dried dough made in another factory into the dryer and remove further moisture.
b. Fry in a fryer.
c. Degrease with a rotary de-oiler.
d. Cool down.
e. Package with nitrogen gas.

e. Seasoning

4.6.3.5 Hazard Analysis

1. The process is not continuous, but after the dried dough is fried, it is automatically transferred from de-oiling to a large bag, and the closed bag is transferred to the packing department, and then put in the packing machine. The

f. Packaging

problem of bacterial contamination seems to be less likely to occur, as nitrogen filling and packaging automatically occur in time.

2. With the exception of some packaging processes, the work area is generally open, and pests and dust can easily enter; so foreign matter may enter the product.

5. Recommendations on a JICA Food Safety Training Program for Food Processors

5.1 Similar Training Programs for Food Processors

5.1.1 Skills for Employment Investment Program

Since April 2017, the Bangladesh Agro-Food Processors' Association (BAPA), with the funds of the Asian Development Bank (ADB), has implemented the Skills for Employment Investment Program (SEIP) for member companies.[19] SEIP, which is to last for five years, is conducted in 19 major food processing companies across the country, which are used as training venues. It provides basic food processing techniques including food hygiene for three months per venue. SEIP's target participants are job seekers living in the surrounding areas, not employees of food companies. SEIP's total budget is BDT 124.51 million.

SEIP has four training fields: (1) bakery, (2) food processing in general, (3) packaging, and (4) quality control including food hygiene. The number of participants in SEIP per venue is about 25. About 20% of the SEIP sessions are lectures while the remaining 80% are practical training in the factory. SEIP plans to train 11,000 people in five years.

The SEIP training materials are prepared by themselves, and many of the trainers are engineers and experts of the food processing company of the venue. All 19 companies[20] that serve as SEIP venues have obtained ISO certification. For trainers to improve their skills, additional theoretical training and occupational safety training are conducted at related organizations in Dhaka. In addition, some trainers took part in training programs at Nanyang Polytechnic College in Singapore.

A total of 7,099 people completed training by March 2019, of which 7,077 found jobs in food processing companies. All the trainees wish to find a job at a food processing company. According to Mr. Mohamed Nurul Islam, the SEIP Chief Coordinator, the program aims "to deal with serious unemployment problems." Mr. Islam states that most of the SEIP trainees who have completed the program can find jobs, and growing food processing companies in Bangladesh tend to recruit skilled personnel actively.

SEIP does not cover current employees of food processing companies. Therefore, if a training program by a JICA two-step loan scheme targets such employees, it creates no duplication but complements SEIP in developing human resources in food processing sector. In addition, such JICA program can use as a reference the teaching materials on basic hygiene management in the Bengali language that SEIP has prepared.

To set up SEIP, BAPA submitted a proposal on it to the Ministry of Finance of Bangladesh and won the bidding. Subsequently, ADB funds were disbursed to the ministry, and then the ministry provided funds to BAPA, SEIP's implementation agency. BAPA and the ministry set up a project office, and recruited a national consultant team of food experts and training experts in Bangladesh.

[19] SEIP was scheduled to terminate at the end of 2020, but it will be extended until 2024 and target 16,000 trainees.
[20] (1) PRAN Group; (2) AP (DACCA) Ltd.; (3) Square Food & Beverages Ltd.; (4) ACI Foods; (5) Banoful & Kishwan Group; (6) Deshbandhu Group; (7) Olympic Industries Ltd.; (8) Denish Foods Ltd.; (9) Alin Food Ltd.; (10) Prome Agro Foods Ltd.; (11) Rajkamal Group; (12) Laimal Food Product; (13) HIFS Agro Industries; (14) Eurasia Food Processing BD Ltd.; (15) IFAD Multi Products Ltd.; (16) Silvee Food & Consumer Products; (17) Bombay Sweets & Co.; (18) Farhan Agro Processors; (19) Rani Food Industries Ltd.

The team conducts SEIP training activities.

5.1.2 Others

JICA's "Project for Promoting Investment and Enhancing Industrial Competitiveness" aims to strengthen the capabilities of the Bangladesh manufacturing industry and provide it with links to foreign investment by teaching 5S and Kaizen. The project focuses on metal processing and plastic processing, both of which belong in the category of light engineering. After improvement of skills, the two target sectors will link with the motorcycle industry. The project does not cover food processing.

In May 2018, the International Labour Organization (ILO) started the Skill 21 project. The project aims to improve "technical education and training, vocational education and training (TVET)," access to TVET, and governance in the vocational training sector.

Based on needs assessment, the project's target areas were determined as nine in vocational training in the two target sectors. The project does not cover food processing and cannot work with any JICA possible training on food safety.

5.2 Recommendations on a JICA Food Safety Training Program

5.2.1 Possible implementers of the JICA training program

Among the food safety related training implementation agencies that the Survey Team interviewed are BAPA, the Small and Medium Enterprise Foundations (SMEF), and the Bangladesh Small and Medium Enterprise Corporation (BSCIC). All of them can conduct training courses by themselves or by outsourcing. However, with regard to BSCIC, its Dhaka training center provides only lectures and has never dealt with food safety. BSCIC has 15 skill improvement centers across the country, but the centers provide only a limited number of courses on food production technology and do not teach food safety.

On the other hand, BAPA has experience in conducting food safety training, and SMEF has provided related training such as ISO 22000 "food safety management system" training. Therefore, the priority order in potential training implementers will be (1) BAPA or SMEF and (2) BSCIC.

Both BAPA and SMEF can arrange training lecturers and venues by themselves. As described in 5.1.1, in SEIP, BAPA set up a project office, recruited human resources, and had the project office implement training sessions.

BAPA is an industry association of food processors, and SMEF is a government organization under the Ministry of Industry. In SEIP, as mentioned above, the source of funding is ADB. The funds flow to BAPA through the Ministry of Finance. BAPA launched the SEIP project office and has implemented the program. This structure may serve as a reference when designing Japan's ODA loan or technical cooperation project. On the other hand, because SMEF belongs to the Ministry of Industry, funds will flow to SMEF via the ministry if JICA designates SMEF as the executing agency.

Regarding the trainers of food hygiene and food safety and ISO 22000, capable human resources who can serve as trainers are locally available. However, when implementing an ODA loan or technical cooperation project, Japanese experts are expected to play a more important role in order to enhance the project's effectiveness. Although major food processing companies in Bangladesh have human resources who have received higher education in food safety, many issues still need to be addressed. Potential experts must have higher-level communication skills as well as in-depth technical knowledge.

Local human resources must serve as trainers because the language of the training materials will be Bengali. However, as described in the next section, a little ingenuity is required for developing training methods and materials. In addition to the ability to understand the local needs, Japanese experts need specialized skills for training implementation such as making training plans, curriculum development, and media production. They also need skills to communicate with local consultants in English and implement training together.

Moreover, as part of the training for executive managers of food processing companies that will be described in the next section, topics of management consultation such as cost-benefit analysis will be considered. Thus, it will be necessary to dispatch Japanese experts in such fields. Food hygiene rests heavily on factory facilities and equipment. To achieve high standards in food hygiene, investment decisions by executive managers are crucial.

The prospective Japanese expert team needs to possess the following types of expertise.

(1) Team leader/food safety, (2) training plan, (3) business management; or

(1) Team leader/training plan, (2) food safety, (3) business management

5.2.2 Training target and implementation

With regard to training needs, many food processing companies and BAPA interviewed by the Survey Team answered "very high." Government agencies and donors who support and supervise the food industry were of the same view. As the main targets of training for food hygiene and food safety will be (1) executive managers, (2) middle management staff, and (3) workers, all levels of personnel have needs for training.

With regard to executives, some of them at major companies hold bachelor's degrees in food processing science and chemistry, and some have master's degrees. However, they tend not to invest sufficiently to improve food hygiene and food safety. Some executives have a negative view on additional investments for food hygiene and food safety. As a result, many factories that have executives with bachelor's and master's degrees remain unhygienic.

Except for fisheries companies, a majority of food processing factories have not implemented the basics of bacteria management. Specifically, production continues in an open space unprotected against the invasion of soil-derived bacteria and pests. However, in many factories, the continuous and automatic production machine process indoors prevents bacterial contamination from workers. In addition, most factories practice heat sterilization at a defined temperature. As a result, major problems are unlikely to occur immediately, but the factory environment has problems. For example, few factories have floors that can be cleaned and disinfected. In such factories, it is necessary to consider what happens when the automatic machine does not operate normally or when there is a human error in sterilization temperature monitoring. In such factories, the possibility of foreign matter contamination is also high.

Because executives are in a position to decide whether to invest heavily to improve factory facilities, they need to know the risks of contamination and an unhygienic environment through a cost-benefit analysis. In addition to classroom training, they need to take each manufacturing site as an example to analyze how its conditions should be improved. Moreover, individual management consulting is also effective in having executives become aware of the importance of food hygiene and food safety.

For middle managers and workers who are responsible for production, training should be conducted using a case study so that they can apply the training to what they know at work. Merely describing principles in a lecture will not help them at work.

Most workers in food processing factories are illiterate. It is difficult to convey the principles of food hygiene and practical knowhow to illiterate people through text-based teaching materials. In

addition to oral presentations with examples, training content and methods need to incorporate video materials and on-site training. As illiterate people cannot take notes, it is difficult to have them learn many items at a time, and each module must be divided into small parts. Combining such training with group work and discussions with colleagues will enhance illiterate workers' understanding of food hygiene and food safety.

The goals of food hygiene and food safety are universal and already practiced by all relevant stakeholders in the world. Many organizations including FAO, WHO, governments, and universities have already developed similar training content and modules on food hygiene and food safety. These existing materials can be used to develop curricula and teaching materials that suit the target of training in Bangladesh.

Attachment

- The list of interviewees in the first dispatch
- The list of interviewees in the second dispatch
- The list of interviewees in the third dispatch
- Presentation of the workshop
- Minutes of the workshop

The list of interviewees in the first dispatch

1. Ministries/ Departments/ Donors

【Bangladesh Food Safety Authority (BFSA) 】 April 21st, 2019

Chairman	Mr. Mohammad Mahfuzul Hoque
Member	Mr. Md. Mahbub Kabir
Member	Mr. Md. Rejaul Karim
Member (Public Health & Nutrition)	Mr. Monzur Morshed Ahmed
Secretary	Mr. Md. Mukammel Hoque
Deputy Secretary	Dr. Sk. Nurul Alam
Deputy Secretary, BFSA	Mr. Samir Kumar Biswas
Director, (Lab Networking)	Mr. A. S. S. M. Zubery
Director	Dr. Sahadev Chandra Saha

【Dhaka South City Corporation (DSCC) 】April 23rd, 2019

Assistant Health Officer, Z-4, DSCC	Dr. Fazle Shamsul Kabir
Safe Food Inspector and Additional Charge - Food Safety Officer	Mr. Kamrul Hasan

【Dhaka North City Corporation (DNCC) 】April 23rd, 2019

Chief Health Officer, DNCC	Brig Gen Md. Mominur Rahman Mamun
Health Officer	Dr. Md. Emdadul Haque

【Bangladesh Standards and Testing Institution (BSTI)】April 24th, 2019

Director General	Dr. Muazzem Hossain
Director (CM)	Mr. S. M. Ishaque Ali
Deputy Director (CM) and Quality Manager (CM)	Engr. Md. Nurul Islam
Coordination Officer	Mr. Md. Lutfor Rahman
Deputy Director (Food and Bacteria)	Mr. Md. Abu Tarek
Assistant Director, (CM	Dr. Md. Nozir Ahmmod Miah
Deputy Director, (Metrology)	Engr. Md. Jaydul Islam
Director (Physical)	Mr. Shamim Ara
Director (Metrology)	Mr. Md. Anwar Hossain Molla
Director (Standards)	Mr. Md. Sajjadul Bari
Director, (Chemical)	Mr. Pankaj Kumar Kundu
Deputy Director, (Chemical)	Mr. Gouranga Shekhar Podder
Assistant Director, (Chemical)	Mr. Sharif Muhammad Syeduzzaman
Editor	Mr. Moinuddin Mia
Assistant Director, (Agriculture and Food)	Mr. Enamul Hoque
Assistant Director, (CM)	Mr. Md. Arafat Hossain Sarker

【United States Agency for International Development (USAID)】April 24th, 2019

Senior Agriculture Advisor, Economic Growth Office	Mr. Michell Nelson

【Institute of Public Health and Nutrition (IPHN) 】April 25th, 2019

Director	Dr. Md. Khalilur Rahman
Head, Food Safety Unit, Institute of Public Health	Dr. Shah Mahfuzur Rahman
Deputy Program Manage, MoH&FW	Mr. Mohammad Aman Ullah

【Directorate of Livestock Service (DLS), Ministry of Fishery and Livestock】April 25th, 2019

Assistant Director	Dr. Md. Abu Sufian
Upazila Livestock Officer	Dr. HM Shahadat Hossain
Deputy Project Director, LDDP-WB project	Mr. Shakif Ul Azam

【Directorate of Agricultural Extension, Ministry of Agriculture (DAE/MOA) 】April 25th, 2019

Additional Director, Field service wing	Dr. Alhaz Uddin Ahammed
Deputy Director, Plant Quarantine wing	Mr. A S M Abdur Razzaque
Additional Director Extension and Coordination	Mr. Bivuti Vushon Sarkar

【Ministry of Food (MoF) 】April 30th, 2019

Additional Secretary, MOF	Sakar Abul Kalam Azad
Deputy Chief, MOF	MD Shohelur Rahman Khan
Joint Chief, MOF	MD. Humayun Kabir
Chairman, BFSA	Mohammad Mahfuzul Hoque
Member, BFSA	Monzur Morshed Ahmed
Deputy Secretary, BFSA	Dr. Sk. Nurul Alam

【Karuwan Bazzar 】May 2nd, 2019

Member, BFSA	Mostafa Kamal
FAO project National consultant	Md. Masud Alam

【FAO Institutionalization of Food safety Project】Several days between 21st April to 2nd May 2019

National Team Leader	A. K. M. Nurul Afsar
Food Scientist, National Consultant	Md. Musud Alam
Food Safety System Specialist, National Consultant	Md. Imrul Hasan

2. Agro-processing company

【Bangladesh Agro-Processors Association (BAPA)】April 28th, 2019

President, BAPA	A F M Fakhrul Islam Munshi

General Secretary, BAPA	Md. Iqtadul Hoque
Secretary	Md. Taibur Rahman
Assistant Secretary (Information), BAPA	Ashim Kumar Saha
Executive Marketing, BAPA	Evance Rozario
Member, BAPA	M Abdus Sattar
Treasurer, BAPA. Alin Food Production Ltd.	Golam Sharif Chowdhury

【Prome Agro Food】April 29th, 2019

Chairman and managing director, Prome Agro Foods Ltd.	Md. Anamul Hasan Khan
Chief Executive officer, Prome Agro Foods Ltd.	Shiplu Saha
Sr. Executive (QC and R&D), Prome Agro Foods Ltd.	Md. Shahansha Sarker
Sr. Executive (Commercial), Prome Agro Foods Ltd.	Mohammad Ismail Hossain
Executive (Microbiologist), Prome Agro Foods Ltd.	Shuchita Sarker
Senior Manager (Factory), Prome Agro Foods Ltd.	Md. Shariful Islam
Manager (HR &Admin) Prome Agro Foods Ltd.	Md. Rezaul Islam
Manager (Accounts and Finance), Prome Agro Foods Ltd.	Md. Mahfuzur Rahman
Asst. Manager (Commercial Export), Prome Agro Foods Ltd.	S.M.M. Abdullah-Al-Zobair
Executive Marketing, BAPA	Evance Rozario

【SS Food Limited 】April 29th, 2019

Factory Manager, SS Food	Md. Azad Abdullah
Asst. Manager (QC and R&D) SS Food	Mokbul Hossain
Executive Marketing, BAPA	Evance Rozario

The list of interviewees in the second dispatch

1.Ministries/ Departments

【Bangladesh Food Safety Authority(BFSA)】June 10th, 2019

Designation	Name
Chairman	Mr. Mohammad Mahfuzul Hoque
Member	Mr. Md. Mahbub Kabir
Member	Mr. Md. Rejaul Karim
Member (Public Health & Nutrition)	Mr. Monzur Morshed Ahmed
Secretary	Mr. Md. Mukammel Hoque
Deputy Secretary	Mr.Abu Hena Md. Mostafa Kamal
Deputy Secretary	Dr. Sk. Nurul Alam
Deputy Secretary, BFSA	Mr. Samir Kumar Biswas
Director, (Lab Networking)	Mr. A. S. S. M. Zubery
Director	Dr. Sahadev Chandra Saha
Senior International Consultant, FAO	S. Dave
National Consultant, Food Safety in Livestock & Poultry Sector	Dr. Kulsum Begun Chowdhury
National Food Safety Consultant-Horticulture	Syed Moazzem Hossain
Intern, Communication	Ruvana Hassan

【Department of Agricultural Extension (DAE), Ministry of Agriculture】June 11th, 2019

Additional Director (Import), DAE	K. M. Shaiful Islam
Deputy Director (Import), Plant Quarantine Wing, DAE	Dr. A S M Abdur Razzaque

【Institute of Food Science and Technology (IFST), Ministry of Science and Technology】June 11th, 2019

Director, IFST	Dr. Barun Kanti Saha
Principal Scientific Officer, IFST	Dr. Sultana Anjuman Ara Khanam
Principal Scientific Officer, IFST	Dr. Sahana Parvin
Principal Scientific Officer, IFST	Salma Ahmed
Senior Scientific Officer, IFST	Dr. Kanika Mitra
Senior Scientific Officer, IFST	Md. Alamgir Kabir
Senior Scientific Officer, IFST	Dr. Sharmin Jahan
Senior Scientific Officer, IFST	Dr. Mohammad Nazrul Islam Bhuiyan
Senior Scientific Officer, IFST	Abu Tarek Mohammad Abdullah
Senior Scientific Officer, IFST	Mohammad Tariqul Hasan

【Bangladesh Standards and Testing Institution(BSTI), Ministry of Industry】June 13th, 2019

Director General, BSTI	Md.Muazzem Hossain
Director (Administration), BSTI	Md. Taher Jamil
Director (Standards), BSTI	Md. Sazzad Bari
Director (Chemical), BSTI	Pankaj Kumar Kundu
Assistant Director (CM), BSTI	Md. Nozir Ahmmod Miah
Coordination Officer (Administration), BSTI	Md. Lutfor Rahman
Assistant Director (Chemical Testing), BSTI	Sharif Muhammad Syeduzzaman
Assistant Director (CM), BSTI	Md. Arafat Hossain Sarker
Field Officer (CM) & Registered Inspecting Officer (PCS), BSTI	Ms. Afsana Hossain
Field Officer (CM) & Registered Inspecting Officer (PCS), BSTI	Engr. Shashi Kanta Das
Field Officer (CM) & Registered Inspecting Officer (CM), BSTI	Ms.Mst. Rebeka Sultana

【Department of Fisheries (DoF), Ministry of Fishery and Livestock】June 16th, 2019

Deputy Director, Finance and Planning, Department of Fisheries	Md. Monwar Hossain
Planning, Department of Fisheries	Dr. Md. Neazuddin
Senior Officer, Department of Fisheries	Md. Mukhlesur Rahman
Assistant Director, Marine, Department of Fisheries	Shoukot Kabir Chowdhury
Senior Scientific Officer, Department of Fisheries	Shaila Akter

【Institute of Public Health and Nutrition (IPHN)】June 16th, 2019

Director, Institute of Public Health and Nutrition	Dr. Md. Khalilur Rahman

【Ministry of Health and Family Welfare （MoHFW）】June 16th, 2019

Deputy Program Manager, MoH&FW	Mr. Mohammad Aman Ullah

【Rajshahi City Corporation】June 17th, 2019

Mayor, Rajshahi City Corporation	A.H.M. Khairuzzaman
Revenue Officer,	Abu Saleh Md. Nur-E-Sayed
Veterinary Surgeon,	Dr. Md. Ershad Uddin
Chief Health Officer	Dr. F. A. M. Anjuman Ara Begum
Sanitary Inspector	Achinta Kumar Bhadury
Sanitary Inspector	Akramuzzaman Siddique
Medical Officer	Dr. Khandakar Ummul Khair Fatima
Office Assistant	Shahanaz Parvin
Sanitary Inspector,	Md. Atiqul Haque

【Bangladesh Standards and Testing Institution, Rajshahi office, Ministry of Industry】June 17th, 2019

Deputy Director, BSTI, Rajshahi	Md. Khairul Islam
Assistant Director, (Chemical), BSTI, Rajshahi	Pradip Kumar
Assistant Director, (Metrology), BSTI, Rajshahi	Md. Zakir Hossain Miah
Assistant Director (CM), BSTI, Rajshahi	Engr. Md. Aslam Sekh
Assistant Director (CM), BSTI, Rajshahi	Md. Zahurul Hoque
Sr. Examiner, (Chemical), BSTI, Rajshahi	Mr. Suboth Chandro

【Bangladesh Council of Scientific and Industrial Research (BCSIR), Rajshahi office】June 17th, 2019

Scientific Officer, BCSIR	Dr. Md Morshed Hasan Sarkar
Senior Scientific Officer, BCSIR	Ruhul Amin
Senior Scientific Officer, BCSIR	Md. Badrul Islam
Principal Scientific Officer, BCSIR	Md. Moinuddin
Principal Scientific Officer, BCSIR	Md. Asadul Islam
Principal Scientific Officer, BCSIR	A.K.M. Shamsul Alam
Principal Scientific Officer, BCSIR	Dr. Lutfor Rahman

【Kansat Upazila, Chapainawabganj】June 18th, 2019

UNO, Shivganj Upazila	Rowson Chowdhury

【Bogra District】June 19th, 2019

Deputy Commissioner, Bogra	Faiyez Ahamed
Civil Surgeon, Bogra	Dr. Md. Gawsul Azim Chowdhury
Deputy Civil Surgeon, Bogra	Dr. Ahia Kamal
Deputy Director of Local Government (DDLG), Bogra	Sufia Nazim
Senior Upazila Fisheries Officer, Bogra	Irina Mausumi
Upazila Nirbahi Officer	Waresh Ansary
Assistant Commissioner & Executive Magistrate, Bogra	Maruf Afzal Rajon
District Agricultural Officer, DAE, Bogra	Nikhil Chandra Biswas
Additional District Livestock Officer, DLS, Bogra	Dr. Md. Masudur Rahman
District Food Controller, Bogra	S. M. Saiful Islam
Upazila Controller of Food, Bogra Sadar Upazila	Md. Monirul Haque
Technical Assistant acting as Food Safety Inspector	Saikh Noor Mohammad
Sanitary Inspector and Food Safety Inspector	Md. Nazim Uddin
Sanitary Inspector and Food Safety Inspector	Ram Chandra Saha
Sanitary Inspector and Food Safety Inspector	Bhabesh Roy

【Gabtali Upazila】June 19th, 2019

Upazila Nirbahi Officer	Waresh Ansary
Uazila Health and Family Planning Officer, Gabtali	Dr Sharmina Pervin
Assistant Commission (Land) & Executive Magistrate	Salma Akter
Assistant Director, Directorate of National Consumer Right	Debashish Ray

Protection	
Incharge, BRAC	Azharul Islam
District Agriculture Officer, DAE	Md. Mahedi Hasan
Sanitary Inspector, Gabtali Pourashava	Aminul Hitlu
Sanitary Inspector, Upazila Health Complex, Gabtali, Bogra	Zakeya Sultana
Senior Assistant Manager, Milk Vita Gabtali	Dr Biplob Chandra Adhikary
Food Inspector, Upazila Food Office, Gabtali	Md. Rowsanul Kousar
Sub Assistant Engineer	Lutfur Nahar
Veterinary Surgeon, DLS	Dr. Shah Alam
Upazila Controller of Food	Sekendar Rabiul Islam
Upazila Fisheries Officer, Gabtali	Ayesha Khatun

【Dhaka South City Corporation (DSCC)】June 23th, 2019

Chief Health Officer, DSCC	Brigadier Sharif Ahmed
Health officer, DSCC	Dr. Fazle Shamsul Kabir
Sanitary Inspector, DSCC	Kamrul Hasan
Special Metropolitan Magistrate, (Senior Assistant Judge), Dhaka City Corporation and Pure Food Court, Dhaka	Mehedi Pavel Swwet

【Modern Food Testing Laboratory and Training Centre, DSCC】July 3rd, 2019

Director, (Public Health Analyst), Modern Food Testing Laboratory and Training Centre, DSCC	Dr. Md. Mohsin Ali
Team Leader, FUNDSTSCH- Sterling JP	Md. Golam Sarawar
Assistant Chemist, Modern Food Testing Laboratory and Training Centre, DSCC	Eleas Jahedi Sompod
Microbiologist, Modern Food Testing Laboratory and Training Centre, DSCC	Jannatun Nayma
Health Officer, DSCC	Dr. Fazle Shamsul Kabir
Health Inspector, DSCC	Kamrul Hasan

【Institute of Public Health(IPH)】June 24th, 2019

Director, IPH	Dr. Sultan Md. Shamsuzzaman
Head, Food Safety Unit, IPH	Dr. Shah Mahfuzur Rahman

【Agrabad Port Quarantine office (DAE), Chittagong】June 25th, 2019

Quarantine Pathologist, Plant Quarantine Wing, DAE, Ministry of Agriculture	Syed Munerul Hoque

【Institute of Epidemiological Disease Control and Research (IEDCR)】June 26th, 2019

Principal Scientific Officer, IEDCR	Dr. M. salim Uzzaman

【Directorate of Health Service, Ministry of Health and Family Welfare (MOHFW)】June 26th, 2019

Deputy Director, Administration Department, DGHS Nutrition	Dr. Munshi Md. Asadullah Rahman
Head, Food Safety Unit, Institute of Public Health	Dr. Shah Mahfuzur Rahman

【Bangladesh Agricultural University (BAU)】June 27th, 2019

Pro Vice Chancellor	Professor Dr. Md. Jasimuddin Khan
Dean, Faculty of Agriculture	Professor Dr. M. Jahiruddin
Professor, Dept. of Crop Botany Chairman of Dept. of Food Safety	Dr. Md. Alamgir Hossain
Director, Interdisciplinary Institute for Food Security	Professor Dr. A. S. Mahfuzul Bari
Associate Director, Interdisciplinary Institute for Food Security	Professor Dr. Harunur Rashid

【Directorate of National Consumers' Right Protection (DNCRP)】June 30th, 2019

Director (Operation & Laboratory), DNCRP	Mohammad Harun-Uz-Zaman Bhuiyan
Assistant Director, Dhaka District Office, DNCRP	Md. Abdul Jabbar Mondol

【Small & Medium Enterprises Foundation （SMEF）】June 30th, 2019

Chairperson, Small & Medium Enterprise Foundation	K. M. Habib Ullah

General Manager, Small & Medium Enterprise Foundation	Md. Sirajul Haider
Deputy Managing Director, Small & Medium Enterprise Foundation	S. M. Shaheen Anwar
General Manager, Small & Medium Enterprise Foundation	Md. Nazeem Hassan Satter
Manager, Small & Medium Enterprise Foundation	Farzana Khan

【Bangladesh Small & Cottage Industries Corporation (BSCIC)】June 30th, 2019

Chairman, Bangladesh Small & Cottage Industries Corporation	Md. Mostaque Hassan
Director (Technology), Bangladesh Small & Cottage Industries Corporation	Dr. Md. Abdus Salam
Principal, Small & Cottage Industries Training Institute (SCITI), Bangladesh Small & Cottage Industries Corporation	Engr. Md. Shafiqul Alam
Bangladesh Small & Cottage Industries Corporation	Md. Habibur Rahman

【Plant Protection Wing, Department of Agricultural Extension (DAE), Ministry of Agriculture】July 2nd, 2019

Additional Director (Pesticide Administration and Quality Control), Plant Protection Wing, DAE	Krishibid Md. Jahirul Islam
Director, Plant Protection Wing, DAE	A.Z.M. Sabbir Ibne Jahan
Deputy Director (Pesticide Quality Control), Plant Protection Wing, DAE	Md. Fakhrul Hasan

【Bangladesh Accreditation Board (BAB)】July 4th, 2019

Deputy Director, BAB	Md. Mahbubur Rahman
Deputy Director, BAB	Md. Nasirul Islam

【National Food Safety Laboratory（NFSL）】July 8th, 2019

Director, Institute of Public	Dr. Md. Khalilur Rahman
Head and Technical Manager,	Prof. Dr. Shahnila Ferdousi
Biochemist (Food Analyst), NFSL	Sakila Parveen
Chemist, NFSL	Dr. Rafaat Chowdhury

【Fish Quality Control Laboratory（FQCL)】July 9th, 2019

Quality Assurance Manager, Quality Control Laboratory, DoF	Md. Manik Mia
Fish Inspection and Quality Control Officer, Quality Control Laboratory, DoF	SK Farzana Islam
Fish Inspection and Quality Control Officer, Quality Control Laboratory, DoF	Md. Barkatul Alam
Biochemist, Quality Control Laboratory, DoF	Md. Farhad Hossain
Technologist, Quality Control Laboratory, DoF	Mohammed Anwar Parvez
Fisheries Technologist, Quality Control Laboratory, DoF	Mohammed Jahangir Alam
Microbiologist, Quality Control Laboratory, DoF	Sayed Md Motaher Hossain
Microbiologist, Quality Control Laboratory, DoF	Md. Shafiul Alam

【Upazila Health Complex, Keraniganj Upazila, Dhaka District】July 11th, 2019

Upazila Health and Family Planning Officer, UHC, Keraniganj	Dr. Mir Mobarak Hossain
Sanitary Inspector, UHC, Keraniganj	Shahinur Islam

2.Donor

【SEIP–BAPA Project funded by ADB】June 11th, 2019

Chief Coordinator, SEIP-BAPA Project	Kbd. Md. Nurul Islam
Coordinator-Monitoring and Evaluation, SEIP-BAPA Project	Nur-E-Ferdous

【Food and Agriculture Organization (FAO) Representation in Bangladesh】June 12th, 2019

Food Safety/Quality Officer, APO	Shoko Kinoshita

【United States Agency for International Development (USAID)】June 23th, 2019

Senior Agriculture Advisor, Economic Growth Office	Mr. Michell Nelson

【International Labor Organization　Skill 21 project】July 2nd, 2019

Skills/TVET Specialist, Skills 21- Empowering Citizens for Inclusive and Sustainable Growth	Ligaya L. Dumaoang

3. Private Company

【Igroo Ltd.】June 16th, 2019

Deputy Manager, (QC), Igloo Dairy.	Deputy Manager, (QC), Igloo Dairy.

【Milk Vita】June 20th, 2019

Deputy General Manager (DGM), Baghabarighat Dairy Plant, Bangladesh Milk Producer's Co-operative Union Limited.	Dr. A. F. M. Idris
Director, Bangladesh Milk Producer's Co-operative Union Limited, Rajshahi	Md. Abdus Samad Fakir
Manager (Society Division), Baghabari Milkshed Area	Amiya Kumar Mondal
Manager In-Charge (Cattle Development and Training Division), Bangladesh Milk Producer's Co-operative Union Limited, Baghabarihat, Sirajganj	Dr. Md. Nazrul Islam
Senior Assistant Manager (Mechanical Division), Baghabarighat Dairy Plant, Bangladesh Milk Producer's Co-operative Union Limited	Engr. Al-Emran
Senior Assistant Manager (Maintenance Division), Baghabarighat Dairy Plant, Bangladesh Milk Producer's Co-operative Union Limited	Engr. Md. Golam Mostafa Khan
Assistant Manager (Quality Control), Baghabarighat Dairy Plant, Bangladesh Milk Producer's Co-operative Union Limited	Mohammad Amirul Haque
Assistant Manager (Quality Control), Baghabarighat Dairy Plant, Bangladesh Milk Producer's Co-operative Union Limited	Md. Mazidul Haque Khan
Assistant Manager (Production), Baghabarighat Dairy Plant, Bangladesh Milk Producer's Co-operative Union Limited	Md. Hasanur Rahman

【Mashud Agro Fish and Foods】June 24th, 2019

Executive Director, Mashud Fish Processing and Ice Complex Ltd.	Md. Abdul Hai
Assistant General Manager, Mashud Agro Foods	A. B. M. Shamsul Karim

【Riverain Fish and Food Processing Industries Ltd.】June 24th, 2019

Managing Director, Meridian Group	S M Kamal Pasha
Assistant General Manager (Factory Operations), Meridian Foods Limited	Engr. Md. Foyzul Islam
Deputy Manager (Supply Chain Management), Meridian Foods Limited	Mohammad Kalim Uddin
Deputy Manager (Quality Control and R&D), Meridian Foods Limited	Md. Rokonuzzaman
Deputy Manager (Production), Meridian Foods Limited	Md. Master Sumon

【IBCO Food Industries Ltd.】June 25th, 2019

Executive Director, IBCO Food Industries Ltd	Md. Tohurul Islam
Quality Control Manager, SEAMARK (BD) Ltd.	Salahuddin Ahmed
Assistant Manager (Operation), IBCO Food Industries Ltd.	Md. Maruf Al-Asad
Assistant Manager (Production), IBCO Food Industries Ltd.	Dedar Ahmed

【Banoful Group of Companies】June 25th, 2019

CEO, Banoful Group of Companies	Mohammad Abbas Uddin
Deputy General Manager, Banoful Group of Companies	Arifur Rahman (Roney)

Manager (HR & Admin), Banoful Group of Companies	Soumitra Das
General Manger (Admin and Commercial), Banoful-Kishwan Group	Md. Kafil Uddin Chowdhury
Manager (R&D and Quality Control), Banoful Group of Companies	Engr. Gias Uddin
Company Secretary, Banoful Group of Companies	Rakhal Saha

【Fulkoli Bread & Biscuit Industries Ltd.】June 25th, 2019

Deputy General Manager, Fulkoli Bread & Biscuit Industries Ltd	Alauddin Bhuyian
Assistant General Manager, (Admin & Custom), Fulkoli Bread & Biscuit Industries Ltd.	Md. Kalim Ullah
Senior Manager (Admin & HR), Fulkoli Bread & Biscuit Industries Ltd.	Md. Shahidul Islam
Senior Officer (Quality Control), Fulkoli Bread & Biscuit Industries Ltd.	Nur Golap

【Hifs Agro Food Industries】June 26th, 2019

Managing Partner, Hifs Agro Food Industries	Syed Muhammad Shoaib Hasan
Manager (Factory) and Manager (Quality Control), Hifs Agro Food Industries	Hirak Das

【Meridian Foods Limited 】June 26th, 2019

Managing Director, Meridian Group	S M Kamal Pasha
Assistant General Manager (Factory Operations), Meridian Foods Limited	Engr. Md. Foyzul Islam
Deputy Manager (Supply Chain Management), Meridian Foods Limited	Mohammad Kalim Uddin
Deputy Manager (Quality Control and R&D), Meridian Foods Limited	Md. Rokonuzzaman
Deputy Manager (Production), Meridian Foods Limited	Md. Master Sumon

【Alin Food Products Ltd.】July 2nd, 2019

Deputy General Manager - Operation (Factory), Alin Food Products Ltd.	Ranjan Kumar Kar
Senior Manager – Production, Alin Food Products Ltd.	Md. Nozibul Hoque

【Elson Food Products Ltd.】July 3rd, 2019

Director, Elson Foods (BD), Ltd.	Shahrim Sanjeed
Manager, Production, Elson Foods (BD), Ltd.	Md. Shahidul Islam
Manager, Compliance, Elson Foods (BD), Ltd.	Shaikh Sadika Sultana
Manager, Compliance, Elson Foods (BD), Ltd.	Md. Asaduzzaman
Maintenance Engineer, Elson Foods (BD), Ltd.	Md. Shamim Reza
Manager, Quality Control, Elson Foods (BD), Ltd.	Md. Wasiul Kabir
Store in charge, Elson Foods (BD), Ltd.	Md. Mostafa Monwar
Assistant Manager, Production, Elson Foods (BD), Ltd.	Md. Shahadat Hossen
Admin Executive, Elson Foods (BD), Ltd.	Monir Hossain

【Mubarrak Brothers and Others Agro Foods Rice Mill (M.B. Agro Foods)】July 6th, 2019

Co-Owner, Mubarrak Brothers and others Rice Mill, M.B. Agro Foods Ltd.	Hassan Imran
Co-Owner, Mubarrak Brothers and others Rice Mill, M.B. Agro Foods Ltd.	Mirza Monir
Co-Owner, Mubarrak Brothers and others Rice Mill, M.B. Agro Foods Ltd.	Anwar Hossain
District Controller of Food, Brahmanbaria District	Subir Nath Chowdhury
Upazila Food Controller, Ashuganj Upazila.	Md. Moinul Islam Bhuiyan

The list of interviewees in the second dispatch

1. Ministries

【Bangladesh Food Safety Authority(BFSA) 】 August 19th , 2019

Member	Dr. MD. Abdul Alim
Member (Public Health & Nutrition)	Mr. Monzur Morshed Ahmed

【Bangladesh Food Safety Authority(BFSA) 】 August 22th, 2019

Chairperson	Ms. Syeda Sarwar Jahan
Member (Public Health & Nutrition)	Mr. Monzur Morshed Ahmed

【Primary Health Care Unit (PHC) , Directorate of General Health Service (DGHS) 】 August 21st, 2019

Assistant Director	Dr. Abul Khair Md. Rafiqul Hyder

How to build up desired food administration system in Bangladesh?

By A. Koyama
Team Leader
JICA data collection survey on Food Safety and Food Hygiene in Bangladesh

Background

- JICA has been planning a new technical cooperation project to support BFSA for enhancing food safety administrative capacity in Bangladesh.
- BFSA had submitted its request to JICA in 2018 but JICA needed more information for justifying the project.
- JICA is also planning to offer yen loan and training to food processors but justifying information was not enough.
- JICA contracted out to ICNet Limited, Japan, for sending a consultant team from April to August 2019.
- The team interviewed 157 persons of 29 food related public agencies in central and local level, 5 persons of 4 donor projects and 74 persons of 14 private food companies and an association.

Overall Assessment on food safety in Bangladesh

Results
Summary

- Some large-scale food processors have sufficient knowledge on food hygiene and practices properly but others do not.
- Especially insufficient closedness of the production area is a common problem. Soil and vector insects/animals can go into the area easily.
- Many management staff of large-scale food processors themselves are educated but they are struggling to train workers.
- Restaurants seem to have problems in food hygiene in general. They need to get concrete improvement methods and to be motivated.

Overall Assessment on food safety in Bangladesh

Results
Summary

- Food safety administration system started to work based on Food Safety Act 2013. Rules and regulations has been gradually formulated thanks to FAO project's support.
- But implementation level is low. Especially manpower of BFSA is still limited.
- BFSA and other food control agencies are trying to activate the surveillance system including inspection, testing and administrative measures but it has not been working properly due to many issues.
- Reasonable and clear-cut food safety administration is expected both from food suppliers and consumers.

Technical Cooperation Project for supporting BFSA

Food Safety Administration

Results

Mandates of Food Control Agencies

Food chain	Mandate	Ministries and Departments	Related acts and regulations
Production	Feed registration and inspection	DoF, DLS	Livestock feed act 2010, Aquaculture feed regulation 2011
	Pesticide・fertilizer registration and inspection	DAE	Pesticide (Amendment) ordinance 2009, Fertilizer (control) Act 1999, Fertilizer (control) Ordinance 1999, Import Policy Order
	Making standard for pesticide residue	BFSA（Plan）	Pesticide (Amendment) ordinance 2009
	Control of genetically modified crop	the Ministry of Forest and Environment	National Biosafety Guidelines 2007
			Biosafety Rules 2012
Processing	Making standard for food additives	BFSA（Plan）	Food Safety Act 2013
	Inspection and testing food additives	None	Food Safety Act 2013
	Making standard for process food	BSTI, BFSA（Plan）	Food Safety Act 2013, BSTI Act 2018, BSTI rules1989
	Making standard for other food	BFSA	Food Safety Act2013, BSTI Act 2018, BSTI rules1989
	Inspection and testing process food	BSTI	BSTI Act 2018
	Sanitary management including food poisoning	BFSA	Regulation on food hygiene 2018
	Making standard for packaging	BSTI, BFSA	Food Safety Act2013、The standards of Weights and Measures (Amendment) Act 2001、The Bangladesh Standards of Weights and Measures (Packaged Commodities) Rules 2007
	Inspection for process company	City Corporation,DGHS, District NCRPD, DoF	BSTI Act 2018, National Consumer Right Protection Act 2009

Food Safety Administration

Results

Mandates of Food Control Agencies (Cont'd)

Food chain	Mandate	Ministries and Departments	Related acts and regulations
Domestic distribution /marketing	Inspection for public market.	City Corporation, DGHS, District NCRPD	Food Safety Act 2013, Local Government Act 2009, National Consumer Right Protection Act 2009
	Inspection for restaurant retail shop, supermarket	City Corporation, DGHS, District NCRPD	National Consumer Right Protection Act 2009
	Inspection for food venders	None	None
Overall	Administrative measures	District magistrate, Sub-district magistrate, NCRPD	Food Safety Act 2013, National Consumer Right Protection Act 2009, Local Government Act 2009, Mobile Court Act 2009, Atomic Safety and Radiation Control Act 1993, Nuclear Safety and Radiation Control Rules 1997, The Special Powers Act 1974, Formalin control Act 2015
	Mobile court	City Corporation, District magistrate, DGHS, Sub-district magistrate, NCRPD, Police	
	Accreditation of laboratory	BAB, Private accreditation agencies	Bangladesh Accreditation Act 2016
	Food testing	IPH, BSTI, (BCSIR)	Food Safety Act2013
Export	Testing export food	DAE, Custom Office	Plant Quarantine Act 2011, Export Policy Order 2015-2018
		DoF	
Import	Testing import food	Custom office, BSTI	Plant Quarantine Act 2011, Import Policy Order 2012-2015

Source: Survey Team

Food Safety Administration

Results

Allocation of Officials in Local Levels

	Division	District	Sub-district	City Corporation	Rural city
DAE		✓	✓		
DLS		✓	✓		
DOF	✓*	✓	✓		
DGHS		✓	✓		
MOF		✓	✓		
LGD				✓	✓
BSTI	✓**	✓**			
BFSA	***	***			
DNCRP	✓	✓			

*Allocate inspectors only where is laboratories. In Dhaka, Khulna and Chittagong.
**Dhaka, Chittagong, Khulna, Rajshahi, Barishal, Sylhet, Rangpur, Lumilla, Kishoreganj, Faridpur, Cox'bazar
**Under recruitment

Source: Survey Team

Food Safety Administration

Results

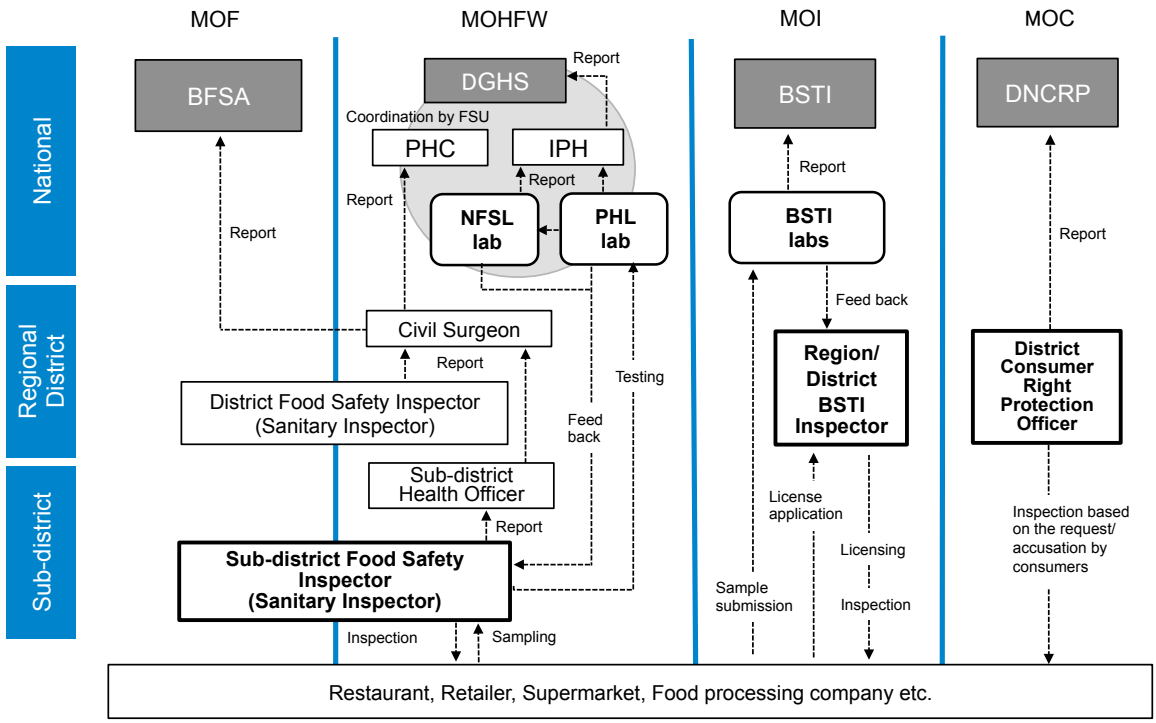
Food Risk Management

Food	Value chain	Executer	Status
Overall coordination	All	BFSA	Not implemented
Crops, Vegetable and Fruits	Production	DAE	Not implemented
Meat, Milk and Egg	Production	DLS	Not implemented
Fisheries	Production Processing	DoF	Testing feed and processed seafood
Mandatory processed food	All	BSTI	Testing samples
Other food	Processing Trading	DGHS NFSL NCRPD LGD	Checking samples by inspector or Testing samples

Food Safety Administration

Results

Inspection and Testing System



Food Safety Administration

Issues

Issues in inspection

- Insufficient number and expertise of the Food Safety Inspectors
- Procedures for on-site inspection and sample collection are not standardized
- Inspections are not conducted based on risk-analysis
- Insufficient budget allocation for on-site inspections and sending of samples
- Llimited proper physical methods to send samples to laboratories
- No information has been accumulated to understand the food safety situation.
- Limited inspection mechanism for crops and livestock products

Food Safety Administration

Issues

Issues in Testing

- Insufficient number of laboratory
- Insufficient number of personnel and technology in the laboratory
- Insufficient laboratory maintenance budget
- Lack of collaboration among laboratories
- Lack of a laboratory certification

Food Safety Administration

Issues

Issues in Administrative Measures

- Lack of proper guidance for Food Safety Inspectors to implement administrative measures
- Lack of probation period for administrative guidance
- No concrete and feasible improvement measures provided by the Food Safety Inspectors to food businesses

A voice from MD of a food processing company

"It is even dangerous to invest to food processing business nowadays because of unreasonable punishment by the government."

BFSA

Results

Progress of the Strategic Plan so far

Strategy	Activities	Progress
1. To develop BFSA as a Centre of excellence and as the national competent authority for control of food safety	Drafting and finalization of Rules and Regulations	on track
	Staff requirement and development of division	on track
	Signing MoU	suspend
	Procurement of mobile laboratory	delay
2. To strengthen food regulations and food safety standards and ensure that all food inspectors are appropriately trained on enable them to undertake their duties competently	Designation of food safety inspector and training	on track
	Setting up technical working groups	on track
	Opening the food safety management course in Bangladesh Agricultural University	achieved
3. To ensure the effective and consistent enforcement of food regulations and coordination of food control activities across all government agencies currently involved in official control	Develop a formal procedure of working relationships with other food control agencies	delay
	Standard Operational Procedure in conformity with regulation is developed	achieved
	Provide technical and scientific support to government agencies	target in 2020

BFSA

Results

Progress of the Strategic Plan so far (Cont'd)

Strategy	Activities	Progress
4. To develop a national scientific advisory system/structure for the provision of the best independent scientific advice to support food safety policy and enforcement decisions	Establishment of scientific and technical committee to provide a risk assessment capacity	on track
	Develop policy on commissioning Research and Development	delay
	Share finding of R&D with food control agencies	delay
5. To enhance capacities of food labs and strengthen the national food labor network to enhance an adequate laboratory capacity for supporting food control functions.	MoU with Food testing laboratories	not achieved
	Coordination with BAB for accreditation	completed
	Designate public food analyst	completed
	Develop practical guidance for food analysis	delay
6. To communicate and engage with all stakeholders; specifically, with the food industry to encourage the adoption of the highest standards of food safety compliance and promoting food safety awareness among consumers and the general public.	Organize a training workshop on strengthening INFOSAN activities in Bangladesh	on track
	Conducting food safety conference	on track
	Conduct training on HACCAP	achieved
	Observance on National Food Safety Day	on track
	Formation of central food safety management coordination committee	on track

BFSA

Issues

New Strategic Plan

- BFSA needs to prepare another strategic plan from 2022 with review what they achieved and discuss lessons they learned in the current Strategic Plan.
- BFSA should organize a task force for the next Strategic Plan. The task force should work

1. to check the progress and remained issues,
2. to collect lessons learnt from the achievements until now,
3. to draft new strategy including setting the priority of items and
4. to draft the roadmap of the new strategy.

BFSA

Issues

Manpower

- Manpower in BFSA is very limited now and actual execution capacity is low.
- Thus top priority of BFSA is to have actual power of implementation in terms of manpower and budget.
- Fortunately BFSA is now recruiting substantial number of new staff but it will take some time for them to become real power.

BFSA

Issues

Manpower until now

Category	Position	Number	
		Stipulated	Actual
Management	Chairperson	1	1
	Member	4	4
	Secretary	1	1
	Director	3	5
	Deputy Director	6	0
	Additional Director	12	0
	Total	27	11

BFSA

Issues

Manpower from now

Category	Position	Number	
		Stipulated	Actual
Technical Officers in HQ	Secretary to Chairperson	1	Recruiting
	Food Analyst	1	Recruiting
	Assistant Director	6	Recruiting
	Scientific Officer	10	Recruiting
	Monitoring Officer	5	Recruiting
	R&D Officer	4	Recruiting
	Law Officer	1	Recruiting
	PR Officer	1	Recruiting
	Statistics Officer	1	Recruiting
	Accountant Officer	1	1
Region/District	Food Safety Officer	72	Recruiting

BFSA

Issues

Manpower from now

- Many newcomers to BFSA are B.Sc. in scientific subjects such as microbiology, chemistry and food processing technology.
- But most of them are newly graduated young guys and have almost no work experience.
- Thus BFSA needs to train them both in classroom and on the job.

BFSA

Issues

Manpower from now

- District Food Safety Officer would be a key role player for functioning food safety administration system on the ground level.
- Training of FSO would include the followings.

1. Basics of food safety administration
2. Basics of food safety science
3. How to assess the risk in food value chain
4. How to set up District Food Safety Coordination Committee
5. How to work with Sub-district Food Safety Inspector including training and monitoring
6. How to feedback the information to BFSA HQ

BFSA

Issues

Manpower from now

- Sub-district Food Safety Inspector is an actual executor of food safety administration system on the ground level.
- FSI is Sanitary Inspector recruited by MOHFW and designated by BFSA as FSI.
- FSI should be instructed properly to make their work reasonable, especially to change their inspection practice into risk-base.
- For example, meat has higher risk than rice. Or processed food sold after longer period of time has higher risk than food cooked in the restaurant and consumed immediately.

BFSA

Issues

Stakeholders in food safety

- Stakeholders are not limited in food control agencies. Other stakeholders such as Magistrates and media reporters/editors could have heavy influence on food safety improvement.
- They are not necessarily familiar with the basics of food safety.
- For example, less water contents in flour might be sub-standard but no problem for human health. If water content is much higher than standard, it could be serious problem.
- BFSA needs to train them, especially in term of how to set priority based on risk analysis.

BFSA

Issues

Stakeholders in food safety

List of Training Sessions Conducted by FAO project

Training Title	Participants	Date and duration
Training of Awareness on ISO 22000:2005 Food Safety Management Systems- Requirements for Any Organizations in the Food Chain	Officials from Regulatory Body	Feb 2015, 4days
Institutionalization of Good Agricultural Practices (GAP) for Safe and Quality Food Production: Horticulture and Poultry as per Food Safety Act 2013	Officials from Regulatory Body	March 2015, 4days
Training of safe food inspection on risk-based food inspection	**Designated Food safety inspectors**	**May 2016, 3days, May 2016, 3days, July 2016, 3 days, March 2017, 3 days, March 2017, 3 days, April 2017, 3 days, April 2017, 4 days, Feb 2018, 3 days, March 2018, 3 days, April 2018,3 days, May 2018, 3 days, May 2018, 3 days, July 2018, 3 days, Nov 2018, 3 days**
Food Safety Management System (FSMS), ISO/ TS 22003 & ISO/IEC 17021	Officials from regulatory body, FAO's consultants, BAB personnel, Laboratory personnel	July 2016, 3days
Food Safety Management System, Lead Auditing Skills Training	Officials from regulatory body, FAO's consultants, BAB personnel, Laboratory personnel	August 2016, 2days
Food Safety Management System (ISO 22000:2005)	Food safety professionals from public and private sectors	Sept 2016, 3days
FSPCA Preventive Controls for Human Food	Food safety professionals from public and private sectors	Nov 2016, 4days
Role of media for food safety awareness	**Journalists**	**May 2017, 1 day**

BFSA

Issues

Stakeholders in food safety

Training Title	Participants	Date and duration
Training program for Hotel-restaurants workers on hygiene and food safety to keep food safe	Hotel-restaurants workers	June 2017, 1 day, Oct 2018, 1 day, Oct 2018, 1day, Nov 2018, 1day
Training on hygiene and sanitation for food business operators	Representatives from FBO's	Aug 2017, 2days
Training on Global GAP and Bangladesh GAP	Representatives from DAE, BARC, NATA, BINA, BAU, Hortex, BAB, FAO	Aug 2017, 4days
Role of media for safe slaughtering during sacrificing animals in kurbani	**Journalists**	**Aug 2017, 1day**
Training on HACCP based FSMS	Private food industries, academia, and BFSA	Nov 2017, 3days
Training on Basic Food Hygiene, HACCP and Inspection System	Private food industries, academia, BFSA and Designated Food Safety Inspectors	Dec 2017, 5days, August 2018, 5days
Training on Good Hygienic Practice in Poultry Slaughterhouse	DLS, BFSA and Private Food Industries	Dec 2017, 3days
Training on Implementation and Application of Food Safety Act, 2013 for the executive magistrate	**Executive Magistrates**	**July 2018, 2days, July 2018, 2days**
Safe livestock fattening, food safety, nutrition and economic benefit	Cattle Farmers	July 2018, 2days
Training on Survey Study of restaurants to establish safe zone in 6 piloted area		Oct 2018, 1day
Safe street food vending	Govt. officials, University teachers, BFSA	Oct 2018, 1day
Training on good hygienic practices and food safety for restaurants	Restaurants owners and workers	Oct 2018, 1day, Oct 2018, 1day, Nov 2018, 1day
Achieving Leadership in business on SPS, TBT and Codex		Oct 2018, 1day
Training on understanding codex process	BFSA, Private Industries, FAO	Dec 2018, 2days

Project Proposal for BFSA

Proposal

Overall Goal	National food control system to ensure safety of food supply is improved
Project Purpose	Implementation capacity of BFSA is strengthened
Output 1	Next strategic plan of BFSA (2022 -2027) is developed.
Output 2	Capacity for Food Safety Officers in district level is strengthened
Output 3	Capacity for Food Safety Inspectors designated by BFSA is strengthened
Output 4	Food safety awareness program through each responsible government agency are initiated as pilot basis and dissemination plan is developed

Project Proposal for BFSA

Proposal

Output 1	Next strategic plan of BFSA (2022 -2026) is developed.

- Now BFSA is working based on the strategic plan 2017-2021.
- During the period they faced to many problems and got lessons learnt.
- Based on the experience until now, BFSA should form next strategic plan.

Project Proposal for BFSA

Proposal

Output 2	Capacity for food safety officers in district level is strengthened
Output 3	Capacity for food safety inspectors designated by BFSA is strengthened

- Developing data collection system from Food Safety Inspectors in sub-district and submit consolidated information to BFSA
- Holding the district level Food Safety Coordination Committee and sharing information.
- Developing the manual for a Food Safety Inspector and offering trainings through a Food Safety Officer

Project Proposal for BFSA

Proposal

Output 4	Food safety awareness program through each responsible government agency are initiated as pilot basis and dissemination plan is developed

- Developing an implementation plan based on existing communication strategy.
- Conducting awareness program for governmental staff, food value chain stakeholders and citizens.

Training Program for food processors along with Yen Loan

Training for food processors

Results

Factories the Team visited

	Location	Staff	Products	Moisture in the products	Processing	Closed -ness	Floor sterilization	Export
1	Brahmanbaria	95	Milled rice	Low	Automatic	Low	No	No
2	Chittagong	250	Biscuits, Cake	Low	Baking: Automatic	Low	No	No
3	Chapai Nawabganj	165	Mango pulp	High	Automatic	Low	Wiped	No
4	Narayanganj	250	Mango drink	High	Automatic	Low	Wiped	No
5	Dhaka	2000	Mango drink	High	Automatic	Low	Wiped	Yes
6	Kishoreganj	1200	Mango drink	High	Automatic	Medium	Washed	Yes
6	Kishoreganj	1200	Spice	Low	Stand alone machine	Low	No	No
7	Chittagong	3000	Frozen vegetable	High	Stand alone machine	High	Washed	Yes
8	Chittagong	150	Seafood	High	Manual	High	Washed	Yes
9	Sirajganj	400	Milk	High	Automatic	Low	Wiped	No
10	Chittagong	500	Milk sweets	High	Manual	Low	Wiped	No
11	Chittagong	90	Jelly and drink	High	Automatic	Medium	Washed	Yes
12	Narayanganj	400	Chocolates	Low	Automatic	Medium	Wiped	No
13	Chittagong	400	Chips	Low	Stand alone machine	Low	Wiped	Yes

Training for food processors

Proposal

Target of training for food processors will be (1) Executive managers, (2) Middle management staff and (3) Workers.

- Executive Managers
- Many of them have general knowledge of food safety but investment for improving their facilities is limited. Except fishery sector, insufficient closedness of the factory is a common problem.
- They need to learn more about cost and benefit on food safety.

- Middle management staff and workers
- Case study that allow them to apply trained contents at work would be effective.
- Because many workers are illiterate, training content and materials need to incorporate video and on-site training.

Training for food processors

Proposal

- For this yen loan and training program, another consultant team is conducting survey now.
- They will propose possible training program at the end of this year.

- Please comment.
- Let us discuss after tea break.
- Thank you very much.

The Minutes of the Workshop
JICA Data Collection Survey for Food Hygiene and Food Safety in Bangladesh

1. The Workshop Outline

- Date and time: 9:30 – 13:30, 28th August 2019
- Venue: Bangladesh Institute of International and Strategic Studies
- Address: 1/46, Eskaton Road (Beside of Ministry of Expatriates Welfare and Overseas Employment), Ramna, Dhaka-1000.
- Schedule:

Agenda	Persons in charge	Time
Reception	JICA survey team	9:15-9:30
Self-Introduction	Participants	9:30-9:40
Remarks from JICA	JICA representative	9:40-9:50
Presentation of JICA project proposal and Question	Mr. Koyama, Team leader	9:50- 10:35
Address from BFSA Chairperson	Chairperson, BFSA	10:35-10:45
Coffee Break		*10:45- 11:15*
Discussion toward coordination of food control agencies 1. Inspection 2. Testing 3. Awareness raising 4. Training 5. Others		11:15-12:45
Lunch		*12:45-13:30*

- **Participants of the workshop: Overall**

Belongings	Invited	Participated
Total	46	32
Bangladesh Government	30	18(absence: 3)
International Agencies	9	7 (absence: 1)
JICA + Survey team	7	7

2. Notes from the Discussion Session

After the presentation of the survey results and ideas of the new JICA Project presented by Mr. Koyama, the discussion session was held. Contents of the discussion was shown below;

1) FAO project has introduced a new course at BAU (agriculture university). This has a long term impact. Is that missing?

    - Koyama: we are covering that issue in our full report. Food safety management dept. was established in the BAU last year. It takes time to expect it to come into our circle, but constantly every year some will be entering the workforce of the country.

2) Question: Is there any scope of "follow up" or "attachment" of those fresh graduates with the upcoming JICA project, in future?

    - Koyama: This time the BFSA are recruiting, we need to wait another at least 4 years before we can recruit them.

3) Monzur: I would like to request the FAO to submit a comprehensive exit plan detailing how they will exit the project. Then, we can integrate our activities accordingly.

4) Question: You have talked about various things, such as training, inspection etc. But you have not talked about our innovation or lab improvement or new labs. Is it possible to include these?

    - Koyama: controversial, we discussed this issue in JICA, Japan also raised that question but frankly speaking we observed many laboratories are not fully functioning. Fancy equipment but shortage of money for maintenance. The machine as a result doesn't work. The problem isn't the machine, the whole system – budget, sending sample, maintenance etc. is not working well.

      The number of labs is indeed short – but from a priority point of view the BFSA should start work with new staff – they will be young and less experienced. They need to be trained and given the proper education. Labs also take time, so after this we can request JICA for those things.

5) Question: DAE is working for food safety through various projects. You said we are working for BGAP. There is also a MoU among BFSA and DAE. So, is it possible to train the DAE field staff using this upcoming project alongside the BFSA staff?

- Koyama: It is very difficult, the DAE force is huge – 15,000. Huge number, it needs a big amount of money. It is tough to use the JICA project budget for it. We need to find a good model or create a pilot case – that is possible.

6) Imrul: Bangladesh GAP (BGAP) – need to become certified – ISO 17065. But who will do it? BAB? Then BAB will need to be strengthened.

   Another question is whether BGAP will be globally endorsed or not. Businessmen will want to sell or export products. India GAP is globally accepted and so we need to work first on harmonizing the BGAP with global GAP – and then work on implementing it.

7) Razzaque: BGAP is not yet implemented. It is too early for harmonization – we need to get certified safe food for our local markets first. After that, we will focus on harmonization with global GAP. I know where the differences are, it is not too deep. It is possible to harmonize.

8) Monzur: It is important to ensure safe foods for domestic first. If you always think about certification – it is not ideal for starting things. I was in Japan and attended extensive discussions on agriculture. They had experience of working to implement GAP in other countries such as Vietnam, Cambodia etc. We talked about Bangladesh and they talked about the difficulty of getting certified GAPs.

   They talked about implementing basic things – I asked such as? They told me about farmer calendars in Japan – a simple document of 2/3 pages. They document their practices: what seeds, collected from here; purified with this, sowed on this date; this date we used this chemical etc. very simple way.

   The agriculture officials – visit the farmers from time to time to check these calendars. Simple systems like this does not require a big budget or any certification. Actually, we need to start with the very basic things first. Then we can make progress. We are always thinking about higher level of thoughts and those thoughts are bouncing over our heads.
   I would like to request DAE to work together with us on implementing the MoU with BFSA. We need to follow a preventive approach – it is much better than the end product testing system. The developed countries have all moved to preventive approaches – we need to do the same. I hope some issues regarding a preventive approach will be coming in the JICA project.

9) Masud: 2017, we conducted a training for FAO project to train up the DAE extension officers and provided them with the basic training. We started this and JICA can expediate this in future.
   I also saw training program for manager, executives, officers etc. is there a way to add

extensive training program for street food vendors? Is a pilot program in this regard? IPH initiated a FAO project that tackled this issue. They had developed documents and manuals and so we could use those.

Also for the e-learning training program, it is quite difficult to conduct training face to face. We can develop extensive communication materials in the local language needs to be developed and made open to the public and farmers.

- Koyama: Of course, we will include restaurants, street vendors etc. Some countries use a small sticker or poster – so it is possible to control despite the vendors being so flexible – so they are always moving – so it is not easy. But it can be done.

10) IPH: I think there are some missing issues:
    a. MoH has a 360* framework in the country – laws and regulations; inspection – DGHS has inspectors throughout the country; laboratory – we have labs with other sister institutes as well.
    b. We also have education program – 8 institutions throughout the country – they provide a diploma course to the food inspectors. Every year 250 graduates are coming out. Recently, we added a 4-year graduation course at Dhaka university. 2019/2020 – the program will start.
    c. We are developing a surveillance system and to be successful we also need to create a contamination system.
    d. We are also involved with the BSTI – in the formation of standards.

    Food Safety Act 2013 – repealed the Pure Food Ordinance 1959 – you should add that too. Also BFSA – implementation low – is not accurate. Actually, BFSA is the coordinating and controlling body. Their manpower is limited but they are not implementors, so they do not need manpower. They already have the manpower of 22+ govt agencies that they control.

    You also said that inspectors will collect data – but this will be a conflict of interest. Inspection is their prime duty and they will not be able to collect data in a neutral way – particularly the evaluation system or surveillance system.

    Manuals are also not needed – we already have a large number of manuals from various different projects that have already taken place in the country – eg. risk categorization; food production; food management etc. These may be upgraded or updated but no new manuals are needed.

    You need a surveillance system – can be microbial or technical - in order to see the impact of the project. We already have a system, we just need some technical support to make the existing system stronger.

    There are a large number of labs but we do not have enough expenditure to maintain them. Instead of developing new labs, we are already starting to develop new labs

ourselves through the direction of the honorable PM.
Instead of the awareness building program, you can use the money elsewhere – every ministry has their own public awareness raising programs. JICA can use this money and use it for labs development; surveillance system; inspection system etc.

- Koyama: there are a lot of manuals, but the actual performance is not good. So we need to discuss a bit more to see where the problem is. My observation: many inspectors are memorizing the contents – they don't understand the rationale of the manual. We need to teach them the real rationale – for us here – obvious for us – but for them, it is not so easy.

  Awareness raising – yes, many agencies are doing this – but BFSA is the apex body and should stand in front and so we need to scrutinize what is necessary and build awareness accordingly.

11) BAPA – Bangladesh – population is huge, problems are also huge. Food safety we make a distinction – local and export – in my mind there should be no difference – whether local or not.

Food safety cannot be solved by one project only – many projects are needed. I think you missed one thing – media role. Public habits are very easily influenced by the media – there was TV program about vegetable being good for health – after that, the consumption of vegetables had increased – so the media plays a key role.

We need specialization in the policy level. When the policy level people are not educated in the right subjects – eg. the Mahfuzul Hoque has now been transferred to the shipping ministry – he has no relation with shipping – we are wasting our money in this way.

We need to create specialization – in my mind this system is a wasting talented workers and public money.

Awareness of children can be increase through the development of cartoons as well. We can directly include food safety education into their curriculum or include it as an extracurricular activity – through media.

Vietnam is doing great, better than Bangladesh, we should make a joint venture with Japanese companies – Japanese culture about food safety are the best in the world. Companies can share this information. We will be able to exchange ideas and learn the ways to prepare safe food. This will also increase the value of our products. Also, by being

involved with Japanese methods, our food will also be globally accepted.

We have a lot of machineries – but not working due to lack of technicians. We need to be given proper technicians or our staff need to be given proper training on how to look after the machinery. Otherwise – Bangladesh will become a bottomless basket.

- Koyama: I remember that 1 MD, a founder managing director, Chittagong, he's very talented guy. His factory – he modified his grandfather's house – amazingly small. He's very knowledgeable – he paid money to separate and minimize the size of the entrances – make a small hole and push through cartons. The environment is quite small and old. This is the actual situation – they cannot invest a lot- small drink, unit price very low.
  They need to produce a lot – but facility is small. So, accumulate, and then invest. He said, all or most workers are illiterate – can't even read or write. He also said that their normal life is not hygienic – that too needs to be improved. Considering all those aspects we need to design our project.

12) Katsuki: there are many issues – we have 1 project – there are limitations – 1 project cannot do everything. We need to prioritize. JICA project is coming and initially it will be coming to support the BFSA. Any questions about your expectations – on strengthening food safety system with BFSA – i.e. how best to support BFSA.

13) Monzur: We are thinking about some innovative ideas as to what are the effective ways to coordinate activities. In private sectors – self compliance – is a common word. It means you must have some SOPs and you will know what you have to do. They you will comply with that.

The BFSA is the controlling and coordinating body but the various agencies and departments need to declare what their functions are. And become self-compliant in future. We will then check if they are actually working or not. If non-compliance is found then BFSA as the controlling authority will take steps. I think this is the way forward. It is true that most implementation activities will be carried out by the agencies.

- Koyama: This is a good suggestion. In Japan, private companies come and submit applications themselves for certification – it is good for their business. We have 47 provinces, and each has its own laboratory. Ground level – eg. 1.3 million population area, 10-12 inspectors cover it. The processors themselves come to the labs voluntarily and seek certification. It didn't happen overnight. It took time. I believe it's possible – even in Bangladesh.

14) DGHS: The food inspectors are not given adequate budget and logistic support; sampling kits; regulation about sample size; etc. Will these components also be included in this Project? To strengthen the logistic capacity of the inspections and samples. We need support in the case of taking samples; sending samples; collecting reports; etc. there are some anomalies in this regard currently. It will hopefully be solved but it will not happen overnight.

    - Koyama: Yeah, it is quite important, so we will obviously include that component in the project.

15) Majumder: Actually, I support the project documents created so far and so I cannot contradict it. All I can say is that please try an accommodate the comments as much as possible.

16) Imrul: FAO has been involved in food safety area – even before the birth of BFSA. We have been making various "rules of the game" documents – i.e. rules and regulations and even some many that are pending as well. Especially for traceability, organic food, genetical modification, product recall, etc. some regulations we have taken the initiatives but have not implemented.

    For training, will we be focusing on the other higher-level officials, so their background may not be educated in food sciences since anyone of any background can be deputed. You will be training the lower-level staff but the decision makers will still be deputed and may not have any practical experience in food safety. How will you make sure that the higher-level officials are competent?

    - Koyama: I agree with what you said about continuing with the development of rules and regulations. But for the second point, the management is not controllable from JICA projects. I think the decision makers will be from administration background and if they do not have any knowledge then the technical or scientific guy can help them and make them understand the situation.

17) Monzur: Don't worry about that so much, those high-level posts will definitely be deputed. But there will be some basic in-house training to create a basic understanding within BFSA – if necessary, we will take help of JICA or other international organizations in the form of small projects.

    But the main point is that, most of the important decisions will be taken by the scientific committees and technical working groups. The top-level scientist and technical persons are

involved there – that committee will have the recommendations and way forwards. Those suggestions will be implemented by the administrative wings.

18) Masud: The officers will not be permanent – we will give them training then they will get transferred again – since they will not be permanent. There should be some provision for in house promotion for up to the post of Director – it will take some time, maybe 5-7 years but that can help with this issue.

19) Katsuki: Thank you for your time. We will try to accommodate all your comments and suggestions. Actually, this is not the end of the story, there are several steps to start our new project and of course, we need the approval of our goverment. If everything is approved, we will update you.

End of discussion

Annex

- **Participants list 1: Bangladesh Government**

	Organization	Title		Name
1	MOF	Additional Secretary		Khaja Abdul Hannan
2	BFSA	Chairperson		Syeda Sarwar Jahan
3	BFSA	Member, BFSA		Monzur Morshed Ahmed
4	BFSA	Member	Dr.	Md. Abdul Alim
5	BFSA	Deputy Secretary		Abu Hena Md. Mostafa Kamal
6	BFSA	Director, BFSA	Dr.	Sahadev Chandra Saha
7	BSTI	Assistant Director (CM)	Dr.	Md. Nozir Ahmmod Miah
8	BSTI	Deputy Director (Chemical)		Md. Gouranga Sekhan
9	DAE	Deputy Director, Plant Quarantine Wing	Dr.	A S M Abdur Razzaque
10	DoF	Quality Assurance Manager, Quality Control Laboratory		Md. Manik Mia
11	DoF	Director (PSO)		Kazi Iqbal Azam
12	DSCC	Health officer	Dr.	Fazle Shamsul Kabir
13	DGHS	Assistant Director (PHC)	Dr.	abul khair md rafiqul hyder
14	IPH	Director	Dr.	Sultan Md. Shamsuzzaman
15	IPH	Head, Food Safety Unit	Dr.	Shah Mahfuzur Rahman
16	IFST	Senior Scientific Officer	Dr.	Dr. Md. Nurul Huda Bhuiyan
17	BAPA	President		A F M Fakhrul Islam Munshi
18	BAPA	Executive Marketing		Evance Rozario

Participants list 2: International agencies

	Organization	Title	Name
1	FAO	Team Leader	A. K. M. Nurul Afsar
2	FAO	National Consultant	Md. Imrul Hasan
3	FAO	National Consultant	Md. Masud Alam
4	FAO	Food Safety/Quality Officer, APO	Shoko Kinoshita
5	Netherland	Senior Policy Advisor Food Security	A.K. Osman Haruni
6	USAID		Mohammad Shibly
7	SHP-BAPA	Chief Coordinator	Kbd. Md. Nurul Islam
8	JICA	Program Advisor	Ryuichi Katsuki
9	JICA	Deputy Program Officer	Mahedi Hasan
10	JICA Survey Team	Team Leader	Atushi Koyama
11	JICA Survey Team	Consultant	Kanako Tanigaki
12	JICA Survey Team	Senior advisor	Imam Ali Majumder
13	JICA Survey Team	Survey assistant	Waseq Billah
14	JICA Survey Team	Survey assistant	Tanjina Farhana Upoma