

Policy Innovations for Improving Food Safety in Bangladesh – A Mixed Method Study

By

Kazi Hafizul Amin
Student ID: 24172009

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of
Master of Arts in Governance and Development (MAGD)
Department of Governance and Development
BIGD, BRAC University

BRAC Institute of Governance & Development
BRAC University
Spring 2024

© 2025. Kazi Hafizul Amin
All rights reserved.

Declaration

I hereby declare that this thesis entitled “Policy Innovations for Improving Food Safety in Bangladesh – A Mixed Method Study” is my own original work and has been prepared to fulfill the partial requirements of the Master of Arts in Governance and Development (MAGD) degree at BIGD, BRAC University.

This work has not been submitted previously, in whole or in part, for the award of any other degree or diploma at this or any other institution.

All materials consulted and sources of information have been duly acknowledged.

I hereby certify that all information in this document is true to the best of my knowledge and belief.

Student Name: Kazi Hafizul Amin

Student ID: 24172009

Course: MAGD

Session: Spring 2024

Signature: _____

Date: _____

Approval Page

The thesis titled “Policy Innovations for Improving Food Safety in Bangladesh – A Mixed Method Study” submitted by Kazi Hafizul Amin (Student ID: 24172009, Course: MAGD, Session: Spring 2024) has been accepted as satisfactory in partial fulfillment of the requirements for the degree of Master of Arts in Governance and Development (MAGD) on [Defense Date].

Examining Committee:

Supervisor:
(Member)

M. Musharraf Hossain Bhuiyan
Senior Advisor, BRAC Institute of Governance and
Development
Former Cabinet Secretary, Government of Bangladesh
Former Alternate Executive Director, World Bank Group

Program Coordinator:
(Member)

Mohammad Sirajul Islam
Senior Academic Coordinator
BIGD, BRAC University

External Expert Examiner:
(Member)

Mehnaz Rabbani
Chairperson, MAGD Dissertation Viva Panel
Director, Operations, Strategy, and Partnership
BIGD, BRAC University

Departmental Head:
(Chair)

Imran Matin, PhD
Executive Director
BIGD, BRAC University

Ethics Statement

This research was conducted in full compliance with the ethical standards of BRAC University for postgraduate academic research. All study participants were informed about the purpose, scope, and voluntary nature of their participation, and their informed consent was obtained prior to any data collection. Confidentiality and anonymity were strictly maintained throughout the research process, and all personal or sensitive data were handled responsibly and securely.

The researcher confirms that no harm, coercion, or deception was involved in this study. All research procedures were reviewed and approved by the Department of Governance and Development, BIGD, BRAC University, ensuring adherence to the institution's ethical guidelines for social and governance research.

Any secondary data used in this study was obtained from publicly available and credible sources and were duly acknowledged. The researcher accepts full responsibility for adhering to ethical principles and standards throughout the duration of the study.

Acknowledgement

I would like to express my deepest gratitude to my supervisor, [Supervisor Name], for invaluable guidance, encouragement, and continuous support throughout the entire research process.

Their insightful feedback, patience, and expertise have been instrumental in shaping the quality of this thesis.

My sincere thanks go to the faculty members and administrative staff of the Department of Governance and Development, BIGD, BRAC University, for their academic guidance and logistical assistance during my studies.

I am also grateful to all respondents, key informants, and officials from various government and non-government organizations who generously shared their valuable time and insights, which greatly enriched the findings of this study.

Special appreciation is due to my classmates and peers in the MAGD program for their encouragement, collaboration, and constructive discussions that enhanced my learning experience.

Finally, my heartfelt thanks to my family for their unconditional love, patience, and unwavering support throughout my academic journey. Their constant motivation and prayers made this achievement possible.

Student Name: Kazi Hafizul Amin

Student ID: 24172009

Course: MAGD

Session: Spring 2024

Master of Arts in Governance & Development (MAGD)

BRAC Institute of Governance & Development

BRAC University

Abstract

Food safety has become a growing governance and public health concern in Bangladesh, affecting consumer confidence, export competitiveness, and overall quality of life. Despite policy reforms such as the National Food Safety Act 2013 and the establishment of the Bangladesh Food Safety Authority (BFSA), the effectiveness of food safety management remains limited due to weak institutional coordination, resource constraints, and inadequate public awareness.

This thesis examines the policy innovations that aim to strengthen food safety governance in Bangladesh through a mixed-method study combining qualitative and quantitative research approaches. Primary data was collected through interviews with policymakers, regulators, producers, and consumers, complemented by secondary data from government and international reports.

The analysis identifies three key dimensions of reform: (1) institutional collaboration and regulatory integration; (2) technological innovation, including digital monitoring and traceability; and (3) multi-stakeholder participation to ensure accountability and sustainability.

Findings indicate that while Bangladesh has made progress in establishing a legal framework for food safety, enforcement remains inconsistent across agencies.

Innovations such as risk-based inspection, public–private partnerships, and awareness campaigns show promise for scaling up through stronger policy alignment and capacity development.

The study concludes that food safety improvement in Bangladesh requires coordinated institutional reform, evidence-based policymaking, and citizen engagement to ensure sustainable outcomes.

Keywords: Food Safety, Policy Innovation, Governance, Bangladesh, Institutional Reform, Mixed Method

Executive Summary

This thesis, titled “Policy Innovations for Improving Food Safety in Bangladesh – A Mixed Method Study,” explores how policy reforms, institutional capacity, and technological interventions can strengthen food safety governance in Bangladesh. Food safety has emerged as a critical public concern in the country, with rising incidents of contamination, weak regulatory enforcement, and limited consumer awareness undermining public health and export competitiveness. Despite the existence of the National Food Safety Act (2013) and the establishment of the Bangladesh Food Safety Authority (BFSA), coordination gaps among regulatory agencies and insufficient institutional capacity continue to hinder effective implementation.

The research adopts a mixed-method approach, combining quantitative analysis of regulatory performance and enforcement data with qualitative insights from policymakers, regulators, food producers, and consumers. Field interviews, key informant discussions, and secondary document reviews were conducted to assess how existing policy tools, governance structures, and enforcement mechanisms are shaping food safety outcomes.

Findings reveal three overarching challenges:

1. Institutional Fragmentation – Multiple ministries and agencies share overlapping mandates, leading to weak coordination and accountability.
2. Resource and Capacity Gaps – Local inspectors and laboratories face shortages of technical expertise, testing facilities, and monitoring tools.
3. Public Awareness and Market Pressure – Limited consumer knowledge and inconsistent media coverage reduce demand for safe food practices and private-sector compliance.

However, several policy innovations demonstrate promise. Digital traceability systems piloted by the BFSA, risk-based inspection models, and public–private partnerships in awareness campaigns have improved efficiency and transparency in select districts. These cases highlight the potential for scalable, technology-driven solutions integrated within the national regulatory framework.

The study recommends a phased policy implementation strategy that prioritizes:

- Establishment of an inter-ministerial Food Safety Coordination Council to harmonize mandates and improve accountability.
- Investment in digital monitoring tools for data-driven enforcement.
- Expansion of risk-based inspection models to all major municipalities.
- Continuous capacity building for local enforcement officers and laboratories.
- Integration of public education campaigns to enhance consumer demand for safe food practices.

The research concludes that improving food safety in Bangladesh requires more than legal reform; it demands sustained institutional innovation, multi-stakeholder collaboration, and public engagement. A coherent national strategy that combines regulatory rigor with participatory governance will be essential to ensure safer food systems, healthier citizens, and stronger economic outcomes.

Summary of Findings and Policy Implications ,,,,,

This study explores the dynamics of food safety governance in Bangladesh, identifying how policy innovation, institutional collaboration, and technological reform can enhance regulatory performance and public confidence. Using a mixed-method research approach, the study analyzed quantitative data from institutional reports and qualitative insights from interviews with policymakers, regulators, food producers, and consumers.

Summary of Findings

The research reveals three major findings:

1. **Institutional Fragmentation** – Food safety regulation in Bangladesh is spread across multiple ministries and agencies, leading to overlapping responsibilities, weak coordination, and policy inconsistencies. The Bangladesh Food Safety Authority (BFSA) plays a central role but requires stronger inter-ministerial collaboration.
2. **Resource and Capacity Constraints** – Many local inspection offices lack trained personnel, laboratory facilities, and digital monitoring tools. This gap hinders consistent enforcement and data-driven decision-making.
3. **Emerging Innovations** – Pilot programs involving digital traceability, risk-based inspections, and public-private partnerships show potential for broader application. However, scaling these innovations requires supportive legal frameworks and institutional capacity-building.

Policy Implications

Based on the above findings, the study recommends:

- **Integrated Governance:** Establish an inter-ministerial Food Safety Coordination Council under the Cabinet Division to harmonize mandates and reduce bureaucratic overlap.
- **Digital Transformation:** Expand digital monitoring and traceability systems to all major municipalities to enable real-time data collection and analysis.
- **Capacity Enhancement:** Invest in training of food safety inspectors, laboratory technicians, and policymakers through continuous professional development programs.
- **Stakeholder Collaboration:** Engage civil society, academia, and the private sector in co-designing policies and awareness campaigns.
- **Public Awareness and Education:** Strengthen consumer-oriented programs to increase demand for safe food and encourage private-sector compliance.

Conclusion

The research concludes that sustainable food safety governance in Bangladesh depends on institutional innovation, evidence-based policymaking, and citizen participation. By embedding these principles within national strategies, Bangladesh can ensure safer food systems, enhance consumer trust, and align with global food safety standards.

Contents

Declaration	i
Approval Page	ii
Ethics Statement	iii
Acknowledgement	iv
Abstract	v
Executive Summary	vi
Summary of Findings and Policy Implications.....	viii
1. Introduction and Background.	1
2. Relevance of the Policy Issue to Contemporary Challenges.	1
1.1 Lack of Public Awareness:	1
1.2 Lack of Proper Monitoring and Training:.....	2
1.3 Health Impacts:	2
1.4 Economic Consequences:.....	2
1.5 Globalization and Urbanization:.....	2
1.6 Climate Change:	3
3. Clear Articulation of the Problem, Objectives, and Proposed Approach.....	3
3.1 Problem Statement:	3
3.2 Research Questions:.....	3
3.3 Objectives:.....	3
3.4 Proposed Approach and Methodology:.....	4
3.5 Sample Size & Sampling Technique:.....	4
3.6 Data Collection and Analysis	5
4. Feasibility of Addressing the Issue Within the Time Frame of December 2024 to May 2025.....	6
4.1 The outcome of three categories of stakeholders	7
4.2 Result from high official respondent.....	23
5. Policy Recommendations for Improving Food Safety in Bangladesh	37
5.1 Policy Options with Corresponding Impacts and PEST Analysis.....	38
5.2 Risk Assessment of National Public Awareness & Education Campaign.....	39
5.3 PEST Analysis Scoring of Policy Options	40
5.4 PEST Analysis Scoring of Policy Options	42
5.5 Multi-Criteria Analysis (MCA) of Policy Options.....	42
5.5 Comparison of Policy Options	43
5.8 Preferred Policy Option	45
5.9 Risk Assessment of National Public Awareness & Education Campaign.....	45

5.10 Summary	46
5.11 Recommendations	47
5.12 Conclusion.....	48
Annotated Bibliography:	49

Title: Policy Innovations for improving Food Safety in Bangladesh -A Mixed Method Study

1. Introduction and Background.

Food safety is a critical public health concern that directly impacts the well-being of a nation's population [1]. In Bangladesh, the challenge of ensuring safe and nutritious food is compounded by rapid urbanization, a large informal food sector, and inconsistent enforcement of regulations. Over the years, food safety issues such as contamination, adulteration, improper handling, and lack of consumer awareness have led to foodborne diseases, posing a significant burden on the healthcare system and economy [2].

Bangladesh is one of the most populous countries in the world, with a growing middle class, a large agricultural base, and a complex food supply chain. However, food safety practices often fail to meet international standards, resulting in increased risks of foodborne illnesses. Moreover, the absence of a robust regulatory framework, weak monitoring, and limited public awareness exacerbate the situation [3, 4].

This proposal aims to explore the current food safety landscape in Bangladesh, identify policy gaps, and suggest measures to improve food safety by shaping a comprehensive national policy. The focus will be on developing a feasible policy framework that addresses both regulatory and operational issues while being adaptable to the unique socio-economic and cultural context of Bangladesh.

2. Relevance of the Policy Issue to Contemporary Challenges.

The relevance of food safety in Bangladesh is underscored by several contemporary challenges:

1.1 Lack of Public Awareness:

There is comparatively less awareness about safe and pure food in Bangladesh. In 1971, after independence, food grain production in Bangladesh was 11 million metric tons (Food Grains: Rice, Wheat, and Maize). At that time, the population was 70 million [5]. The per capita cultivable land area was 28%. Currently, the per capita cultivable land area is 8 Katha, and the current population is nearly 180 million. This means that the per capita land area has decreased by 20% [5]. However, although the land area has decreased, the population has increased significantly. To meet the food demands of this growing population, pesticides and chemical fertilizers have been used indiscriminately in food production. Through the excessive use of chemical fertilizers and pesticides, we have increased production and ensured food security for the population, but in doing so, the issue of safe and pure food has always been neglected in Bangladesh. As a result, safe food has become one of the most discussed and important issues in the current context of Bangladesh.

1.2 Lack of Proper Monitoring and Training:

Although the Plant Quarantine Act, 2011 exists in our country, its rules have not yet been formulated. As a result, the effectiveness of this law is absent. Due to a shortage of manpower, limited resource persons, and inadequate involvement of law enforcement agencies, we are unable to properly examine the quality of food imported from abroad at the Quarantine Stations established at our international ports. Moreover, rice is the main staple food in our country. Many hybrid rice varieties are produced here, but there is no hybrid rice available in the market. Additionally, no Miniket variety of rice is produced in the country, yet rice branded as Miniket is found in the market. The reason for this is that auto rice mills, while processing different types of rice, are deteriorating the quality of the rice. The antioxidant layer on the rice is being separated as rice bran, which is then used as poultry feed or fish food. Furthermore, to make the rice finer and thinner, the amount of this layer is reduced, which results in the loss of the rice's nutritional value. Additionally, to make the rice whiter and more visually appealing, automatic rice mill owners are using water mixed with urea, which is extremely harmful to health. On the other hand, although there is a pesticide law, the rules have not yet been established. In our neighboring country, India, anyone who wishes to become a pesticide dealer must complete at least a diploma course in agriculture. However, in our country, most pesticide dealers are either under-educated or uneducated. They are not aware of the proper storage, marketing, or supply regulations for pesticides [2]

1.3 Health Impacts:

Foodborne diseases (FBDs) are a leading cause of morbidity and mortality, particularly among vulnerable groups such as children, the elderly, and pregnant women. According to the World Health Organization (WHO), FBDs in Bangladesh account for a significant proportion of public health burdens. Inadequate food safety contributes to these high rates, causing increased healthcare costs and lost productivity.

1.4 Economic Consequences:

The food industry, both formal and informal, is a vital sector of the Bangladeshi economy. However, the lack of food safety measures diminishes consumer confidence and reduces exports, especially to markets with stringent food safety standards, such as the European Union and the United States.

1.5 Globalization and Urbanization:

Rapid urbanization and changing consumption patterns have shifted food sourcing and distribution networks. The informal sector, which constitutes a large portion of food handling and sales, is often unregulated and lacks sufficient oversight. These challenges make it imperative to design a policy framework that addresses both formal and informal food sectors.

1.6 Climate Change:

Environmental changes, such as flooding, droughts, and cyclones, further threaten food safety by affecting crop yields, increasing contamination risks, and impacting food storage and transportation systems.

Thus, improving food safety is critical for public health, economic development, and consumer trust. Policy intervention is needed to address existing gaps, create awareness, strengthen enforcement, and promote safer food practices.

3. Clear Articulation of the Problem, Objectives, and Proposed Approach.

3.1 Problem Statement:

The core problem is the insufficient food safety infrastructure in Bangladesh, leading to high incidences of foodborne illnesses, public health crises, and barriers to international food trade. There is a lack of comprehensive policies that address food safety across the entire food supply chain, ranging from production to consumption.

3.2 Research Questions:

- ❖ What are the major gaps in Bangladesh's current food safety policies and regulations?

3.3 Objectives:

3.3.1 General Objective:

To assess the major gaps in Bangladesh's current food safety policies and regulations.

3.3.2 Specific Objectives:

- To assess the current state of food safety policies in Bangladesh.
- To identify gaps in the enforcement of food safety regulations.
- To recommend policy interventions and institutional frameworks for improving food safety.
- To propose strategies for raising public awareness and promoting safer food handling practices.
- To develop a comprehensive policy proposal that balances regulation, enforcement, and public education.

3.4 Proposed Approach and Methodology:

This research will use a mixed-methods approach, combining both qualitative and quantitative data collection to assess the current state of food safety in Bangladesh and formulate recommendations.

Fieldwork: Surveys and interviews will be conducted with key stakeholders such as government officials, food safety experts, policymakers, food industry representatives, and consumers. This will help to gather practical insights into the challenges and barriers faced in implementing food safety measures.

Case Studies: Comparative case studies from countries with effective food safety frameworks (e.g., India, Thailand) will be analyzed to derive lessons for Bangladesh.

Policy Analysis: Using policy analysis tools, this study will examine existing policies and suggest reforms to improve food safety governance, enforcement mechanisms, and stakeholder cooperation.

3.5 Sample Size & Sampling Technique:

Quantitative Part:

For Quantitative Method we will select Farmers, Sub-Assistant Agriculture officers (Previously known as block Supervisor), Pesticide Dealers. We will use multi-stage random sampling method to select our sample. At 1st we will select Four Divisions, We will randomly select a district from each division. Then we will randomly select a upazila from each district and then we will randomly select a union from each upazila. Thus we will randomly select three farmers, two Sub Assistant Agriculture officers, two pesticide Dealers from each union (Total 28 study Participant). Face to face interview will be taken by semi-structure questionnaire for quantitative portion from the above mentioned 28 study participants.

Qualitative Part:

Key informant interviews (KII) will be taken from the following personnels for the qualitative portion:

- 1 Director General (DG), Department of Agriculture Extension, Khamarbari, Dhaka.
2. Additional Director General, Department of Agriculture Extension, Khamarbari, Dhaka
3. Additional Director, Dhaka Region, Department of Agriculture Extension,
4. Deputy Director, Department of Agriculture Extension, Gazipur
5. Deputy Director, Quarantine wing , DAE, Hazrat Shahjalal International Airport
6. Sanitary Inspector, Gazipur District
7. Deputy Director, Directorate of National Consumer Rights Protection
8. Additional Director (Enforcement), Bangladesh Pure Food Authority

3.6 Data Collection and Analysis

Surveys and Interviews: Semi-structured interviews will be conducted with key informants from health ministries, food regulatory authorities, and consumer groups. A survey will also be administered to food businesses and retailers to gauge compliance with food safety standards.

Qualitative Analysis: Interviews will be transcribed and coded to identify recurring themes, challenges, and policy gaps.

Quantitative Analysis: Statistical methods will be used to analyze survey data to identify trends and areas requiring policy intervention.

References:

- World Health Organization (WHO). (2020). Food Safety: A Shared Responsibility. Geneva: World Health Organization.
- Hossain, M. (2019). Foodborne Diseases and their Impact on Public Health in Bangladesh. Journal of Public Health and Nutrition, 8(2), 128-136.
- FAO & WHO. (2020). The State of Food Safety around the World. Rome: FAO.
- Bangladesh Food Safety Authority (BFSA). (2022). Annual Report on Food Safety Compliance. Dhaka: BFSA.
- BBS Report, 2023

4. Feasibility of Addressing the Issue Within the Time Frame of December 2024 to May 2025.

The time frame from December 2024 to May 2025 is sufficient for completing this policy research, which involves both primary and secondary data collection, analysis, and the development of policy recommendations. Below is a Gantt chart outlining the major tasks and milestones for the proposed study:

GANTT chart:

2025						
Quarter	December 2024	January 2025	February 2025	March 2025	April 2025	May 2025
Literature review						
1 st draft of concept note						
Submission of concept note						
Prepare proposal for submission						
Submission of proposal						
Field preparation and pretesting						
Data collection						
Data entry and cleaning						
Data analysis and Result preparation						

Policy memo writing starts						
Submission of completed policy memo to supervisor						
Thesis defense and comprehensive viva						

Credit Hours:

This study is expected to be completed within 6 months, with a workload equivalent to a full semester of work (approximately 9 (Nine) credit hours), requiring active engagement in data collection, analysis, and policy formulation.

4.1 The outcome of three categories of stakeholders

4.1.1. Age distribution

There were 45 participants representing three categories ie., Farmers, Sub Assistant Agriculture Officers (SAAOs), and Food dealers. Age distribution indicated that large proportion of farmers (46.67%) and SAAOs (53.33%) were found to be within the 31–45 years age, while more of the traders (46.67%) were made up of the 18–30 and 31–45 years in equal proportion. It would therefore appear that agricultural extension is dominated by middle-aged adults who may have spent a considerable amount of time on the field, compared to food distribution which seem to involve relatively younger people.

Table 4.1.1. Age distribution of the respondents

Categories	Categories	Frequency	Percentage	Mean	Standard Deviation
Farmer	18-30	3	20.00		8.54
	31-45	7	46.67	41.56	
	Over 45	5	33.33		
	Total	15	100.00		
SAAO	18-30	5	33.33		7.43

	31-45	8	53.33	38.12	
	Over 45	2	13.33		
	Total	15	100.00		
Dealers	18-30	7	46.67		6.49
	31-45	7	46.67	35.88	
	Over 45	1	6.67		
	Total	15	100.00		

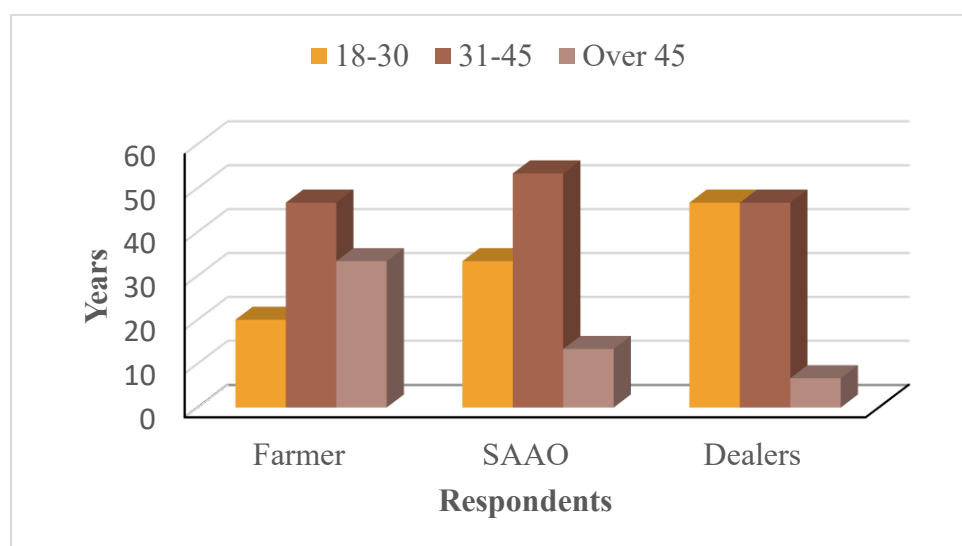


Figure 4.1.1 Age distribution of respondent

4.1.2. Gender distribution

Gender distribution (Table 4.1.2) is characterized by male preponderance, especially in the dealers (100% males). Presence of Females Of the incriminated occupations only SAAOs (40%) and farmers (26.67%) had a significant participation of female numbers.

Table 4.1.2. Gender distribution of the respondents

Categories	Farmer		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Male	11	73.33	9	60.00	15	100.00

Female	4	26.67	6	40.00	0	0.00
Others	0	0.00	0	0.00	0	0.00
Total	15	100.00	15	100.00	15	100.00

4.1.3. Education of the respondents

The crazy train wants to lower the bar for all the other riders and make them topple off: “The level of education (Table 4.1.3) revealed that all SAAOs were highly educated, whilst the farmers had lower educational status of party despite being able to produce. ” All the tray tables are in the up position, that, and 20% of the farmers had no education while 40% had only received primary education.” Education level among dealers was evenly distributed, as 53.33% had secondary education, while 46.67% had tertiary education.

Table 4.1.3. Education of the respondents

Categories	Farmer		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
No formal education	3	20.00	0	0.00	0	0.00
Primary	6	40.00	0	0.00	0	0.00
Secondary	5	33.33	0	0.00	8	53.33
Higher education	1	6.67	15	100.00	7	46.67
Total	15	100	15	100	15	100

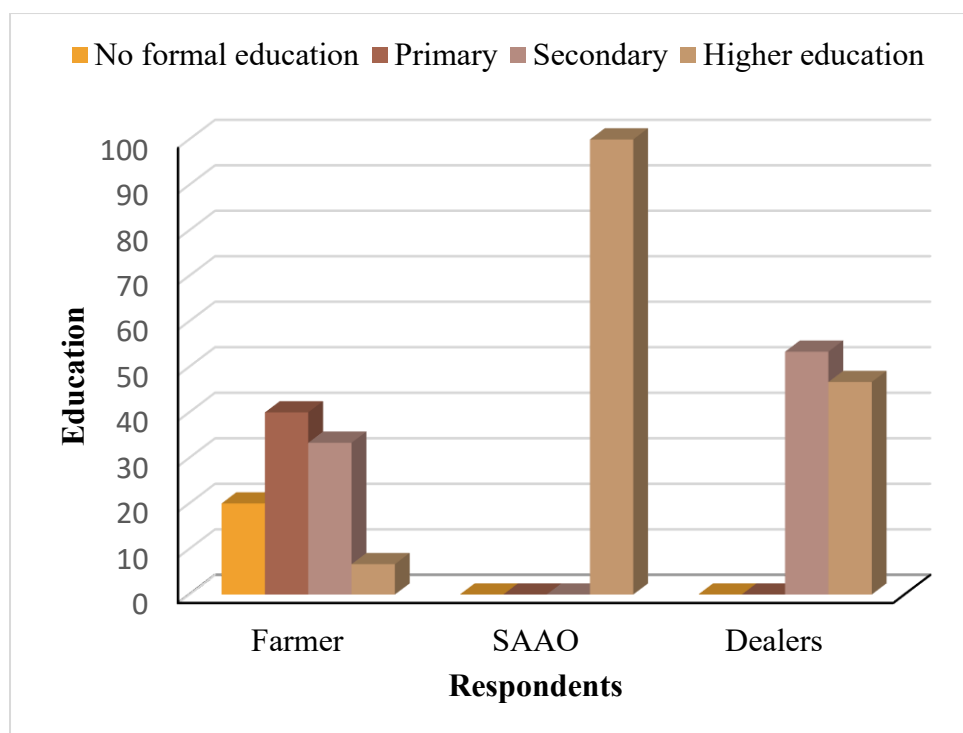


Figure 4.1.2 Education distribution of respondent

4.1.4. Location of the respondents

With regard to location (Table 4.1.4), the location of Decentralized system of agriculture and service delivery farmer majority of the farm (86.67%) in rural area, SAAOs in semi-urban area (80%) and dealer in mainly in semi-urban area (86.67%).

Table 4.1.4. Location of the respondents

Categories	Farmer		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Urban	0	0.00	0	0.00	2	13.33
Semi-urban	2	13.33	12	80.00	13	86.67
Rural	13	86.67	3	20.00	0	0.00
Total	15	100.00	15	100.00	Total	100.00

4.1.5. Awareness of food safety issues

It can be observed from the data presented in (Table 4.1.5) that most of the farmers possess low and medium awareness about food safety whereas SAAOs and suppliers have better awareness. In particular, 53.33% of dealers and 20% of SAAOs revealed a “very high” level of awareness, while none of the farmers displayed the same. This is indicative of a knowledge gap that these scores may be influenced by the level of experience and education having on these names heard by these study participants.

Table 4.1.5. Awareness of food safety issues in Bangladesh of different respondents

Categories	Farmer		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Very low	2	13.33	0	0.00	0	0.00
Low	7	46.67	0	0.00	0	0.00
Medium	4	26.67	7	46.67	2	13.33
High	2	13.33	5	33.33	8	53.33
Very high	0	0.00	3	20.00	5	33.33
Total	15.00	13.33	15.00	100.00	15.00	100.00

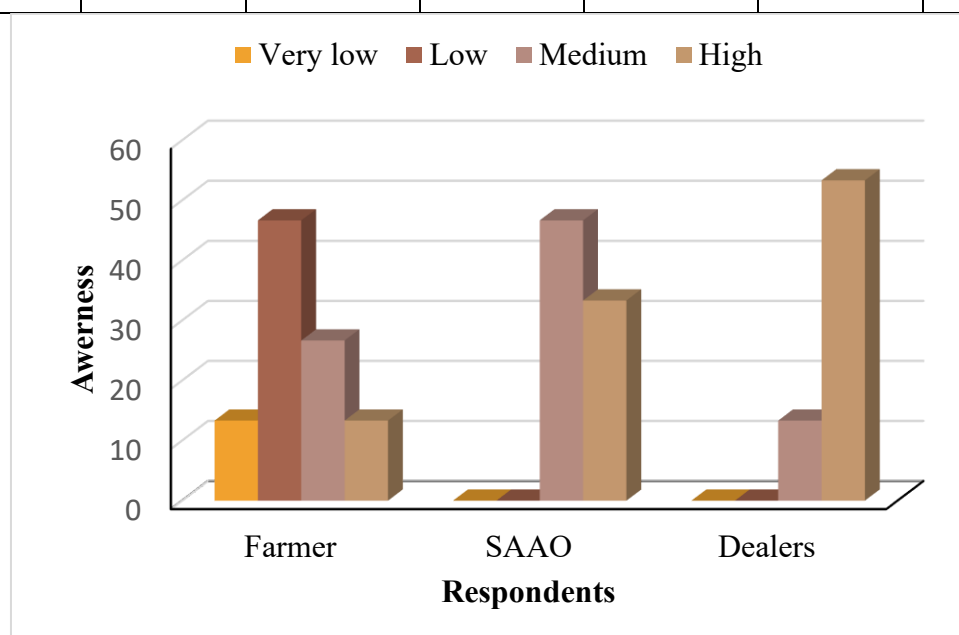


Figure 4.1.3 Awareness of food safety issues distribution of respondent

4.1.6. Information about food safety

Source of information on the source of information (Table 4.1.6), TV/radio were the main sources for farmers (80%), whereas for SA/AAOs and dealers, it was a combination of social media, newspapers and government campaigns. Surprisingly, government campaigns were not used by farmers at all (i.e. 0%), indicating a missing link in the communication at grassroots level.

Table 4.1.6. Opinion of respondents for getting information about food safety

Categories	Farmer		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
TV/Radio	12	80.00	3	20.00	7	46.67
Social media	2	13.33	3	20.00	3	20.00
Newspapers	1	6.67	3	20.00	3	20.00
Government campaigns	0	0.00	3	20.00	2	13.33
Community programs	0	0.00	3	20.00	0	0.00
Total	15.00	100.00	15.00	100.00	15.00	100.00

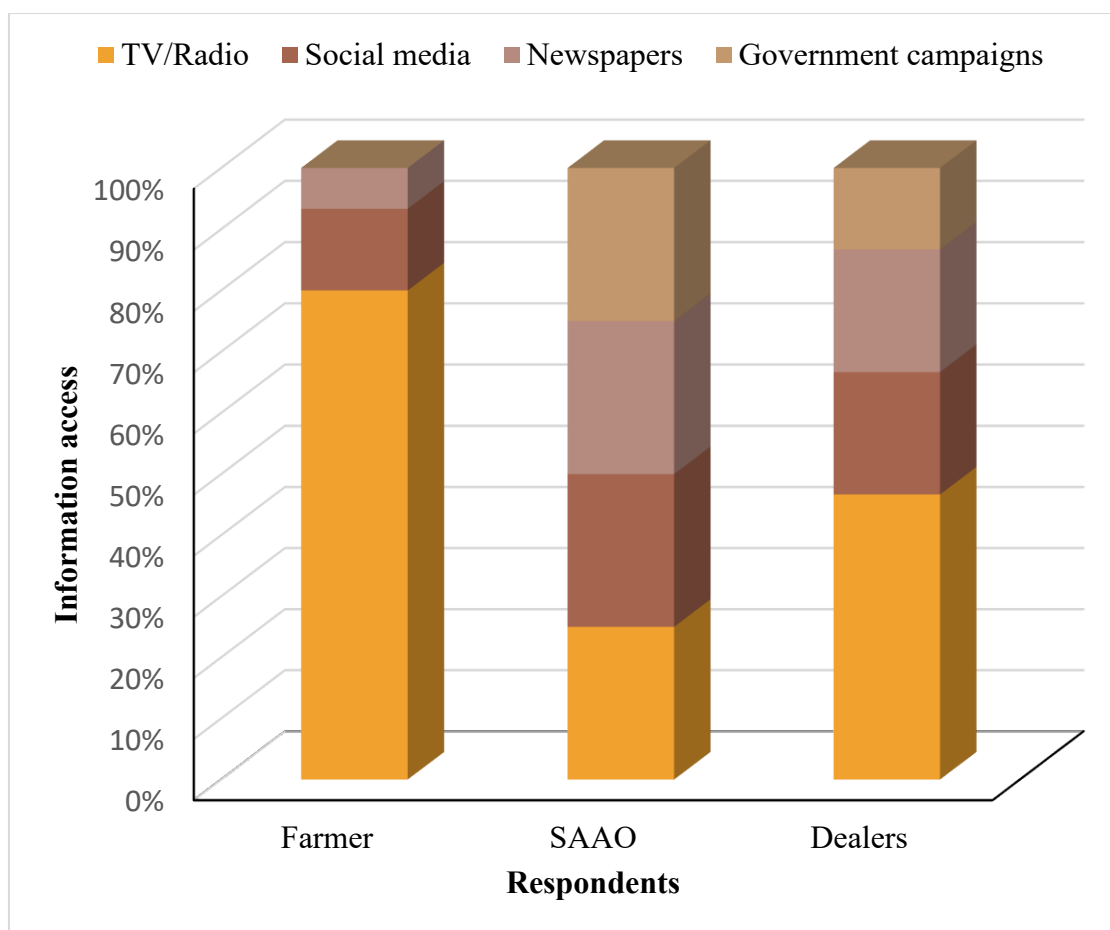


Figure 4.1.4 Getting information about food safety of respondent

4.1.7. food contamination or foodborne illness

There were no differences among groups in the proportion of all respondents who had experienced a food contamination or foodborne illness event in the previous year (Table 4.1.7). Despite so, attitudes towards food safety regulations were mostly poor.

Table 4.1.7. Opinion of respondents for food contamination or foodborne illness in the past year

Categories	Farmer		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Yes	15	100.00	15	100.00	15	100.00
No	0	0.00	0	0.00	0	0.00

4.1.8. Effectiveness of current food safety policies in Bangladesh

Respondents' views about the responsibility of institutions in controlling food safety was similar although there was some divergence from this consensus (Table 4.1.8). The Bangladesh Food Safety Authority (BFSA) was predominantly acknowledged as the key governing body, according to 100% of SAAOs and dealers and 73.33% of farmers. This is an indication of the increased recognition of the BFSA's crucial role within national food safety governance. A large number from all three groups-86. also mentioned the role of local municipalities (associating with animals at the community level).

It is noteworthy that no participant mentioned the Ministry of Health as a key player, indicating the participants' lack of knowledge of the Ministry's mandate to regulate, or the general public's limited involvement with this institution's work on food safety issues. Dealers' perception of stakeholders in food safety and food provision In both groups of dealers, only 20% identified food producers/vendors as stakeholders holding role in responsibility of food safety, none of the farmers or SAAOs did and no one mentioned consumers as stakeholders. This is regarding the disturbing prevalence of the lack of awareness on the shared responsibility all along the food chain, particularly within what is being produced and consumed. The data reveal a perception of pronounced top-down governance and low engagement of stakeholders at the production and consumption sides. Strengthening food safety requires the need for increasing the accountability and involvement of food handlers, vendors, and the public, as well as formal authorities.

Table 4.1.8. Opinion of respondents the effectiveness of current food safety policies in Bangladesh

Categories	Farmer		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Very ineffective	0	0.00	0	0.00	0	0.00
ineffective	11	73.33	5	33.33	2	13.33
Neither ineffective nor effective	4	26.67	4	26.67	7	46.67

effective	0	0.00	6	40.00	6	40.00
Very effective	0	0.00	0	0.00	0	0.00
Total	15.00	100.00	15.00	100.00	15.00	100.00

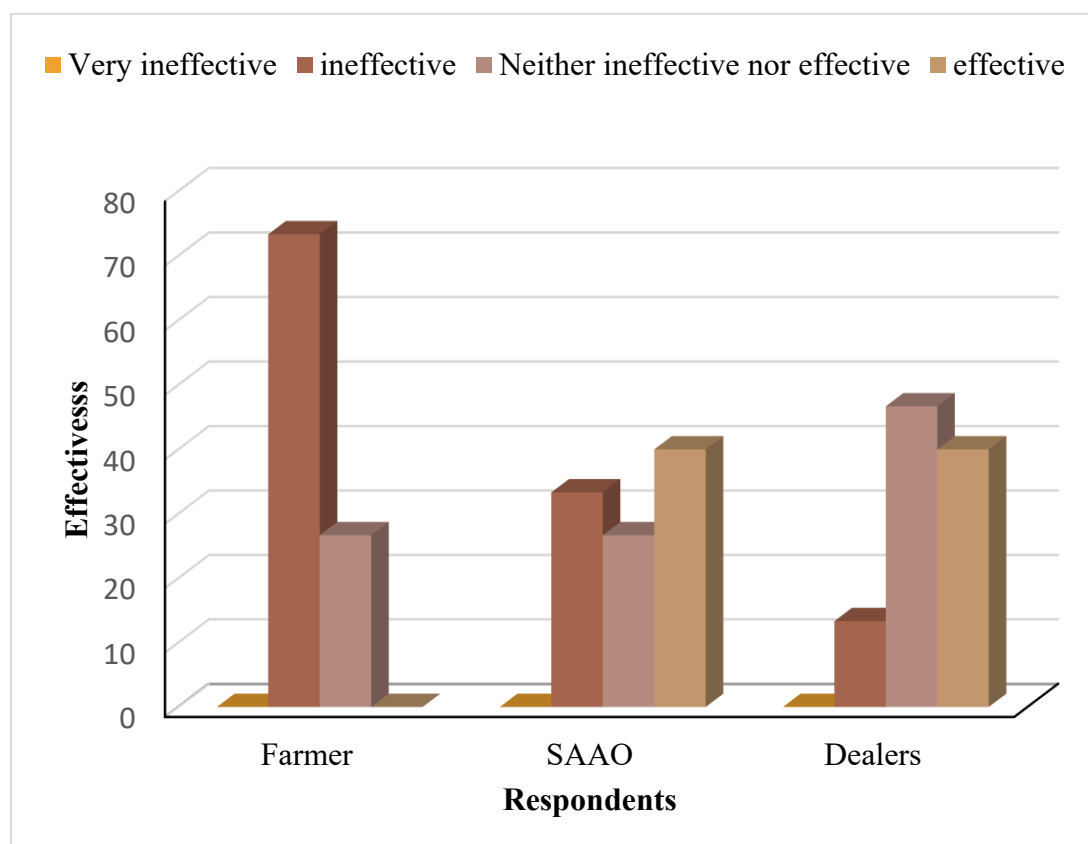


Figure 4.1.5 Effectiveness of current food safety policies in Bangladesh

4.1.9. Responsible authority for ensuring food safety

The description above of the responds in Table 4.1.9 suggests stakeholder groups held different perspectives about institutional responsibility related to food safety in Bangladesh. The Bangladesh Food Safety Authority (BFSA) was mentioned as the predominant regulator in 100% of those surveyed who were SAAOs and dealers, 73.33% of farmers in total. Such high recognition demonstrates the increasing prominence and the significance of BFSA as the architect of food safety policies and enforcements in the country.

Furthermore, the local level was considered by 86.67% of respondents between all three groups as largely responsible, demonstrating great importance placed on local governance

and enforcement mechanisms. This might be due to the stakeholders' having refrequently interaction with the municipal authorities for licensing, inspection and waste management etc.

In contrast, none of the groups rated the Ministry of Health or consumers as having the main responsibility. This finding is remarkable, especially as food-borne diseases are priority among public health problems and Ministry of Health is directly responsible for surveillance and response. The total exclusion of consumers as participants in food safety demonstrates a structural deficiency in terms of public understanding concerning shared responsibility and citizen-consumer liability in the food chain.

Curiously, while food producers/vendors were most commonly stated to be at fault, over 80 % of traders never cited food producers/vendors to be responsible, and none of the farmers and SAAOs did so. This failure to attribute implies a gap in acknowledgement of vendors and producers as essential actors in ensuring food in the supply chain is safe and clean. These findings underscore the urgent necessity of raising consciousness on the shared and multi-level dimension of food safety responsibilities. Training of producers and consumers and institutional collaboration between national and local stakeholders will also be important for building an enabling and functional food safety governance system in Bangladesh.

Table 4.1.9. Opinion of respondents for primarily responsible authority for ensuring food safety

Categories	Farmer		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Ministry of Health	0	0.00	0	0.00	0	0.00
Bangladesh Food Safety Authority (BFSA)	11	73.33	15	100.00	15	100.00
Local municipalities	13	86.67	13	86.67	13	86.67
Food producers/vendors	0	0.00	0	0.00	3	20.00
Consumers	0	0.00	0	0.00	0	0.00

4.1.10. Major food safety challenges in Bangladesh

The hundred farmers, 73.33% SAAOs and 80% dealers expressed their concern about pesticides and harmful chemicals in food production. This high level of concern among farmers is not surprising as they apply the pesticides themselves. The replies demonstrate a growing concern on the dangers of uncontrolled or incorrect use of agrochemicals on health and the ecosystem.

Someone checking and the monitoring and control mechanisms are another major issue identified by 93.33% farmers and 100% SAAOs and 100% dealers. This wide-ranging consensus within society underlines systemic failure within regulatory control and field level enforcement. If it is not sufficiently monitored, even well-meaning policy will fail, and here unsafe practices go from production to distribution. Incorrect hygiene in processing of foods was frequently quoted, particularly among farmers (66.67%), SAAOs (60%) and dealers (46.67%). This data indicates that post-harvest management practices (referring to transportation, packaging and storage) are not optimal and risky of contaminations is high especially at market and retail level.

The feeling of insufficient law or policy differed between sectors: 46.67% of the farmers mentioned it compared to 73.33% of the SAAOs and as much as 93.33% of the dealers. This indicates that law makers and other industry participants have a better understanding of regulatory gaps and policy failures relative to non-law-making actors, revealing a potential gap between evidence-based policy making and stakeholder involvement. Unawareness regarding consumers and vendors was mentioned by farmers (33.33), SAAOs (40.00 and dealers (53.33). 'There is an understanding particularly of those towards the retail end of the supply chain, that public knowledge and behavior has a lot to do with upholding food safety.

Altogether, these results indicate a mosaic, multi-faceted food safety situation in Bangladesh. Technical (chemical use, hygiene) and institutional (policy, monitoring, awareness) constraints were raised by stakeholders. To solve these problems, we should take collaborative efforts such as enhancing regulatory enforcement, advocating for the use of safer pesticides, improving the training of vendors and raising public consciousness. Notably, there is no

onesize- fits-all response and policy solutions need to be customized for different stakeholder realities and informed by localized education, tracking systems, and infrastructure investment

Table 4.1.10. Opinion of respondents for the major food safety challenges in Bangladesh

Question	Farmers		SAAO		Dealers	
	Frequen cy	Percenta ge	Frequen cy	Percenta ge	Frequen cy	Percenta ge
Use of pesticides/chemicals	15	100.00	11	73.33	12	80.00
Poor hygiene in food handling	10	66.67	9	60.00	7	46.67
Lack of monitoring/enforce ment	14	93.33	15	100.00	15	100.00
Inadequate laws or policies	7	46.67	11	73.33	14	93.33
Lack of awareness among consumers/vendors	5	33.33	6	40.00	8	53.33

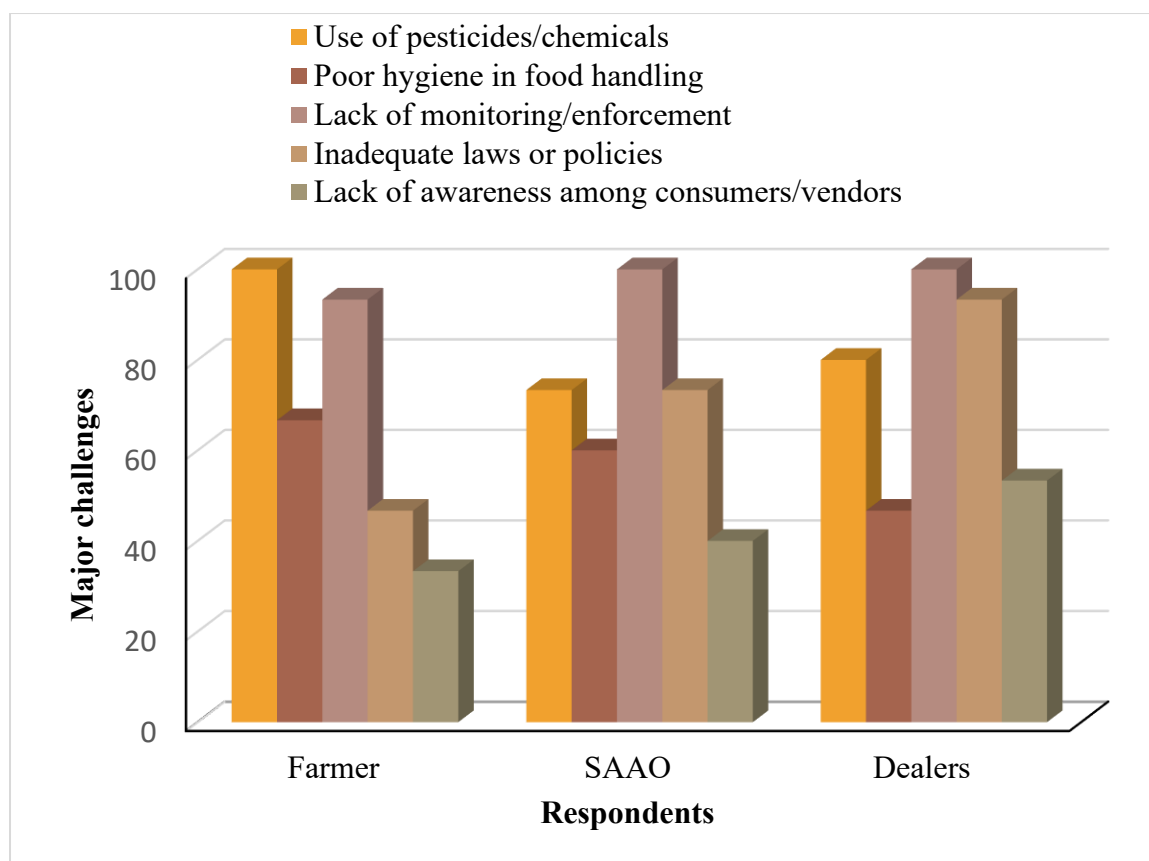


Figure 4.1.6 Major challenges of current food safety policies in Bangladesh

4.1.11 Awareness of food safety policies or innovations

Surprisingly, in response to the query about any innovations or policy changes being made, not one of the respondents in any category had any inkling that such had occurred (Table 4.1.12), which serves to demonstrate that there was significant separation between policy advancement and stakeholder information.

Table 4.1.11 Opinion of respondents of awareness of any recent food safety policies or innovations

Question	Farmers		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Yes	0	0	0	0	0	0
No	15	100.00	15	100.00	15	100.00

4.1.12 Introduction of digital tracking systems

Although awareness of policies was low, there was strong support for digital systems for tracing links (Table 4.1.13). Integration was unanimously (100%) supported by the farmers with majority of SAAOs (86.67%) and the dealers (80%) favored the integration. Innovations like trainings of vendors to ensure food safety and community-based monitoring were also strongly endorsed, particularly among farmers and SAAOs.

Table 4.1.12 Opinion of respondents to the introduction of digital tracking systems for food production and supply chains

Question	Farmers		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Strongly oppose	0	0.00	0	0.00	0	0.00
Oppose	0	0.00	0	0.00	0	0.00
Neutral	0	0.00	0	0.00	1	6.67
Support	15	100.00	13	86.67	12	80.00
Strongly support	0	0.00	2	13.33	2	13.33

4.1.13 Innovations of improve food safety

Regarding the proposed innovations, food safety training for vendors had the highest approval taking 93.33% of farmers, and 100% for SAAOs and dealers. SUPPORT ACROSS PANELS AND from Vendors A uniform pass across all panels is clear testimony to a unified concept of vendors equipped with shop floor understanding on hygiene, contamination prevention and a knowledge how to handle contaminants. Prominently, however, it indicates that there is a general perception among stakeholders that training is regarded as a doable and effective intervention for raising up food safety compliance in the field.

Community- based monitoring was equally commonly preferred, particularly among 100% of farmers and SAAOs, and 53.33% of dealers. This reflects the increased acceptance of local surveillance systems in which the community is encouraged to be involved in surveillance to

monitor unsafe practices. This, it said, could facilitate early identification and reporting of food safety transgressions and transparency in the food chain.

Technology based solutions Mobile applications for the customer SAAOs were found to be fully accepted (100%) followed by dealers (73.33 per cent) and only 40 per cent of the farmers. Likewise, digital traceability systems allowing food product tracking from supply chain were preferred by 73.33% SAAOs, 60% dealers and again only 40% farmers were in favor. The relatively low acceptance among farmers may be associated with the limited exposure to digital technologies, low digital literacy, or worries about the complexity of implementing digital in rural conditions.

Table 4.1.13 Opinion of respondents of innovations for improving food safety

Question	Farmers		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Mobile apps for consumer reporting	6	40.00	15	100.00	11	73.33
Digital traceability systems	6	40.00	11	73.33	9	60.00
Food safety training for vendors	14	93.33	15	100.00	15	100.00
Incentives for clean and safe food handling	5	33.33	9	60.00	15	100.00

Community -based monitoring	15	100.00	15	100.00	8	53.33
-----------------------------------	----	--------	----	--------	---	-------

4.1.14 Role of the government for improving food safety

The public education campaign strategy was overwhelmingly supported, with 100% of respondents in each group (farmers, SAO's and dealers) being in favour of this approach. It speaks to a widespread recognition that ignorance on the part of both consumers and manufacturers and retailers is the paramount obstacle to ensuring the safety of food. There is clearly an agreement among stakeholders that long-term progress depends on behavior change and knowledge sharing.

Tougher government regulation was strongly endorsed as well. All SAAOs and dealers (100%) and majority of farmers (73.33%) recommended for strong enforcement. This strong support received from the regulators and the market place indicates a call for a more transparent and rule-based food safety governance system in which violations are consistently identified and punished. A somewhat less consensus response from farmers might indicate concerns over regulatory load or limited interaction with enforcement schemes.

Technology investment for technology investment as another top government responsibility, the agreement of SAAOs and dealers (100%) was full but of farmers was moderate (53.33%). The discrepancy likely underscores a digital divide-farmers are not as connected to or familiar with digital food safety tools reported, such as tools for digital traceability or mobile surveillance. This indicates the need for universal design of technology interventions, coupled with training and infrastructure support at the rural level.

Collaboration with NGOs and private sector received high level endorsements as well-93.33% SAAOs, 80% dealers and 60% farmers were in favour of working with such partners. These results suggest that the majority of the stakeholders recognize the importance of multidisciplinary collaboration to resolve food safety problems more effectively. At the community level, NGOs have a critical role to play in awareness raising, while in the private sector, innovation, training and investment can help.

Table 4.1.14 Opinion of respondents about role of the government for improving food safety

Question	Farmers		SAAO		Dealers	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Stricter regulation	11	73.33	15	100.00	15	100.00
Public education campaigns	15	100.00	15	100.00	15	100.00
Investment in technology	8	53.33	15	100.00	15	100.00
Collaboration with NGOs/private sector	9	60.00	14	93.33	12	80.00

4.2 Result from high official respondent

4.2.1 Experience in Public Service

As shown in Table 4.2.1, the majority of my survey respondents (80%) had more than 20 years of working experience in the public service, representing a very experienced pool of public officers. Only 20% reported 5–20 years of experience, and none reported having <5 years.

Table 4.2.1. Experience in Public Service of respondents

Categories	Frequency	Percentage
Less than 5 years	0	0.00
5–10 years	1	10.00
11–20 years	1	10.00
Over 20 years	8	80.00

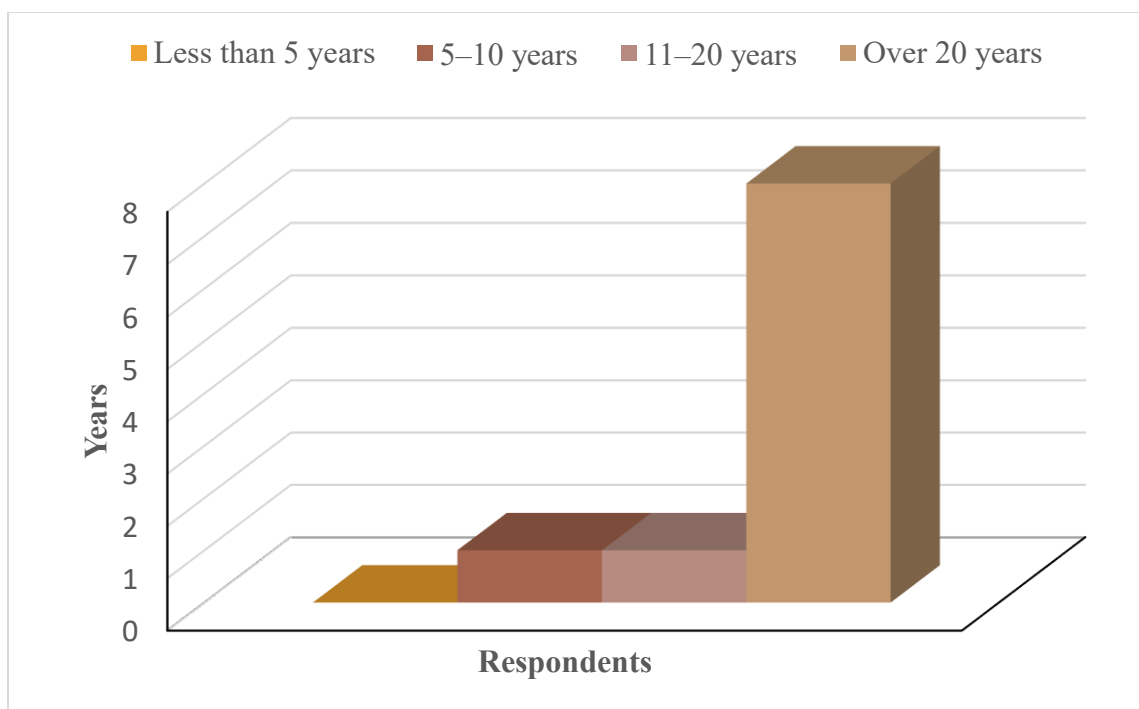


Figure 4.2.1 Experience in Public Service of respondents

4.2.1 Jurisdiction/Responsibility

In terms of jurisdiction, 70 percent of the respondents work at the national level, 20 percent at the district level and 10 percent at the divisional level. None of the respondents were from the upazila level. This distribution is a mirror of reflections largely from policy or regulatory level, as opposed to local or implementation level.

Table 4.2.2. Area of Jurisdiction/Responsibility of respondents

Categories	Frequency	Percentage
National	7.00	70.00
Divisional	1.00	10.00
District	2.00	20.00
Upazila	0.00	0.00

4.2.3. Awareness level of food safety issues

Table 4.2.3 depicts an alarming concern about the level of public awareness about food safety. 60 percent rated it as “very low.”), and 40 percent as “low.” No participants reported the level of anticipation as “neutral” or “high.” And this highlights a key gap in knowledge of the public.

Table 4.2.3. Opinion of respondents the overall awareness level of food safety issues among the general public in Bangladesh

Categories	Frequency	Percentage
Very low	6	60.00
Low	4	40.00
Neutral	0	0.00
High	0	0.00
Very high	0	0.00

4.2.4. Communication channels

Yet, departmental communication is strong, as is indicated in Table 4.2.4. All of the surveyed departments use social media (100%), mass media (80%) and community campaigns (60%). However, traditional print media (20%) and NGO partnerships (10%) are currently underutilized.

Table 4.2.4. Opinion of respondents about primary communication channels used by your department to disseminate food safety information

Categories	Frequency	Percentage
Mass media (TV/Radio)	8	80.00
Social media platforms	10	100.00
Print media	2	20.00

Community-based campaigns	6	60.00
Collaboration with NGOs	1	10.00
Others	0	0.00

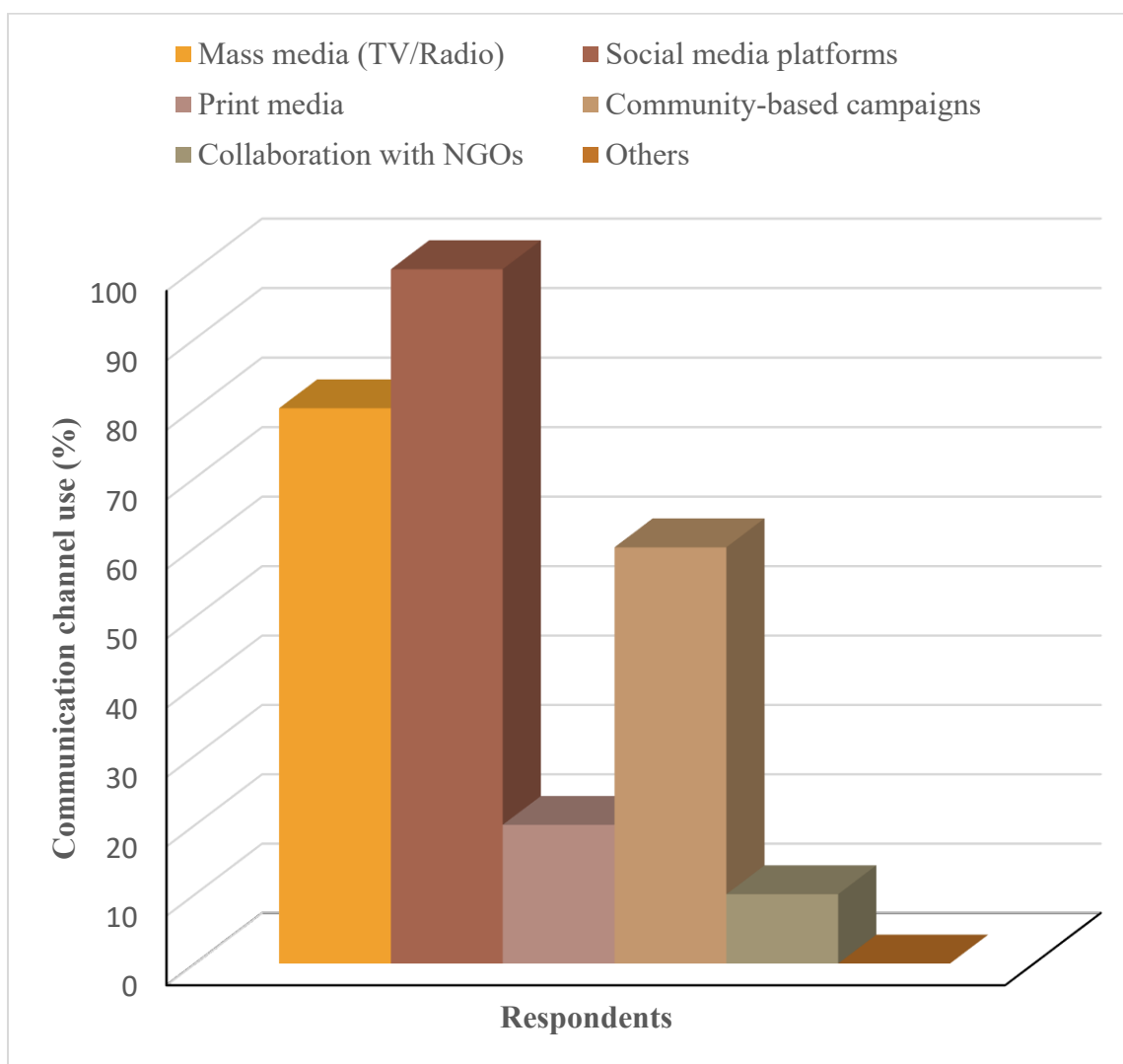


Figure 4.2.2 Communication channels use of respondents

4.2.5. Food contamination incidents

Importantly, none of the participants reported a food contamination in their area of legal jurisdiction in the prior 12 months (Table 4.2.5). Although it does not necessarily imply

absences of major outbreaks, there may be unknowns at the level of surveillance, reporting systems, or reporting practices.)

Table 4.2.5. Opinion of respondent about food contamination incidents been reported under your jurisdiction in the last 12 months

Categories	Frequency	Percentage
Yes	0	00.00
No	10	100.00

4.2.6. Effectiveness of current food safety regulations

A strong view of the ineffectiveness of regulation is depicted in Table 4.2.6. An aggregate 80% considered ineffective or very ineffective the current legal and administrative instruments addressing food safety. Just 20% also found them effective, and none rated them “very effective,” making it clear that regulatory reform is urgently needed, along with more effective enforcement.

Table 4.2.6. Opinion of respondent about effectiveness of current food safety regulations and enforcement mechanisms are in Bangladesh

Categories	Frequency	Percentage
Very Ineffective	4	40.00
Ineffective	4	40.00
Neither Ineffective nor effective	0	0.00
Effective	2	20.00
Very Effective	0	0.00

4.2.7. Stakeholder responsibilities

Bangladesh Food Safety Authority (BFSA) was found by an overwhelming majority as most important stakeholder 100% respondents were regarding its role as leading the food safety.

This unanimous agreement has underscored the leading position of BFSA in the setting of food policies, regulations and implementation of food standards throughout the country. It demonstrates confidence in the agency's mandate and its public profile as the country's food safety authority.

LGIs were reported by 70% of respondents indicating a high potential for field level enforcement, market surveillance, and the involvement in community level stakeholder coordination. These are often where food producers, food vendors and consumers first touch and thus are important on-the-ground locations for the implementation of food safety practices. Yet the fact that not even two thirds voted for them suggests maybe either their potential presence or potency is seen as 'sketchy' or just weak; or that fault lines run through how their time together is currently unfolding.

The Ministry of Health was cited by 40% of respondents as a responsible authority. Considering the fact that food safety is by its nature a public health issue, this amount of attention is relatively paltry. This may indicate limited exposure to the Ministry's involvement in food safety enforcement or a belief that it is more reactive (e.g., in response to foodborne illness outbreaks) than proactive when it comes to overseeing food regulation and monitoring of hygiene.

It is interesting to note that both the food industry (producers/vendors) and consumers were considered responsible to a lesser extent (only mentioned by 30% and 20% of respondents, respectively). That's important because food safety is not solely a government responsibility—there are roles for everyone, from producer to processor to retailer to consumer, in making food remain safe from farm to table. The weak attribution of responsibility among these groups reflects a “top-down” view of accountability, with the onus being pushed on the state rather than shared among all food system actors.

Table 4.2.7. Opinion of respondent about stakeholder responsibilities for ensuring food safety

Categories	Frequency	Percentage
Ministry of Health	4	40.00

Bangladesh Food Safety Authority (BFSA)	10	100.00
Local Government Institutions	7	70.00
Food industry (producers/vendors)	3	30.00
Consumers	2	20.00

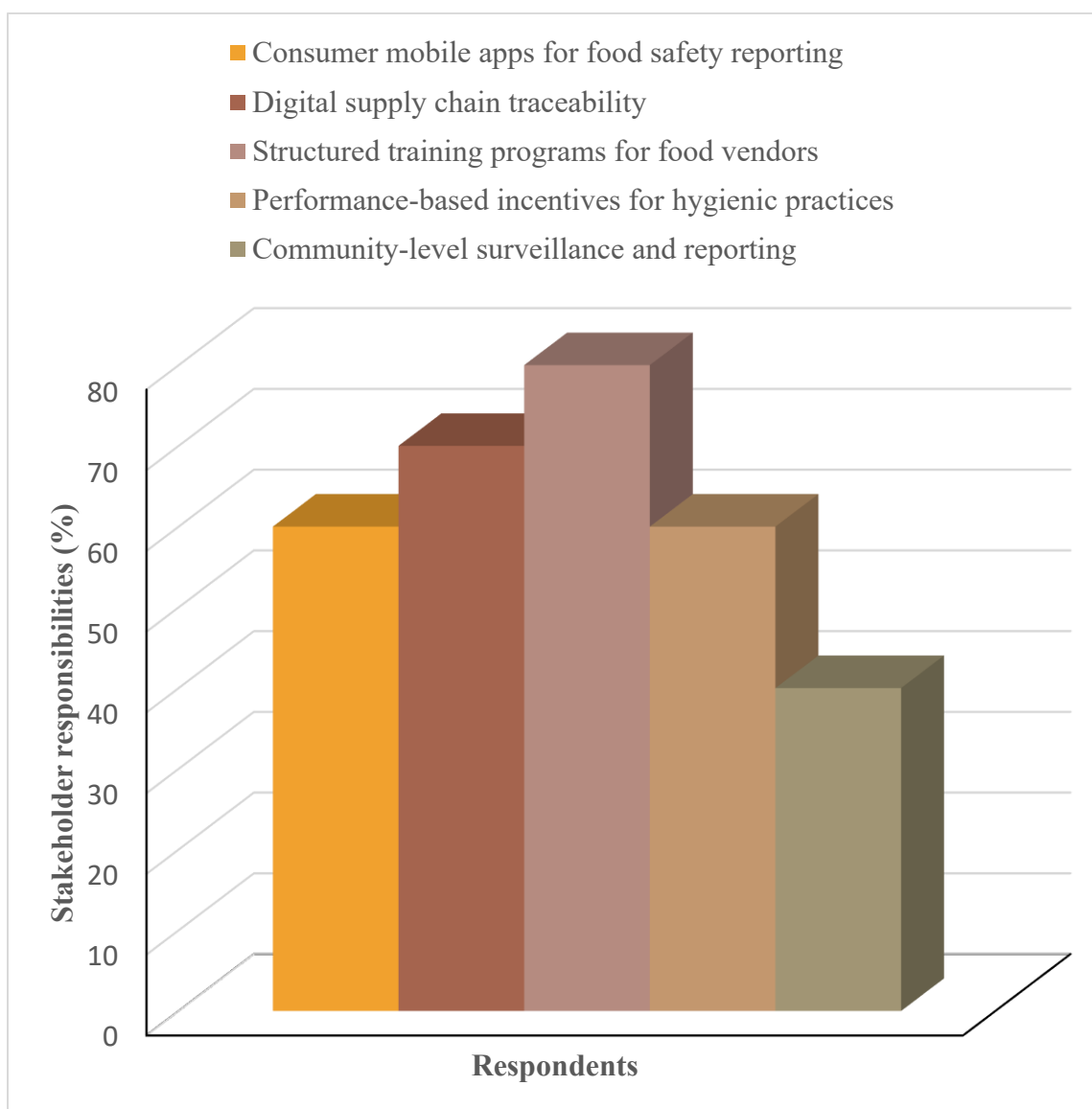


Figure 4.2.2 Stakeholder responsibilities of respondents

4.2.8. Food safety challenges currently facing Bangladesh

Table 4.2.8 presents the respondents' opinions on the most pressing food safety challenges currently facing Bangladesh. The responses reveal that inadequate hygiene practices in food handling were unanimously recognized as the most critical challenge, with 100% of respondents identifying it as a significant issue. This highlights the widespread concern about contamination risks due to poor food handling practices, particularly during production, processing, and distribution.

The second most frequently cited challenge is weak monitoring and enforcement systems, with 70% of respondents acknowledging this as a major issue. This suggests a systemic weakness in the ability to ensure compliance with food safety regulations, which could allow unsafe practices to persist in the food supply chain.

Excessive use of pesticides or harmful chemicals was identified by 40% of respondents as a pressing concern. This reflects widespread awareness of the health risks posed by the indiscriminate or improper use of agrochemicals in food production.

Outdated or insufficient legal frameworks were noted by 30% of respondents, indicating a perception that existing food safety laws are inadequate or not sufficiently aligned with modern food safety needs. Finally, low public awareness was recognized by 20% of respondents, pointing to a gap in consumer knowledge and behavior related to food safety, which may hinder the adoption of safe food handling practices.

Table 4.2.8. Opinion of respondent about most pressing food safety challenges currently facing Bangladesh

Categories	Frequency	Percentage
Excessive use of pesticides or harmful chemicals	4	40.00
Inadequate hygiene practices in food handling	10	100.00

Weak monitoring and enforcement systems	7	70.00
Outdated or insufficient legal frameworks	3	30.00
Low public awareness	2	20.00

4.2.9. Policy reforms or technological innovations

Table 4.2.9 In spite of a world-wide focus on innovation, attention for food safety innovations or policy renewal seems quite limited if we look at the bottom of table 4.2 9. Some 80% did not seem to know about policy reforms or technology advances⁹. Awareness was recognized by only 20% as communicated or implementation failure from policy formulation to field level awareness.

Table 4.2.9. Opinion of respondent awareness of any recent policy reforms or technological innovations introduced to enhance food safety

Categories	Frequency	Percentage
Yes	2	20.00
No	8	80.00

4.2.10. Digital traceability systems integration

Result from the Table 4.2 10 reveals resistance to digital traceability technologies. A combined 80% either “strongly opposed” or “opposed” integration of traceability systems, while only 20% were supportive. This resistance may stem from limited digital infrastructure or lack of training.

Table 4.2.10. Opinion of respondent about integration of digital traceability systems across the food production and distribution chain

Categories	Frequency	Percentage
Strongly oppose	4	40.00

Oppose	4	40.00
Neutral	0	0.00
Support	2	20.00
Strongly support	0	0.00

4.2.11. Strengthen food safety practices innovations

The innovation with the highest level of support was teaching programs for food vendors, that was supported by 80% of the respondents. This reflects general consensus that better training and capacity-building of vendors who prepare and handle food directly is a core element in the upgrading of food safety. This training may encompass hygiene, avoiding contamination, appropriate storage of the food, and knowledge of legal requirements.

This was followed by digital supply chain traceability, which was backed by 70% and, as such, illustrates an increasing appetite for digital innovations that provide transparency and accountability throughout the food supply chain. Traceability or track and trace systems are systems that trace and track food as it is processed and distributed, from where it originates to where the end-consumer handles it, giving traceable information right from the dismount and assignment to packaging and final retail to a consumer!... and eventually disposal. These systems help to identify the direct or indirect source of contaminated food that has caused an infectious disease outbreak, enabling authorities to respond and ensure containment of the outbreak rapidly.

Consumer mobile apps reporting on food safety and usages of mobile app for performance-based incentives for hygienic practices were approved by 60%. The support for mobile apps indicates a willingness to use inclusive technologies to enable consumers to report food fraud and unsafe practices as they occur. At the same time, the growing support for incentive-based hygiene promotion reflects a recognition that positive behavior can be promoted, not just through regulation, but also through reward systems for vendors that keep their food model safe.

In the final section about community-level surveillance and reporting, 40% of HCWs agreed and although this was the lowest agree score, it still represents a significant amount of support. This estimate may indicate a limited awareness around community-based food safety

models or trepidations about their efficacy without the security and authority of an institutional structure.

Categories	Frequency	Percentage
Consumer mobile apps for food safety reporting	6	60.00
Digital supply chain traceability	7	70.00
Structured training programs for food vendors	8	80.00
Performance-based incentives for hygienic practices	6	60.00
Community-level surveillance and reporting	4	40.00

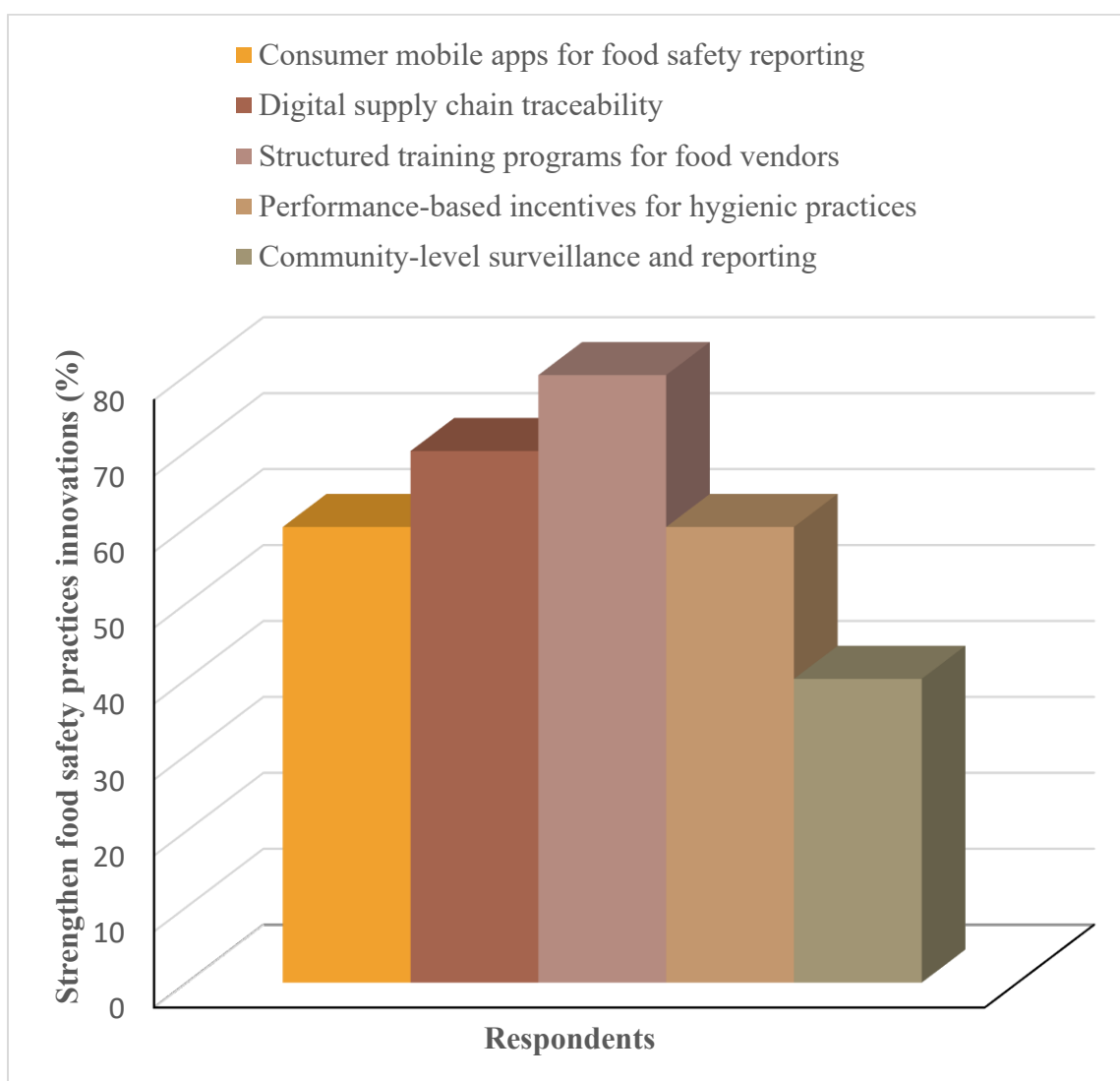


Figure 4.2.3 Strengthen food safety practices innovations of respondents

4.2.12. Strategic role of the government

Launch of national public awareness campaigns was the most favoured measure (100% support). This consensus recommends a high priority to public knowledge dissemination, with strong conviction that the public awareness is the key for the investment in food safety in Bangladesh. This acknowledges that existing levels of consumer and vendor awareness are not adequate to ensure safe practices and that behavioral change must be promoted with education, outreach and media.

Food safety technologies were the second most supported priority, which saw support from 60% of survey participants. They reflect a greater recognition of the potential of digital solutions, which span from traceability systems, food testing devices, and mobile applications, to enhancing transparency, compliance, and the ability to respond quickly to food incidents. Yet the modest level of support also indicates that greater exposure or presentation of these technology's benefits would be necessary for all stakeholders to feel comfortable - especially those who may not be familiar with digital infrastructure.

More than 40% of the respondents had the support of strengthening regulatory systems, reinforcing worries about how old laws regarded food safety are not working. According to stakeholders, the perception is that existing laws may need to be updated, are not adequately enforced or not well suited to new risks or food systems. This result supports previous feedback on the inefficiency of current rules and the necessity of realistic, enforceable, and inclusive provisions of all players in the supply chain.

The least popular option was promoting public-private partnerships, which only 20% of respondents backed. This might indicate a lack of awareness, or lack of experience, of food sector CGI operations. Stakeholders could doubt the private sectors. But where public policy is concerned, few partnerships have more to gain than those that law firms establish with entities in the developing and post conflict world.

Table 4.2.12. Opinion of respondent about strategic role of the government prioritize to improve food safety nationwide

Categories	Frequency	Percentage
Strengthening regulatory frameworks	4	40.00
Launching national public awareness campaigns	10	100.00
Investing in food safety technologies	6	60.00
Fostering public-private partnerships	2	20.00

5. Policy Recommendations for Improving Food Safety in Bangladesh

Based on reviewed literature and analyzed data from surveys and interviews, the following five possible policy recommendations are suggested. They are presented in a three-column format (Policy – Justification – How to Do).

Policy Recommendation	Justification (Why Needed)	How to Implement (Steps/Actions)
Strengthen Regulatory Enforcement and Monitoring	Stakeholders (farmers, SAAOs, dealers) reported lack of monitoring/enforcement (93–100%). Weak enforcement allows unsafe pesticide use, unhygienic processing, and adulteration.	- Empower Bangladesh Food Safety Authority (BFSA) with more resources and trained inspectors. - Introduce risk-based inspections (focus on high-risk foods). - Use mobile-based reporting for consumers and inspectors. - Enforce strict penalties for violators.
Mandatory Food Safety Training for Farmers, Vendors, and Dealers	Survey showed most farmers have low awareness, while 100% stakeholders supported training vendors. Knowledge gaps directly contribute to unsafe practices.	- Introduce certified training programs through DAE & BFSA. - Make training compulsory for pesticide dealers (like India's model). - Provide low-cost training modules for street food vendors and retailers. - Use NGOs for community-level capacity building.
Digital Traceability and Technology Integration	100% of farmers, 86.7% of SAAOs, and 80% of dealers supported digital tracking. Consumers also demand more transparency in food systems.	- Develop a national digital traceability platform (QR codes/barcodes on products). - Pilot mobile apps for consumer reporting and supply chain monitoring. - Provide subsidies/training for farmers to use digital tools. - Link traceability system with export certification to access international markets.
Community-Based Food Safety Monitoring	Survey results show 100% of farmers and SAAOs, and 53% of dealers favored local/community monitoring. It increases accountability where government inspection is weak.	- Establish community food safety committees at union/upazila level. - Train local volunteers to identify unsafe practices and report. - Encourage participatory monitoring with farmers' cooperatives and local NGOs. - Integrate findings with BFSA for enforcement follow-up.
National Public Awareness and Education Campaign	All groups (100%) supported awareness campaigns. Consumers are	- Launch nationwide awareness campaigns using TV, radio, social media.

	unaware of shared responsibility; absence of knowledge perpetuates unsafe consumption and weak demand for safe food.	- Introduce food safety modules in schools. - Run mass awareness drives during festivals/markets. - Collaborate with NGOs, media, and private sector to spread simple hygiene/safety messages.
--	--	--

5.1 Policy Options with Corresponding Impacts and PEST Analysis

This document presents five suggested policy options for improving food safety in Bangladesh. Each policy is analyzed individually, showing corresponding impacts (administrative, social, political, economic, and environmental) and a PEST analysis (Political, Economic, Social, Technological).

Policy option	Administrative	Social	Political	Economic	Environmental
1. Strengthen Regulatory Enforcement and Monitoring	Needs more inspectors, clear SOPs, stronger BFSA authority.	Higher consumer trust; short-term resistance from vendors.	Requires political will; possible resistance from industry lobbies.	Costs for government ; boosts exports and reduces health costs long-term.	Better monitoring reduces harmful pesticide misuse and pollution.
2. Mandatory Food Safety Training for Farmers, Vendors, and Dealers	Set up training modules; requires BFSA/DAE collaboration.	Improves community practices; empowers food workers, especially women.	Low resistance if subsidized; requires regulatory mandate.	Training costs but long-term productivity and health savings.	Encourages safe pesticide use and sustainable practices.
3. Digital Traceability and	Needs IT infrastructure, governance,	Boosts consumer confidence; digital divide	Needs coordination across ministries;	Initial high costs but supports exports and	Tracks agrochemical use; promotes

Technology Integration	and trained staff.	risk for small farmers.	possible corporate data concerns.	reduces recalls.	sustainable suppliers.
4. Community-Based Food Safety Monitoring	Local committees needed; reporting channels to BFSA.	Politically appealing; shows responsiveness at grassroots.	Low-cost alternative to central	inspections; reduces health costs.	Helps detect local contamination and sanitation issues.
5. National Public Awareness and Education Campaign	Needs coordination across ministries and sustained funding.	Raises awareness; improves household food hygiene.	Low political risk; popular and voter-friendly.	Campaign costs but reduces foodborne illness and boosts safe markets.	Promotes safe chemical use and waste management awareness.

5.2 Risk Assessment of National Public Awareness & Education Campaign

The following table provides a risk assessment of the proposed National Public Awareness & Education Campaign for food safety in Bangladesh. It considers potential risks, their probability, impact, mitigation measures, and strategies for effective implementation.

Risk	Probability	Impact	Mitigation Measures	Strategy
Low participation or lack of public engagement	Medium	High	Use diverse communication channels (TV, radio, social media, schools, community leaders). Tailor messages to local context and languages.	Engagement Strategy: Design interactive campaigns and collaborate with NGOs and religious/community leaders.
Misinformation and misinterpretation of messages	Medium	High	Monitor social media and public discourse, respond quickly with	Communication Strategy: Develop clear, consistent, evidence-based messages with visual aids.

			clarifications, collaborate with trusted voices.	
Insufficient funding for sustained campaigns	High	High	Secure multi-year funding commitments from government and development partners. Involve private sector CSR contributions.	Financial Strategy: Diversify funding sources and integrate campaigns into national education and health programs.
Resistance from informal food vendors fearing blame or exclusion	Low-Medium	Medium	Frame campaign as supportive rather than punitive; offer vendor training alongside awareness drives.	Inclusiveness Strategy: Position vendors as partners in food safety, not as violators.
Difficulty in reaching rural and marginalized communities	Medium	High	Use mobile vans, community radio, grassroots NGOs, and local schools.	Accessibility Strategy: Target rural areas with localized, low-cost communication methods.
Campaign fatigue (short-term attention, long-term decline)	Medium	Medium	Refresh campaigns periodically with new themes and media formats.	Sustainability Strategy: Align campaigns with seasonal events, school curricula, and national celebrations.

5.3 PEST Analysis Scoring of Policy Options

Policy Option	Political	Economic	Social	Technological
---------------	-----------	----------	--------	---------------

1. Strengthen Regulatory Enforcement & Monitoring	Needs strong government commitment and anti-lobbying measures.	Requires budget for staff, labs; boosts export competitiveness.	Increases public trust; improves health outcomes.	Needs modern inspection tools and labs.
2. Mandatory Food Safety Training (Farmers, Vendors, Dealers)	Needs legal backing; low opposition if subsidized.	Training costs offset by higher productivity and market access.	Raises community knowledge; gender-focused inclusion possible.	Training can use mobile apps, e-learning modules.
3. Digital Traceability & Technology Integration	Requires cross-ministerial coordination; data governance laws.	High initial cost; opens new export markets.	Improves transparency; risks excluding smallholders.	Depends on ICT, mobile, cloud, and data systems.
4. Community-Based Food Safety Monitoring	Government support for local monitoring committees required.	Cost-effective compared to central inspections.	Strengthens community trust and accountability.	Can use simple SMS apps and low-cost reporting tools.
5. National Public Awareness & Education Campaign	Politically attractive; needs bipartisan support.	Funding for campaigns;	Improves consumer behavior	Uses mass media, social media, and school modules.

		reduces health costs long-term.	and safe practices.	
--	--	---------------------------------	---------------------	--

5.4 PEST Analysis Scoring of Policy Options

The following table presents a PEST (Political, Economic, Social, Technological) analysis scoring for five policy options to improve food safety in Bangladesh. Each factor is rated on a 1–5 scale (1 = very weak, 5 = very strong). The total score is then used to rank the policy options.

Policy Option	Political (1–5)	Economic (1–5)	Social (1–5)	Technological (1–5)	Total Score	Rank
1. Strengthen Regulatory Enforcement & Monitoring	3	4	4	3	14	4th
2. Mandatory Food Safety Training (Farmers, Vendors, Dealers)	4	4	5	4	17	2nd
3. Digital Traceability & Technology Integration	3	5	4	5	17	2nd
4. Community-Based Food Safety Monitoring	4	4	4	3	15	3rd
5. National Public Awareness & Education Campaign	5	4	5	4	18	1st

5.5 Multi-Criteria Analysis (MCA) of Policy Options

The table below presents a Multi-Criteria Analysis (MCA) of five policy options for improving food safety in Bangladesh. Each policy has been assessed on a 1–5 scale (1 = very weak, 5 = very strong) across administrative feasibility, social impact, political acceptability, economic impact, and environmental impact. The total score is then used to rank the policy options.

Policy Option	Administrative Feasibility (1–5)	Social Impact (1–5)	Political Acceptability (1–5)	Economic Impact (1–5)	Environmental Impact (1–5)	Total Score	Rank
1. Strengthen	3	4	3	4	4	18	3rd

Regulatory Enforcement & Monitoring							
2. Mandatory Food Safety Training (Farmers, Vendors, Dealers)	4	5	4	4	4	21	1st
3. Digital Traceability & Technology Integration	3	4	3	5	4	19	2nd
4. Community-Based Food Safety Monitoring	4	4	4	4	4	20	2nd (tie)
5. National Public Awareness & Education Campaign	5	5	5	4	4	23	1st

5.5 Comparison of Policy Options

Table 5.6: Comparison of Policy Options

Policy Option	PEST		MCA		Overall Rank	
	Total Score	Rank	Total Score	Rank	Total Score	Rank
1. Strengthen Regulatory Enforcement & Monitoring	14	4th	18	3rd	32	5th
2. Mandatory Food Safety Training (Farmers, Vendors, Dealers)	17	2nd	21	1st	38	2nd
3. Digital Traceability & Technology Integration	17	2nd	19	2nd	36	3rd

4. Community-Based Food Safety Monitoring	15	3rd	20	2nd (tie)	35	4th
5. National Public Awareness & Education Campaign	18	1st	23	1st	41	1st

5.8 Preferred Policy Option

Based on the MCA and PEST analysis, the preferred policy option is the ‘National Public Awareness & Education Campaign’ This policy option has received the highest total score in both MCA and PEST evaluations.

5.9 Risk Assessment of National Public Awareness & Education Campaign

The following table provides a risk assessment of the proposed National Public Awareness & Education Campaign for food safety in Bangladesh. It considers potential risks, their probability, impact, mitigation measures, and strategies for effective implementation.

Risk	Probability	Impact	Mitigation Measures	Strategy
Low participation or lack of public engagement	Medium	High	Use diverse communication channels (TV, radio, social media, schools, community leaders). Tailor messages to local context and languages.	Engagement Strategy: Design interactive campaigns and collaborate with NGOs and religious/community leaders.
Misinformation and misinterpretation of messages	Medium	High	Monitor social media and public discourse, respond quickly with clarifications, collaborate with trusted voices.	Communication Strategy: Develop clear, consistent, evidence-based messages with visual aids.
Insufficient funding for sustained campaigns	High	High	Secure multi-year funding commitments from government and development partners. Involve private sector CSR contributions.	Financial Strategy: Diversify funding sources and integrate campaigns into national education and health programs.
Resistance from informal food vendors fearing	Low-Medium	Medium	Frame campaign as supportive rather than	Inclusiveness Strategy: Position vendors as partners

blame or exclusion			punitive; offer vendor training alongside awareness drives.	in food safety, not as violators.
Difficulty in reaching rural and marginalized communities	Medium	High	Use mobile vans, community radio, grassroots NGOs, and local schools.	Accessibility Strategy: Target rural areas with localized, low-cost communication methods.
Campaign fatigue (short-term attention, long-term decline)	Medium	Medium	Refresh campaigns periodically with new themes and media formats.	Sustainability Strategy: Align campaigns with seasonal events, school curricula, and national celebrations.

5.10 Summary

In this study, perceptions about the food safety awareness, the effectiveness of regulation and key challenges were explored among these stakeholders in Bangladesh so that the current situation can be assessed. The findings indicate that there are varied differences among these stakeholders in age, gender, education and food safety knowledge. Although the SAAOs, food dealers and farmers were aware about FS concerns compared to farmers, all groups of respondents expressed concerns about FS challenges including the usage of chemicals, lack of not observing best hygiene practice, weak enforcement and poor policies. There is a significant disparity in information flows where farmers foremost use TV and radio, and SAAOs and traders use multiple information sources. There is a lack of awareness of COVID-19-related food safety policies, but high levels of support for digital tracking technologies, community-based food safety surveillance.

5.11 Recommendations

- **Improve Awareness Campaigns:** focused public education campaigns should be initiated to close the awareness gap, especially in rural areas with high dependence on traditional media for farmers. These campaigns must be fought on several fronts – through social media, print media and TV/radio to penetrate several audiences.
- **Increase Surveillance and Enforcement:** The regulatory system must be revised and capacities for enforcement augmented. More resources and training should be made available at the local level in order to help state and local officials maintain food-safety standards on the ground.
- **Encourage multi-stakeholder engagement:** More participation of food producers, providers and consumer is imperative to share food safety responsibilities. Training should focus on the responsibility of all parties to ensure the safety of food from the fields to the plate.
- **Give Digital Solutions a platform:** With the focus on technology, GOI can strengthen ² digital tools such as traceability systems; mobile apps for reporting food safety and food adulteration; and training programs to help improve the understanding and acceptance of such technology at the ground level.
- **Facilitate Industry Participation:** Private sector, including the food producers and sellers, would be engaged by the government agencies and NGOs to participate in food safety efforts. Public-private partnerships may offer a model for adopting creative approaches to food safety problems.

5.12 Conclusion

The results point to key gaps in knowledge of and education on food safety, and in the effectiveness of policies in Bangladesh. The paper demonstrates that food safety is understood as important, but there is a disaggregation of actors between them, most notably at the level of the grassroots farmer and higher authorities. Farmers, usually with low education level and have less access to information, are less aware about food safety issues than professionals such as SAAOs and dealers. Such imbalance results in unsatisfactory food safety control, in particular in rural regions with lax supervising measures. The failure of food safety policy accompanied by a lack of emphasis on the role that government had traditionally played in ensuring the availability and safety of food indicates the need for a more comprehensive systems approach to food safety governance, one that is based on better communication, education, and enforcement.

Annotated Bibliography:

Title: Policy Innovations for improving Food Safety in Bangladesh -A Mixed Method Study

Peer-reviewed journals:

1. Khatun, M. S., & Amin, M. N. (2021). Determinants of food safety regulation in Bangladesh: An empirical analysis. *International Journal of Social Science and Human Research*, 4(7), 1949–1961. <https://doi.org/10.47191/ijsshr/v4-i7-51>

Khatun and Amin (2021) explore the perceived determinants that influence the effectiveness of food safety regulation in Bangladesh, a country grappling with persistent food contamination and weak enforcement frameworks. The study uses a perception survey of 200 regulators, industry players, and food safety professionals to uncover institutional, technological, and procedural aspects affecting food safety governance. The authors evaluate Bangladesh's regulatory framework's autonomy, coordination, enforcement, accountability, and infrastructure using descriptive statistics. A well-functioning food safety system requires true autonomy of the major regulatory body, inter-organizational collaboration, accountability, and transparency, according to the study. Stakeholders also cited insufficient sanctions for infractions and poor lab facilities as regulator credibility and capability issues. A decentralised food safety network can make local enforcement more responsive and contextually aware, according to the research. Khatun and Amin propose strengthening fines, investing in expert staff, and increasing regulatory authority to revamp Bangladesh's food safety architecture. They advise policymakers to incorporate these perceived criteria to create a reliable food safety regulating framework. This study provides empirical evidence of Bangladesh's food safety regulation's institutional and procedural deficiencies. It emphasises that technical capacity, regulatory independence, and local-level responsiveness are essential to public health, not merely administrative requirements.

2. Nahar, K.M., Khan, M.S.I., Habib, M., Hossain, S.M., Pradhan, M.D.H. and Islam, M.A. health risk assessment of pesticide residues in vegetables collected from northern part of Bangladesh. *Food Research* 4 (6): 2281 – 2288.

Nahar et al. (2020) found pesticide residues in Bangladeshi market produce, indicating a major public health risk from herbicide overuse. The study found that a large part of the tested product exceeded international food safety standards' maximum residual limits (MRLs) through field sampling and gas chromatography analysis. Leafy greens and tomatoes were most affected, with several samples carrying illegal or hazardous chemicals. This study helps contextualize Bangladesh's food contamination worries. It shows how lax pesticide control, farmer training, and market surveillance cause systemic food safety issues. These findings highlight the need for strong policy innovations to address upstream food supply chain concerns, particularly production and distribution. For policy innovation, the authors propose an integrated pesticide management plan with stronger import regulations, pesticide licensing systems, and farmer education initiatives on safe agricultural practices. The document also calls for statewide residue monitoring systems with upgraded laboratory infrastructure and trained staff. This article advocates for science-based food safety reform in Bangladesh and

the urgent need to address farm chemical dangers. It helps shape consumer health, sustainable agriculture, and food supply chain transparency policies with empirical research.

3. Rozario, S.R., Mirza, A. B., & Khan, R.J. (2024). Enhancing climate resilience of Bangladesh's food system: vulnerability, measures, and way forward. Foresight4Food. Oxford.

Razario et al. (2020) examine climate change and food safety in Bangladesh, a country prone to harsh weather, floods, and rainfall patterns. The authors contend that food safety policies fail to address climate-induced hazards to agricultural productivity, food storage, and contamination.

Flood-prone areas like Kurigram's chars and Khulna and Barisal's coastal belts are studied. Field interviews and meteorological data depict how rising temperatures, humidity, and saline intrusion affect foodborne disease patterns and post-harvest contamination concerns. Climate unpredictability increases rice aflatoxin levels, fresh produce deterioration, and dairy product bacterial development, making the production and supply chains more vulnerable. Policy recommendations include mainstreaming climate resilience into national food safety programs. Innovative ideas include climate-adaptive storage systems (e.g., solar-powered cold storage), weather-indexed safety checks, and contamination early warning systems. The Bangladesh Food Safety Authority's regulation and inspection strategy should also incorporate climate risk data to future-proof food governance. Their work combines climate adaptation and food safety regulation to support Bangladesh's development goals. Their contribution highlights the need for dynamic, anticipatory governance mechanisms that recognize the evolving nature of food safety in a changing climate and local-level responsiveness are not just administrative necessities but foundational to safeguarding public health.

4. Islam, Q., Ali, M., Alam, M. and Waid, J. (2019). Determinants of the Double Burden of Malnutrition at the Community Level in Bangladesh (P10-084-19), Current Developments in Nutrition, 3 (1): nzz034.P10-084-19, <https://doi.org/10.1093/cdn/nzz034.P10-084-19>.

Islam et al. (2019) explore the coexistence of undernutrition and overnutrition—commonly referred to as the double burden of malnutrition—in rural areas of Bangladesh. The study employs a cross-sectional design with data collected from rural households in three districts. Using anthropometric measurements and dietary assessments, the authors identify socioeconomic, demographic, and dietary factors contributing to this nutritional paradox. Key findings include a significant prevalence of both stunting in children and overweight in adults within the same households. Factors such as maternal education, dietary diversity, and household income are statistically linked to this double burden. The relevance of this study to food safety policy innovations in Bangladesh is notable. First, the double burden underscores the need for a nuanced food safety policy that goes beyond food quantity and addresses nutritional quality and safety. Second, the authors suggest that food security programs must integrate dietary diversity and safe food handling education. The study also implies that current food distribution and nutrition policies may be inadequate in addressing the varied needs of different age groups within the same household. From a policy innovation standpoint, the findings call for integrative policies that tackle both food insecurity and the rising prevalence of diet-related non-communicable diseases. This can include policies encouraging the availability of safe, nutritious food options and promoting awareness around

balanced diets. Importantly, the study provides a strong empirical basis for multi-sectoral approaches combining health, agriculture, and education sectors to improve food safety and nutritional outcomes in rural Bangladesh.

5. Candel, J.J.L., G. E. Breeman, S. J. Stiller, C.J.A.M. Termeer, (2014). Disentangling the consensus frame of food security: The case of the EU Common Agricultural Policy reform debate, *Food Policy*, 44: 47-58, <https://doi.org/10.1016/j.foodpol.2013.10.005>.

Food safety issues and governmental responses in developing nations, such as Bangladesh, where market shifts have increased food safety hazards, are examined by Candel et al. (2014). The essay examines how governments in low- and middle-income countries (LMICs) may create policies that balance market modernisation with food safety using case studies from throughout the world. The study includes South Asian situations that are immediately relevant, albeit they are not limited to Bangladesh. Instead of using universal standards, the authors stress the necessity for risk-based regulation, where enforcement concentrates on high-risk commodities and surroundings. They also stress the significance of compliance incentives like certification programs, public-private partnerships (PPPs), and training for vendors in the unorganised market. When combined with local enforcement tactics, these instruments have been demonstrated to lower chemical and microbiological pollution. The creation of co-regulatory frameworks, in which private actors—such as grocery stores—take on roles in inspection and standard enforcement, is one significant policy innovation that has been considered. This strategy helps make up for the shortcomings of state oversight, especially in unofficial or rural marketplaces.

The paper makes the case that by integrating food safety incentives into current agriculture and health policy, Bangladesh might gain a great deal from such models. All things considered, this article provides policy ideas on public health integration, economic incentives, and institutional reforms for food safety governance in developing nations such as Bangladesh.

6. Shabnam Imam^{1*}, Nadira Begum², Rifat Mahmud Khan², Farhana Selim³, Mohammed Mustafizur Rahman⁴ (2024). Food safety and hygiene practices among food vendors in selected locations of Dhaka city. *The Insight* 2024; 7(1): 35-44)

Given that many urban residents depend on informal food services, Imam et al. (2024) examine street food sellers in Dhaka, Bangladesh, and their food safety and hygiene standards. The authors evaluate food handling, personal hygiene, equipment cleanliness, and foodborne illness awareness using structured interviews and observational checklists. The survey found that many vendors don't wash their hands, reuse dirty water, store food properly, or know acceptable food temperatures. This page helps explain Bangladesh's grassroots food safety issues. Lack of regulatory control, knowledge, and sanitation facilities make the informal sector vulnerable. These findings highlight the need for participatory, education-focused policy solutions beyond formal regulatory measures. The study emphasizes community-based training, low-cost certification, and street food vendor behavior change communication for policymakers. It also suggests that local authorities, NGOs, and food safety regulators should collaborate on technical support, hygiene kits, and monitoring. Given the informality of the food industry, the study implies that educating sellers may be more beneficial than punitive

regulatory enforcement. Overall, Hossain et al.'s work supports inclusive food safety methods that include informal sellers in the national framework. Their research supports Bangladeshi urban food safety strategies that are realistic and culturally relevant.

7. Barois, Z.O., Hasan, M.M., Ahmed, F., Rozario, S.R., Islam, M.A., Kazal, M.M.H., Shaheen, N., & Dengerink, J. (2024). *An Overview of the Bangladesh Food System: Outcomes, Drivers & Activities*. Foresight4Food. Oxford

This extensive paper by Barois et al. (2024) offers a thorough examination of Bangladesh's food system, stressing both its successes and lingering problems. Although the system serves more than 170 million people and is supported by a large network of 60 million smallholder farmers, it is nonetheless susceptible to outside shocks like the COVID-19 epidemic and geopolitical crises. The report highlights significant advancements in food and nutrition security, including decreases in stunting, but also notes recent standstill brought on by infrastructure and environmental problems. Flooding brought on by climate change, salinity, excessive pesticide use (particularly by 47% of farmers), and pervasive food safety issues—more than 30 million foodborne illness cases are documented each year—are some of the major obstacles. The research emphasizes how non-communicable diseases are on the rise due to dietary shifts toward more processed foods brought on by urbanization and increased earnings. Even while wheat and fish production has reached self-sufficiency, nutrition results are still hampered by the scarcity of a variety of meals. This site is helpful for comprehending how environmental stresses, changing consumer habits, and systemic agriculture practices interact to affect food safety in Bangladesh. It provides crucial context for investigating policy ideas meant to enhance regulation, encourage sustainable behaviors, and guarantee safer, more varied food supply chains.

8. Azad A. (2023). *Ensuring safe plates: food safety and security issues in bangladesh*. Conference: ensuring safe plates, Dhaka, Bangladesh

Azad (2023) described a conference paper, in Bangladesh, where millions of people are still at risk of contracting food-borne illnesses as a result of poor hygiene habits and lax implementation of regulations, food safety is a major worry. Even though the nation has made quantifiable strides, there are still large gaps, especially in food handler training and public awareness. Many people are ignorant of basic safety precautions like cross-contamination avoidance, safe food storage, and appropriate handwashing. The paper highlights that improving food safety requires participation from the public and business sectors. Businesses can put in place organized training and safety procedures, while government initiatives could involve more funding and awareness campaigns. Improvements in food safety are strongly related to Bangladesh's expanding population and economic growth because a healthier populace immediately boosts productivity and sustainable development. To create a strong and secure food system, the article also emphasizes the necessity of cooperation between public and corporate sectors as well as international organizations. This material is helpful for creating policy frameworks and intervention strategies since it offers a succinct but perceptive summary of the main issues and solutions pertaining to food safety in Bangladesh.

9. Deb, M., Alam, M. J., Palash, M. S., Begum, I. A., & McKenzie, A. M. (2023). Consumer concern about food safety hazards along the vegetables value chain in Bangladesh. *Social Sciences & Humanities Open*, 7(1), 100448. <https://doi.org/10.1016/j.ssaho.2023.100448>

A study by Deb et al. (2023) examined customer concerns about food safety risks along Bangladesh's main vegetable value chain. The study examined consumer concerns regarding the chemical, biological, and lifestyle risks of key vegetables by gathering information from a survey of 140 samples. The results show that consumers' concerns about biological, chemical, and lifestyle dangers differed greatly based on their income, occupation, marital status, and degree of education. When it comes to lifestyle dangers, consumers are less concerned than they are about chemical concerns. More specifically, education, income, marital status, and information sources are significantly and positively correlated with consumer concerns about chemical hazards; education, marital status, family size, information sources, and the presence of a child in the family are significantly and positively correlated with biological hazards; and education, income, marital status, and information sources are significantly and positively correlated with lifestyle hazards. We discovered a strong and unfavorable relationship between food safety concerns and consumer trust in vegetable value chain actors about safe food procedures. Customers should be given more information by the government to help them recognize the intrinsic qualities of food safety and quality.

10. Haque, M.L., Oosterveer, Peter, R., C. and Vignola, R. (2025). Does food safety governance in Bangladesh include the urban poor? An analysis of government strategies and policies for the retail food environment in Bangladesh, 2013–2022, *Habitat International*, 159: 103372. <https://doi.org/10.1016/j.habitatint.2025.103372>.

Haque et al. (2025) investigated how food safety regulations affect urban poor people's food purchase habits in Bangladeshi retail settings. It highlights a serious weakness in national food policy, which frequently place a higher priority on food access while failing to appropriately address food safety in unofficial urban settlements. Using a mixed-methods approach that includes stakeholder surveys, consumer interviews, and policy document analysis, the study finds both the advantages and disadvantages of Bangladesh's current food safety governance. Uncertain implementation roles, unclear budgets and schedules, inadequate monitoring systems, and a dearth of coordinated planning for social change are some of the notable policy flaws. These shortcomings weaken public trust and reduce the efficacy of policies, especially for vulnerable urban populations. Widespread doubt about the government's dedication to safeguarding the urban poor through food safety measures is also revealed by the stakeholder analysis. According to the report, food safety regulations should be specifically redesigned to better address issues unique to cities, increase stakeholder participation, and incorporate the opinions of underrepresented groups. Building a more secure and inclusive food system in Bangladesh requires several measures. This source emphasizes the pressing need for equity-focused food safety initiatives in the Global South and offers insightful information for policy innovation, especially in urban food governance.

11. Calicioglu, O., Flammini, A., Bracco, S., Bellù, L., & Sims, R. (2019). The future challenges of food and agriculture: An integrated analysis of trends and solutions. *Sustainability*, 11(1), 222. <https://doi.org/10.3390/su11010222>

Calicioglu et al. (2019) highlight the four main pillars of food security—availability, access, usage, and stability—while examining the interconnected issues confronting the world's food and agriculture systems. The authors examine the systemic nature of food system vulnerabilities and stress the need for integrated solutions by utilizing social network analysis tools and insights from the FAO's 2017 report. Notably, the analysis reveals that while climate change continues to be the most significant trend influencing the state of food security, reversing poverty trends can spur advancements in other areas like access and nutrition. This thorough analysis provides a sophisticated knowledge of how food systems can be significantly improved by addressing underlying issues and utilizing interrelated policy actions. The study emphasizes the significance of comprehensive and systemic policy improvements for Bangladesh, where challenges of access, poverty, and climate vulnerability are closely linked to food safety concerns. The paper backs up the necessity of cross-sectoral, data-driven approaches and well-informed decision-making to guarantee long-lasting gains in food safety, particularly in emerging nations. It serves as a fundamental resource for long-term food safety planning since the authors advise more quantitative analysis to successfully apply solutions.

12. Chowdhury, A. (2018). The Food Safety Act of 2013: A Critical Analysis and Reform Proposals. *Premier Critical Perspective*, 3 (1): 21-39. <http://dx.doi.org/10.2139/ssrn.5082099>

The Food Safety Act of 2013 (FSA2013) is the main subject of this article's critical analysis of Bangladesh's institutional and legislative framework for food safety analysed by Chowdhury (2018). Although the Act's provisions for monitoring, coordination, testing, investigation, and adjudication constitute a substantial breakthrough in the regulation of food safety, a number of structural and functional flaws prevent the Act's full implementation. The paper identifies several major issues, including the predominance of bureaucracy, a lack of financing and personnel, ineffective conflict resolution procedures, and outdated legislation pertaining to the food industry. Furthermore, the efficacy of the food safety management system is restricted by the lack of adequate regulations for interagency coordination. The report highlights how urgent it is to overcome these gaps in order to guarantee that the Act fulfills its stated goals of protecting the public's health. The Act should be modified to better reflect contemporary food business practices, institutional functions should be reformed, and coordination efforts should be streamlined. Policymakers, legal professionals, and stakeholders in food safety who want to improve Bangladesh's legislative framework for food safety would find this analysis very helpful. It adds to the larger conversation on sustainable governance and emphasizes how crucial inclusive, flexible, and well-resourced food safety laws are to both public welfare and national progress.

13. Ahmed, A. U. Bakhtiar, M. M. and Mahzab, M. M. (2024). Food Security and Nutrition in Bangladesh: Evidence-Based Strategies for Advancement. A report published by International Food Policy Research Institute October 2024.

An extensive examination of Bangladesh's current food security and nutrition situation is provided in this research by the International Food Policy Research Institute (IFPRI), which highlights the necessity of evidence-based approaches to promote advancement. It acknowledges enduring problems such micronutrient shortages, foodborne infections, and a lack of nutritional diversity while highlighting the tremendous progress made in recent

decades, such as the declines in poverty and child malnutrition. To enhance food and nutrition results, the authors support a multisectoral strategy that combines social protection, public health, education, and agricultural development. The research also calls for more robust policy implementation at the national and municipal levels and emphasizes the significance of coordinating national policies with international frameworks, such as the Sustainable Development Goals (SDGs). Vulnerable groups, such as women, children, and low-income urban households, receive special focus, highlighting the necessity of inclusive initiatives. Policymakers, development professionals, and researchers looking to improve Bangladesh's food safety and nutrition policies may find this publication to be an invaluable resource. Its evidence-based suggestions help create more egalitarian and resilient food systems that can handle both current and new problems (Ahmed et al. 2024).

14. Roy, D., Dev, D. S and Sheheli, S. 2019. Food Security in Bangladesh: Insight from Available Literature. *Journal of Nutrition and Food Security* 4(1): 66-75. DOI: [10.18502/jnfs.v4i1.401](https://doi.org/10.18502/jnfs.v4i1.401)

A systematic study examined by Roy et al. (2019) and observed the current status of food security in Bangladesh, highlighting the paradox between national self-sufficiency in food production and the continued prevalence of food insecurity among large segments of the population. Although food availability, especially in the production of cereals (mostly rice), and income levels have improved significantly in Bangladesh, obstacles still exist in obtaining food access, usage, and most importantly, food stability. According to the survey, the main obstacles to fair access to food are unequal land ownership and income distribution. A significant percentage of the population still faces extreme food insecurity and malnourishment, and the population remains suffers from poor dietary diversity and nutritional imbalances despite slight gains in food use. The report also notes that while the government has put in place a number of food security initiatives, these have not been sufficient to address structural problems that have existed for a long time. It comes to the conclusion that measures to ensure food security need to be more comprehensive, inclusive, and well-coordinated, and that dietary diversification is still a major concern. To address the complex issues, the authors suggest a coordinated strategy incorporating both governmental (GOs) and non-governmental organizations (NGOs). Understanding the larger socioeconomic and structural elements influencing food security in Bangladesh is made easier with the help of this resource, which also emphasizes the necessity of coordinated, integrated policy measures to guarantee long-lasting gains in food availability and nutrition.

15. Islam, S., Tanjia, N., Mitra, A. K., Hossain, S. J., Hossain, A., Jasika, M. T., & Suhi, S. S. (2023). Lack of food safety and hygienic practices among street vendors in Dhaka, Bangladesh: Implications for consumers' health [Preprint]. Preprints. <https://doi.org/10.20944/preprints202307.0344.v1>

According to Islam et al. (2023), incorrect food handling raises the risk of food contamination, which could jeopardize the health of consumers. The main causes of foodborne illness transmission are inadequate food handler hygiene and a lack of education. The purpose of this study was to find out how much street food sellers in Dhaka, Bangladesh, knew about food safety and what attitudes and practices they followed. 350 randomly chosen street sellers from seven different locations in Dhaka City participated in this cross-sectional survey. Trained

interviewers used a questionnaire to gather data. Of the interviewees, 48% had completed secondary school and only 36.5% had completed primary school. When handling food in front of onlookers, most sellers practiced proper handwashing. However, only a small percentage of vendors demonstrated favorable attitudes toward adopting excellent personal hygiene (1.2%), washing hands before handling raw or cooked food (3.7%), and other food safety attitudes (less than 1%). The participants' educational attainment, work experience, and the head chef's qualification with regard to hand washing, wearing gloves, and food-borne illnesses were all significantly correlated in this study. The study showed that vendors' awareness and application of food handler health safety procedures in preventing foodborne disease were significantly influenced by their formal education.

16. Zacharia A, Soingei RM, Richard A (2024). Evaluation of food safety knowledge, attitude and hygienic practices among food service workers in hotels, restaurants and street food stands in Morogoro, Tanzania. *J Food Safe & Hyg* 2024;10 (3): 244-256. <http://10.18502/jfsh.v10i3.18357>

According to Zacharia et al. (2024), foodborne illnesses are a global issue, particularly in developing countries. The majority of these diseases spread in public settings like restaurants and houses. Promoting sanitary practices, attitudes, and information about food safety is so crucial. Food service employees in hotels, restaurants, and street food stalls were asked to rate their degree of food safety knowledge, attitude, and hygiene practices. Using structured questionnaires and an observation checklist, a cross-sectional study conducted in Morogoro Municipality from February to May 2024 investigated the food safety knowledge, attitudes, and hygiene practices of 75 hotel, restaurant, and street food vendors. Foodservice employees underwent testing on handling, hygiene, and germs. Points were awarded for accurate responses; scores below 50% suggested a lack of understanding. There were ten questions about attitudes toward food safety, and correct answers earned 10% of the possible points. When compared to individuals working in restaurants and street food vendors, food service employees in hotels exhibited considerably ($p < 0.05$) better attitudes (95.60%), hygienic practices (98.25%), and food safety knowledge (94.65%). The street foodstand employees who served food received the lowest marks for their hygienic practices (45.75%), attitude (40.40%), and knowledge (50.65%). For food safety knowledge, attitude, and hygienic practices, restaurant food service employees scored 66.97%, 69.2%, and 83.02%, respectively. These scores were considerably ($p < 0.05$) higher than those of street food vendors and lower than those of hotel service employees. When compared to street sellers, hotel employees showed better food safety practices, attitudes, and knowledge. In Morogoro Municipality, food safety necessitates rigorous training, regulatory oversight, collaboration with local authorities, and ongoing research and observation.

Newspapers & grey literature:

1. Sanjay Dave, is the former Chairman of Codex Alimentarius Commission. Publish dhakatribune: 10 Feb 2024. <https://www.dhakatribune.com/opinion/op-ed/339056/ensuring-food-safety-in-bangladesh>

In his critical review of Bangladesh's food safety reforms, Dave (2024) highlights the government's deliberate policy changes aimed at modernizing food regulations and bringing

them into compliance with international norms. He examines the legal developments from 2009 to 2015, including the Food Safety Act of 2013 and the creation of the Bangladesh Food Safety Authority (BFSA) in 2015. The Bangladesh Standards and Testing Institution's (BSTI) shortcomings are emphasized in the essay, especially its antiquated, non-binding standards and restricted regulatory power. On the other hand, BFSA is renowned for its extensive objective, which encompasses the regulation, standardization, and implementation of food safety regulations. Dave highlights the cooperation between BFSA and outside partners such as FAO, which resulted in the creation of more than 11,200 Codex-aligned standards that are presently pending publication in the gazette. The lack of testing guidelines and licensing requirements for important health hazards like trans fats is also criticized in the commentary. In the end, Dave supports a more cohesive institutional strategy, improved laboratory facilities, and increased BFSA empowerment in order to overcome regulatory obstacles and progress Bangladesh's food safety regime, which is essential for boosting international trade competitiveness and public health.

2. Rahman, B. (2017). Food safety in Bangladesh: Challenges and concerns. Daily Sun. 2017, September 12 <https://www.daily-sun.com/post/251275>

Rahman, B. (2017) stated that the multifaceted challenges affecting food safety in Bangladesh, highlighting issues such as the widespread use of harmful chemicals in food production, inadequate regulatory enforcement, and limited public awareness. It underscores the health risks posed by contaminated food and the economic implications of foodborne illnesses. The article calls for comprehensive policy reforms, including the strengthening of regulatory frameworks, enhancement of monitoring mechanisms, and implementation of public awareness campaigns. It also emphasizes the need for collaboration between government agencies, industry stakeholders, and consumers to ensure the effective enforcement of food safety standards. By addressing these challenges through policy innovations, Bangladesh can work towards ensuring a safer food supply for its population.

3. Policy LINK Project. (2024). Shaping Bangladesh's Path to Improved Food Safety. USAID Policy LINK Program. <https://policylinkglobal.org/newsroom/shaping-bangladeshs-path-to-improved-food-safety>

The Bangladesh Safe Agro Food Efforts (BSAFE) Foundation, in partnership with the Feed the Future Bangladesh Policy LINK Agricultural Policy Activity (Policy LINK Project, 2024), convened a high-level discussion on May 12, 2024, which is described in this article. In line with Bangladesh's goal of becoming a developed nation by 2041, the event brought together government officials, USAID representatives, civil society, and corporate sector partners to discuss long-term solutions for the country's food safety issues. The Food and Agriculture Organization (FAO) estimates that six food-borne diseases cause \$1.65 billion in economic losses annually in Dhaka alone, underscoring the serious health risks and financial costs connected to contaminated and hazardous food. The dialogue's main recommendations include strengthening government coordination, enlisting the private sector, incorporating nutrition and food safety policies, implementing Good Agricultural Practices, standardizing standards, limiting the use of pesticides, utilizing technology, enhancing reporting systems, regulating the hospitality sector, and encouraging collective enterprise. In February 2024, a

Policy Brief including these suggestions was given to high-ranking government officials. The paper emphasizes the intricacy of Bangladesh's food safety issues and the need for a concerted, multi-sectoral approach to policy innovation.

4. UNB NEWS, DHAKA, PUBLISH- FEBRUARY 18, 2025, <https://unb.com.bd/category/Special/food-safety-concerns-mount-as-bangladeshs-eatery-industry-expands-unchecked/153706>

This report published in the UNB News shows that despite the rapid expansion of Bangladesh's food service industry, encompassing hotels, restaurants and roadside tea stalls, concerns over food safety remain largely unaddressed, contributing to serious public health risks. According to this report, A recent survey by the Bangladesh Bureau of Statistics (BBS) reveals that the number of food establishments across the country has almost doubled in a decade, reaching 436,274 in 2021. This report also discloses another vital information that Restaurant owners threaten strike if govt doesn't reconsider VAT hike plan. This sector now employs approximately 2.1 million workers. But the lack of proper regulation and food safety measures means that a significant portion of the population continues to consume unhygienic food daily. During visits to various roadside eateries in areas such as Motijheel, Shahbagh, and Paltan, the reporter found that many people opt for these establishments due to their affordability. Sellers said that despite offering meals at low prices, they manage to make a profit as their operating costs are lower than those of conventional restaurants. According to this report, When the reporter asked about hygiene standards, sellers insisted that their food was fresh and prepared in their homes by family members or employees following proper practices. But public health experts warn that such informal assurances do not guarantee food safety.

The report also focuses on another burning concern Rapid Growth but Limited Regulation. As per the UNB News, The BBS's Hotel-Restaurant Survey 2021 highlights that of the total food service establishments, 344,687 are roadside tea stalls, with 159,393 in urban areas and the remainder in rural regions. The country also has 67,991 fast-food shops, 19,637 restaurants and mobile food vendors, and 126 catering services.

Despite the sector's rapid expansion, regulation remains inadequate. Outside Dhaka, only 65,000 establishments are registered with the Bangladesh Hotel Restaurant Owners Association, leaving a vast majority unmonitored.

5. Suman, S., Manyam, S., Satyanarayana, K. V., & Vijayaraghavan, K. (2021). Food safety system in Bangladesh: Current status of food safety, scientific capability, and industry preparedness. Feed the Future Innovation Lab for Food Safety. <https://ag.purdue.edu/food-safety-innovation-lab/wp-content/uploads/2021/01/FSIL-Food-Safety-System-in-Bangladesh.pdf>

Suman et al. (2021) thorough analysis of Bangladesh's food safety situation highlights systemic issues as well as possible policy improvements. It names the main barriers to guaranteeing food safety as being dispersed regulatory control, a lack of scientific infrastructure, and insufficient industrial readiness. To improve inter-agency collaboration and standardize

standards, the authors support the creation of a centralized food safety authority. To strengthen scientific capacity, they also advise funding training initiatives and laboratory facilities. Through the implementation of Hazard Analysis and Critical Control Points (HACCP) and Good Manufacturing Practices (GMP) systems, the paper highlights the necessity of industry collaboration. In order to proactively control foodborne dangers, it also recommends improving monitoring systems and putting risk-based inspection standards into place. In line with global best practices and taking into account Bangladesh's particular difficulties, these policy recommendations seek to strengthen and improve the nation's food safety system.

6. <https://www.thedailystar.net/opinion/editorial/news/safe-food-still-far-cry-bangladesh-3520396>

The title of this The Daily Star editorial (published on June 16, 2024), was Safe food still a far cry in Bangladesh. According to this editorial, Food safety has always been a big issue in Bangladesh with the departments responsible for ensuring food quality failing to play the role expected of them. While not much research has been done to know if what we eat every day is safe for consumption, the few studies that were done came up with dangerous revelations. One such study, conducted by the Dhaka University's Institute of Nutrition and Food Science and BRAC University's James P. Grant School of Public Health, has found that around [67 percent of bottled soybean oil](#) in the local market contain trans fatty acids (TFA) above tolerable limits for human body; the level of trans fat in loose soybean oil is even higher. This is worrying as high levels of trans fat in food can cause long-term damage to health, including via high blood pressure and heart diseases.

7. Henderson, B. (2022, May 26). FAO evaluates food safety in Bangladesh. Food Safety Magazine. <https://www.food-safety.com/articles/7768-fao-evaluates-food-safety-in-bangladesh>

Henderson, B. (2022) evaluated the "Institutionalization of Food Safety in Bangladesh for Safer Food" project, funded by USAID. The projects' goal building third-party verification methods, improving inter-agency collaboration, unifying food rules, and assisting the Bangladesh Food Safety Authority (BFSA). According to the review, the project was extremely pertinent, supporting the formation of BFSA and encouraging a "farm-to-fork" strategy, particularly in the mango and poultry industries. Among the noteworthy accomplishments were public awareness campaigns, the creation of a Bachelor of Science in Food Safety Management, and the implementation of the Hazard Analysis and Critical Control Points (HACCP) framework, Good Hygienic Practices (GHPs), and Good Agricultural Practices (GAPs). Third-party audit implementation and private sector involvement, however, continue to provide difficulties. According to the review, BFSA should create a multidisciplinary risk assessment team, create a national food safety strategy, and do a self-assessment using the Food Control System Assessment Tool developed by the FAO and WHO. This article offers insightful information about institutional initiatives and new policies aimed at improving food safety in Bangladesh.

8. <https://www.thedailystar.net/opinion/editorial/news/food-safety-crisis-demands-immediate-attention-3714201>

Food safety crisis demands immediate attention was the title of the Daily Star editorial which opines that state of food safety in Bangladesh—as reflected in various studies that have detected harmful chemicals in vegetables, fruits, fish, poultry, milk and other food items—remains quite concerning. Recently, [two separate studies](#) have again revealed high levels of heavy metals and pesticide residues in vegetables and fruits. Heavy metals were found in red amaranth, also known as laal shak, and some other commonly consumed vegetables such as brinjal, cabbage, cucumber, okra, pointed gourd, and tomato, while pesticide residues were found in about 10 percent of the fruit samples tested. This is alarming as these contaminants can lead to cancer and numerous other health complications.

9. Rupok, T.A., Sweetly, S. P., Rahman, M. M., Rahman, M. T., Zaman, F., Ahmed, M. R., Islam, T., Islam, M. N., Rana, M. M., Riaz, A. R., & Sadik, M. G. (2024). Food safety profile of university food handlers in Bangladesh: A multicentre cross-sectional study. *Food and Humanity*, 3, 100386. <https://doi.org/10.1016/j.foohum.2024.100386>

The knowledge, attitudes, and behaviors (KAP) of food handlers employed at Bangladeshi public university cafeterias were examined by Rupok et al. in 2024. Using structured questionnaires and in-person interviews, the cross-sectional study polled 788 food handlers and used a variety of statistical techniques, such as logistic regression, Mann-Whitney U, Kruskal-Wallis H, and Spearman's rank-order correlation. According to the results, just 22.8% of food handlers had undergone training in food safety, and 20.7% lacked formal education. Additionally, while 28.4% of respondents displayed adequate safety habits, only 31.5% showed good understanding. Poor hygiene practices, particularly the absence of protective equipment such gloves, aprons, and masks, were apparent, and the majority of handlers had little knowledge of foodborne infections and diseases. A noteworthy 69.8% of participants demonstrated a favorable attitude toward food safety in spite of these drawbacks, suggesting a chance for behavioral development with the right training. The report suggests legislative measures like required training courses and experiential learning projects run by food safety regulators. In order to enhance public health outcomes in Bangladesh, these findings highlight the necessity of organized, government-sponsored food safety education initiatives, especially in institutional food service settings.

10. Barhey, R., & Tushi, M. H. (2015). The right to food: Legal protection in Bangladesh. Bangladesh Legal Aid and Services Trust (BLAST) & Campaign for Right to Food & Social Security (RtF&SS). <https://www.blast.org.bd/content/publications/Right-to-food-2015.pdf>BLAST

The Bangladesh Food Safety Authority's (BFSA) strategy for bringing national food standards into line with international standards—especially those established by the Codex Alimentarius—is described in this strategic plan (BFSA, 2024). The approach highlights how crucial it is to standardize food safety requirements in order to protect public health, ease trade, and fulfill international commitments. The creation of technical committees with specialists from other fields to examine and update current standards, the creation of new standards to fill in any gaps, and the acceptance of codes of practice for consistent implementation are important elements. In order to guarantee thorough and inclusive standard-setting procedures, the paper also outlines protocols for engaging stakeholders, such

as consumer organizations and industry representatives. Bangladesh hopes to improve its regulatory framework for food safety, increase adherence to international norms, and boost customer trust in the food supply by implementing this harmonization plan. This program is an important policy innovation that shows the government's dedication to updating food safety regulations and bringing them into line with global best practices.