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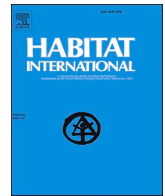
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Does food safety governance in Bangladesh include the urban poor? An analysis of government strategies and policies for the retail food environment in Bangladesh, 2013–2022

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ABSTRACT

This study investigates the influence of food safety policies on urban poor's food shopping practices in retail environments in Bangladesh. While national food policies focus on food access, they often overlook food safety in informal settlements. Using a mixed-methods approach, including a review of national policy documents, interviews with shoppers, and stakeholder surveys, we identified strengths and weaknesses in Bangladesh's food safety governance. The analysis shows that while policy documents acknowledge consumer concerns, key weaknesses include unclear roles of local government, unspecified timelines, ambiguous budgets, inadequate monitoring, and lack of cohesive societal transformation planning. These shortcomings potentially render policies ineffective and erode public trust. Stakeholder analysis highlights scepticism about current policies addressing food safety for the urban poor, emphasising the need for distinct, urban-focused policies. We recommend reassessing and restructuring retail food policies to enhance stakeholder engagements, prioritising the urban poor's perspectives, and implementing strategies that address diverse socio-economic groups. This approach is critical for advancing food safety in urban Bangladesh and other Global South countries.

1. Introduction

Food safety governance—encompassing the rules, standards, and regulations established by the state to manage and influence food safety practices—is essential to safeguarding crucial consumers' well-being (New Zealand Food Safety Ministry for Primary Industries, 2018; Garg et al., 2022; Mkhwanazi et al., 2023). This is particularly critical in Low and Middle-Income Countries (LMICs) where ensuring food safety is still a persistent challenge. These challenges are magnified in the food retail environment (FRE), with high rates of foodborne illnesses disproportionately impacting the urban poor. High rates of foodborne illnesses among these populations result from inadequate hygiene, high contamination rates and limited enforcement of existing regulations. Rapid urbanisation, the growth of informal settlements, and the poor's limited affordability exacerbate these issues and put additional strain on already fragile urban food safety systems (Ahmed et al., 2019; Dewanti-Hariyadi, 2024; FAO, 2023; Global Panel, 2017; Paudyal et al.,

2017; Ruel et al., 2017; Wirakartakusumah et al., 2014).

Ideally, food policies—the strategies, decisions, and frameworks that shape the food economy and influence how food systems operate within a broader economic, political, and societal context—should ensure safe food access for all socio-economic groups and maintain food safety throughout the supply chain (OECD, 1981, p. 58; Lang et al., 2009; Mansfield & Mendes, 2013). However, in reality, implementing them in FRE presents a complex challenge. Weak governance structures and limited funding further hinder the effectiveness of food safety policies in LMICs (Barling et al., 2002; Berger & van Helvoirt, 2018; de Krom et al., 2013; Moragues-Faus & Battersby, 2021). Although retail modernisation aims to formalise FRE and improve food safety, resource constraints often hinder its success (Reardon et al., 2010, pp. 111–130; Wertheim-Heck et al., 2015; Grace, 2015; Maruyama et al., 2016; Wallace et al., 2022). Additionally, modernisation may not align with the needs of the poor, who rely on informal vendors and prioritise affordability and convenience over shopping at supermarkets (Cannuscio et al., 2014). Research indicates that supermarkets tend to be more accessible

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Abbreviations

FRE =	Food Retail Environment
FSC =	Food Safety Concern
FSP =	Food Safety Policy

to the affluent population in South Asia and Africa, leaving the urban poor underserved (Battersby, 2017; Giroux et al., 2021; Skinner & Haysom, 2016). The poor's reliance on the informal food markets often creates a trade-off between affordability and food safety. While retail modernisation presents a potential route towards safer food, it must be paired with practical, socially inclusive policies that ensure safe food access for all socio-economic groups, including disadvantaged consumers (Dreyer et al., 2007). Strengthening food safety governance is therefore essential, requiring a deeper understanding of the interconnections between policy design, enforcement, and the socio-economic dynamics of urban food systems.

In Bangladesh, addressing food safety for the urban poor remains a pressing issue, and the effectiveness of current policies is unclear. Despite enacting the 2013 Food Safety Act to strengthen governance and promote equity, issues such as resource allocation, weak monitoring and inconsistent enforcement persist (Ministry of Food, 2016; Moustier et al., 2023). Urbanisation, especially in cities such as Dhaka, further exacerbates the situation, as informal food sources near slums serve the poor, despite online grocery shopping gaining popularity among other groups (Haque et al., 2023; Snoek et al., 2021). Historical analysis of the Urban Development Directorate (UDD) report from 1965 to 2017 also shows that food safety received less emphasis than food surplus and deficit (Ministry of Housing and Public Works, 2017).

Considering these challenges, this paper investigates food safety governance in Bangladesh, specifically focusing on its implications for the urban poor in FRE. Analysing food safety policies is essential to identify the changes needed to improve the well-being of the urban poor. Research highlights the need for robust urban governance structures that acknowledge both formal and informal food vendors (Barling et al., 2002; Berger & van Helvoirt, 2018; de Krom et al., 2013; Moragues-Faus & Battersby, 2021). Additionally, a comprehensive approach to public health and sustainability must consider various actors, resource availability, and consumer engagement (Boelsen-Robinson et al., 2021; Doernberg et al., 2019; Isanovic et al., 2023; Namugumya et al., 2020).

Although studies have explored food safety challenges in Bangladesh, a critical gap remains in understanding the effectiveness of current policies ensuring safe FREs for the urban poor (Ahmed et al., 2019; Hassan et al., 2021; Hossain et al., 2021; Ishra et al., 2022; Kamruzzaman, 2016; Nisha et al., 2021; Parvin et al., 2020; Shammi et al., 2017; Shamsuzzaman et al., 2022; Zheng et al., 2021). This study uniquely addresses the gap by examining national food safety policies, consumers' daily practices and stakeholders' engagement to assess whether these policies adequately address the concerns of the urban poor in retail environments.

This study contributes to the literature in two key ways. First, it critically evaluates Bangladesh's national food safety policies through a pro-poor lens with a focus on informal food retail environments, which includes various food outlets, stakeholders, related infrastructure, and regulations (Downs et al., 2020; Herforth & Ahmed, 2015). The study assesses the strengths and weaknesses of these policies in addressing the everyday food shopping challenges of the urban poor. Second, it proposes an inclusive governance framework that balances regulatory enforcement with social equity, offering policy insights relevant to similar LMIC contexts. The key research questions guiding this study are: 1. What constitutes the core elements of national food safety policies for urban food retail in Bangladesh? 2. To what extent do these policies address the food safety concerns and shopping practices of the poor,

potentially serving as catalysts for necessary changes? By identifying gaps and overlooked issues, this study aims to reshape urban food safety policy in Bangladesh. Drawing from multiple data sources, this study provides policy insights relevant to the other LMICs facing similar challenges.

The article further continues by introducing a conceptual framework for analysing food retail policies, followed by a section outlining the research methods. The subsequent sections of the paper will concentrate on presenting and discussing the findings.

2. Conceptual framework

In this study, drawing upon Hudson's (2019) work the authors have developed a conceptual framework for assessing food safety policy in Bangladesh's retail sector (Hudson et al., 2019). The framework comprises three key elements: (1) policy formulation and content, (2) policy implementation, and (3) the policy gap (see Fig. 1).

The first element, policy formulation and content, focuses on the processes involved in designing FSPs. Our analytical framework incorporates the policy evaluation framework proposed by Theis (Theis, 2022). This framework outlines a set of components for assessing policy implementation viability, including developing regulatory frameworks, stakeholder engagement strategies, capacity-building initiatives, enforcement mechanisms, and budget allocation. We consider these to be essential components for effective policy formulation.

The second element, policy implementation, involves translating government decisions into programmes, procedures, and regulations that are applied in everyday practices (DeGroff & Cargo, 2009). We examined the gap between established retail FSPs and the experiences of poor urban consumers during daily food shopping. The evaluation considers how effective the policies are translated into actions, factoring in contextual elements, regulatory coherence, and alignment with consumer practices. Stakeholder perspectives are included to assess the practicality and relevance of policies in promoting food safety at the retail level, especially in slum areas.

The final element, the policy gap, highlights the discrepancies between the intended outcomes outlined in policy documents and the observed realities of policy implementation as experienced by consumers and vendors, and the stakeholders' understandings. This involves examining enforcement mechanisms, monitoring, and compliance levels to identify barriers to effective enforcement (Hudson, 2019). Policy gaps often arise due to poor training, elite distortion as voices of rich consumers are loudest, political bureaucracies, inappropriate prioritisation, resource shortages, and inadequate stakeholder involvement (Jaffee et al., 2019). Cultural norms and weak monitoring also hinder effective implementation and problem resolution (Grace, 2017). By pinpointing policy gaps, such as visibility in consumer actions and stakeholders' involvement (Ramakreshnan et al., 2019), the framework aims to inform necessary policy revisions and improvements.

Fig. 1 presents a conceptual framework for policy evaluation, highlighting critical elements for understanding policy efficacy. The arrow from "policy formulation and content" to "policy implementation" signifies the translation of policy objectives into practical actions. The arrow from "policy implementation" to "policy gap" identifies discrepancies between policy goals and achieved outcomes. A dotted line connects the "policy gap" and "policy formulation and content," showing a weak, two-way relationship. This highlights the iterative nature of policy evaluation. Feedback gleaned from implementation should inform policy revisions, and the development of new policies may reveal existing gaps. This cyclical process of evaluation and refinement ensures that policies remain pertinent and effective.

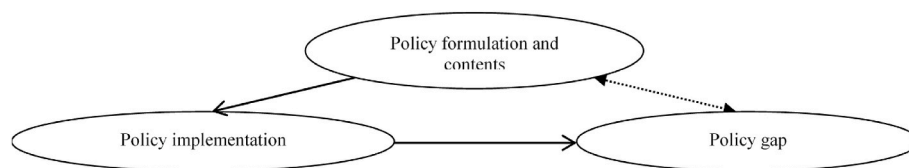


Fig. 1. A conceptual framework for assessing policy: formulation, implementation and gap.

3. Methods

3.1. Study design

This study employs a mixed-methods approach to investigate the policy barriers hindering access to safe food for the urban poor within FREs. By combining data from a review of policy documents, interviews with slum residents, and stakeholder surveys, this study triangulates findings across multiple data sources to provide a “bottom-up” understanding of food safety issues. This approach delves into consumer practices and assesses policy alignment with these realities, offering a more nuanced understanding of access barriers. This was achieved through a two-stage research process. Initially, consumer food shopping practices and experiences within the FRE were investigated through interviews conducted with slum residents. Subsequently, the research evaluated how existing policies (analysed through document review and stakeholder surveys) align with these on-the-ground realities.

3.2. Data sources

3.2.1. Selection of policy documents

The policy document analysis followed a structured workflow inspired by the guidelines outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) framework, which is typically used for systematic literature reviews. Earlier food safety research has employed PRISMA (Rifat et al., 2022). Our approach considers four-stage PRISMA steps—identification, screening, eligibility, and inclusion—enhanced with a fifth stage: thematic analysis and content review of the selected documents (see Fig. 2).

In March 2023, we searched for information on Bangladeshi government websites with the domain <gov.bd>. We identified around ten ministries and six United Nations organizations working on food safety and security. From these, we downloaded 107 policy documents from the “Law & Rules” sections of the Ministry of Food and Ministry of

Fisheries and Livestock websites. These documents, published between 2013 and 2022, mainly addressed policy development following the Food Safety Act, of 2013. The analysis aimed to assess how well these policies would lead to positive changes in society in food safety. The aim of this policy document review was to provide a comprehensive view of the food safety landscape in Bangladesh, with a particular focus on the Ministry of Food and the Ministry of Fisheries and Livestock, as they have direct relevance to food safety legislation.

The 107 downloaded documents were screened using a systematic exclusion process, eliminating those from the eight remaining ministries that lacked English search terms directly corresponding to “retail” and “food.” Inclusion criteria, on the other hand, were based on relevant Bengali keywords, including “*Khaddo*” (food), “*Bikroy*” (sell/retail), and “*O/nirapod*” (un/safe). The term “*Khaddo*” encompasses a broad range of food products, “*Bikroy*” pertains to selling and retailing activities, and “*O/nirapod*” covers both hazards (“*Dushon*”) and adulteration (“*Vejal*”). In the end, 21 documents having all three keywords—food, retail, and safe—were selected for the analysis.

The identified documents included a range of legal instruments such as acts, regulations, gazettes, and guidelines, all concerned with managing safe food retail practices in Bangladesh (see Fig. 2). Appendix Table 2 provides a detailed breakdown of the 21 selected and reviewed policy documents. Particular focus was given to documents originating from the Food Policy and Monitoring Unit (FPMU) and the Food Safety Authority (FSA) within the Ministry of Food, given their direct responsibility for food safety legislation and regulations. The Ministry of Fisheries and Livestock was also included due to its crucial role in ensuring the safety of fish and livestock products.

3.2.2. Semi-structured interviews

This study builds upon a prior research project, which was part of a PhD project at Wageningen University and Research conducted by the lead author in 2020 (Haque et al., 2023, 2024). The project protocol received ethical approval from ICDDR, Bangladesh (Ethics number #

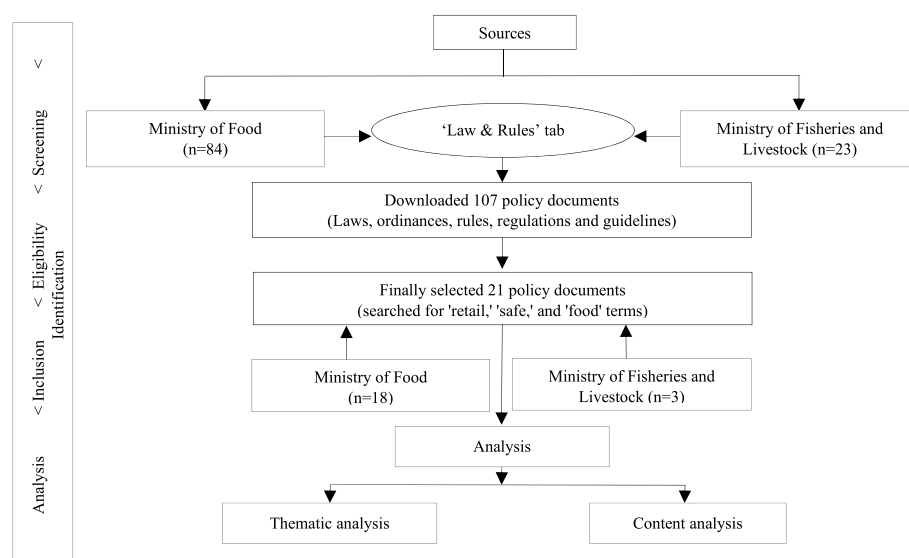


Fig. 2. Policy documents selection and analysis flow.

PR-19129). The prior study employed semi-structured interviews with 26 purposively selected residents of the Korail slum to collect data on their lived experiences (See [Appendix Table 1](#)). The interviews explored respondents' food safety concerns (FSCs), daily food shopping practices, and coping strategies employed during food acquisition and consumption. The current research utilizes this existing data source to establish a systematic link between the previously identified consumer concerns and strategies with the policies. This allows for a comparative analysis between the expressed needs of the urban poor and the specifications outlined within Bangladeshi FSPs.

3.2.3. Stakeholders survey

An online survey conducted in December 2023 using Microsoft Forms gathered data on stakeholder perspectives regarding the FRE for the poor and relevant food policies in Bangladesh. This survey approached 120 policy stakeholders in Bangladesh who were participants in the Sustainable Healthy Diets Through Food Systems Transformation (SHIFT) Launching program in 2022 in Dhaka, Bangladesh. They were familiar with the "Food Systems for a Healthier Diet" project, in which three authors were initially involved. This group includes a diverse range of stakeholders, such as policymakers, NGOs, community representatives, and researchers, as illustrated in [Appendix Fig. 1](#). Their emails were accessed by the International Food Policy Research Institute (IFPRI), Bangladesh. The response rate was 33 % (40 respondents).

Stakeholder survey respondents were predominantly male (63 %), with ages ranging from 32 to 68 and an average of 17 years of experience in the food sector. Despite 88 % reporting active involvement in policy design and implementation for food safety, only 55 % expressed familiarity with the food environment in Dhaka's poor urban population. Furthermore, 97 % had attended at least one food safety meeting before the survey, indicating expertise in food safety issues. These respondents represented diverse sectors, including government, academia, research institutions, and international/national NGOs (including UN agencies) (see [Appendix Fig. 1](#)).

The survey gathered demographic information (organisational affiliation, role, gender, age, and years of experience in the food sector) to understand the stakeholder landscape. The survey focused on stakeholder involvement in shaping FSPs, their views on existing FSPs and awareness of Dhaka's slum FRE. The survey sought respondents' opinions on food safety for the urban poor, including their concerns, the effectiveness of current policies, collaboration among stakeholders, and monitoring practices in 20 multiple-choice questions. This encompassed inspection practices, affordability of safe food, the use of technology, policy inclusivity, and existing barriers to food safety. Additionally, respondents were invited to suggest improvements for enhancing food safety practices at retail points within slums.

3.3. Data analysis and result presentation

We employed a triangulation approach to analyse food safety policies (FSPs) in FRE for the urban poor population, drawing on data from three sources: policy documents, consumer interviews and stakeholder surveys.

Policy document analysis utilised Atlas. ti₉ software. We applied a combined deductive-inductive thematic analysis approach. Predefined themes were established based on research objectives and existing literature, while inductive analysis allowed for the identification of emerging themes. A content and thematic analysis approach was used to examine consumer concerns and data from policy documents. A coding framework was developed to identify key themes and patterns, focusing on consumer concerns and policy gaps related to implement food safety policies. A thorough content analysis was then conducted on the chosen policy texts. This approach enabled us to assess the viability of policy strategies and instruments based on seven key criteria from [Theis's \(2022\)](#) analysis matrix (see [Table 1](#)). These criteria encompass responsible actors, target populations, monitoring plans, timeframes, budgets,

Table 1

Criteria for evaluating policy documents and their implementation viability.

Evaluation criteria	Description of the evaluation	Evaluation questions	Possible answer
1. Target population	Who is the policy aimed at? Who is making the change?	Is there a clear target group?	Yes/No
2. Responsible actor	Is it clear who is responsible for delivering the policy?	Is it clear who is responsible for delivering the policy?	Yes/No
3. Monitoring or evaluation plan	How will the policy be monitored and evaluated, and will that be conducted independently?	Is there any monitoring and evaluation plan?	Yes/No
4. Time frame	What is the time frame of the policy?	Is the time frame defined or ongoing?	Yes/No
5. Cost and budget	How much will the policy cost, and is a budget allocated?	Is the budget mentioned?	Yes/No
6. Evidence	What evidence is the policy based upon? Such as surveys, research results, etc.	Has there been any evidence mentioned in the policy document?	Yes/No
7. Theory of change	How is the policy theorised to work? What are the key assumptions underlying how it is theorized to work?	Is there a clear theory of change mentioned in the policy document?	Yes/No

Note: Adopted from the policy implementation validity framework by Theis ([Theis, 2022](#)).

evidence base, and theory of change. A high viability score is achieved by fulfilling more than five of the seven criteria, while a low viability score indicates meeting two criteria or less.

We re-analysed data from a previous project ("Food Systems for a Healthier Diet") ([Haque et al., 2023, 2024](#)), specifically focusing on consumers' concerns and coping strategies at retail outlets. The audio-recorded interviews were transcribed, translated, coded, and analysed for themes, providing valuable insights into the lived experiences of consumers facing poverty. Data from the online survey of policy stakeholders was analysed using SPSS software version 21. This survey explored stakeholder involvement, their views on current policies, and insights into food safety challenges faced by the urban poor.

The results section adheres to the outlined conceptual framework and triangulation. Each subsection will present food safety concerns arising from semi-structured interviews, followed by findings from policy document analysis, and conclude with complementary findings from the stakeholder survey to draw an integrated conclusion. In the following section, data from policy documents, consumer interviews, and stakeholder surveys is used to assess the strengths and weaknesses of these policies through the lens of our conceptual framework.

4. Results

4.1. Description of policies

Twenty-one strategy and policy documents by the government of Bangladesh (see [Appendix Table 2](#)) fulfilled the aforementioned inclusion criteria, originating from the Ministry of Food (18 documents) and the Ministry of Fisheries and Livestock (3 documents). These documents reflect policy developments since the enactment of the Food Safety Act in 2013, with notable advancements observed in 2014, 2017, and 2021 (see [Fig. 3](#)). Policy areas addressed include adulterated food seizure, food labelling regulations, hygiene practices, and advertising standards. Despite these advancements, explicit regulations or guidelines intended to promote inclusive food safety practices within the retail sector are still lacking, particularly for poor urban consumers.

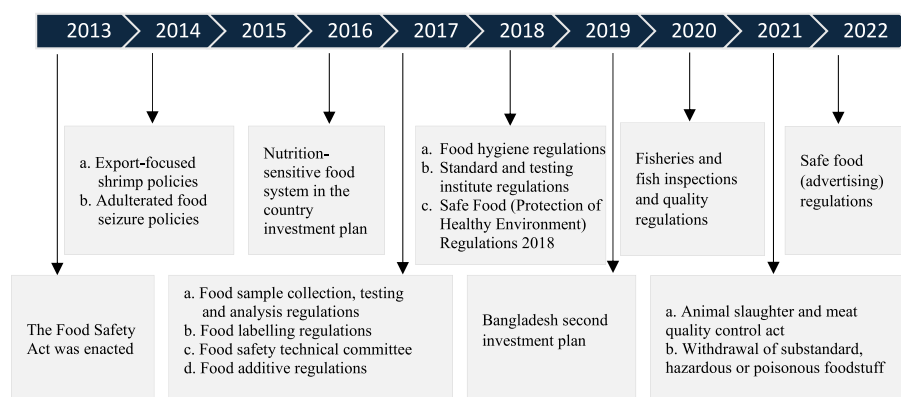


Fig. 3. List of analysed documents on food safety policies in Bangladesh.

4.2. Policy formulation and contents

This section analyses the content of Bangladesh's food safety policies to consider their implementation viability during formulation. The contents outline various aspects of the food system, including safety, nutrition, health, and sustainability. While some policies acknowledge the challenges faced by poor people, the primary focus is on ensuring food security through social safety net programs and price stabilisation strategies (Appendix Table 2). Only two documents demonstrated content reflecting high implementation viability scores, two displayed medium scores, while the remainder exhibited low scores.

Some policy documents have strengths, such as advocating for a safe food environment by ensuring accountability for implementing and monitoring plans. For instance, the National Food and Nutrition Security Policy, 2020 [document 4], and the National Shrimp Policy, 2014 [document 16], identify responsible actors and include monitoring plans (e.g. documents 2, 4, 5, etc.), which facilitate effective progress tracking. However, considerable weaknesses persist. Only a limited number of documents explicitly mention responsible actors (9), and even fewer provide clear monitoring and evaluation plans (3). They generally lack specific timeframes, which are essential for setting and meeting targets within a defined period. There is also a lack of concrete action plans based on evidence, which are necessary for practical and effective implementation. Budget allocations are not clearly outlined, leaving financial planning and resource distribution ambiguous. Furthermore, there are no clear pathways provided to achieve the stated objectives, making it difficult to assess how the goals will be realised in practice. Most critically, none of the documents address the specific challenges related to ensuring food safety in retail environments frequented by the urban poor.

4.3. Policy implementation: policy responses to FSCs and food shopping practices

The policies detail comprehensive strategies involving regulatory measures and information dissemination to encourage safe food practices across various sectors. These initiatives are directed towards individuals, the food industry, and the agriculture sector to ensure compliance with standards, mitigate risks, and increase public awareness to create a safer food environment. Initiatives include a dedicated hotline for reporting food safety concerns and filing complaints to the Bangladesh Food Safety Authority. Appendix Table 3 compares the numerous food safety concerns faced by the urban poor in Bangladesh with their coping strategies when shopping, and existing policies.

4.3.1. Policy response to FSCs when food shopping

Consumer interviews revealed various food safety concerns during shopping, including contamination with formalin, dust and other chemicals; unhealthy animals; spoilage; and unknown agricultural

practices. For instance, one respondent outlined, “*formalin is added to fish, fruits and vegetables and present in almost every food item*” (34y, female, housewife). These observations highlight the daily challenges faced by the urban poor, who have to balance issues of affordability and safety. Stakeholders (82 %) shared similar concerns about chemical residues, reinforcing the pervasiveness of the issue.

Despite ongoing consumer concerns, policy documents outline strength with a distinct approach to regulatory measures and consumer education for chemical contamination. The Food Safety Act of 2013 refers to strict enforcement against food adulteration. It prohibits formalin use in food items, with harsh penalties for violators. Chapter V, Clause 23 outlines these penalties, including imprisonment for up to five years or a fine of 1 million taka (roughly USD 12,200) for first offences, with even stricter punishments (i.e. both punishments) for repeat offenders. Additionally, the Food Safety (Contaminants, Toxins and Harmful Residues) Regulation 2017 identifies and prohibits specific undesirable substances like wood particles, sand, paper, and stones in nitrate and polycyclic aromatic hydrocarbons. The National Food and Nutrition Policy 2020 emphasises consumer awareness through Strategy 2.3, which focuses on preserving nutritional value throughout the food chain. Action 5 of this strategy promotes safer food retailing practices by advocating for labelling properly permitted chemicals and agricultural processes used in food production.

Policies targeting spoiled and expired food primarily rely on information-based strategies. These policies focus on educating consumers about the proper labelling of packaged food and the implications of selling stale or rotten items. Enforcement mechanisms include confiscating damaged goods. For instance, the BSAF Packaged Food Safety System in Bangladesh: Current Status of Food Safety, 2021 mandates clear expiration dates for perishable items, while the Fisheries and Fisheries Act 2020 empowers inspectors to penalise transporters and fish business owners found with chemical contaminants or damaged fish.

4.3.2. Policy response to FSCs when eating out

Consumer concerns about hygiene and food safety when eating out are addressed through various policies. These concerns include uncovered food displays, unclean outlets, indigestion risks, and general hygiene issues. As a consumer said, “*Cleanliness is important for me when choosing a place to eat. If it appears dirty and the vendor does not prepare or serve food hygienically, I do not eat there*” (24y, female, School teacher). The viewpoint highlights the importance of sanitation in everyday food choices and the necessity for policies that ensure such issues are successfully handled. It also reflects a common concern among the urban poor.

Key strategies for addressing these concerns include guidelines for risk communication and training programs for vendors and their staff. Documents such as “Grading the Restaurants”, “Guidelines for Hotels and Restaurants” and “Guidelines for Sweetmeat Producers and

Bakeries” set standards for cleanliness and hygiene (Appendix Table 2). The “Guidelines for Hotels and Restaurants” address the concern of uncovered food on display in section 7, “Storage and Preservation,” mandating that all foods must be covered and refrigerated if necessary. Section 4, “Cleanliness Standard,” covers concerns about unclean outlets, stating that all furniture, rooms, and toilets must be kept clean with adequate air and light. Sections 5 and 6 on “Hygiene and Personal Hygiene” specify the availability of clean water, clean cutlery, wearing uniforms, and ensuring personnel have cut nails.

Safe Food (Protection of Healthy Environment) Regulations 2018 mandates the cleanliness of food outlets, water and waste management, and hygiene practices for food producers and servers. Section 13 specifically addresses mobile vendors, outlining guidelines to protect food from getting rotten, including measures such as avoiding prolonged exposure to sunlight and mandating the use of covered surfaces for informal mobile vendors.

4.4. The gap and the possible source of change for inclusion

In this section, we focus on the weaknesses of the analysed policies that set the stage for making the possible changes. This analysis identifies three key themes contributing to the gap between policy and the reality of food safety for Bangladesh’s urban poor: overlooking the urban poor in policy design, discrepancies between policy and practice, and knowledge gaps among consumers and stakeholders. Despite policy efforts addressing some concerns like hazardous substances and improper storage through regulations, training, and enforcement, a gap remains. Consumer interviews reveal that they cope with food safety risks by checking expiration dates, smelling products, and avoiding specific vendors. Nevertheless, 95 % of stakeholders believe the urban poor are more likely to consume unsafe food compared to their wealthier counterparts, suggesting policy objectives may not get fully translated into their lived experiences.

Food safety policies in Bangladesh often overlook the specific needs of the urban poor, particularly those residing in high-risk areas like slums. Stakeholders (85 %) report a concerning reality - only 40 % of food purchased for home cooking in these areas might meet safety standards. This highlights the urgency for more inclusive policies. Stakeholders themselves emphasize the importance of incorporating clear monitoring and evaluation plans, clearly defined responsible actors, and outlining theories of change within policy documents (see Appendix Fig. 2). Informal vendors, a crucial source of food for the urban poor, are frequently excluded from policy considerations. This is further compounded by the absence of a clear model for social change that outlines a path towards achieving food safety for the poor. Consumer interviews reveal a strong demand for supermarkets and clean eating outlets around slum areas, demonstrating the desire for safer food options. While general guidelines exist for hygiene and restaurant grading, this absence of a targeted approach leaves the urban poor particularly vulnerable to unsafe food practices.

Considerable discrepancies exist between the stringent measures outlined in policy documents and their actual implementation. These gaps affect both food shopping and eating out experiences for the urban poor. While policies may appear robust on paper, enforcement is often weak, especially in slum areas. The aforementioned financial penalties (1 million taka) designed to promote compliance can disproportionately impact smaller retailers, hindering their ability to meet safety standards. Consumer interviews revealed that although magistrate monitoring is seen on television, inspections in slum areas are infrequent. In Bangladesh, magistrates inspect food outlets by performing inspections to enforce hygienic standards, prevent adulteration, guarantee adherence to food safety laws, and impose penalties for violations. 87 % of stakeholders perceive unclean food environments in restaurants near slums. The majority of them also expressed that the low political willingness can weaken local government enforcement efforts, leading to inconsistent and inadequate control measures in these areas (see

Appendix Fig. 3). Additionally, a lack of information on animal slaughter practices at retail points and existing food labelling poses challenges for illiterate consumers, making it difficult for them to make informed choices about food safety. These discrepancies create a situation where policy objectives are not translated into tangible improvements for the urban poor.

Limited awareness among stakeholders cripples food safety oversight even more. A significant knowledge gap emerged from the stakeholders’ survey, with 90 % of stakeholders being unaware of existing food safety monitoring initiatives such as surveys by governments or international organizations. This lack of knowledge hinders their ability to participate and hold authorities accountable. Furthermore, the implementation of information provision strategies is low, particularly for the urban poor. Stakeholders expressed concerns regarding limited communication channels, inadequate resources, and restricted access to technology in slum areas, highlighting significant barriers to effective communication of food safety risks and best practices.

5. Discussion and conclusion

This study examined Bangladesh’s food safety policies (FSPs) and assessed equitable access to safe food for all citizens, particularly focusing on the Food Retail Environment (FRE) within Dhaka slums. Employing a policy evaluation framework encompassing policy formulation, implementation, and gap identification, we scrutinised the strengths and weaknesses of current policies. We employed a bottom-up approach, beginning with consumer concerns revealed in their interviews and then analysing how these concerns align with existing policies. Despite significant policy progress after enacting the Food Safety Act 2013, aimed at science-based management, promoting equity, and addressing consumer concerns, our analysis reveals persistent gaps concerning including all citizens in food safety policies (The Business post, 2023). These findings resonate with studies in similar low- and middle-income countries (LMICs), where food safety policies often fail to fully integrate informal markets and vulnerable populations (Hoffmann et al., 2019; Roy et al., 2023). This discussion synthesises our findings and suggests avenues for enhancing FSPs to effectively safeguard the urban poor in Bangladesh.

First, our analysis highlights several key areas for improvement in policy formulation after 2013. Even if policies exist, they are frequently implemented without taking into account the lived reality and the concerns of the urban poor, as the consumer concerns highlighted. Consumers from other Asian cities show food safety concerns about the market source food (De Filippo et al., 2021; Ishra et al., 2022). While the policy documents of Bangladesh acknowledge almost all concerns of consumers in this study, our content analysis reveals that most policies lack detailed action plans, timeframes, clear responsibility to actors, and budget allocations. These findings align with those observed in South Africa (Kushitor et al., 2022). Most importantly, none of the analysed documents specifically target the challenges of ensuring food safety in retail environments serving the urban poor, particularly informal food vendors. These gaps reflect the broader global south challenges, as seen in studies from Africa and South Asia, where urban food policies tend to neglect the informal food vendors, who are central to the food systems for the urban poor (Booth et al., 2021; Giroux et al., 2021). The gap highlights the urgent need for a more inclusive policy development process that acknowledges the vulnerabilities and challenges faced by the urban poor. Aligning with Theis’s (2022) framework for robust policy evaluation, future policies should prioritise comprehensive stakeholder engagement and resource allocation. Integrating social change models into food safety strategies could benefit the urban poor by promoting long-term behavioural shifts towards safe food practices. Furthermore, future policy design should move beyond a one-size-fits-all approach and adopt an adaptive framework that considers the diverse needs and changing realities of various urban populations (Wertheim-Heck et al., 2019).

Secondly, translating policy objectives into actionable outcomes remains a significant challenge. Other research in LMICs have acknowledged similar implementation challenges (Roy et al., 2023; Ruel et al., 1998). Although Bangladeshi policies detail various strategies, such as regulatory measures and public information campaigns, aimed at promoting safe food practices among consumers and the food industry, the actual implementation of these strategies is hindered by limited communication channels, and the absence of implementors, particularly for illiterate and marginalised individuals (World Health Organization, 2022). For instance, despite existing policies covering regulatory measures, educational initiatives, and information provisions, there is a discernible gap in addressing concerns related to chemical contaminants in shopping practices, particularly in slum areas (Ishra et al., 2022). Consumer-centric policy design requires policymakers to actively consider the poor consumers' perspective and challenges for targeted interventions. For instance, policymakers should prioritise (poor) consumers' concerns, particularly regarding chemical and microbiological contamination. The disconnect between policy goals and on-the-ground realities underscores the importance of considering contextual factors and ensuring that policies are coherent within the existing regulatory landscape, as DeGroff and Cargo (2009) emphasize. Additionally, regulatory enforcement should be consistent across all retailers, as they are pivotal in driving substantial changes within urban food systems (Boelsen-Robinson et al., 2021). Financial penalties and enforcement measures should be implemented fairly and consistently.

Lastly, a critical examination of the policy gap reveals significant shortcomings in the explicit inclusion of the urban poor in the policy documents. These findings of less inclusivity are in line with several publications (Berger & van Helvoirt, 2018; Lindell & Appelblad, 2009). Despite the establishment of regulatory frameworks and monitoring systems, the practical enforcement and compliance levels are often inadequate. Stakeholder surveys reveal a notable lack of awareness of and involvement in food safety monitoring. Many stakeholders are unaware of existing surveys administered by government bodies or international NGOs, thus missing the opportunity to contribute. Furthermore, there is a notable deficiency in policies explicitly mentioning inclusive practices throughout the food supply chain for the urban poor. This gap aligns with Hudson's (2019) assertion that identifying barriers to effective enforcement and compliance is essential for informing necessary policy revisions and improvements. Furthermore, a crucial gap exists in regulations specifically designed for inclusive food safety practices within the retail sector catering to poor consumers. The prevalence of concerns without corresponding coping activities underscores the vulnerability of poor consumers, emphasising the need for a tailored approach to policy interventions. Tailored food safety policy for the urban poor involves understanding their needs, promoting affordable options, empowering communities, and ensuring targeted enforcement with collaboration.

This study provides valuable insights into food governance in Bangladesh considering the interplay between food safety policies (FSPs), stakeholder perspectives, and practical implications on consumers in an urban context, several limitations must be considered. The conceptual framework in this study underscores the importance of incorporating ongoing implementation feedback to facilitate continuous refinement and adaptation, ensuring FSPs remain effective and relevant. However, the reliance on government policy documents available online may have overlooked other pertinent sources. The impact of institutional structures on how food safety regulations are implemented was not adequately taken into consideration in this study. Additionally, our static examination of FSPs fails to capture their dynamic nature and potential evolution over time. Future research should adopt longitudinal approaches to track the effectiveness of FSPs. Caution is needed when interpreting documents due to the differences among policies, strategies, regulations, and acts. Moreover, increased engagement from government and funding stakeholders is crucial for sustaining impactful studies and establishing an enabling policy framework (Gillespie et al., 2018).

With effective management, cities are expected to become hubs of innovation and creativity, testing new concepts that can then influence other policy levels (Dagevos, 2016; Helguero et al., 2022; Moragues-Faus & Morgan, 2015). For instance, the intricate links between food safety policies and various urban challenges, highlighted in this study, necessitate a multi-pronged approach. Decentralized governance models, with municipalities playing a pivotal role in managing food safety, offer promise (Blay-Palmer, 2009; Magarini et al., 2017). Cities like London demonstrate the effectiveness of such approaches (Parsons et al., 2021). However, successful implementation in urban areas requires a comprehensive assessment of local governance structures and their capacity to support seamless collaboration between national and local levels (Oosterveer and van Vliet, 2010; Parsons et al., 2021). This highlights the need for a tailored urban food policy for urban areas such as Dhaka that explicitly defines responsibilities and empowers local authorities.

Our findings underscore the governance challenges faced by Bangladesh, one of the LMICs, striving for food safety amidst resource limitations and an informal food sector (Suman et al., 2021). The lingering concerns about food safety, particularly among Bangladesh's urban poor (Haque et al., 2023), necessitate a data-driven approach. By prioritising the needs of the poor, strengthening enforcement mechanisms, and improving communication strategies, Bangladesh can build a more equitable and robust food safety system. The study underscores the critical need for inclusive and adaptable food safety policies tailored to the challenges faced by poor urban populations, emphasising stakeholder engagement, coherent implementation, and targeted enforcement for equitable access to safe food in Bangladesh's urban environments. This study advocates for a critical reassessment of prioritising retail modernisation and advocates for a paradigm shift towards inclusive food safety policies in global south cities. Prioritising the needs of the urban poor through targeted interventions, alongside fostering interdisciplinary collaboration, will help create evidence-based solutions to the food safety challenges in these urban areas.

The findings of this study are relevant for food safety governance in LMICs. There is evidence that similar challenges are faced across the global South, where food safety policies often neglect informal food vendors and marginalised populations (Giroux et al., 2021; Grace, 2015). In essence, this study underscores that ensuring food safety in developing urban areas is not just about rules on paper. It is about building bridges between official systems and the everyday lives of people who rely on informal food sources. Research by Unnevehr (2015) highlights that food safety efforts should extend beyond export markets to improve public health and economic outcomes in developing countries. This study recommends enhancing regulations, infrastructure, and local capabilities to secure food safety within local food systems. Studies conducted in Africa (Grace, 2015) and South Asia (Roy et al., 2023) highlight that food safety regulations frequently overlook the informal sector, where many at-risk communities obtain their daily food. Across these regions, food safety governance must evolve to ensure that the needs of vulnerable populations are adequately met, promoting consumer protection (Hoffmann et al., 2019; Suman et al., 2021). By understanding the difficulties encountered in regions such as Bangladesh and prioritising inclusive approaches, safe food can be available to everyone, regardless of location or shopping habits. For example, urban areas like Nairobi (Lindell & Appelblad, 2009) and New Delhi (Singh et al., 2021) face comparable governance issues. Our research can guide policy changes not just in Bangladesh but also in similar urban contexts throughout the global South.

CRedit authorship contribution statement

Md Latiful Haque: Writing – review & editing, Writing – original draft, Visualization, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Conceptualization. **Peter**

Oosterveer: Writing – review & editing, Supervision, Methodology, Formal analysis, Conceptualization. **Christian Reynolds:** Writing – review & editing, Methodology, Investigation, Conceptualization. **Rafaele Vignola:** Writing – review & editing, Supervision, Formal analysis.

Declaration of competing interest

The authors have no conflicts of interest to declare relevant to this article's content.

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Appendix

Table 1
Semi-structured interviews with consumers

Characteristics	25 Semi-structured interviews (n = 27)*
Age group [n, (%)]	
18-30	12, (44)
31-40	08, (30)
41-50	03, (11)
51-65	04, (14)
Gender	
Male	13, (48)
Female	14, (52)
Profession	
Private sector employee	14, (52)
Housewife	6, (22)
Business	3, (11)
Self-employment	4, (15)
Others*	0
Government employee	0
Years of schooling	
No education/can only sign	13, (48)
1-5	5, (19)
6-10	6, (22)
10+	3, (11)

*There were two participants for each of the two SSIs; the households informed us both members shop equally for grocery items.

Table 2
Implementation viability of formulated retail food safety policies in Bangladesh

Policy documents	Policy implementation viability							Viability score
	Target population (General = G, Poor = P)	Responsible actor	Monitoring/evaluation plan	Time frame	Cost and budget	Evidence	Theory of change	Low/Medium/High
1 Withdrawal of substandard, hazardous or poisonous foodstuff Regulations, 2021	G	No	No	No	No	No	No	Low
2 Animal slaughter and meat quality control act 2021	G	Yes	No	No	No	No	No	Low
3 Safe Food (Advertising) Regulations, 2022	No	Yes	No	No	No	No	No	Low
4 National Food and Nutrition Security Policy, 2020 (plan of action 2021–2030)	G	Yes	Yes	Yes	Yes	Yes	No	High
5 Bangladesh fisheries and fisheries inspection and quality control act 2020	G	Yes	Yes	No	No	No	No	Medium

(continued on next page)

Table 2 (continued)

Policy documents		Policy implementation viability							Viability score
		Target population (General = G, Poor = P)	Responsible actor	Monitoring/evaluation plan	Time frame	Cost and budget	Evidence	Theory of change	
6	Food Business Obligation 2020	G (Business)	No	No	No	No	No	No	Low
7	Food safety (food hygiene) regulations, 2018	G	Yes	No	No	No	No	No	Low
8	Safe Food (Protection of Healthy Environment) Regulations 2018	G	No	No	No	No	No	No	Low
9	Bangladesh standards and testing institution act 2018	G	Yes	No	No	Yes	No	No	Low
10	Use of food additives regulations, 2017	–	Yes	No	No	No	No	No	Low
15	Food safety (contaminants, toxins and harmful residues) regulations, 2017	G	No	No	No	No	No	No	Low
11	Packaged Food Labelling Act, 2017	G	No	No	No	No	No	No	Low
12	Food Sample Collection, Testing and Analysis Regulations, 2017	–	No	No	No	No	No	No	Low
13	Food Safety Technical Committee Rules 2017	G	Yes	No	No	No	No	No	Low
14	Bangladesh's Second Country Investment Plan 2016–2020 (cip2) -nutrition-sensitive food system	G	Yes	No	Yes	Yes	Yes	No	High
15	Food safety (food seizure and administration system) rules, 2014	G	No	No	No	No	No	No	Low
16	National Shrimp Policy 2014	G	Yes	Yes	No	No	No	No	Medium
17	Food Safety Act 2013	G	No	No	No	No	No	No	Low
18	Grading the restaurants	G	No	No	No	No	No	No	Low
19	Guidelines for hotels and restaurants	G	No	No	No	No	No	No	Low
20	Guidelines for sweetmeat producers and bakeries	G	No	No	No	No	No	No	Low
21	Family food safety direction	G	No	No	No	No	No	No	Low

Table 3

Consumers' concerns, coping strategies, and policy measures in retail food safety in Bangladesh

Poor consumers concerns ^a	Coping strategies	Policy contents	Illustrations for policy aims and targets
Everyday grocery shopping			
- Formalin	- No action is detected	- "The use of harmful substances - No individual shall, either directly or indirectly, on their own or through a representative, introduce into any food product any chemical, ingredient, or substance (e.g., calcium carbide, formalin, sodium cyclamate), insecticides or pesticides (e.g., DDT, PCB oil, etc.), or any tainted food colouring or flavouring agents, whether appealing or not, along with any other harmful additives or processing aids that have the potential to cause harm or toxicity to human health in any food product. Furthermore, it is prohibited to store, promote, or sell any such food item or food ingredient containing such materials"-Food Safety Act, 2013, Chapter 5, section 23	- Specific legal provisions and regulations against harmful substances in food products
- Dust	- Choose packaged items	- The use of open salt is recognised.	- Recognition of open food items in the market
- Diseased animals	- Ask the vendors about animal health before buying	- Bringing of poultry to the slaughterhouse must follow the following: Dead or sick poultry shall not be brought to the slaughterhouse. - Animal slaughter and meat quality control act 2021	- Regulations ensuring that only healthy animals are slaughtered and handled appropriately before processing
- Artificial colouring or additives	- Observe before buying	- "Any person or a person appointed on behalf of him/her, directly or indirectly, will not be allowed to use or include any colouring material or colour-bearing material mentioned in the part-1 of Schedule-1 or its mixture in more than Bangladesh National Standard in any food or food ingredient or will not manufacture, import, process, store, supply or sell any food or food ingredient prepared that way."- Use of Food Additives Act 2017	- Restrictions and penalties for exceeding the national standard on artificial colouring and additives
- Rotten foods and bad smells	- Inspect food for signs of spoilage	- No criminal or administrative action shall be taken against a fish seller or shopkeeper if raw fish and other perishable fish products are found in a state of decay due to natural causes in any retail fish-selling establishment, hawker, or shop, provided that it is clearly understood they have not placed or attempted to place such fish and fish products for sale without- Bangladesh Fisheries and Fisheries Inspection and Quality Control Act 2020	- No administrative or criminal action if spoilage is natural and not intentional
- Expired food products	- Check expiration dates on packages	- "In order to identify the source of the packaged food, the manufacturer must, in the shortest possible time, take the initiative to introduce a bar code on the label; However, until the use of bar code is implemented, all source identification information, such as raw materials, foodstuffs and packaging	- Requirements for barcoding and traceability of food products

(continued on next page)

Table 3 (continued)

Poor consumers concerns ^a	Coping strategies	Policy contents	Illustrations for policy aims and targets
- Extended selling periods	- No action is detected	food at all stages of production and distribution, must be stored for a minimum of 3 (three) months after the expiry of the relevant food product and displayed to the food regulator as required.”- Use of food additives regulations, 2017 The policy document advocates for a comprehensive approach to ensure food safety in all stages of the processing chain, encompassing on-farm and off-farm processing, household and industrial processing, transportation, storage, display, and sale. Key measures include developing guidelines incorporating Good Manufacturing Practices (GMP) and Good Hygienic Practices (GHP), disseminating them through training and Behavior Change Communication (BCC), and enforcing Hazard Analysis and Critical Control Points (HACCP) operations. Training focuses on clean and safe handling, using recommended detergents and clean water, proper storage, appropriate packing for transport, and adherence to safety standards during food processing. The main message is a commitment to comprehensive guidelines and training to ensure food safety across the entire processing chain in Bangladesh.- Bangladesh second country investment plan 2016–2020 (cip2)-nutrition-sensitive food system	- Emphasising on comprehensive guides and training programs to ensure throughout the processing chain
- Absence of cultivation and handling information	- No action is detected	- “In the interest of ensuring safe food, where applicable, special instructions relating to food processing, packaging, preservation, storage, transportation and distribution, if any, must be stated on the packaged food label. “- Use of food additives regulations, 2017	- Mandate for labeling special instructions on food packaging
- Animal Slaughtering information	- Asking the vendor about the time of slaughtering	- Any animal to be slaughtered must be healthy and alive and must be rested for at least 6 h before slaughter. - Animal slaughter and meat quality control act 2021	- Regulations ensuring proper handling and health of animals before slaughter.
- Mixing meat types (e.g. cow and dog)	- No action is detected	- After slaughtering an animal only after its death is confirmed, as the case may be, can be removed from the body only after it has been disposed of in relation to death. Explanation: For the purposes of this rule, cattle, i.e. cows, buffaloes, goats, sheep, goats, rabbits and deer shall be included; unless prohibited by any other law.- Animal slaughter and meat quality control act 2021.	- Definition and regulation of meat types permissible for sale and consumption
- Foods sold by street vendors	- Avoid buying from street vendors	- “Use TV, radio, local theatre and other media to sensitise people to the risks of contamination of food through humans • Target mothers through healthcare workers • Provide bespoke training to food handlers in market and supermarkets, restaurateurs and street vendors • Incorporate hygiene education in school curricula”- Bangladesh’s Second Country Investment Plan 2016–2020 (cip2) -nutrition-sensitive food system	- Educational and training programs to raise awareness and improve food safety practices among vendors
Eating out			
- Uncovered food on display	- Look before buying	- Make sure food is covered and refrigerated at all times- Guidelines for hotels and restaurants	- Guidelines for maintaining food hygiene and safety in hotels and restaurants.
- Unclean outlets	- Avoid eating	- Ensuring the regular cleaning of all furniture, utensils (such as tables, chairs, and trays), walls, floors, carpets, windows, and doors with disinfectant, while implementing rigorous pest control measures- Guidelines for hotels and restaurants	- Recommendations for maintaining cleanliness and hygiene standards in eating establishments.
- Fear of indigestions	- Miss meals and eat only when coming back home	- Use TV, radio, local theatre and other media to sensitise people to the risks of contamination of food through humans • Target mothers through healthcare workers • Incorporate hygiene education in school curricula.- Bangladesh second country investment plan 2016–2020 (cip2) -nutrition-sensitive food system	- Educational programs and media campaigns to raise awareness about food contamination risks and hygiene practices.
- Food handler’s hygiene	- Observe before buying;	- • Provide bespoke training to food handlers in markets and supermarkets, restaurateurs and street vendors	- Training initiatives to ensure food handlers maintain proper hygiene standards.
- Unknown processing	- No action is detected	- “In the interest of ensuring safe food, where applicable, special instructions relating to food processing, packaging, preservation, storage, transportation and distribution, if any, must be stated on the packaged food label. “- Use of food additives regulations, 2017	- Mandate for labelling special instructions on food packaging
- Stale status of food and Unacceptable smell	- Check before buying and stop eating	- Sterilization means keeping food safe and suitable or reducing the amount of micro-organisms present in food by applying certain chemicals, heating food or other methods. - Food safety (food hygiene) regulations, 2018	- Methods highlighted for ensuring food hygiene and reducing microbial contamination.

Note: ^aConsumers’ concerns were revealed from the first author’s previous two studies (one unpublished and another published: <https://doi.org/10.3389/fsufs.2023.1248638>). Some of the policy quotes are translated by the first author whose mother tongue is Bengali unless this is under a quotation from an available English version.



Fig. 1. Categories of stakeholders in food safety policy survey

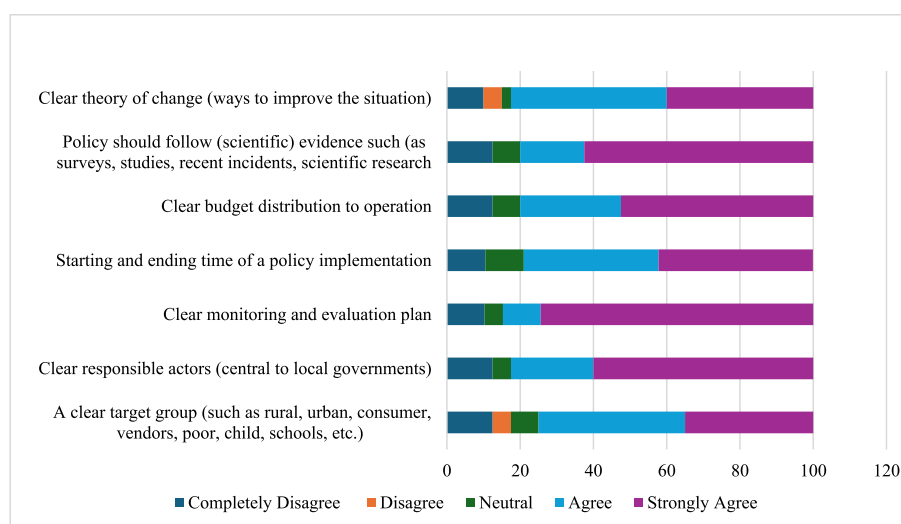


Fig. 2. Stakeholder perspectives on key aspects to include in food safety policy documents

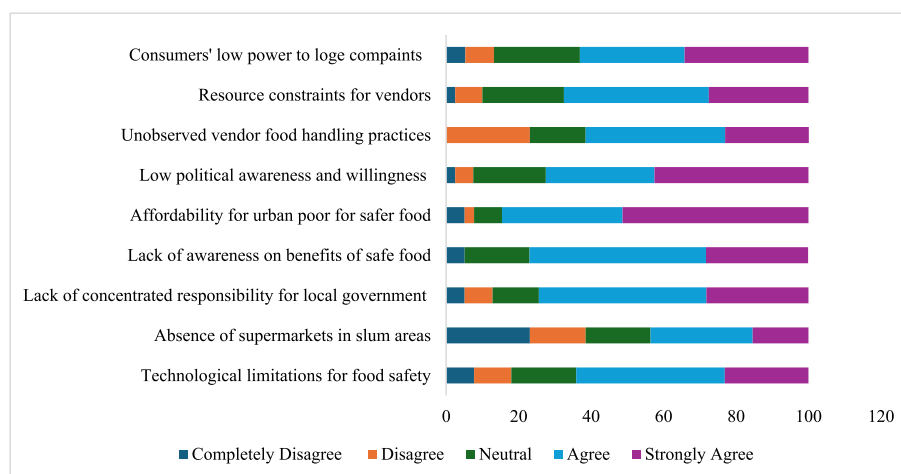


Fig. 3. Stakeholder perspectives on barriers to safe food in urban retail environments

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