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A COMPREHENSIVE STUDY ON FOOD SAFETY GOVERNANCE AND CHALLENGES IN INDIA

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ABSTRACT:

Food safety is a critical component of public health and economic development, particularly in a populous and diverse country like India. This study provides a comprehensive examination of the governance mechanisms, institutional frameworks, and ongoing challenges in ensuring food safety in India. It begins by analyzing the role of key regulatory bodies, particularly the Food Safety and Standards Authority of India (FSSAI), in formulating and enforcing food safety standards. The study further explores the implementation gaps, issues of regulatory compliance, infrastructural limitations, and the lack of public awareness, which collectively hinder the effectiveness of food safety measures. It also highlights the challenges posed by informal food sectors, adulteration, and contamination across the supply chain—from production and processing to distribution and consumption. The paper evaluates the impact of globalization, climate change, and technological advancement on food safety dynamics in India. Through policy analysis and case studies, it identifies critical areas needing reform and suggests strategies for strengthening governance, enhancing stakeholder coordination, and promoting a culture of food safety. The study concludes that while significant strides have been made, a more integrated and proactive approach is essential to ensure safe, nutritious, and accessible food for all citizens.

INTRODUCTION:

Food safety is a vital public health concern that directly impacts the well-being of citizens and the overall development of a nation. In India, a country with over 1.4 billion people and a vast, complex food supply chain, ensuring the safety and quality of food has emerged as a significant governance challenge. With rising consumer awareness, rapid urbanization, changing food habits, and a growing reliance on processed and packaged food, the need for a robust food safety framework has become increasingly urgent.

The responsibility of maintaining food safety in India primarily rests with the Food Safety and Standards Authority of India (FSSAI), established under the Food Safety and Standards Act, 2006. The FSSAI consolidates various food laws and sets scientific standards for food products, regulating their manufacture, storage, distribution, sale, and import to ensure availability of safe and wholesome food to consumers. However, the enforcement of food safety standards across a geographically and socioeconomically diverse nation presents numerous obstacles.

India's food safety governance faces a multitude of challenges, including inadequate infrastructure, insufficient human resources, weak inter-agency coordination, limited consumer awareness, and an overwhelming presence of unorganized food sectors. Food adulteration, contamination due to pesticide residues, unhygienic food handling practices, and poor supply chain management further exacerbate the risks. Moreover, global influences such as climate change, international trade, and cross-border food safety regulations add layers of complexity to domestic governance efforts.

This study aims to critically analyze the existing food safety governance mechanisms in India, identify systemic challenges, and evaluate the effectiveness of policy implementation. It also explores opportunities for strengthening institutional frameworks, promoting stakeholder engagement, and integrating technological innovations to enhance food safety outcomes. By addressing both structural and operational deficiencies, this research seeks to contribute to the broader discourse on food security, consumer protection, and public health in India.

HISTORY OF FOOD SAFETY:

The evolution of food safety governance in India reflects the country's growing recognition of the need to protect public health through effective regulation of food production and consumption. Historically, food safety in India was managed through a fragmented legal framework consisting of multiple laws and regulatory bodies, which often led to overlapping responsibilities and inefficient enforcement.

The law of Moses contains decrees on food that are similar to certain aspects of modern food laws. Rome established state control over food supplies and, according to available records, safeguarded consumers against low-quality goods and fraudulent practices. It appears that Rome used this method of controlling food until the seventh century.

Early food laws were designed to protect purchases from fraud; this was the predominant legal concern. Therefore, it was fortunate that protection against fraud and health care was frequently almost synonymous. Any actions taken against offenders however were based specifically on fraudulent transactions; there was no stated intention to protect public health. The fragmented nature of these laws and the presence of multiple enforcement authorities created gaps in regulation, making it difficult to implement a consistent and comprehensive food safety regime.

IMPORTANCE OF FOOD SAFETY:

Food safety holds paramount importance in India, not only as a public health imperative but also as a driver of economic growth, trade sustainability, and national food security. Food safety is directly linked to economic development. Unsafe food leads to lost productivity, high healthcare costs, and reduced consumer confidence. For food businesses, particularly those involved in exports, non-compliance with safety standards can result in trade bans, recalls, and loss of market access, affecting the livelihoods of millions involved in the food supply chain.

Contaminated food undermines nutrition goals and can lead to malnutrition, stunting, and underdevelopment, particularly in children. Ensuring food safety helps achieve the broader objectives of national health programs and the Sustainable Development Goals (SDGs). Rising consumer awareness and changing dietary preferences have made food safety a key determinant of consumer choice. Ensuring that food is safe builds trust in the food system, encourages healthy consumption patterns, and enhances the credibility of regulatory institutions.

FACTORS INFLUENCING THE SAFETY OF FOOD:

Factors Influencing Food Safety in India

Food safety in India is shaped by a complex interplay of various social, economic, infrastructural, regulatory, and environmental factors. These factors influence the quality and safety of food at every stage of the supply chain—from production to consumption. Understanding these influences is crucial to identifying systemic gaps and formulating effective policies.

1. Agricultural Practices

- Use of Chemicals: Excessive and unsafe use of pesticides, fertilizers, and veterinary drugs can lead to harmful residues in food products.
- Post-Harvest Handling: Poor storage, improper handling, and lack of cold chain infrastructure can lead to spoilage and contamination.

2. Processing and Manufacturing Standards

- Unhygienic Processing Units: Many small-scale and unregistered food businesses operate under substandard conditions, with limited regard for hygiene.
- Lack of Technology: Inadequate adoption of modern food processing technology and quality control systems contributes to inconsistent food safety outcomes.
- Adulteration: Deliberate adulteration of food items—driven by profit motives—is a major challenge in both rural and urban areas.

3. Supply Chain and Distribution Systems

- Fragmented Supply Chains: Multiple intermediaries and lack of traceability make it difficult to monitor food safety across the chain.
- Cold Storage Deficiency: India suffers from an acute shortage of cold storage facilities, particularly for perishable items like dairy, meat, and produce.
- Transportation Issues: Poor infrastructure and inadequate transportation facilities often result in spoilage and contamination during transit.

4. Regulatory and Institutional Framework

- Enforcement Gaps: Despite the presence of FSSAI and state-level food safety officers, enforcement is often weak due to limited manpower and resources.
- Coordination Challenges: Overlapping jurisdictions and poor inter-agency coordination hinder effective implementation of food safety regulations.

5. Consumer Awareness and Behavior

- Low Awareness: Many consumers are unaware of basic food safety practices and labeling norms, which limits demand for safer products.
- Informal Food Consumption: A large segment of the population relies on street food and unorganized vendors, where food safety practices are minimal.

7. Environmental and Climatic Conditions

- Climate Change: Shifts in temperature and rainfall patterns affect crop safety and promote the spread of pests and diseases.
- Urban Pollution: Food grown or processed in polluted environments (e.g., near industrial zones or sewage-contaminated areas) is at higher risk of contamination.

TYPES OF FOOD SAFETY HAZARDS:

Food safety hazards refer to any biological, chemical, or physical agent in food that can cause illness or injury to consumers. In India, due to a combination of traditional practices, infrastructural gaps, and regulatory challenges, food products are susceptible to multiple types of hazards. These hazards can occur at any stage of the food supply chain-from production and processing to storage, distribution, and consumption.



1. Biological Hazards

These involve microorganisms such as bacteria, viruses, parasites, and fungi that can contaminate food and cause illness. Common examples in India:

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- Salmonella from undercooked eggs or meat. .
- E. coli from contaminated water or vegetables. •
- Listeria monocytogenes in unpasteurized dairy products. .
- Norovirus and Hepatitis A from improper hygiene and unsafe street food.

Causes:

- Poor hygiene among food handlers.
- Contaminated water sources.
- Inadequate cooking and refrigeration practices.

2. Chemical Hazards

Chemical hazards result from harmful substances that contaminate food through agricultural practices, industrial pollution, or food processing. Common examples in India:

- Pesticide residues in fruits and vegetables.
- Antibiotic residues in meat and dairy products.
- Food additives and coloring agents used illegally or in excessive quantities (e.g., Rhodamine B, Sudan dyes).

Causes:

- Excessive use of agrochemicals.
- Environmental pollution.

3. Physical Hazards

Physical hazards involve the presence of foreign objects in food that may cause injury or choking.

Causes:

- Poor manufacturing practices.
- Inadequate quality checks during packaging and handling.
- Contamination during transport and storage.

4. Allergenic Hazards

Allergenic hazards occur when food contains certain proteins that can trigger allergic reactions in sensitive individuals. **Challenges in India:**

- Lack of proper allergen labeling.
- Cross-contamination in restaurants and food processing units.

5. Adulteration-Related Hazards (Intentional Hazards)

These are deliberate additions or substitutions in food products that compromise safety and quality, often for economic gain.

Examples in India:

- Mixing water in milk.
- Adding brick powder or red oxide to chili powder.
- Urea and detergent in synthetic milk.
- Use of non-permitted artificial ripening agents (e.g., calcium carbide in mangoes).

Impact:

Immediate and long-term health risks, including organ damage, cancer, and neurological disorders.

FOOD LAWS AND REGULATIONS:

The objective of the act was to ensure that food articles sold to the customers are pure and wholesome. It also intended to prevent fraud or deception and encourage fair trade practices. The act prohibits the manufacture, sale and distribution of not only adulterated food but also food contaminated with microorganisms and toxicants and misbranded foods.

In 1955 the order was revised. The fruit product order (FPO) lays down statutory minimum standards in respect of the quality of various fruits and vegetables products and processing facilities.

Meat Products order:

This makes it illegal to transport meat unless it has been prepared and processed according to the provisions of the order and carries the mark of inspection.

The order also lays down rules and conditions for procedure to be adopted for the selection of disease-free animals, slaughterhouse practices for further treatment of the meat so as to maintain the meat in a wholesome manner.

Codex Alimentarius:

The FAO/WHO food standards programme is called CODEX ALIMENTARIUS. The codex alimentarius which means "food laws" or "food code" in latin is a combined set of standards codes or practices and other model regulations available for countries to use and apply to food international trade. The dual objectives of the codex alimentarius commission are to protect the health of consumers and facilitate international trade.

Comparative Test Reports on Foods in India – Implications for Standardization:

Comparative testing was used as a tool of consumer empowerment way back in1936 by Consumers Union of New York and their origins in India, where it was pioneered by Consumer VOICE based in Delhi and Consumer Education and Research Centre based in Ahmedabad. Comparative Product Testing program in India was started in 1991, by the Sathi Nair Committee of Government of India, which supported the popularization of Comparative Testing by laying down certain guidelines for consumer organizations to carry out comparative testing on the model of Stiftung Warentest of Germany. This was approved and supported by the Ministry of Consumer Affairs, Food and Public Distribution. This section elaborates on some of the Comparative studies conducted by NGOs across the country that garnered public interest and media attention due to the urgent nature of the findings. They were also able to effectively rattle the Government machinery working in the area of food regulation and standardization. Among several products

and reports over the years a select few have been focused upon in this study. Starting with a very popular snack food item – Potato Chips- it was found that there have been few comparative studies in the past and reports are available in the national domain. However and in the context of the present study, their influence on the legislative machinery in terms of standards and compliance needs to be examined in detail.

The Health Ministry ordered an enquiry and several state Governments put it in action by getting samples from the local markets analyzed for safety and eventually banned the sale and complete withdrawal of packs of Maggi noodles from the market as a damage control measure. Public engagement with the Maggi issue was on a scale never seen before. A number of factors can be enumerated as reasons behind this.

Narratives of Consumer organizations on their Participation in the Actual Process of Standardization:

A number of local-Gujarat based, and other nationally recognized organizations were contacted for the purpose. It was observed through the interviews that local organizations were ill equipped88 and less inclined in contributing towards standards development on a national scale. However, they were vociferous in their concerns regarding the lack of effective mechanism of implementation with respect to the current state of affairs.

CERC's representative also stressed on the need for inclusion of more NGOs in technical/advisory panels of the FSSAI, since there was a scope for just two or three at present. Adequate representation could only result in making the voice of the common consumer heard.

Consumer Action and Awareness Group (CAG), a Chennai based consumer organization of prominence is represented in both the BIS and the FSSAI committees. A respondent from the organization92 said "Regulatory authorities in India do not have adequate expertise to enforce these standards effectively. These authorities must look at employing technical expertise to regulate and monitor the implementation of standards. They must conduct training programs to train both their personnel and personnel employed in the industry. They must conduct feedback and review sessions with the enterprises in the industry."

Role of Consumers International in Shaping Standardization Activities in India:

CI works together with its members across the globe by providing guidance and sponsorship under various programmes every year. The researcher got a chance to interact with two of the representatives of the CI during one of such programmes organized in India.

Role of Consumer Organizations in India in Standardization:

The consumer organizations in India are playing an active role via dissemination of information regarding various standards & regulatory requirements applicable to products that helps in creating consumer awareness. Compliance to the specific parameters related to say the packaged drinking water along with the presence of a standard quality mark such as the ISI, adds to consumers' confidence & faith in the product.

Thus, consumer organizations also work voluntarily as monitoring agencies keeping a check on the market with respect to the consumer goods and questioning the manufacturer for a faulty product and recommending a better product to the consumer. At the same time they help the regulatory bodies in tracking unscrupulous manufacturers and work for the betterment of products.

As a part of their contribution in the standardization process, discussed elaborately with respect to foods, these organizations also scrutinize a wide range of consumer products and services against national/ international standards for helping people make an 'informed choice'. In case of products with practically nonexistent standards (as in case of novel foods in India) they advocate setting of new standards. Another interesting area where consumer organizations enlighten the consumers is by analyzing various kinds of products along with comparing their prices in order to rate them as 'worth the price' or give an idea about 'value for money'.

While on one hand, due to their independent status and 'non-profit' based identity, these organizations are viewed with trust and enjoy credibility both by the public as well as the authorities, on the other hand, due to their modus operandi, i.e., with reference to the media outreach and tendency to sensationalize, manufacturers or industry and often even government officials see them as potential threat to their business and reputation.

Representations by the interest groups like consumer organizations are often based on analytical data from laboratory as well as in depth research with respect to labeling, advertising, marketing campaigns through media for collecting information and evidence. However, as could be the case with any other sphere of activity where there are conflicts of economic interests for various stakeholders, standardization can also not remain immune to biases and/or under the table dealings.

CONCLUSION:

Standardization in the food sector may be understood as a socio-technical process involving various interest groups who are involved in the definition and shaping of food standards. The present study attempted to examine the nature of standardization for various interest groups such as firms, regulatory bodies and consumer organizations, with reference to the food sector. An effort was also made to understand how standards for foods have evolved in India over a period of time. The study also attempted to identify the negotiations among various interest groups in relation to the framing, shaping and monitoring of standards pertaining to foods. The Social Shaping of Technology (SST) approach was regarded as apt and befitting for the study as it enabled the researcher to examine how relevant social groups engaged and negotiated with each other in the process of constituting, framing and governance of standards in the food sector.

An important conclusion drawn from the interviews with Government/regulatory officials was that during standardization meetings, inputs from their side are usually restrained owing to various reasons. One reason could be of having been assigned a defined/limited role. As one of the BIS respondents informed me that their role was to facilitate and bring together different stakeholders for a meaningful dialogue. Many of the ISO standards have been straightaway adopted as Indian standards after discussions with committee members. Then there are some representatives from research organizations or other Governmental bodies who seem to be attending the meetings just for the sake of it.

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