

Regulatory Asymmetries and the Future of Food Safety Governance

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DESCRIPTION

Food safety remains one of the most fundamental aspects of public health, economic stability and international trade. As the global food supply becomes increasingly interconnected, the importance of robust, harmonized and enforceable food safety regulations cannot be overstated. However, despite global acknowledgment of its significance, food safety regulations and policies vary widely across regions, influenced by economic capacity, political will, technological advancement and cultural practices. This variation creates both challenges and opportunities for advancing food safety globally.

Many developed countries have established rigorous food safety systems backed by strong legal frameworks and regulatory agencies. For example, the United States operates under the Food Safety Modernization Act (FSMA), a landmark legislation implemented by the Food and Drug Administration (FDA), which emphasizes preventive controls, supply chain transparency and traceability. Similarly, the European Union enforces a comprehensive regulatory framework, including the General Food Law Regulation (EC 178/2002), which mandates the application of the precautionary principle, risk assessment and the "farm to fork" approach. These policies are supported by specialized bodies such as the European Food Safety Authority (EFSA), ensuring science-based risk evaluation and effective response to emerging food hazards.

In contrast, many Low- and Middle-Income Countries (LMICs) continue to struggle with fragmented, outdated, or poorly enforced food safety regulations. While the intent to safeguard public health exists, resource limitations, insufficient infrastructure and inadequate training among food producers and inspectors often hinder effective implementation. Informal food markets, which dominate food access in many LMICs, further complicate regulatory enforcement due to the lack of standardized handling practices and oversight mechanisms. Consequently, these nations are often more vulnerable to foodborne illness outbreaks, contamination events and trade rejections due to non-compliance with international food safety standards.

The Codex Alimentarius, developed by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO), plays a critical role in bridging these global disparities. Serving as an international reference for food safety, hygiene and labeling standards, Codex guidelines are recognized by the World Trade Organization (WTO) as benchmarks for resolving food trade disputes. However, while Codex provides a valuable harmonizing framework, its voluntary nature limits enforcement and many countries lack the technical and institutional capacity to align domestic regulations with its recommendations. The implementation gap remains a key obstacle to achieving uniform global food safety outcomes.

One of the pressing challenges in food safety regulation is the rapid evolution of food technologies and the emergence of new risks. Innovations such as Genetically Modified Organisms (GMOs), cell-cultured meat, nanotechnology and the use of artificial intelligence in food production have outpaced traditional regulatory frameworks. This dynamic has led to inconsistent policies across countries, creating regulatory asymmetries that affect global food trade and consumer confidence. For example, while certain GMOs are widely accepted and cultivated in countries like the United States, they remain restricted or banned in others, including parts of Europe and Africa. These discrepancies highlight the tension between scientific risk assessment and societal risk perception—a gap that must be navigated carefully by policymakers.

Food fraud and economically motivated adulteration present another growing threat to food safety and consumer trust. High-profile cases involving melamine-contaminated milk, horse meat substitution and counterfeit olive oil have underscored the need for enhanced surveillance, data sharing and international cooperation. Regulatory responses must include not only traceability requirements but also stronger penalties and legal instruments to deter such practices. Moreover, public-private partnerships can play a significant role in creating transparent supply chains, especially when supported by digital technologies like blockchain and real-time monitoring systems.

In conclusion, food safety regulations and policies across the world remain a dynamic and uneven landscape. While progress has been significant in many regions, persistent gaps in infrastructure,

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enforcement, harmonization and adaptability continue to hinder global food safety goals. The application of modern science, technology and international cooperation provides a viable pathway to close these gaps. Moving forward, food safety must be framed not only as a technical challenge but as a fundamental

support of public health, environmental sustainability, economic development and social equity. A coordinated, inclusive and forward-looking regulatory strategy is the need of the hour to ensure that safe and nutritious food is accessible to all, regardless of geography or income level.