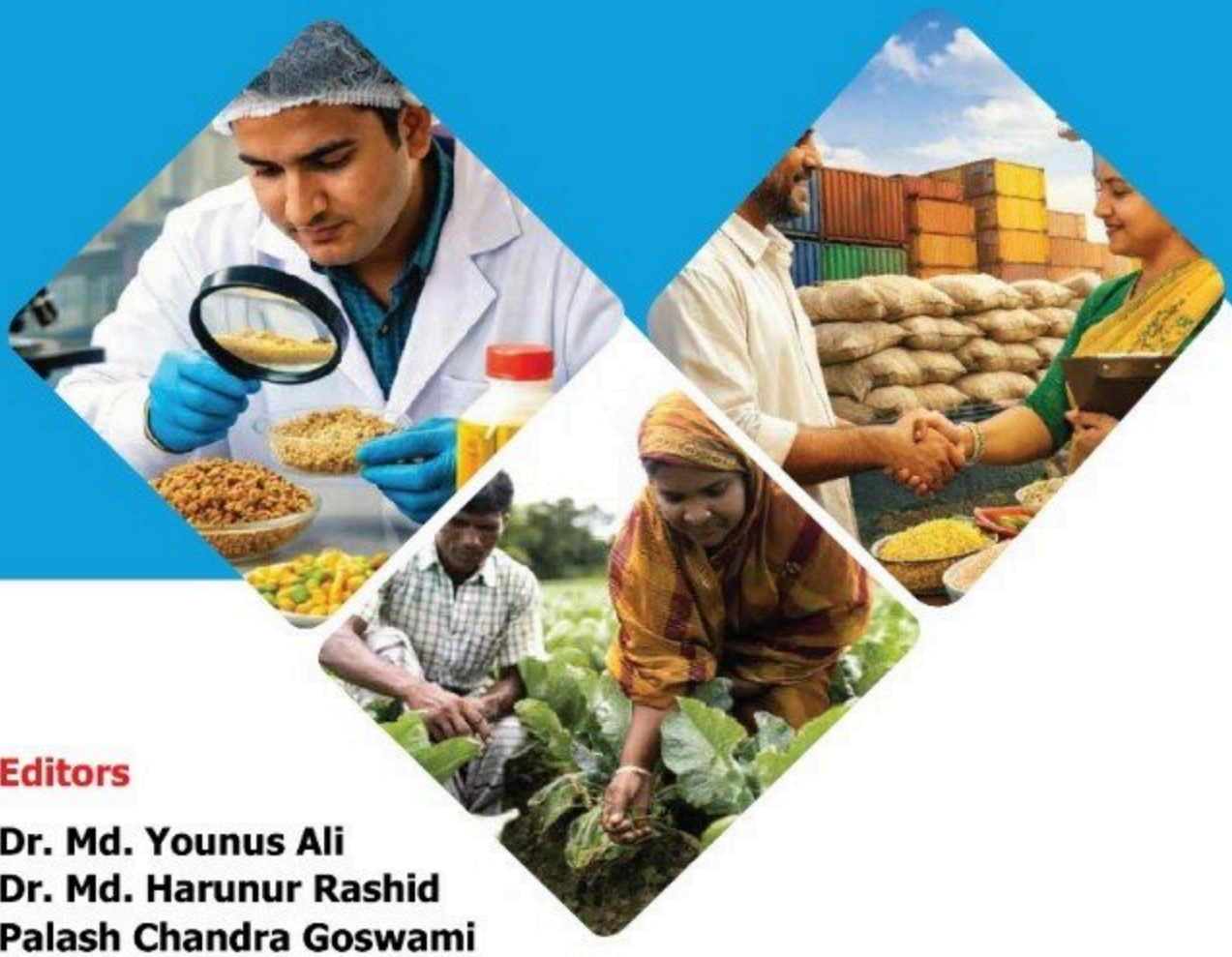
Fostering Agricultural Trade through Harmonized Food Safety Standards in South Asia



Editors

Dr. Md. Younus Ali
Dr. Md. Harunur Rashid
Palash Chandra Goswami
Md. Abul Bashar

SAARC Agriculture Centre (SAC)

Ministry of Agriculture & Livestock Development, Nepal

unicef Unicef Regional Office for South Asia, Nepal

Fostering Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in South Asia

Editors

Dr. Md. Younus Ali
Dr. Md. Harunur Rashid
Palash Chandra Goswami
Md. Abul Bashar

SAARC Agriculture Centre (SAC)

Ministry of Agriculture & Livestock Development, Nepal

unicef Unicef Regional Office for South Asia, Nepal

Fostering Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in South Asia

SAARC Agriculture Centre conducted a three-day Regional Workshop on "Fostering Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in South Asia "held during 27 to 29 August, 2025 in Nepal with the participation of focal experts from Member States, international experts, entrepreneur and other stakeholders.

Editors

Dr. Md. Younus Ali, Senior Program Specialist (Livestock), SAC
Dr. Md. Harunur Rashid, Director, SAC
Palash Chandra Goswami, Senior Program Officer (NRM), SAC
Md. Abul Bashar, Senior Program Officer (Publication), SAC

Published by the SAARC Agriculture Centre, BARC Complex, Farmgate, Dhaka 1215, Bangladesh (http//www.sac.org.bd).

ISBN: 978-984-35-8885-2

Citation
Ali M. Y., Rashid, M. H., Goswami P. C., Bashar, M. A. (Eds) 2025. Fostering Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in South Asia. SAARC Agriculture Centre, Dhaka, Bangladesh, 167p.

Disclaimer:
This book contains the country papers and proceedings of the SAARC Regional Workshop on " Fostering Regional Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in South Asia "held during 27 to 29 August, 2025 in Nepal. The experts for the country paper presentation were the representative of their respective government of SAARC Member States. The opinion expressed/ images used/tables presented in this publication are those of the authors and do not imply any opinion whatsoever on the part of the SAARC Agriculture Centre, specifically regarding the legal status of any country, territory, city or area or its authorities.

Cover design: Ms. Shanjida Akter, Graphics Designer, SAC

Printed by: Konika Enterprise

Price: US$ 5 for SAARC Member States
US$ 10 for rest of the world

Corresponding Editor Information: Dr. Md. Younus Ali, Senior Program Specialist (Livestock), SAARC Agriculture Center, Farmgate, Dhaka-1215, Bangladesh. Email: sps_livestock@sac.org.bd

Foreword

South Asia stands at a critical juncture in its agricultural and food systems journey. Home to nearly one quarter of the world's population, the region bears the dual responsibility of ensuring food and nutrition security for its people while strengthening its position in regional and global agri-food trade. In this context, the theme of this book, Fostering Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in South Asia, is both timely and highly relevant.

Agriculture remains central to the economies, livelihoods, and social fabric of South Asian countries. Despite ongoing structural transformation, the sector continues to employ a large share of the population and plays a vital role in poverty reduction, rural development, and economic stability. At the same time, food systems across the region are evolving rapidly. Changing dietary habits, growing urban demand and the increasing importance of processed and fortified foods reflect efforts to address persistent malnutrition and micronutrient deficiencies. These trends present new opportunities for trade and value addition, while also demanding stronger food safety systems, effective quality assurance and regulatory coherence.

A longstanding challenge for South Asia is the relatively low level of intra-regional agricultural trade, despite geographic proximity, shared agro-ecological conditions, and complementary production structures. Although initiatives such as SAPTA and SAFTA have contributed to progress, agricultural trade continues to face barriers in the form of high tariffs, non-tariff measures, limited trade facilitation and weak mutual recognition of standards. Fragmented food safety regulations, differences in sanitary and phytosanitary measures and uneven testing and certification capacities significantly increase transaction costs, particularly for small and medium enterprises.

This publication offers a comprehensive and evidence-based analysis of these constraints, with a strong focus on the role of harmonized food safety standards in facilitating regional trade. Drawing on national experiences, policy reviews, and country papers presented at the Regional Workshop held in Kathmandu, Nepal in August 2025, this piece of publication provides valuable insights into pathways for moving from fragmented national approaches towards a more coordinated, transparent and trust-based regional food safety framework.

The framing of food safety is not only as a regulatory requirement, but also as a strategic enabler of trade, nutrition and consumer confidence. The emphasis on fortified foods is particularly significant. Fortification has emerged as a cost-effective and scalable approach to addressing hidden hunger in South Asia. Its success, however, depends on clear and consistent standards for nutrient content, labelling, quality control and post-market surveillance. Without regional alignment, fortified food products face unnecessary obstacles in cross-border trade, limiting their potential impact. Harmonized standards can therefore safeguard public health while facilitating the movement of safe and nutritious foods across borders.

The SAARC Countries level analysis demonstrate both encouraging progress and persistent gaps and challenges. Advances are visible in the strengthening of national food safety authorities and the adoption of science-based regulations aligned with Codex Alimentarius. At the same time, capacity limitations remain in areas such as laboratory accreditation, risk assessment, enforcement and support for compliance by smallholders and small enterprises. These challenges highlight the importance of practical regional cooperation through mutual recognition arrangements, joint capacity-building initiatives and coordinated investment in infrastructure.

The role of the private sector, as highlighted in this publication, is equally important. South Asia's agri-food transformation cannot rely on public regulation alone. Private enterprises are increasingly investing in traceability systems, good manufacturing practices and digital certification. When supported by clear and predictable regulatory frameworks, these efforts can enhance compliance, reduce costs and improve competitiveness. Public-private partnerships offer a promising avenue for bridging regulatory objectives with market realities.

SAARC Agriculture Center strongly believe that regional cooperation in agriculture must translate into concrete action. The Centre remains committed to supporting member states through research, policy dialogue, capacity building, knowledge exchange and exposure visit. I commend the authors and contributors for their rigorous work and trust that this publication will inform policy, encourage collaboration and support meaningful progress towards harmonized food safety standards that may contribute foster trade, protect consumers and advance nutrition in South Asia.

Dr. Md. Harunur Rashid
Director

Table of Contents

Chapter 01

Scope of Harmonized Food Safety Standards for Boosting Agricultural Trade in South Asia

Md. Younus Ali, Dr. Md. Harunur Rashid, Dr. Sikander Khan Tanveer & Md. Aminul Islam Asif
SAARC Agriculture Centre, Dhaka, Bangladesh
Email: sps_livestock@sac.org.bd

Introduction

Food Safety and Food Safety Standards in South Asia

Food safety is defined as the set of conditions and measures necessary to ensure that food does not cause harm to the consumer when it is prepared and consumed according to its intended use. In South Asia, food safety has emerged as a critical development priority that intersects with public health, consumer protection, environmental management and international trade law. The region bears a disproportionate burden of foodborne disease and nutrition insecurity: South Asia accounts for approximately 40 percent of global hunger and according to UNDP (2024), one-third of the world's poor-earning less than USD 1.90 per day reside in the region. Notably, up to 57 percent of non-pregnant women of reproductive age (approximately 307 million women) suffer from deficiencies in iron, zinc and folate (Stevens et al., 2022), undermining human capital development and economic productivity.

Despite impressive GDP growth averaging 5.8 percent nearly twice the global average the region struggles with persistent food insecurity driven by poverty, climate change-induced agricultural disruption, food price inflation and extensive food loss and waste. Agriculture remains the backbone of the regional economy, employing over 60 percent of the population, contributing more than 16 percent to GDP and remaining central to rural livelihoods across all eight SAARC member states. Yet, as the 2025 Global Hunger Index classified India and Pakistan as facing serious hunger, Afghanistan as alarming and Bangladesh, Nepal and Sri Lanka as moderate, the quality and safety of the food supply not merely its volume has gained increased policy salience.

Food safety standards in South Asia operate within a complex, multi-layered regulatory architecture. Each SAARC member state maintains sovereign national food safety frameworks, governed by dedicated legislation and regulatory bodies: Bangladesh's Food Safety Act (2013) and Bangladesh Food Safety Authority (BFSA); Bhutan's Food Act (2005) and Food Rules and Regulations (2007); Nepal's Food Safety Act and its implementing regulations; Pakistan's provincial food authority system under acts such as the

Punjab Food Authority Act (2011); Sri Lanka's Food Act No. 26 of 1980 (as amended); and the Maldives' Food Safety Act No. 6/2024. These national instruments are supplemented by varying degrees of alignment with international benchmarks, primarily those set by the Codex Alimentarius Commission (CAC), the joint FAO/WHO intergovernmental standard-setting body, as well as WTO SPS and TBT Agreement obligations. The degree of Codex adoption varies substantially: while India's Food Safety and Standards Authority (FSSAI) has mapped over 1,500 imported food products to Codex-aligned Harmonized System codes and Pakistan's standards are progressively aligned with Codex, other member states face significant implementation gaps due to capacity constraints, institutional fragmentation and resource limitations.

Harmonized Food Safety Standards in South Asia: Existing Situation, Gaps and Challenges

The concept of harmonized food safety standards refers to the alignment of national regulatory requirements covering food additives, contaminants, pesticide maximum residue levels (MRLs), microbiological criteria, labeling norms and certification procedures with internationally agreed benchmarks, to facilitate safe and unimpeded trade. The case for harmonization in South Asia is compelling: the World Bank estimates intra-regional trade at USD 23 billion against a potential of at least USD 67 billion, while UNESCAP projected that regional trade could have reached USD 172 billion by 2020. The region's trade-to-GDP ratio declined from 47.3 percent in 2022 to 42.94 percent in 2024, indicating growing economic inwardness at a time when economic integration is most needed.

Regional efforts toward harmonization have produced some foundational architecture. The South Asian Regional Standards Organization (SARSO), established by SAARC member states in 2011 and operational since 2014, provides a platform for regional standards cooperation. The South Asian Free Trade Area (SAFTA) operational since 2006 and SAPTA provide preferential tariff frameworks, but these instruments have not been accompanied by sufficient regulatory harmonization of non-tariff measures. WHO's Regional Food Safety Strategy (2013–2017) supported the establishment of national Codex committees and INFOSAN focal points and several countries Nepal, Sri Lanka, India, Bangladesh and Bhutan have undertaken reform processes to align their domestic food laws with Codex standards. The SAARC Technical Committee on SPS/TBT Measures exists to promote regional coordination, though its operational effectiveness has been constrained. Despite this progress, critical gaps persist across multiple dimensions. First, regulatory fragmentation remains pervasive: food safety regulations across SAARC vary enormously in scope, technical content and enforcement

capacity, creating inconsistent MRL limits, differing additive permissions, non-harmonized labeling requirements and divergent fortification standards for staple foods such as wheat flour, edible oil, salt and rice. A dramatic illustration of this was Bhutan's 2015 experience in which orange exports were denied entry at the India–Bangladesh border due to differing standards applied by multiple agencies an event that underscored the tangible trade costs of regulatory incoherence. Second, laboratory and testing infrastructure is grossly inadequate across most member states. Bangladesh, for example, has approximately 50 food testing laboratories, of which only 10 hold accreditations from national or international bodies and the vast majority lack the capacity to test for pesticide MRLs, mycotoxins, veterinary drug residues, or other advanced contaminant parameters. Third, the near-total absence of Mutual Recognition Agreements (MRAs) for certifications, laboratory test results and inspection systems forces costly and time-consuming redundant testing of the same products at each national border. Fourth, enforcement capacity is uneven: while large agribusinesses in countries like Pakistan, Sri Lanka and India have invested in ISO 22000, HACCP and GMP compliance, smallholder farmers and small and medium enterprises who constitute the majority of agricultural producers are largely excluded from certification systems, effectively precluding them from formal cross-border trade. Fifth, political economy factors including bilateral geopolitical tensions and asymmetric trust between SAARC member states frequently override technical harmonization commitments, resulting in sudden embargoes, restrictive licensing and selective application of regulatory standards in ways that distort rather than facilitate trade.

For fortified foods specifically, the harmonization gap is particularly consequential. Large-scale food fortification (LSFF) the addition of micronutrients such as iron, zinc, folate, iodine and vitamin A to staple foods is recognized by the 2023 World Health Assembly Resolution (WHA76.19) as one of the most cost-effective interventions for addressing micronutrient deficiencies at population scale. However, SAARC member states currently apply divergent fortification standards in terms of mandatory versus voluntary requirements, micronutrient types and levels, testing methodologies and labeling conventions. This fragmentation means that a fortified food product compliant with standards in one SAARC country may be rejected as non-compliant in another, severely limiting the regional trade potential of fortified foods and constraining public health impact.

Role of Food Safety Standards in Agricultural Trade

Food Safety as a Trade Enabler and Barrier

The relationship between food safety standards and agricultural trade is fundamentally dualistic: well-designed, science-based and transparently

enforced standards serve as powerful enablers of trade by building consumer confidence, reducing information asymmetry and creating predictable regulatory environments. Conversely, poorly designed, discriminatory, or unnecessarily restrictive standards function as non-tariff barriers (NTBs) that impose significant compliance costs, create regulatory uncertainty and distort trade flows in ways disproportionate to their public health justification.

In the WTO framework, the SPS Agreement establishes the right of members to apply measures to protect human, animal, or plant life and health, provided that such measures are grounded in scientific risk assessment, not applied in a manner that constitutes arbitrary or unjustifiable discrimination and not used as disguised restrictions on trade. The TBT Agreement similarly governs technical regulations and standards, including labeling and packaging requirements. However, in South Asia, the implementation of SPS and TBT measures has often been characterized by opacity, inconsistency and political selectivity, undermining the legitimate public health purpose of food safety regulation and converting it into a tool for protectionism.

Country-level analyses from the SAARC regional workshop illuminate this dynamic with specificity. Bangladesh's export trajectory is constrained by inadequate MRL testing capacity: with only 50 food laboratories, 10 of which are accredited, the country struggles to provide the internationally recognized documentation that export markets increasingly demand. Nepal's agricultural export sector centered on products such as tea, cardamom, honey and fresh vegetables faces rejection at both Indian and third-country borders due to pesticide residue violations, partly because smallholder farmers lack access to integrated pest management advisory services and partly because Nepal's domestic testing infrastructure cannot reliably certify compliance. Pakistan's rice, mango and citrus exports major foreign exchange earners must navigate stringent EU, Chinese and Middle Eastern MRL requirements, with compliance depending heavily on residue monitoring capacity and supply chain traceability systems that remain underdeveloped for the smallholder sector. Sri Lanka's export competitiveness in tea, spices, coconut products and seafood relies critically on maintaining compliance with EU Rapid Alert System for Food and Feed (RASFF) requirements; any regulatory deterioration translates directly into market access losses. For the Maldives, which is over 95 percent import-dependent for fortified foods and 100 percent dependent for staple cereals, the harmonization of food safety import standards with SAARC partners is essential for ensuring affordable access to safe and nutritious products.

Non-Tariff Barriers and the True Cost of Regulatory Fragmentation

The academic literature on non-tariff barriers consistently demonstrates that regulatory heterogeneity particularly in food safety standards generates

compliance costs that disproportionately burden smaller traders, exporters and developing economy producers. In South Asia, the aggregated costs of regulatory fragmentation are substantial. The absence of MRAs means that the same food product may undergo duplicative laboratory testing, inspection and certification at each national border, adding days or weeks to transit times for perishable goods and imposing direct financial costs estimated by industry stakeholders to represent 10–20 percent of transaction value in some commodity chains.

For fortified foods, divergent national standards create an even more acute trade barrier. A wheat flour producer in Pakistan that adds iron and folic acid at levels compliant with Pakistani standards may find its product rejected in Bangladesh, which applies different mandatory fortification ranges, or in Nepal, where voluntary fortification standards do not specify minimum levels, creating uncertainty for importing regulators. These regulatory misalignments effectively segment the South Asian market, preventing the economies of scale that would make fortification commercially viable and competitively priced, thereby limiting both the trade and nutrition outcomes of fortification programs.

Infrastructure constraints compound regulatory challenges. Inadequate cold chain facilities at border crossings result in spoilage losses for perishable agricultural commodities, effectively serving as an invisible tax on fresh produce trade. Complex, paper-based customs and certification procedures at land borders particularly at the Bangladesh-India, Nepal-India and Pakistan-Afghanistan interfaces create delays that for perishable goods translate directly into quality deterioration and commercial losses. The systemic underinvestment in trade facilitation infrastructure across the region represents a significant opportunity cost given the documented trade potential.

Food Safety Standards, Fortified Foods and Nutritional Trade

A distinctive and analytically important dimension of the food safety-agricultural trade nexus in South Asia is the relationship between fortified food trade and regional nutrition outcomes. South Asia hosts the world's largest population of micronutrient-deficient individuals: approximately 307 million women of reproductive age suffer from deficiencies in iron, zinc and folate; stunting affects 30–40 percent of children under five in most member states; and iodine deficiency disorders, vitamin A deficiency and anemia remain prevalent across the region.

Large-scale food fortification the process of adding micronutrients to widely consumed staple foods including wheat flour, rice, edible oil and salt is

endorsed by WHO, UNICEF, the Global Alliance for Improved Nutrition (GAIN) and national governments as a highly cost-effective public health intervention. However, the realization of LSFF's potential across South Asia is directly contingent on the harmonization of fortification standards. The UNICEF Regional Office for South Asia presented evidence to the Kathmandu workshop demonstrating that the lack of harmonized regional minimum standards for fortification effectively constitutes a non-tariff barrier to the trade of fortified staples, preventing regional price arbitrage, limiting consumer access to nutritionally enhanced products and reducing the commercial viability of fortification for manufacturers operating in smaller markets. The workshop accordingly framed harmonized fortification standards not merely as a trade policy instrument but as a nutrition security intervention with measurable public health returns.

Scope of Harmonized Food Safety Standards for Boosting Agricultural Trade in South Asia

The Untapped Trade Potential

The economic case for harmonized food safety standards in South Asia rests on a compelling structural argument: the region is simultaneously characterized by vast agricultural production diversity including cereals, pulses, fruits, vegetables, spices, tea, livestock products, fisheries and processed foods and by the world's most under-utilized intra-regional trade relationships. World Bank data indicate that intra-SAARC trade represents only 5 percent of total trade, compared to 45 percent within the EU, 23 percent in ASEAN and 12 percent in Mercosur. UNESCAP estimates suggest that the region experiences a trade utilization gap of 76–93 percent that is, actual trade represents less than a quarter of what economic complementarities would predict in the absence of barriers.

The composition of individual country trade profiles reveals obvious complementarities that harmonized standards could activate. Bangladesh has surplus production of rice, maize, potatoes and vegetables and rising demand for processed foods, fortified staples and protein-rich imports. Bhutan produces organic fruits, vegetables and high-value cardamom and ginger but faces access barriers to Indian and Bangladeshi markets due to differing phytosanitary standards. Nepal exports tea, cardamom, honey and horticultural products but confronts MRL compliance barriers in India, its dominant trading partner. Pakistan is a major producer and exporter of rice, mangoes, citrus, meat and seafood, with strong potential for expanded trade with Afghanistan, Bangladesh and Sri Lanka constrained by regulatory heterogeneity. Sri Lanka's comparative advantages in tea, spices, coconut products and processed marine foods could be more fully exploited in a harmonized regulatory environment. The Maldives' extreme import

dependency 100 percent for cereals, 95 percent for fortified foods could be partially addressed through more efficient and affordable SAARC-sourced imports if border certification procedures were streamlined.

Scope of Harmonization: Commodity and Regulatory Dimensions

The scope of food safety harmonization in South Asia must be understood across both commodity and regulatory dimensions. From a commodity perspective, the highest-priority areas for harmonization include: (i) staple cereals rice, wheat and maize which constitute the dominant trade flows within the region and are subject to divergent pesticide MRL requirements, aflatoxin limits and moisture content standards; (ii) fresh fruits and vegetables, for which phytosanitary certification requirements and pesticide MRLs vary significantly, creating substantial rejection rates at borders; (iii) processed and fortified foods, where divergent fortification standards, additive permissions and labeling requirements fragment the regional market; (iv) meat, poultry and livestock products, where animal health certification requirements, halal certification standards and veterinary drug residue limits differ widely; (v) fish and fisheries products, where sanitary standards for processing plants and export certification vary; and (vi) spices and condiments, which face microbial contamination and pesticide residue standards that differ between SAARC member states and from destination third-country markets.

From a regulatory harmonization perspective, the key domains requiring alignment include: pesticide maximum residue levels (MRLs); microbiological criteria for pathogens such as Salmonella, E. coli, Listeria and Campylobacter; food additive permissions and maximum use levels; contaminant limits for mycotoxins, heavy metals and processing contaminants; food fortification standards specifying mandatory and voluntary nutrient additions and their levels; labeling requirements including nutritional labeling, country of origin and allergen declarations; Good Agricultural Practices (GAP) Good Manufacturing Practices (GMP) and Good Hygiene Practices (GHP) frameworks and HACCP-based food safety management system requirements for processing establishments.

The Fortified Foods Dimension: A Regional Health-Trade Nexus

The harmonization of fortification standards for staple foods merits particular attention as it represents a domain where trade policy and public health policy are most directly aligned. The UNICEF Regional Office for South Asia presented evidence that regional minimum standards for fortification specifying the minimum types and levels of micronutrients to be added to wheat flour, edible oil, salt and rice could simultaneously: reduce compliance costs for manufacturers trading across SAARC borders; expand the market

for fortified products by enabling scale economies; ensure consistent minimum nutritional quality of traded food products; and contribute to reducing the burden of micronutrient deficiency disorders across the region. The ASEAN guidelines on fortification harmonization and the Southern African Development Community (SADC) fortification standards were identified as models from which South Asia could draw lessons.

Steps towards Harmonized Food Safety Standards

Institutional Coordination

The foundational prerequisite for effective harmonization is a dedicated and adequately resourced institutional architecture at the regional level. The existing SAARC Technical Committee on SPS/TBT Measures has not generated substantive standard harmonization and SARSO's outputs have been limited. Country papers most explicitly from Pakistan and Sri Lanka recommend the establishment of a SAARC Committee on Food Safety (SCFS) comprising heads of national food safety authorities, supported by specialist working groups on pesticide MRLs, microbiological criteria, food additives, labeling, meat hygiene and fortification standards. A permanent secretariat, logically hosted by the SAARC Agriculture Centre given its existing convening mandate, would provide continuity, technical capacity and administrative support. This three-tier governance structure Committee, Working Groups, Secretariat mirrors the architecture that has proven effective in ASEAN's food safety coordination and the EU's food safety governance model.

Regulatory Alignment

Regulatory alignment must be pursued through a structured, phased process: first mapping existing national standards against Codex benchmarks to identify alignment, divergence and absence; then developing draft harmonized regional standards through technical working groups; consulting member states and stakeholders; and formally adopting regional standards within the SAARC framework. Pakistan's proposal for a 'South Asian Common Food Safety Framework' beginning with pilot harmonization of MRLs for rice, mangoes and citrus provides a practical model for sequencing. Critically, the Bhutan and Maldives country papers emphasize that regulatory alignment must extend beyond border certification to primary production: harmonized GAP requirements, GMP standards for processing and HACCP protocols for SMEs are prerequisites for ensuring that regulatory alignment at the border is matched by food safety assurance in supply chains.

Capacity Building

Every country paper identified laboratory and human resource capacity as the binding constraint on harmonization. A regional approach to capacity development coordinated by the SAARC Agriculture Centre should encompass: progressive accreditation of national reference laboratories to ISO/IEC 17025; establishment of inter-laboratory proficiency testing programs across the region; development of a regional roster of food safety inspectors and risk assessors through standardized training programs and exchange fellowships; and support for farmer-level GAP adoption through extension programs adapted to the production systems of each member state. A dedicated SAARC Food Safety Capacity Building Fund financed by member state contributions and development partners (FAO, WHO, UNICEF, World Bank) is the vehicle recommended across multiple country papers for financing this agenda, with particular attention to the more capacity-constrained members: Bhutan, Nepal and Maldives.

Regional Cooperation Mechanisms

Beyond institutional architecture, effective harmonization requires operational mechanisms for ongoing regulatory cooperation. A SAARC Rapid Alert System for Food and Feed (SAARC-RASFF), modeled on the EU's RASFF, would enable real-time notification between member states of serious food safety risks identified at borders or in domestic markets simultaneously protecting consumers and building the inter-regulatory trust that is a prerequisite for Mutual Recognition Agreements. Sector-specific MRAs, negotiated bilaterally before scaling regionally, beginning with rice, fresh produce and processed spices, represent the most pragmatic pathway to reducing duplicative testing costs. The keynote expert at the Kathmandu workshop proposed a three-phase roadmap: Phase 1 (2025–2026) building trust and establishing institutions; Phase 2 (2026–2028) developing regional standards and expanding laboratory capacity; and Phase 3 (2028–2030) institutionalizing a South Asia Safe Food and Nutrition Trade Zone with full digital integration.

Data Sharing and Certification Systems

The digitalization of food safety certification and data sharing is both a technical necessity and a trade facilitation dividend. Country papers from Pakistan (Pakistan Single Window), Sri Lanka (National Trade Facilitation Committee) and the Maldives (MFDA's digital certification initiatives) document national steps toward digital certification. A SAARC-wide digital platform for food safety certification modeled on ASEAN's e-cert and EU's TRACES systems would enable real-time cross-border verification of health

certificates, laboratory results and inspection records, eliminating paper-based delays, reducing fraud risk and dramatically accelerating clearance times for perishable agricultural goods. A centralized SAARC Food Safety Knowledge Platform a digital repository of harmonized standards, regulatory updates, scientific risk assessments and best-practice guidelines would serve as a public good for regulators, industry and academia across the region.

Recommendations for Food Safety Standards for Agricultural Trade in South Asia

Policy and Institutional Recommendations

For SAARC Member States and the SAARC Agriculture Centre, the following policy and institutional recommendations emerge from the synthesis of country papers and expert analyses:

- Establish a Dedicated SAARC Food Safety Governance Architecture. The current institutional landscape centered on an under-resourced Technical Committee on SPS/TBT and a SARSO that has not fulfilled its harmonization mandate is insufficient for the scale of the challenge. A dedicated, adequately funded and technically staffed SAARC Committee on Food Safety should be established within the SAARC institutional framework, supported by specialist working groups and a permanent secretariat. This body should be mandated to develop harmonized regional standards, oversee MRA negotiations, manage the rapid alert system and administer a regional capacity-building fund. The SAARC Agriculture Centre is the natural institutional host for secretariat functions.
- Adopt Codex Alimentarius as the Mandatory Regional Benchmark. SAARC member states should collectively commit to adopting Codex Alimentarius standards as the default regulatory benchmark for all food safety standards across the region, with science-based deviations permitted only through a formal notification and risk assessment process within the SAARC framework. This commitment should be embedded in a formal SAARC Food Safety Framework Agreement, providing the legal basis for harmonization and creating predictable obligations for member states.
- Develop a SAARC Food Safety Capacity Building Fund. A dedicated regional fund financed by member state contributions on a GDP-proportional basis and supplemented by contributions from development partners including FAO, WHO, UNICEF, World Bank and bilateral donors should support laboratory accreditation, inspector training, digital infrastructure development and smallholder compliance capacity building across the region, with particular attention to Bhutan, Nepal and the Maldives, which face the most acute capacity constraints.
- Integrate Food Safety Harmonization into National Economic and Trade Policy. Rather than treating food safety harmonization as a technical

regulatory matter confined to health and agriculture ministries, member states should mainstream harmonization commitments into their economic development strategies, export promotion policies and trade facilitation frameworks. Pakistan's National Food Security and Research Ministry and Bangladesh's Ministry of Commerce represent institutional entry points for this integration, alongside the respective food safety authorities.

Technical and Standards Recommendations

- Prioritize Harmonization of MRLs for Key Export Commodities. Given the high commercial significance and technical specificity of pesticide MRL requirements, SAARC should prioritize the development of harmonized MRLs for pesticides applied to the region's highest-value export commodities: rice (aflatoxins, pyrethroid and organophosphate residues), mangoes (post-harvest treatment residues), citrus (fungicide residues), onions, potatoes, spices and tea. These harmonized MRLs should adopt Codex standards where they exist and institute regional risk assessment processes for commodities or pesticides not covered by Codex.
- Adopt Regional Minimum Standards for Food Fortification. Following the recommendation of UNICEF's Regional Nutrition Adviser and the consensus emerging from the Kathmandu workshop, SAARC should initiate a formal drafting process for regional minimum fortification standards for wheat flour, rice, edible oil and salt, drawing on evidence from national dietary surveys, micronutrient deficiency data and global fortification guidelines developed by WHO and the Global Alliance for Improved Nutrition (GAIN). These standards should specify minimum nutrient levels that constitute a floor rather than a ceiling, allowing national authorities to exceed minimum requirements according to local deficiency profiles.
- Develop Harmonized Labeling Requirements for Agricultural and Food Products. Divergent labeling requirements particularly for nutritional information, country of origin, allergen declarations and fortification claims represent a significant non-tariff barrier for processed food trade within SAARC. A harmonized regional labeling standard, developed through the SAARC Committee on Food Safety, would reduce compliance costs for manufacturers and improve consumer information across the region.
- Establish a Regional Laboratory Accreditation and Proficiency Testing Program. The SAARC Agriculture Centre should coordinate the development of a regional program for laboratory accreditation against ISO/IEC 17025, inter-laboratory proficiency testing and the progressive development of national reference laboratory capacity. Priority should be given to testing parameters mycotoxins, pesticide MRLs, veterinary drug

- accessible only to larger, better-resourced enterprises, leaving the vast majority of the region's agricultural producers smallholder farmers and rural SMEs unable to access formal export channels. Simplified compliance pathways including group certification schemes for smallholder cooperatives, farmer field school-based GAP training and affordable mobile laboratory testing should be designed as core components of the harmonization framework rather than as afterthoughts.
- Leverage Digital Innovation for Traceability and Compliance. The private sector in Pakistan, India, Bangladesh and Sri Lanka is already deploying blockchain-based traceability, IoT-enabled supply chain monitoring and digital certification platforms for high-value export chains. Governments should create enabling regulatory frameworks that recognize digital traceability records as part of food safety certification, facilitate interoperability of private-sector traceability systems with public regulatory databases and incentivize investment in food safety technology through tax provisions or matching-grant programs.

Conclusion

The synthesis of country papers, expert analyses and workshop deliberations from the SAARC Regional Workshop on Fostering Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in South Asia leads to a central, overarching conclusion: the harmonization of food safety standards is the single most actionable policy lever for simultaneously unlocking South Asia's suppressed agricultural trade potential, protecting and improving regional public health and advancing the nutritional security of the region's most vulnerable populations.

The analyses presented across seven-member state country papers and multiple expert presentations confirm that the current landscape of regulatory fragmentation characterized by divergent SPS measures, non-harmonized MRL limits, absent MRAs, inadequate laboratory infrastructure and minimal digital trade facilitation imposes costs on agricultural trade that far exceed any legitimate public health justification. The documented gap between actual intra-regional trade of USD 23 billion and a conservative potential of USD 67 billion represents a failure of regional governance that compounds the region's structural challenges of poverty, food insecurity and malnutrition.

The analytical evidence presented in this synthesis argues for a reframing of food safety harmonization: not as a bureaucratic technical exercise, but as a strategic development investment with measurable returns in trade competitiveness, public health outcomes, nutrition security and economic growth. The example of the European Union whose single market in food, governed by harmonized standards and mutual recognition, is estimated to generate hundreds of billions of euros in annual trade and welfare gains demonstrates that what South Asia seeks to achieve is not theoretically novel,

but requires the sustained political commitment that previous SAARC Agricultural Ministerial Meetings in Dhaka (2016) and 2019 called for but that has not yet been operationalized.

The three-phase roadmap proposed by the Kathmandu workshop foundation-building and institutional preparation (2025–2026); standards development and capacity building (2026–2028); and institutionalization and deep integration (2028–2030) provides a realistic and actionable framework that balances ambition with pragmatism. Critical to its success will be the establishment of a dedicated and adequately funded SAARC Food Safety governance architecture; the commitment of all member states to Codex Alimentarius as the common regulatory benchmark; the development of a regional laboratory network and training program; the implementation of a regional digital certification and rapid alert system; and the negotiation of sector-specific MRAs for priority commodities.

For fortified foods specifically, the Kathmandu workshop generated a clear and evidence-based consensus that regional minimum fortification standards for wheat flour, edible oil, salt and rice developed through a transparent, participatory and science-based process can simultaneously remove non-tariff barriers to fortified food trade and contribute to reducing the burden of micronutrient deficiency disorders that affect hundreds of millions of South Asians. The framing by UNICEF's Regional Nutrition Adviser that smoother trade in safe, nutritious foods is ultimately about moving health for women, protection for children and resilience for families across borders captures precisely the transformative potential of this agenda.

The SAARC Agriculture Centre, the SAARC Secretariat and member state governments face a moment of strategic opportunity. The political will demonstrated by the Kathmandu workshop, the analytical depth of the country papers and the practical specificity of the expert recommendations provide a foundation that, if translated into institutional commitments, legal frameworks and funded programs, can move South Asia from the world's most under-traded region to a model of nutrition-sensitive, food-safe regional economic integration. The cost of inaction measured in foregone trade, continued malnutrition and suppressed economic growth far exceeds any investment that harmonization would require. The time for incremental dialogue has passed; the time for structured, funded and politically committed regional action on harmonized food safety standards is now.

References

Ali, M.Y., Rashid, M.H., Goswami, P.C., Bashar, M.A. (Eds.) (2025). Fostering Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in South Asia. SAARC Agriculture Centre, Dhaka, Bangladesh, 173p.

FAO/WHO (2019). World Trade Statistical Review 2019. WTO Secretariat, Geneva.

Global Hunger Index (2025). 2025 Global Hunger Index Scores by Country. Concern Worldwide and Welthungerhilfe.

HLPE (2017). Nutrition and Food Systems. A Report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome.

Kumar, N. and George, J. (Eds.) (2020). Regional Cooperation for Sustainable Food Security in South Asia. Routledge India, 258p.

National Academies of Sciences, Engineering and Medicine (2016). Genetically Engineered Crops: Experiences and Prospects. The National Academies Press, Washington, D.C. doi:10.17226/23395.

Pellegrino, E., Bedini, S., Nuti, M. (2018). Impact of genetically engineered maize on agronomic, environmental and toxicological traits: a meta-analysis of 21 years of field data. Scientific Reports, 8, 3113. https://doi.org/10.1038/s41598-018-21284-2.

Stevens, G.A., Paciorek, C.J., Flores-Urrutia, M.C. et al. (2022). National, regional and global estimates of anaemia by severity in women and children for 2000–19: a pooled analysis of population-representative data. The Lancet Global Health. https://doi.org/10.1016/S2214-109X(22)00084-5.

UNDP (2024). Human Development Report 2024. United Nations Development Programme, New York.

UNESCAP (2020). Unlocking the Potential of Regional Economic Cooperation and Integration in South Asia. United Nations Economic and Social Commission for Asia and the Pacific, Bangkok.

WHO Regional Office for South-East Asia (2014). Regional Food Safety Strategy 2013–2017. WHO Regional Office for South-East Asia, New Delhi.

World Bank (2023). Agriculture Overview: South Asia. World Bank Group, Washington, D.C.

World Health Assembly (2023). WHA76.19: Accelerating action on micronutrient deficiency prevention through food fortification. Geneva: World Health Organization.

Chapter 02

Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in Bangladesh

S M Nazim Uddin[1] and Shaikh Murshidul Islam[2]
[1]Joint secretary, Ministry of Food, Bangladesh
[2]Deputy secretary, Ministry of Agriculture, Bangladesh
Email: Nazimuddin21century@gamil.com

Introduction

South Asia has been the fastest-growing region of the world since 2014 (Song,2019). The economy of South Asia comprises 2 billion people (25% of the world population) living in eight countries (Slater and Masih,2020). Bangladesh is a South Asian country. Agriculture has historically been the backbone of Bangladesh's economy. Abundant crops are produced in this country due to highly fertile land and favorable climate. Total land area of Bangladesh is 147,570 sq.km but net cropped area is 8.028 million hectares. Farm holdings are 16.88 million. The nature of land is mostly flat, deltaic and alluvial terrain. Here, single cropped area is 2.044 million hectares, double cropped area is 4.105 million hectares and triple cropped area is 1.859 million hectares. Cropping intensity is 214 % (BBS, 2024). The agriculture sector contributed about 11.55 percent to the country's gross domestic product in FY 2023-24 and about 44.42 percent people were engaged in agricultural activities among employed population in the country (BBS, 2024).

I) Status of Agricultural production: The table 01 shows the present agricultural production status of Bangladesh.

Table 1. Area under Major Crops and Their Production, 2023-24

Item	Area '000' acres	Producton'000' Metric Tons
Major cereals	29589	41868
Aus Rice	2557	2973
Aman Rlce	14210	16656
Boro Rice	12052	21068
Wheat	770	1171
Minor cereals	1289	4877

Item	Area '000' acres	Producton'000' Metric Tons
Total cereals	30878	46745
Potato	1133	10601
Jute (Bales)	1788	9581
Maize	1270	4876
Pulses	858	429
Oil seeds	1538	1258
Spices and Condiments	1257	6941
Chilies	245	748
Onion	513	2917
Drugs and Narcotics	508	2517
Tea	145	100
Tobacco	101	97
Vegetables	1247	5539
Tomato	76	491
Sweet potato	69	302
Sugar Crops (Temporary)	167	2974
Sugar Crops (Permanent)	82	475
Fruits (Temporary)	231	1673
Fruits (Permanent)	762	4336

II) Annual food requirement and food supply in Bangladesh: Bangladesh generally maintains self-sufficiency in rice production but still relies on wheat imports to meet its annual food grain requirements. In FY 2022-23, total food grain production reached 40.27 million metric tons (MMT), with rice accounting for the largest share. While domestic rice production often meets demand, wheat imports are necessary, and in FY 2023-24, wheat imports totaled 6.63 MMT. The country also imports smaller quantities of maize.

Rice: Bangladesh is a major rice producer, with significant contributions from Aus, Aman, and Boro harvests.

Wheat: Wheat production is lower, and the country imports substantial amounts to supplement domestic supply.

Food Grain Targets: The Ministry of Agriculture sets annual production targets, with a goal of 44.66 MMT for FY 2023-24.

Import Trends: Wheat imports have been increasing in recent years, driven by both government and private sector needs.

Public Food Distribution: The government procures and distributes food grains, including rice and wheat, through various programs.

III) Future Projections: Diversifying Diets: Food consumption patterns are evolving, with a projected decrease in the share of cereals over time, according to research from 2022.

Potential Deficits: Projections suggest potential rice and wheat deficits in the future, especially under pessimistic scenarios.

V) Diversification Strategies: Efforts are underway to diversify food production, including developing climate-resilient crops and promoting exports of surplus produce like potatoes, vegetables, and fruits, according to research from 2022. Food consumption in Bangladesh will diversify over time, cereals will provide a major part of the calorie intake, but their share in total calorie supply will decrease by 2030 and 2050. The consumption of animal products and non-cereal crops will have increasing trend during the same time period. Bangladesh will have surplus productions of rice and maize by 2030 and deficit productions of wheat, potato, pulses, vegetables, meat, egg and fresh water fish. It will have surplus productions of rice, maize, potato, vegetable and milk by 2050 and deficit productions of wheat, pulses, fruits, meat and fresh water fish. Water demand for Boro rice production in 2030 and 2050 will increase considerably and may cause much stress on ground water source (Islam and Talukdar, 2017).

Food Safety Standard/ Regulation

National Food Safety Strategy Document Developed

The National Food and Nutrition Security Policy 2020 (NFNSP-2020) dedicate a strategy (Strategy 5.1) to improve food safety, quality control, and awareness of food safety and hygiene. It emphasizes put in place operational standards and procedures to assure that food is free of contamination from sources such as all kinds of chemicals, trace elements, heavy metals and bacteria. It plans to establish an adequate regulatory framework including surveillance for compliance and strong enforcement. The popularization of Good Agricultural Practices (GAP), Good Aquaculture Practices (GAqA) and Good Husbandry Practices (GHP) that ensure food safety is envisaged for primary producers as well as the scaling up of Good Manufacturing Practices (GMP), Good Hygienic Practices (GHP), including adherence to HACCP (Hazards Critical Control Point) compliance for secondary and tertiary producers. Establishment of traceability process in agricultural, animal and fish production are the components of the new policy as well as the enhancement of consumer awareness on food safety.

The National Food Safety Strategy Document Developed with seven strategic objectives for the period of 2022-2026. The seven strategic objectives are SG 1: To establish BFSA as the single food safety authority of Bangladesh responsible for coordinating the overall food safety ecosystem, SG 2:To

established science-based standards in compliance with the Food Safety Act, 2013 while respecting Bangladesh's international obligations, SG 3:To strengthen the regulatory compliance mechanism through an effective and transparent structure in Bangladesh, SG 4:To enhance the role of BFSA for food safety & nutrition and trade facilitation at the global level, SG 5: To enhance effectiveness in scientific/technical work in food safety areas on a long-term basis, SG 6: To build capacity of all stakeholders in relation to food safety and nutrition, and SG 7:To build consumer awareness to increase the demand for safe and nutritious food.

Number of National Designated Food Laboratories

BFSA expands its activities in district levels; but still, it requires adequate appropriate training program not only in districts but also at upazila level. It is needed more designated/accredited testing laboratories, equipped with state-of-the-art infrastructure to match international standards, including mobile laboratories, which can test products in kitchen markets in city corporation and districts level. BFSA published a directory that shows food testing laboratories have limited facilities that do not allow them to test all parameters of food. It is estimated that only 50 laboratories can test foods, and only to a limited extent. They are mostly able to identify composite elements of food but are unable to detect the presence of any external elements. So far, only 10 public sectors food-testing laboratories have received accreditation from National and International Accreditation bodies and 123 parameters has designated. Accreditation must be sought separately for the laboratory infrastructure, the machinery used, their operators and each of the tests carried out. The facilities and capacities of food testing laboratories should be systematically assessed. Their jurisdiction also needs to be redefined considering their analytical scope and expertise.

BFSA takes a project to strengthening the Inspection, Regulatory and Coordinating Function of the Bangladesh Food Safety Authority (STIRC) for improving BFSA's institutional capacity and food safety control system, review of ongoing food testing methods and strengthen cooperation of food laboratories, improving monitoring and supervision of activities of food business operators, supporting the institutionalization of food safety measures, raising awareness about food safety in the country, enhancing inter agency cooperation and coordination, provide overall strategic direction, and assist in modernizing the food safety system in line with laws and regulations related to food safety through science-based methods.

Rules/ Regulations/ Guidelines on Food Safety Prepared/Coordinated by BFSA to Harmonize with WTO

The Bangladesh Food Safety Authority (BFSA) established in 2015, is the primary body regulating food safety in Bangladesh, enacting numerous regulations based on the Food Safety Act, 2013 to ensure safe food access.

Key Areas of Alignment

Codex Alimentarius:

Bangladesh is actively working to incorporate Codex standards into its national regulations, particularly in areas like food additives and maximum residue limits.

Activities completed by BFSA

1) 27 Technical Working Groups are formed
2) 14 Horizontal TWG and 13 Vertical TWGs are formed
3) Workshop with the FAO Technical cooperation has been conducted.
4) 100 virtual meeting has been conducted.
5) Drafting completed 160 Regulations with 12 Horizontal Regulations and 150 verticals

Regulations

6) Determined Standards for 150 types of foods with 10,000 parameters for food safety.

Notified in WTO and action going on for gazette notification:

Harmonized Draft regulations are finalized. They are as follows:

1. Food Safety (Chemical Contaminants and Toxins) Regulation2023
2. Food Safety (Pesticides and other Chemical Residues) Regulation2023
3. Food Safety (Use of Food Additives) Regulation2023
4. Food Fortifications Regulation 2023
5. Food Safety (Health Food/Dietary Supplements, Food for Special Dietary use, Food for special medical purpose, Prebiotic and Probiotic Food) Regulations 2023
6. Food Safety (Labeling of Packaged Food) Regulation 2023
7. Food Safety (Collection, Testing and Analysis of Food samples) Regulations 2023
8. Food Safety (Food Recall) Regulation 2024
9. Food Safety (Adversing and Claim) Regulations 2024
10. Food Safety (Veterinary Drug Residue) Regulation 2024
11. Food Safety (Determination and Control of Microbiological Contaminants) Regulations 2023

Besides these, another one is sent to WTO for notification. That is Food Safety (Food Contact Materials) Regulation 2024.

The Food Safety Act of 2013

The Food Safety Act of 2013 (FSA 2013) is the primary legislation in Bangladesh for ensuring food safety. It establishes the Bangladesh Food Safety Authority (BFSA) as the central regulatory body. The act aims to regulate food production, processing, import, and distribution to guarantee safe food access for the population.

The Food Safety Act of 2013 represents a significant step towards strengthening food safety management in Bangladesh, but continued efforts are needed to address existing challenges and ensure its effective implementation.

Trades

In FY 2023-24, Bangladesh experienced a notable increase in wheat imports, totaling 6.63 MMT, a record amount marking a significant rise of 34.48 per cent from the previous fiscal year (4.93 MMT). This surge was driven by both the public and private sectors, with public sector wheat imports increasing by 14.71% to 0.78 MMT from 0.68 MMT and private sector imports climb sharply by 82.81% to 5.85 MMT from 3.20 MMT. Concurrently, no rice was imported during FY24 due to enhanced domestic production capabilities and high international market prices, which made imports less economically viable. Over the past decade, Bangladesh has witnessed a gradual uptick in wheat imports, driven by dietary diversification and changing consumption patterns favoring wheat-based products. For, F Y 2024-25, the public sector has allocated 1.05 MMT for food grain imports, comprising 0.35 MMT for rice and 0.70 MMT for wheat (MCCI, 2024).

Table 2. Imports of Bangladesh (2019-20 to 2023-24)

Sl. No.	Items	2019-20	2020-21	2021-22	2022-23	2023-24
01	Total imports (Million US $)	64186	78211	103586	92453	84250
02	Growth rate of imports (%)	-4.91	21.89	34.77	2.86	1.75
03	Import of	540221	690414	1008356	1213299	1157502

	Consumer goods (Million TK.)					
04	Import of Rice and Wheat (Million TK.)	260839	238481	231746	281093	339159
05	Import of Milk and Cream (Million TK.)	28639	32440	40228	42333	49142

Table 3. Exports of Bangladesh (2019-20 to 2023-24)

No.	Items	2019-20	2020-21	2021-22	2022-23	2023-24
01	Total Exports	33164	41032	52970	56623	56954
02	Growth rate of Exports	-19.24	23.77	31.36	23.20	12.31
03	Export of Consumer	2524550	3118774	4121727	5148940	5774683
04	Export of Fish	38711	4376	3580	3960	4367
05	Export t of Raw Jute	12781	12626	18656	20397	17924

Intra-regional Trade in South Asia

The SAARC forum was established to accelerate economic and social development among South Asian countries, later focusing on trade promotion. Despite efforts like the SAARC Preferential Trading Agreement (SAPTA) and the South Asian Free Trade Area (SAFTA), intra-regional trade within SAARC remains low compared to other regional groups like ASEAN. In 2008, intra-SAARC trade accounted for just 4.8% of the region's total foreign trade, with larger economies like India and Pakistan not viewing smaller SAARC nations as significant export markets. However, there has been notable growth in India's trade with other SAARC countries, especially with Pakistan and Sri Lanka. Addressing economic disparities and fostering closer integration are crucial for enhancing intra-regional trade within SAARC.

Table 4. Agricultural Exports of South Asian Countries, Average 2008-2010 (As share % of the total global agricultural exports of the region)

Code	Description	Afganistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka	South Asia
1	Paddy Rice	0	0	0	73	0	0	27	0	3
2	Wheat	1	0	0	79	2	2	15	1	0
3	Cereal grains	0	0	0	96	0	0	3	0	3
4	Vegetables, fruits, nuts	8	2	0	71	0	1	14	4	9
5	Oil seeds	1	1	0	93	0	0	4	1	3
6	Sugar cane, Sugar Beet	0	0	0	68	0	0	21	11	0
8	Crops	0	2	0	74	0	2	2	20	14
9	Bovine cattle, sheep and Goat	4	0	0	64	0	0	32	0	0
10	Animal products	7	1	0	71	0	0	20	1	1
13	Forestry	15	0	1	56	0	2	3	22	1
14	Fishing	0	26	0	32	6	0	10	26	1
19	Bouvine meat products	0	0	0	94	0	0	6	0	5
20	Meat products	0	2	0	78	0	0	7	12	0
21	Vegetables oil and fat	0	0	0	98	0	1	1	1	13
22	Dairy products	0	0	0	95	0	1	3	1	1
23	Processed Rice	0	0	0	60	0	0	40	0	15

Code	Description	Afganistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka	South Asia
24	Sugar	0	1	0	79	0	1	19	0	3
25	Food products	0	9	0	69	2	0	6	14	26
26	Beverages and tobacco products	0	1	0	39	0	6	52	2	2
Total Agriculture		1	3	0	75	1	1	12	8	100

Table 5. Global Agricultural Imports of South Asian Countries, Average 2008-2010 (As share % of the total global agricultural imports of the region)

Code	Description	Afganistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka	South Asia
1	Paddy Rice	4	35	0	1	0	8	36	15	0
2	Wheat	7	40	0	5	0	0	28	21	
3	Cereal grains	2	54	0	8	0	5	23	8	1
4	Vegetables, fruits, nuts	3	19	0	55	1	2	13	7	15
5	Oil seeds	1	23	0	12	0	3	60	1	3
6	Sugar cane, Sugar Beet	0	0	0	1	0	97	0	1	0
8	Crops	9	9	0	34	0	3	36	9	
9	Bovine cattle, sheep and Goat	21	0	0	29	0	34	15	0	0
10	Animal products	15	15	0	42	3	2	20	3	1
13	Forestry	0	4	0	91	0	0	4	1	3

Code	Description	Afganistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka	South Asia
14	Fishing	1	35	0	39	5	5	1	15	0
19	Bouvine meat products	18	2	0	8	6	1	59	5	0
20	Meat products	47	18	0	6	9	1	10	9	1
21	Vegetables oil and fat	2	12	0	66	0	0	18	2	41
22	Dairy products	9	23	0	17	2	1	13	34	3
23	Processed Rice	30	55	0	0	2	4	0	8	2
24	Sugar	2	22	0	48	0	0	17	10	9
25	Food products	27	9	0	31	3	3	14	13	7
26	Beverages and tobacco products	21	2	1	53	6	2	5	10	2
Total Agriculture		6	17	0	49	1	1	19	7	100

What a Bangladeshi food safety regulation complies with global standards for trading

Bangladesh's food safety regulations are undergoing harmonization with global standards, particularly those set by the Codex Alimentarius Commission, to facilitate international trade. The Bangladesh Food Safety Authority (BFSA) is leading efforts to align national standards with these international benchmarks, including those related to food additives, nutrient levels, and manufacturing practices. Here's a more detailed look:

Key Areas of Alignment

Codex Alimentarius

Bangladesh is actively working to incorporate Codex standards into its national regulations, particularly in areas like food additives and maximum residue limits.

Food Additives

Regulations specify permitted food additives and their usage levels, referencing Codex standards where national guidelines are lacking.

Nutrient Levels

The quantity of nutrients added to food is limited to recommended daily allowances, and Codex standards are applied in the absence of national guidelines.

Good Manufacturing Practices (GMP)

GMP is emphasized, ensuring that food additives are used at the lowest effective levels and that their presence in food is minimized during manufacturing.

National Residue Control Plan (NRCP)

The NRCP aims to prevent harmful substances from entering the food chain, ensuring compliance with export market regulations, including those of the EU.

Hazard Analysis and Critical Control Point (HACCP)

HACCP principles are being integrated into food safety management systems, particularly within the livestock sector.

Accreditation and Certification

Bangladesh uses the Bangladesh Accreditation Board (BAB) to accredit testing and certification bodies, ensuring their adherence to international standards.

Challenges and Ongoing Efforts

Outdated Standards

Some existing standards in Bangladesh are considered outdated or not based on scientific evidence.

Harmonization Challenges

Aligning all national standards with Codex and other international benchmarks is an ongoing process.

Capacity Building

Strengthening the capacity of food businesses, particularly small and medium enterprises, to comply with new standards is crucial.

Enforcement

Ensuring effective enforcement of food safety regulations across the entire food chain is essential.

International Cooperation

FAO and USAID

The Food and Agriculture Organization (FAO) and the United States Agency for International Development (USAID) are supporting Bangladesh in modernizing its food control system and implementing international food standards.

Codex Collaboration

Bangladesh has engaged with Codex experts, including those from India, to develop and harmonize food standards.

Regional Cooperation

Bangladesh is working with other countries in the region to enhance food safety standards and facilitate regional trade.

Factors imeding trades of agricultural commodities / products in SAARC region

Intra-SAARC agricultural trade faces significant impediments due to factors like high tariffs, non-tariff barriers, and limited trade facilitation. Furthermore, economic disparities, political tensions, and a lack of robust institutional frameworks also hinder regional cooperation and trade. Specific factors impeding agricultural trade in the SAARC region:

High Tariffs and Non-Tariff Barriers:

While SAFTA aims to reduce trade barriers, agricultural products often face high tariffs and various non-tariff barriers like complex customs procedures, stringent quality standards, and sanitary and phytosanitary (SPS) regulations. For forming effective regional supply chains in agriculture, it is important that SAFTA preferential tariffs are reduced at a faster pace for products in which countries have export potential within the region. Trade liberalization for agriculture has been particularly slow in the region, with agriculture tariffs remaining high or covered under Sensitive Lists. The highest agriculture tariffs (simple averages) exist in Bhutan, around 41% in 2011, followed by India (32%), Sri Lanka (22%), Maldives (18%), Bangladesh (17.5%), Pakistan (17.3%), and Nepal (12%). The lowest agricultural tariffs exist in Afghanistan (5.7%). The maximum decline in agricultural tariffs since 2000 has taken place in Pakistan from 43% to 17% in 2011. This is followed by India where the decline was from 49% to 38% in 2009 and then further to 32% in 2011. Agricultural tariffs rose in Bhutan and Afghanistan during 2000-2011 (ADB, 2015).

Trade Facilitation Issues:

Inadequate infrastructure, including transportation and storage facilities, along with inefficient customs procedures and border management, increases transaction costs and delays, hindering the smooth flow of agricultural goods.

Economic Disparities:

Significant differences in economic development levels and production structures among SAARC countries create imbalances in trade. Larger economies like India and Pakistan may not see smaller nations as crucial export markets, leading to limited focus on intra-regional trade.

Political Tensions and Instability:

Bilateral and regional political tensions can disrupt trade flows and create uncertainty for businesses involved in cross-border trade.

Weak Institutional Frameworks:

Insufficient harmonization of standards, lack of mutual recognition of testing and certification, and weak enforcement of trade agreements hinder the development of a seamless regional market.

Informal Trade

A significant portion of agricultural trade within SAARC occurs through informal channels, often due to high formal trade barriers and complex

procedures. This informal trade, while beneficial to some, can also undermine formal trade and tax revenues.

Limited Regional Cooperation:

Despite the potential for mutually beneficial trade, SAARC has not been very successful in fostering economic cooperation and integration, particularly in the agricultural sector.

Over regional **-reliance on Extra-Regional Markets:**

Many SAARC countries are heavily reliant on extra-regional markets for both exports and imports, which can limit their engagement in intra-regional trade.

Agricultural Productivity Disparities:

Differences in agricultural productivity and technology adoption across SAARC countries can create challenges in terms of price competitiveness and supply reliability.

Food Security Concerns**:** Food security concerns in some SAARC nations can lead to protectionist measures and restrictions on agricultural exports, further impacting intra-regional trade.

Lack of Diversification:

Many SAARC countries rely on a limited range of agricultural commodities for export, making them vulnerable to price fluctuations and market volatility.

Addressing these challenges through policy reforms, improved infrastructure, enhanced trade facilitation measures, and greater regional cooperation is crucial for unlocking the full potential of agricultural trade within the SAARC region.

Possible Protocols / Standards / Mechanism that could be harmonized in South Asia for boosting the regional trades of Agricultural commodities and its products

To enhance food system harmonization and boost SAARC trade, South Asian countries could focus on harmonizing standards, improving infrastructure, and fostering regional cooperation. Specifically, streamlining food safety standards, investing in transportation and logistics, and establishing regional food reserves could significantly boost intra-regional trade and food security.

Mechanisms for Harmonization

1. Harmonization of Food Safety and Quality Standards:

- **Regional Standards Body:** Establishing a regional standards body (like SARSO, but with broader scope and stronger enforcement) to develop and harmonize food safety and quality standards across member countries.
- **Mutual Recognition Agreements:** Implementing mutual recognition agreements (MRAs) for food products, where one country accepts another's inspection and certification processes, reducing trade barriers.
- SAARC Sanitary and Phytosanitary (SPS) Agreement**:** Revisiting and strengthening the existing SAARC SPS agreement to address non-tariff barriers related to food safety and quarantine regulations.

2. Infrastructure Development and Connectivity:

Regional Transportation Network: Investing in a regional transportation network, including roads, railways, and waterways, to facilitate the efficient movement of food products across borders.

- **Single Window Systems:** Implementing single window systems at border crossings to streamline customs procedures and reduce delays in trade.
- **Cold Chain Infrastructure:** Developing regional cold chain infrastructure to minimize post-harvest losses and ensure the quality of perishable food items during transportation.

3. Regional Cooperation and Information Sharing:

- **Regional Food Security Reserve:** Establishing a regional food security reserve to mitigate the impact of supply disruptions and price volatility.
- **Information Exchange Platform:** Creating a platform for sharing information on food production, market prices, and trade flows to enhance transparency and coordination.
- **Joint Research and Development:** Fostering collaboration on research and development in areas like climate-resilient agriculture, pest and disease management, and post-harvest technologies.

4. Private Sector Engagement:

- **Public-Private Partnerships:** Encouraging public-private partnerships in areas like infrastructure development, food processing, and marketing to leverage private sector expertise and resources.
- **Regional Supply Chains:** Facilitating the development of regional supply chains for specific food products, identifying opportunities for value addition and job creation.

- **Border Haats**: Expanding the concept of border haats (informal markets) to facilitate trade in specific food items between border communities, fostering people-to-people contact and reducing negative stereotypes.

5. Addressing Non-Tariff Barriers:

- **Harmonizing Customs Procedures:** Streamlining customs procedures and documentation requirements across member countries.
- **Transparency in Regulations:** Ensuring transparency in food safety regulations and providing clear guidelines for compliance.
- **Capacity Building:** Providing training and technical assistance to exporters and traders to help them meet regional and international standards.

By implementing these mechanisms, South Asian countries can foster a more integrated and resilient food system, boost trade and contributing to regional food security and economic growth.

Bangladeshi private sector and innovation in food safety

The private sector in Bangladesh is playing an increasingly crucial role in food safety, with growing consumer demand for safe and high-quality products driving innovation and investment. This is particularly evident in the food processing industry, which is experiencing rapid growth and attracting significant consumer interest.

Key aspects of private sector involvement and innovation in food safety in Bangladesh:

Increased Demand:

Rapid urbanization, rising incomes, and a young population are fueling a greater demand for safe, convenient, and high-value food products.

Willingness to Pay:

Consumers are increasingly willing to pay a premium for safer food options, especially among higher-income and educated demographics.

Food Processing Sector Growth:

The food processing sector is expanding rapidly, with a significant portion of the domestic food market attributed to it.

Private Sector Initiatives:

Companies are investing in technologies and practices to improve food safety, such as traceability systems, cold chain management, and hygiene standards.

Innovation in Products and Processes:

The private sector is also exploring innovative solutions like vacuum-fried chips and utilizing new raw materials like jackfruit for chip production.

Agro-Processing Zones:

Public-private partnerships are being established to create agro-processing zones, which can help increase the uptake of agricultural produce and ensure a sustainable supply of raw materials.

Fair Trade Practices:

The private sector is also encouraged to adopt fair trade practices to secure the rights of producers and ensure better trading conditions.

Adoption of Standards:

Companies are implementing food safety standards like GMP, GAP, and HACCP to build consumer confidence.

Government's Role:

While the private sector is taking the lead, the government also has a crucial role to play through:

Policy and Regulations:

Developing and enforcing food safety regulations, and creating an enabling environment for private sector innovation.

Awareness and Education:

Implementing public awareness campaigns to educate consumers about food safety practices and promote responsible consumption.

Monitoring and Enforcement:

Strengthening monitoring and enforcement mechanisms to ensure compliance with food safety standards.

Coordination:

Fostering better coordination among various government agencies and stakeholders to ensure a cohesive approach to food safety.

Overall, the private sector's commitment to food safety, coupled with government support, is essential for building a more resilient and sustainable food system.

Roadmap for harmonization of food safety standards for SAARC

A roadmap for harmonizing food safety standards within the South Asian Association for Regional Cooperation (SAARC) should prioritize aligning national standards with Codex Alimentarius and other international best practices, fostering regional trade, and ensuring public health. This involves establishing a common framework, strengthening regional cooperation, and building capacity for effective implementation.

Here's a more detailed roadmap:

1. Establishing a Common Framework:

Define Scope: Clearly outline the scope of harmonization, focusing on key food safety areas like food hygiene, pesticide residues, food additives, and labeling.

Harmonization Strategy: Develop a phased approach to harmonize national standards with Codex and other international standards, considering the specific needs and challenges of each SAARC member state.

Regional Standards: Explore the possibility of developing regional standards for specific products or issues where harmonization with international standards is not feasible or appropriate.

2. Strengthening Regional Cooperation:

Information Sharing: Establish mechanisms for sharing information on food safety regulations, standards, and best practices among SAARC member states.

Joint Risk Assessments: Conduct joint risk assessments for food safety hazards, particularly those relevant to the region, to identify priorities for harmonization efforts.

Capacity Building: Provide training and technical assistance to SAARC member states to enhance their capacity in food safety management, including risk assessment, laboratory analysis, and regulatory enforcement.

Regional Forums: Establish regional forums for food safety officials and experts to discuss challenges, share experiences, and coordinate efforts.

3. Building Capacity for Implementation:

Infrastructure Development: Support the development of necessary infrastructure for food safety, such as food testing laboratories, inspection systems, and surveillance mechanisms.

Training and Awareness: Conduct training programs for food handlers, producers, and consumers on food safety practices and regulations.

Enforcement Mechanisms: Strengthen enforcement mechanisms for food safety regulations, including inspections, testing, and penalties for non-compliance.

Public Awareness: Launch public awareness campaigns to educate consumers about food safety risks and encourage them to demand safe food.

4. Specific Actions:

Review and Update National Standards: Each SAARC member state should review and update its national food safety standards to align with the agreed-upon regional framework.

Establish Codex Contact Points: Each member state should establish a Codex Contact Point to facilitate communication and coordination with the Codex Alimentarius Commission.

Strengthen Food Control Systems: Each member state should strengthen its food control system, including establishing a food safety authority, food laboratories, and food inspection services.

Promote Regional Trade: Facilitate regional trade in safe food products by addressing non-tariff barriers and promoting mutual recognition of food safety standards.

Regular Monitoring and Evaluation: Regularly monitor and evaluate the implementation of the roadmap and make adjustments as needed.

Conclusion and way forward

A vision for a safe and competitive South Asian agri-food trade zone includes fostering regional cooperation to enhance food security, promoting sustainable agricultural practices, and ensuring food safety standards are met. This involves strengthening regional supply chains, harmonizing standards, and improving access to finance and technology for farmers, especially smallholders. Ultimately, the goal is to create a resilient and prosperous food system that benefits all stakeholders in the region.

Key Elements of the Vision:

Enhanced Regional Cooperation: SAARC (South Asian Association for Regional Cooperation) countries should prioritize cooperation in agriculture, focusing on areas like research, technology sharing, and resource management.

Sustainable Agriculture: Adopting climate-smart agricultural practices, promoting resource efficiency, and preserving biodiversity are crucial for long-term sustainability and resilience.

Food Safety and Quality: Harmonizing food safety standards, implementing quality control measures, and raising consumer awareness about safe food are essential for building trust and facilitating trade.

Strengthened Value Chains: Improving infrastructure, access to finance, and technology for farmers and agribusinesses will enhance the efficiency and competitiveness of regional supply chains.

Inclusive Growth: Targeting support for smallholder farmers, particularly women and youth, will ensure that the benefits of trade are shared equitably.

Investment in Human Capital: Capacity building, skills development, and access to education and healthcare will empower individuals and communities to participate fully in the agri-food sector.

Enabling Environment: Developing supportive policies, regulations, and institutional frameworks will create a conducive environment for private sector investment and innovation.

Regional Trade Harmonization: Reducing trade barriers, streamlining customs procedures, and promoting regional trade agreements will facilitate the flow of goods and services within the region.

Specific Areas for Action:

Joint research and development: Collaborating on research for climate-resilient crops, pest and disease management, and sustainable farming practices.

Knowledge sharing and technology transfer: Facilitating the exchange of best practices and technologies among South Asian countries.

Infrastructure development: Investing in transportation, storage, and processing facilities to improve supply chain efficiency.

Financial inclusion: Providing access to affordable credit and financial services for farmers and agribusinesses.

Public-private partnerships: Encouraging collaboration between governments, private sector, and civil society organizations.

By focusing on these key elements and specific areas for action, South Asian countries can create a safe, competitive, and prosperous agri-food trade zone that contributes to regional food security and economic development.

References

ADB. 2015.Food security in south asia-developing regional supply chains for the food processing industry. United Nations conference on trade and development and Asian Development Bank, Philippines. Pp. 25-26.

BBS. 2024.Yearbook of agricultural statistics. Bangladesh Bureau of Statistics, Dhaka. p.527.

Islam,S.M.F. and Talukdar, R.K.2017. Projections of food demand and supply in Bangladesh: Implications on food security and water demand. International journal of sustainable agricultural management and informatics.3(2):125-153.

MCCI.2024. Bangladesh's economy durin FY 2023-24 [FY 24]. Metropolitan chamber of commerce and industry, Dhaka. P.11.

Slater, J. and Masih, N. (2020, March 19). Home to nearly 2 billion people, South Asia could be the next coronavirus hotspot. The washington post.

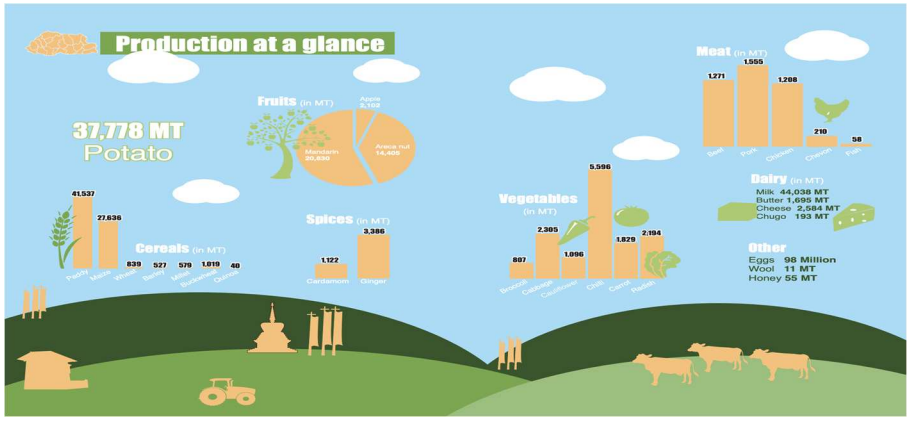
Song, L.L. (2019, July 04). How South Asia can continue as world's fastest growinq subregion. The financial express. https://www.thefinancialexpress.com.bd/2019/07/04.

Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in Bhutan

Tshering Wangmo[1*] and Sonam Choden[2]
[1]Chief Economic Development and Marketing Officer, Department of Agricultural and Marketing Cooperatives, Ministry of Agriculture and Livestock, Thimphu, Bhutan
[2]Regulatory and Quarantine Officer, Bhutan Food and Drug Authority, Ministry of Health, Thimphu, Bhutan
[*]Email: twangmo@moal.gov.bt

Introduction

Bhutan's agricultural sector accounts for nearly 14.67% of the GDP and employs 43.5% of the workforce. Agriculture and livestock play a fundamental role in Bhutan's economy, contributing significantly to food security, rural livelihoods, and national GDP. In 2023, crop production accounted for 6.57% of GDP, while the livestock sector contributed 5.91%.



Source: Integrated Agriculture and Livestock Census, 2025

However, production still struggles to meet demand due to the seasonal nature of production, leading to a deficit/surplus during certain times of the year and reliance on imports. From 2013 to 2022, Bhutan's agricultural workforce decreased by approximately 33.7 percent from 188,759 to 125,160, highlighting a significant reduction in labor availability. Post-harvest loss remains high and value-chain infrastructure, marketing logistics and compliance to quality standards remain infantile. Production and marketing of agricultural commodities continue to be constrained by small land holdings, scattered settlements, low volume, seasonal production, high

transportation costs, high post-harvest losses, inefficient domestic market linkages and limited export market diversification. Extreme weather events such as flash floods, droughts, hailstorms, and windstorms have become more frequent, damaging crops, livestock and infrastructure. Inadequate aggregation centres, and processing facilities, limited standardization, weak quality control and limited capacity for conformity assessments and insufficient market facilities are some of the major constraints grappling agricultural marketing both for domestic and export markets. Limited resilient crop varieties and insufficient capacity for research and extension services hinders adaptation efforts.

Strategies to improve include transforming agri-food systems towards surplus through better practices, infrastructure investment, and government support for high-value products and sustainable farming.
The Food Systems Strategy 2034 are key government initiatives aimed at increasing productivity, self-sufficiency, and market access. The following are the strategies:

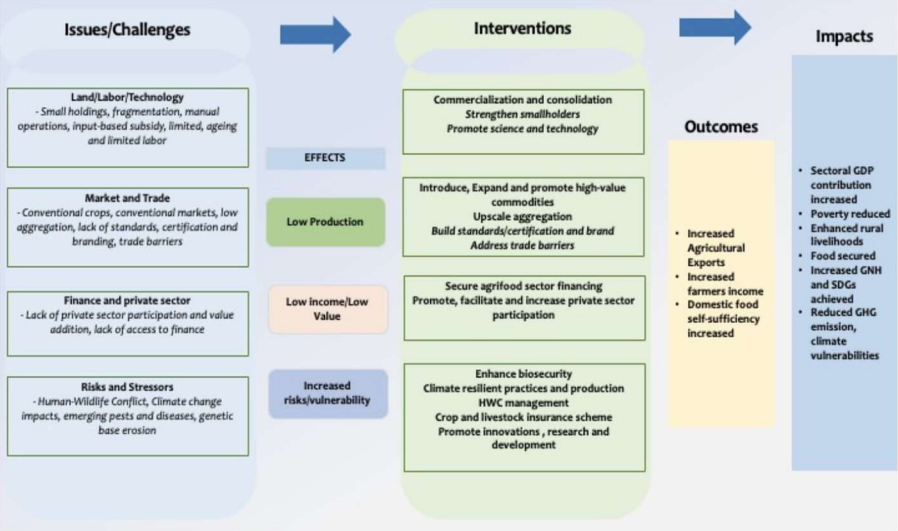


Figure 1. 'Theory of Change' proposition for the agrifood sector

Diversify Markets

- Strategic interventions will prioritize market diversification, address trade-related barriers, and promote ease of doing business

Explore export markets

- There is substantial potential in existing markets (India, Bangladesh) and emerging ones (Singapore, Australia, Thailand, Middle East, Japan, Malaysia.
- The Geographical Indication (GI) system will be established to protect the authenticity of Bhutanese agrifood products.

Leverage Domestic market

- Bhutan's domestic market remains to be tapped with significant demand from institutions such as Gyalsung Academies, schools, hospitals, and monastic institutions.
- The agrifood sector has a significant opportunity to capitalise on the growing tourism industry.
- A separate agriculture and livestock development plan tailored to the distinct need of city will be developed and implementation fast tracked.

Build Regulations, Standards and Compliance

- A sound legal framework of regulations, standards, and compliance mechanisms across the value chain is essential.
- Existing legal frameworks will be reviewed to ensure an operational import and export control system is embedded within the legal framework.
- These components foster consumer trust, enable market access, and encourage investments in the sector.

Build Regulations and Standards aligned with International Best Practices

- Bhutan will align its regulatory and standards requirements with globally recognized norms like Codex Alimentarius Commission (CAC) .
- By adhering to these standards, Bhutan will strengthen its position in international trade.
- Adhering to regulations in the agrifood sector is fundamental for ensuring that food production is both safe for consumers and environmentally sustainable

Understand the requirement of specific export markets

- Enterprises intending to export their products need up-to-date information about the applicable technical requirements in their target markets.
- A systematic approach will be followed to facilitate understanding the requirements of specific export markets.
- Thorough research, compliance with regulations, and establishing the right partnerships are key to building a sustainable and profitable export business

Strengthen Biosecurity

- Enhancements will be made on technological, testing and analytical laboratories, surveillance and containment capacities to safeguard crops, feed and livestock, against both established and emerging pests and diseases.
- Farms' structural designs will be incorporated with biosecurity attributes, with incentives or subsidies extended to encourage and support the integration of these features.
- The pursuit of biosecurity mandates will be viewed as a collective responsibility, involving farmers, agri-product vendors, technical agencies, and regulators.

Address Trade Barriers expeditiously

- The MoFAET, MoICE and MoAL will explore areas to help exporters ease the process and optimise profit from agricultural exports.
- Frameworks for trade negotiations with India and other trading partner countries will be mainstreamed.
- Market entry to third countries under preferential trade agreement will be prioritized.

Produce Export commodities

- Production of export commodities includes crops and livestock commodities having the potential to increase the income of farmers and export revenue generation.
- Under this, both the emerging high value commodities and the existing export commodities will be upscaled.
- Where feasible, commercial production of niche and high value commodities at a landscape level will be promoted for economies of scale

High value commodities

- The Ministry will prioritize the cultivation and production of high-value agricultural products such as asparagus, strawberries, broccoli, quinoa, black pepper, buckwheat, cardamom, mushroom and millet.
- Plans will be specified to supplement production through integrated approach of collective smallholder farming, promotion of commercialization on a large scale through use of efficient modern technology and private sector engagement.
- 12 high value livestock products will be promoted for exports which includes black caviar (Sturgeon), blossom honey, rainbow trout, red caviar (Trout), yagyu meat and yak cheese.

Support Existing Export commodities

- Support for established export commodities such as apple, mandarin, cardamom, areca nut, ginger, potato, and legumes will be provided to ensure stability.

Fast Track commercialization and private sector engagement

- Initiatives and mechanisms to drive up private sector engagement will be accelerated and upscaled.
- Access to finance, land, labor and tax breaks will be enabled to spur the growth of the private sector.

Establish commercial farms

- Proposals to establish commercial farms will be encouraged and supported on a priority basis.
- Such commercial establishments may be developed by private entities, farmer groups/cooperatives, and SOEs to undertake large-scale production of prioritized commodities.
- FDIs and B2B will be encouraged and facilitated for all such ventures including leasing of land if required.

Accelerate private sector engagement

- Private sector players will be actively engaged to undertake business in the agrifood sector.
- Forums such as Bhutan Agrifood Trade and Investment Forum (BATIF) will be held as biennial events to encourage and usher the private sector to achieve the intent of the MoAL .
- Private sector players will be encouraged and supported to establish vertical farms by providing fiscal subsidies, low interest loans, administrative clearances, trade licences, facilitating B2B partnerships and providing tax breaks.

Actively engage and support youth led business enterprises

- Youth will be proactively engaged and encouraged to undertake agrifood related on and off-farm business.
- Technical support will be provided for youth led farming enterprises and aspiring entrepreneurs.
- Enterprises will also be provided special incentive packages comprising subsidies on farm inputs, machinery and equipment, land and infrastructure development.

Advance technology and infrastructure

- Efforts will prioritize the adoption of advanced technologies, use of digital tools and the enhancement of access to essential inputs and infrastructure.
- Targeted investments in innovative solutions, climate-resilient systems, and private sector-driven initiatives are anticipated.
- These will transform agricultural practices, optimize resource utilization, and promote sustainable growth in the sector.

Improve technology and systems

- The strategy will focus on advancing agricultural technology by leveraging digital platforms, enhancing farm mechanization, and piloting next-generation agricultural innovations.
- Smallholder farmers and farmer groups/cooperatives will be provided subsidies and special financial credits and tax incentives to establish their own machinery and equipment rental services for communities.
- An agrifood digital platform supported by a high-end data centre will be launched incorporating digital tools ranging from apps which provide weather-based crop advisory services.

Strengthen input services and infrastructure

- Significant investments will be made to roll out climate resilient irrigation systems to realize 'more-per-drop.
- Access to quality seeds and seedlings at adequate quantities will be ensured to meet demand, and respond to climate change, economic, and socio-ecological conditions.
- Supply and delivery of agrochemicals will be streamlined, strengthened and facilitated, to avoid excessive use, without compromising on crop productivity.

Value addition, processing and marketing

- Value addition, processing, and marketing will be critical to reduce post-harvest losses, enhance market competitiveness, and diversify income sources for rural communities.
- Immense potential lies in transforming raw produce into high-value products aligned with Bhutan's unique identity for boosting exports.
- Strengthening logistical infrastructure across the value chain through targeted investments will be a key priority.

Advance post-harvest storage and processing capacity

- Need-based building and proper management of cold-storage facilities will be expedited and mechanisms to manage all such facilities through PPP models will be considered.

- Private sector entities will be supported to establish agri-tech start-ups to upscale and expand food processing establishments.
- BLDCL and private entities will be encouraged and supported to establish meat processing facilities to increase access to affordable and quality meat and reduce imports of unsafe meats.

Develop and Leverage Eco-Hubs

- Agrifood Eco-Hubs will be established at four key strategic locations to cover eastern, central, southern and western Bhutan.
- Eco-hubs will be established to provide a single space where both Government and private service providers can convene.
- The Integrated Processing Center (Hub) will be linked to a network of Primary Agri-Food Centers (PACs) (Spokes) where PACs will aggregate, store and undertake basic processing activities at strategically located village or sub-Gewog clusters.

Enhance Food and Nutrition Security

- Enhancing food and nutrition security is essential for ensuring access to sufficient, safe, and nutritious food for all.
- This priority focuses on sustaining the production of cereals, and other priority crops to meet staple food needs while boosting the productivity of milk, meat, eggs, and honey to diversify diets and improve nutrition.
- Maintaining adequate against unforeseen shocks, ensuring food availability during crises and strengthening smallholder farms through resource access, capacity building, and market linkages promotes inclusive growth and sustainable livelihoods.

Sustain current levels of production for cereals and priority crops

- Supports to small holders will continue in order to maintain minimum self-sufficiency and to reduce import of essential food items.

Enhance rice production

- Current levels of production for rice will be sustained to cater to domestic demand.
- Existing rice production areas will be protected and supported with the provision of high yielding varieties, access to farm machinery, irrigation system, fencing, land development, post-harvest technology, and domestic market facilitation including research program.
- Close to 40,000 to 43,000 acres of prime wetland will be identified, protected and cultivation ensured through provision of appropriate incentives to sustain rice self-sufficiency levels at 35 percent level.

Enhance wheat production

- Current levels of production will be increased through short duration, high yielding varieties and enhancing access to machinery, post-harvest technology, and domestic market facilitation.

Increase maize production

- Current production levels will be increased by promoting high yielding varieties, heat tolerant varieties, improvement of post-processing technology including research and development, and linking farmers with private companies for feed and value-added products.
- Market interventions will be critical in sustaining and enhancing production to meet the demand for food and feed purposes.

Increase production of chilli, onion and tomato

- Farmers will be connected with guaranteed markets, such as Gyalsung Academies and schools to enhance local vegetable production and will be encouraged to align their efforts with market demands.
- ARDCs will actively focus on plant breeding to develop varieties that are climate-resilient, disease-resistant, high-yielding, and shorter growth durations.
- Private entrepreneurs, youth farmer groups, progressive farmers and SOEs will be supported to engage in large-scale commercial production of chilies, onions, and tomatoes.

Promote Priority Fruits and Nuts

- The priority fruits and nuts will be promoted through programs such as Million fruit tree plantation, focused village orchard, orchard revival, research outreach, nursery establishment and encouraging private and FDI ventures.
- An orchard revival and climate adaptation program aimed at improving existing orchards and creating new ones will be initiated immediately.
- Farmers and landowners will be provided advisory services on varieties, orchard care, marketing and storage.

Food Safety Standard/ Regulation

Food Safety is one of the fundamental rights of an individual and access to safe and nutritious food has become a matter of paramount importance. Further, Food safety is a global importance and the need to collaborate and work together is essential for addressing continued emergence threats to food safety and consumer health. With the increasing complexity in regional, national and global food chains, there have been social changes such as change in food habits, new food types and change in food culture. These

transformations have simultaneously heightened the risk of food hazards, adulteration and contamination which require parallel changes in food science and technology making food safety a shared responsibility among players involved in the vast network of food safety systems from farm to fork (farm, processing, distribution, retail till the point of safe consumption). This interconnection underscores the further need for Harmonized Food Safety Standards both within nations and across borders to ensure consistency, credibility and trust in the food supply chain.

The Bhutan Food and Drug Authority (BFDA) is the merger of erstwhile three agencies: Bhutan Agriculture and Food Regulatory Authority (BAFRA), Drug Regulatory Authority (DRA) and Bhutan Narcotic Control Agency (BNCA). It was consolidated under the Civil Service Reform Act 2022 for enhanced regulatory system and to protect the public health and safety. Bhutan Food and Drug Authority (BFDA) is the competent food safety authority that is responsible for the regulation and management of the Food Control System. The Bhutan Food and Drug Authority under the Ministry of Health has been designated as the National Food Inspectorate since 2003. And BFDA has been mandated to regulate and manage the country's food control system under the Food Act of Bhutan 2005 and its Rules and Regulations 2017.

Legal Framework

The Food Act of Bhutan was enacted in 2005 and it is the cornerstone of Bhutan's Food safety law. The act empowers the inspectors to seize, mark or destroy unsafe food and regulate import and export. The Food Rules and Regulations of Bhutan was introduced in 2007 and revised in 2017. These documents are the legal instruments to ensure food safety in the country. The Food and Nutrition Security Policy ensure the public has access to safe and nutritious food while aiming to strengthen food security, promote safe production and enhance trade and marketing systems.

Institutional Mechanism

BFDA is mandated to carry out the inspection and monitoring of food businesses, issue food safety licensing to food businesses, regulate import and export, provide food handlers training and testing services of food. Food Rules and Regulation of Bhutan 2017 aim at enhancement of food safety and the orderly development of the food industries by defining requirements for food businesses and procedures for licensing of the food businesses. The Food Businesses are issued with Food Safety License and the licensing of the food business is designed as per the criteria for Good Hygienic and Manufacturing Practices (GHP/GMP) which is based on the recommended International Code of Practice- General Principles of Food Hygiene of Codex Alimentarius

Commission (CAC/RCP 1-1969; revised in 2022) and Bhutan Standard on Food Hygiene- General principles- Code of practice (BTS 139:2020 SARS 00114:2018). Apart from the regular inspection, the surveillance inspection of the licensed food businesses is carried out on a risk-based basis. It is mandated that any person working in any food business must possess a Food Handlers card. BFDA provides training on food safety and hygiene to the food handlers and requires medical certificates to hold five-year food handlers' licenses. Refresher training is required for renewal. The Bhutan Standard Bureau (BSB) is the national standard setting body with its mandates covering four areas of standards, metrology, certification and accreditation. Bhutan Standards Bureau (BSB) also serves as the nodal agency to represent Bhutan in the International Organization for Standardization and is responsible for ensuring safe food through the implementation and development of standards. The BSB has various technical committees for setting up standards as per ISO requirements.

Food Safety Reality and Emerging concern

Bhutan Food and Drug Authority implement food safety through Inspection, Testing, and Certification. While Agriculture remains the backbone of Bhutan's rural economy contributing to livelihood, employment and national food security, Bhutan remains a heavily import driven country, and currently the import control system is not fully implemented except for a few of the prioritized food commodities. This high percentage of imports plays an additional demand for food safety and a need for harmonized food safety standards. At the regional level, the existing regulations related to food safety are implemented independently by each country and do not provide the desired result of safe food supply leading to duplication of inspection, repeated testing and multiple certifications or having to undergo different regulatory requirements which itself is a barrier to trade.

Micro-nutrient deficiency among children, pregnant women is an area of concern for the governments across the region and to bridge the gap, there is a need for the introduction of fortified food as these products are specifically designed for the vulnerable population group of people. This creates a need for a quality standard for fortified food in the region for efficient trade. The need for the standards especially for the import and export of the fortified food needs to be adopted harmoniously by all the South Asian countries to ensure everyone is assessed to high quality nutrients and without any trade barriers.

Harmonizing food safety standards not only ensures safe food to the public but also enhances trade through reduced testing and meeting other regulatory requirements.

Trades

India is Bhutan's largest and most important trading partner, accounting for a significant majority of its total exports and imports. Bangladesh is another major export market for Bhutan.

Table 1. Top 10 Major Agricultural Exports of Bhutan (2024)

Sl. No.	Commodity	Quantity Exported (MT)	Value (Nu. Million)	Major Importing Countries
1	Cardamom	1,356.20	1,234.70	India and Bangladesh
2	Oranges	15,711.08	624.78	India and Bangladesh
3	Potato	25,001.68	539.40	India
4	Cordyceps	176.04	99.99	India, Singapore, Japan, Thailand, Russia, UAE, Cambodia, Taiwan, UK, USA, Vietnam, Switzerland, China, Hongkong
5	Matsutake	9.98	50.70	India, Singapore, Japan, Thailand
6	Ginger	1,327.50	46.57	India, Bangladesh, Singapore
7	Carrots amd Turnips	1,240.81	46.47	India
8	Arecanuts, In shell	1,387.89	36.72	India
9	Apple	1,292.26	30.55	India and Bangladesh
10	Rubia (Tsoe)	1.75	27.61	India

Source: Annual Report, DAMC, MoAL (2024-25)

The highest revenue was generated from export of Cardamom which fetched Nu.1,234.70 million followed by Oranges with a total value of Nu.624.78 million. From the agro-processed category, orange juice (worth Nu.120.56 million), stuffed pasta (worth Nu.109.31 million) and other fruit and vegetable juices (worth Nu.46.01 million) were some of the major export commodities. While India and Bangladesh remain significant trading partners for Bhutan, it exported to countries such as Australia, Germany, Japan, Malaysia, Nepal, the Russian Federation, Singapore, Thailand, and the United Arab Emirates in 2024. Countries like Hong Kong, China, Switzerland,

Vietnam, the United States of America, United Kingdom, Taiwan, and Cambodia imported only Cordyceps from Bhutan.

Alignment with International Standards

Bhutan Food and Drug Authority cannot work in isolation to ensure food safety and must work closely with several other departments like the Ministry of Agriculture and Livestock, Ministry of Industry, Trade and Commerce and other relevant agencies. Bhutan continues to promote farming and agricultural production to enhance food security without compromising the public health and safety. While the government has placed significant emphasis in boosting domestic production, food safety consideration also needs to be addressed. Bhutan Food and Drug Authority has taken significant steps to strengthen its regulatory capacity to ensure safe and quality food. Despite efforts by BFDA to execute the mandates, implementation of food safety measures remain a major concern due to limited capacity in infrastructure, technology and human resources.

One of the most critical initiatives undertaken by Bhutan Food and Drug Authority is the adoption of ISO standards, aligning Bhutan's Food Safety with global best practices. The Food Act of Bhutan provides the legal foundation for food safety and makes references to the Codex Alimentarius in cases where the national standards are absent. This linkage ensures that Bhutan's food safety system remains consistent with international principles and benchmarks.

BFDA currently holds accreditation against three key ISO/IEC standards. ISO/IEC 17020 for the inspection of Food Businesses. This ensures that the inspections are conducted systematically, impartially and in a credible manner, establishing and supporting surveillance of food businesses and monitoring imports and exports at the entry points. ISO/IEC 17025 is for the testing of food commodities and testing of the food products by internationally recognized guaranties reliable, reproducible test results that can be internationally accepted and strengthens Bhutan's capacity to certify food safety before export and import. BFDA is also accredited against ISO/IEC 17065 for the certification bodies. This provides an internationally recognized mechanism for certifying compliance with food safety requirements supporting Bhutan's capacity to certify food products prior to export or import. Together, these ISO standards form the pillar of Bhutan's food safety framework which collectively strengthens credibility in both domestic and export markets.

Factors impeding trades of agricultural commodities / products in SAARC region

Despite significant progress in strengthening food safety systems, several key factors continue to constrain agricultural trade both within Bhutan and across the South Asia region. These challenges pose barriers to trade and increase costs for exporters and hinder full realization of regional trade potential. The primary constraint is the absence of harmonized food safety standards which results in redundant inspections, documentation and approval process, creating inefficiency and delay in cross border trade. A critical infrastructure gap exists in the form of limited accredited laboratory and testing capacity leading to substantial delays in product testing which increases both time and financial burden of trade. Additionally, exporters are burdened by the need to comply with multiple specific requirements of each importing country, posing a significant barrier to accessing regional markets.

Bhutan is heavily reliant on imports particularly from India. However, bilateral agreements play a critical role by enabling mutual recognition of inspections, testing and certification reducing trade barriers. For export, compliance with the national standards and regulation and of importing country requirements is mandatory. The agreement signed between Food Safety Standards Authority of India (FSSAI) and Bhutan Food and Drug Authority (BFDA) facilitates smooth trade between the two countries by recognizing the official control of the trading partner country. This mutual recognition helps reduce the duplication of inspection, certification and testing and promotes free and fair trade while upholding the food safety standards.

Despite these positive steps, Bhutan faces some challenges in systematic monitoring of the imported food products given its reliance on imports from India and neighboring countries. Currently, the inspection and monitoring of these products are carried out during the regular inspection of retail and wholesale food business. Any exporter wishing to export their products must meet the national requirements as well as fulfill the requirements of the importing countries. Thus, ensuring high safety standards of food to the importing country.

To further strengthen regional trade, there is a compelling need to move beyond bilateral arrangement and embrace regional harmonization of food safety standards. Harmonizing standards and adopting ISO 17020/17025/17065 frameworks across South Asia could ease these barriers, fostering safer regional food trade.

Private sectors and innovation in food safety

In Bhutan, private sector innovation in food safety is fostered through agribusinesses, startups, and exporters, often supported by public-private partnerships (PPPs) for developing and adhering to food standards. Traceability mechanisms are becoming more stringent to monitor food origins, while digital technologies are being explored to enhance data capture and security in the supply chain.

Role of the Private Sector

- **Agribusiness:** Act as aggregators, collecting produce from farmers, processing it, and ensuring it meets food safety and quality standards. They contribute to building technology competence across the supply chain, from farm to processing and packaging.
- **Startups and Exporters:** Are seen as crucial drivers of innovation within the agri-food system. They can introduce new technologies and practices to enhance food safety, develop niche markets, and facilitate food exports.
- **Cold Chains and Infrastructure:** Private enterprises are being empowered to operate and manage cold chains and warehouse facilities, ensuring quality maintenance during storage and transport.

Traceability Mechanisms

- **Record-Keeping:** Food businesses are required to maintain detailed records of various processes, such as incoming material checks and temperature controls.
- **Origin Tracking:** Bhutan's traceability system is improving gradually. For example, the traceability system now enables consumers to trace meat products back to their specific farm of origin, tea to their specific growers, etc.
- **Technology Integration:** The integration of technology into traceability systems allows for the capturing of real-time data on product movements.

Digital Certification Systems

- **Data-Driven Compliance:** IoT devices and sensors can capture and record critical data points like temperature, humidity, and location in real-time.
- **Blockchain for Security:** Blockchain technology offers a secure, tamper-proof platform for storing this supply chain data, enhancing accountability and transparency.

- **AI and Analytics:** Advanced analytics on blockchain data can help identify food spoilage patterns, predict risks, and optimize supply chain operations.

Public-Private Partnerships (PPPs)

- **Collaborative Standard Setting:** PPPs enable collaboration between the public sector (like the Bhutan Food and Drug Regulatory Authority - BFDA) and private businesses.
- **Resource Mobilization:** These partnerships help mobilize additional financial resources and share risks to address challenges in agricultural development and food safety.
- **Knowledge and Technology Transfer:** PPPs facilitate the transfer of technology, know-how, and best practices from the private sector to farmers, enhancing the overall competitiveness and safety of the food system.

Broader Context

- **Agrifood Sector Strategy 2034:**
  This long-term strategy, developed through stakeholder dialogues, outlines goals for supporting agricultural development and increasing market opportunities.

Roadmap for harmonization of food safety standards

The global marketplace for food is a complex network and in this intricate system, a shared understanding of safety and quality is essential. To facilitate safe, efficient and seamless regional trade, Bhutan recommends recognition and adoption of the Food Safety Framework based on the Codex Alimentarius. By aligning its national regulations with this internationally recognized body of standards, it ensures consistency, transparency and credibility while enabling mutual trust among regulatory authorities across countries.

When regulatory bodies share a common set of standards, they can develop mutual recognition agreements. This means that one country's authority can trust that the other's inspection and certification system is just as rigorous as its own. This trust allows for a streamlined process where, for example, a food safety license issued in Bhutan is immediately recognized and accepted by a trading partner, without the need for additional checks. This system, built on credibility, can promote the mutual recognition agreement for inspection, testing and certification among the South Asia Region.

Harmonization isn't just about having the same written rules; it's about interpreting and applying those rules in the same way. Therefore, providing

joint training programs for inspectors, analysts and food business operators will help establish a common understanding of aligning on best practices and practical implementation of standards.

Conclusion and way forward

Bhutan has established a proactive and robust approach to food safety, anchored by the Bhutan Food and Drug Authority's (BFDA) commitment to international standards, including the Codex Alimentarius and ISO accreditation. While the bilateral agreement with India provides a successful model for trade facilitation, the broader South Asian region faces significant impediments to agricultural trade due to a lack of harmonized food safety standards. The current reality of fragmented regulations, redundant testing, and burdensome certification processes creates inefficiency and hinders the full economic potential of regional agri-food trade.

The way forward lies in a strategic, region-wide commitment to harmonization. This requires moving beyond a series of bilateral agreements to a unified, multilateral framework. The immediate priorities should focus on three key areas:

- Standardized Framework Adoption: The region must collectively embrace and align with the Codex Alimentarius as the foundational framework for food safety. This will ensure a common set of scientific, risk-based principles for all participating nations, fostering consistency and predictability in the food supply chain.

- Mutual Recognition Agreements: Building on a harmonized framework, countries in the region should establish mutual recognition agreements for inspection, testing, and certification. This will enable a food safety license or certification issued in one country to be accepted by all trading partners, drastically reducing duplicative efforts and trade barriers.

- Capacity Building and Training: To ensure consistent interpretation and application of standards, joint training programs are essential. By bringing together inspectors, analysts, and food business operators from across South Asia, these programs will build a shared understanding, promote a common language for food safety and most importantly, foster the professional trust that is the cornerstone of a safe and efficient trading environment.

The ultimate vision for the South Asian agri-food trade zone is one of a single, safe, and competitive marketplace. By harmonizing standards and fostering a culture of collaboration, the region can create a seamless and credible food supply chain. This will not only boost regional trade and economic growth

but also ensure that every consumer has consistent access to safe, nutritious and high-quality food, thereby protecting public health and strengthening food security for generations to come.

References

Ali, M. Younus., Shrestha, R. Bahadur., Bokhtiar, S. M., & Samanta, A. Kumar. (2020). *Food safety in South Asia: challenge, opportunity and policy perspectives*. SAARC Agriculture Centre; BSAFE Foundation.

RGOB. (2005). *The Food Act of Bhutan, 2005,* Royal Government of Bhutan

RGOB. (2017). *Food Rules and Regulation of Bhutan, 2017,* Royal Government of Bhutan

RGOB. (2014). *Food and Nutrition Security Policy of Kingdom of Bhutan, 2014*. Royal Government of Bhutan, Thimphu.

DRC. (2024). *Bhutan Trade Statistics 2024.* Department of Revenue & Customs, Ministry of Finance, Royal Government of Bhutan (2024). www.mof.gov.bt

RGOB. (2025). *Bhutan Agrifood Sector Strategy, 2034*. Ministry of Agriculture and Livestock. www.moal.gov.bt

RGOB. (2025). *Thirteenth Five Year Plan 2024-2029*. Ministry of Agriculture and Livestock www.moal.gov.bt

RGOB. (2025). *Integrated Agriculture and Livestock Census of Bhutan*, 2025. National Statistics Bureau. www.nsb.gov.bt

Fostering Agricultural Trade including Fortified Foods through Harmonized Food Safety Standards in Maldives

Mohamed Lahfaan Moosa[1*] and Fathimath Afnaan Abdul Hameed[2]
[1]Assistant Agriculture Officer, Ministry of Agriculture and Animal Welfare
[2]Director, Ministry of Agriculture and Animal Welfare
*Email: Lahfaan.moosa@agriculture.gov.mv

Introduction

The Maldives, a geographically dispersed island nation in the Indian Ocean, is highly dependent on imported food due to its limited arable land, fragmented geography, and scarce freshwater resources. This dependency creates heightened vulnerability to external shocks, including supply chain disruptions, global price volatility, and imported food safety risks. Consequently, food safety, public health, and trade regulation have become central to national policy concerns.

Source: Ministry of Agriculture and Animal Welfare

Figure 1. Local Farmer in his Watermelon Field

In response to these growing challenges, the Government of Maldives enacted the Food Safety Act (Act No. 6/2024) in May 2024, which came into effect in August 2024. This legislation marks a significant milestone by providing a legally binding framework to regulate food safety across the

entire food chain from production and processing to distribution and consumption. The Act aligns the national regulatory regime with international food safety norms, including those of the Codex Alimentarius, and strengthens the institutional capacity of the Maldives Food and Drug Authority (MFDA) to monitor, inspect, and enforce standards.

This country paper offers a comprehensive overview of the current food safety status in the Maldives. It explores domestic agricultural production and food import trends, assesses the structure and effectiveness of national food safety regulations, evaluates the status of food trade, and highlights innovations and private-sector contributions to food safety. Furthermore, it proposes a roadmap for harmonizing food safety standards within the South Asian region to facilitate safer trade and stronger regional integration.

Status of Agricultural Production, Trade Trends, and Market Demand

Maldives is among the most import-dependent nations in South Asia, sourcing over 90% of its total food supply from international markets. According to Maldives Customs (2024), food imports represent 21.24% of total merchandise imports, underscoring the country's significant reliance on external suppliers. By mid-2025, processed food imports alone reached USD 38 million, largely driven by increased demand from the tourism sector and population growth.

Key imported products include rice, flour, dairy products, fortified foods, canned goods, and other processed products. This growing dependence exposes the Maldives to global price volatility, shipping disruptions, and currency fluctuations, highlighting the urgent need to enhance domestic production and improve trade diversification through regional integration. The table below summarizes domestic production levels, total imports, and dependency rates for major food categories:

Table 1. Domestic Production and import-export scenario

Category	Domestic Production (MT)	Imports (MT)	Import Dependency
Rice/Wheat	0	72,000	100%
Vegetables	9,800	25,600	72%
Fruits	7,200	28,800	80%
Poultry/Eggs	350	3,200	90%
Fortified Foods	Negligible	15,000	95%

Source: Maldives Customs (2024); Ministry of Agriculture and Animal Welfare (MoAAW, 2024)

These figures clearly illustrate the structural vulnerability of the Maldivian food system. While certain fruits and vegetables are cultivated locally, over

70% of total demand for fresh produce and nearly 100% of staples are fulfilled through imports. This heavy dependence underscores the need for policy interventions, including scaling up domestic production, improving post-harvest infrastructure, and promoting regional trade harmonization under the SAARC framework.

The central role of the tourism industry further shapes agricultural trade dynamics in the Maldives. Tourism is the largest contributor to GDP and one of the fastest-growing sectors, with over 1.5 million visitors annually. The requirements of high-end resorts, which demand consistent volumes of premium-quality products that meet strict food safety and certification standards, drive significant import volumes of fresh produce, poultry, seafood, and fortified foods. While this has led to increased reliance on external suppliers, it also presents opportunities for domestic farmers to participate in high-value supply chains if they can meet resort procurement standards. Programs such as the Maldives Agribusiness Program (MAP), co-funded by the Maldivian government and the International Fund for Agricultural Development (IFAD), have played a critical role in creating linkages between local producers and resort buyers, supporting farmers in improving product quality, adopting climate-resilient technologies, and scaling their operations to meet market demands. Despite these initiatives, challenges persist in integrating domestic producers into the tourism-driven value chain due to inconsistent production volumes, limited storage facilities, and the absence of uniform certification mechanisms.

Within the broader South Asian context, regional agricultural trade presents both opportunities and constraints for the Maldives. The country's membership in the South Asian Association for Regional Cooperation (SAARC) positions it strategically within a market of over 1.9 billion people. However, intra-regional trade remains limited, largely due to inconsistent sanitary and phytosanitary (SPS) measures, divergent technical barriers to trade (TBT), and fragmented food safety regulations among member states. For the Maldives, the lack of harmonized testing and certification procedures creates additional barriers to trading fortified and non-fortified foods across borders. For example, variations in nutrient fortification standards, labeling requirements, and testing methodologies among SAARC countries increase the cost of compliance for Maldivian importers and exporters. To address these issues, Maldives has been an active participant in regional policy dialogues and technical committees aimed at aligning food safety frameworks with regional guidelines and evidence-based international best practices.

The government has taken several strategic measures to reduce the country's dependence on imports while improving trade competitiveness. The Maldives Agribusiness Program (MAP) supports farmers through training,

infrastructure development, and improved access to greenhouse technologies and drip irrigation systems, enabling them to increase yields and better meet market demands. Additionally, the introduction of the Maldives Good Agricultural Practices (M-GAP) certification scheme in 2016 marked a significant step toward standardizing production processes, enhancing environmental sustainability, and building consumer confidence in local produce. However, adoption of M-GAP remains low due to limited awareness, insufficient domestic testing facilities, and the high costs associated with sending samples abroad for certification.

At the same time, regional initiatives on harmonizing fortified food standards are becoming increasingly important as micronutrient deficiencies remain a critical public health issue across South Asia. Harmonization of fortified food regulations under SAARC frameworks would not only facilitate smoother cross-border trade but also enhance the Maldives' capacity to access safe, nutritious products at affordable prices. By aligning Maldives' food safety standards with regional and international benchmarks, the country stands to improve the competitiveness of its domestic agricultural sector, enhance consumer protection, and foster integration into emerging regional agrifood trade networks.

Source: Ministry of Agriculture and Animal Welfare

Figure 2. Maldives Local Market

In summary, while agriculture in the Maldives faces structural limitations due to land scarcity, environmental fragility, and heavy import dependency, there are opportunities to strengthen production, improve trade competitiveness, and enhance regional integration. By leveraging initiatives such as M-GAP certification, promoting climate-resilient technologies, expanding

agribusiness programs, and aligning food safety frameworks with regional standards, the Maldives can build a more sustainable and resilient agricultural trade system capable of meeting domestic demand while participating meaningfully in the South Asian regional market.

Strategic Response and Policy Direction

Recognizing the urgent need to reduce its reliance on imports and strengthen food sovereignty, the Maldives has adopted several strategic policies aimed at boosting domestic food production. These include the National Framework for Agriculture Policy (NFAP) 2019–2029 and the Strategic Action Plan (SAP) 2019–2023, both of which prioritize the development of climate-smart, resource-efficient agriculture systems. Key focus areas include:

Promotion of hydroponics, aquaponics, and greenhouse cultivation as sustainable alternatives to traditional farming.

Source: Ministry of Agriculture and Animal Welfare

Figure 3. Hydroponics Systems in greenhouse

- **Investment in vertical farming and soil-less cultivation technologies** in urban and island environments.

Source**:** Ministry of Agriculture and Animal Welfare

Figure 4. Vertical Farming Systems in greenhouse

The Government has also fostered public–private partnerships (PPPs) to bridge infrastructure and market access gaps. A notable example is the STO Agri center initiative in Thoddoo and other islands, which provides a reliable platform for local farmers to aggregate, store, and distribute fresh produce to consumers in the capital Malé and nearby resort islands. Such initiatives aim to build resilient agri-value chains and improve income opportunities for rural farming communities.

Food Safety Standards & Regulation

Overview and Public Health Significance

Given the Maldives' heavy dependence on imported food, accounting for over 90% of total food consumption and its status as a leading global tourism destination, food safety is of paramount importance for both public health protection and economic stability. Contaminated food not only threatens the health of citizens and tourists but also poses serious reputational and financial risks to the tourism industry, which contributes over 25% to national GDP. Ensuring that food entering the domestic market is safe, hygienic, and traceable is a critical pillar of national policy. A modernized food safety regime also aligns the Maldives with international trade and health standards, enabling smoother exports and reduced rejection rates in foreign markets.

Legal Framework and Institutional Structure

In a major step forward, the Food Safety Act (Act No. 6/2024) was ratified in May 2024 and officially came into force in August 2024. This landmark legislation replaces the outdated Food Act of 1978 and introduces comprehensive, enforceable mechanisms for the regulation of all aspects of food safety across the value chain-from import and production to retail and consumption.

Under the new Act, the Maldives Food and Drug Authority (MFDA), operating under the Ministry of Health, is vested with expanded powers, including:

- Licensing and certifying food establishments.
- Enforcing hygiene standards and sanitary practices.
- Issuing stop orders and revoking certifications when violations occur.
- Conducting market surveillance and food sampling.
- Enforcing penalties for non-compliance.

The law also mandates the establishment of two key national institutions:

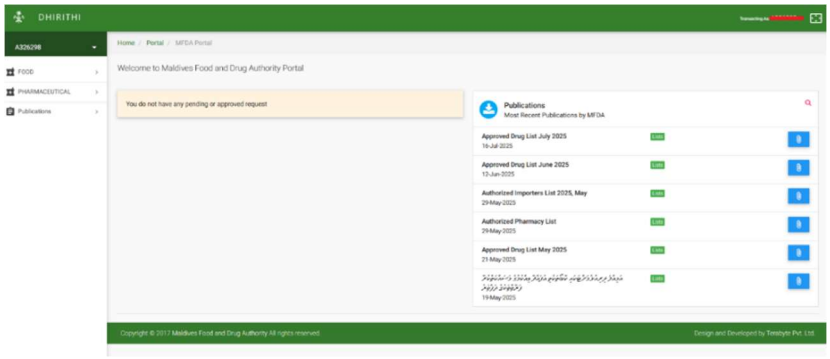
- A National Food Safety and Quality Board, which will function as an advisory and coordination body;
- A National Health Laboratory, tasked with food testing, quality analysis, and diagnostics to support enforcement and risk assessment.
- Until the full operationalization of the 2024 Act, the National Food Safety Policy 2017–2026 continues to provide strategic guidance, emphasizing risk-based inspections, inter-agency coordination, and Codex-aligned regulatory practices.
- In addition to MFDA's central role, local island councils are authorized to conduct localized inspections and ensure compliance at food businesses operating within their jurisdiction. The new law strengthens decentralization while preserving national coherence through unified standards.

Implementation and Impact

The implementation of the Food Safety Act is already reshaping the national food control system. One key reform has been the digitization of food business licensing and monitoring through the Dhirithi Portal, a centralized platform managed by MFDA. Through this system:

- All food business operators ranging from home-based vendors to resort kitchens are required to register and renew certifications annually.
- Food handler hygiene training and records are digitized.
- Inspection histories and renewal statuses are monitored in real time.

MFDA now holds legal authority to conduct inspections and enforce safety regulations across all types of food service operations, including cafés, school canteens, market stalls, and restaurants. The shift from a reactive to a preventive, risk-based approach is a marked improvement in ensuring continuous safety assurance throughout the food supply chain.



Source**:** Dhirithi Portal: https://dhirithi.egov.mv/

Challenges, Gaps, and Strengths

Strengths:

- Legal alignment with Codex Alimentarius standards and international best practices.
- Introduction of risk-based inspection protocols and mandatory registration of food businesses.
- Enhanced regulatory authority vested in MFDA, including the ability to impose fines and enforce corrective actions.
- Ongoing development of national institutions and digital infrastructure.

Gaps and Challenges:

- Shortage of qualified inspectors and food safety officers, especially in remote atolls.
- Limited laboratory testing capacity, delaying confirmatory analysis for foodborne pathogens.
- Inadequate cold chain systems, particularly for perishable imports and inter-island distribution.
- Evolving traceability frameworks that are not yet standardized across public and private actors.
- Coordination between MFDA and other sectoral agencies (e.g., customs, fisheries, agriculture) requires strengthening.

While the new legal framework provides the necessary backbone, sustained investment in capacity building, lab infrastructure, and regional partnerships will be essential for effective enforcement and harmonization with regional trade protocols.

Barriers to Agricultural Trade and Opportunities for Regional Integration

Agricultural trade in the Maldives operates within a complex framework shaped by natural resource constraints, limited domestic production capacity, fragmented regulatory systems, and heavy reliance on imports. As a small island developing state (SIDS), the country faces unique vulnerabilities that distinguish its trade environment from other South Asian economies. Despite significant progress in policy development and institutional reforms, challenges related to food safety compliance, logistical inefficiencies, and regional regulatory variations continue to hinder the Maldives' ability to participate effectively in regional and global agri-food markets. However, the evolving agenda within the South Asian Association for Regional Cooperation (SAARC) on harmonizing food safety standards, facilitating fortified food trade, and strengthening value chain integration presents opportunities for transforming the country's agricultural trade system.

Structural and Geographic Constraints

The Maldives dispersed geography, with 1,190 islands spread across 26 atolls, imposes inherent limitations on the scalability and efficiency of agricultural production and trade. With only around 4,000 hectares of cultivable land, local agricultural output remains insufficient to meet growing national demand. Production is heavily concentrated on inhabited islands, where farmers typically operate small plots, producing modest yields primarily for household consumption and local markets. On leased uninhabited islands, some commercial farming is undertaken using advanced techniques such as greenhouse production, hydroponics, and drip irrigation; however, these remain limited in scale due to high investment costs and limited technical expertise.

This structural deficit results in a high dependency on imports, accounting for more than 80% of total food consumption. Staples such as rice, flour, sugar, and oil are imported almost entirely, alongside significant volumes of fruits, vegetables, dairy products, and processed foods. While these imports ensure a stable supply of food, they expose the Maldives to price volatility, freight disruptions, and currency fluctuations, creating vulnerabilities in food security and economic stability.

Regulatory and Policy Barriers

The governance of agricultural trade in the Maldives is shared primarily between the Ministry of Agriculture and Animal Welfare (MoAAW) and the Maldives Food and Drug Authority (MFDA). While MoAAW oversees policy direction and sectoral development, MFDA is responsible for

enforcing food safety, quality assurance, and compliance regulations for both locally produced and imported goods.

However, challenges arise due to limited institutional capacity, fragmented oversight mechanisms, and insufficient laboratory infrastructure for testing and certification. The enforcement of Sanitary and Phytosanitary (SPS) measures and Technical Barriers to Trade (TBT) remains inconsistent, often requiring imported goods to undergo external testing in third countries. This leads to costly delays, particularly for perishable products, and discourages smaller traders and domestic producers from engaging in formal markets.

Furthermore, decentralized governance under the Decentralization Act has transferred responsibility for leasing agricultural land and managing market operations to island councils. While intended to strengthen local participation, this system has resulted in inconsistencies in land allocation, pricing, and certification procedures, further complicating the development of cohesive national trade strategies.

The introduction of the Maldives Good Agricultural Practices (M-GAP) certification in 2016 was a significant step toward aligning local production with international food safety and quality standards. However, widespread adoption has been limited due to financial constraints, lack of awareness, and insufficient incentives for farmers. Without robust compliance mechanisms, Maldivian products face challenges accessing premium tourism-driven markets domestically and higher-value regional markets abroad.

Logistical Inefficiencies and Post-Harvest Losses

Logistics remain one of the most critical barriers to efficient agricultural trade in the Maldives. The absence of cold-chain infrastructure, limited storage facilities, and irregular inter-island transport schedules lead to significant post-harvest losses, estimated to range between 20% and 40% for perishable products. These inefficiencies reduce the availability of fresh produce in urban markets like Malé and undermine the competitiveness of local farmers against cheaper imports.

The country's heavy dependence on maritime transport also introduces additional vulnerabilities, as adverse weather conditions frequently disrupt shipping schedules. For time-sensitive goods such as fresh fruits, vegetables, and fishery products, these disruptions translate into spoilage, lower earnings, and market instability. The lack of coordinated investment in storage, processing, and transportation infrastructure exacerbates these constraints, limiting the sector's contribution to food security and trade diversification.

Barriers to Regional Trade within SAARC

While the Maldives benefits from its proximity to India, Sri Lanka, and other South Asian markets, intra-regional trade in agricultural products remains underdeveloped. One of the key challenges is the lack of harmonization in food safety standards and technical regulations among SAARC member states.

Differences in labeling requirements, permissible pesticide residue limits, testing protocols, and certification procedures create duplications that increase trade costs and cause delays in product clearance. For the Maldives, which relies heavily on timely imports of perishable products, these inconsistencies affect both cost competitiveness and supply chain efficiency.

The issue of fortified foods has further complicated regional trade dynamics. As micronutrient deficiencies remain a significant public health concern across South Asia, including the Maldives, fortified products such as wheat flour, edible oils, and complementary foods are increasingly prioritized by governments. However, varying technical standards and testing requirements for fortification across SAARC member countries limit opportunities for integrated markets and increase compliance burdens for importers and exporters.

Opportunities for Regional Integration

Despite these barriers, the Maldives stands to benefit significantly from the ongoing efforts within SAARC to harmonize food safety regulations, reduce non-tariff barriers, and strengthen cooperation on fortified food trade. Greater regional integration offers several strategic advantages:

First, harmonizing food safety standards across SAARC would enable the Maldives to streamline its import procedures, reduce certification redundancies, and ensure faster access to essential food commodities. Aligning SPS and TBT measures with regional benchmarks would create a more predictable trade environment while improving consumer confidence in product safety.

Second, the establishment of Mutual Recognition Agreements (MRAs) between SAARC member states could eliminate repetitive testing for products already certified by accredited agencies in exporting countries. This would significantly reduce transaction costs, particularly for fortified products and processed foods, and facilitate smoother trade flows.

Third, developing regionally aligned fortification standards would enhance the availability of affordable, safe, and nutritious foods across the region. As the Maldives grapples with widespread micronutrient deficiencies, simplified

access to fortified imports would directly support public health objectives while integrating domestic supply chains into regional markets.

Finally, collaborative initiatives in capacity building and technology transfer would allow the Maldives to strengthen its institutional capabilities, improve laboratory infrastructure, and adopt advanced testing and traceability tools. Leveraging partnerships with SAARC's technical committees, development partners, and private-sector stakeholders can accelerate progress toward harmonized systems and inclusive market access.

Strategic Pathway Forward

For the Maldives, addressing the barriers to agricultural trade requires a dual approach that combines domestic reforms with regional integration. Nationally, investments are needed in storage infrastructure, cold-chain systems, testing facilities, and certification mechanisms to improve compliance with global food safety standards. Regionally, aligning with SAARC-led initiatives on harmonization, fortified food regulation, and certification reciprocity offers a pathway to reducing transaction costs and securing stable access to diverse, high-quality food supplies.

By pursuing this integrated strategy, the Maldives can transition from a heavily import-dependent economy toward a more resilient and regionally connected agricultural trade system. Such a transformation will not only enhance food security but also strengthen the country's position within the broader South Asian agri-food trade network, enabling it to play a more active role in shaping regional cooperation on food safety, nutrition, and sustainable agricultural development.

Role of the Private Sector and Innovations in Agricultural Trade and Food Safety

The private sector plays an increasingly significant role in shaping agricultural trade, food safety compliance, and market competitiveness in the Maldives. While the government continues to provide policy leadership, institutional frameworks, and infrastructure development, the country's ability to diversify agricultural markets, improve product quality, and integrate into regional value chains depends heavily on strengthening the participation of agribusinesses, exporters, startups, and private-sector partners.

The Maldivian agricultural sector has historically been dominated by smallholder farmers producing for subsistence and local consumption, with limited commercialization and weak integration into formal markets. However, in recent years, private-sector engagement has expanded, particularly through agribusiness development programs, direct partnerships

with the tourism sector, and innovative initiatives to enhance production, traceability, and certification. These developments represent an important shift in the country's food system, where market-led approaches are increasingly seen as complementary to government-led reforms in improving trade facilitation, ensuring food safety, and promoting nutritional security.

Agribusiness Development and Market Integration

A key driver of private-sector growth in the Maldivian agricultural space has been the Maldives Agribusiness Program (MAP), a flagship initiative co-financed by the Government of Maldives and the International Fund for Agricultural Development (IFAD). MAP aims to promote market-oriented agricultural production by supporting farmers with training, inputs, and improved technologies, enabling them to better align with the demands of both domestic and export-oriented markets.

Through MAP, the government has facilitated partnerships between local producers and the tourism industry, recognizing the critical role of resorts and hotels in shaping national food supply chains. Tourism remains the largest consumer of high-value agricultural products, yet the majority of its demand continues to be met through direct imports rather than local sourcing. To address this gap, MAP promotes linkages between farmers and resorts, equipping producers with the skills and resources required to meet strict quality, volume, and certification requirements.

This integration offers multiple benefits: it enhances income opportunities for local farmers, reduces import dependency, and builds trust in Maldivian produce within premium markets. However, scaling these partnerships remains challenging due to inconsistent product quality, lack of standardized packaging, and limited cold-chain infrastructure, which restricts timely delivery to high-value buyers.

Digital Certification Systems and Traceability Mechanisms

Advancements in digital tools and certification systems have begun to reshape agricultural trade and food safety compliance in the Maldives. The introduction of the Maldives Good Agricultural Practices (M-GAP) certification in 2016 was a pivotal step toward ensuring that local production meets recognized safety, quality, and environmental standards. While M-GAP remains voluntary, it serves as a foundation for integrating Maldivian products into domestic and regional markets that demand higher compliance standards, particularly in relation to fortified foods and premium exports.

To further enhance transparency, the government is developing the "Dhanduveriyaa" digital platform, an online portal designed to connect farmers, buyers, and government agencies. This platform provides farmers

with access to extension services, digital farm design tools, and direct linkages to potential markets, including resorts and urban wholesalers. By streamlining information exchange and enabling traceability, the system seeks to improve consumer confidence, reduce transaction costs, and enhance supply chain efficiency.

Additionally, discussions are underway to integrate digital traceability mechanisms into certification processes, allowing regulators and consumers to verify the origin, safety, and compliance status of food products. This innovation is particularly relevant for fortified foods, where transparency and quality assurance are critical for both consumer health and regional trade integration.

Public-Private Partnerships in Food Safety and Trade

Public-private partnerships (PPPs) have become increasingly important in addressing the Maldives' structural and regulatory limitations in agricultural trade. Given the limited institutional capacity for testing, certification, and quality control, collaboration with the private sector has allowed the government to leverage resources, technology, and expertise from multiple stakeholders.

For instance, private laboratories and international partners have been engaged to supplement the Maldives' domestic testing infrastructure, reducing reliance on costly overseas facilities. Similarly, partnerships with input suppliers, logistics providers, and resort operators are helping to create integrated value chains capable of supporting consistent product quality and improving market access for local producers.

These partnerships are particularly vital in promoting compliance with regional food safety standards. As the Maldives seeks to harmonize its regulatory frameworks with SAARC member states, engaging the private sector ensures that producers and exporters are better equipped to navigate evolving certification requirements and quality protocols, especially for fortified products.

Furthermore, PPP-driven models foster investment in cold-chain infrastructure, storage facilities, and value addition capabilities, which are essential for reducing post-harvest losses and enhancing product competitiveness in both domestic and regional markets.

Innovations Supporting Agricultural Trade and Competitiveness

Innovation remains central to enhancing the Maldives' agricultural trade performance, particularly in areas related to climate adaptation, sustainable production, and food safety assurance. The expansion of protected agriculture systems, such as greenhouse cultivation and hydroponics, has enabled farmers

to increase yields, improve resource efficiency, and maintain consistent product quality even under challenging environmental conditions.

Similarly, targeted investments in drip irrigation systems and climate-smart farming technologies have improved water efficiency, enabling farmers to adapt to freshwater constraints caused by salinity and limited groundwater resources. These innovations not only enhance production capacity but also support environmental sustainability by minimizing resource overuse.

Integration of digital technologies, from farm-level monitoring to regional certification platforms, is transforming the ability of Maldivian producers to participate in regional value chains. Over time, these tools will allow producers to align with international norms on traceability, enhance compliance with fortified food regulations, and strengthen the Maldives' role as a trusted trading partner within SAARC and beyond.

Strengthening the Role of Private Sector Stakeholders

Despite these advancements, significant gaps remain in the full integration of private-sector actors into the country's agricultural trade ecosystem. Limited access to affordable financing, weak coordination between stakeholders, and inadequate infrastructure continue to constrain investment in value chain development. To address these challenges, greater emphasis must be placed on:

- Building capacity among smallholder farmers to adopt standardized production and quality control practices.
- Expanding incentive mechanisms for certification and fortification compliance to improve competitiveness.
- Encouraging investment in logistics, cold chains, and processing facilities through targeted partnerships and concessional financing arrangements.
- Developing knowledge-sharing platforms to support collaborative innovation between government agencies, private enterprises, and regional stakeholders.
- By enabling an inclusive environment where the private sector, government, and development partners work together, the Maldives can create a more dynamic agricultural trade system that is capable of meeting growing domestic demands, aligning with regional food safety frameworks, and improving resilience against external supply shocks.

Driving Innovation Through Regional Integration

The private sector's capacity to innovate and expand within the Maldivian agricultural trade system is closely linked to regional cooperation. As SAARC progresses toward harmonizing food safety regulations and fortified food standards, private-sector engagement will be central to ensuring that

Maldives-based producers and exporters can meet technical requirements and benefit from preferential trade arrangements.

Through participation in mutual recognition agreements (MRAs), the private sector can reduce redundant testing costs and accelerate market entry for Maldivian products in regional markets. Similarly, integrating local producers into regional value chains offers opportunities for knowledge transfer, joint investment in advanced technologies, and greater competitiveness in supplying both domestic consumers and high-value tourism-driven demand.

Source: PSM News

Figure 5. Maldives Port

Compliance with Global Standards

To access high-value export markets such as the EU, Maldives has made significant efforts to align its food production and processing systems with international food safety and sanitary standards. The Ministry of Fisheries and Ocean Resources (Formerly known as Ministry of Fisheries, Marine Resources and Agriculture), in collaboration with the MFDA, oversees inspection, certification, and compliance of fish processing plants and vessels. Key compliance areas include:

- **HACCP Certification** – Required for all export-oriented processors and verified annually by MFDA;
- **EU Approval** – Maldivian establishments listed in the EU-approved exporters list, allowing entry to strict European markets;
- **WTO SPS and TBT Compliance** – Maldives adheres to the Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) agreements

under the World Trade Organization (WTO), which mandate transparent, science-based food safety standards for trade.

The Food Safety Act No. 6/2024 further codifies these obligations, ensuring national regulations are consistent with Codex Alimentarius, WTO commitments, and international best practices in food inspection and certification.

Regional Harmonization Protocols

The South Asian region, encompassing diverse agri-food systems, consumer preferences, and regulatory structures, faces growing pressure to develop a harmonized framework for food safety governance. This is particularly urgent given the rising intra-regional trade potential, public health risks from cross-border food contamination, and growing demand for standardized certification among exporters.

A lack of coordination in food safety standards, sanitary and phytosanitary (SPS) protocols, and documentation systems across SAARC countries has been identified as a key non-tariff barrier to regional trade. Harmonization of food safety protocols can strengthen consumer trust, reduce trade delays, and ensure consistent health outcomes across the region.

Proposed Mechanisms for Harmonization

A SAARC Regional Food Safety Framework

Developing a unified SAARC Food Safety Framework rooted in internationally recognized standards (e.g. Codex Alimentarius) can offer a legal and technical foundation for aligned policies, inspection protocols, and certification formats. Codex-aligned regional standards will help member states modernize domestic regulations while maintaining global market access.

Mutual Recognition of Laboratory and Inspection Systems

There is strong potential for mutual recognition of national food testing laboratories and inspection authorities across SAARC, based on accreditation under ISO/IEC 17025. This would minimize redundant testing, cut costs, and expedite shipment clearance. Regional assessment panels could be formed to evaluate lab capacities and approve equivalence.

Regional Digital Certification System

The establishment of a SAARC-wide digital platform for food safety certification, modeled on ASEAN's e-cert and EU's TRACES system, could facilitate real-time verification of export/import documents, licenses, and lab

results. This would reduce fraud, improve traceability, and enhance transparency.

Joint Risk Assessment and Early Warning Networks

Creating a regional risk assessment body could support the evaluation of emerging food safety threats (e.g. pesticide residues, zoonoses, mycotoxins) and facilitate early warning systems. This would enable SAARC nations to coordinate rapid responses to outbreaks or contamination events and share surveillance data in a standardized format.

Shared Training and Capacity Building Programs

Regional cooperation can be strengthened through joint training of food inspectors, lab technicians, and risk assessors, using Codex-based curricula. SAARC institutions, in collaboration with international bodies such as FAO and WHO, can offer regular workshops, simulation exercises, and twinning programs to build human and institutional capacity.

Regional Risk Communication Strategy

A harmonized risk communication protocol can help SAARC governments coordinate public messaging on food recalls, health advisories, and foodborne outbreak alerts, using common language and culturally sensitive messaging tools. This will help ensure public confidence during crises.

Strategic Benefits of Harmonization

- Reduced Trade Frictions: Fewer inspection redundancies, harmonized lab tests, and faster customs clearances.
- Improved Food Safety: Coordinated surveillance and early warning reduce the likelihood of cross-border contamination.
- Stronger Institutional Capacity: Pooling expertise and resources improves technical readiness of smaller member states like Maldives and Bhutan.
- Public Health Protection: Shared data and coordinated interventions strengthen regional response to foodborne illness outbreaks.
- Economic Gains: Enhanced trust in food safety systems attracts foreign investment and opens premium regional markets.

Private Sector, Innovation & Traceability

The private sector in the Maldives is playing an increasingly important role in advancing food safety standards, driving innovation, and building traceability in the agri-food supply chain. With a growing emphasis on sustainability, technology adoption, and market-driven quality assurance, agribusinesses, resorts, and food exporters are becoming vital partners in the nation’s food safety ecosystem.

Role of Agribusiness and Startups

Despite Maldives' geographic and resource limitations, a wave of agribusiness startups, particularly those focusing on hydroponics, controlled-environment agriculture, and aquaponics are emerging in islands such as Thoddoo, Fuvahmulah and Hulhumalé. These startups frequently adopt self-monitoring protocols based on ISO 22000 Food Safety Management Systems, which are designed to ensure food safety across the supply chain from farm to fork. Such systems help them meet the standards expected by hotels, resorts, and export partners.

Additionally, startups focusing on urban agriculture and circular food systems are collaborating with government-backed platforms like STO Agric enters to increase market access and improve post-harvest quality management.

Source: PSM News

Figure 6. Inside STO Agri center

Digital Traceability Mechanisms

To improve transparency and trust in the supply chain, especially for export markets, the Maldives has initiated several traceability technology pilots, with a focus on:

- QR-code based traceability systems for fishery products, enabling exporters and buyers (especially in the EU and East Asia) to verify catch origin, processing details, and cold chain status in real time.
- Exploration of blockchain-inspired electronic certification systems, led by the Maldives Food and Drug Authority (MFDA) in collaboration with

customs, labs, and logistics providers. These systems aim to ensure tamper-proof documentation, reduce fraud, and facilitate digital auditing.

Such innovations are inspired by international examples like FAO's e-cert platforms and the European Union's TRACES system, both of which are seen as models for improving compliance and market competitiveness.

Public-Private Partnerships (PPPs)

Strong partnerships are evolving between resort chains, supermarket networks, and food producers to enforce hygiene and quality standards. Leading Local supermarkets such as Red Wave and Agora require vendors to follow regular third-party testing, maintain proper labeling, and comply with packaging standards.

In the tourism sector, luxury resorts such as Soneva Fushi and Baros Maldives have initiated "farm-to-table" programs, sourcing directly from certified local producers. This has encouraged smallholders to adopt good agricultural and hygiene practices (GAP/GHP) and improve their compliance with national food safety regulations.

MFDA, the Maldives National University (MNU), and international development agencies such as FAO have also partnered with the private sector to offer training on HACCP, ISO 22000, and food handling protocols.

Maldives Good Agricultural Practices (MGAP) Certification

The MGAP Certification Scheme, developed by the Ministry of Agriculture and Animal Welfare, aims to improve on-farm food safety and sustainable agriculture practices. It provides voluntary standards for producers to manage chemical inputs, ensure hygienic handling, and promote environmentally friendly production systems. MGAP draws technical guidance from ASEAN GAP and Codex Alimentarius and aligns with international buyer expectations, especially from resorts and high-end retailers.

Certified farmers benefit from:

- Recognition and trust among domestic and resort supply chains,
- Access to premium markets with stricter hygiene requirements,
- Training on pesticide use, post-harvest hygiene, and environmental compliance.

Key implementation efforts include:

- Pilot certification for farmers in Sh.Goidhoo,
- Technical collaboration with FAO Maldives and private agri-extension providers,
- Integration of MGAP certification status into the Dhirithi portal for real-time verification.

Source: Ministry of Agriculture and Animal Welfare

Figure 7. Field Inspection for the MGAP Certification

Source: Ministry of Agriculture and Animal Welfare

Figure 8. M-GAP Logo

Expanding MGAP is vital for strengthening farm-to-fork traceability and promoting climate-smart, market-oriented agriculture in the Maldives.

Strategic Implications

- **Improved Market Access**: Digital traceability and certification improve access to premium export markets and tourism chains.

- **Enhanced Food Safety Compliance**: Tech-based monitoring and partnerships increase compliance with national and international standards.
- **Local Economic Empowerment**: PPPs allow local producers to benefit from resort and retail demand, boosting rural livelihoods.
- **Scalability and Sustainability**: Early adoption of blockchain and QR systems can form the foundation of a national food traceability infrastructure.

Roadmap for Harmonization of Food Safety Standards

The Maldives recognizes that modern food safety governance must balance national policy modernization with regional cooperation, especially given the country's dependence on imports, tourism-driven consumption, and ambitions to expand fishery and horticultural exports. This roadmap outlines practical actions at the national, regional, and capacity-building levels to achieve a safer, more competitive, and regionally integrated food system.

National Policy Actions

Full Implementation of the Food Safety Act (Act No. 6/2024):

- Finalize and enforce the subsidiary regulations under the Act.
- Complete the establishment of the National Food Safety and Quality Board for interagency coordination.
- Operationalize the National Health Laboratory with ISO 17025 accreditation to perform reference testing.

Modernization of Inspection and Risk Management Protocols:

- Transition from reactive inspections to a risk-based approach prioritizing high-risk products and facilities.
- Introduce electronic inspection checklists and mobile reporting tools for MFDA and local council inspectors.

Strengthening Surveillance and Cold Chain Enforcement:

- Expand systematic sampling at import entry points, fish processing plants, and retail markets.
- Enforce cold chain compliance for perishables, especially in inter-island transport and distribution networks.
- Develop a national traceability strategy integrating QR code tracking and digital certification for all export commodities.

Regional Strategies

Development of a SAARC Unified Food Safety Framework:

- Advocate for a SAARC Regional Food Safety Framework aligned with the Codex Alimentarius and WTO SPS/TBT agreements.
- Define harmonized standards, sampling protocols, and inspection guidelines to facilitate intra-regional trade.

Harmonization of Documentation and Certification Systems:

- Create common templates for certificates of analysis, sanitary/phytosanitary certificates, and export declarations.
- Establish a SAARC Digital Certification Portal to streamline verification and acceptance of documents across borders.

Mutual Recognition of Certification:

- Negotiate mutual recognition agreements (MRAs) so that MFDA-issued certifications, HACCP validations, and lab reports are accepted by other SAARC food safety authorities.

Regional Technical Cooperation and Joint Training:

- Conduct joint risk assessment studies for shared hazards (e.g., aflatoxins, histamine in fish, pesticide residues).
- Share laboratory proficiency testing programs and expertise across member states.

Capacity Building and Governance Initiatives

Regional Centers of Excellence:

- Establish SAARC Centers of Excellence in food safety training, laboratory analysis, and traceability systems, hosted in rotation by member countries.

Inspector and Technician Training:

- Develop standardized training curricula in Codex-based inspection techniques and certification auditing.
- Organize cross-country exchange programs for inspectors, laboratory managers, and food business auditors.

SAARC Food Safety Coordination Mechanism:

Form a SAARC Food Safety Coordination Committee (possibly under the SAARC Secretariat or SAARC Agriculture Centre) to:

- Track implementation progress.
- Coordinate emergency responses to regional foodborne outbreaks.
- Serve as a platform for resolving trade-related disputes on safety and standards.

Expected Outcomes

Implementing this roadmap will:

- Improve domestic public health protection.
- Strengthen Maldives' compliance with WTO obligations.
- Reduce non-tariff barriers and boost intra-SAARC agri-food trade.
- Enhance the credibility of Maldivian exports in premium markets.
- Empower technical personnel to uphold international best practices.

Conclusion & Way Forward

The Maldives has taken a historic step toward ensuring safer food systems through the ratification and enforcement of the Food Safety Act No. 6/2024, which for the first time provides a robust legal framework covering the entire food chain from production to distribution and retail. The empowerment of the Maldives Food and Drug Authority (MFDA) as the lead regulatory agency, along with digital initiatives such as the Dhirithi portal, represent transformative shifts in food governance. These reforms lay the groundwork for establishing science-based, risk-informed, and transparent food safety systems aligned with global norms.

Despite this progress, critical challenges persist. The Maldives continues to grapple with:

- **Limited laboratory capacity**, especially outside Malé;
- **Shortage of trained personnel**, particularly food safety inspectors and technicians;
- **Weak cold chain and storage infrastructure**, essential for ensuring the safety of perishable imports and exports;
- **Gaps in traceability**, particularly for domestic produce and small-scale processors;
- **Enforcement challenges**, especially at the local level due to coordination and resourcing issues.

At the regional level, food trade across SAARC remains constrained by non-harmonized Sanitary and Phytosanitary (SPS) measures and Technical Barriers to Trade (TBT). Without uniform standards, traceability systems, and mutual recognition frameworks, regional producers—especially small island economies like the Maldives—face high compliance costs and delayed market access.

Strategic Priorities Going Forward

National Level:

- Fully operationalize the Food Safety Act, including establishing the National Food Safety & Quality Board and National Health Laboratory.
- Upgrade inspection, monitoring, and reporting systems using digital platforms.
- Strengthen collaboration with resorts, supermarkets, and agribusiness startups to expand safe supply chains and consumer trust.

Regional Level:

- Work with SAARC Secretariat and SAARC Agriculture Centre (SAC) to develop a South Asian Food Safety Framework based on Codex Alimentarius principles.
- Promote mutual recognition agreements (MRAs) for certification and inspection systems to streamline intra-regional trade.
- Initiate joint research, surveillance, and knowledge-sharing platforms across member states.

Capacity Building:

- Establish regional centers of excellence to support laboratory development, inspector training, and emergency risk response.
- Leverage technical assistance from FAO, WHO, and development partners to modernize infrastructure and human capital.
- Expand participation in Codex committees and regional working groups to voice Small Island Developing States (SIDS) perspectives.

Vision for a Safe and Competitive Agrifood Trade Zone

Looking ahead, a harmonized and resilient regional food safety ecosystem will serve multiple purposes:

- safeguarding consumer health.
- ensuring uninterrupted trade flows.
- reducing regulatory burdens on exporters.
- enhancing economic competitiveness.
- and boosting regional food security.

The Maldives stands ready to contribute to this vision—by scaling up its domestic reforms, participating in regional standard-setting, and advocating for inclusive, science-driven governance that reflects both the realities and aspirations of South Asia's diverse food systems.

References

Maldives Food and Drug Authority. 2025. Implementation Guidelines for Food Safety Act No. 6/2024. Ministry of Health, Malé, Maldives. Pp. 1–42.

Maldives Industrial Fisheries Company (MIFCO). 2023. Annual Export Report and HACCP Compliance Summary. Malé, Maldives. Pp. 1–33.

Ministry of Agriculture and Animal Welfare. 2024. Maldives Good Agricultural Practices (MGAP) Certification Guidelines. Malé, Maldives. Pp. 1–28.

Ministry of Fisheries and Ocean Resources. 2024. Fish Export Licensing and HACCP Compliance Guidelines. Malé, Maldives. Pp. 1–35.

National Bureau of Statistics. 2019. Agriculture Survey 2019 – Maldives. Ministry of National Planning, Housing and Infrastructure. Malé, Maldives. Pp. 1–50.

Codex Alimentarius. n.d. international food standards. Food and Agriculture Organization (FAO) and World Health Organization (WHO). Retrieved from https://www.fao.org/fao-who-codexalimentarius

Dhirithi Portal. 2024. National food business registration and inspection system. Maldives Food and Drug Authority (MFDA). Retrieved from https://dhirithi.egov.mv

Food and Agriculture Organization of the United Nations (FAO). n.d. E-certification and food safety tools. Retrieved from https://www.fao.org

SAARC Secretariat. n.d. SAARC Agriculture Centre: Food Safety Harmonization Reports. Retrieved from https://www.saarc-sec.org/

World Integrated Trade Solution (WITS). 2023. Maldives Trade Data – Imports and Exports. Retrieved from https://wits.worldbank.org

World Trade Organization (WTO). n.d. SPS and TBT Agreements – Sanitary and Phytosanitary Measures. Retrieved from https://www.wto.org

Asian Development Bank (ADB). (2023). Enhancing Climate Resilience and Food Security Project in the Maldives. Manila: ADB.

Codex Alimentarius Commission. (2023). International Food Standards, Guidelines, and Codes of Practice. Geneva: FAO & WHO Joint Program. Retrieved from: https://www.fao.org/fao-who-codexalimentarius

Food and Agriculture Organization of the United Nations (FAO). (2023). FAOSTAT – Agricultural Production, Trade, and Food Security Data. Rome: FAO. Retrieved from: https://www.fao.org/faostat

International Fund for Agricultural Development (IFAD). (2024). Maldives Agribusiness Program (MAP) Project Report. Rome: IFAD.

Maldives Customs Service. (2024). Annual Trade Statistics Report. Malé: Government of Maldives.

Maldives Food and Drug Authority (MFDA). (2024). National Food Safety and Quality Control Framework. Malé: Government of Maldives.

Ministry of Agriculture and Animal Welfare (MoAAW). (2024). Maldives Good Agricultural Practices (M-GAP) Certification Guidelines. Malé: MoAAW.

SAARC Agriculture Centre (SAC). (2025). Regional Workshop Concept Note: Fostering Regional Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in South Asia. Kathmandu: SAC.

Stevens, G. A., et al. (2022). Micronutrient Deficiencies Among Women of Reproductive Age in South Asia: An Analysis of Prevalence and Impacts. The Lancet Global Health, 10(3), e500–e512. https://doi.org/10.1016/S2214-109X(21)00577-3

United Nations Children's Fund (UNICEF). (2023). Regional Report on Food Fortification and Nutrition in South Asia. Kathmandu: UNICEF Regional Office for South Asia.

UNICEF & WHO. (2023). Guidelines on Large-Scale Food Fortification and Nutritional Standards in South Asia. Geneva: WHO.

World Bank. (2023). South Asia Food Security and Agricultural Trade Indicators. Washington, DC: World Bank. Retrieved from: https://data.worldbank.org

World Integrated Trade Solutions (WITS). (2025). Maldives Food Imports Data and Merchandise Trade Indicators. Washington, DC: World Bank Group. Retrieved from: https://wits.worldbank.org

Agricultural Trade and Fortified Foods through Harmonized Food Safety Standards in Nepal

Pramod Koirala and Dr. Maniratna Aryal
Ministry of Agriculture and Livestock Development, Nepal
Email: pramodkoirala2016@gmail.com

Introduction

Nepal's agricultural sector remains a cornerstone of national livelihoods. The country faces moderate levels of hunger, ranking 81st out of 121 countries in the 2022 Global Hunger Index with a score of 19.1. As of 2021, the population stands at 29.1 million with an annual growth rate of 1.8%, and urban growth of 20.1% in 2019. The labour force with at least basic education reached 73%, while forest cover accounted for 45 percent of the total land area in 2015. Agricultural land distribution reflects geographic disparities with 35% in the Mountain, 42% in the Hill, and 23% in the Terai regions, showing a decline in arable land, particularly in mountainous and hilly areas due to migration. Food waste is a critical concern. The substantial levels of food waste (79 kg/household/year) and post-harvest losses (40% for vegetables) represent critical inefficiencies within the agrifood system.

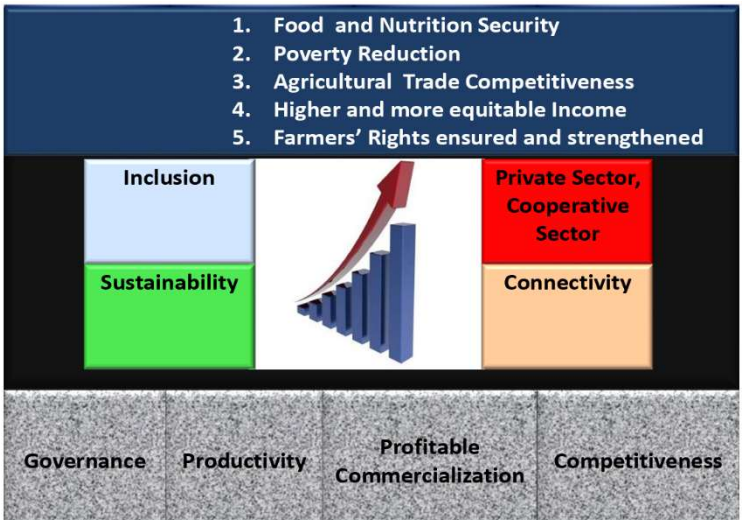


Figure 1. Strategic Framework of the Agricultural Development

Status of agriculture, production and trend

Food insecurity remains unevenly distributed, nationally, 13% of households are food insecure, with the figure rising to 32% in Karnali Province. Dietary inadequacy is prevalent, with 15.6% of the population consuming less than the recommended amount. Alarmingly, 36% of children and 20% of

reproductive-age women do not meet the recommended food intake. (GC, 2018) Only 56% of women achieve minimum dietary diversity, while 54% consume unhealthy foods and 66% consume sugar-sweetened beverages (MOHP 2022). These figures underscore the urgency for targeted interventions.

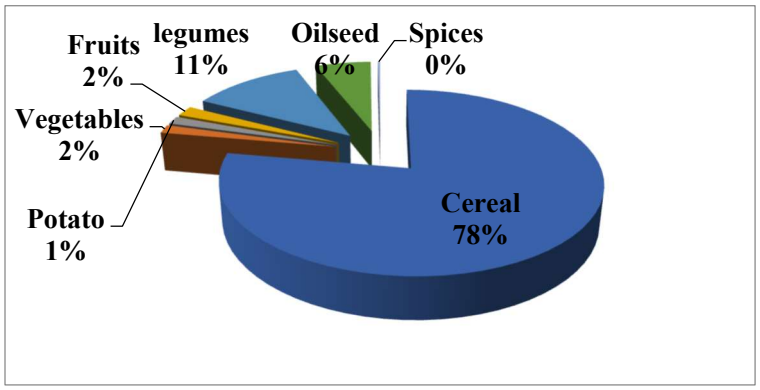


Figure 2. Area Under Different Crops

Public sector investment in agriculture, among three tiers of the Government is different and in the range of 1.4 to 3.4 percent. (MOALD, 2025)

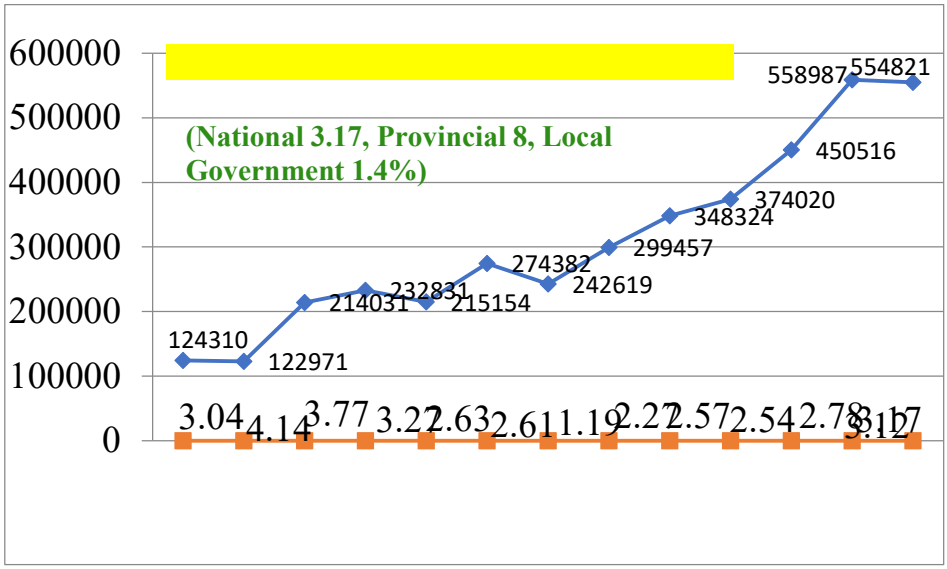


Figure 3. Public Sector Agri Investment

The national strategic framework for agriculture development emphasizes the integration of technology, knowledge, innovations, information systems,

networks, infrastructure, and institutional capacity. These elements form the foundation for improving productivity, reducing post-harvest losses, enhancing nutrition, and fostering sustainable agricultural practices. Governance structures and policy contexts and aligned to support resilience in the face of climate change, market volatility, and demographic pressures.
Addressing country food security challenge requires coordinated policy measures of all three tiers of the government with community engagement, and enhanced agricultural innovation systems related programs. (Koirala etal., 2024)

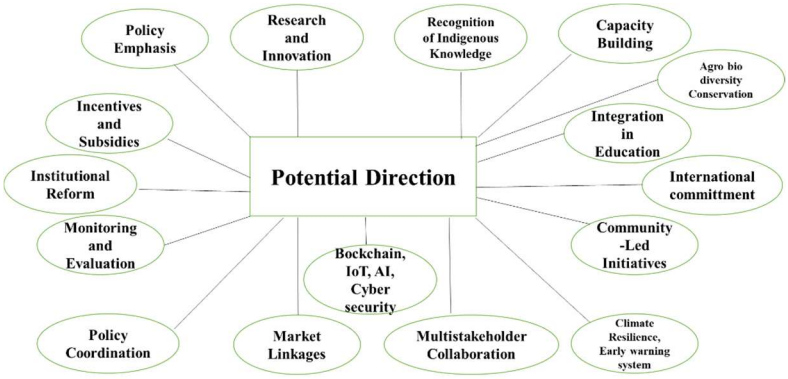


Figure 4. Major focus area in agriculture programs

Reducing food waste, improving dietary quality, and ensuring equitable access to resources are pivotal to building a sustainable and resilient agrifood system for the future. public investment and governance structures must be explicitly aligned with these goals, leveraging the strategic pillars of technology, infrastructure, and institutions to build a more sustainable, efficient, and equitable agrifood system that ensures food and nutrition security. (NPC, 2023)

Nepal's Agri-Food Trade

Nepal's trade profile remains characterized by a high trade deficit, with total exports valued at USD 853.93 million and imports at USD 13.514 billion, accounting for exports as 13.3% of total trade (TEPC, 2025). This trade asymmetry is worsened by high market concentration, with India accounting for 81.1% of export destinations, followed by other destinations including the United States, Germany, the United Kingdom, the United Arab Emirates, China, France, Australia, and Japan. The primary export commodities include vegetable oil, tea, cardamom, juice, dog chews, pashmina, yarn, textiles, plywood, and cement, while petroleum products, iron and steel, machinery parts, and crude edible oil dominate imports. (TEPC, 2025)

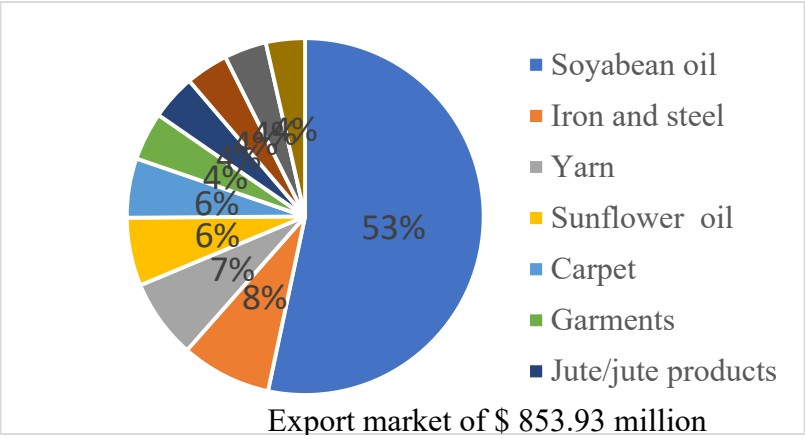


Figure 5. Export Trade Value (FY 2024/25)

Export trades issues including Sanitary and Phytosanitary (SPS)

Despite significant export potential, the country faces multiple Sanitary and Phytosanitary (SPS) barriers that limit market diversification and competitiveness. (Koirala, 2013; Sharma et. al 2017). Key constraints include limited production capacity to meet both domestic consumption and export demand, inadequacies in trade logistics infrastructure, and inefficiencies in supply chain management. Moreover, compliance with SPS requirements of importing nations remains a significant hurdle, compounded by the limited recognition of Nepal's testing, inspection, and certification systems.

The implementation of internationally recognized Food Safety Management Systems (FSMS) is still in its nascent stage, with gaps in laboratory analysis capacity—particularly in testing for veterinary drug residues, essential oil profiles, and other specific contaminants. Strengthening primary production practices through adherence to Good Agricultural Practices (GAP) and Good Veterinary Practices (GVP) is essential for improving compliance. Furthermore, robust pest risk analysis and disease control systems are required to align with global biosecurity standards (Koirala, 2012; Kharel 2022).

Product-specific trade issues persist, necessitating targeted interventions. The absence of harmonized SPS protocols and internationally recognized certification mechanisms impedes market entry for Nepalese commodities. Strengthening laboratory infrastructure for advanced contaminant screening, establishing accredited certification bodies, and implementing comprehensive Food Safety Management Systems (FSMS) across supply chains are imperative. Strategic bilateral engagements to secure Mutual Recognition Agreements (MRAs) would facilitate acceptance of Nepal's conformity assessments. Furthermore, enhancing phytosanitary surveillance and disease

control systems at production sites is essential to mitigate rejection risks. Addressing these multifaceted challenges requires coordinated policy action to upgrade technical infrastructure, build institutional capacity, and align domestic standards with international requirements. Without such interventions, Nepal's ability to reduce its trade deficit, diversify export markets, and capitalize on its agricultural export potential will remain severely constrained.

Food Safety Governance

Food safety is a critical global concern with significant economic and public health implications. Agricultural commodities, valued at $2.9 trillion, represent the second most valuable commodity group traded internationally according to WTO International Trade Statistics 2024. However, foodborne illness imposes a substantial economic burden worldwide. This burden is estimated at approximately $110 billion annually in lost productivity and medical costs for low- and middle-income economies. High-income countries also face significant costs; for instance, Australia estimates an annual cost of about 3 billion AUD in 2025, driven by pathogens like Campylobacter, E. coli, and Salmonella, while the United States estimates a burden of $15.5 billion annually affecting 48 million people. In specific low-income nations like Burkina Faso and Ethiopia, foodborne diseases cost an estimated 3% and 0.9% of their Gross National Income, respectively, with lost productivity constituting around 70% of these costs and children under five disproportionately affected (Subedi et. al. 2025)

Regulatory Framework for Food Control

The national infrastructure for food safety involves multiple agencies coordinated under the Government of Nepal. The Department of Food Technology and Quality Control (DFTQC), established in 2000 and evolving from earlier bodies dating back to 1961, serves as the primary national food control agency and Codex Contact Point. It operates with 43 offices and 377 personnel (DFTQC 2025). Key collaborating ministries include the Ministry of Agriculture and Livestock Development, which oversees entities such as the Plant Quarantine and Pesticide Management Centre and the Department of Livestock Services, and the Ministry of Health and Population, which manages the Department of Health Services. (Kalawati et. al. 2016). The Ministry of Industry, Commerce and Supplies contributes through the Department of Commerce, Supplies and the Nepal Bureau of Standards & Metrology. Nepal aligns its food safety efforts with international standards through engagement with bodies like Codex Alimentarius (Codex), the International Plant Protection Convention (IPPC), the World Organisation for Animal Health (WOAH), the WTO's Sanitary and Phytosanitary Agreement

(SPS), and the International Health Regulations (IHR).

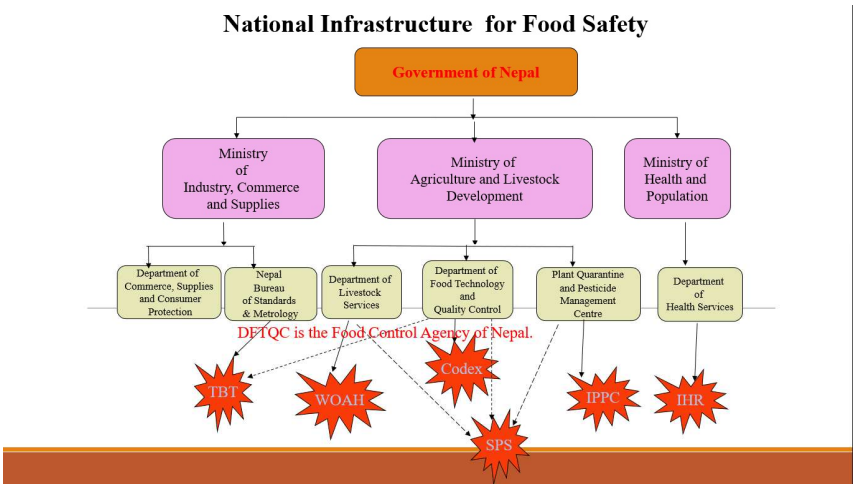


Figure 6. National Infrastructure for Food Safety

Nepal's regulatory framework for food safety has undergone significant development. The cornerstone policy is the National Food Safety Policy of 2019, which aims to upgrade the legislative framework and infrastructure to ensure a risk-based food safety and quality control system (DFTQC, 2019). Its objectives include enhancing self-regulation and the implementation of food safety management systems (FSMS) throughout the food chain, promoting food trade, establishing a food epidemiology surveillance system, ensuring inspection and monitoring systems with robust laboratory services, intensifying consumer awareness, and conducting research and development. This policy is operationalized through the recently enacted Food Safety and Quality Act of 2024, replacing the older Food Act of 1966 and the Rules of 1970. (NLC, 2025)

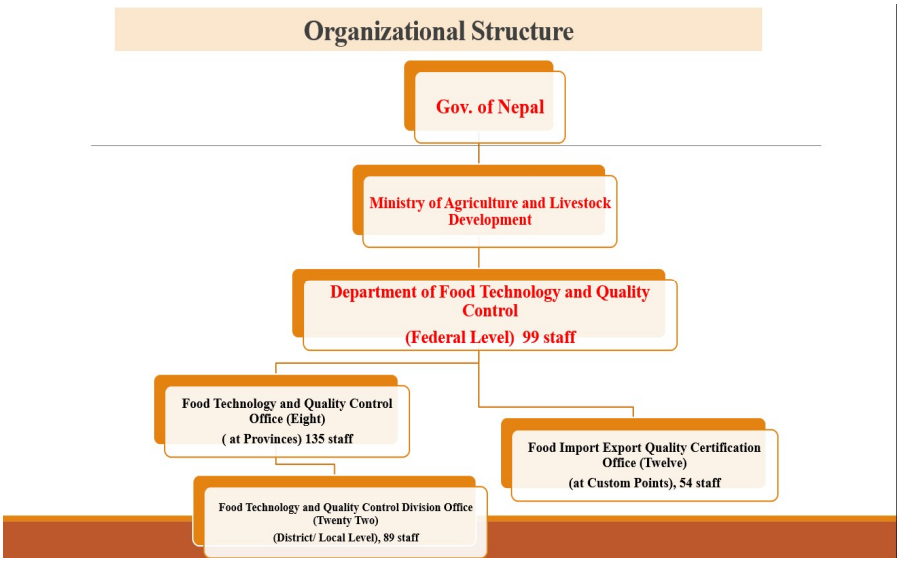


Fig 7. Organizational Structure of DFTQC

The 2024 Act provides a broader definition of food products, encompassing dietary supplements, alcoholic beverages, organic food, and food advertising. It clearly defines the obligations of all actors in the food supply chain, including producers, processors, importers, exporters, transporters, hoarders, sellers, and service providers. The Act mandates food industry licensing and import control mechanisms like pre-approval and entry permits, establishes provisions for food safety officers and public food analysts, outlines the roles and responsibilities of food business operators, and includes provisions for recognizing private laboratories, implementing traceability and food recall systems, establishing a National Codex Committee, and defining punishments and appeal processes.

Harmonization of food standards

The development and enforcement of food standards are central to DFTQC's mandate. Mandatory standards published in the Nepal Gazette cover critical safety parameters such as limits for mycotoxins in poultry products, heavy metals, industrial trans-fatty acids, pesticide residues in fresh fruits and vegetables, and the prohibition of antibiotics in poultry. Harmonization with Codex standards continues, with regulatory directives addressing contaminants, labeling, and industry obligations. Specific codex harmonized standards exist for products like whole milk powder, skimmed milk powder, processed drinking water, and cereal-based complementary foods. (DFTQC, 2025)

After the WTO accession, the food standard development process includes the revision of Codex standard, other countries standard and trading partner countries food standard. After the technical discussions, its being notified among WTO member countries through SPS notification authority. (Joshi et.al. 2023)

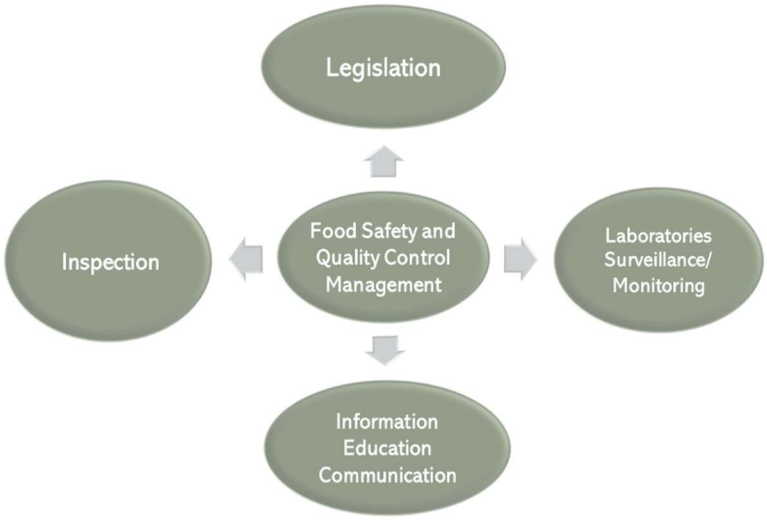


Figure 8. National Food Control System

Harmonization with international Codex Alimentarius standards is a key principle guiding standard development and food control activities, including import permit issuance, export certification, food safety management system assessments for producer facilities, food quality certification, labeling requirements, certification assessments, and border inspection and testing. Food import control is streamlined through the Nepal National Single Window (www.nnsw.gov.np), facilitating import decisions and the licensing or registration of importers. Domestic food control relies on a system of inspection, monitoring, and surveillance.

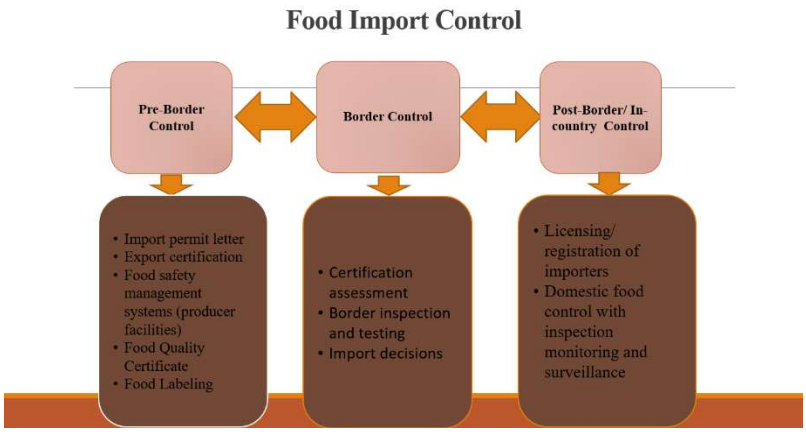


Figure 9. Food Import Control

Major Programs on food safety

The Department of Food Technology and Quality Control (DFTQC) implements several ongoing programs to uphold food safety. The core Food/Feed Quality Control Program encompasses industry licensing, inspection activities, standard setting, export and import inspection and certification, regulation of dietary supplements and nutraceuticals, inspection and grading of highway hotels and restaurants, consumer awareness campaigns, and certification under the Nepal Good Agricultural Practices (Nepal GAP) scheme, where DFTQC serves as the certification body for the Ministry of Agriculture and Livestock Development.

Laboratory services are provided centrally by the National Food and Feed Reference Laboratory (NFFRL), accredited to ISO/IEC 17025:2017 for 814 parameters (672 chemical and 142 microbiological), supporting compliance testing, standardization, licensing, certification, and complaint investigations. DFTQC also runs a program to extend laboratory accreditation scopes and accredit provincial laboratories. Research and Development programs support continuous improvement.

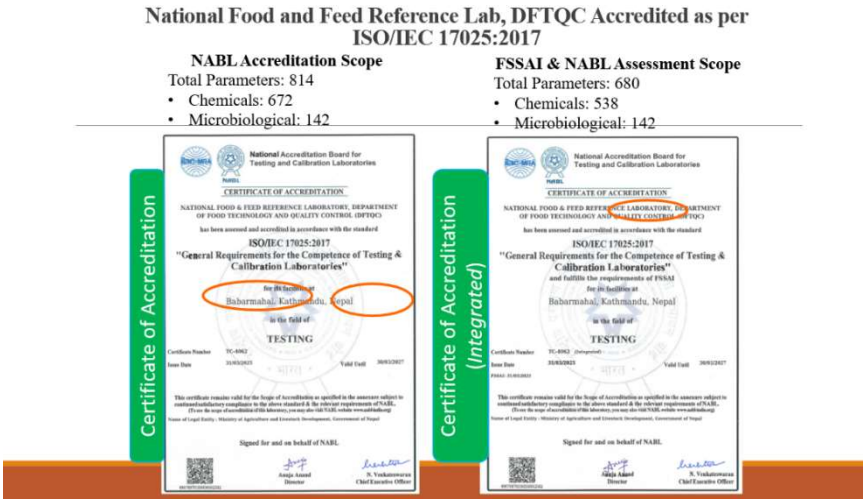


Figure 10. National Food and Feed Reference Lab, Accreditation ISO/IEC 17025:2017

DFTQC hosts the SPS National Enquiry Point, responsible for communicating WTO-SPS measures and coordinating stakeholders, and serves as the National Secretariat for both the Codex Alimentarius Commission and the International Food Safety Authorities Network (INFOSAN), facilitating communication and emergency responses. Additional initiatives include a grading sticker program for food service establishments based on food safety audits and surveillance of Antimicrobial Resistance (AMR) in the food chain.

Role of the Private Sectors in ensuring food safety

In the evolving landscape of food safety governance, the private sector in Nepal has emerged as a key stakeholder in supporting and operationalizing national food control systems. Public-private partnerships (PPPs) are increasingly institutionalized, contributing to policy development, certification mechanisms, and traceability implementation across the food supply chain.

A key institutional mechanism for collaboration is the Food Hygiene and Quality Advisory Committee, which advises on policy and standard development. This committee integrates multi-stakeholder expertise, including government representatives from agriculture, industry, health, and forestry sectors; private entities such as the Nepal Chamber of Commerce; academic institutions; consumer associations; and professional bodies. Industry and commodity associations serve as vital conduits for information exchange between businesses and regulatory authorities, while also

advocating for policy refinements Similarly, the National Codex Committee—chaired by the Secretary of Agriculture—coordinates harmonization with international standards through sector-wide engagement.

Export-oriented enterprises prioritize certification compliance (e.g., Organic, ISO 22000, Halal) dictated by destination-market requirements. Although these certifications enhance market access, domestic promotion of certification schemes remains underdeveloped. Traceability systems, now mandatory for all stakeholders, are increasingly implemented via digital innovations—even among local producers—to meet certification prerequisites and bolster supply chain transparency. Conversely, foundational practices like Good Agricultural Practices (GAP) and Good Veterinary Practices (GVP) exhibit limited adoption due to resource and awareness gaps.

Within certification ecosystems, private entities function as accredited local inspectors, complementing governmental services provided by the Nepal Bureau of Standards & Metrology (NBSM). Government-accredited laboratories deliver essential analytical certifications for compliance verification. To stimulate exports, fiscal incentives such as value-based cash grants are offered, alongside state-supported participation in international trade fairs. However, structured programs to incentivize certification uptake remain nascent.

A centralized digital platform streamlines licensing and monitoring processes, enhancing regulatory efficiency. This electronic system exemplifies PPP-driven digital governance, enabling real-time oversight and reducing administrative bottlenecks. Nevertheless, strategic gaps persist, including insufficient promotion of certification benefits to small-scale producers and uneven implementation of preventive controls across the food value chain. Future PPP efforts should prioritize scaling traceability infrastructure, expand certification incentives, and integrate GAP/GVP frameworks into national capacity-building programs to align with the Food Safety and Quality Act (2024) objectives.

Nepal's private sector engagement strengthens food safety through certification rigor, traceability innovation, and PPP coordination. Yet, systematic promotion of foundational practices and equitable resource allocation is essential to fortify the farm-to-fork safety continuum and leverage international market opportunities.

Promotion and Regulation of Fortified Food

Micronutrient deficiencies constitute a persistent public health challenge in Nepal, adversely impacting maternal and child health, cognitive development, and productivity. Food fortification has emerged as a cost-effective, population-wide intervention to address these deficiencies by enriching staple

foods with essential vitamins and minerals. Nepal demonstrates a structured commitment to combating MND through mandatory food fortification, particularly with the recent scale-up of rice fortification. It aligns with the constitutional right to adequate food and is embedded in various national policy frameworks. (karki et.al. 2024)

Fortification is anchored in multiple national strategies: the National Nutrition Strategy (2020), Right to Food and Food Sovereignty Act (2018), Agriculture Development Strategy (2015–2035), and the Food Safety and Quality Act (2024), among others. These provide the legal and institutional framework to advance fortification efforts.

Nepal's fortification journey dates back to the iodization of salt in 1973, followed by mandatory Vitamin A fortification of vanaspati ghee (1983), fortified blended complementary foods (1993), wheat flour fortification with iron, folic acid, and Vitamin A (2011), and most recently, rice fortification (2023). Key milestones in rice fortification include the 2000 Kathmandu Declaration, 2016 landscape analysis, multi-sectoral integration into the MSNP-II (2018–2022), pilot testing in 2018, and operationalization via Food Management & Trading Company Ltd (FMTC) from 2022 onward.

Based on the experience of implementation of large-scale food fortification (LSFF), the promotion of fortified food requires a multi-pronged strategy: (1) identification of prevalent micronutrient deficiencies, (2) selection of suitable food vehicles based on consumption patterns, (3) choice of bioavailable fortimicins, and (4) targeting specific population groups. A national food fortification strategy is under finalization, which aims to institutionalize fortification practices and ensure their sustainability through regulatory enforcement, stakeholder engagement, and policy integration.

Current priorities include enhancing legislative enforcement, reducing production costs (particularly for rice), ensuring dedicated national budget lines, strengthening QA/QC systems, and building industry capacity. Additionally, integration of fortified foods into social protection schemes and public awareness campaigns is vital for uptake and sustainability. Sustained progress requires addressing critical technical and operational challenges—cost, regulation, QA/QC, capacity, and consumer awareness—secured within a robust national strategy and legislative framework.

Regional collaboration is critical. Strategic regional partnerships focused on capacity building, innovation sharing, and resource mobilization are essential catalysts for achieving universal coverage and maximizing public health impact.

Ongoing Initiatives in food safety

Ongoing initiatives focus on modernizing and strengthening the food safety system. This includes updating the legislative framework by developing detailed regulations covering licensing and registration, packaging and labeling, contaminants/toxins/residues, food inspector and analyst roles, laboratory procedures, export-import controls, product standards, and additives. Efforts continue to develop new food standards and maximum limits, as well as specific directives and guidelines. Significant investment is directed towards laboratory strengthening, extending the accreditation scope of the NFFRL to cover critical safety parameters like pesticide residues, veterinary drug residues, heavy metals, mycotoxins, and microbiological criteria, and pursuing accreditation for provincial laboratories. DFTQC is transitioning towards a risk-based food safety inspection and monitoring system. Promoting the adoption of NepalGAP in primary production and encouraging food processing industries to implement Food Safety Management Systems (FSMS) such as Good Hygiene Practices (GHP), Good Manufacturing Practices (GMP), Hazard Analysis Critical Control Point (HACCP), and ISO 22000 are key priorities. Capacity building initiatives aim to create an enabling environment for producers and processors to implement these FSMS from "Farm to Fork." Enhancing consumer education, training, and awareness remains a continuous effort.

Despite progress, Nepal faces significant challenges in ensuring food safety. Resource constraints are paramount, including insufficient human resources and laboratory infrastructure within the food safety organization, limiting nationwide coverage and capacity. Effectively monitoring a wide range of contaminants – including mycotoxins, pesticide residues, heavy metals, veterinary drug residues, genetically modified organisms, and pathogenic microorganisms- remains difficult with current resources. Furthermore, foodborne illnesses are significantly underreported within the healthcare system, hindering accurate burden assessment and targeted interventions. Despite these efforts, challenges remain in human resource availability, monitoring emerging hazards like GMOs and AMR, and integrating food safety with health surveillance systems

Conclusion and way forward

Recognizing the shared nature of many food safety challenges and resource limitations within the region, Nepal sees value in regional cooperation. Potential collaborative approaches include forming coalitions to address mutual regional interests, pooling scientific and technical resources to enhance capabilities, establishing regional laboratory networks for specialized testing and efficiency, creating joint training centers for food safety personnel, and participating collaboratively in international standard-

setting bodies like Codex Alimentarius. Such cooperation is deemed essential for collectively strengthening food safety systems across the region.

References

Chitekwe, S., Torlesse, H., & Aguayo, V. M. (2022). Nutrition in Nepal: Three decades of commitment to children and women. *Maternal & Child Nutrition*, *18*, e13229.

Department of Food Technology and Quality Control. (2025.). *Food Standards*. www.dftqc.gov.np *, accessed on 21st August, 2025*

DFTQC (2019) Food Safety Policy. Ministry of Agriculture and Livestock Development, Nepal.www.dftqc.gov.np *, accessed on 21st August, 2025*

DFTQC (2025) Food Standard www.dftqc.gov.np *, accessed on 22nd August, 2025*

Gc, A., & Ghimire, K. (2018). A SWOT analysis of Nepalese agricultural policy. *International Journal of Agriculture Environment and Food Sciences*, *2*(4), 119-123.

Koirala, P., Karn, S. K., & Joshi, P. (2024). Right to Food and Sustainable Food Systems in Nepal: Legal Frameworks, Achievements, and Challenges. *International Journal of Applied Sciences and Biotechnology*, *12*(3), 115-125.

Koirala, P., & Tamrakar, A. S. (2012). Common pests and pesticides used in high value crops: a case study on some selected districts of Nepal. *Journal of Food Science and Technology Nepal*, *7*, 64-69.

Koirala P (2013)"Food Safety Situation in Nepal "available in https://cdn.cseindia.org/, *accessed on 21st August, 2025*

Joshi, P., Karn, S. K., & Koirala, P. (2023). Strengthening Food Safety Governance in Nepal through Collaborative Capacity Development and Private Sector Engagement. *Journal of Agriculture and Environment*, 235-242.

Kharel, M., Dahal, B. M., & Raut, N. (2022). Good agriculture practices for safe food and sustainable agriculture in Nepal: A review. *Journal of Agriculture and Food Research*, *10*, 100447.

Karki, R., Ojha, P., Dongol, D. M. S., Maharjan, S., Manandhar, U., & Maharjan, S. (2024). Food Fortification: Global Experience, Importance, Challenges and Potential in Nepal. *Journal of Food Science and Technology Nepal*, 69-88.

Kalawati Shrestha, K. S., Zhang YingTao, Z. Y., Shrestha, P. R., Zhang WenDong, Z. W., Liu LiShan, L. L., Pramod Koirala, P. K., ... & Lu JiaHai, L. J. (2016). A contrastive study on food safety supervision modes and situations between Guangzhou Huangpu District and Kathmandu Valley.

Kharel, M., Dahal, B. M., & Raut, N. (2022). Good agriculture practices for safe food and sustainable agriculture in Nepal: A review. *Journal of Agriculture and Food Research*, *10*, 100447.

Ministry of Health and Population, Nepal. (2022). Multi-sector nutrition plan (2022–2030). Ministry of Health and Population

MOALD (2025) "Status of Nepalese Agriculture " www.molad.gov.np *accessed on 1st August, 2025*

Neupane, N., Paudel, S., Sapkota, R., Joshi, Y. P., Rijal, Y., & Chalise, A. (2022). Enhancing the resilience of food production systems for food and nutritional security under climate change in Nepal. *Frontiers in Sustainable Food Systems*, *6*, 968998.

NLC, (2025), Food Hygiene and Safety Act. (2024.). In. *www.lawcommission.gov.np, accessed on 20th August, 2025*

NPC, Nepal. (2023). Sixteenth development plan (2023–2030). National Planning Commission.

Subedi, D., Paudel, M., Poudel, S., & Koirala, N. (2025). Food safety in developing countries: common foodborne and waterborne illnesses**,** regulations**,** organizational structure, and challenges of food safety in the context of Nepal. *Food Frontiers*, *6*(1), 86-123.

Sharma, R., Kumar, A., & Joshi, P. K. (2017). Nepal-India agricultural trade: Trends, issues and prospects. *Agricultural Economics Research Review*, *30*(2), 245-263.

Trade Export Promotion Center (2025) www.tepc.gov.np; *accessed on 19th August, 2025*

Fostering Regional Agricultural Trade through Harmonized Food Safety Standards in Pakistan

Dr. Ghulam Sadiq Afridi[1] and Umer Farooq[2]
[1]Pakistan Agricultural Research Council (PARC)
[2]Deputy Secretary Admin, Islamabad, Pakistan
Email: sadiqafridi@gmail.com

Introduction

Agriculture is the backbone of Pakistan's economy, contributing 23.5% to GDP and employing over 37% of the labor force (GoP, 2025). The sector encompasses crops, livestock, forestry, and fisheries, and plays a vital role in ensuring food security, supporting rural livelihoods, and driving economic resilience. In recent years, Pakistan has demonstrated both resilience and vulnerability within its agricultural sub-sectors. Despite challenges such as climatic variability, water scarcity, and fluctuating input costs, the sector recorded an overall growth of 0.56% in FY 2025, led by a robust 4.72% expansion in livestock (GoP, 2025).

Pakistan's agricultural landscape is characterized by diverse production systems, with significant contributions from key crops such as wheat, rice, sugarcane, cotton, and maize, alongside a dynamic livestock and poultry sector. The country is also a notable producer of fruits, vegetables, dairy, and meat products, with growing potential for value-added processing and export-oriented agri-business. However, the sector faces persistent challenges, including low productivity, limited adoption of certified seeds, inefficient water management, and gaps in compliance with international food safety and quality standards (Mir, 2024).

On the health and nutrition front, Pakistan continues to prioritize food safety and nutritional security as integral components of sustainable development. The government has implemented various initiatives to improve health outcomes, enhance dietary diversity, and address malnutrition, particularly among women and children. Despite progress, issues such as foodborne illnesses, inadequate food safety infrastructure, and fragmented regulatory frameworks pose risks to both domestic consumers and export potential.

Harmonizing food safety standards across South Asia presents a significant opportunity to enhance regional agricultural trade, improve market access, and ensure the safety and quality of food products. Pakistan is committed to aligning its national standards with international benchmarks, strengthening

[1] Secretary, Pakistan Agricultural Research Council, Ministry of National Food Security and Research

inspection and certification systems, and fostering multi-sectoral collaboration to build a more resilient, transparent, and competitive agri-food system.

This country paper provides an overview of Pakistan's agricultural performance, food safety landscape, and ongoing efforts to integrate into regional trade frameworks. It highlights key challenges, policy initiatives, and recommendations for advancing harmonized food safety standards to promote sustainable trade, ensure public health, and contribute to the shared prosperity of South Asia.

Food Safety Standards and Regulation in Pakistan

In Pakistan, food safety governance is a fragmented yet evolving system involving multiple federal and provincial authorities. The foundational legal instrument is the Pakistan Pure Food Laws, which historically existed as separate ordinances for each province (e.g., Punjab Pure Food Ordinance 1960). Post-18th Constitutional Amendment (2010), food safety became a provincial subject, leading to the development of provincial food authorities (GoP, 2025).

The most significant modernization effort came with the establishment of provincial food safety authorities—such as the Punjab Food Authority (PFA) established in 2011, followed by similar bodies in Sindh, Khyber Pakhtunkhwa (KP), and Baluchistan. These authorities operate under their own provincial food safety acts (e.g., Punjab Food Authority Act 2011) and are tasked with regulating the manufacture, storage, distribution, sale, and import of food.

At the federal level, the Pakistan Standards and Quality Control Authority (PSQCA) under the Ministry of Science and Technology is responsible for developing and enforcing Pakistan Standards (PS) for various food items, aligned where possible with Codex Alimentarius standards. Additionally, the Ministry of National Food Security & Research (MoNFS&R) plays a role in policy formulation, while the Department of Plant Protection and Animal Quarantine Department regulate the sanitary and phytosanitary (SPS) measures for imports and exports.

Effective food safety regulation is linked to public health outcomes, impacting nutrition, disease burden, and economic productivity. As noted in the health sector report, Pakistan faces a high burden of foodborne illnesses and malnutrition. Contaminated food contributes to diarrheal diseases, hepatitis (the Prime Minister's National Program for Elimination of Hepatitis C Infection addresses one consequence of unsafe food/water), and other infections that strain the healthcare system. Moreover, unsafe food undermines nutritional gains, exacerbating stunting (affecting 33.7% of

children under five) and wasting, as highlighted in the nutrition profile. Strengthening food safety is therefore integral to achieving SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-being) (GoP, 2025).

National Food Safety Law: Structure, Implementation, and Impact

While there is no single national food safety law, the model of provincial food authorities represents the core regulatory structure. For example:

Structure: The Punjab Food Authority is governed by a Board with representation from government, industry, consumer associations, and technical experts. It has mandates for licensing, setting standards, surveillance, inspection, lab testing, and awareness campaigns.

Implementation: Authorities conduct routine and surprise inspections of food businesses (from large manufacturers to street vendors), collect samples, and operate accredited food laboratories. They enforce regulations on adulteration, labeling, hygienic handling, and fortification (e.g., mandatory wheat flour fortification with iron and folic acid).

Impact: Provincial authorities have had notable successes, such as:

- Banning harmful chemicals (like calcium carbide for fruit ripening) and substandard additives.
- Improving hygiene standards in dairy, meat, and restaurant sectors.
- Raising public awareness through media campaigns.
- The "Food Safety Helpline" in provinces allows citizen complaints, enhancing engagement.
- The impact is reflected in gradual improvements in the marketplace and increased business compliance, though systematic data on the reduction of foodborne illnesses remains limited.

Protection of Consumers

The regulatory framework aims to protect consumers through:

Standards*:* Setting permissible limits for contaminants, pesticides, heavy metals, and microbiological hazards.

Labeling Requirements: Mandating ingredient lists, nutritional information, expiry dates, and manufacturer details to inform consumer choice.

Redressal Mechanisms: Providing channels for complaints and legal recourse against violators.

Awareness Programs: Educating the public on food safety practices, as seen in health and nutrition initiatives like the Scaling Up Nutrition (SUN) Youth Network.

Effectiveness of Food Safety Regulation

Effectiveness is mixed and varies significantly by province. Punjab, with the oldest and most resourced authority, shows relatively better enforcement. KP and Sindh have made strides but face capacity constraints. Baluchistan's system is nascent. Overall effectiveness is hampered by:

Fragmentation: Lack of unified national law and coordination mechanism leads to inconsistencies and enforcement gaps, especially for inter-provincial trade.

Capacity Limitations: Insufficient number of trained inspectors, outdated laboratory infrastructure, and limited budgetary allocations constrain regular monitoring.

Informal Sector Dominance*:* A vast informal food sector (street vendors, small-scale mills) remains largely unregulated and difficult to monitor.

Challenges in Enforcing Food Safety Standards

Jurisdictional Overlaps: Multiple agencies (food authorities, PSQCA, customs, municipal bodies) often have overlapping mandates, causing confusion and inefficiency.

Resource Constraints: Provincial authorities lack adequate financial resources, advanced laboratory equipment, and skilled human resources for widespread surveillance.

Weak Legal Adjudication: Prosecution of offenders is slow and often ineffective due to lengthy court processes and weak penalties.

Supply Chain Complexity: Ensuring traceability from farm to fork is challenging, especially with smallholder-dominated agriculture (as seen in the agriculture report's discussion of fragmented production).

Consumer Awareness: While improving, a sizable portion of the population remains unaware of their rights or risks related to food safety.

In urban centers, compliance among larger businesses is improving, but in rural areas and informal markets, enforcement is minimal. Adulteration (e.g., in milk, spices, edible oils) and poor hygienic conditions at retail points remain prevalent issues. The high reliance on food imports (over 79% of edible oil) also places pressure on border control systems to ensure safety.

Gaps and Strengths of the Food Safety System

Strengths:

- Establishment of dedicated provincial food authorities with regulatory powers.
- Increasing political and public focus on food safety.
- Development of food standards aligned with international benchmarks.
- Successful model of the Punjab Food Authority provides a blueprint.
- Growing engagement with international bodies (WTO/SPS, Codex).

Gaps:

- Absence of a cohesive national food safety policy and law to ensure uniformity.
- Underdeveloped integrated foodborne disease surveillance system linking public health and food regulatory data.
- Inadequate laboratory network and technical capacity for advanced contaminant testing.
- Limited application of risk-based inspection and modern food control techniques.
- Poor coordination between agriculture production policies (seed, pesticide, water quality) and food safety outcomes.

Standing of National Food Safety System

Pakistan's national food safety system is in a transitional phase. It has moved from outdated, purely punitive laws towards a more structured, science-based regulatory model at the provincial level. However, it is not yet fully integrated, risk-based, or uniformly effective across the country. Its standing in the region is developing; it has institutional foundations but requires significant investment in capacity, coordination, and infrastructure to meet both domestic public health goals and the stringent requirements of international and regional trade.

Regional Harmonization

For Pakistan, harmonizing food safety standards within South Asia is both a challenge and an opportunity. It necessitates internal strengthening and alignment of its own provincial systems as a precursor to effective regional integration. Pakistan can benefit from shared technical expertise, synchronized standards (especially for major trade commodities like rice, fruits, meat, and spices), and mutual recognition agreements that would enhance market access, consumer trust, and public health across borders.

Status of Agricultural Trade, Compliance, and Pathways for Regional Harmonization

Pakistan's agricultural trade is characterized by both significant exports and critical import dependencies, reflecting its production strengths and domestic consumption gaps.

Major Exports

Rice: A cornerstone of agricultural exports, with Pakistan being a major global supplier of Basmati and non-Basmati (IRRI) rice. Major destinations include China, UAE, Kenya, Saudi Arabia, and Afghanistan. In FY 2025, rice remained a key contributor, with strong international demand and high domestic prices supporting cultivation area expansion (GoP, 2025).

Fruits & Vegetables: Citrus, mangoes, dates, and onions are significant exports. Key markets are the Middle East (UAE, Saudi Arabia, Oman), Afghanistan, Iran, and Central Asian states.

Fish & Fisheries Products: Exports reached 152.6 million metric tons (valued at ~$318.9 million) in FY 2025 (Jul-Mar). Primary buyers include China, Thailand, UAE, Japan, and Malaysia, alongside the EU and USA (GoP, 2025).

Livestock Products: Pakistan exports meat (beef, mutton), live animals, and animal casings. Major markets are the Middle East (Saudi Arabia, UAE, Qatar, Oman), Iran, and Afghanistan. The government is actively working to expand to new markets like Russia, Malaysia, and Vietnam.

Sugar: Pakistan periodically exports surplus sugar, with key markets in Afghanistan, Tajikistan, and Sri Lanka.

Major Imports

Edible Oils: Pakistan is heavily import-dependent, with over 79% of its edible oil demand met through imports worth Rs. 764.90 billion (US$ 2.75 billion) in FY 2025. Major suppliers include Indonesia, Malaysia, Ukraine, and Russia (GoP, 2025).

Pulses & Lentils: To meet protein deficits, Pakistan imports pulses from Canada, Australia, Myanmar, and Tanzania.

Dairy Products: Milk powders and other dairy products are imported from New Zealand, the EU, and the USA.

Fertilizers: Despite domestic production, imports of DAP and other nutrients are required, sourced from China, Saudi Arabia, and Jordan.

South Asian (SAARC) Trade

Intra-regional trade remains below potential. Key flows include:

- *Exports to:* Afghanistan (rice, wheat flour, fruits), Bangladesh (rice, potatoes), Sri Lanka (rice, onions).
- Imports from: India (limited formal trade; previously included vegetables, cotton), Sri Lanka (tea), Bangladesh (limited).

Compliance with Global Standards for Trading

Pakistan's ability to access international markets hinges on its compliance with Sanitary and Phytosanitary (SPS) Measures and Technical Barriers to Trade (TBT) as per WTO agreements.

Export Compliance

Meat & Livestock: To access markets like the EU, Saudi Arabia (GACC), and UAE, Pakistan complies with stringent certification requirements. The EU's TRACES NT system is used for products like animal casings. The government sustains residue monitoring plans and upgrades slaughterhouse facilities to meet destination standards.

Fisheries: EU market access requires compliance with hygiene directives. The Marine Fisheries Department regulates processing plants for certification.

Fruits (Mango, Citrus): Compliance with phytosanitary protocols (e.g., Vapor Heat Treatment for mangoes to Japan/USA) is managed by the Department of Plant Protection.

Rice: Must meet Maximum Residue Levels (MRLs) for pesticides and aflatoxins set by the EU, China, and Middle Eastern countries.

Import Regulation

Pakistan applies SPS measures at borders through the Department of Plant Protection (for plants) and Animal Quarantine Department (for animals). The PSQCA sets quality standards for imported food items.

Gaps: Border control capacity is often strained, leading to risks from non-compliant imports. Laboratory testing capacity for advanced contaminants (e.g., mycotoxins, veterinary drug residues) needs strengthening.

Alignment with Global Standards: Pakistan's Pakistan Standards (PS) developed by PSQCA are increasingly aligned with Codex Alimentarius. Participation in international fora (e.g., Codex, OIE for animal health, IPPC for plant health) is ongoing. The establishment of the National

Animal Health, Welfare, and Veterinary Public Health Act (drafted with WOAH support) demonstrates efforts to align legislation with global norms.

Factors Impeding Trade of Agricultural Commodities in the SAARC Region

Non-Tariff Barriers (NTBs): Stringent, Non-Harmonized SPS Measures and technical regulations are the primary impediments. Countries apply divergent and often scientifically unjustified standards on pesticide MRLs, microbiological criteria, and labeling, creating unpredictable barriers.

Lack of Mutual Recognition Agreements (MRAs): There is a near-total absence of MRAs for certifications, laboratory test results, or inspection systems between SAARC countries. This forces redundant testing and certification, increasing time and cost.

Weak Regional Institutional Mechanism: The SAARC Food Bank exists but is underutilized. There is no powerful regional food safety authority or technical working group to drive harmonization.

Infrastructural & Logistic Constraints: Poor cross-border transport infrastructure, cumbersome customs clearance procedures, and lack of cold-chain facilities at borders lead to spoilage and quality deterioration of perishables.

Political & Trust Deficits: Bilateral political tensions often spill over into trade policy, leading to sudden embargoes or restrictive licensing. A lack of trust in each other's regulatory systems perpetuates strict border controls.

Information Asymmetry: Traders and producers often lack clear, accessible information on the specific SPS requirements of neighboring countries.

Protocols, Standards, and Mechanisms for Harmonization in South Asia

To boost regional trade, South Asia must move towards a "Produce Once, Sell Anywhere" framework. The following harmonization measures are proposed:

Develop a South Asian Common Food Safety Framework

Establish a SAARC Technical Committee on Food Safety: Comprising heads of national food safety authorities, this body would be mandated to identify and harmonize key standards.

Adopt Codex as the Default Benchmark: Agree to progressively adopt Codex Alimentarius standards for contaminants, additives, labeling, and hygiene as the regional norm, allowing science-based deviations only with proper risk assessment notification.

Harmonize Specific Protocols for High-Trade-Potential Commodities

- Create Regional Standards for Staple Commodities: Harmonize MRLs for pesticides used on rice, mangoes, citrus, onions, potatoes, and spices.
- Develop Regional Animal Health Protocols: Align on vaccination, disease testing (e.g., for Foot and Mouth Disease), and meat hygiene standards to facilitate livestock and meat trade.

Implement Mutual Recognition and Facilitation Mechanisms:

- SAARC-Wide MRA for Conformity Assessment: Recognize each other's accredited laboratories, inspection agencies, and certification bodies for designated products.
- Implement a Regional "Single Window" System: Integrate sanitary and phytosanitary certification into a digital single window for customs, reducing clearance times.
- Establish Rapid Alert System for Food Safety (RASFF-style): A SAARC Rapid Alert System for dangerous food products would enhance consumer protection and build trust among regulators.

Build Capacity and Ensure Equitable Implementation:

- Create a SAARC Food Safety Capacity Building Fund: To assist less-resourced member states in upgrading laboratories, training inspectors, and improving farm-level practices (Good Agricultural Practices - GAPs).
- Promote Integrated "Farm-to-Border" Approach: Harmonization must extend to primary production. Regional programs for promoting GAPs, Good Veterinary Practices, and Hazard Analysis Critical Control Point (HACCP) among SMEs will ensure safety is built-in, not just assessed at the border.

Private Sector and Innovation in Food Safety

Role of Agribusiness, Startups, and Exporters

The private sector in Pakistan-encompassing large agribusinesses, small and medium enterprises (SMEs), exporters, and a growing startup ecosystem-plays a critical dual role: as a primary driver of food safety innovation and as a key stakeholder in compliance and market access.

Large Agribusiness & Exporters: Leading firms in dairy (e.g., Engro Foods, Nestlé Pakistan), poultry (K&N's, Seasons Foods), milling, and edible oils have invested heavily in compliance with international food safety standards (e.g., ISO 22000, HACCP) to access global markets and premium domestic segments. Their role extends beyond self-regulation; they often cascade standards upstream to their supply chains, providing training and technical support to contract farmers on Good Agricultural Practices (GAPs) and safe use of inputs. Exporters of rice, meat, and fruits function as quality

gatekeepers, ensuring products meet the stringent SPS requirements of destination countries like the EU, China, and the Middle East.

Startups and Agri-Tech Enterprises: A new wave of innovation is emerging from the startup sector, focusing on:

- *Precision Agriculture & Input Management*: Startups are developing platforms for precision farming, promoting the judicious and traceable use of pesticides and fertilizers, directly impacting residue levels in food.
- *Supply Chain Transparency*: Tech companies are offering blockchain-based and IoT-enabled traceability solutions for commodities like mangoes, rice, and meat, allowing consumers and buyers to verify provenance and handling practices.
- *Direct-to-Consumer Platforms:* E-commerce and farm-to-door delivery services are creating market-driven incentives for producers to prioritize safety and quality to build brand trust and ensure repeat business.
- *Food Testing Innovations*: Startups are exploring rapid, on-site testing kits for common contaminants (aflatoxins, adulterants), making testing more accessible and affordable for smaller players.

Traceability Mechanisms

Traceability—the ability to track a food product through all stages of production, processing, and distribution—is fundamental to modern food safety systems. In Pakistan, traceability is advancing but remains uneven.

Pilot Initiatives: Progressive exporters and large agribusinesses have implemented digital traceability systems for high-value export products. For instance, mango exporters use QR codes linked to farm data, harvest dates, and treatment records to meet importer requirements.

Livestock Sector Potential: With the government's planned National Program for Animal Disease Surveillance and Livestock Traceability, there is significant scope for private sector involvement in implementing electronic ear tags or RFID-based systems to track animal movement, health records, and slaughter data requirement for accessing sophisticated meat markets.

Challenges: Widespread adoption is hindered by the fragmented nature of smallholder agriculture, low digital literacy, and the cost of technology. A unified national or regional framework for traceability, supported by public-private investment, is needed to scale these solutions.

Digital Certification Systems

Moving from paper-based to digital certification is a meaningful change for trade efficiency and fraud prevention.

Current State: Pakistan has initiated integration of export certifications with the Pakistan Single Window (PSW) system, a significant step towards digitizing trade processes. The Electronic Warehouse Receipt Financing system, enabling Rs 1.8 billion in lending, demonstrates the potential of digitized collateral management.

Export Focus: For key markets, digital systems are becoming essential. Compliance with the EU's TRACES NT for animal products is a prime example. Developing a domestic digital SPS certification platform that can interface with regional and global systems would dramatically reduce clearance times for both imports and exports.

Opportunity for Regional Leadership: Pakistan could champion the development of a SAARC Digital SPS Certification Exchange, allowing for secure, instant verification of health certificates across borders, reducing delays and opportunities for document fraud.

Public-Private Partnerships (PPPs) in Standard Setting

Effective food safety regulation requires close collaboration between the government (regulator) and the private sector (regulated and innovator). PPPs are crucial for developing pragmatic, science-based, and internationally aligned standards.

Model of Engagement: Provincial Food Authorities (PFAs) often engage industry associations (e.g., Pakistan Poultry Association, Pakistan Beverage Association) during the drafting of new regulations or standards. This ensures rules are technically feasible and considers implementation challenges.

Seed Sector Example: As seen in the agriculture report, the Federal Seed Certification & Registration Department works closely with private seed companies (which supply 83.22% of certified seeds) (GoP, 2025). Their collaboration on field inspections, sampling, and DUS (Distinctness, Uniformity, Stability) testing is a functional PPP that ensures seed quality and safety, a foundational element of food safety.

National Codex Committee: Pakistan's national Codex committee includes industry representatives, facilitating alignment of national positions with both business realities and international norms.

Areas for Enhanced PPP:

- Joint Risk Assessment: Collaborating on data collection and risk analysis for emerging hazards.
- Co-investment in Infrastructure: Partnering to upgrade food testing laboratories or establish sector-specific training academies.

- Developing SME-Friendly Standards: Working together to create simplified, scalable food safety protocols for small processors and street vendors, combining regulatory goals with capacity building.

Roadmap for Harmonization of Food Safety Standards in South Asia

The harmonization of food safety standards across South Asia is a complex but critical undertaking, essential for unlocking the region's agricultural trade potential, enhancing food security, and protecting public health. A successful harmonization process requires a clear, phased, and collaborative roadmap. This section outlines actionable policy recommendations for national and regional actors, focusing on institutional, technical, and cooperative mechanisms.

Policy Recommendations for National and Regional Actors

For National Governments (Pakistan):

- Enact a National Framework Law: Develop and pass a unified National Food Safety Act that consolidates mandates, establishes a national food safety agency with overarching coordination authority, and aligns domestic standards with Codex Alimentarius. This law should empower the national agency to harmonize provincial regulations and serve as the single national voice in regional forums.
- Adopt a "One Health" Regulatory Approach: Integrate food safety oversight across the entire "farm-to-fork" chain. This requires formal coordination mechanisms between the Ministry of National Food Security & Research (crop/livestock production), the Ministry of Health (food safety/consumer health), and the Ministry of Commerce (trade). The lessons from integrated projects like the National AMR Surveillance Strategy and Livestock Disease Control programs should be scaled.
- Mainstream Harmonization into Economic Policy: Explicitly include food safety standards harmonization as a strategic objective in national trade policies, the Pakistan Economic Transformation Plan, and Five-Year Plans. Allocate dedicated budget lines for related capacity building and infrastructure.

For Regional Bodies (SAARC/SAFTA)

Revitalize the SAARC Food Security Initiative: Transform the underutilized SAARC Food Bank into a dynamic SAARC Food Safety and Trade Facilitation Unit. This unit should be technical, permanent, and empowered to drive the harmonization agenda.

Establish a SAARC Ministerial Council on Food Safety & Trade: An annual high-level council of Ministers of Health, Agriculture, and Commerce should provide political direction, review progress, and resolve deadlocks.

Develop a "SAARC Framework Agreement on Food Safety Harmonization": A binding regional treaty that commits members to the principles of science-based regulation, transparency, and progressive alignment with international standards, particularly Codex.

Capacity Building and Technical Assistance

- Harmonization is only effective if all member states have the capacity to implement and enforce agreed standards.
- Create a SAARC Food Safety Capacity Building Fund: Financed by member state contributions and development partners, this fund would support:
- Laboratory Strengthening: Upgrading national and regional reference labs to ISO 17025 accreditation, with a focus on testing for high-priority contaminants (pesticides, mycotoxins, antibiotics).
- Training Cadres: Developing a regional roster of food safety inspectors, auditors, and risk assessors through standardized training programs and exchange fellowships.
- Farmer and SME Training: Supporting national extension services to train producers and small processors on Good Agricultural Practices (GAPs), Good Hygiene Practices (GHPs), and HACCP-based protocols.

Launch a SAARC Food Safety Knowledge Platform: A central digital repository for harmonized standards, regulatory updates, scientific risk assessments, and best practice guidelines, accessible to regulators, industry, and academia across the region.

Mutual Recognition Agreements (MRAs): MRAs are the cornerstone of trust and efficiency in regional trade.

- Pilot Sector-Specific MRAs: Begin with commodities of high regional trade volume and shared interest. Priority sectors for pilot MRAs include:
- Rice: Mutual recognition of testing protocols for pesticide MRLs and aflatoxins.
- Fresh Fruits & Vegetables: Recognition of phytosanitary certification and inspection systems for mangoes, citrus, and potatoes.
- Processed Spices: Recognition of hygiene certification for processing facilities.
- Develop a SAARC Model MRA Framework: A template agreement covering the recognition of Conformity Assessment Bodies (CABs), laboratory test results, and inspection reports. This would simplify bilateral or multilateral negotiations between members.

- Link MRAs to the Pakistan Single Window (PSW): Advocate for and help design a regional digital interface where MRAs are operationalized through electronic data exchange, reducing clearance times at borders.

Unified Framework for Regional Food Safety Governance: A robust, transparent, and inclusive three -tier governance structure is required to sustain harmonization.

- Tier 1: SAARC Committee on Food Safety (SCFS): A technical committee comprising heads of national food safety agencies (or equivalent). It is the main decision-making body responsible for proposing harmonized standards, overseeing MRAs, and managing the Rapid Alert System.
- Tier 2: Specialist Working Groups (SWGs): Sub-committees of the SCFS focused on specific areas: Pesticide MRLs, Microbiological Criteria, Food Additives, Labeling, and Meat Hygiene. These groups conduct scientific evaluations and draft technical documents.
- Tier 3: SAARC Food Safety Secretariat: A permanent secretariat to provide administrative, technical, and logistical support to the SCFS and SWGs, and manage the Knowledge Platform.

Implement a SAARC Rapid Alert System for Food and Feed (SAARC-RASFF): Modeled on the EU's RASFF, this real-time information system would allow members to instantly notify each other of serious food safety risks found at borders or on the market, enabling swift protective actions and building systemic trust.

Stakeholder Consultation Mechanism: Mandate a formal, transparent process for consulting industry associations, consumer groups, academia, and civil society during the standard-setting process. This ensures regulations are practical, equitable, and enjoy broad-based support.

Conclusion and Way Forward

Pakistan’s agriculture sector is a cornerstone of its economy, demonstrating resilience amid climatic and economic challenges. The sector’s growth, particularly in livestock and fisheries, alongside its significant contribution to GDP and employment, underscores its strategic importance. However, persistent vulnerabilities—such as low productivity, water stress, and fragmented value chain constrain its full potential.

In parallel, Pakistan’s food safety and regulatory landscape is in transition. While progressive provincial authorities and alignment with international standards like Codex Alimentarius mark considerable progress, the system remains hampered by fragmentation, capacity limitations, and gaps in enforcement. These domestic challenges are mirrored and magnified at the regional level, where non-harmonized standards, a lack of mutual recognition,

and weak institutional cooperation stifle the growth of South Asia's agri-food trade, despite clear complementarities and demand.

The analysis confirms that enhancing food safety is not merely a regulatory issue, but a multidimensional imperative tied to public health, economic competitiveness, and regional integration. The private sector is emerging as a vital innovator and partner, while digital solutions in traceability and certification offer pathways to greater efficiency and transparency.

References

GoP (2018). Pakistan Multi-Sectoral Nutrition Strategy 2018-25. Ministry of Planning, Development and Reform. Government of Pakistan.

GoP (2025). Pakistan Economics Survey (2024-25). Ministry of Finance, Finance Division, Economic Adviser's Wing. Government of the Pakistan.

GoPunjab (2011). The Punjab Food Authority Act 2011. Government of the Punjab.

GoPunjab (2011). The Punjab Pure Food Rules, 2011. Health Department. Government of the Punjab.

GoPunjab (2018). Punjab Pure Food Regulations, 2018. Law and Parliamentary Affairs Department. Government of the Punjab.

GoPunjab (2025). http://pfa.gop.pk/food-laws/. Accessed on 05-12-2025.

Mir, R. (2024) Revolutionizing the Agricultural Sector of Pakistan - SIFC'S. in Modernizing Pakistan's Agricultural Economy. Pakistan Institute of Development Economics. https://file.pide.org.pk › discourse-2024-04.

Agricultural Trade Including Fortified Foods through Harmonized Food Safety Standards in SriLanka

Y.M.H. Liyanage[1*] and S.A.M.R. Abeykoon[2]
[1]Additional Director, Seed Certification Service, Department of Agriculture, SriLanka.
[2]Deputy Director, Seed Certification Service, Department of Agriculture, SriLanka.
[*]Email: yasinthaliyanage@gmail.com

Introduction

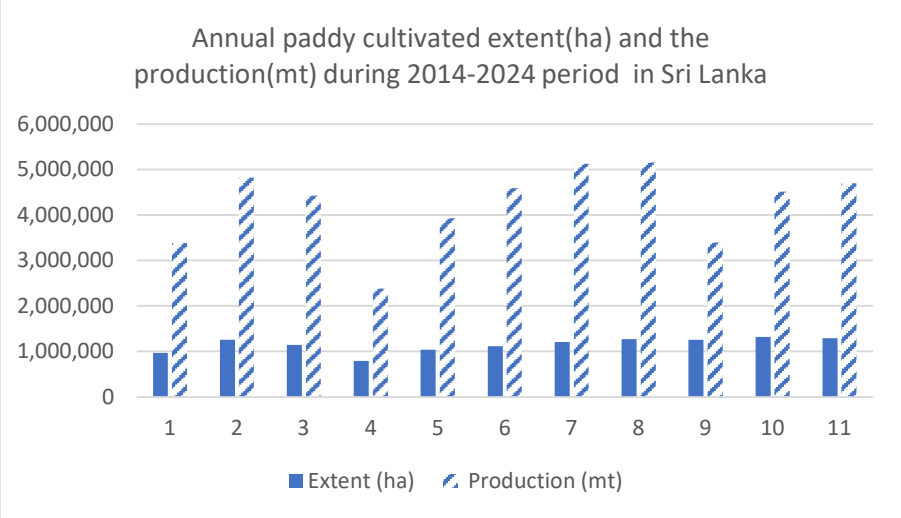
SriLanka's agrifood system continues to play a central role in balancing national priorities of economic growth, social welfare, and trade competitiveness. Despite the economy's shift toward services, agriculture, forestry, and fisheries still contributed 8.3 % of GDP in 2024, making the sector vulnerable to evolving food safety and quality requirements that influence both domestic and international markets.

Employment data reinforce this importance: one in four workers remained engaged in agriculture in 2023, underlining its role in rural livelihoods and social stability. Ensuring safe, transparent, and efficient value chains is therefore essential not only for consumer protection but also for safeguarding incomes in vulnerable regions.

On the trade front, Sri Lanka's comparative advantages in tea, spices, coconut-based products, and rubber provide resilient export opportunities. However, sustaining and expanding these markets will depend on meeting stringent sanitary and phytosanitary (SPS) regulations and private standards, particularly in high-value destinations. This raises critical policy challenges around regulatory capacity, certification systems, and producer compliance support.

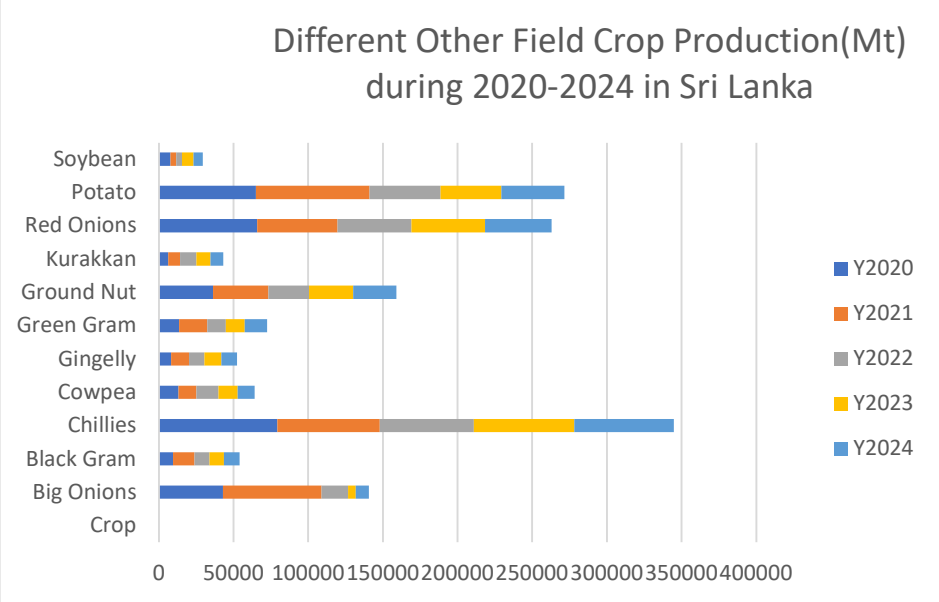
Status of Agriculture Production, trends and the needs

Agriculture as a cornerstone of Sri Lanka's economy, with food production primarily based on rice, vegetables, other field crops, fruits, fisheries, and livestock. Rice is the staple food and occupies a central place in the national diet as well as in rural livelihoods. It is cultivated during both the *Maha* (main) and *Yala* (minor) seasons, covering approximately 1.3 million hectares annually across the two cultivation periods.



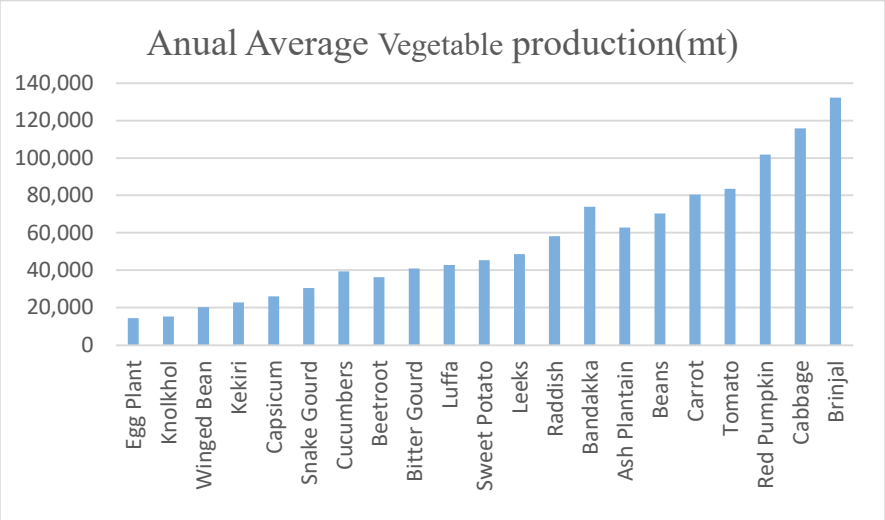
Source: Department of Census and Statistics

Among other field crops, maize holds particular significance as the second most important crop in the country. Its production supports both the food sector and the growing feed industry, particularly for poultry and livestock.



Source: Department of Census and Statistics

Vegetables and fruits are cultivated in diverse agro-climatic zones, ensuring year-round supply for domestic consumption and, in some cases, export markets. Fisheries—both inland and marine—alongside livestock production, contribute significantly to household nutrition and rural income (Ranathunge et al., 2018).



Source: Department of Census and Statistics

Economic Scale & Employment

- Agriculture's share of GDP stood at 7.5 percent in 2024, slightly up from 7.8 percent in 2023 which is well below Sri Lanka's historical average of about 21 percent.
- Agricultural sector growth was robust in 2024, expanding by 7.5 percent, outpacing industrial (26.7 percent) and service (59.2 percent) sectors—reflecting strong sectoral recovery.
- About 26.3 percent of the workforce was employed in agriculture as of 2023, indicating significant reliance on agrarian livelihoods.

Major Crops, outputs and Production challenges

- Rice remains the staple: the 2024 Maha harvest was estimated at 2.6 million tonnes, roughly 6 percent below the five-year average, hampered by floods, pests, diseases, and lower-than-optimal fertilizer application.
- Ceylon cinnamon is a flagship export: Sri Lanka produces around 90 percent of the world's pure cinnamon.
- Coconut is a key crop—the country is the fourth-largest global producer, though exact figures are a few years old (2.6 million tonnes in 2018).

- Crop losses from wildlife pose major challenges: annually, 90 million coconuts are lost, equating to approximately 20 percent of total agriculture output, largely due to monkeys, peacocks and squirrels. A national wildlife census has been launched to better understand and manage these impacts
- While Sri Lanka has achieved near self-sufficiency in rice, production trends for other commodities vary due to climatic fluctuations, input availability, market demand, and technological adoption. The sector faces the dual challenge of addressing deficits in crops such as pulses, oilseeds, and dairy products while managing seasonal surpluses of certain vegetables and fruits.

Sectoral Needs & Strategic Imperatives

Strategic Need	Description
Enhance yields through modernization	Increase mechanization, improve fertilizer/climate-smart input use, and invest in irrigation.
Strengthen research-extension links	Ensure technologies from RRDI and Department of Agriculture reach farmers effectively.
Mitigate wildlife losses	Use wildlife census data to design targeted, humane interventions to reduce crop damage.
Diversify high-value crop mix	Continue expanding exports of cinnamon, spices, and new niches to improve farmer incomes.
Build resilience in food staples	Invest in climate-resilientseeds, effective pest/flood control, and buffer stocks.
Support policy coherence	Ensure sustainable fertilizer strategies, access to credit/inputs, and land ownership clarity.

Nutrition Status and Food Fortification in Sri Lanka

Sri Lanka continues to face a serious malnutrition challenge, reflected in high levels of child undernutrition, maternal anemia, and low birth weight. Around 17% of children under five are underweight, while stunting and wasting remain prevalent, particularly in estate and rural communities. Maternal health is also affected, with over 16% of pregnant women anemic at their first clinic visit and 22% anemic by the third trimester, contributing to a 15% low birth weight rate nationally. Alongside undernutrition, the country is experiencing a double burden of malnutrition, with rising overweight and

obesity in adults. This complex situation shows that both protein-energy malnutrition and micronutrient deficiencies remain pressing issues.

Food fortification has become a key strategy to address these gaps. The most notable success is universal salt iodization, which has virtually eliminated iodine deficiency disorders in Sri Lanka. The government also provides Thriposha, a fortified supplementary food enriched with vitamins and minerals, to pregnant and lactating women and children under five, supporting growth, immunity, and maternal health. Ongoing policy discussions include mandatory fortification of wheat flour with iron and folic acid, which would reduce maternal anemia and prevent neural tube defects in infants. These interventions, combined with awareness campaigns and national nutrition policies, show how food fortification complements broader public health efforts to combat malnutrition.

Food Safety Standard/ Regulation

Legal and Regulatory Framework

The Food Act No. 26 of 1980 forms the foundation of food safety regulation in Sri Lanka (Hettiarachchi,2020), while several other legislations and Sri Lanka Standards (SLS) also contribute to this framework. The Act regulates all aspects of the food chain, including production, processing, packaging, storage, distribution, labelling, and advertising.

Regulatory and Institutional Landscape

- Under the Act, the Director General of Health Services functions as the Chief Food Authority, with the Food Control Unit of the Ministry of Health overseeing imports, domestic food control, and export certification. In addition, certain commodities fall under the authority of other agencies: the Department of Animal Production and Health regulates the import of live animals, fresh meat, and animal feed, while the National Plant Quarantine Service of the Department of Agriculture manages plant product imports. Food Control Administration Unit (FCAU), Ministry of Health – Serves as the primary regulatory authority for food safety, responsible for enforcing public health standards and ensuring compliance across the food supply chain.
- Sri Lanka Standards Institution (SLSI) – Develops national standards (SLS), conducts conformity assessments, and provides certifications such as HACCP and ISO 22000. It also plays a key role in labelling, quality assurance, and product certification.
- *Quality Assurance Division* of SLSI manages the Compulsory Import Inspection Scheme, ensuring imported products meet national standards, and issues pre-export certifications for key commodities, notably Ceylon cinnamon.

- Consumer Affairs Authority (CAA) – Oversees labelling, price regulation, and consumer protection, complementing food safety measures with market fairness and transparency.
- Department of Agriculture (DoA) – Provides oversight on pesticide use, delivers extension services, and undertakes agricultural research to support safe production practices.
- Export Development Board (EDB) – Facilitates export compliance, assists producers in meeting international standards, and promotes market access for Sri Lankan agrifood exports.

Recent Regulatory Enhancements

Several targeted regulations under the *Food Act* will come in to effect as of January 1, 2026:

- Labelling & Advertising Regulations (2022)
- Trans-Fat Regulations (2022)
- Colour Coding for Sugar Levels in Liquid Products Regulations (2022)
- Iodization of Salt Regulations (2023)

Among these, the Trans-Fat Regulations are especially significant, as they aim to reduce the presence of unhealthy fats in processed foods, thereby improving public health outcomes.

Certification and Capacity Building

The Sri Lanka Standards Institution (SLSI) provides HACCP and ISO 22000 certifications; both aligned with Codex principles. These are essential tools for food businesses to effectively manage hazards, strengthen consumer trust, and enhance market access.

SLSI also conducts training programmes to build industry capacity. For instance, in March 2025, it organized a training programme on Food Hygiene and Good Manufacturing Practices (GMP) for restaurants and catering businesses, focusing on the latest standards and regulatory requirements.

Gaps and Challenges

Gap: Sri Lanka faces several shortcomings in ensuring food safety related to chemical contaminants. Laboratory capacity for pesticide residue and heavy metal testing is limited, with inadequate infrastructure and technical coverage. Implementation of existing laws such as the Control of Pesticides Act and the Food Act remains weak, with no comprehensive national surveillance system. At the consumer level, awareness of pesticide residues, heavy metals, and food safety risks is very low. Even though SL-GAP certification assures safer food production, consumer demand is poor due to lack of awareness and promotion. Additionally, the predominance of small farm holdings makes

residue testing and certification costly and logistically difficult, as bulk traceability and testing mechanisms are not in place.

Challenge: These gaps threaten both food safety and food security. Inadequate monitoring allows contaminated food to reach consumers, increasing health risks and eroding trust. Low consumer awareness discourages demand for SL-GAP certified produce, reducing farmer incentives to follow safer practices. Small-scale farm structures further complicate residue monitoring, as testing individual farmer produce is expensive and impractical. At the trade level, inability to meet international standards on residues and heavy metals increases the risk of export rejections, weakening Sri Lanka's competitiveness in agricultural markets.

Trades

Snapshot of Agricultural Trade

- Export basket (agri/food): tea, spices (cinnamon, pepper, cloves), coconut-based products (desiccated coconut, activated carbon, oils), rubber-based products, fishery products, processed food & beverages. Recent official updates show 2024 full-year growth in tea (+9.6%), coconut products (+20.9%), and spices & concentrates (+16.1%) versus 2023, with momentum continuing into Jan–Feb 2025 (tea +0.95%, coconut+25.9%, spices +47.0%).
- Key destinations: for tea (the largest agri export), the top buyers in 2024 included Iraq, Russia, UAE, Turkey, China, Azerbaijan, Iran, Libya, Saudi Arabia, Chile (by volume).
- Import reliance: Sri Lanka does not grow wheat commercially; annual consumption is 1.11 MMT (MY 2024/25) and is fully import-dependent. Other significant food imports include sugar, dairy, lentils/legumes, and edible oils/fats.

Trade with SAARC Countries

Intra-SAARC agri trade remains structurally low relative to potential, with SPS/TBT measures forming a large share of non-tariff frictions. India dominates regional flows; smaller economies—including Sri Lanka-face scale and standards-coordination constraints.

- Sri Lanka's two-way agri/food trade within SAARC is concentrated with India, Bangladesh, Pakistan, Maldives (tea, coconut products, spices; and imports of grains, sugar, processed foods). Directional partner notes (e.g., Bangladesh–Sri Lanka flows edged down in FY2023/24) illustrate volatility and sensitivity to policy and logistics.

Compliance with Global Standards & Market Access

- Exporters increasingly operate under HACCP/ISO 22000 and SLSI conformity schemes; Sri Lanka's system recognizes ISO families (9000/14000/22000) and HACCP as core enablers of market access.
- To meet importing-country SPS rules (EU, Middle East, North America), exporters rely on product-specific guidance (e.g., EU General Food Law for processed fruit/veg), private standards, and buyer audits.
- Digital facilitation: Sri Lanka's National Plant Quarantine Service (NPQS) has implemented IPPC ePhyto (GeNS), and several partners (e.g., Australia from 28 May 2025) accept Sri Lankan ePhytos—reducing paperwork and clearance times for plant products (tea, spices, coconut).

Factors Impeding Regional Trade (SAARC Focus)

- Fragmented SPS/food standards and MRLs relative to Codex—creating duplicated testing and reformulation for different markets.
- Asymmetric conformity assessment (lab capacity, accreditation reach, recognition of results), leading to re-testing at destination.
- Paper-based certificates still used by some partners; limited mutual recognition and uneven adoption of ePhyto across the region.
- Border logistics & transparency gaps: varying port processes, pre-arrival risk management, and inspection protocols. Regional diagnostics repeatedly flag these as cost drivers.
- Information asymmetry on regulatory updates (labeling, additives, GM, contaminants), especially for MSME exporters.

What Can Be Harmonized in South Asia (Practical Proposals)

- Codex-based alignment of priority MRLs and contaminants for high-trade foods (tea, spices, coconut products, fishery items, fresh produce). Start with a "Core 25" list where divergence is most trade-restrictive (pesticide residues in tea and spices; aflatoxin/ochratoxin in spices & nuts; PAHs in teas; heavy metals). SARSO can host the technical working stream.
- Mutual Recognition (MR) of accredited labs: create a SARSO-endorsed MR framework for ISO/IEC 17025-accredited food labs with scope lists (e.g., mycotoxins, pesticide residues). Combine with proficiency testing rings to build trust and avoid re- testing. Regional e-certification stack: fast-track ePhyto interconnections (all NPPOs linking to the IPPC Hub) and pilot e-Health Certificates for animal products; agree on data schemas and pre-arrival processing for perishables. (Sri Lanka's NPQS/ePhyto experience can anchor pilots.)
- Common guidance on labeling & claims (allergen declaration, nutrition panels, trans- fat, sugar colour coding) where feasible—publish a SAARC

Food Labeling Compendium cross-referenced to Codex and key destination rules to reduce compliance ambiguity.

- Rapid alert & incident cooperation: set up a SAARC Food Safety Rapid Alert Network (simple, email/API-based) for recalls and border rejections; run joint risk communication templates to prevent market overreactions.
- Equivalence pilots: for specific, low-risk product lines (e.g., desiccated coconut, true cinnamon), trial equivalence of inspection systems rather than product-by-product testing. Use post-market surveillance & performance metrics to expand coverage.

Food safety constraints and Challenges

Infrastructure: Testing facilities for food testing is not adequate in Sri Lanka. Testing facilities for pesticide residual analysis also limited in Sri Lanka.

Interministerial cooperation: Interministerial coordination is very limited. Therefore, the responsibility of the food safety is not covered for entire value chain.

Lack of documentation

a. Sri Lanka has prepared a National Nutrition policy. However, implementation is slow
b. Lack of documentation among farmers is a big problem in SL-GAP certification. Therefore, it is very important to educate farmers regarding system approach and treasablity

Research gap: Inadequate funding for research and lack of dedicated researchers is also become a problem. More focus on bio fortification is needed.

Limited awareness on food safety and bio fortifications among farmers, students' researchers and food handlers.

Private Sectors and Innovation in Food Safety

Role of Agribusiness and Exporters

Standards adoption: Leading tea, spice, coconut and processed-food exporters routinely implement HACCP/ISO 22000 and SLS certifications to meet buyer and market-access requirements, with SLSI providing conformity assessment and systems certification services. This has become a de-facto gatekeeper for supermarket/private-label supply and premium export channels.Origin branding & GI: The EU's Geographical Indication (GI) for Ceylon Cinnamon (2022) is a flagship public-private achievement led by EDB with UNIDO support. Firms leverage GI protocols (raw-material identity preservation,

processing standards, logo use) to differentiate and signal authenticity and safety in EU and high-end markets.

Sustainability & agronomy: Private tea estates (e.g., Dilmah) are investing in climate- smart agroforestry and soil-health practices—moves that reduce pesticide pressure and residue risk, reinforcing food-safety outcomes alongside sustainability claims.

Traceability Mechanisms (field-to-export)

Plant products (tea/spices/coconut): The National Plant Quarantine Service (NPQS) issues electronic phytosanitary certificates (ePhyto, via IPPC GeNS), enabling secure, tamper-resistant transmission of consignment health data to importing NPPOs. From 28 May 2025, Australia began accepting Sri Lankan ePhytos—expanding Sri Lanka's paperless exchange network and cutting clearance times and document risk.

Fisheries: Exporters operate under the EU IUU Regulation with catch certificates verified by the Department of Fisheries & Aquatic Resources; Sri Lanka's 2025 National Plan of Action reconfirms mandatory catch documentation and on-board logbooks for mechanized vessels, aligning traceability with TRACES-CATCH changes.

Enterprise-level digital traceability: Many firms pair batch/barcode systems and supplier approval programs with buyer audits; regionally and globally, blockchain/RFID pilots are maturing for tea/spices to lock provenance and hazard controls end-to-end—an approach consistent with recent technical literature. (Sri Lankan firms can adapt these models as costs fall.)

Digital Certification and Trade Systems

ePhyto (GeNS): Sri Lanka was an early pilot of the IPPC GeNS and is expanding partner connectivity supporting SPS transparency and faster border releases for plant- origin exports.

Single Window & Customs: The National Single Window Trade Portal provides entry to multiple regulator systems, complementing ASYCUDA World at Sri Lanka Customs helpful for e-permits, risk management, and consistent data capture across food consignments.

Public-Private Partnerships (PPP) and Ecosystem Support

GI governance for cinnamon is a continuing PPP: EDB/UNIDO technical assistance, industry associations, and firms coordinate on specifications, inspection, and logo use to keep the GI credible—raising overall quality and safety disciplines in the value chain.

Capacity building: SLSI regularly runs food hygiene & GMP trainings for restaurants and catering, helping MSMEs professionalize HACCP pre-requisites and comply with newer rules (labeling/trans-fat/iodized salt).

Gaps and Opportunities (Private-Sector Lens)

Wider residue & contaminant monitoring: Expand industry-funded surveillance for pesticide residues (tea, spices) and mycotoxins with ISO/IEC 17025 lab participation and data-sharing to pre-empt border rejections. (Pairs well with forthcoming regional MR of lab results—see Section 6.)

Digital scale-up: Extend ePhyto usage to all eligible plant exports and advocate for mutual recognition of test reports/certificates in SAARC. Promote low-cost QR/batch traceability for MSMEs.

Fisheries e-CDT: Continue modernizing electronic catch documentation/logbooks and TRACES-CATCH interfacing to future-proof EU access and spill over good practices to other destinations.

Innovation pilots: Support pilots (with donor/DFIs) for blockchain-backed spice/tea traceability and supplier-risk scoring tied to HACCP plans; global evidence shows these can cut audit costs and strengthen recall readiness.

Roadmap for Harmonization of Food Safety Standards

Policy Recommendations - National Level

1. Codex Alignment & Prioritization

- Review Sri Lanka's current standards and update them in line with Codex Alimentarius, focusing on priority contaminants (pesticide residues in tea/spices, aflatoxins in nuts/spices, heavy metals in fishery products).
- Establish a National Codex Task Force with representation from Ministry of Health, Department of Agriculture, EDB, SLSI, NPQS, academia, and private exporters.

2. Laboratory Strengthening

- Upgrade and accredit (ISO/IEC 17025) more labs for pesticide residues, mycotoxins, heavy metals, microbiology.
- Develop a National Proficiency Testing Scheme and inter-lab comparisons to ensure accuracy and consistency.

3. Integrated Traceability & Certification

- Scale up ePhyto adoption across all eligible exports; integrate with the National Single Window.
- Develop digital traceability standards for spices, tea, coconut, leveraging QR/barcode systems for MSMEs and blockchain pilots for exporters.

4. Consumer Protection & Domestic Safety

- Harmonize labeling rules (sugar color coding, trans-fat limits, allergen declaration) with international practice.
- Expand food hygiene training & certification for MSMEs, hotels, and street vendors to bridge the gap between regulation and practice.

Policy Recommendations – Regional (SAARC) Level

1. Regional Codex Coordination

- Create a SAARC Food Safety Standards Forum, facilitated by SARSO, to coordinate positions at Codex and develop a "Core 25" list of harmonized standards critical for regional trade.

2. Mutual Recognition of Laboratories

- Develop a SAARC Lab Mutual Recognition Framework for ISO/IEC 17025 accredited labs.
- Conduct joint proficiency testing and publish accredited-scope directories for tea, spices, coconut, and fishery exports.

3. Digital Certification & Data Exchange

- Expand ePhyto linkages among SAARC NPPOs via the IPPC Hub.
- Pilot regional e-certificates for processed foods, fisheries, and animal products (modeled on TRACES-CATCH in EU).

4. Rapid Alert & Surveillance Network

- Establish a SAARC Food Safety Rapid Alert System for recalls, border rejections, and contamination incidents.
- Run joint incident management exercises to build trust and preparedness.

5. Capacity Building & PPPs

- Create regional training modules (Codex, HACCP, ISO 22000, SPS risk analysis) for regulators and private firms.
- Promote public-private partnerships in GI branding (like Ceylon Cinnamon) as a replicable regional model.

6. Encourage India–Pakistan participation, diplomatically engage both countries to strengthen trust, align priorities, and ensure that SAARC functions as a cohesive regional block for agrifood safety and trade.

7. Integrate climate resilience – promote sustainable practices (low-chemical, climate-smart farming) that reduce risks of contamination and strengthen long-term food security.

Conclusion and Way Forward

Sri Lanka's Agrifood System: Pathways for Food Safety and Trade Competitiveness

Sri Lanka's agrifood system stands at a crossroads: agriculture continues to underpin rural livelihoods, exports, and national food security, yet productivity, safety, and competitiveness face both structural and emerging pressures. Over the past decade, notable progress has been made strengthening legislation under the Food Act, upgrading institutional frameworks, aligning domestic standards with Codex Alimentarius, and pioneering origin branding through the Geographical Indication (GI) for Ceylon Cinnamon. Exporters and regulators are also embracing digital certification systems such as ePhyto and HACCP/ISO to facilitate safer, faster trade.

Despite these advances, critical gaps remain. Uneven enforcement across the domestic food chain, limited laboratory testing capacity, inconsistent adoption of good hygiene practices, and fragmented regional standards continue to constrain consumer protection and market access. Sri Lanka's experience highlights the urgent need for balanced food safety governance—combining stricter compliance mechanisms with targeted support for farmers, MSMEs, and private-sector innovation.

Strategic Priorities

- Nationally: Strengthen residue monitoring and accredited laboratory capacity; scale up traceability and digital certification systems; expand consumer-protection measures such as labelling and allergen declaration; and embed climate-smart, food-safe farming practices.
- Institutionally: Establish a multisectoral independent body—bringing together Health, Trade, and Agriculture authorities—to provide cohesive oversight of national food safety.
- Regionally (SAARC): Advance harmonized Codex-based standards, mutual recognition of laboratories, interoperable digital trade systems (ePhyto, e-certificates), a joint rapid-alert mechanism, and establish a Food Safety and Trade Knowledge Hub at the SAARC Agriculture Centre to facilitate information-sharing, capacity building, and expert advisory services.

Key Recommendations

- Invest in laboratory infrastructure – upgrade and accredit regional labs to test for pesticide residues, heavy metals, and microbiological hazards.

- Strengthen enforcement capacity – enhance inspector training, provide adequate transport and logistics, and introduce risk-based monitoring along the food chain.
- Promote consumer awareness – run national campaigns on food safety, SL-GAP certification, labelling, and safe food handling.
- Support farmers and MSMEs – provide subsidies or incentives for compliance with GAP, HACCP, and traceability systems, particularly for smallholders.
- Establish a multisectoral food safety authority – ensure coordination across ministries, reduce overlaps, and improve accountability.
- Enhance digital systems – expand ePhyto, e-certification, and traceability platforms for both domestic and export markets.
- Push for regional cooperation – lead SAARC initiatives on harmonized standards, lab recognition, and joint food safety rapid-alert mechanisms.
- Create a Knowledge Hub at SAARC Agriculture Centre – to serve as a regional platform for sharing data, best practices, training resources, and technical advice on food safety and agri-trade.
- Integrate climate resilience – promote sustainable practices (low-chemical, climate-smart farming) that reduce risks of contamination and strengthen long-term food security.

References

Business Insider. 2024. *Sri Lanka produces 90 percent of the world's true Ceylon cinnamon.* Available at: https://www.businessinsider.com/sri-lanka-produces-90- percent-worlds-true-ceylon-cinnamon-2024-2

Central Bank of Sri Lanka (CBSL). 2024. *Annual Report 2024.* Colombo: CBSL.

Digicomply. 2025. *Food Regulatory Bodies, Standards and Authorities in Sri Lanka.* Available at: https://www.digicomply.com/food-regulatory-bodies-standards-and- authorities/Sri-Lanka

Erabadupitiya, H.R.U.T. 2022 Sri lanka Good Agriculture Practices – Techno Guide

Export Development Board (EDB). 2025. *Sri Lanka Export Performance – January & February 2025.* Available at: https://www.srilankabusiness.com/news/sri-lanka- export-performance-january-february-2025.html

FAO. 2024. *GIEWS Country Brief – Sri Lanka.* Rome: Food and Agriculture Organization. Available at: https://www.fao.org/giews/countrybrief/country.jsp?code=LK

Food Control Administration Unit (FCAU). *Food Act No. 26 of 1980 (as amended).* Government of Sri Lanka. Available at:

https://www.srilankalaw.lk/revised- statutes/volume-iii/393-food-act.html

Food Control Administration Unit (FCAU). 2025. *Enforcement of Food Laws in Sri Lanka.* Available at: https://fcslanka.com/enforcement-of-food-laws-sri-lanka

Reuters. 2025a. *Sri Lanka's economy grew 5% in 2024, rebounding from crisis.* Available at: https://www.reuters.com/markets/asia/sri-lankas-economy-grew-5-2024- rebounding-crisis-2025-03-18

Hettiarachchi, C A.2020. Food Act of Sri Lanka A systematic review on Awareness and practices. In World Nutrition;11(4):56-65

Ranathunga, L.N., Wijemanna, W.M.D.I.S., Sathsara, M.G.S., Gamage, R.G.B.K., 2018. Agriculture in Sri Lanka: The current snapshot. International Journal of Environment, Agriculture and Biotechnology. 3(1):118-125

Reuters. 2025b. *Sri Lanka counts monkeys, peacocks, squirrels to tackle crop damage.* Available at: https://www.reuters.com/business/environment/sri-lanka-counts-monkeys-peacocks-squirrels-tackle-crop-damage-2025-03-15

Sri Lanka Standards Institution (SLSI). 2025a. *Systems Certification Services (HACCP, ISO 22000).* Available at: https://slsi.lk/web/en/services/systems-certification

Sri Lanka Standards Institution (SLSI). 2025b. *Training Programme on Food Hygiene & GMP for Restaurants and Catering Establishments.* Available at: https://slsi.lk/web/en/training-programme-on-food-hygiene-gmp-for-restaurants-and- catering-establishments-3

The Global Economy. 2025. *Sri Lanka: Agriculture, value added (% of GDP).* Available at: https://www.theglobaleconomy.com/Sri-Lanka/share_of_agriculture

Trading Economics. 2025a. *Sri Lanka Agriculture Value Added (% of GDP).* Available at: https://tradingeconomics.com/sri-lanka/agriculture-value-added-percent-of-gdp- wb-data.html

Trading Economics. 2025b. *Sri Lanka – Employment in Agriculture (% of total employment).* Available at: https://tradingeconomics.com/sri-lanka/employment-in- agriculture-percent-of-total-employment-wb-data.html

UNIDO. 2024. *Strengthening Food Safety in Sri Lanka.* United Nations Industrial Development Organization. Available at: https://www.unido.org/stories/strengthening- food-safety-Sri-Lanka

USDA. 2024. *Sri Lanka Grain and Feed Update – GAIN Report.* United States Department of Agriculture, Foreign Agricultural Service.

Wikipedia. 2025. *Coconut production in Sri Lanka.* Available at: https://en.wikipedia.org/wiki/Coconut_production_in_Sri_Lanka

Wikipedia. 2025. *Sri Lanka Standards Institution.* Available at: https://en.wikipedia.org/wiki/Sri_Lanka_Standards_Institution

Chapter 03

Report on Workshop
Fostering Agricultural Trade through Harmonized Food Safety Standards in South Asia

Md. Younus Ali and Md. Abul Basahr
SAARC Agriculture Centre

Background

The South Asian Association for Regional Cooperation (SAARC) is a regional economic and political organization of eight countries: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. The region has a combined population of over 1.9 billion people and a GDP of over $4.3 trillion in 2022. Agriculture plays significant role in South Asian economies as the sector contributed more than 16% to GDP and provided employment to more than 42% of the population in 2022 (World Bank, 2023).

Trade is an important driver of economic growth and development in the SAARC region. However, regional food trade is often hampered by the procedural hurdles associated with the standards and regulatory measures. Food and agricultural trades in South Asia are particularly constrained by higher cost of transportation and lengthy cross-border procedural requirements associated with food safety. The food safety measures are designed to protect human, plant and animal health from pests, diseases, and other risks. They are designed to protect consumers from unsafe or substandard products. While food safety measures are necessary to protect public health and safety, they can also create barriers to trade if they are not implemented in a transparent and non-discriminatory manner.

Each of the SAARC member countries has its own institutions, standards and procedures with relation to food safety regulations, which can vary significantly and are applied on the trading partners based on the bilateral politico economic relations. This can make it difficult and costly for businesses to trade within the region. Therefore, the food safety related policies and procedures need to be harmonized through common standardizations in the region. It is important to note that harmonizing such regulations is a complex process. It requires careful consideration of the needs of different countries and industries. It is also important to ensure that any harmonized regulations are based on sound science. The SAARC member states countries have taken some steps to address the barriers to trade. For example, they have established a Technical Committee on Sanitary and Phytosanitary (SPS)/Technical Barriers to Trade (TBT) Measures. This committee is responsible for developing and promoting regional cooperation on SPS/TBT issues. However, more needs to be done to harmonize SPS/TBT

regulations and to implement mutual recognition agreements. This would help to reduce trade costs and boost trade within the SAARC region. There are a number of policy tools that can be used to address SPS/TBT barriers to trade, including:

- **Harmonizing regulations:** This involves developing common standards and procedures for SPS/TBT measures. This can make it easier and cheaper for businesses to trade within the region.
- **Mutual recognition agreements:** These agreements allow countries to recognize each other's SPS/TBT measures as equivalent. This can reduce the need for testing and inspection of products imported from other countries.
- **Technical assistance:** This can help countries to develop and implement SPS/TBT measures that are consistent with international standards.

Realizing the fact that the SAARC region has very limited integration in food and agricultural commodity trade in the region, the Third Agriculture Ministerial Meeting (Dhaka, 2016) emphasized to "address the barriers in intra-regional trade in agriculture and promotion of a regional value chain in agriculture", and Fourth (2019) Agriculture Ministerial Meetings emphasized to "identify and address the agricultural trade barriers". Therefore, SAARC Agriculture Center (SAC) had planned to organize a regional workshop in collaboration with the UNICEF South Asia Regional Office, Kathmandu to foster regional cooperation among SAARC Member States particularly to analyze the food and agricultural trade situation, identify the food trade barriers, harmonize the standards and procedures for enhancing the cross-border food and agricultural trade in South Asia.

Objectives

The objective of this workshop was to foster the food and agricultural trade in the South Asia region through harmonized food safety standards particularly the SPS and TBT measures, enhancing capacities of the relevant government authorities and other stakeholders to effectively implement and enforce food safety in accordance with international standards.

The specific objectives were:

- To initiate the dialogue among SAARC Member States regarding harmonized food safety standards such as the Application of Sanitary and Phytosanitary Measures (SPS Agreement) and the Agreement on Technical Barriers to Trade (TBT Agreement)
- To increase awareness and understanding among stakeholders, including government officials, businesses, and civil society, about the significance

of harmonized food safety standards particularly the SPS and TBT measures for promoting cross-border food and agricultural trade.

- To contribute towards the goal of achieving smooth cross-border trade flows by reducing delays and costs associated with inspections, testing and conformity assessment procedures.

Methodology

The 3-days long workshop was held in entirely an interactive mode among the participants. Country status papers with respect to the existing policy and institutional mechanisms was shared by the government representatives of the Member States. Some innovative thematic papers presented by the relevant experts from the regions and discussed among the participants. Some panel discussion sessions were held. At the end of the workshop a simplified framework of harmonized food safety standards and procedures potentially applicable for the region worked out.

Report of the workshop

The SAARC Agriculture Centre (SAC), UNICEF's South Asia Regional Office, and Ministry of Agriculture and Livestock Development (MoALD), Nepal is organized a regional workshop in Kathmandu, Nepal, from August 27-29, 2025. This event is a direct response to the critical need for enhanced regional cooperation, as emphasized in previous SAARC ministerial meetings. The core mission of the workshop is to address a dual challenge: fostering cross-border agricultural trade and combating widespread malnutrition across South Asia by promoting harmonized food safety standards, particularly for fortified foods.

The necessity for this initiative is underscored by the significant barriers posed by the current patchwork of national regulations. Divergent Sanitary and Phytosanitary (SPS) measures and Technical Barriers to Trade (TBT) regulations within SAARC member states create costly, lengthy, and complex procedural hurdles for traders. These non-tariff barriers stifle economic growth and impede the flow of safe, nutritious foods—especially fortified staples essential for addressing pervasive micronutrient deficiencies that affect millions of women and children in the region.

The workshop has been designed with clear, actionable objectives. It seeks to initiate a formal dialogue on aligning national standards with evidence-based international guidelines, such as those from Codex Alimentarius. Furthermore, it aims to raise awareness among government officials and stakeholders about the tangible benefits of harmonization and to collaboratively identify opportunities for developing a concrete roadmap towards regional standardization. The ultimate goal is to simplify cross-

border trade procedures, reducing delays and costs associated with compliance, thereby making trade a powerful tool for improving nutrition.

To achieve these goals, the three-day event was employing an interactive methodology. Participants were engaging through the presentation of country status papers, expert thematic discussions, and panel sessions. The intended outcome is to produce a simplified framework for harmonized food safety standards and procedures. This framework will be published in a comprehensive proceedings document, serving as a foundational guide for future policy development and regional cooperation in South Asia. The workshop will convene a select group of 25-30 key experts, including government officials from trade and food regulatory bodies, academics, and representatives from UNICEF and other international development agencies.

Session Highlights

Inaugural session

The inaugural session on August 27, 2025 was chaired by the Prakash Kumar Sanjel, Director General, of Department of Agriculture of Nepal. Following registration and ceremonial openings, Mr. Dal Prasad Pudasainy (MoALD) was delivered a welcome address, and Dr. Md. Younus Ali (SAC) was provided opening remarks on the workshop's objectives.

Key Conference Highlights

- Chief Guest: Dr Govinda Prasad Sharma, Secretary, Ministry of Agriculture and Livestock Development
- Representatives from SAARC Member Countries
- Duration: 27–29 August, 2025

The conference was inaugurated by the Chief Guest, Dr. Govinda Prasad Sharma, Secretary, Ministry of Agriculture and Livestock (MoALD), Kathmandu Nepal. Dr. Sharma highlights that fragmented food safety standards are a major barrier to unlocking South Asia's

significant potential for agricultural trade. It stresses that harmonizing these regulations is essential to reduce trade costs, improve food security, and combat widespread micronutrient deficiencies through fortified foods. This harmonization is presented as a key enabler for economic growth and better nutrition. The workshop aims to foster dialogue and develop a unified framework for action. Nepal expressed its strong commitment to advancing this regional collaboration.

Mr. Tanvir Ahmad Torophder Director (ARD and SDF), SAARC Secretariat, Kathmandu, Nepal delivered a speech as a special guest in the inaugural session. He told the meeting that the regional trade facilitation could be used to achieve inclusive and sustainable economic and social development in the long run for the entire South Asian Region.

Dr. Md. Harunur Rashid, Director SAARC Agriculture Centre attended as s special guest in the inaugural session. He commented that food and agricultural trade in South Asia are particularly constrained by higher cost of transportation and lengthy cross-border procedural requirements associated with food safety.

The keynote address was given by Dr. Jeevan Prabha Lama on harmonizing food standards for trade in South Asia. This was followed by addresses from special guests representing the SAARC Agriculture Centre, SAARC Secretariat, and UNICEF South Asia.

Key Note Speaker

Dr. Jeevan Prabha Lama, Expert Food Safety, Trade Expert and Advisor to Kathmandu Metropolitan City.

This presentation argues for the harmonization of food safety standards across South Asia as a critical strategy to combat malnutrition and boost trade. It presents a stark picture of the region's nutritional challenges but frames harmonization as a bridge to turn these

challenges into opportunities through regional cooperation, policy alignment, and digital innovation.

Key Points:

1. The Problem (Challenges): South Asia, home to nearly 2 billion people, suffers from severe malnutrition (anaemia, stunting) despite a strong agricultural base. The core issue is not a lack of food, but inefficient food systems that fail to deliver safe, nutritious food.

2. The Solution (Harmonization): Aligning national food standards (e.g., fortification, safety) across borders is presented as the necessary bridge between agriculture and health, and between trade and nutrition. This means "tested once, accepted everywhere," reducing costs and delays.

3. Momentum & Examples: The region is already making progress. Examples include Nepal's new Food Safety Act, its Multi-Sector Nutrition Plan, and successful global models like EU harmonization and Universal Salt Iodization.

4. Policy Recommendations: The presentation outlines a detailed 8-point policy plan for action, including:

- Mutual recognition of standards and certifications.
- Regional minimum standards for fortification (rice, wheat, oil, salt).
- A digital platform using blockchain/AI for traceability and certification.
- Strengthening regional institutions (e.g., a SAARC Food Safety Coordination Mechanism).
- Building capacity and fostering public-private partnerships.

5. Proposed Roadmap: A clear 3-phase plan to achieve harmonization by 2030:

- Phase 1 (2025-2026): Build trust via a SAARC Taskforce and pilot programs.
- Phase 2 (2026-2028): Strengthen systems by developing regional standards and expanding lab capacity.
- Phase 3 (2028-2030): Institutionalize a "South Asia Safe Food and Nutrition Trade Zone" with full digital integration.

6. Core Principles: The vision is based on three pillars:

- Integration: Weaving fortification into existing systems (e.g., school meals).
- Localization: Adapting solutions to local diets (e.g., rice in Nepal, wheat in Pakistan).
- Digital Transformation: Using technology for real-time monitoring and

seamless cross-border certification.

7. Ultimate Goal: Trade for Nutrition. The conclusion reframes trade: smoother trade isn't just about moving goods, but about moving "health for women, protection for children, and resilience for families." It's about using trade as a tool to improve nutrition.

In a nutshell: The presentation makes a powerful case that by working together to standardize rules, embrace technology, and prioritize nutrition, South Asia can overcome its food safety and malnutrition crises, unlocking both healthier populations and more prosperous economies.

The workshop's chair, the Director General of the Department of Agriculture, delivered the concluding remarks, highlighting the critical need for harmonized food safety standards to boost regional trade and combat malnutrition through fortified foods. The event addressed key challenges like fragmented regulations and complex border controls, aiming to develop a collaborative action plan by sharing best practices. The ultimate goal is to foster economic growth and build resilient, nutrition-sensitive food systems across South Asia through enhanced cooperation.

Following the inaugural session, four technical sessions brought together SAARC member countries to share perspectives and status of Agricultural Trade including Fortified Foods through Harmonized Food Safety Standards in South Asia". Discussion covered key issues, challenges gaps, as well as way forward of regional agricultural trade and fortified foods. The regional workshop succeeded in identifying the major issues, challenges and a way forward for these critical areas.

Technical Session Major Highlights

Technical Session I: Global Guidance, Best Practices and Lessons Learned

Chair: Prof. Dr. Ganga Prasad Kharel, Food Safety Expert

The first technical session focused on global guidance and best practices. The session was chaired by Prof. Dr. Ganga Prasad Kharel. Technical Session I was focus on global guidance and best practices. An expert Dr. Shridhar Dharmpuri, from the FAO Regional Office for Asia and the Pacific was lead (virtually) the first presentation on the global best practices and lessons learned for regional harmonization of food safety standards. That was followed by a second presentation from UNICEF's Regional Nutrition Adviser, Dr. Zivai Murira, who was address the harmonization of fortification requirements and regional standards for staple foods in South Asia. Each presentation was followed by an open discussion and Q&A period to engage all participants.

Technical Session I (Second Paper):

Second Paper: Regional Harmonization of Food Fortification Requirements and Regional Standards for Fortified Staple Foods in South Asia – Global best practices, lessons learned and opportunities - Zivai Murira, Regional Nutrition Adviser, UNICEF Regional Office for South Asia.

Main Issues

1. Severe Micronutrient Malnutrition: South Asia is the epicenter of global undernutrition, bearing a disproportionate burden of stunting, wasting, and low birth weight. A high prevalence of deficiencies in iron, zinc, folate, and vitamin A affects the health and development of millions of women and children.

2. Inconsistent National Standards: While most SAARC countries have some fortification standards, they are not harmonized. This creates a fragmented landscape where the type and amount of nutrients added to staples like wheat, oil, and salt vary significantly from country to country.

3. Barriers to Regional Trade: The lack of harmonized regional minimum standards acts as a non-tariff barrier to trade. Food producers face difficulties trading fortified foods across borders due to differing national regulatory requirements, limiting the availability and access to nutritious foods in the region.

Key Challenges

1. Effective Implementation: Even where national standards exist, a major challenge is ensuring compliance, monitoring quality, and effectively reaching the most vulnerable populations with fortified foods.

2. Complex Policy Environment: Coordinating the efforts of multiple stakeholders—governments, private sector, donors, and civil society—to align policies, legislation, and enforcement mechanisms is a significant hurdle.

3. Data-Driven Decision Making: Establishing effective standards requires robust data on food consumption patterns, micronutrient deficiencies, and dietary gaps to ensure the right nutrients are added to the right foods in the right amounts.

Way Forward

1. Develop Regional Minimum Standards: The primary recommendation is for SAARC to create and adopt harmonized regional minimum standards for fortifying staple foods and condiments. This would specify a minimum set of micronutrients and their addition levels.

2. Create a Roadmap and Draft Standards: The proposal is to initiate a formal process, led by the SAARC Agriculture Centre, to draft these standards, circulate them for member state feedback, and finalize them.

3. Learn from Other Regions: The document points to successful models for regional harmonization, such as the guidelines established by ASEAN (Asia) and SADC (Southern Africa), as blueprints for South Asia to follow.

4. Ensure Widespread Adoption: The final step is to launch the standards and provide continuous technical support to promote their uptake by all stakeholders involved in large-scale food fortification and regional trade.

Technical Session II: Country Paper Presentations (Fostering Regional Agricultural Trade including Fortified Foods through Harmonized Food Safety Standards in South Asia)

Chair: Mr. Binod Kumar Bhattarai, Deputy Director General, Department of Agriculture, Nepal

First Paper: Bangladesh Country Paper by Mr. S M Nazim Uddin, Joint Secretary, Ministry of Food: Harmonization of food safety standard and Mr. Shaikh Murshidul Islam, Deputy Secretary, Ministry of Agriculture: Agricultural trade

Bangladesh: Food Safety

Main Issues

1. **Economic Significance of Agriculture:** Agriculture is the backbone of Bangladesh's economy, contributing 11.55% to GDP and employing 44.42% of the workforce. The country is a major, self-sufficient rice producer.
2. **Shifting Consumption Patterns:** Diets are diversifying away from cereals (like rice) towards animal products, fruits, and vegetables.

This is creating future projected deficits in wheat, pulses, meat, eggs, and fish, despite rice and maize surpluses.

3. **Water Resource Stress:** The production of Boro rice is projected to require significantly more water by 2030 and 2050, placing immense strain on groundwater sources.
4. **Low Intra-Regional Trade:** Despite agreements like SAFTA, trade among SAARC nations remains very low (only 4.8% of total foreign trade in 2008) due to tariffs, political tensions, and infrastructure issues.

Trade Dynamics: Bangladesh's imports are dominated by wheat (6.63 MMT in FY23-24), while exports are growing (12.31% growth in FY23-24). The country is a net importer of agricultural goods.

Key Challenges

1. **Food Safety Enforcement:**
   - **Inadequate Lab Facilities:** Only ~50 labs exist with limited capabilities; only 10 are accredited. They lack the ability to test for Maximum Residue Levels (MRLs) of pesticides and external contaminants.
   - **Insufficient Training:** A decline in formal training for Good Agricultural Practices (GAP), Good Hygiene Practices (GHP), and Good Manufacturing Practices (GMP).
   - **Lack of Traceability:** Inability to trace food products limits export potential due to non-compliance with international standards.
   - **Rising Violations:** An increase in reported food safety violations, hampered by a lack of trained inspectors and reliable testing.
2. **Trade Impediments:**
   - High Tariffs and Non-Tariff Barriers: Complex customs, quality, and Sanitary and Phytosanitary (SPS) regulations hinder trade, especially within SAARC.
   - Inadequate Infrastructure: Poor trade facilitation infrastructure and inefficient customs procedures increase costs and delays.
   - Political Tensions: Bilateral tensions between SAARC members disrupt trade flows.
3. **Resource and Production Pressures:** Meeting future food demands will require increased production, which threatens to exacerbate water stress and environmental challenges.

Way Forward

1. **Implement the National Food Safety Strategy (2022-2026):**
   - Fully establish the Bangladesh Food Safety Authority (BFSA) as a single, strong regulator.
   - Invest in scientific capacity, modernize lab facilities for advanced contaminant testing (like MRLs), and achieve international accreditation.
   - Launch extensive training programs for inspectors, producers, and all stakeholders on GAP, GHP, and GMP.
   - Develop and implement a robust food traceability system.
2. **Foster Regional Harmonization (SAARC Roadmap):**
   - Develop a common framework for food safety standards aligned with international Codex Alimentarius standards.
   - Promote mutual recognition of standards and certifications to reduce non-tariff barriers.
   - Enhance regional cooperation through information sharing, joint risk assessments, and capacity-building initiatives.
3. **Promote Sustainable and Competitive Agriculture:**
   - Diversification: Actively promote the production and export of high-potential items like potatoes, vegetables, and fruits.
   - Climate Resilience: Adopt climate-smart agricultural practices and invest in water-efficient technologies to mitigate future water stress.
   - Strengthen Value Chains: Improve infrastructure, provide better access to finance and technology for farmers, and enhance regional supply chains to boost competitiveness.
4. **Enhance Regional Integration:**
   - Address political and economic disparities to foster closer regional cooperation.
   - Improve trade facilitation infrastructure to reduce costs and delays for intra-regional trade.

Bangladesh: Agriculture Trade

Main Issues

1. **Economic Dependence on Agriculture:** Agriculture is a cornerstone of Bangladesh's economy, contributing 11.55% to GDP and employing 44.42% of the workforce. The sector benefits from fertile land and high cropping intensity but faces future pressures.

2. **Changing Dietary Patterns:** Consumption is shifting away from traditional cereals (like rice) towards animal products, fruits, and vegetables. This evolution is creating projected future deficits in wheat, pulses, meat, eggs, and fish, despite existing surpluses in rice and maize.
3. **Resource Scarcity:** Increased water demand for Boro rice production by 2030 and 2050 poses a significant threat to groundwater sustainability.
4. **Low Regional Integration:** Intra-regional trade within the SAARC bloc is extremely low (just 4.8% of total trade in 2008) due to high tariffs, non-tariff barriers, political tensions, and poor infrastructure, despite the existence of trade agreements like SAFTA.
5. **Import Dependency:** Bangladesh relies heavily on wheat imports (6.63 MMT in FY23-24), a trend driven by dietary diversification. While total import value dipped in FY23-24, the country remains a net importer of goods.

Key Challenges

1. **Inadequate Food Safety Infrastructure:**
   - **Limited Testing Capacity:** Only about 50 labs exist with limited capabilities, and only 10 are accredited. A critical gap is the inability to test for pesticide residues (MRLs) and other contaminants, which hinders exports.
   - **Insufficient Training & Personnel:** A decline in formal training for Good Agricultural Practices (GAP), Good Hygiene Practices (GHP), and Good Manufacturing Practices (GMP), coupled with a shortage of trained inspectors.
   - **Lack of Traceability:** The absence of a system to trace food products from farm to table limits accountability and market access.
   - **Rising Violations:** An increase in reported food safety violations highlights the growing enforcement challenge.
2. **Significant Trade Barriers:**
   - **Tariffs and Regulations:** High tariffs and complex, non-harmonized customs, quality, and SPS regulations within SAARC stifle regional agricultural trade.
   - **Poor Trade Facilitation:** Inadequate infrastructure and inefficient customs procedures increase the cost and time of cross-border trade.
   - **Political Obstacles:** Bilateral tensions between member states disrupt trade flows and regional cooperation.

3. **Production and Sustainability Pressures:** Meeting future food demand requires increased production, which exacerbates water stress and environmental challenges, necessitating a shift to climate-resilient practices.

Way Forward

1. **Strengthen National Food Safety Systems:**
   - Fully implement the **National Food Safety Strategy (2022-2026)**, empowering the BFSA as the central authority.
   - **Modernize laboratory infrastructure** to include MRL testing and achieve international accreditation.
   - **Launch extensive training programs** for inspectors, farmers, and producers on international standards (GAP, GHP, GMP).
   - **Develop a robust farm-to-fork traceability system** to ensure accountability and meet import requirements.
2. **Foster Regional Harmonization and Cooperation:**
   - **Implement the SAARC harmonization roadmap:** Develop a common framework for food safety standards aligned with Codex Alimentarius.
   - **Promote mutual recognition of standards and certifications** to reduce non-tariff barriers.
   - **Enhance regional dialogue** to address political tensions and improve trade facilitation infrastructure.
3. **Promote Sustainable and Competitive Agriculture:**
   - **Agricultural Diversification:** Incentivize the production and export of high-value products like potatoes, vegetables, and fruits to reduce dependency on cereals and boost exports.
   - **Adopt Climate-Smart Practices:** Invest in water-efficient technologies and climate-resilient crops to mitigate future water stress and ensure sustainability.
   - **Strengthen Value Chains:** Improve rural infrastructure, provide better access to finance and technology for farmers, and enhance supply chain efficiency.

Second Paper: **Bhutan Country Paper by Ms. Sonam Choden, Regulatory and Quarantine Officer, Bhutan Food and Drug Authority: Harmonization of food safety standard and Ms. Tshering Wangmo, Chief Economic Development & Marketing Officer: Agricultural trade**

Main Issues

1. Vulnerable Agricultural Base: Bhutan's agriculture is characterized by small, scattered landholdings with low-volume, seasonal production, making it highly vulnerable to climate change and extreme weather events.

2. High Reliance on Imports: The country is highly dependent on food imports, but its control systems for these imports are only partial, creating potential food safety risks.

3. Limited Market Access & Diversification: Bhutan's agricultural exports are limited to a few key products (like oranges, potatoes, and cordyceps), and the country faces significant challenges in diversifying its export markets due to trade barriers.

Key Challenges

1. High Trade Costs: Geographic terrain leads to high transportation costs and significant post-harvest losses, eroding competitiveness.

2. Weak Quality Infrastructure: Inadequate aggregation centers, processing facilities, and a lack of standardization and quality control hinder the ability to produce consistent, export-quality goods.

3. Limited Conformity Assessment: There is insufficient domestic capacity for internationally recognized testing, inspection, and certification, which is a prerequisite for cross-border trade.

4. Non-Harmonized Standards: Fragmented and differing food safety regulations across South Asia create duplication, delays, and confusion for exporters.

Proposed Way Forward

1. Adopt a Codex-Based Regional Framework: Bhutan strongly advocates for aligning national regulations across SAARC with Codex Alimentarius standards to ensure consistency, transparency, and credibility.

2. Establish Mutual Recognition Agreements (MRAs): Promote agreements to accept inspections, testing, and certifications conducted in other member states to reduce costly and time-consuming duplication.

3. Joint Regional Capacity Building: Invest in regional training programs for food inspectors, laboratory analysts, and businesses to ensure the consistent application of harmonized standards.

4. Strengthen Physical Infrastructure: Develop a network of accredited laboratories and improve border inspection infrastructure to enable effective traceability, surveillance, and smooth trade flow.

Technical Session III: Country Paper Presentations (Fostering Regional Agricultural Trade including Fortified Foods through Harmonized Food Safety Standards in South Asia)

Chair: Dr. Kishor Prasad Dahal, Dean, Institute of Agriculture and Animal Sciences, Trivuwan University.

First Paper: Maldives Country Paper by Ms. Fathimath Afnaan Abdul Hameed, Project Officer, Ministry of Agriculture and Animal Welfare: Harmonization of food safety standard Mr. Mohamed Lahfaan Moosa, Assistant Agriculture Officer, Ministry of Agriculture and Animal Welfare: Agricultural trade.

Main Issues

1. Extreme Import Dependency: Over 78% of the Maldives' food is imported, with 100% dependency on rice and wheat, making the nation highly vulnerable to global price shocks, supply chain disruptions, and currency fluctuations.

2. Tourism-Driven Demand Mismatch: The high-value tourism sector (resorts) demands large volumes of consistent, high-quality produce that the domestic agricultural sector, comprised of small-scale farmers, currently cannot supply, leading to a heavy reliance on imported food for resorts.

3. Geographic Fragmentation: As a dispersed island nation, the Maldives faces inherent logistical challenges in connecting domestic production from remote islands to the main market in Malé and to resort hubs, leading to high costs and spoilage.

Key Challenges

1. Limited Arable Land & Production Capacity: Poor soil quality, freshwater scarcity, and limited cultivable land (4,000 hectares) fundamentally constrain domestic agricultural output.

2. Weak Post-Harvest Infrastructure: Inadequate cold storage and inter-island transport result in massive post-harvest losses (20-40%), eroding farmer incomes and market supply.

3. Capacity Gaps in Food Safety: A shortage of trained food safety inspectors across remote islands and limited laboratory capacity for testing hinder effective enforcement of new regulations.

4. Low Adoption of Quality Standards: High costs and low awareness have led to poor adoption of the Maldives Good Agricultural Practices (M-GAP) certification, preventing local farmers from accessing premium markets like resorts.

Way Forward

1. Enhance Domestic Production: Promote climate-resilient practices like hydroponics, aquaponics, and greenhouse farming to increase yields and reduce import dependency for high-value vegetables.

2. Invest Critical Infrastructure: Prioritize investments in cold-chain storage, processing facilities, and inter-island logistics to drastically reduce post-harvest losses and improve market linkages.

3. Strengthen Standards and Linkages: Expand and subsidize M-GAP certification for farmers while developing digital platforms (e.g., Dhanduveriyaa) to directly connect certified farmers with resorts and markets.

4. Advocate for Regional Harmonization: Support the harmonization of SAARC food safety standards based on Codex Alimentarius to simplify and accelerate cross-border trade, ensuring safer and more efficient food imports.

Second Paper: Nepal Country Paper by Mr. Pramod Koirala, Senior Food Investigation Officer and Dr. Maniratna Aryal, Senior Agro Economist, Ministry of Agriculture and Livestock Development.

Nepal- Agriculture Trade

Main Issues

1. **Food Safety and Public Health**

- High prevalence of foodborne illnesses and micronutrient deficiencies.
- Weak enforcement of food safety regulations across the supply chain.
- Limited consumer awareness about safe and nutritious food.

2. **Agricultural Trade Deficit**

- Nepal faces a significant trade imbalance (export: import = 1:10).
- Heavy reliance on India for exports (81.1% of agri-exports).
- Limited diversification of export products and markets.

3. **Regulatory and Institutional Fragmentation**

- Multiple agencies involved in food safety (DFTQC, DoLS, NBSC, etc.) leading to coordination challenges.
- Outdated regulations (e.g., Food Rules 1970) still in use alongside newer acts.

4. **Food Loss and Waste**

- High post-harvest losses (e.g., 20% in vegetables).
- Household food waste averages 79 kg per household per year.

5. **Micronutrient Malnutrition**

- Widespread deficiencies affecting women and children.
- Limited adoption and awareness of fortified foods beyond salt and wheat.

Key Challenges

1. **Infrastructure and Capacity Gaps**

- Limited laboratory capacity and accreditation scope (e.g., only 814 parameters tested nationally).
- Lack of modern technology and high-cost machinery for processing and value addition.

2. **Trade Barriers and Costs**

- Non-tariff barriers (NTBs) and para-tariffs increase trade costs.
- Landlocked geography and poor logistics hinder market access.

3. **Enforcement and Compliance**

- Weak implementation of food safety standards (e.g., GMP, HACCP, NepalGAP).
- Inconsistent monitoring and certification systems.

4. **Funding and Investment**

- Insufficient budget allocation for large-scale fortification and food safety programs.
- Low foreign direct investment (FDI) in agri-processing and value chains.

5. **Regional Disparities and Migration**

- Labor shortage in agriculture due to migration.
- Significant food insecurity in provinces like Karnali (32% of households).

Way Forward / Policy Priorities

1. **Strengthen Food Safety Systems**

- Harmonize national standards with Codex and international benchmarks.
- Upgrade and expand laboratory accreditation for testing contaminants.
- Implement modern food safety management systems (e.g., ISO 22000, HACCP).

2. **Promote Fortified Foods**

- Integrate fortified foods into social protection programs.
- Reduce production costs and improve QA/QC for fortified staples (wheat, rice).

- Launch consumer awareness campaigns on fortified products.

3. **Enhance Regional Collaboration**

- Establish Mutual Recognition Agreements (MRAs) with trading partners (e.g., India, Bangladesh).
- Develop regional laboratory networks and share technical resources.
- Participate jointly in standard-setting bodies like Codex Committee for Asia.

4. **Boost Agricultural Trade**

- Diversify export products and markets beyond India.
- Improve trade logistics and supply chain efficiency.
- Address NTBs through diplomatic and technical dialogue.

5. **Invest in Capacity and Innovation**

- Train farmers and industry workers on GAP, GVP, and fortification techniques.
- Establish a regional food safety training center.
- Mobilize technical and financial support for pilot projects and scaling innovations.

6. **Policy and Institutional Reform**

- Update and consolidate food safety laws and regulations.
- Strengthen public-private partnerships for certification and standards implementation.
- Ensure dedicated budget lines for food safety and fortification in national plans.

Nepal Food Safety

Main Issues

1. **Public Health Burden:** Foodborne illnesses and micronutrient deficiencies pose a significant health risk and economic burden ($110 billion globally in LMICs).
2. **Trade Disruptions:** Sanitary and Phytosanitary (SPS) measures are a major barrier, causing 19.4% of global import-related trade disruptions, limiting Nepal's market access.
3. **Regulatory Fragmentation:** Multiple agencies are involved in food safety (DFTQC, DoLS, NBSC, etc.), requiring strong coordination to avoid inefficiencies.

4. **Nutritional Security:** Micronutrient deficiency remains a critical public health concern, necessitating effective interventions like food fortification.

Key Challenges

1. **Infrastructure and Capacity Limits:** Despite having accredited labs (e.g., 814 parameters nationally), capacity needs expansion to test for a wider range of contaminants (pesticides, heavy metals, veterinary drugs) to meet international standards.
2. **Enforcement and Compliance:** Implementing and enforcing modern food safety practices (GMP, HACCP, ISO 22000) across the industry, especially among small and medium enterprises, is a challenge.
3. **Legislative Gaps:** While a new Food Safety and Quality Act (2024) is in place, supporting regulations like the Food Rules (1970) are outdated and in the process of being updated.
4. **Cost and Market Access:** The high cost of compliance with international standards and production of fortified foods (e.g., fortified rice, wheat) hinders trade and scalability.
5. **Consumer Awareness:** Lack of consumer awareness about the benefits of fortified foods limits demand and market penetration.

Way Forward / Policy Priorities

1. **Strengthen National Systems:**

- **Harmonize Standards:** Align national food standards with Codex Alimentarius and key trading partners' requirements.
- **Modernize Infrastructure:** Upgrade laboratories and expand their accreditation scope to boost testing capabilities and international recognition.
- **Update Legislation:** Expedite the update of all supporting regulations and directives to be in line with the new 2024 Act.

2. **Promote Fortified Foods:**

- **Reduce Production Costs:** Implement strategies to lower the cost of fortification for key staples like wheat and rice.
- **Mandate and Incentivize:** Ensure fortified foods are included in social protection programs and create a dedicated national budget line for large-scale fortification.
- **Launch Awareness Campaigns:** Educate consumers on the benefits of fortified foods to drive demand.

3. **Foster Regional Collaboration:**

- **Mutual Recognition Agreements (MRAs):** Establish MRAs with partners like India and Bangladesh to accept each other's inspection, testing, and certification results.
- **Technical Cooperation:** Share scientific resources, promote a regional lab network, and build capacity across South Asia.
- **Joint Policy Engagement:** Participate jointly in international standard-setting bodies (e.g., Codex Committee for Asia) to advocate for common regional interests.

4. **Build Capacity and Innovate:**

- **Training:** Conduct training for farmers on Good Agricultural Practices (GAP, Nepal GAP) and for industry on food safety management systems.
- **Knowledge Sharing:** Establish a regional food safety training center to serve as a hub for innovation and best practices.
- **Public-Private Partnerships:** Leverage private sector innovation for certifications (Organic, FSMS) and fortification technology, supported by government facilitation.

Third Paper: Pakistan Country Paper by Ms. Fathimath Afnaan Abdul Hameed, Project Officer, Ministry of Agriculture and Animal Welfare: Harmonization of food safety standard Mr. Mohamed Lahfaan Moosa, Assistant Agriculture Officer, Ministry of Agriculture and Animal Welfare: Agricultural trade.

Main Issues (The Core Problems)

1. Minimal Intra-Regional Trade: Agricultural trade among SAARC member countries remains extremely low despite their close proximity.

2. Proliferation of Non-Tariff Barriers (NTBs): Inconsistent and non-transparent Sanitary and Phytosanitary (SPS) measures and technical standards are being used as de facto barriers to trade.

3. Lack of Regulatory Harmony: Different national standards for certification, labeling, and Maximum Residue Limits (MRLs) create a complex and confusing trading environment.

4. Critical Infrastructure Gaps: Deficiencies in cold storage, warehousing, and logistical networks cause significant post-harvest losses and reduce the quality of goods available for trade.

Key Challenges (Hurdles to Overcoming the Issues)

1. Weak Domestic Enforcement: Pakistan's main challenge is the poor enforcement of its own food safety laws, leading to substandard products and foodborne illnesses.

2. Inconsistent Domestic Framework: Overlapping and divided authority between federal and provincial regulatory bodies creates gaps in coverage and enforcement, especially in rural areas.

3. Limited Resources: Regulatory authorities suffer from insufficient funding, hindering their effectiveness and capacity to monitor and enforce standards.

4. Low Public Awareness: A lack of consumer awareness about food safety practices reduces demand for quality-assured products, undermining regulatory efforts.

5. Bureaucratic and Procedural Hurdles: Cumbersome and slow customs, border inspection, and certification procedures make trading with neighbors more difficult than with distant partners.

Way Forward

1. Regional Institutional Cooperation: Proposes the formation of a SAARC Working Group on Harmonized Food Safety Standards to lead the alignment process.

2. Pilot Projects for Mutual Recognition: Suggests initiating pilot projects for the mutual recognition of certificates for key commodities (e.g., rice, mangoes, fish, milk) to build trust and demonstrate benefits.

3. Capacity Building: Recommends developing a Regional Food Safety Training Center (hosted in rotation by member states) to build uniform technical expertise across the region.

4. Mobilize Financial Support: Advocates for mobilizing resources from the SAARC Development Fund and international partners (e.g., FAO, WHO) to support capacity building and infrastructure development.

5. Domestic Strengthening: Implicitly, Pakistan must continue its own efforts to strengthen enforcement, harmonize its federal-provincial frameworks, and increase public awareness on food safety.

Fourth Paper: Sri Lanka Country Paper by Ms. Y.M.H. Liyanage, Additional Director, Seed Certification and Plant Protection Centre: Harmonization of food safety standard Mr. S.A.M.R.

Abeykoon, Deputy Director, Seed Certification Service, Gannoruwa, Kandy: Agricultural Trade

Main Issues

1. Fragmented Regulatory Landscape: Divergent national food safety standards, including differing levels for fortification, testing, and labeling, create significant non-tariff barriers to intra-regional agricultural trade in South Asia.

2. Complex Trade Procedures: Inconsistent and complex Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) procedures result in costly delays, redundant inspections, and reduced competitiveness for regional exporters.

3. Untapped Economic Potential: Sri Lanka identifies specific export opportunities (e.g., fortified coconut products, herbal teas, spices) that are hindered by the lack of a harmonized regional framework, preventing the region from capitalizing on its collective economic strength.

Key Challenges

1. Domestic Production Constraints: Sri Lanka's agricultural sector faces internal challenges such as low productivity, high production costs, land fragmentation, and the impacts of climate change, which affect its capacity to produce consistent surpluses for trade.

2. Multi-Layered Enforcement: While Sri Lanka has a comprehensive food safety law (Food Act of 1980), its enforcement involves multiple agencies (Health, Agriculture, Standards, Consumer Affairs), which can lead to coordination challenges and implementation gaps.

3. Navigating Divergence: The primary challenge is reconciling the different regulatory requirements and compliance procedures of each SAARC member state into a single, coherent, and science-based system.

Way Forward

1. Develop Common Standards: Advocate for the development of common regional food safety and fortification standards aligned with international benchmarks (Codex Alimentarius and WHO guidelines).

2. Establish Mutual Recognition: Promote the mutual recognition of testing protocols, laboratory results, and inspection certifications among SAARC countries to eliminate duplication and streamline border procedures.

3. Create a Regional Taskforce: Propose the establishment of a SAARC Food Safety Technical Taskforce to drive the harmonization agenda, share data, and build regional capacity.

4. Leverage Digital Systems: Utilize and share digital solutions, like Sri Lanka's e-certification platform, to enhance transparency, reduce paperwork, and speed up the certification process for cross-border trade.

Technical Session IV: Agricultural Trade (Invited Speaker)

Chair: Mr. Bhoj Raj Sapkota, Chief, Plant Quarantine and Pesticide Management Centre, Nepal

First Paper: Agricultural trade policies in South Asia and food safety considerations by Mr. Phaindra Raj Pandey, Executive Director, Nepal Tea and Coffee Development Board, Nepal.

Main Issues

- **High dependence on agriculture** for GDP and employment across South Asia.
- **Protective trade policies**: High tariffs, subsidies, and quantitative restrictions to safeguard small farmers.
- **Food safety risks**: Contamination from pesticides, microbes, heavy metals, mycotoxins; food fraud, mislabeling, and weak enforcement.
- **Policy divergence**: Different trade policies and regulatory frameworks across countries create barriers.
- **Low intra-regional trade**: Agricultural trade within South Asia accounts for only about **5%** of total trade.
- **Climate change threats**: Rising temperatures, floods, and droughts undermine production and food systems.

Key Challenges

- **Tariffs and Non-Tariff Barriers (NTBs):** Excessive SPS/TBT measures, heavy documentation, and protective tariffs hinder market access.
- **Infrastructure deficiencies:** Poor transport, storage, and cold-chain facilities lead to post-harvest losses and restrict cross-border trade.
- **Regulatory fragmentation:** Lack of harmonized standards and divergence in food safety policies across countries.
- **Food safety governance gaps:** Weak enforcement of hygiene, labeling, and pesticide regulations reduces consumer trust and export competitiveness.
- **Balancing self-sufficiency and trade:** Policies like India's MSP and APMC Act reforms show tension between protecting farmers and liberalizing markets.

Way Forward

- **Harmonize trade and food safety standards** across South Asia, aligning with international norms (Codex, OIE, IPPC).
- **Invest in logistics and infrastructure**: Improve transport, storage, warehousing, and cold-chain systems to reduce losses.
- **Strengthen food safety systems**: Develop single regulatory frameworks for food safety, improve lab testing, and enforce labeling/adulteration rules.
- **Promote regional trade cooperation**: Reduce tariffs and NTBs, simplify documentation, and encourage collaboration among SAARC countries.
- **Enhance farmer support without distorting trade**: Balance subsidies and MSP with market-based reforms.
- **Raise public awareness**: Campaigns on safe pesticide use, food hygiene, and international quality standards.
- **Climate adaptation policies**: Regional strategies to tackle climate-induced risks in agriculture and food safety.

Second Paper: Harmonizing of guidelines and standards for import and export of agricultural products Dr. Krishna Prasad Pant, Agricultural Trade Expert, Nepal

Main Issues

- **Non-Tariff Barriers (NTBs):**
    - Sanitary and Phytosanitary (SPS) measures.
    - Technical Barriers to Trade (TBT).
    - Burdensome registration, documentation, and customs formalities.
    - Transportation and transit restrictions.
    - Private standards imposed by large buyers/retailers.
- **Inconsistent food safety standards** across South Asia reduce market access.
- **Lack of harmonization** in testing, accreditation, and customs procedures under SAFTA.
- **Heavy duties on sensitive products** restrict agricultural trade despite tariff concessions.

Challenges

- **Fragmented regulatory systems:** Countries follow different food safety and quality requirements, slowing trade.
- **Limited adoption of international standards:** Slow use of Codex, OIE, IPPC benchmarks.

- **Capacity gaps:** Many South Asian countries lack accredited labs, trained regulators, and modern certification systems.
- **Risk of market exclusion:** Low- and middle-income countries may be unable to comply with stringent SPS/TBT standards.
- **Weak regional cooperation:** Unlike ASEAN, South Asia struggles to harmonize standards and ensure mutual recognition.
- **Climate change and food safety risks:** Disasters and changing production patterns add uncertainty to standards compliance.

Way Forward

- **Harmonization of Standards:**
    - Align food safety regulations with Codex and other international guidelines.
    - Develop mutual recognition of conformity assessments, testing, and certifications.
- **Strengthen Regional Mechanisms:**
    - Learn from ASEAN's model of harmonized regulations and single production base.
    - Enhance customs cooperation and clearance processes.
- **Adopt a One Health Approach:** Integrating human, animal, and environmental health to ensure holistic food safety.
- **Capacity Building:** Regional training programs, upgraded labs, and accreditation to reduce compliance gaps.
- **Promote Transparency & Trust:** Improve information sharing on SPS/TBT measures, risk assessments, and regulatory decisions.
- **Leverage Digital Tools:** Introduce regional digital traceability systems for food origin, quality, and safety tracking.
- **Develop Climate-Resilient Food Policies:** Coordinate regional strategies to address climate-related food safety risks.
- **Move toward a South Asian Single Market:** Establish a harmonized production base and standards for easier cross-border food trade.

Third Paper: SAFTA: Advancing Regional Agricultural Trade through Harmonized Standards by Dr. Purusottam Ojha, Trade Expert and Retired Secretary from Government of Nepal

Main Issues

- **Weak intra-regional trade in South Asia**: Potential of USD 67 billion but actual trade is only USD 23 billion.

- **High trade barriers**: Tariffs, para-tariffs, and a long sensitive list of agro-products.
- **Non-Tariff Measures (NTMs)**: SPS (Sanitary and Phytosanitary) and TBT (Technical Barriers to Trade) measures dominate, covering 86% of NTMs.
- **Institutional bottlenecks**: Slow adoption of international standards (Codex, OIE, IPPC), ineffective dispute settlement, and lack of transparent mechanisms.
- **Infrastructure and procedural gaps**: Poor transport/logistics, inefficient customs, dual lab testing, absence of warehousing, and high transaction costs.
- **Market distortions**: Different subsidy levels across countries, price volatility, and unpredictable policies (sudden bans, quota restrictions, licenses).
- **Climate impacts**: Agricultural production and trade increasingly affected by climate variability.

Challenges

- **Trust deficit** among South Asian nations, limiting trade cooperation.
- **Inefficient regional mechanisms**: SAFTA's NTM working group and SARSO have been slow and weak in implementation.
- **Protective policies**: Persistent non-transparent tariffs and para-tariffs.
- **Regulatory weaknesses**: Ineffective food labs, certification issues, and lack of harmonized quality infrastructure.
- **Informal trade and smuggling** due to high costs and cumbersome procedures.
- **Low capacity for standard harmonization** despite SARSO and other agreements.

Way Forward

- **Strengthen SAARC and SARSO**: Reinvigorate regional processes for standard development and harmonization.
- **Enhance transparency**: Create online mechanisms to monitor and report NTBs; establish national focal points for coordination.
- **Promote climate-smart agriculture**: Encourage resilient farming practices (drought-resistant varieties, flood tolerance, drip irrigation, etc.).
- **Improve cooperation & information sharing**: Exchange data on SPS/TBT requirements, quality infrastructure, accredited labs, and standards.
- **Build institutional capacity**: Strengthen accreditation bodies, certification systems, and border agencies.

- **Mutual Recognition Agreements (MRAs)**: Between exporting and importing agencies to reduce dual testing and facilitate trade.

Fourth Paper: Industrial and Biofortification in Bangladesh: lesions, innovations and opportunities in South Asia- Dr. Ashek Mahfuz, Portfolio lead, large scale Food Fortification (LSFF) and Value Chain, GAIN, Bangladesh

Based on the presentation by Dr. Ashek Mahfuz from GAIN, here are the main issues, challenges, lessons learned, and the way forward for Large-Scale Food Fortification (LSFF) and biofortification in South Asia, with a focus on Bangladesh.

Main Issues

1. High Burden of Malnutrition: A significant portion of the population, especially women and children, suffers from micronutrient deficiencies, affecting health, immunity, and productivity.

2. Unaffordable Healthy Diets: Nearly half (48.2%) of the population cannot afford a healthy diet, leading to reliance on nutrient-poor staples.

3. Multiple Micronutrient Deficiencies: The problem is not isolated to a single nutrient; a large majority of women and children suffer from deficiencies in two or more vital vitamins and minerals.

Key Challenges

1. Weak Regulatory Enforcement: Even with legislation and standards in place, enforcement is weak, limiting the real-world impact of fortification programs.

2. Inadequate Monitoring Systems: A lack of effective compliance monitoring, quality control, and testing infrastructure (labs) hampers program quality and accountability.

3. Fragmented & Under-Resourced Production: Market structures are often fragmented (e.g., many small-scale millers), and producers lack the capacity and resources to implement fortification properly.

4. Issues with Inputs and Supply Chain:

- **Premix:** Challenges with cost, lack of standards, and variable quality of the vitamin/mineral premix.
- **Traceability**: Significant issues with bulk and loose oil, making it difficult to track fortified products.

5. Lack of Coordination: Multiple government agencies, industries, and NGOs are involved, leading to potential duplication of efforts and a lack of cooperation.

6. Low Consumer Awareness: Limited public awareness of the benefits and availability of fortified foods reduces demand and uptake.

Lessons Learned from Bangladesh's Experience

1. Public-Private Partnerships are Crucial: Success requires working closely with both government ministries (Health, Agriculture, Food, Industries) and the private sector.

2. A Multi-Faceted Approach Works: Bangladesh employs a dual strategy:

- **Industrial Fortification**: Mandating fortification of staples like oil, salt, and wheat flour.
- **Biofortification**: Breeding and promoting nutrient-enriched crops like zinc-rich rice and iron-rich lentils.

3. Innovation in Delivery and Monitoring:

- **Digital Traceability:** Implementing systems for edible oil to ensure quality from producer to consumer.
- **Bulk Oil Phase-Out**: Shifting from loose, untraceable oil to packaged, fortified oil.

4. Government Integration is Key for Scale:

Social Safety Nets: Integrating fortified foods (e.g., fortified rice) into government distribution programs ensures reach to the most vulnerable.

Public Procurement: Government buying programs for biofortified crops create a stable market and incentivize farmers.

5. Dedicated Governance Helps: Establishing a **Food Fortification Coordination Committee** and a **Centre of Excellence** provides focused leadership and technical expertise.

Way Forward for South Asia

1. Strengthen Enforcement Mechanisms: Move beyond paper policies to invest in robust monitoring, enforcement, and accountability systems, including accredited labs.

2. Foster Regional Collaboration: South Asian countries should share lessons, align standards where possible, and collaborate on addressing common challenges like premix quality and cost.

3. Boost Consumer Demand Generation: Launch large-scale awareness campaigns to educate the public on the benefits of fortified and biofortified foods, creating a pull factor in the market.

4. Support Industry Capacity Building: Provide technical and financial support, especially to small and medium-scale producers, to help them meet fortification standards efficiently.

5. Secure Sustained Financing: Advocate for dedicated and sustained funding from governments and development partners for both implementation and critical monitoring & evaluation (M&E) of programs.

6. Integrate and Scale Biofortification: Promote the adoption and commercialization of biofortified crops through supportive policies, seed systems, and market linkages, as done with lentils in Bangladesh.

7. Improve Coordination: Establish clear leadership and coordination mechanisms among all stakeholders (government departments, private sector, NGOs) to ensure a unified effort.

Group Discussion

Group discussion was done through three groups with the task of Constraints and Challenges for the food safety and Fortification, Research and Policy Gap on food safety and food fortification Standards, Capacity Development to produce safe food production including fortified foods, and Opportunities for SAARC Regional Cooperation and harmonization of fortified food.

Major Output of Group Discussion

Based on a synthesis of three working group discussions, this document outlines the consensus on key challenges and a strategic path forward for enhancing food safety and fortification across the SAARC region.

Major Issues & Findings

The analysis reveals interconnected challenges that stifle regional progress, which can be grouped into three core areas:

1. Fragmented Governance and Policy Incoherence

- **Lack of Harmonized Standards**: Divergent national food safety and fortification regulations act as significant non-tariff barriers (NTBs), hindering intra-regional trade.
- **Weak Policy Frameworks**: Gaps exist in comprehensive policies for food certification, safety, and agri-export promotion.
- **Poor Coordination**: Intra-ministerial silos and a lack of consensus within member states impede effective policy development and implementation.

2. Systemic Resource and Capacity Deficits

- **Inadequate Infrastructure**: A critical shortage of accredited testing laboratories, cold chain logistics, and modern packaging facilities.
- **Financial Constraints**: Chronic underfunding for essential infrastructure, need-based research, and ongoing monitoring activities.
- **Human Capacity Gaps**: A severe shortage of skilled personnel (inspectors, lab analysts, researchers) and a lack of continuous training for value-chain actors (farmers, processors, exporters) on modern standards (e.g., GAP, GHP).

3. Cross-Cutting Operational and External Challenges

- **Significant Informal Trade**: A large volume of trade operates outside regulatory frameworks, presenting major food safety risks.
- **Underprioritized Research & Development**: Food safety R&D is politically neglected, underfunded, and uncoordinated, leading to knowledge gaps and duplicated efforts.
- **Low Public Awareness:** Consumer demand for safe and fortified foods is limited by a lack of awareness and purchasing power constraints (poverty/inequality).
- **External Vulnerabilities**: Climate change and transboundary pests and diseases (e.g., Lumpy Skin Disease, Fall Armyworm) threaten agricultural production and food safety.

Proposed Way Forward: A Framework for Regional Cooperation

To address these challenges, a coordinated, regional strategy is essential. The proposed way forward is built on four pillars:

1. Harmonize Regulations and Align Standards

Action: Develop and adopt a **SAARC Harmonized Framework** for Food Safety and Fortification, aligned with international standards (Codex Alimentarius).

Action: Establish a **SAARC Expert Advisory Committee** to provide technical guidance and oversee the harmonization process.

Action: Create a binding **Regional Implementation Roadmap** with clear milestones and responsibilities.

2. Build Regional Capacity and Shared Infrastructure

Action: Establish a **Digital SAARC Knowledge Hub** to share research, data, best practices, and training materials.

Action: Invest in upgrading and **mutually recognizing accredited laboratory networks** across the region to build trust and facilitate trade.

Action: Implement **joint training and certification programs** for inspectors, analysts, and farmers to create a skilled regional workforce.

3. Boost Investment, Research, and Formal Trade

Action: Launch **joint, cost-effective research initiatives** focused on climate resilience, fortification technologies, and addressing regional micronutrient deficiencies.

Action: Develop **regional agri-credit facilitation mechanisms** to help producers invest in safety and quality infrastructure.

Action: Formulate policies to **formalize informal trade** channels and develop strong **agri-export promotion policies** for certified safe and fortified products.

4. Foster Demand and Advocate for Change

Action: Launch a **regional public awareness campaign** on the health and economic benefits of safe and fortified foods to stimulate consumer demand.

Action: Clearly **communicate the economic case** to policymakers: investing in food safety boosts trade, improves public health, increases productivity, and reduces future healthcare costs.

Conclusion

By adopting this collaborative framework, SAARC nations can transform their trade and food and nutritional challenges into opportunities. Moving from fragmented national systems to an integrated regional approach will be key to ensuring food security, improving public health, and unlocking the significant economic potential of safe and fortified food trade for over a quarter of the world's population living in SAARC region

Program Schedule

Fostering Agricultural Trade including Fortified Foods through Harmonized Food Safety Standards in South Asia

Jointly organized by
SAARC Agriculture Centre (SAC)
UNICEF Regional Office for South Asia, Nepal
And
Ministry of Agriculture and Livestock, Development, Nepal

Date: 27-29 August
Place: Kathmandu, Nepal

Master of Ceremony: Dr. Asmita Subedi, MOALD
Chair: Mr. Prakash Kumar Sanjel, Director General, Department of Agriculture
Chief Guest: Dr. Govinda Prasad Sharma, Secretary, MoALD

Day 1 (27 August 25)	**Inaugural Session** **Chair: Joint Secretary, Nepal**
9:00-9:30	Registration
9:30-9:35	Guests take their seat
9:35-9:40	Lighting of lamp by the dignitaries and National anthem
9:40- 9:45	Welcome address: **Mr. Dal Prasad Pudasainy** Senior Agriculture Economist MoALD

9:45-9:50	Opening Remarks: Objectives and overview of the workshop: **Dr. Md. Younus Ali** Senior Program Specialist (Livestock), SAC
9:50-9:55	Introduction of the participants
9:55-10:20	Key Note Speaker: Harmonization of food standards in South Asia for agricultural trade: challenges, opportunities and policy perspectives **Dr. Jeevan Prabha Lama** Expert Food Safety, Trade Expert and Advisor to Kathmandu Metropolitan City
10:20-10:30	Address by Special Guest: **Dr. Md. Harunur Rashid** Director, SAARC Agriculture Centre (Virtually Joined)
10:30-10:40	Address by Special Guest: **Mr. Tanvir Ahmad Torophder** Director (ARD and SDF), SAARC Secretariat
10:40-10:50	Address by Special Guest: **Dr. Zivai Murira** Regional Advisor Nutrition, UNICEF Regional Office for South Asia
10:50-11:05	Address by Chief Guest: **H.E. Dr. Govinda Prasad Sharma,** Secretary (Agriculture Development), Ministry of Agriculture and Livestock Development, Kathmandu, Nepal
11:05-11:20	Address by Chairman of the meeting: Director General, Department of Agriculture Nepal
11:20-12:30	Group Photo followed by Lunch

Day 1 (27 August 2025)

12:30-2:00	**Technical Session I: Global Guidance, Best Practices and Lessons Learned** **Chair: Prof. Dr. Ganga Prasad Kharel,** **Food Safety Expert** **Rapporteurs: Dr. Mahadeb Prasad Paudel, Senior Agriculture Economist**

12:30–12:50	Regional Harmonization of Food Safety Standards: Global best practices, lessons learned and opportunities - FAO Regional Office for Asia and the Pacific-FAO RAP
12:50–1:10	Open Discussion – Q&A
1:10-1:30	Regional Harmonization of Food Fortification Requirements and Regional Standards for Fortified Staple Foods in South Asia – Global best practices, lessons learned and opportunities - Zivai Murira, Regional Nutrition Adviser, UNICEF Regional Office for South Asia
1:30 - 02:00	Open Discussion – Q&A
14:00–14:20	**Tea Break**

14:20-16:20	**Technical Session II: Country Paper Presentations (Fostering Regional Agricultural Trade including Fortified Foods through Harmonized Food Safety Standards in South Asia)** **Chair: Mr. Binod Kumar Bhattarai, Deputy Director General** **Rapporteurs: Mr. Lal Kumar Shrestha, Senior Agriculture Economist**
14:20–14:40	**Bangladesh:** Country Paper presentation Mr. S M Nazim Uddin, Joint Secretary, Ministry of Food: Harmonization of food safety standard Mr. Shaikh Murshidul Islam, Deputy Secretary, Ministry of Agriculture: Agricultural trade
14:40–15:00	**Bhutan:** Country Paper presentation Ms. Sonam Choden, Regulatory and Quarantine Officer, Bhutan Food and Drug Authority: Harmonization of food safety standard Ms. Tshering Wangmo, Chief Economic Development & Marketing Officer: Agricultural trade
15:00-15:20	**India:** Country Paper presentation
15:20 - 15:30	Open Discussion - Q&A

15:30–15:50	**Tea Break**

16:00–17:30	**Technical Session III: Country Paper Presentations (Fostering Regional Agricultural Trade including Fortified Foods through Harmonized Food Safety Standards in South Asia)** **Chair: Dr. Kishor Prasad Dahal, Dean, Institute of Agriculture and Animal Sciences, Trivuwan University.** **Rapporteurs: Dr. Mahadeb Prasad Paudel, Senior Agriculture Economist**
16:00-16:20	**Maldives:** Country paper presentation Ms. Fathimath Afnaan Abdul Hameed, Project Officer, Ministry of Agriculture and Animal Welfare: Harmonization of food safety standard Mr. Mohamed Lahfaan Moosa, Assistant Agriculture Officer, Ministry of Agriculture and Animal Welfare: Agricultural trade
16:20–16:40	**Nepal:** Country paper presentation Mr. Pramod Koirala, Senior Food Investigation Officer, Ministry of Agriculture and Livestock Development: Harmonization of food safety standard Mr. Maniratna Aryal, Senior Agro Economist, Ministry of Agriculture and Livestock Development: Agricultural Trade
16:40–17:00	**Pakistan:** Country paper presentation Mr. Umer Farooq, Deputy Secretary Admin, Islamabad, Pakistan: Harmonization of food safety standard Mr. Ghulam Sadiq Afridi, Secretary, PARC, Islamabad, Pakistan: Agricultural Trade
17:00-17:20	**Sri Lanka:** Country paper presentation Ms. Y.M.H. Liyanage, Additional Director, Seed Certification and Plant Protection Centre: Harmonization of food safety standard Mr. S.A.M.R. Abeykoon, Deputy Director, Seed Certification Service, Gannoruwa, Kandy: Agricultural Trade
17:20-17:50	Open Discussion - Q&A
17:50	End of Day 1

	Day 2 (28 August 2028)
09:30–10:30	**Technical Session IV: Agricultural Trade (Invited Speaker)** **Chair: Mr. Bhoj Raj Sapkota, Chief Plant Quarantine and Pesticide Management Centre** **Rapporteurs: Mr. Lal Kumar Shrestha, Senior Agriculture Economist**
09:30-10:00	Agricultural trade policies in South Asia and food safety considerations. ***Dikshya Singh, Program Coordinator, South Asia Watch on Trade, Economics and Environment (SAWTEE) TBD***
10:00–10:30	Harmonizing of guidelines and standards for import and export of agricultural products ***Dr. Krishna Prasad Pant, Agricultural Trade Expert***
10:30-11:00	SAFTA: Advancing Regional Agricultural Trade through Harmonized Standards ***Dr. Purusottam Ojha, Trade Expert and Retired Secretary from Government of Nepal***
11:00-11:15	One presentation from GAIN, Bangladesh
11:15-11:30	Open forum and Reflection (LDC)
11:30-11:50	Teak Break

11:50–12:50	**Group Discussion on "Essential actions required at regional and country level to foster regional agricultural trade including fortified foods through harmonized food safety standards in South Asia."** **Facilitator: Binod/MoALD/Dr. Younus Ali**
11:50-12:50	Country –level discussions for identifying the successful factors, lessons learned and Recommendations for a conceptual framework for policy and actions **Discussion issues** - Constraints /challenges and opportunities for food safety and food fortification standard system - Research and policy gap on food safety and food fortification standards

	- Capacity development to produce safe food production including fortified foods - Opportunities for SAARC Regional Cooperation and harmonization of food safety standards including on fortified foods.
12:50-13:30	Lunch Break
13:30–14:30	**Plenary Session** ½ hour will be reporting and 1 hour will be way-forward
14:30-14:50	Tea Break
14:50-15:20	**Closing session:** **Chair: Dr. Hari Bahadur KC, Joint Secretary, Ministry of Agriculture and Livestock Development.** **Certificate Distribution**
Day 3 (29 August 2025)	
08:30–13:00	**Site Visit: Safe food production in Nepal TBD** **Soaltee SKY Chef, Gaushala Production Unit** Facilitated by Mr. Pramod Koirala, Senior Food Research Officer

Participants list

SL No	Focal Points & Address	Country	Email	Cell/Mobile No.
01	**Mr. S M Nazim Uddin** Joint Secretary, Ministry of Food, Bangladesh Secretariat, Dhaka	Bangladesh	nazimuddin21century@gamil.com	+88 01937391910
02	**Mr. Shaikh Murshidul Islam** Deputy Secretary, Ministry of Agriculture Bangladesh Secretariat, Dhaka	Bangladesh	acpolicy1@moa.gov.bd	+8801716263946
03	**Ms. Tshering Wangmo** Chief Economic Development & Marketing Officer	Bhutan	twangmo@moal.gov.bt	+97517113935
04	**Ms. Sonam Choden** Regulatory and Quarantine Officer, Bhutan Food and Drug Authority	Bhutan	sonamc@bfda.gov.bt	+ 97517737257
05	**Ms. Fathimath Afnaan Abdul Hameed** Project Officer, Ministry of Agriculture and Animal Welfare	Maldives	afnaan.hameed@agriculture.gov.mv	
06	**Mr. Mohamed Lahfaan Moosa** Assistant Agriculture Officer, Ministry of Agriculture and Animal Welfare	Maldives	lahfaan.moosa@agriculture.gov.mv	
07	**Mr. Maniratna Aryal** Senior Agro Economist, Ministry of Agriculture and Livestock Development	Nepal	maniaryal17@gmail.com	+977-9845069826
08	**Mr. Pramod Koirala,** Senior Food Investigation Officer, Ministry of Agriculture and Livestock Development	Nepal	pramodkoirala2016@gmail.com	+977 -9851124511
09	**Mr. Ghulam Sadiq Afridi** Secretary, PARC, Islamabad Pakistan	Pakistan	chairman@parc.gov.pk	+92 3339613040
10	**Mr. Umer Farooq** Deputy Secretary (Admin), Islamabad, Pakistan	Pakistan	achfd2013@gmail.com	+92 3219450485
11	**Mr. S.A.M.R. Abeykoon** Deputy Director, Seed	Sri Lanka	raviabey1966@gmail.com	+94 71 44 95 442

	Certification Service, Gannoruwa			
12	**Ms. Y.M.H. Liyanage** Additional Director Seed Certification and Plant Protection Centre	Sri Lanka	yasinthaliyanage@gamil.com	+94 713465185
13	**Dr. Md. Younus Ali** Senior Program Specialist (Livestoc,)SAARC Agriculture Centre, Bangladesh	Bangladesh	Dryounusali1972@gmail.com	+88-01716500276
14	**Dr. AHM Taslima** STO, SAC, Bangladesh	Bangladesh	sto@sac.org.bd	+88-01816-551402
15	Ms. Nazmoon Nahar Cataloguer, SAC, Bangladesh	Bangladesh	naharnazmoon13@gmail.com	+88-01713336156
16	**Dr. Ashek Mahfuz** Portfolio lead Gain, Bangladesh	Bangladesh	amahfuz@gainhealth.org	
17	**Dr. Zivai Murira** Regional Advisor Nutrition, UNICEF Regional Office for South Asia	Nepal	zmurira@unicef.org	

SAARC

SAARC Agriculture Centre (SAC)

A Regional Centre of South Asian Association for Regional Cooperation
BARC Complex, Farmgate, Dhaka

BRIEF BIOGRAPHY OF EDITORS

Dr. Md. Younus Ali is working as Senior Program Specialist (Livestock), in SAARC Agriculture Centre, Dhaka since 1st April 2023. He worked as Project Coordinator of the livelihood enhancement project of SAC. With over 23 years of management and technical experiences collaborating with various national and international development agencies, Dr. Ali's expertise lies in livelihood and food security improvement through livestock intervention, food security, livestock development, agro processing etc. Dr. Ali has published more than fifty research papers of inetrnatioal repute besides writing fifteen number of books and training manual on contemporary and emerging challenges of livestock, family farming, food sfatey etc.

Dr. Md. Harunur Rashid is Director SAARC Agricultural Center (SAC), Dhaka, Bangladesh. He earned doctorate degree under prestigious IRRI Fellowship from Bangladesh Agricultural University Mymensingh. He is authors of several research articles, policy documents, book chapters, training manuals and popular articles. Previously he worked as a Scientific Officer, and Senior Scientific officer at Bangladesh Rice Research Institute. He is also working as Member Director Nutrition Unit, Bangladesh Agricultural Research Council, Dhaka. Recently several novel training modules for human resources development in agriculture and allied sciences have been introduced by him.

Palash Chandra Goswami is the Senior Program Officer (NRM), SAARC Agriculture Centre (SAC) since August 2024. He has over 14 years of experience in sustainable agriculture, climate-smart agriculture and natural resource management across South Asia. Mr. Goswami has contributed to a range of national and international projects, working with organizations such as HarvestPlus–IFPRI, IRRI, Bangladesh Water Development Board, SDS, Pran-RFL Group, Practical Action Bangladesh and Gana Unnayon Kendra. He holds an MS in Agronomy from Bangladesh Agricultural University, Mymensingh, and has published ten papers in national and international journals. His work focuses on enhancing food security, agricultural value chains, and climate-resilient livelihoods.

Md. Abul Bashar is a Senior Program Officer (Publication) at SAARC Agriculture Centre (SAC), Dhaka, Bangladesh and Associate Editor SAARC Journal of Agriculture. He holds BSc (Agricultural Engg.) and MSc (Environmental Science) from Bangladesh Agricultural University, Mymensingh. Over his career, he has made significant contributions to agricultural research and development, as well as to project monitoring, development and implementation at both national and international levels. Previously, he served as a Senior Monitoring Officer under the PARTNER Program at Bangladesh Agricultural Research Council (BARC). He received the BAURES Award 2024 for Best Agricultural Journalist in recognition, Social Impact of the Year Award 2024 and the SDG Brand Champion Award 2024 in recognition of his contributions to environmental protection and sustainable development.

SAARC Agriculture Centre (SAC)
BARC Complex, Farmgate, Dhaka-1215, Bangladesh
Phone: +880-2-41024776, + 880-2-41024779
Email: director@sac.org.bd, Website: www.sac.org.bd

ISBN: 978-984-35-8885-2