



JOINT FAO/WHO FOOD STANDARDS PROGRAMME

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KEYNOTE ADDRESS ON FOOD SAFETY AT PRIMARY PRODUCTION: ISSUES AND BEST PRACTICES FOR AN EVOLVING REGION

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I. Introduction

The theme of the keynote address, 'Food safety at primary production: Issues and best practices for an evolving region', provides an opportunity for all of us to share the concerns, approaches and practices in the region, at the primary level, that would contribute to the entire food chain end to end.

It will be highlighted that the concerns of the region on regulatory frameworks to address the issue of food safety at primary production level and how we can learn from the best practices adopted by some countries in this respect. In addition to that, the challenging tasks of risk assessment and risk communication will be focused, taking into account the systematic collation of prevalence and consumption data for better exposure assessment.

CCASIA has the benefit of 24 countries in the region, spreading from Afghanistan in the west to Japan in the east geographically and 59.6% of the global population. With the objectives of communication among the member countries and development of regional standards, CCASIA has contributed immensely towards protection of health of the consumers and ensuring fair practices in food trade over the years and today's conference is one more step in that direction.

II. Food Availability and Safety

a) Global food system and SDGs

The present global population is 7.633 billion, with Asia accounting for 59.6%, with 354 million severely and 1,039 moderately undernourished, again has been rising since 2015 going back to the 2010-11 level. With the annual global foodgrain production of 3,076.2 million metric tonnes (mmt), including major crops of 741 mmt of rice paddy, 750 mmt of wheat and 1,060 mmt of maize, to name a few, the agricultural trade (export & import) is in the range of US \$ bn 382 & 378 respectively in Europe, 285 & 167 in Americas, 183 & 345 in Asia, 43 & 13 in Oceania, 34 & 60 in Africa, bringing out the dimensions of food systems.

Projected requirement of food by 2050 being at least 50% over the present and in the context of the Sustainable Development Goals (SDGs) by 2030, it is seen that climate change disproportionately affects food insecure regions, particularly the Asian continent. Urbanisation accelerating dietary transitions, ageing rural population, youth migration, natural disasters and crises are impacting food systems, that are becoming capital intensive and vertically integrated. There is also the glaring malnutrition of unacceptable levels across countries in the region. Further, food loss and waste to an estimated extent of one-third the produce, are also a concern in the given context.

All these add up to the concerns of food safety at the primary level, as it is an integral component of the SDGs with shared responsibility across from production to consumption, with implications on every aspect of availability, access, utilisation and vulnerability. It also must be appreciated that food safety is a moving target, with changing food systems, including indigenous, exotic, non-traditional and functional foods, new and emerging incidents of hazards and so on. The twin challenges of addressing safety aspects in the long food chains of processed food in high end markets on one hand and the local & traditional food systems on the other, are becoming increasingly evident.

b) Asian perspective

Asia, with a population of 4.5 billion, of which 2.26 billion are in rural areas, employs 25.7% of male and 28.2% of females in farming over an area of nearly 620 million hectares, with diverse food production systems contributing to 48.2% of the world's food basket. Asia has become the fulcrum of the global food system, both land based and aquatic, also in terms of production and consumption of critical food commodities, including cereals, oil seeds, fish, vegetables, milk and animal products. Although constrained by availability of arable land and climate change induced degradation, production of food has risen remarkably over the last 50 years. Globally, food safety has been given a holistic treatment by ensuring that every node in the food production chain, from pre-harvest to post-harvest, has a role and responsibility in providing safe food to the consumers. Although, food safety starts with primary production, regulatory frameworks in most Asian countries have stringent compliance requirements only for processing and trade, that need to be at the similar at primary production level.

III. Challenges in food safety in the region

It is to the credit of all that praiseworthy efforts have been made by countries in the region in the last decade to improve and strengthen national food control systems as enshrined in Codex principles. Sector specific standards have been formulated keeping in view the principles of risk assessment and by adoption of existing Codex standards. However, there still lies a great degree of divergence among countries in assimilating food safety principles at the policy making level as part of the national development agenda. This is pronounced in the area of primary production, where there is a huge scope to curtail the trail of food safety hazards in the food chain.

a) Lack of risk assessment capability

It would be highlighted the challenge of lack of risk assessment capability in some countries in Asia. The Codex guidelines clearly stipulate establishment of a risk assessment policy prior to conduct of actual risk assessment in order to make the whole exercise unbiased and transparent. The risk assessment needs to be carried out as per the following principles:

- Clearly defined scope and objective of each risk assessment
- Four essential steps of hazard identification, hazard characterization, exposure assessment and risk characterization
- Strong indigenous and quantified scientific data
- Holistic analysis of the whole food chain
- Realistic exposure scenarios
- Precautionary approach

b) Surveillance and monitoring

Inadequate of surveillance and monitoring and food consumption data have been the major bottlenecks in carrying out exposure assessment of various food-hazard combinations in Asia. Reliable data obtained from dietary or nutritional surveys, food consumption data from national agencies, are essential for determining the exposure assessment. For microbial hazards, pathogen-product pathway analysis must be done to determine and quantify the level of the pathogens at primary production, and their survival during processing and recontamination prior to consumption. Predictive microbiology tools need to be used to ascertain the level of pathogens at different stages of food production. CCASIA members must allocate resources and devise mechanisms to generate relevant and quality data for development of science-based national food standards to contribute to the standard setting process of Codex.

c) Inadequate traceability

The problem of inadequate traceability of food products directly linked to primary production and informed choice for the consumers. In the era of globalization of food trade, consumers must be empowered to know the source of food, ensuring that they have access to authenticated information on food safety at primary production. Implementing a traceability system at primary production requires registration of farm site, capturing of all production inputs (feed, seed, fertilizer, drugs, agrochemicals, etc.) and retention of records for a defined period. Similarly, in fisheries sector, a strong traceability regimen is advocated to combat Illegal, Unreported and Unregulated (IUU) fishing that disrupts sustainable management of fisheries, by direct depletion of stocks and undermining the competitiveness of legal fishing efforts.

In this context, the following aspects need to be addressed:

- Differential approaches while regulating food for export and domestic trade
- Inadequate food safety legislation to address emerging food safety hazards
- Frequent incidence of antimicrobial & pesticide residues, chemical contaminants and foodborne pathogens in the food chain
- Inadequate monitoring, lack of consumption database to support exposure assessment studies
- Low emphasis on traceability of food commodities
- Inadequate resource mobilization, including human resources and food testing facilities
- Lack of proactive approach in managing food safety incidents and outbreaks
- Lack of coordination between food controls implemented by the authorities at the primary production level and those further down the line

IV. Food safety at primary production level

a) Food safety considerations

As food safety is non-negotiable, these inadequacies have to be addressed to enhance the countries' preparedness and capabilities to provide safe and secure food supply to consumers. Primary production is defined as those steps in the food chain up to and including harvesting, slaughter, milking, fishing and collecting wild crops. Prevention at this stage is always preferred over corrections further, as problems that creep in due to inappropriate farm production technologies and handling practices cannot be corrected during subsequent food processing. Primary Production of food, whether it is of plant or animal origin, must be designed to reduce the likelihood of introducing a hazard which may adversely affect the safety of food, or its suitability for consumption, at later stages of the food chain. Good Management Practices for different commodities have been developed and refined from time to time for ensuring food quality and safety, that need to be disseminated and practised. The consumers' concerns with regard to these aspects in the primary production need to be addressed with utmost care. The following are the four basic considerations to be given for ensuring safety of food at primary production level:

- Environmental hygiene in food production areas or harvesting systems
- Measures to control contamination from soil, water, air, feeds, fertilizers, plant protection products, carry over of veterinary drugs in aquaculture or farmed animals
- Hygienic handling during harvest, storage and transport of primary produce
- Facilities for cleaning, maintenance and personnel hygiene at primary production areas

b) Experiences of best practices

In this context, countries in Asia should endeavour to popularize various sector specific codes of hygiene practices documents and food hygiene texts developed by Codex. Implementation of Good Agricultural Practices (GAP), Good Hygiene Practices or Good Aquaculture Practices is the key to achieve food safety goals in primary production. Some Asian countries have integrated these best practices in their regulatory framework, while in others, adoption of GAP is still driven by transnational private regulations.

Notable initiatives by the governments in the region include:

- Certification scheme on Good Aquaculture Practices (GAP), Thailand; ChinaGAP for agri-food commodities and aquaculture; VietnamGAP for shrimp hatcheries and for other aquaculture commodities;
- Regulated import of agricultural inputs, especially chemicals and Strict animal and plant quarantine practices in Bhutan; to name a few.
- Regulated use of agro-chemicals, variety release approval system incorporating nutrition and safety trials, strong internal quarantine system are a few examples that many countries have adopted in terms of good practices.
- In fisheries sector, some of the countries including India have implemented on-board hygiene training for fishers to hygienically handle catch mid-sea, good fishing vessel practices to prevent time-temperature abuse of histamine forming fishes.
- Evidence based risk management along livestock and market chain has been demonstrated in Myanmar and Vietnam, as examples.

Institutionalization of best practices in primary production has ensured production of safe and wholesome food, meeting high standards and minimizing adverse impacts on the environment. It is important that the industry needs to comply with the refined and upgraded best practices on a continuous basis. Further, there is a need to integrate different schemes and initiatives for a greater impact, through a science-based, team-led and evolutionary approach. CCASIA provides an ideal platform for all the Asian countries to emulate these best practices and develop similar schemes for ensuring safety of food at primary production.

V. Emerging Issues

There are pressing and emerging issues affecting safety of foods at primary production level in this region that may be addressed in the present session or subsequent meeting of the CCASIA, as follows:

- Emerging or re-emerging zoonotic diseases
- Increasing Antimicrobial Resistance (AMR) incidents
- Food adulteration using unapproved chemicals and additives
- Mislabeling and product substitution
- Climate change induced proliferation of pathogens and shift in harmful algal bloom areas (HABs)
- Prevalence of personal care compounds in primary production sites
- Microplastic accumulation in aquatic species

VI. Way forward

Taking into consideration the immediate challenges and emerging issues in food safety issues at primary production, the following is suggested to the member countries as a way forward for consideration:

- Demonstrate a greater degree of coordination and partnership in evolving the best practices for ensuring food safety at primary production level
- Develop an effective food control architecture with due emphasis on safety of food at primary production level (Necessary amendments can be made to the existing regulations to include primary production under the ambit of food safety acts)
- Formulate safety and science-based risk management measures
- Monitor and share data for better risk assessment, consumption data generation for a better exposure assessment
- Endeavour to develop or popularize certification schemes for GAP
- Develop on-farm or on-board hygiene and health policy for handling the produce or catch while harvesting
- Ensure that plant protection products (pesticides and biocides) are used in accordance with the country regulations, without compromising food safety of the final produce
- Establish mechanisms for registration and authorization of veterinary drugs in aquaculture and farm animals
- Ensure an effective traceability system to identify the produce at every stage of production/harvesting and distribution
- Introduce a 'zero tolerance' approach for food adulteration and food fraud
- Commit to reduce the menace of microplastic accumulation in both terrestrial and aquatic habitats
- Establish national residue control and contaminant profiling programmes for various food commodities (The existing consumption pattern database could be strengthened to include region specific and traditional foods consumed by the population)
- Enhance capacity and skill building efforts; and Upgrade and share facilities
- Ensure consumers have access to reputable information on food safety at primary production level
- Develop strong communication models, e.g. extension material, incentives for farmers adopting good practices, advisories, community and awareness programmes