



FACILITATING COMPLIANCE TO FOOD SAFETY AND QUALITY FOR CROSS-BORDER TRADE



UNITED NATIONS
ESCAP

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Facilitating Compliance to Food Safety and Food Quality for Cross-border Trade

Acronyms

ALOP	Appropriate level of protection
CA	Competent authority
CASCO	Committee on Conformity Assessment of the ISO
CCFICS	Codex Committee on Food Import and Export Inspection and Certification
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FBDS	Food-borne disease surveillance
FSMS	Food safety management systems
GAP	Good agricultural practices
GFSI	Global Food Safety Initiative
GI	Geographical indications
GMO	Genetically Modified Organism
GMP	Good manufacturing practices
HACCP	Hazard analysis and critical control point
INFOSAN	International Food Safety Authorities Network
ISO	International Organization for Standardization
LIMS	Laboratory Information Management System
MOU	Memorandum of Understanding
MRA	Mutual Recognition Agreement
MRL	Maximum residue levels
RASFF	Rapid alert system for Food & Feed
SAARC	South Asian Association for Regional Cooperation
SPS	Sanitary and phytosanitary measures
TBT	Technical barriers to trade
TFA	Trade Facilitation Agreement
TSE	Transmissible Spongiform Encephalopathies
UNIDO	United Nations Industrial Development Organization of the United Nations
WHO	World Health Organization
WTO	World Trade Organization

Executive Summary

With globalization and increasing demand by consumers for variety in foods, there is increasing trans-boundary movement and trade of food across countries, both imports and exports. Global food trade in 2014 was to a tune of 1,486 Billion US dollars' (International Trade Statistics 2015 published by WTO). With this continuously increasing global food supply chain and trans-boundary movement of foods, the potential for spread of contaminants is high which has resulted in safety and quality acquiring global focus. The importance of food safety cannot be underestimated as unsafe food leads to food-borne illnesses, malnutrition, food wastage and losses, reduced domestic and international market access (due to rejections, destructions of consignments, withdrawals), and an overall impact on consumer confidence, economic development, and national reputation, amongst others. In addition to food safety, there are also issues related to quality aspects of food, such as size and labelling requirements, requirements for various certifications (organic, free trade, etc.). These issues can be related to food fraud which is the deliberate and intentional substitution, addition, tampering, or misrepresentation of food, food ingredients, or food packaging; or false or misleading statements made about a product, for economic gain. Issues impacting cross-border trade in food products also relate to procedural aspects, such as customs procedures, which have an impact on quality and safety, coordination procedures and traceability procedures.

This publication describes briefly the type of food safety and quality issues impacting cross-border trade. It highlights important food safety and quality control strategies, which will strengthen food safety and quality within countries which will facilitate cross-border trade. Robust food quality and safety systems can lead to greater confidence in the importing country of the export country capabilities and thereby require less stringent import controls. Finally, the publication brings out guidance to governments for implementing effective food control systems that will facilitate exports as these will meet importing country requirements; and will also expedite import clearance and release of goods at border. An overview of each of these areas is highlighted below in brief.

Key food safety and quality issues impacting cross-border trade

This section covers an analysis of reasons for import rejections by major developed importing countries namely the European Union (EU), United States of America (US) and Japan. Information from the International Food Safety Authorities Network (INFOSAN) and information shared by countries in the region at various seminars and workshops was analysed. The findings show that food safety issues generally relate to pathogens (*Salmonella* spp., *Escherichia coli*, *Vibrio* spp., *Listeria monocytogenes*, *Bacillus cereus*, *Staphylococcus aureus*, etc), residues of veterinary drugs, pesticide residues, toxins, dioxin, residues of cleaning chemicals, use of unauthorised food additives, simple adulterants, heavy metals, etc. In addition food safety issues can also be an outcome of filthy or unsanitary conditions, allergens and unregistered processes or manufacturers.

Based on the reasons, the major issues responsible for such issues have been identified and discussed. The most important challenge identified is standards and compliance to these. Standards

may be regulatory or voluntary. Under voluntary, these may be governmental or private. An important aspect in relation to standards is the multiplicity of standards and overlap of standards due to multiple agencies developing standards. This can lead to a situation where more than one standard exists for the same product. Other challenges on standards relate to development by countries on compositional and quality related standards with lesser focus on food safety requirements, absence of data while developing standards due to which these are not risk-based, low participation in international Codex standards development due to which the developing country situation is often not reflected in international standards, no transparent and comprehensive procedure followed by countries for regulatory standards development and system for notification of regulatory standards to WTO is still not well developed.

Infrastructure capacity in terms of lack of cold chains, inadequate testing infrastructure, inadequate IT systems and data, poor primary processing facilities (hygiene) are also major challenges in countries. Another set of challenges relates to country infrastructure for certifications and accreditations, lack of credibility of certifications as international principles and requirements not always followed, export certifications often based on end-product testing rather than verifying conformity of food control system. Challenges also relate to the areas of food fraud and labelling requirements.

Food safety and quality control strategies for trade facilitation

This section deals with some important strategies in selected focus areas to strengthen food safety, quality and food controls in order to meet importing country requirements and consequently facilitate trade. Country examples have been used to illustrate some of these cases.

Some key strategies include the use of preventive approaches in which food safety hazards arising at different stages of food chain are prevented from entering the food chain or are reduced or eliminated at each stage. Harmonization with international standards and rationalizing these within the country is an important strategy towards having a single global national standard. It is also important for countries to rationalize these standards within the country, in order to avoid duplication that can lead to confusion amongst stakeholders. Other key considerations for countries include the need to have transparency and communication through providing comprehensive guidance on their food safety and quality requirements; strengthening food control systems to cover domestic, exports and imports; strengthening value chains by identifying the hazard in specific food chains and addressing the same to mitigate risks; strengthening coordination and focusing on research activities at various levels and data available from the same in a systematic way for food safety and food control activities.

Guidance to policy makers for implementing effective food control systems for cross-border trade

This section highlights how policy makers should proceed to implement effective food control systems that will help expedite clearance and release of goods at borders and thereby strengthen cross-border trade. These include a step-wise process for assessments and profiling of country's food control systems; reviewing the legislation to make it clear, risk-based and enforceable; identifying the

food safety and quality objective and planning to achieve the same over an identified period; implementing a multidisciplinary or One-Health approach to strengthen coordination between multiple agencies in a country; capacity building of manpower to empower them in terms of knowledge and skills in various fields; strengthening partnerships, coordination activities and agreements both at global and national levels including with the research, academia and private sector amongst others. This section also brings out the importance of incentives (both financial and others such as preferences in government procurements) to the smaller and less developed food businesses in the initial stages till they have stabilized their activities.

A section has also been devoted to the use of automation, traceability and electronic certification systems for effective compliance to food safety and quality standards. Examples of electronic traceability systems (the case of GrapeNet) implemented in India for export of grapes and China's E-port – a single window paperless trading system have also been described. An analysis of the costs of compliance for cross-border trade requirements has also been made.

Although countries have a major role in strengthening their own food and agricultural control systems for facilitating trade, certain activities could better be handled at regional level. In such cases, development partners could provide support through facilitation and technical support. This publication has identified some of these areas.

An overview of the a covered in the publication are diagrammatically illustrated in **Box 1**.



Facilitating Compliance to Food Safety and Food Quality for Cross-Border Trade

1. Introduction

In today's era of globalization, with increasing demand by consumers for variety in foods, there is increasing trans-boundary movement and trade of food across countries, both imports and exports. Global food trade in 2014 was to a tune of 1,486 Billion US dollars' (International Trade Statistics 2015 published by WTO). With this continuously increasing global food supply chain and trans-boundary movement of foods, the potential for spread of contaminants is high, which has resulted in a global focus on safety and quality standards for food trade.. Some examples of global food trade incidences that have led an increased focus on food safety include the outbreak of foodborne illness in northern Germany in mid-2011 due to contamination of imported fenugreek seeds sprouts by *E.coli* novel strain O104:H4 bacteria. This outbreak led to approximately 4000 seriously ill patients with over 50 deaths¹; the crisis of milk contaminated with melamine in 2008 resulting in 6 deaths, 300, 000 illnesses and 115 types of contaminated food products²; the dioxin contamination of pork from Ireland in 2008 that resulted in culling of 100, 000 pigs, destruction of 125 million € worth of food, and more than USD 1 billion economic losses³. The Fukushima nuclear accident (March 2011) that resulted in radionuclide contamination of food items from Japan, is also well known. The importance of food safety cannot be underestimated as unsafe food leads to food-borne illnesses, malnutrition, food wastage and losses, reduced domestic and international market access (due to rejections, destructions of consignments, withdrawals), and an overall impact on consumer confidence, economic development, and national reputation, amongst others.

In addition to food safety, there are also issues related to quality aspects of food, such as size and labelling requirements, requirements for various certifications, such as organic, free trade amongst others. Food fraud can also be an issue within food trade, this is the deliberate and intentional substitution, addition, tampering, or misrepresentation of food, food ingredients, or food packaging; or false or misleading statements made about a product, for economic gain. An example, of this was the well-known global issue of horsemeat sold as beef in 2013⁴. Customs procedures and other regulatory requirements can have an impact on quality and safety of food, coordination procedures and traceability.

Food safety and quality, a major agenda in international trade is therefore, receiving increased attention in the Asia-Pacific region.

¹<http://www.euro.who.int/en/health-topics/emergencies/international-health-regulations/news/news/2011/07/outbreaks-of-e.-coli-o104h4-infection-update-30>,
<http://www.nytimes.com/2011/06/30/world/middleeast/30ecoli.html>

² <http://www.bbc.com/news/10565838>, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2799451/>

³ <https://www.theguardian.com/uk/2008/dec/09/irish-pork-dioxins-food-scare>

⁴

Hence, the standards and conformity assessment is gaining increasingly importance in relation to cross-border trade. On the one hand countries are imposing increasingly stringent requirements for protecting the health and safety of their populations from products produced domestically as well as those imported. Whilst, on the other hand the private sector is imposing their own requirements and are using private standards as a tool for product differentiation and competitive advantage. To prevent indiscriminate use of standards and measures or technical requirements by governments, the WTO has laid down certain rules and disciplines, in terms of the non-tariff agreements, the SPS Agreement (full name) and the TBT Agreement (full name). These Agreements, while permitting countries to impose standards to protect their populations and ensure fair trade, require certain rules and disciplines to be maintained so that standards, measures and regulations do not create unnecessary barriers to trade. The SPS Agreement is specifically relevant for food safety (and animal and plant health), and the basic aim of the Agreement is to maintain the sovereign right of any government to provide the level of health protection it deems appropriate, but to ensure that these sovereign rights are not misused for protectionist purposes and do not result in unnecessary barriers to international trade. The TBT Agreement is also important in the case of trade of food products, and has specific relevance in standards and technical regulations in areas other than health and safety specifically in relation to standards for quality, environment, social, welfare, etc. Other issues related to organic products, nutritional labelling, fair trade, workers' health and safety and certification schemes fall under the purview of the TBT Agreement. The Agreement also covers conformity assessment aspects, which include testing, inspection certification and accreditation.

In addition to standards, there are also procedural issues that cause barriers to cross-border trade. Bureaucratic delays and "red tape" pose a burden for moving goods across borders for traders. Trade facilitation—the simplification, modernization and harmonization of export and import processes, has therefore emerged as an important issue for the world trading system. To address such issues, WTO members concluded negotiations at the 2013 Bali Ministerial Conference on the Trade Facilitation Agreement (TFA), which entered into force on 22 February 2017. The TFA contains provisions for expediting the movement, release and clearance of goods, including goods in transit. It also sets out measures for effective cooperation between customs and other appropriate authorities on trade facilitation and customs compliance issues.

Appendix 1 provides a brief overview of these Agreements as well as the relationship between the SPS, TBT and TF Agreement.

This publication focuses on food safety and quality for cross-border trade. It describes briefly the type of food safety and quality issues impacting cross-border trade. It highlights important food safety and quality control strategies, which will strengthen food safety and quality within countries. Such measures are important in order to facilitate cross-border trade by increasing confidence, in the importing country, of the export country capabilities and thereby requiring less stringent import controls. Finally, the publication brings out guidance for governments for implementing effective

food control systems that will facilitate exports as these will meet importing country requirements and will also expedite import clearance and release of goods at border. The publication also contains examples and case studies of how countries have successfully handled some of these issues.

It is hoped that this publication will be useful to governments of countries in understanding the issues impacting cross-border trade and addressing the same for better and streamlined cross-border trade.

2. Key food safety and quality issues that impact cross-border trade

This section deals with the basic food safety and quality related aspects, which have an impact on cross-border trade, both imports and exports. Each of the areas covers the issues including, why or how the area is important in relation to cross-border trade; how it needs to be addressed; and various examples from countries are used to illustrate this

2.1 Major food safety issues

First of all, it is important to understand the major food safety issues that can impact cross-border trade. For this purpose, various sources of publicly available information have been examined and an analysis of the causes of import rejections by major developed importing countries namely the EU, US and Japan was conducted. Information from the International Food Safety Authorities Network (INFOSAN) of the WHO and FAO and information shared by countries in the region at various seminars and workshops was analysed. The findings are discussed below.

2.1.1 EU Rapid Alert System for Food and Feed (RASFF)

Background: The RASFF was put in place by the European Commission to provide food and feed control authorities with an effective tool to exchange information about measures taken in response to serious risks detected in relation to food or feed. This exchange of information helps member States to act more rapidly and in a coordinated manner in response to a health

Table 1: Data on notifications by EU by hazard category (2016)

Hazard Category	Number of Notifications
Pathogenic micro-organisms	685
Mycotoxins	551
Pesticide residues	253
Heavy metals	218
Composition	179
Food additives and flavourings	168
Foreign bodies	134
Allergens	113
Adulteration / fraud	112
Poor or insufficient controls	97
GMO / novel food	93
Migration	78
Non-pathogenic micro-organisms	62
Industrial contaminants	62
Residues of veterinary medicinal products	47
Biocontaminants	46
Organoleptic aspects	40
Labelling absent/incomplete/incorrect	28
Packaging defective / incorrect	25
Parasitic infestation	23
Biotoxins (other)	19
Not determined / other	10
TSEs	8
Radiation	5
Feed additives	3
Chemical contamination (other)	2

threat caused by food or feed. RASFF notifications usually report on risks identified in food, feed or food contact materials that are placed on the market in the notifying country or detained at an EU point of entry at the border. . The notifying country reports on the risks it has identified, the product, its traceability and the measures it has taken. According to the seriousness of the risks identified and the distribution of the product on the market, the RASFF notification is classified after verification by the Commission contact point. These classifications include, alert, information or border rejection notification before the Commission contact point transmits it to all network members (see **Box 2**).

Findings: As seen from the data of 2016 (Table 1), a total of 2993 original notifications were transmitted through the RASFF, of which 847 were classified as alert, 378 as information for follow-up, 598 as information for attention and 1170 as border rejection notification. The hazard and the notifications for each hazard is given in the **Table 1**. The highest number of notification as seen, relate to pathogenic micro-organisms followed by mycotoxins, pesticide residues and heavy metals.

2.1.2 Japan - Imported food monitoring for Japan

Background: The Department of Environmental Health and Food Safety, Pharmaceutical Safety and Environmental Health Bureau, Ministry of Health, Labour and Welfare, Japan carries out yearly monitoring of imported foods.

Findings: During 2015, it had inspected 195,667 cases of imported

Box 2: RASFF Notification Classification

An 'alert notification' or 'alert' is sent when a food, feed or food contact material presenting a serious risk is on the market and when rapid action is or might be required in another country than the notifying country. Alerts are triggered by the member of the network that detects the problem and has initiated the relevant measures, such as withdrawal or recall. The notification aims at giving all the members of the network the information to verify whether the concerned product is on their market, so that they can take the necessary measures. Products subject to an alert notification have been withdrawn or are in the process of being withdrawn from the market.

An 'information notification' concerns a food, feed or food contact material for which a risk has been identified that does not require rapid action either because the risk is not considered serious or the product is not on the market at the time of notification. This has two sub-types of information notification - 'information notifications for follow-up' are related to a product that is or may be placed on the market in another member country; and 'information notifications for attention' that are related to a product that: (i) is present only in the notifying member country; or (ii) has not been placed on the market; or (iii) is no longer on the market

A 'border rejection notification' concerns a consignment of food, feed or food contact material that was refused entry into the Community for reason of a risk to human health and also to animal health or to the environment if it concerns feed.

foods of which 859 cases were confirmed to be in violation of the Act, and steps were taken for their reshipment or disposal.. Results from the monitoring and guidance based on the 'Imported Foods Monitoring and Guidance Plan for 2015'⁵ is given in **Table 2** below.

Table 2: Data on Imported Food Monitoring by Japan for financial year 2015⁶

Cause of Violation	Number of cases (percentage)	Details of violations
Microbes in frozen foods, etc	222 (25.9%)	bacterial count, coliform bacteria, E.coli
Hazardous or toxic substances and contamination with pathogenic microbes	153 (17.8%)	aflatoxin in peanuts and in pistachio nuts paste, cyanide, pataulin, radioactivity
Agricultural chemical residues	135 (15.7%)	thiamethoxam in onion, and 2,4-D in cacao beans
Use of undesignated additives and violations of criteria on the use of additives	121 (14.1%)	Coloring agents (azorubin, orange II, quinoline yellow, patent blue V, fast red E, brilliant black BN), TBHQ, cyclamic acid, sulfur dioxide, sorbic acid and polysorbate
Decay and deterioration (e.g., generation of unpleasant smell or mold)	106 (12.4%)	In coffee beans, rice and wheat
Veterinary drug residues	52 (6.1%)	Chloramphenicol, enrofloxacin and furazolidone in shrimp, and nicarbazin in chicken
Apparatus, containers and packaging and toys	32 (3.7%)	
Other violations	38 (4.4%)	Violation of standards for food additives, detection of GM modified papaya and rice that has not undergone safety assessment, contamination with puffer fish that is not permitted to be imported.

Here again it is observed that microbial violations are the highest followed by toxins and chemical residues.

2.1.3 United States of America border rejections

Background: Border rejection data of EU and US has been consolidated and analysed in a UNIDO study (What Do Border Rejections Tell Us About Trade Standards Compliance of Developing Countries? Analysis of EU and US Data 2002-2008, UNIDO Working Paper August 2011)⁷.

⁵ (Source)

⁶ (Source).

⁷ (Source)

Findings: The study analyzed four groups of products. Findings show that the causes of concern across categories differ as seen from **Table 3**. As seen from the data, filthy/ unsanitary conditions are the highest cause of rejections in fish and fishery products followed by microbial contaminants, while pesticide residues are a major cause of rejections in fruits and vegetables, labelling issues in nuts and seeds and microbial/ contaminants followed by labelling in herbs and spices.

Table 3: Border Rejection Data of US from 2002-2008⁸

Cause of Rejection	Fish and fishery products		Fruits and vegetables		Nuts and seeds		Herbs and spices	
	Numbers	Percent	Numbers	Percent	Numbers	Percent	Numbers	Percent
Unregistered process/ manufacturer	1914	14.8	8239	42.1	212	20.3	521	15
Pesticide residues			6538	33.4	89	8.5	169	4.9
Veterinary drug residues	995	7.7						
Labelling	2619	20.2	5797	29.7	598	57.3	1219	35.1
Filthy/ unsanitary	6383	49.3	4618	23.6	116	11.1	553	15.9
Unauthorised food additives	223	1.7	1774	9.1	162	15.5	192	5.5
Microbial/ contaminants	3711	28.7	518	2.6	168	16.1	2009	57.8
Mycotoxin					147	14.1		
Biotoxins/ contaminants	389	3.0						
HACCP	398	3.1						
Product composition			138	0.7				
Poisonous	450	3.5	83	0.4	56	5.4		
Others	61	0.5	145	0.7	7	0.7	74	2.1
Total	17,143		27,850		1,555		4,737	

2.1.4 The International Food Safety Authorities Network (INFOSAN)

Background: INFOSAN is a voluntary network of 186 national food safety authorities that was launched in 2004 at the global level. This network aims to prevent international spread of

Table 4 INFOSAN Emergency Cases 2011-15

Nature of events	2015	2014	2013	2012	2011
Biological	22	26	28	30	31
Chemical	8	10	15	10	13
Physical	3	1	0	0	0
Allergens	3	2	0	1	1
Total	36	39	43	41	45

⁸ (Source)

contaminated food and foodborne disease and strengthen food safety systems globally. This is done by promoting the rapid exchange of information during food safety events; sharing information on important food safety issues of global interest; promoting partnership and collaboration between countries; and helping countries strengthen their capacity to manage food safety risks. Members are expected to respond to requests for information and take the initiative to share and disseminate food safety information of potential international relevance.

Findings: The global emergency events registered and addressed through the network over the period 2011-2015 are given in **Table 4**. As seen from the table, biological hazards were responsible for the largest number of reported INFOSAN emergency events, the most common of which was *Salmonella* spp. Followed by *clostridium*, *E.coli* and *listeria*. In the chemical group, some important events related to aflatoxin, dioxin, formalin, heavy metals, melamine and nitrates.

CONCLUSION:

From analysis of all the above, it can be seen that food safety issues generally relate to pathogens (*Salmonella* spp., *Escherichia coli*, *Vibrio* spp., *Listeria monocytogenes*, *Bacillus cereus*, *Staphylococcus aureus*, etc); residues of veterinary drugs; pesticide residues; toxins; dioxin; residues of cleaning chemicals; use of unauthorised food additives; simple adulterants; heavy metals, etc. In addition food safety issues can also be an outcome of filthy or unsanitary conditions, allergens and unregistered processes or manufacturers. Food safety impacts may range from minor incidents such as diarrhoea or major food poisoning cases and even deaths. In certain instances, individual events may spread and lead to large scale food safety emergencies as already mentioned earlier as for example the case of milk contaminated with melamine in 2008, dioxin contamination of pork from Ireland in 2008, the radionuclide contamination of food items in Japan due to the Fukushima accident in 2011 amongst others. In many cases, consumers often consider risks associated with chemical hazards as higher than those associated with biological hazards, however, this is often only a public perception and media hype rather than actual situation, as seen from the above analysis.

2.2 Compliance to standards

This section analyses the issues related to standards and compliance to standards. Standards and compliance are at the core of all national food control activities as well as cross-border trade activities. As referred to earlier, the two agreements, the SPS and TBT Agreements lay down certain rules and disciplines for preventing indiscriminate use of standards and measures or technical requirements by governments. The Agreements, while permitting countries to impose standards to protect their populations and ensure fair trade, require certain rules and disciplines to be maintained so that standards, measures and regulations do not create unnecessary barriers to trade.

The SPS Agreement uses the terminology 'measure' to cover standards. Measures is defined to include 'all relevant laws, decrees, regulations, requirements and procedures including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety'.

On the other hand, the TBT Agreement differentiates between mandatory and voluntary requirements and uses the terms technical regulations for mandatory requirements and standards for requirements that are not mandatory (see **Box 3**).

The SPS Agreement refers to the standards developed by Codex Alimentarius Commission as benchmarks

for food safety in international trade. The Agreement calls for harmonization of national standards with these as an important strategy to facilitate trade. Due to reference of Codex standards, guidelines and recommendations in the SPS Agreement, these have become extremely important in international trade and countries have intensified efforts to participate in Codex meetings and influence development of these texts.

Types of Standards

Standards may be regulatory or voluntary. Under voluntary standards, these may be governmental or private. The distinction between these is described briefly below:

Regulatory standards – are those that have been referenced in regulations and are generally mandatory. These include, for example, end-product criteria; maximum residue levels for pesticides and veterinary drugs; levels of food additives permitted; maximum limits of contaminants such as heavy metals and toxins, packaging and labelling requirements, etc.

Voluntary Standards – Voluntary standards can be in the public or private domain. These are generally not mandated and can be implemented on voluntary basis. Government sometimes use

Box 3:TBT Definitions

Technical regulation - Document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method

Standard - Document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.

voluntary standards in the initial stages until their food business sector can gear up to meet them; or use them for implementing certification schemes which give the food business an edge or a differentiation over other similar businesses. The voluntary standards published by the national standards bodies are also important to consider. These standards, in many countries although voluntary, are often made mandatory by referencing them as mandatory under legislation. Some of the voluntary standards at the government level in food sector relate to grading standards, quality standards, organic standards, Good Agricultural Practices standards especially in relation to food safety and HACCP requirements, amongst others.

Private standards - Private standards are those that are designed and owned by non-governmental entities, including both for profit and not-for-profit organizations. These have proliferated for quite some time and are highly variable with respect to their purpose and scope, the nature of their standard owners, and the rules and procedures that govern their development and implementation. These often address concerns relating to food safety, quality, animal/plant health and other social issues. Majority of private standards in food sector are currently relating to product, process and management systems. Their main objective is to create a product differentiation by claiming some unique features built into the scheme such as for example organic, GAP, free trade, halal and Geographical Indications. The larger retail chains, both global and national, are imposing their own standards on products which they source themselves. . These are at times more stringent than government regulations in relation to food safety and also cover additional quality-related parameters.

An outcome of the proliferation of private standards was the setting up of Global Food Safety Initiative (GFSI), which was launched by the Consumer Goods Forum in 2000. The GFSI brings together key actors of the food industry as well as international organisations, governments, academia and service providers to drive continuous improvement in food safety management systems around the world. One of the key objectives of GFSI is convergence between the private food safety standards through maintaining a benchmarking process for food safety management schemes. It seeks collaborative solutions to collective concerns, notably to reduce food safety risks, audit duplication and costs while building trust throughout the supply chain. The benchmarking process involves comparison of food safety schemes with criteria for food safety management outlined in the GFSI Guidance document.

Issues and challenges in relation to standards

The area of food standards and technical regulations is an area which is of growing concern in the region and is of specific importance in facilitating trade. There are two sets of issues and challenges. The first set of issues is at the national level where many countries are facing issues in developing and adopting standards and technical regulations, which will have an impact specifically on imports into their countries. The second set of issues relates to exports, where countries face problems in

relation to not meeting the standards of importing countries. The main issues in the region in relation to standards under both these categories are highlighted below:

i) Multiple standards and overlap - Currently in many countries multiple agencies are developing standards (although possibly for different purposes), but this is leading to more than one standards at times, on the same product. The overlap generally occurs amongst the primary ministry dealing with the Food Act of the country, under which the regulatory requirements on food safety and fair food trade are specified and the Agriculture ministry, under which the livestock, fishery and crop sector standards and regulatory requirements are developed, sometimes extending beyond primary production requirements.. There is sometimes also an overlap with the Department of Drugs Control which lay down the permissible drugs for animal use while regulatory requirement related to drug residues are laid down under the Food Act. This results in either duplication of the regulatory activities or ineffective collaboration. In addition, there are standards developed by the National Standards Bodies (NSBs), the status of which varies across countries – from regulatory to voluntary. However, in some countries the NSBs do not lay down standards on foods but only industrial products. The existence of multiple standards in an area results in confusion on the applicable standard, not only for the food businesses which are operating within the country, but also those exporting into the country.

ii) Compositional and quality related standards: In several countries across the regions it is observed that the regulatory requirements/ standards are still focusing on composition-based and quality related parameters and not necessarily on the important food safety requirements. Often, the Codex requirements, which also have quality parameters such as grades and sizes, are adopted *in toto*. Once these are adopted in national regulations, they become applicable for trade purposes specifically for imports and work as a trade barrier. This aspect of compositional and quality requirements in standards had also been considered at the Codex level. However compositional standards still continue to be developed, due to demand from the member countries.

iii) Lack of data for risk-based standards: In many countries, there is low capacity for risk-assessment and the standards developed, whether mandatory or voluntary, are not established following the risk-based principles developed by Codex. The data linking food-borne disease to food is generally absent or minimal. There is lack of monitoring and surveillance data which should normally form the basis of standards development. These standards, therefore, cannot be justified in the event of trade disputes.

iv) Participation in International Codex Standards development: Participation in every Codex meeting becomes very difficult for countries due to cost constraints and lack of resources. Even if a representative is sent, there is often no continuity in participation at different sessions. Generally the process of formal consultation with stakeholders is also not well developed in many countries. Furthermore, it has been experienced that getting the view point of a developing country incorporated requires systematic collection of data to support views, which is again a weak area.

With these resource constraints and procedural aspects, a country's situation may not be well reflected in Codex standards and these are then not practical for adoption at country level.

v) Procedure for standards development: Most countries have a well laid down procedure for standards development by the National Standards Body, which is based on the Code of Good Practice for Standards Development as set out in the TBT Agreement. However, some countries have not laid down any procedure for the purpose of regulatory standards development. They generally find it convenient to directly adopt or follow Codex standards. However, in case of absence of a laid down procedure that does not involve stakeholder consultations, countries often face hurdles during implementation of the standards as these do not have consensus or national acceptability.

The Code of Good Practice for Standards Formulation as given in the TBT Agreement can actually also serve as a useful guidance for the purpose of regulatory standards. Some important highlights of this Code are given in **Box 4**.

vi) Notification of regulatory standards to WTO: Many countries still have not streamlined their process of notification of SPS measures to the WTO. They are also yet to establish an internal system of circulation of the notifications received from WTO or notifying any new standards or measures during the draft as well as the final stage. The result is that the trading partners do not get the opportunity to comment or raise objections or questions to the proposed measures before these are adopted as regulations. Proper notification systems will also help in facilitating trade.

vii) Private standards: An important area that has an impact on trade is

Box 4: Important highlights of the Code of Good Practice for Standards Formulation under the TBT Agreement

- NSBs to follow principles & rules similar for mandatory standards ie base on & participate in international standards formulation, apply on a Most Favoured Nation (MFN) basis, National Treatment Principle, Least Trade Restrictive
- Standards to be based, as far as possible, on product requirements in terms of performance rather than design or descriptive characteristics.
- NSBs to participate in the preparation of international standards by relevant international standardizing bodies on subject for which it either has adopted, or expects to adopt, standards. This should be done through one delegation representing all standardizing bodies in the country
- Duplication or overlap with the work of other standardizing bodies (national, regional and international) shall be avoided. Efforts shall be made to achieve national consensus on the standards developed.
- Allow a period of at least 60 days for the submission of comments except in cases of urgent problems of safety, health or environment
- On request, promptly provide, a copy of a draft standard which it has submitted for comments.
- At least once every six months, a work programme shall be published containing its name and address, the standards it is currently preparing and the standards which it has adopted in the preceding period.
- take into account, the comments received, in the further processing of the standard,
- Once adopted, the standard shall be promptly published
- provide copy of standard or work programme to interested party, on request

private standards. The increasing influence of private standards has become a concern for exporters, particularly in developing countries, as these standards impose additional requirements on them and are at times more prescriptive and raise barriers to market access. These are often more stringent than international Codex standards and the government requirements. There is also a lack of scientific justification to these standards. These also often require certifications to demonstrate compliance. Furthermore, whilst the concepts in many are similar, depending on the markets more than one standard can be insisted upon. Such standards are therefore an added burden on producers and exporters in terms of requirements and costs. Furthermore, these do not adhere to any formal international standardization process as per accepted principles and no particular national norms.

The WTO Agreement does not impose any significant discipline on such standards, so any problems relating to them are not subject to dispute settlement under WTO. However, in order to address this issue, WTO members agreed in 2011 to develop a working definition of SPS-related private standards, and to inform each other regularly about the work in the area. In October 2013, the committee agreed to form an electronic working group, which put forward a proposed working definition of an SPS-related private standard ([G/SPS/W/283](#)). Several developed country members said they could not support the proposal because it might imply that private standards are covered by the SPS Agreement. Members generally remained divided on future work in the area of private standards. The work to define SPS private standards has since been deadlocked.

viii) Export related issues: From the point of view of exports, the major issues encountered by developing countries in the Asia-Pacific region in relation to standards have generally centered on developed importing countries imposing standards more stringent than Codex, methods of sampling and testing which are not harmonized, test results from the labs of the developing country not being honoured, amongst others. Although developed countries are generally adopting Codex standards in their national regulations, there are still cases of more stringent requirements especially in areas related to pesticide residues, where default limits of 0.01 mg/kg have been imposed by many developed importing governments for a wide range of pesticides. For example, the EC Legislation covers around 1100 pesticides and sets limits and where a pesticide is not specifically mentioned, a general default MRL of 0.01 mg/kg applies⁹.

Even though these Agreements have been laid down with the purpose of reducing barriers to trade, it is observed that issues of non-tariff barriers do continue.

2.3 Infrastructure capacity

The availability and capacity of infrastructure has a strong impact on the safety and quality of food. This can also determine how easy it is to trade and link into cross-border value chains. Major bottlenecks are for example:

⁹ (Source)

i) Cold chains are a weak area in many countries in the region. It is observed that cold chains are not always maintained especially in developing countries due to their high cost of operation. This can lead to food safety issues as well as increased level of food waste.

ii) The facilities for primary processing, processing, auction or consolidation centres is also very important and determines the quality and safety of products. In some value chains, such as the spice sector for example, it is observed that at such centres are often lacking in the basic infrastructure and to maintain hygienic conditions.

iii) Testing infrastructure, namely laboratory equipment, skilled manpower and management systems are critical. It is observed that in many countries in the region, although the laboratories generally have the appropriate equipment, the lack of skilled manpower and availability of consumables often results in ineffective functioning of the laboratories. Many of the laboratories are yet to implement management systems as per ISO 17025 and to be accredited against the standard. The outcome is that testing done in such laboratories cannot be relied upon especially when used to provide health or quality certificates based on testing.

iv) Information technology systems are another aspect of infrastructure, which is critical in supporting food control systems. In the area of food safety management control, it is absolutely essential to have good integrated information systems with real time data which can be used to determine and manage the food safety situation in countries. Important areas for the IT systems within countries would include laboratory information management systems (LIMS), electronic registries, traceability systems, alert systems, systems designed for automation of information flows and daily activities, document management solutions, import control systems, monitoring and surveillance systems, data on human diseases and their link to veterinary zoonoses, amongst others. Many countries still do not have integrated IT system in relation to food safety management and controls. Each Ministry generally has its own information systems which are not fully computerized and often paper-based systems are being used. Specifically for border controls, this is very important in view of the single window approach, which will require links to different Ministries/ Departments to address their own clearances and communicate on real time basis to the customs nodal point.

2.4 Certifications and accreditations

To ensure compliance to standards, whether regulatory or voluntary, the role of certification is increasingly becoming important. Products with certifications such as GAP, organic, halal, fair trade, based on geographical origin (example Basmati rice from India, Kampot black pepper from Cambodia, etc), have higher value and brand equity, because they relate to specific demands of quality-conscious consumers or those having specific requirements. Products with such certifications therefore generally fetch higher prices. To ensure the special characteristics of such products, which otherwise are not visible during laboratory examination, certification is important.

Food safety certification is third-party verification that products, processes or systems in the food supply chain meet acceptable food safety standards. It is distinct from other systems of proof of

conformity, such as supplier declarations, laboratory test reports or inspection body reports. Food safety certification is based on the results of tests, inspections and audits and gives confidence to the consumer because an organization's products and/or system are being thoroughly evaluated against accepted national and international government or private standards by a competent third body. Product certification attests that a food product complies with the safety, quality, production, good practice, or any other characteristics defined in standards.

Certification has been defined by both Codex and ISO (see **Box 5**). However, to ensure uniformity, credibility and acceptability of these activities worldwide, it is important that the organizations providing certifications are able to demonstrate their competence for the same which is done through the process of accreditation. Accreditation is third party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks (ISO 17011). In relation to cross-border trade, accreditation helps to facilitate trade by acceptance of certifications, inspections and testing worldwide.

When there are no legal requirements for a food sector business to conform to standards, food safety certification is voluntary. In these cases, a food business may have its own reasons for seeking certification of conformity to a given standard, such as an internal product requirement, or the desire to gain a strategic advantage in the marketplace since food safety certification can represent a sign of food quality and safety to consumers.

Given the broad array of claims, labels and certificates by governments and private bodies, it is important that users and consumers have confidence in the integrity of such assessments. The WTO TBT Agreement recognizes the importance of using relevant guides and recommendations issued by international standardizing bodies to support globally harmonized approaches to conformity assessment. Without such harmonized approaches, it is impossible to have common recognition and acceptance of test reports and certificates, potentially resulting in a restriction of trade. The ISO policy development committee on conformity assessment (ISO/CASCO) provides a forum for developing these

Box 5: Certification Definitions

Codex: Certification is the procedure by which official or officially recognized certification bodies provide written or equivalent assurance that foods or food control systems conform to requirements. Certification of food may be, as appropriate, based on a range of inspection activities which may include continuous on-line inspection, auditing of quality assurance systems, and examination of finished products

ISO: Third-party attestation related to products, processes, systems or persons.

NOTE 1 Certification of a management system is sometimes also called registration.

NOTE 2 Certification is applicable to all objects of conformity assessment except for conformity assessment bodies themselves, to which accreditation is applicable.

"Attestation" - the issuance of a statement based on a decision following review that fulfilment of specified requirements has been demonstrated.

(ISO 17000)

consistent and harmonized practices.” These international standards and guides provide confidence to the user that the product, process or service conforms to specified requirements. It should be noted that although ISO develops the international standards that support globally-harmonized conformity assessment, ISO itself does not carry out any activities related to testing, certification or accreditation to its standards, or any other standards.

Although the ISO/CASCO toolbox is a generic set of standards and guides, there is sometimes a need for additional specific requirements in a sector or subject (e.g. food safety considerations). Where this occurs, the development of any such additional sector-specific requirements within ISO for auditing, testing, sampling, etc. are always based on the relevant generic ISO/CASCO standard, supplemented with specific subject/sector requirements. This approach ensures a harmonized and coherent approach to conformity assessment across sectors and globally.

Issues/ challenges in the certification process

In many countries, two systems of certifications are being operated, firstly those under the regulatory regime (specifically for export sector) and secondly the voluntary certification. While operating certification systems, certain principles of certification need to be followed namely impartiality, competence, responsibility, openness, confidentiality, responsiveness to complaints and risk-based approach (Ref ISO/IEC 17021-1¹⁰). Under the voluntary certification schemes implemented by the private sector, the certification bodies are following the internationally laid down rules as given in the relevant ISO standards and are also generally accredited for the same

Box 6 **ISO standards on** **product and systems certification**

ISO 17021 Conformity assessment - Requirements for bodies providing audit and certification of management systems

ISO 17065 Conformity assessment - Requirements for bodies certifying products, processes and services

by an accreditation body. However, in the case of regulatory certifications, most often, the government authorities do not implement the international certification standards (see **Box 6**) and often do not comply with the basic principles of certification. They generally do not implement these as there is no requirement or competition which requires them to do so. However, the EU which is a major market of products from the Asia-Pacific region, requires inspection and certification bodies in member states to be accredited while for third countries exporting into the EU, although accreditation is not yet mandatory, but such requirement may come up in the near future. This will possibly be a driving force in upgrading regulatory certification systems of exporting countries.

Certifications for exports are often based on end-product or consignment wise testing rather than verifying that the food control system conforms to requirements. While this approach may be suitable for homogenous products especially if correct sampling protocols are followed, these are not always appropriate for example in cases such as fishery products where products from different sources such as

¹⁰ Conformity assessment – Requirement for bodies providing audit and certification of management systems – Part 1: Requirements

farms, landing sites, etc are mixed and the test results of samples drawn from different points may show varying results with the result that consignments cleared at exporting end may fail at the importing end.

At the import level, there is a lack of coordination between different bodies carrying out food control checks resulting in multiple inspections at importing end. The concept of risk-based inspections which gives cognizance to the pre-export certification aspect is not generally implemented in many countries. Checks on the systems being followed at the export-end is mostly not being done due to which certificates issued by exporting countries cannot be fully relied upon. Now under the WTO Trade Facilitation Agreement, countries are working on streamlining their import systems and procedures to have a "Single Window Approach" with on-line verification and authentication of consignments and certificates by relevant multiple agencies. Assessments of exporting country procedures of certification would also need to be built into such systems being developed.

Testing and test laboratories is another area which is often a part of certification system especially for regulatory systems. On the one hand, developed countries are often demanding use of test methods which are highly sensitive and require costly sophisticated equipment. The use of such high level of sensitivity is based on capability of such equipment and not necessarily the risk-basis. This causes an unnecessary burden on exporting governments and industry. On the other hand, although countries generally have the test equipment, they are often not able to run these due to costly reagents and consumables as well as shortage of trained manpower. An issue in developing countries is also that each lab is working to strengthen itself for all tests and not taking advantage of the networking concept. This makes testing very costly and an unsustainable activity.

Credibility of certifications is very important in cross-border trade for which the entire conformity assessment structure in countries requires strengthening. This will include testing, inspection, certification and accreditation.

2.5 Food fraud - Food fraud is an emerging international issue that includes adulteration, deliberate and intentional substitution, dilution, simulation, tampering, counterfeiting, or misrepresentation of food, food ingredients, or food packaging; or false or misleading statements made about a product for economic gain. Some well-known cases of food fraud which brought the subject under global concern are the commonly cited examples of infant milk formula contaminated with melamine in China in 2008 and the issue of horsemeat sold as beef in Europe in 2013.

Many countries are now specifically addressing the issue of food fraud. At the EU level, although, there is no EU harmonized definition for "food fraud", it is broadly accepted by the Commission and the EU countries that food fraud covers cases where there is a violation of food law, which is committed intentionally to pursue an economic or financial gain through consumer deception. The GFSI has defined food fraud as "a collective term encompassing the deliberate and intentional substitution, addition, tampering or misrepresentation of food, food ingredients or food packaging,

labelling, product information or false or misleading statements made about a product for economic gain that could impact consumer health¹¹.

Looking at the scenario in the region, it is observed that a significant number of cases of food safety and food quality will fall under the category of food fraud. There have been recent cases of fake eggs, plastic rice and plastic cabbage in the Asia-Pacific region - all of which will come under the subject of food fraud. At a workshop on the 'Use of Science throughout the food chain for safe foods' held for Codex member countries of the region held from 18-20 November 2010 in Bali, Indonesia, countries identified the most common risk factors for food fraud and the products in which these were present. These are given in **Box 7** below:

As can be seen, many of the contaminants identified such as colours, melamine, borax, synthetic chemicals, would be covered under the category of fraud, as these would mostly be wilful, for financial gain and for the purpose of consumer deception. Such issues are gaining for both domestic consumption and trade and need to be addressed in a focused and targeted manner.

2.6 Labelling issues

An important issue that impacts food trade is labels and labelling information. Labelling is the most important way to communicate product information to the consumer. Labels may be government mandated and includes basic product information/ aspects like list of ingredients, net quantity, country of origin, name and address of manufacturer/ importer, best-before date. Labels may also include health and safety related information such as storage conditions, instructions for safe handling, nutritional requirements. In case the label relates to food safety issues, it is covered under the provisions of the SPS Agreement and if it relates to other informative, nutritional or schemes for differentiating their product, it would be covered under the TBT Agreement. Labels are also used by food businesses as a marketing strategy and include promotional information and label claims such as organic or geographical indications to differentiate and promote their products. Governments need to understand clearly, so that they can comply with requirements of importing governments.

Box 7	
Most important risk factors in food as identified in a Regional workshop on Science for safe food Bali (18-20 November 2010)	
Contaminants	Products
Pesticide residue	Fruits and vegetables, milk, sea food, meat, cereals
Heavy metals	Sea food, tea
Colours	Street food, noodles, tea
Aflatoxin	Peanuts, rice, dry chillies
Pathogens (salmonella, E.coli)	Raw veg, seafood
Veterinary drug residues	Milk
Sudan red	Chillies
Food additives	Noodles, processed foods
Melamine	Infant formula
Borax	Meat and fish
Histamine	Fish
Synthetic chemicals	Milk

¹¹ Reference: Spink, J. & Moyer, DC (2011) Journal of Food Science, 76(9), 157-163.)

Another issue in connection with labelling is that importing countries have not clearly prescribed the labelling requirements in their legislation and therefore products without clear ingredients or expiry/best before dates are being dumped into their markets. Many important requirements such as nutritional requirements, allergens present are not included on the label. The labels are often in the language of the exporting country and so are not understood by either the government or consumers in the importing country and their purpose is thus defeated. Even if such requirements were to be specified, from the exporter perspective, having to conform to labelling standards that differ across national markets means that foreign suppliers have to produce and pay for different labels and compliance procedures. These additional costs can be so considerable that they prevent some producers from competing in the market and reduce trade. Such instances are seen in the Asia-Pacific region and for countries with small market size, if they are too strict then the products may not be available for import and their consumers face more limited choice and varieties in brands of food. . Alternatively, if they products are made as per their specific label requirements, the prices may be very high due to limited market size. This aspect requires further study for the purpose of facilitating trade.

3. Food safety control strategies for trade facilitation

This section will deal with the some important strategies in selected focus areas to strengthen food safety and food controls and thereby meet importing country requirements and consequently facilitate trade. Examples from countries have been used to illustrate these in some cases.

3.1 Preventive approaches

Emphasis on the food chain approach is important as food safety hazards can arise at various stages of the food chain and need to be prevented or eliminated at each stage. Prevention is the ultimate goal of food control and this is only possible if food producers and food businesses are correctly implementing effective programmes of food safety management. The preventative risk-based approach aims at implementing practices that prevent the entry of hazards into the food chain, as once the hazards enter the food chain it may be difficult to remove them. It is important therefore to implement good practices such as Good Agriculture Practices (GAP), Good Animal Husbandry Practices (GAHP), Good Aquaculture Practices (GAqP), Good Manufacturing Practices (GMP), the Hazard Analysis and Critical Control Point (HACCP) approach and the Food Safety Management Systems (FSMS,) for example such as given in the ISO 22000. These basic good practices and food safety management systems are the foundation of food safety across the food chain and often a requirement for accessing global food supply chains.

It is also important to recognize that each and every actor in the food supply chain is responsible for the specific aspect or activity under his/her control, starting with the farmer who being at the first stage of the food supply chain has responsibility for implementing good agricultural practices, including maintaining records accurately. Processors are responsible for ensuring the production of safe food, engaging in proactive dialogue with regulatory bodies to agree on standards and ensuring efficient and effective integration of industry and official food control systems, and upgrading their facilities to maintain hygiene, design the system, implement it, including maintaining documents and records. The handlers, including transporters, storage operators, agents or consolidators have responsibility for maintaining the conditions necessary for ensuring safety and suitability on parts of the food chain under their control. The government has a major role in both creating an enabling environment (scientific, technical, financial, infrastructure, regulatory) favourable to compliance by stakeholders and ensuring implementation of regulations by different actors in the areas under their purview. Finally, consumers, although not directly part of cross-border-trade movements, are very important as they need to demand a safe product as well as follow directions for storage, use and pay attention to the “best before” date on the product label. Therefore to achieve food safety, it is absolutely essential that all stakeholders perform their respective roles.

At the regulator level, it is also important to implement risk-based systems of controls, which focus on the preventive approaches. Under this system, the regulators need to shift their focus from end product testing and compliance of a product or premises to assessment of controls put in place during the operations stages to address food borne disease risk factors that could put products at

risk. This includes inspecting premises and processes for compliance with hygienic and other requirements of standards/ regulations; and evaluating HACCP plans and their implementation. Experiences from countries in the Asia-Pacific region show that although many governments understand the importance of such systems, these have not yet been implemented in a comprehensive manner and are still generally relying on end-product inspection and testing, for both domestic and trade purposes, i.e. exports and imports. It would be necessary for governments to review their food control systems to incorporate such approaches based on preventive risk-basis. This would also involve developing risk categorization procedures; and guidance on risk-based inspections including the planning process and investigations and recalls. In connection to this, a guideline for risk categorization of food and food establishments applicable to ASEAN countries has been published by the Food and Agriculture Organization of the United Nations (FAO) as RAP Publication 2011/22¹². It may also be relevant to look at leveraging industry systems for sharing of relevant data with Government.

For globally traded products, importing countries would like to have confidence in the systems being implemented by the exporting country. Some importing countries are also requiring implementation of good practices and risk-based management systems by producers and processors as in the case of fish and fishery products by EU and low acid canned foods by US..

3.2 Harmonization of standards with international and rationalizing these within the country

As mentioned above, the SPS Agreement provides for harmonization of SPS measures of member countries with international standards (the Codex Alimentarius Commission for human health, the OIE for animal health and the IPPC for plant health) with the intent of having a single global standard so that SPS measures don't become a barrier to trade within countries and regions. To ensure that country views are taken into consideration in relation to food safety standards, it is important that countries participate actively in the work of Codex and express any difficulties in meeting the standards while these are being developed. It is also important for countries to submit data when scientific evaluations are being carried out to ensure that their situations are correctly reflected. Furthermore, countries need to harmonize their standards with international standards and in case of specific national conditions that justify a more stringent requirement, these should have a clear scientific justification with a risk assessment carried out which needs to be documented.

A very important aspect that requires consideration is rationalization of the standard scenario within the country. To facilitate import trade into a country, it is important for exporters, exporting governments and importers to have clarity on a country's requirements. In many countries there is more than one standard for the same product or parameter issued by different authorities in a country. This duplication leads to either products complying with the lower standard being dumped in a country, or alternatively uncertainty and confusion on the relevant standard.

¹² Available at <http://www.fao.org/docrep/015/i2448e/i2448e00.htm>

3.3 Transparency and communication

The SPS Agreement requires governments to notify other countries of any new or changed sanitary or phytosanitary measures which affect trade. They also allow for a reasonable interval between the publication of such regulations and their entry into force, in order to allow time for producers in exporting members, particularly in developing countries, to adapt their products and methods of production to the requirements of the importing Members.

Countries have often been experiencing difficulties due to absence of information and lack of transparency on the procedural norms and regulations of various countries as related to specifications as well as methods of sampling, inspection and test. Often the standards are available only in the language of the importing country or are presented in a very complicated manner and are difficult to understand. The result is that exporting countries are, at times, not clear about the specific requirements prescribed by the country of destination, which leads to rejection at the point of import. Governments should improve information collection and dissemination about various foreign markets including requirements in terms of product standards and other technical requirements imposed by the importing countries as well as procedural requirements.

To facilitate trade, although most countries have established a National Notification Authority and one or more Enquiry points, these need to be more effective and notify any standards or regulations to the WTO as per requirements.

3.4 Strengthening food control systems – domestic, exports, imports

The objective of implementing a national food control system is to protect the health of consumers and ensure fair practices in the food trade by ensuring compliance to the related regulations by food businesses. Effective food control systems are also very important for protection from fraud such as wilfully mislabelled, adulterated and unwholesome foods; for providing a regulatory foundation for food trade (both regional and international) including for mutual recognition and equivalence agreements; for promoting consumer confidence and strengthening national reputation; and finally for contributing to economic development by maintaining confidence in food systems.

Food control systems need to adapt to today's food production and distribution practices, moving their focus gradually from the end-product testing to the process control throughout the food chain. Principles and guidelines for National Food Control Systems should focus on the entire chain namely production, packing, storage, transport, handling and sale of foods within national borders. In today's global market scenario a large proportion of food is sourced from outside a country. Hence, properly designed import and export control systems, as part of the overall national food control system, are essential. Food control systems therefore, need to take into account global considerations in terms of the SPS and TBT Agreements as well as the Codex Alimentarius Commission texts (standards and guidelines).

Over a period of time, significant work has been done by the Codex and within the framework of Codex Alimentarius, a number of texts have been developed. Some important ones are given in the **Box 8**. Principles and Guidelines for National Food Control Systems (CAC/GL 82-2013), is a very useful document which serves as an important guidance to countries. It allows countries to have flexibility to determine how to best design their food control system and implement specific control measures. National situations (e.g. appropriate level of public health protection; legal and institutional frameworks; availability of support services, such as analytical resources, etc.) will influence the design of these systems; therefore no two systems are alike¹³.

Guidance for developing and strengthening national food control systems have been elaborated in many of the above documents. However, food control systems generally cover the following five broad areas:

- Policy/ management framework to include food control management, strategy, governance and administrative structures;
- Food laws and regulations also including requirements or procedures and standards;
- Implementation/ inspection/ enforcement and surveillance covering inspection, testing, food-borne disease surveillance (FBDS), food safety emergency preparedness, response and management, import and export controls) across food chains, including preventive approaches;
- Certifications and accreditation (including laboratory accreditations, voluntary programs and certification systems);

Box 8: Codex Texts related to Food Control Systems

Principles for food import and export inspection and certification (CAC/GL 20-1995)

Guidelines for food import control systems (CAC/GL 47-2003)

Guidelines for the design, operation, assessment and accreditation of food import and export insp'n and certification systems (CAC/GL 26-1997)

Guidelines for the design, production, issuance and use of generic official certificates (CAC/GL 38-2001)

Guidelines for the development of equivalence agreements regarding food import and export inspection and certification systems (CAC/GL 34-1999)

Guidelines on the judgement of equivalence of sanitary measures associated with food inspection and certification systems (CAC/GL 53-2003)

Principles and Guidelines for the exchange of information in food safety emergency situations (CAC/GL 19-1995)

Guidelines for the exchange of information between countries on rejections of imported foods (CAC/GL 25-1997)

Principles for traceability/ product tracing as a tool within a food inspection and certification system (CAC/GL 60-2006)

Principles and Guidelines for National Food Control Systems (CAC/GL 82-2013)

Principles and Guidelines for the exchange of information between importing and exporting countries to support the trade in food

¹³ FAO has also brought out two very useful guidance documents namely Guidelines for strengthening National Food Control Systems: FAO Food and Nutrition Paper 76 and Risk-based Food Inspection Manual: FAO Food and Nutrition Paper 89 which also serve as very useful guidance to countries.

- Information, education, communication and training.

The principles on which national food control systems should be based for their effectiveness are also given in the published Codex and FAO documents. Codex and FAO documents publish some of the key principles upon which national food control systems should be based, in order to ensure their effectiveness. These principles generally cover the following:

- Protection of consumers;
- The whole food chain approach;
- Transparency in legislation and operating procedures;
- Roles and responsibilities of the competent authority or authorities;
- Consistency and impartiality in application of all aspects of food control system;
- Risk based, science based and evidence based decision making;
- Cooperation and coordination between multiple competent authorities;
- Preventive measures to assure food safety at all moment;
- Self-assessment and review procedures with adequate capacity and capability;
- Recognition of other systems (including equivalence) supportive for food control;
- Legal foundation to enable food laws and regulations to support food control system;
- Harmonization with existing standards, guidelines and recommendations;
- Resources sufficient to maintain the food control system in order to meet its objectives.

Box 9: Food Safety Hazards to be Controlled in Production and Trading of Aquaculture Shrimp Chain

Stage	Hazard	Categorization of hazard
Production	Pathogenic microorganisms (<i>Salmonella, E.coli</i>)	Low
	Banned anitbiotics	High
	Restricted anitbiotics	High
	Heavy metals	High
Collection	Pathogenic microorganisms (<i>Salmonella, E.coli</i>)	Medium
	Sulphite	Medium
Processing	- Pathogenic microorganisms (<i>Salmonella, E.coli, S.aureus, L.monocytogenes</i>)	High
	CAP	High
Trading	Pathogenic microorganisms (<i>Salmonella, E.coli</i>)	High
	CAP	High
	Sulphite	High

For facilitating trade, it would therefore be important for countries to follow the various principles and guideline documents as have been given in the section above.

3.5 Strengthening value chains (hazard assessment) and addressing hazards to mitigate risks

To address the food safety hazards with a view to strengthening food safety and thereby facilitating trade, it is important to adopt a food systems perspective and understand the food safety risks in specific value chains.

While looking at the value chains in relation to food safety, there are three aspects that are generally considered:

- i) Domestic or export focus: In many countries in the region there is a strong distinction between the value chains that focus on exports as compared to those for the domestic markets.
- ii) The type of market: Whether the export destination is the more food safety sensitive markets such as the EU, Japan, US or the lesser sensitive ones such as the middle or far eastern countries.
- iii) The type of value chain: Certain sectors such as fishery, livestock, fruits and vegetables are higher risk as compared to food grains, sugar, low moisture foods, etc.

Focusing on value chains and markets aims to identify specific hazards of relevance to the value chain and address the same based on target markets. For example, in spices, important hazards are aflatoxin, *Salmonella*, *E.coli*, pesticide residues and Sudan red specifically in red chillies. Again, the limits or criteria requirements will vary based on the target markets and their regulatory requirements as well as additionally those requirements imposed by the private sector.

In sectors such as fishery and aquaculture products, livestock products and apiary products where countries have significant export specifically to the EU, there has been considerable work to understand the nature of hazards in the entire value chains and identify preventive measures to bring these hazards to acceptable levels. To illustrate an example of the importance of value chains and hazard identification across the chain, a summary of some work on this aspect as carried out in Vietnam is reflected in the **Box 9**.

Traceability is also a very important concept in value chains and is often required for the purpose of tracing problems to the food source. Traceability is especially relevant for conducting targeted recalls. Traceability also has relevance in situations where product differentiation is required for which it is essential to verify the source of the product or production practices to ensure its special characteristics or treatments, for example in relation to certifications for geographical indications, organic, Halal, free trade and GAP. Traceability is also an important requirement by many importing countries and buyers and requires linking their products to the source. This area is often weak in countries in the Asia-Pacific region especially the linkage from the processing plant to the source. The produce from the farms (especially the smaller farms), generally gets consolidated at the auction centres, markets or processing units, so traceability mostly ends at the processing plants or consolidators and product often cannot be traced back to the farm. Countries have been making efforts to have traceability systems, especially for high-value products intended for high end markets, strengthened and linked back to the farms. Traceability is generally better addressed through internet-based traceability systems.

For selected case studies of traceability systems, reference may be made to Annex IV of the publication "Information Management in Agrifood Chains: Towards an integrated paperless framework for agrifood trade facilitation."¹⁴

3.6 Strengthening Coordination

Food safety is a multi-sectoral and multidisciplinary subject, involving in some cases eight to ten departments in a country resulting in significant complexity of this area. It is observed that although the subject is multidisciplinary, food control activities are being implemented by different ministries/ departments in countries in a piecemeal manner and with little coordination. Coordination is required at various levels at country as well as at global level. Coordination is also required in various areas in food safety controls such as for standards development and participation in international standards activities, monitoring food businesses, management of food safety emergency and recalls, managing data, laboratory testing, implementing certification schemes, conducting awareness and trainings and also import and export controls specifically at border points.

In view of the importance of this subject, a Regional Consultation on Enhancing Inter-ministerial Coordination for Strengthening Food Safety was organized by FAO in April 2015. The deliberations led to important recommendations and initiatives. Useful inputs were provided by countries in terms of identified issues and problems in coordination of food safety and food control across ministries/departments and organizations, areas of overlap and gaps, best practices and options/ solutions for strengthening coordination in countries and prioritized actions/approaches to strengthening food safety coordination mechanisms¹⁵.

¹⁴ <http://www.unescap.org/sites/default/files/agriguide15.pdf>.

¹⁵ These are given in the report of the FAO Publication (RAP 2015/07) available at <http://www.fao.org/publications/card/en/c/223d4441-eb6a-4dfd-9253-83ec85812e74/>.

Some important recommendations which will also have an impact on cross-border trade are summarised in **Box 10**.

Box 10: Highlights of relevant recommendations of the Regional Consultation on Enhancing Inter-ministerial Coordination for Strengthening Food Safety (FAO, April 2015)

Cover farm to table seamlessly – Cooperation and collaboration among all ministries/ departments at national as well as provincial levels are important. Standards as well as their enforcement need to be covered. An institutional mechanism should be developed to bring all agencies on to a single platform. The national laws and regulations should be reviewed to ensure that these cover implementation of an integrated farm to table approach throughout the food chain. The roles and responsibilities of organizations, including at the provincial levels, need to be recognized and strengthened.

Close partnerships and engagement and role clarity can and should be achieved through inter-ministerial agreements between ministries/departments and at provincial levels. Clarity on controversial areas needs to be worked out and well documented – some areas to be covered for clarity include residue and contaminant monitoring programmes, food safety emergency response systems, recall and traceability systems and border point controls. Harmonization of processes and procedures in relation to standards (Codex/ ISO/ others) need to be worked out.

Stakeholder involvement – Stakeholders participation at every stage is key to good food safety implementation. Food business operators (FBOs) should be involved at every stage to ensure their buy-in and ownership as well as their accountability. The involvement of consumer organizations is also essential to support the national government and local authority. The scientific community, academia and others also have roles and these should be built into the laws as well as during their implementation.

Transparency and communication– Access to various types of information is essential for successful implementation. This includes awareness on standards or requirements, processes and procedures. Information should be shared with all stakeholders using IT platforms and technology to share data/information better and more effectively on a real-time basis. There needs to be greater communication between ministries/departments and stakeholders.

Collaboration and communication between countries in the region is important – Countries need to work together and support each other on food safety issues by sharing information, knowledge, expertise and experience. Countries may need to start with a review of existing regional cooperation on food safety to identify common interests.

3.7 Research activities and its role towards food safety

As analysed above, one of the issues in the developing countries, is that there is lack of data for risk-based standards as well as for risk-management decisions. It has also been observed that many countries may have data, but it is scattered and not collected and used in a planned and efficient manner. Often it is seen that the research organizations and educational institutions as well as

various laboratories in the public and private sectors have significant data, but the same is not used in a systematic way for food safety and control activities.

In a study on assessing food safety risks in Vietnam by World Bank and other partners¹⁶, it was observed that the data currently available from governmental and research institutions are not harmonized. The data are also not scientifically collected, analysed and used for development of standards and other risk management activities. Some small-scale research initiatives have carried out risk assessments on heavy metals, aflatoxin in nuts and related products and Salmonella in chicken, among others. The study recommended that in addition, these universities should promote and strengthen research capacity to provide science-based evidence to inform policy makers in developing food safety policies and programs in Vietnam, to inform risk communication activities regarding food safety as well as to be used in training programs and/or case studies. The study also recommended that "there is a need to develop better evidence on risks, impacts, and costs of foodborne disease and the efficacy and cost benefit of interventions. Evidence from the ministries is still limited and it is advisable to use independent available data, notably from research and academics as well as from the private sector, in order to help understand and manage risks."¹⁷

In a review conducted by FAO of food safety control systems in Sri Lanka, it was observed that "on the disease situation, there are a small number of specific studies in the peer reviewed research literature and conference proceedings that are of some relevance, but these provide snapshots of specific issues rather than a reflection on the overall food system. Specific research for the purpose of food controls was not very evident except in one case which has been cited in the report namely that restrictions were being imposed for entry of Sri Lanka Cinnamon to European markets as the content of metabisulphite in the tested samples found to be at levels higher than permitted and Sri Lanka was able get redressal at the WTO forum based on results of research carried out in Sri Lanka."

The importance of research in food safety control decisions has also been recognized by Mongolia. In the Mongolian Cross-Sector Strategy on Ensuring Food Security (2016-2021), one of the five goals in the strategy document is "Increase the scope, accessibility and benefits of research on food security and improve surveillance, monitoring, evaluation and assessment capabilities" under which the recommendations are selection of priorities for research and creating relevant programs; strengthening national capabilities on food security surveys and risk assessments; and assessing policies and programs related to the proper consumption of food; improving assessment capabilities and taking action to increase impact.

Policy makers therefore need to establish in better mechanisms to use the data from research for the purpose of risk assessments, risk management and also risk communication. Such data will strengthen the scientific base of food standards and risk management decisions. It will also benefit the countries in case of any WTO disputes.

¹⁶ <http://documents.worldbank.org/curated/en/415551490718806138/technical-working-paper>,

¹⁷ Ibid

4. Guidance to governments/ policy makers for implementing effective food and agriculture control systems for cross-border trade

This section highlights on how governments/ policy makers should proceed to implement effective food control systems that will help expedite clearances and release of goods at borders and thereby strengthen cross-border trade. It deals with the various strategies to address many of the issues identified in Section 3.

4.1 Assessments and profiling of country's food control systems

To ensure that the food controls systems being implemented in countries are effective, including for cross-border trade, it is important to assess a country's food control systems. Each country will have a different structure and architecture of the national food control system. However, whatever the architecture for the food control system, measuring its effectiveness is universally important to verify that resources are being well-used for monitoring food safety, consumers' health and economic interests are protected and trade is facilitated. To understand a country's food control systems capacity and effectiveness so that the weak areas can be addressed, it is useful to profile the country's food control systems based on a common food control assessment tool.

In the last few years, FAO and WHO have worked towards designing a Food Control Systems assessment tool, along with guidance on its application, to be used by member countries. This tool has been based on, and builds upon existing tools (such as the Performance-Vision-Strategy tool of IICA, the OIE tool for the evaluation of the Performance of Veterinary Services, and the IPPC Phytosanitary Capacity Evaluation tool) while also taking into account the relevant Codex guidelines and other FAO and WHO relevant guidance. The tool is currently in the final stage of pilot testing.

The tool covers the entire food chain from primary production up to the consumer, is primarily intended to be used by countries for self-assessment to understand the country's current food safety capacity, identify the strengths and weaknesses and highlight where the focus for capacity strengthening is required. By re-assessing on a regular basis, progress on the strengthening of their food control systems can be monitored. The main objective of the tool is to have a harmonized objective and consensual basis for countries to analyse the performance of their national food control system.

The tool will be useful to countries:

- for developing a common vision among competent authorities and other associated stakeholders (private sector, consumers, academia), on the current status of the national food control system, and of the priorities for progress;
- to enable, guide and measure the improvement process that would be developed and implemented by the various stakeholders, supported by a strong baseline;
- to eventually serve as an instrument to facilitate the dialogue with external stakeholders.

The tool is structured around four dimensions (see **Box 11**) which are further detailed into sub-dimensions, which in turn consist of specific competencies, each further detailed by a series of assessment criteria (total 185) that serve to capture major facets of the competency and to facilitate the assessment. The assessment takes place around the specific competencies, by rating those with scores which help to facilitate: a quick review of major areas of weaknesses and strength; and tracking changes and/or monitoring progress overtime.

Being able to demonstrate performance can be very important to develop plans for further strengthening of the system. Furthermore, building stakeholder confidence domestically is also important to open new markets and improve trading relationships. The tool is currently in the final stage of pilot testing. Policy makers in countries should make use of the tool once the same is finalized and

available. This could specially focus on the export and import competencies. However, capacity of domestic food controls of the exporting country also has significance in providing confidence to importing countries regarding the safety of products being imported into their country.

4.2 Legislation review to make it clear, risk-based and enforceable

While assessing and profiling a country's food control systems, one of the main areas of focus will be the legislation of the country covering the relevant Act or Acts, rules and regulations as well as decrees, circulars and decisions. These provide the basis for food safety management in a country and therefore need to be comprehensive, clear, risk-based and enforceable. Many countries in the region are currently in a stage of reviewing and amending their legislation. Often countries in the course of implementing legislation find that some issues have not been well addressed and then issue subordinate decrees/ decisions/ circulars resulting in multiple instruments addressing specific areas, which make them complicated and difficult to comprehend by both food businesses and government officials. Often, it has been found that, the laws are not preventive and risk-based and focus on end product checks with certain percent of food products being checked irrespective of the level of risk. Responsibilities, structures and processes are often rigidly defined that limit flexibility and capacity for responsive management and adaptation necessary to improve efficiency and effectiveness. The laws are often prescriptive leading to an over-reliance on the law and sanctions with the regulators and public officials focusing on process rather than the outcome of improved food safety.

Box 11: Food Control Systems Assessment Tool – The Central Dimensions

Inputs and Resources - fundamental elements (of a human, financial, infrastructure and policy nature) which are necessary for the system to operate.

Control Functions - to be exercised by competent authorities to ensure food safety along the food chain and to appropriately manage food safety hazards, emerging risks and food emergencies (i.e. processes and food safety outputs).

Interactions with Stakeholders - that must take place for the system to continuously adjust to both national and international stakeholders` evolving needs, to inspire confidence to stakeholders and to keep them well informed about their responsibilities.

Science/Evidence Base and Continuous Improvement - necessary features for the system to build its scientific soundness and to keep abreast of new scientific developments and innovations to continuously improve.

While reviewing legislation, reference may be made to Principles and Guidelines for National Food Control Systems of the Codex Alimentarius (CAC/GL 82-2013). Some important points that need to be addressed are listed in **Box 12**.

Box 12: Important Points to be addressed in legislation

- Frame the structure of the national food control system and its goals and objectives – specifically to provide health protection;
 - Provide clarity on the roles and responsibilities of all participants in the national food control system, i.e. the central government, the competent authority (s), third party providers (where used), food business operators and other stakeholders as appropriate;
 - Clearly define primary responsibility for food safety as that of food businesses;
 - Provide for a preventive and risk-based approach;
 - Include clear definitions to increase consistency and legal security – the requirements to be specific and enforceable;
 - Should be based on high quality, transparent, independent scientific advice using risk analysis;
 - Include provision for use of precaution and adoption of provisional measures;
 - Include provisions of approval/registration of establishments/ listing of certified units, penalties, fees;
 - Include provisions for national surveillance programmes – food-borne disease surveillance (FBDS), residue and contaminant monitoring programmes;
 - Recognise GMP/HACCP systems of FBO/ voluntary initiatives;
 - Include provisions for consumers to have information which is accurate and sufficient;
 - Provide authority, powers and mechanisms to the Competent Authority to enforce, monitor, verify through inspection and control systems at all stages including:
 - Establishment of standards or other management options to prevent and control food borne hazards;
 - Establish, monitor and enforce national standards;
 - Recognise other competent authorities' standards at the appropriate stage(s) in the food chain;
 - Establish cooperative arrangements with other government entities;
 - Establish approaches to ensure the safety and safe use of inputs to the food chain, such as food additives, pesticides, veterinary drugs;
 - Recognise and/or harmonize with Codex standards;
 - Perform audits, verification, inspections and investigations, gather evidence, collect and analyze samples and otherwise verify compliance with standards and requirements;
 - Consider official recognition of inspection, audit, certification and accreditation bodies;
 - Enforce legislation and take proportionate, dissuasive and effective action in case of non-compliance with requirements including, as appropriate, investigations and application of sanctions and penalties;
 - Ensure that risks associated with non-compliant foods are evaluated and the appropriate action taken; e.g. disposal treated appropriately or redirected;
 - Ensure the integrity, impartiality and independence of officially recognized inspection, audit, certification and accreditation;
- Enable traceability/product tracing; and Ensure that unsafe food is prevented from entering the market or is withdrawn and dealt with appropriately.

4.3 Identifying the food safety objective, strategies and road map over an identified period

While working on food safety and control systems for facilitating trade, it is important for governments to identify the food safety policy objectives and work out the strategic action plan to achieve the same. Policy objectives may include:

- building preventive risk-based approaches for food safety;
- strengthening inter-ministerial and inter-department coordination for food safety;
- strengthening and streamlining test capabilities;
- reducing clearance times at customs points without compromising on safety and quality of product;
- minimizing rejections of exported products by importing governments;
- developing recognition agreements with countries where trade interests are significant;
- having better communication with governments in relation to rejections or non-compliances;
- better use of results of private certifications in government food controls activities; and
- strengthening human resources.

Many of these objectives will have a direct relevance in facilitating trade while others will have an indirect influence towards trade facilitation such as for example implementing good practices will lead to better quality and safety and thereby meet importing government requirements.

Many countries in the region are developing food safety and quality strategies and policies. An example of the strategy highlights from Vietnam and Mongolia are given in the **Box 13**.

Box 13: Examples of Outlines of National Strategies relating to food safety and quality

National Strategy for food safety in the period 2011 - 2020 and a vision towards 2030 for Vietnam

The objective of Strategy

a) General objectives

- By 2015: The master plans on food safety from production to consumption are deployed on the basis of management system of enough strength, effect, significant and overall impact to the improvement of the food safety situation in our country.
- By 2020: Basically, the control of food safety throughout the food supply chain is set up and promoted efficiently, actively in the protection of health and interests of consumers, to meet requirements on development and integration of international economy of the country.

b) Specific objectives

- Objective 1: Improve knowledge and practice on food safety for the object groups.
- Objective 2: Strengthening capacity of the management system of food safety.
- Objective 3: Significantly improve status of ensuring food safety of the facilities of producing and processing food (processing sector).
- Objective 4: Significantly improve status of ensuring food safety of the facilities of producing, processing food (service sector)
- Objective 5: Preventing effectively the poisoning of acute food.

Outline of the Mongolian Cross-Sector Strategy on Ensuring Food Security (2016-2021)

Aim of the Strategy is to provide safe and guaranteed food supplies by properly ensuring food inspection at all levels of the food chain, align and regulate cross sector policies, boost food inspection standards, improve the implementation of legal regulations and to ensure knowledge and practices of healthy food consumption.

The Strategy addresses issues under 5 major goals and makes specific recommendations under each of these. Each action is identified with the Government Ministry(s) and agencies with primary and support responsibilities and all have documented time frames over the life of the strategy.

Goals:

1. Develop and reform the legal environment of the food sector (including bilateral and multi-lateral treatise)
2. Improve the management, administration, cross sector collaboration, alignment and information sharing on food security.
3. Develop and strengthen food security mechanisms.
4. Increase the scope, accessibility and benefits of research on food security and improve surveillance, monitoring, evaluation and assessment capabilities.
5. Empower the professional workforce, increase consumer knowledge on proper food consumption, and improve information sharing.

4.4 Multidisciplinary or One-Health approach

With rapid population growth, globalization and environmental degradation, health threats have become very complex and cannot be solved by one sector alone. The One-Health approach, which is a current area of focus globally, leverages on the idea that problems impacting the health of humans, terrestrial and aquatic animals, plants and the environment can be effectively resolved through improved stakeholders communication, cooperation, and collaboration across disciplines and institutions. This can lead to sustainable solutions and at the same time play a role in facilitating trade. However, current activities within the One-Health framework have so far mainly been directed to the strengthening of animal disease surveillance and early detection of potential disease outbreaks (threats linked to zoonotic influenza, rabies, etc), the strengthening of veterinary and public health services, and actions to address high impact disease threats.

Food safety aspects of One-Health have so far not been well addressed. Real food safety problems include the contamination of food with known, emerging or re-emerging pathogens that originate at the human-animal-ecosystem interface or human-plant-ecosystem interface. In addition to highly pathogenic avian influenza (HPAI) and other pandemic threats, food safety issues, include mycotoxin, pesticides/ veterinary drug residues, mushroom poisoning, which have generally not been taken up yet under One-Health. All these have an impact on cross-border trade and would require a One-Health approach to solve them. Another aspect that where this approach would benefit is the area of horizon scanning for disease surveillance with the possibility of detecting some potential food safety threats at the point of entry into the food chain and in cross-border trade.

It is therefore considered important that countries work to understand and embrace this One-Health concept and implement it to solve identified problems of a cross-cutting nature. It is also important to institutionalize the approach by building appropriate institutional mechanisms such as One-Health Platforms. This approach could also be useful while dealing with common issues across countries acknowledging the role of multi-disciplinary collaboration for problem solving to address regional problems.

With strong political commitments and partnerships, the 'One-Health' approach can address crucial issues in health and food production sectors; safeguard consumer health as well as facilitate safe food trade globally.

It is useful to mention that within the region Singapore has used the One-Health approach very effectively and has established a One-Health platform with representatives from the Ministry of Health, Ministry of Environment and the Agriculture Veterinary Authority. The One-Health approach has been used not only in streamlining and strengthening preparedness and responsiveness to public health incidents, but also streamlining processes for imports through activities such as accrediting overseas processors for imports of poultry, meat, eggs and pigs; for inspection and testing imports in a collaborative manner so as to facilitate trade. Another use of this approach by Singapore has been for horizon scanning to determine the potential hazards entering into their country through various sources including foods. The visible benefits have been enhanced collaboration, better preparedness for public health incidents, streamlining processes and removing duplications.

Such One-Health approaches may be implemented by countries for preventing and mitigating health threats at the Animal-Human-Plant-Environment interfaces with the objective of achieving health and wellbeing as well as for facilitating trade.

4.5 Capacity building of manpower

Food safety is a specialized field and government, food businesses across the value chain, consumers, technological and research institutes, amongst others play an important role in ensuring that the foods are safe. It is therefore important that all actors involved are well equipped, in terms of trainings and awareness to be able to perform their roles effectively.

Food control authorities should follow a structured approach to staff capacity development and ensure that the manpower both at central and local levels is included while providing trainings. Important areas where trainings may be considered include risk analysis, risk assessment, risk management and risk communication. Risk communication is an especially weak area in countries especially in relation to addressing public concerns over food safety. Messages on food safety risks to public need to be consistent and coordinated and this requires considerable training and collaborative approaches. Other important areas for trainings and capacity development of manpower include data analysis for risk management, risk categorization, risk-based import controls, residue monitoring systems, hazard analysis, etc. The inspection staffs need to have a good understanding of modern food production and industrial processes, and how HACCP systems are integrated into these. They need good auditing skills to be able to review and evaluate systems performance and outcomes.

It is important to have awareness programmes for food businesses on legislation, standards and requirements to enable them to meet their responsibility to supply safe foods. Specifically for the smaller and less developed businesses and sectors, awareness programmes on simple hygienic practices and maintenance of simple records need to be provided. Such programmes are also important for the primary producers and primary processors.

4.6 Partnerships, coordination and agreements

Food safety is the focus of attention of policy makers, international and regional organizations, research organizations, academia and the private sector. All of these actors have the common goal of improving public health, facilitating market access, and contributing to enhanced food security nationally and internationally. Each organization and stakeholder works towards this goal within their own sphere of influence. Partnerships and a collaborative approach are essential to addressing various activities and achieve national and global food safety goals.

Partnerships need to be recognized at various levels, at the national level – both inter-ministerial and provincial, between international governmental organizations, with regional organizations, with academia and research organizations and with NGOs and private sector. It is important to recognize and encourage the role of private sector as an equal partner in food safety management. The area of partnerships with academia and research organizations is often neglected, although they have the potential to provide knowledge resources and data to food control authorities. Partnerships and

coordination is a weak area in many countries and organizations at the national level tend to generally work in isolation. This needs to be given a focused attention and could be strengthened by measures such as, providing stakeholders representation on Committees, establishing network platforms and setting up discussion fora. Improving cooperation among the economic actors is also important, and export associations can play an important role in helping Small and Medium Enterprises (SMEs) or Small and/or Less Developed Businesses (SLDBs) strengthen safety and quality with a view to access international markets.

However, as seen from some latest developments in countries, there has been recent focus on strengthening such coordination and Working Groups have been set up at the technical level to address issues through coordination and collaborative working. Cambodia can be cited as an example, where a 'Technical Working Group on food safety' has been set up. This working group meets monthly to address any issues of concern. A similar 'Food Safety Working Group' has been set up in Vietnam which in addition to various representatives from national ministries and private sector stakeholders also has representatives of international organizations as members. This group is co-chaired by the Government of Vietnam and by FAO representing international partners.

Another area where partnership and coordination is very relevant is in the laboratory sector, both at country and regional levels. It has been observed that within countries, each Ministry may have its own laboratories, working on the premise that they need to have test facilities readily available to them. Laboratories require a lot of resources, in terms of equipment, consumables and manpower and are therefore very difficult to sustain. Countries may need to consider establishing a system of laboratory networking, where laboratories (in both government and private) could be strengthened for different parameters and effectively utilized in a pooled and collaborative manner.

In relation to border controls, it is extremely important for countries to have partnerships at two levels. Firstly at the national level, which would aim at having coordination with all related Ministries/ Departments to ensure that the food safety and quality requirements of respective Ministries/ Departments are correctly followed before release of products. Secondly, at the regional and global level where partnerships with overseas governments are useful for addressing pre-border controls and would include aspects like recognition agreements, MOUs, agreements on acceptance of certificates, and recognition of food safety controls in exporting countries.

It is observed in many developing countries in the region that the coordination between agencies at the border is weak, which results in multiple agencies drawing samples for inspection or testing. There have also been instances where a single agency has the responsibility of clearance of import consignments, but do not always consult other departments, which may lead to non-compliant consignments passing through the border. Strengthening partnerships between Customs and other related government agencies for setting up a clear single window at the border is needed. Such partnerships could be effectively established through an MOU or Service Level Agreement (SLA) with clear roles for each partner as well as clear obligations in relation to information sharing. This is also very much in line with the commitments made by governments under the WTO Trade Facilitation Agreement (TFA). Laboratories also need to be brought under the partnership agreements, recognizing that testing is an important aspect of import controls. Partnerships with other stakeholders, including trade and specifically importers and exporters are also essential.

With regard to trading partners, countries would need to identify the types of collaborations and partnerships, which will be useful. Countries may wish to enter into agreements or formal arrangements concerning food import and export inspection and certification to provide an enhanced means of assuring that exported products conform to importing country requirements. Such agreements are useful in ensuring minimal allocation of resource at the importing end. However these agreements may be costly in terms of negotiation process and are more useful when there are regular imports from a country. These agreements may be particularly important where oversight and monitoring of food business premises can only be done by the country within which they are operating. Guidance on developing Equivalence Agreements regarding food import and export inspection and certification systems have been developed by Codex Alimentarius Commission and is given in CAC/GL 34-1999. Although the document specifically relates to equivalence agreements, the texts could well be used as guidance for MOUs or formal arrangements.

At the regional and international level partnerships are also very important for enabling safe food in global trade. INFOSAN, which is aimed at preventing the international spread of food-borne diseases, also promotes partnerships between governments of countries. Furthermore, INFOSAN promotes partnership between Ministries/ Departments within a country, as each country is required to have a single INFOSAN emergency contact point but needs to coordinate and communicate intra-country for its effectiveness.

The WTO Trade Facilitation Agreement, also “recognizes the need for effective cooperation among Members on trade facilitation and customs compliance issues”. Article 8 on Border Agency Cooperation covers both cooperation within the member country and also cooperation between member countries that share a common border. Regarding cooperation within the country, the Agreement requires that its authorities and agencies responsible for border controls and procedures dealing with the importation, exportation, and transit of goods cooperate with one another and coordinate their activities in order to facilitate trade. On cooperation with other countries with a common border, the aim is to coordinate procedures at border crossings to facilitate cross-border trade in terms of alignment of working days and hours; alignment of procedures and formalities; development and sharing of common facilities; joint controls; and establishment of one stop border post control.

The TFA requires a “Single Window” to be maintained for dealing with traders or applicants for clearances. It is required that the participating authorities or agencies would need to coordinate with each other and receive the required information and documents through the single contact point. The Agreement requires there to be transparency on requirements, so that traders are aware of their compliance obligations. Article 23 requires countries to establish and/or maintain a national committee on trade facilitation or designate an existing mechanism to facilitate both domestic coordination and implementation of the provisions of the Agreement.

With such provisions for strong coordination and cooperation being built into the TFA, it is evident that countries will need to adopt strategies for effective implementation.

4.7 Incentives for implementing various food safety and quality measures

“The primary responsibility of food safety and quality lies with the food businesses” is a key principle that has been emphasized in food laws, policies and strategy documents. Although food business generally comply the basic minimum regulatory parameters, the implementation of any additional requirements (such as organic, private sector requirements or GAP) are influenced by direct or indirect incentives or

benefits. Some of the benefits of implementing such additional requirements include ecost benefit, increase in market share, increased exports, better profits, and availability of a continuous market.. However the impact of these benefits is seen over time and often small businesses do not have resources and sustenance power to wait for the impact. Therefore, such businesses require some support from the government or even their customers.

In the developing countries, to support food businesses to implement various food safety and quality schemes, governments are providing incentives in terms of financial subsidies for GAP, HACCP, organic and any other certifications. Furthermore, some governments have supported the set-up of laboratories and even testing for export requirements, testing of soil and water in the case of primary producers, basic equipment for primary processing amongst others.

Another method of incentivization being used is to give preference to quality or safety certified products in government procurements. In Thailand, hospitals are making it a pre-requisite to procure GAP certified fruits and vegetables, which creates further incentives for producers. During the concluding workshop of the project 'Implementation of Good Agriculture Practices in SAARC Countries: SAARC GAP Scheme' implemented by FAO in May 2016, the importance of having have government incentives to popularize GAP implementation for fruits and vegetables was discussed. Such government incentives would be critical to the success of the GAP schemes in countries. An important recommendation in relation to giving incentives by governments, such as preference in government procurement to procure from GAP certified farm, support advertisement and awareness campaign, give preference in farm loans, food processing zones to give preference to GAP certified produce. Another possible incentive would be to give preference to those that apply to do farming in newer agri-locations, if they agree to implement GAP. Governments may need to build these incentives and considerations into the initial stages of any new food safety and quality schemes.

4.8 Use of automation, traceability and electronic certification systems for effective compliance to food safety and quality standards

As indicated earlier, global food trade is growing rapidly. Products in cross-border trade need to meet requirements of the importing markets, of both government and buyers. Importing countries require that the food imported complies with their regulatory requirements in terms of health and safety of the food product, the production and process requirements in terms of GAP, GMP, and HACCP. In addition, there are often other requirements specified by either the government or buyers that include parameters such as traceability; source of production; environment and social sustainability; halal; organic; and geographical indications, amongst others.

To meet the demands of the importing countries, it is necessary that products are transported and stored in ways that minimize the risks. However, it is also important that there is efficient and speedy clearance of the products at borders. Therefore, it is greatly important that information regarding the products or batches traded is available and can be linked to the products and the source.

There are a number of challenges in food trade that need to be addressed. The chain, especially for cross-border trade is long and complicated and involves many players with actions of each player determining actions of the next in the chain. Food is by nature a very sensitive product as it is a perishable item, it involves health and safety issues. Food is often associated with religious and cultural beliefs. It is governed

by regulations and standards. It involves consumer choice and it involves the need for accurate information on storage times and temperatures, source¹⁸ and processing information¹⁹.

Agrifood chain information management and automation

To facilitate food trade and address challenges, information plays a very important role. The various types of information required relate to sanitary and phytosanitary information; nature and history of the food; customs and regulatory information; food security information; and information, in relation to control of legal activity. Please see **Box 14**.

It is important to understand that such information as indicated above needs to be “managed”.

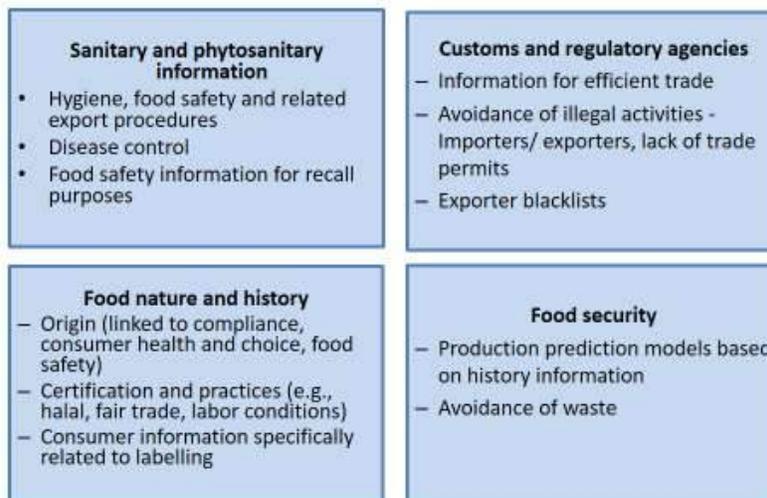
This information needs to be structured across food chain (from producer to the consumer).

As both the information and the food products move along the supply chain there is a need to build on the existing information and make this information accessible to users and consumers. This information is needed in relation to regulatory systems; standard compliance systems, and systems to increase the marketability of food products. Some examples can be seen in **Figure 1**²⁰.

Agrifood chain information management is the collection, storage and distribution of information about food and food trade along the whole food supply chain from farm to fork. The overall objective of such information management is make to agrifood trade inclusive, safe and accessible.

The concept embraces both traceability and cross-border trade facilitation systems, such as well as national single windows, customs systems and other controls. It also uses technology to enable smarter

Box 14 Information Needs



Information Management in Agrifood Chains: Towards an Integrated paperless framework for agrifood trade facilitation, 2015 (www.unescap.org)

Functions or purpose of Information Management in Agrifood chains



Figure 1

¹⁸ For example in the case of geographical indications (GI),

¹⁹ Such as HACCP implementation, halal requirements implemented, good agricultural practices followed.

²⁰ Source: Information Management in Agrifood Chains: Towards and Integrated Paperless Framework for Agrifood Trade Facilitation. Available here: <http://www.unescap.org/resources/information-management-agrifood-chains-towards-integrated-paperless-framework-agrifood>

food systems. It can also be used for capturing individual components of the entire agrifood trade chain such as for example issuing health certificates and linking these with the food control system monitoring by government or issuing import permits based on health situation of a country for example in relation to freedom from bird flu.

To implement agrifood chain information management systems by policy makers for facilitating food trade in relation to food safety and quality, they need work on a step-by-step approach, an outline of which is given below:

- i) **Identify the key objective** which is expected to be achieved through the information management systems. Some key objectives could be to facilitate both exports and imports and reduce time at the border point; ensure that safe products are imported that comply with regulatory standards; ensure coordination between the multiple agencies that have a role in border control; and enable traceability to the point of production.
- ii) **Develop unambiguous risk-based import and export control systems** with clearly defined and agreed roles of relevant authorities. . Some important aspects for the development of risk-based import control systems are highlighted in **Box 15**. The success of import control systems can lie with two important overarching requirements. Firstly, effective information flow and communication of information is essential; and secondly is an effective risk categorization, which forms the basis of all three stages namely pre-border, border and post-border controls. An overview of the imported food control framework is illustrated in **Figure 2**²¹.

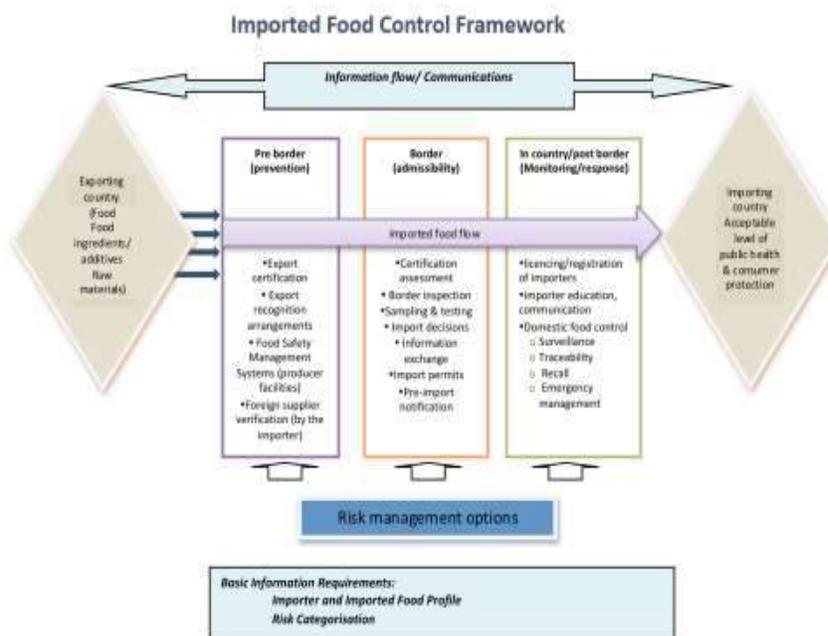


Figure 2 Imported Food Control Framework

²¹ Risk Based imported Food Control manual, FAO 2016 (<http://www.fao.org/3/a-i5381e.pdf>)

The entire set of information and risk basis needs to build into the automated electronic information system²².

- iii) **Identify the specific information** to be captured (see **Box 14**).
- iv) Develop an **automated electronic information system** for agrifood chains, which transports information between business partners. This should enable movement of information seamlessly from the production to the consumers in the importing country and allows ease of monitoring and clearance at the border point and enable traceability. This should also capture information from the business systems of FBOs as relevant. The system should also provide for issue and verification of electronic certificates.
- v) Set up a **monitoring system**, allowing industry to analyse the information they need to ensure compliance; and government authorities to verify the information contained in the chain information management system and certify the same.

Box 15

FAO publication risk-based imported food control manual – some highlights

Importers are responsible to ensure that imported food meets country requirements. Governments are responsible for setting rules, primarily risk based, monitoring importers and imported food and where necessary enforcing rules

Risk based import controls provide assurance that food meets importing government's requirements

Risk management activities or controls can take place at pre border, border and post border.

- Pre-border controls basically seek assurance that the controls in an exporting country (example food production, processing and exports) will lead to safer imported foods. This covers profiling of exporter, manufacturer, imported product, country of origin, source country of the consignment and port of entry; agreements with importing countries; controls put in place by importers on their suppliers; and any other such initiatives which increase the level of confidence on the safety and quality of product being imported.
- Border controls cover application of import permits by food businesses, and the processes for admissibility and inspections of consignments and importer inspection.
- Post-border controls refer to activities within the importing country after the product has been imported into the country. This covers two basic aspects, firstly, any control of the importer (e.g. assessment of their system to ensure the safety of imported food, the appropriateness of their warehouses, the transportation means etc.); and secondly actual controls over specific imported food products, either still in the importer's warehouses or already placed on the domestic market.

While implementing import controls, it should be ensured that these are achieved through the most resource effective manner namely targeting the highest risk products with the most appropriate risk management action at pre-border, border and post-border

²² For developing risk-based import and export control systems, guidance as given in Codex may be referred. In addition, specific reference is made to the FAO publication risk-based imported food control manual published 2016 and available at <http://www.fao.org/3/a-i5381e.pdf>

A practical example of a national single window customs control model implemented in China which harnesses Information and Communication Technology (ICT) for customs border clearance management is briefly outlined in **Box 16**.

Traceability

The concept of traceability is also very important for effective food control system in relation to cross-border trade and clearances of consignments. Traceability has been defined by Codex Alimentarius Commission as “the ability to follow the movement of a food through specified stages of production, processing and distribution”. Traceability – defined by ISO 8402 as the “ability to trace the history, application or location of an entity by means of recorded identifications”.

When applied in food safety context, traceability is a tool that does not in itself improve food safety outcomes, unless it is combined with appropriate measures and requirements. For example, by providing information on suppliers and customers involved in potential food safety issues and thereby enabling targeted withdrawal and recall. In the context of food inspection and certification, traceability may apply to all or specified stages of the food chain as appropriate to the objectives of the food inspection and certification. The traceability tool should be able to identify at any stage of the food chain from where the food came and where the food went i.e. “one step back” and “one step forward” based on the objectives of the system. Once a food business operator keeps such records, it creates a chain of documentation, connecting right up to the source of any food incidence and limiting its impact on public health. Such a system also serves to determine the chain of responsibility. In such situations, traceability as a

Box 16: China’s E-Port - Towards a Single Window Trading Environment

China’s General Administration of Customs (China Customs or GAC), the ministerial-level government agency responsible for supervising and controlling import and export undertook Customs modernization in three phases : the initial phase, which involved the preliminary work on a legal and regulatory frame work for GAC; the second phase, focused on improving legislation, transparency, and accountability for trade efficiency; and the third phase, which was triggered by China’s accession to the WTO in 2001 and led to more legislation and regulatory reforms to meet China’s WTO commitments.

Within this broad portfolio of e-Government initiatives charted by the Chinese Central Government, information and communication technology (ICT) has played a critical role in catalysing GAC’s modernization into a “smart” Customs that leverages technology to reduce the time, cost and complexities of international trade. This is embodied by three “Es” (a) China E-Port, which acts as a Single Window system for trade documents; (b) E-Customs, which handles border clearance control through the Customs Clearance System; and (c) E-General Administration, which enables better [vertical] administrative decision making through the Customs Internal Administration System.

There were 5 broad phases of customs reforms:

Phase 1: Automation Initiation (1978-1988)

Phase 2: Computer System Application (1988-1998)

Phase 3: Nationwide-Linked Customs Computerized System (1998-1999)

Phase 4: Cross-sector Connected System (1999-2001)

Phase 5: E-Customs as Decision-making Support System (2001-present)

Details of these as well as the functions, operational model, governance structure, benefits, future development, key success factors of the E-Port are given in the UNNExT Brief No. 14, June 2015 Towards an Enabling Environment for Paperless Trade: China E-Port Towards a Single Window Trading Environment (<http://www.unescap.org/sites/default/files/brief14.pdf>).

tool, can contribute to the protection of consumers against deceptive marketing practices as well as trade facilitation on the basis of accurate product description (Codex).

In the context of border controls, traceability is important, both in the case of food safety emergencies and non-compliances. Traceability makes it possible to trace the origin of the product to its source and identify the food safety problem and deal with targeted withdrawals/recalls. The rest of the goods can then be released without any problems. An illustration of traceability covering cross-border processes is shown in **Figure 3**²³.

²³ Source: Information Management in Agrifood Chains: Towards and Integrated Paperless Framework for Agrifood Trade Facilitation. Available here: <http://www.unescap.org/resources/information-management-agrifood-chains-towards-integrated-paperless-framework-agrifood>

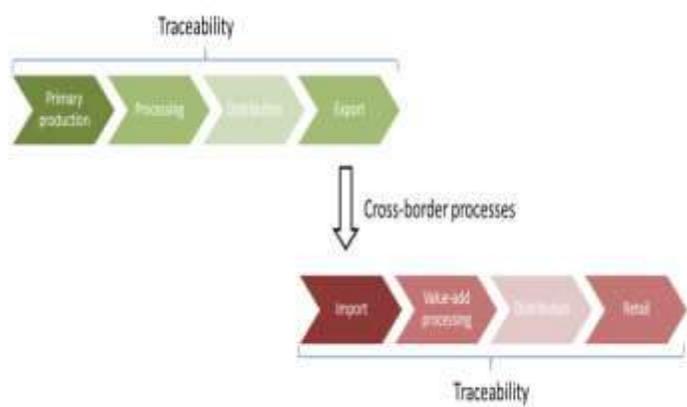


Figure 3

A practical example of an IT enabled traceability systems (GrapeNet) has been implemented in India for export of grapes. GrapeNet is an example of how electronic traceability applied to the grape sector in India has been used to enable small producers in the country to participate in international trade. The GrapeNet initiative was launched in 2006 and has ever since helped to raise European importers' confidence in fresh grape imports from India by enabling the monitoring of pesticide residue and by achieving product standardization.

Box 17: The GrapeNet System of India

Key Features:

GrapeNet implements end-to-end monitoring of pesticide residues and adherence to product standards and facilitates tracing from imports to farms of the Indian growers. This covers farming, sampling, testing, certification, packing and logistics.

This software can be easily used anywhere and anytime by all authorized stakeholders. The stakeholders that have been granted access to use GrapeNet are APEDA registered exporters, packaging houses, laboratories, the State Horticulture Department, Agmark Department, Phytosanitary Department and the National Referral Laboratory.

Implementation of the software has reduced duplication in data capture and enables instant reference of previous steps in the supply chain. The in-built checks and balances in the software ensure that the subsequent steps can be carried out only if all previous ones are successfully completed. No document can be issued without going through the software. Finally and most importantly, APEDA can trace details of the consignment right down to the plot level.

Steps for development of the system

1. Software development for registration, inspection, residue testing, consignment creation, online applications and hosted on the web server of APEDA.
2. Expert involvement for scientific inputs in the software development.
3. Capacity building of field staff and grape growers.
4. Registration of exportable grape gardens is done yearly between October and December. Interested grape growers apply online and a 12 digit registration number is assigned to each farm.
5. Inspection: two mandatory inspections of grape gardens for EU export.
6. Residue analysis through accredited and authorized laboratories
7. Certification issued online through GrapeNet after appropriate validation of test results
8. Phytosanitary certification issued after physical verification of consignment and if found free from pests and disease
9. Public awareness campaigns at the district level through the press and electronic media.
10. State level steering committee for stakeholder consultation to formulate guidelines, reviews and project updates and suggests policy changes to government

For details on challenges, approaches taken, process, funding model, benefits and lessons learnt see UNNExT Brief No 15, August 2015 (<http://www.unescap.org/sites/default/files/Brief15.pdf>)

These measures have boosted Indian grape exports to the countries of the European Union. An overview of the system is given in **Box 17**.

Electronic certifications

It is important to have authentication that safe practices are followed across the food chain to ensure product safety as well as authenticity of label for specific claims (organic, origin, Halal, GIs, Fair Trade, etc). Importing countries often rely on oversight of exporting governments/ third party assessments and issue of some form of communication/information exchange that consignment meets requirements. Issue of Official certificates (sanitary/ health/ others) is one such means of attesting that the consignment meets requirements. The Codex Alimentarius Commission, through its Food Import and Export Certification and Inspection Systems (CCFICS) Committee has published the Codex Guidelines for Design, Production, Issuance and Use of Generic Official Certificates (CAC/GL 38-2001), (adopted in 2001; and revised in 2005, 2007, 2009). The document defines certificates as those paper or electronic documents, which

describe and attest to attributes of consignments of food moving in international trade. It provides guidance on design, production, issuance and use of official certificates to attest that food meets importing country requirements for food safety and fair trade practices; and it recognizes that the competent authority can require official certificates as a condition for clearance. For design, production, issuance and use of certificates, seven principles have been given in the Codex Guidelines. These are given in **Box 18** for reference.

The standard provides for use of certificates in either paper or electronic form. For export certificates exchanged electronically between competent authorities of exporting and importing countries, the system provides for:

Box 18 Principles for design, production, issuance and use of certificates – A summary

A. Certificates should only be required when essential information and attestations are necessary to ensure food safety and/or fair trade practices.

B. Recognizes that countries may provide assurances through means other than consignment-by-consignment certificates (example lists, single certificate may cover multiple consignments).

C. Attestations and information required by importing country should be confined to essential information related to the objectives of the importing country's food inspection and certification system.

D. Rationale and requirements for specific attestations and identifying information should be communicated to exporting countries in a consistent and transparent manner and be applied by importing country in a non-discriminatory manner.

E. Information should be presented in a form that simplifies and expedites the clearance process while meeting the importing country's requirements.

F. The competent authority of the exporting country is responsible for any certificate it issues or authorizes to be issued (issued in timely manner to avoid trade disruptions).

G. All relevant attestations and identifying information required by the importing country should be included on a single official certificate, where possible, to avoid multiple or redundant certificates.

- considering data elements and message structure such as those set/ratified by the United Nations Centre of Trade Facilitation and Electronic Commerce for electronic certificates exchanged b/w government border authorities. Both countries to agree on data elements to be exchanged;
- considering application of available technologies for data message exchange to ensure that data exchange options support business continuity;
- assuring integrity of the certification system during the exchange of electronic data to protect against fraud, infection from viruses, etc and to maintain system integrity;
- including a mechanism to control and protect system access against unauthorized entry. Both countries to agree on access rights, including the officials to have access;
- including technical or procedural mechanisms to prevent the fraudulent reuse of electronic certificates;
- taking account of limitations of infrastructure and capabilities of developing countries;
- including a contingency plan to minimize disruption to trade in case of system failure; and
- notifying the exporter or their agent when an electronic certificate has been authorized for a consignment.

A generic model official certificate and model certificates for fish and fishery products and milk and milk products have been given in various Codex texts.

Whilst developing the automated systems for border clearances, it is important that policymakers look into the aspects of information, certification and traceability requirements of both importing and exporting governments as well as the requirements of the Codex and FAO guidance documents. These requirements may then be incorporated into the agrichain information management system. This will ensure that the system is well aligned and compatible with international systems and those of trading partners. In preparation of the development of the automated system, it is critical that the relevant authority addresses the aspect of simplification of procedures in coordination with other Ministries/ Departments. To understand the 'as-is' procedures countries can utilize the Business Process Analysis methodology, to understand the time cost and actors involved in the procedures and developed the 'to-be' procedures and automated systems.²⁴

4.9 Analysis of the costs of compliance for cross-border trade requirements

As mentioned earlier, unsafe food can result in food-borne illnesses, malnutrition, food wastage and losses, reduced domestic and international market access, which in turn have significant cost implications. As per estimates, globally 1.3 billion tons of food is lost or wasted each year. An important cause of this is non-compliance to standards. The economic impact of foodborne disease and food contamination is significant. Figures show that New Zealand in 2009 estimated that six foodborne diseases cost the country an approximate NZ\$161.90 million. Furthermore, there are costs related to destruction of foods. For example, the figures show that dioxin contaminated Irish pork in 2008 led to the culling of 100, 000 pigs, which was equivalent to the destruction of €125 million worth of food, and total economic losses estimated at more than USD 1 billion.

On one hand are the many benefits that can be attributed to adoption of food standards and food safety and quality measures. However, there are also significant investment costs for the establishment of

²⁴ See Business Process Analysis Guide to Simplify Trade Procedures: <http://www.unescap.org/resources/business-process-analysis-guide-simplify-trade-procedures>

procedures and practices for implementation of such measures. There are limited studies and research done on economic benefits and costs of improving food safety. However, some studies are available on costs of implementation of HACCP, GAP and other food safety management systems at the production and processing parts of the value chain. Nevertheless, the insight into economic consequences for different stages of the chain and for the entire chain is not well studied. Furthermore, regarding the costs of implementation of food control systems at government level, there are a few studies available. More work and studies in this area are required at the regional level.

Currently this area is gaining significant attention. Working is currently ongoing by FAO, World Bank and a number of other organizations to develop food safety indicators and index.. There are also studies that have been initiated on cost of meeting food safety requirements as well as on building up cases for investment in countries. However these are still at early stages.

Regarding analysis of the cost of compliance for cross-border requirements, there are various aspects that have potential cost implications and require consideration. These include strengthening food systems in a country for safe production and monitoring by governments as well as specific programmes relating to cross-border trade requirements. These will generally cover:

At food business level

- Costs of implementing product and process standards, both governmental (end product standards, GAP, GMP, HACCP, halal, organic) and private (GAPs, fair trade, food safety management systems, ISO standards);
- Costs of certifications against various systems;
- Tests to check compliance;
- Investments in processing, storage and transportation infrastructures.

At policy maker level

- Development of legislation and standards;
- Establishing implementation or enforcement systems for domestic foods, exports and imports;
- Establishment of laboratory facilities;
- Implementing monitoring programmes such as pathogen, contaminant and residue monitoring plans;
- Implementing foodborne illness response;
- Implementing emergency response, including recalls;
- Implementing non-compliance investigations;
- Conducting trainings for food businesses;
- Education of consumers;
- Negotiating Agreements with overseas governments;
- Conducting research activities.

In relation to cross-border trade requirements, in addition to the above there are also specific requirements for implementation of various WTO Agreements, specifically the SPS, TBT and Trade Facilitation Agreements. Such requirements may have cost implications, such developing a single window system (preferably IT-based); provision of health certificates (which will be based on either lab-based tests or monitoring the systems being implemented by food businesses); establishment border agency cooperation systems, including the National Committee on Trade Facilitation; establishing equivalence or recognition agreements; establishing a conformity assessment infrastructure in the country

and costs of certifications and accreditations; and training manpower at various levels (government and food businesses).

To assess the cost of implementation of such measures, it may be useful to carry out regional studies covering a few countries as examples. Countries may also wish to undertake the cost assessments at the planning stages.

5. Role of development partners in providing support to countries to strengthen food safety and quality and enhance trade facilitation

Although national governments have a major role in strengthening their own food and agricultural control systems for facilitating trade, certain activities could better be handled at regional level. In such cases, development partners could provide support through facilitation and technical support. Some areas identified include:

- Providing regional and subregional level trainings in various areas as identified by countries;
- Providing support for reviewing status of countries with regard to legislation and food control, conducting comparative studies and identifying areas requiring strengthening, in order to bring the countries at a level where minimum requirements safe food and trade facilitation have been met;
- Providing support in identifying laboratories in the region with specific capacities and capabilities and making this information available to countries. This may be further elaborated to establishing a regional laboratory network for Asian countries;
- Providing support in building a regional database of human resources and experts with skill sets in specific areas, so that these can be deployed as needed;
- Exploring the possibilities for sharing of infrastructure sharing and methodologies in particular areas.

7. Conclusion

Cross-border trade of agriculture and food products has been rising over the years due to increasing demand by consumers for choice in foods. Trade in agricultural and food products is also being facilitated by governments with a view to stimulate economic growth and increase foreign exchange earnings. To ensure that consumers get a safe food, governments of importing countries are imposing increasingly stringent requirements on products entering into their country. Moreover, the private sector is also imposing their own requirements. These private standards are being used as a tool for product differentiation and competitive. To ensure that the imposition of such requirements do not cause barriers to trade, the WTO has laid down certain rules and disciplines in terms of the non-tariff agreements, the SPS Agreement and the TBT Agreement. The Agreements, while permitting countries to impose standards to protect their populations and ensure fair trade, require certain rules and disciplines to be maintained, so that standards, measures and regulations do not create unnecessary barriers to trade. In addition to standards, measures and regulations, there are also procedural issues that cause barriers to cross-border trade. To address the issues of trade facilitation through the simplification, modernization and harmonization of export and import processes, the WTO Trade Facilitation Agreement (TFA) was negotiated and this entered into force on 22 February 2017.

The various food safety and other quality related issues that impact cross-border trade that have been discussed in this publication, including food standards and compliance; infrastructure capacity; certifications and accreditations; food fraud and labelling issues. To facilitate cross-border trade, it would be important to look into various issues which are affecting trade, both exports and imports and develop strategies to mitigate the issues and hurdles. A few of these have been covered in the publication and include implementation of preventive approaches in food controls; harmonizing standards with international and rationalizing these within the national situation; strengthening coordination systems between Ministries and agencies in the country; and strengthening food control systems.

The publication has also covered guidance to governments and policy makers on how to implement effective food and agriculture control systems to strengthen cross-border trade. These would include:

- Assessments and profiling of country's food control systems to identify the strengths and weaknesses and highlighting where particular attention needs to be given. It is particularly important to determine the country's current food safety capacity;
- Identifying the food safety objective and developing plans to achieve the objectives;;
- Implementing a multi-disciplinary or One-Health approach;
- Strengthening partnerships, coordination and agreements;
- Exploring the role of incentives for implementing various food safety measures;
- Using automation, traceability and electronic certification systems for effective compliance to food safety and quality standards;
- Analysing of the costs of compliance of various measures for cross-border trade requirements, so that these could be suitably considered.

Appendix 1

Relationship between the SPS, TBT and TF Agreement

SPS Agreement – Some Highlights

The SPS Agreement sets out the basic rules for food safety and animal and plant health standards. It allows countries to set their own standards. However, the SPS Agreement requires that these standards are based on science, and applied only to the extent necessary to protect human, animal or plant life or health. These should not arbitrarily or unjustifiably discriminate between countries where identical or similar conditions prevail. Member countries are encouraged to use international standards, guidelines and recommendations where they exist. However, members may use measures which result in more stringent standards, but only if there is scientific justification. They can also set higher standards based on appropriate assessment of risks so long as the approach is consistent, not arbitrary. The agreement allows countries to use different standards and different methods of inspecting products.

The main principles of SPS Agreement are harmonization, equivalence, appropriate levels of protection (ALOP) and risk assessment, regional conditions and transparency. These are described below:

1. Harmonization: WTO members are entitled to determine their own SPS measures provided they are in accordance with the terms of the SPS Agreement. However, under the principle of harmonization, WTO members are encouraged to base their SPS measures on international standards, guidelines and recommendations, where they exist. The SPS Committee promotes and monitors international harmonization of standards. There are three international standard-setting bodies specifically mentioned in the SPS Agreement. These are often referred to as the 'Three Sisters'. WTO Members are encouraged to participate actively in the work of the "Three Sisters", which provide other forums for delivering technical assistance. These are the International Plant Protection Convention (IPPC) dealing with plant health; the World Organization for Animal Health (OIE) dealing with animal health; and the Codex Alimentarius Commission (Codex) dealing with food safety.

2. Equivalence: The SPS Agreement requires importing WTO members to accept the SPS measures of exporting WTO members as equivalent if the exporting country objectively demonstrates to the importing country that its measures achieve the importing country's appropriate level of protection. Typically, recognition of equivalence is achieved through bilateral consultations and the sharing of technical information.

3. Appropriate level of protection: According to the SPS Agreement the appropriate level of protection (ALOP) is the level of protection deemed appropriate by the WTO member to protect human, animal or plant life or health within its territory. It is important to clearly distinguish between the ALOP established by a WTO member and the SPS measures. The ALOP is a broad objective. The SPS measures are established to attain that objective. The determination of the ALOP logically precedes the establishment of an SPS measure. Each WTO member has the right to determine its own ALOP. However, in determining their ALOP, WTO members should take into account the objective of minimizing negative trade effects. In addition, WTO members are required to apply the concept of ALOP consistently; i.e. they must avoid arbitrary or unjustifiable distinctions that result in discrimination or a disguised restriction on international trade.

4. Risk assessment: The SPS Agreement requires WTO members to base their SPS measures on a risk assessment, as appropriate to the circumstances. In conducting such risk assessments, WTO members are

required to take into account risk assessment techniques developed by relevant international organizations. The reason WTO members conduct a risk assessment is to determine the SPS measures to apply to on import in order to achieve their ALOP. However, the SPS measures, which a WTO member adopts, must not be more trade restrictive than required to achieve their ALOP taking into account technical and economic feasibility. In practical terms, a risk assessment is essentially the process of gathering scientific evidence and relevant economic factors on the risks involved in allowing a particular import to enter a country. An importing member is likely to seek information on matters such as the pests or diseases that might be associated with the commodity and whether these contaminants are present in the exporting country. WTO members may adopt provisional SPS measures where there is insufficient scientific evidence to complete a risk assessment. However, in such circumstances WTO Members are required to seek to obtain the additional information necessary for a more objective risk assessment within a reasonable period of time.

5. Regional conditions: The SPS characteristics of a geographic region be it all of a country, part of a country, or all or parts of several countries are referred to in the SPS Agreement as regional conditions. They can affect the risk posed to human, animal or plant life or health. Accordingly, the SPS Agreement requires WTO members to adopt their SPS measures to the regional conditions from which the product originated and to which the product is destined. In particular, WTO members are required to recognize the concepts of pest/disease-free areas and areas of low pest/disease prevalence. Exporting WTO members claiming pest/disease-free areas or areas of low pest/disease prevalence must demonstrate to the importing WTO member that such areas are, and are likely to remain, pest/disease-free areas or areas of low pest/disease prevalence.

6. Transparency: The principle of transparency in the SPS Agreement requires WTO members to provide information on their SPS measures and to notify changes in their SPS measures. WTO members are also required to publish their SPS regulations. The notification requirements are met through a national notification authority. Each WTO member must also nominate a national enquiry point to deal with SPS related queries from other WTO members. A single agency may perform both notification and enquiry functions.

7. Technical Assistance and Special Treatment: The WTO recognizes that the technical capacity to implement the SPS Agreement will vary between WTO members. Developing country members, in particular, may find implementation challenging due to resource constraints, including limited expertise. To help overcome this problem, a number of mechanisms are built into the SPS Agreement. WTO members agree to facilitate the provision of technical assistance to other members, especially developing countries, either bilaterally or through international organizations such as the "Three Sisters". The SPS Agreement also provides for special and differential treatment. For example, in applying SPS measures WTO members are required to take account of the special needs of developing country members, particularly the least-developed country members (LDCs). Many developing country WTO members have benefited by basing their SPS measures on existing international standards, guidelines and recommendations issued by the Three Sisters.

TBT Agreement – Some Highlights

The key principles underlying the TBT Agreement are non-discrimination and national treatment, avoidance of unnecessary barriers to trade, the use of international standards, transparency, as well as technical assistance and special and differential treatment for developing countries.

The Agreement deals with three sets of provisions - those dealing with i) Preparation, adoption and application of technical regulations; ii) Preparation, adoption and application of standards by standards bodies; and iii) Provisions related to conformity assessment.

Transparency is an important requirement in the Agreement and is mostly achieved through "notifications" provided by WTO members. The Agreement covers requirements for notifications of technical regulations and conformity assessment procedures. For standards, the Agreement requires the Code of Good Practice for the preparation, adoption and application of standards to be followed.

Another important area addressed in the Agreement is conformity assessment, which covers procedures "for sampling, testing and inspection; evaluation, verification and assurance of conformity; registration, accreditation and approval as well as their combinations." The Agreement encourages WTO Members to enter into negotiations with other Members for the mutual acceptance of conformity assessment results". This requirement has importance and aims to reduce multiple testing and certification of products in different countries leading to significant cost reductions.

Trade Facilitation Agreement and its relationship to the SPS and TBT Agreement

As many of the SPS provisions are implemented at the border, there is some concern on the conflicts between the SPS and TF Agreements. However this aspect is clarified in Article 24 Final Provisions (para 6) according to which "nothing in this Agreement shall be construed as diminishing the rights and obligations of Members under the Agreement on Technical Barriers to Trade and the Agreement on the Application of Sanitary and Phytosanitary Measures". The TFA, does go beyond the SPS Agreement with regard to certain provisions (SPS plus provisions). These are well given in a Background Note of the WTO dated 21 March 2014 on "The Relationship between the Trade Facilitation Agreement and the Agreement on the Application of Sanitary and Phytosanitary Measures" given at link https://www.wto.org/english/tratop_e/sps_e/tps_e/tps_e.pdf.

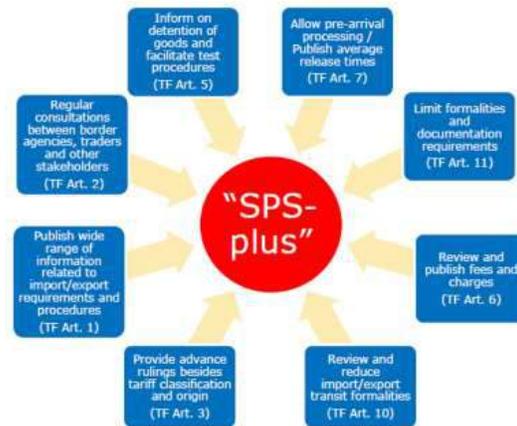


Figure 4 Examples of SPS-plus provisions contained in the TF Agreement

The SPS-Plus provisions contained in the TFA are represented in Figure 4.