II. Bottlenecks for Facilitating Agricultural Trade

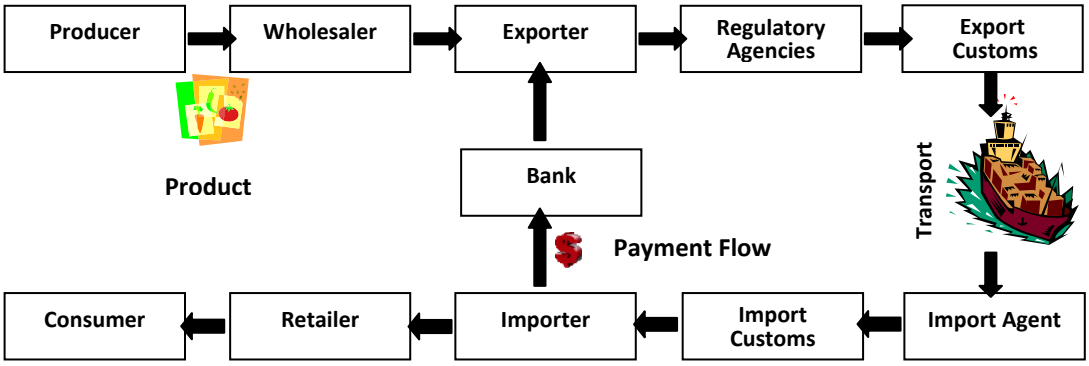
Agricultural supply chain is generally considered the most complex in terms of movement of goods and services especially due to their time and temperature sensitive nature. Significance of import quotas and export subsidies has lowered over the last decade, while the agricultural products are reported to have largest number of non-tariff measures (NTM) complaints compared to that of other sectors (Tongeren and Disdier 2010). Agro-trade suffers from a range of constraints causing time delays and incurring additional cost leading to increased transaction cost for traders. These include cumbersome custom procedures, poor capacity of meeting product standards and regularly varying standards, unavailability of proper trade logistics services, lack of trade finance and infrastructure issues such as poor border facilities. And the list goes on. These constraints can be divided into four main categories: *Trade Procedures, Product Standards, Trade Logistics and Trade Finance.* These are significant challenges to Trade Facilitation in agriculture which eventually impact trade competitiveness.

A. Trade Procedures

1. Procedures are Worse for Agro-products

As a general rule, a trader must adhere to the national trade procedures and satisfy importing country's trade procedures when applicable. Each trade procedure requires the trader to complete a set of activities related to commercial, transport, regulatory and financial aspects. For example, an exporter requires producing a Purchase Agreement or a Sales Invoice to receive importer's payment; bill of lading; multiple filled forms for export licenses or quota; multiple receipts etc.

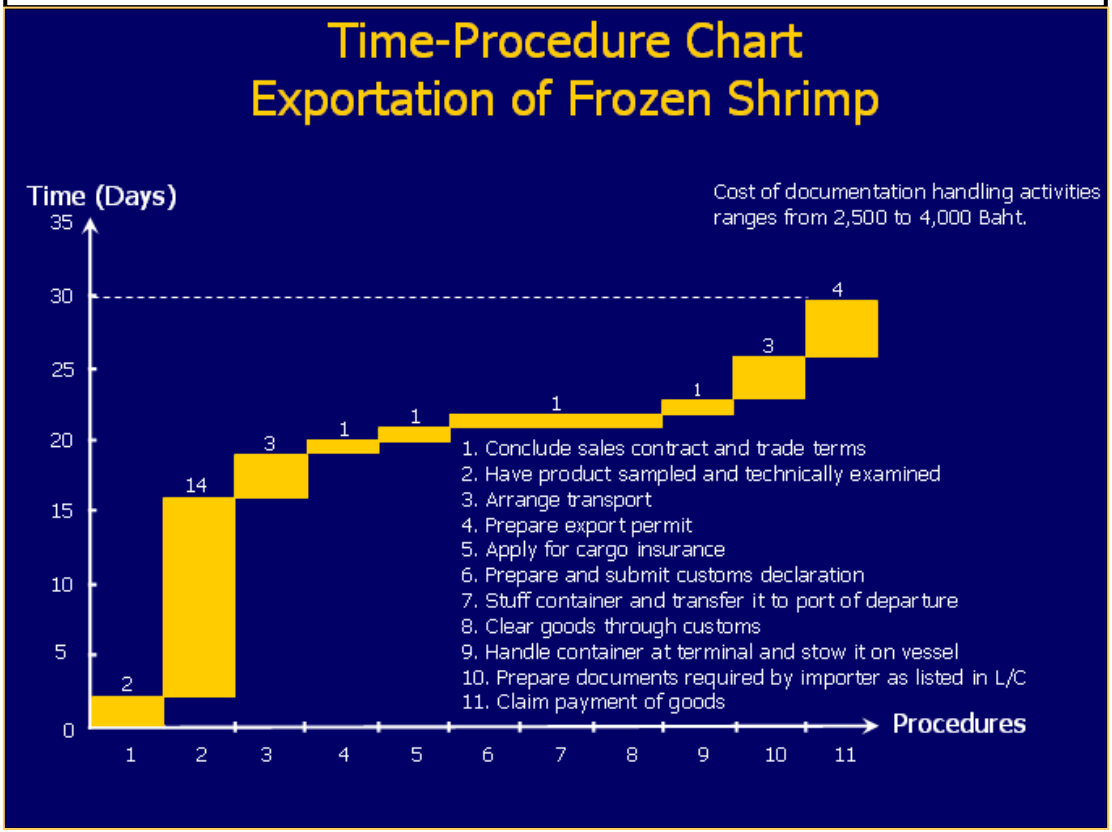
Figure XVII - A Generic Agricultural Product Supply Chain Structure



Source: Sirimanne 2011

Figure XVII shows a generic supply agricultural supply chain for an exporter. For agricultural products, the processes are more complex and require additional documents due to requirements for SPS certificates, fumigation certificates, export quota clearance and so on. These requirements often mean obtaining various authorizations, submitting additional paperwork and following tedious custom procedures and result in duplication of information entry and visiting additional agencies. This makes the trade transaction all the more complicated and delayed even before the shipment of the product. ESCAP Business Process Analysis (BPA) Studies have shown that in South Asia it may take more than 47 days[12] to export agro-products within the Asia-Pacific region. They need to prepare up to 26 documents and visit up to 14 different agencies for single trade transaction. Another BPA study on Thailand's Frozen Shrimp export, carried out in 2007 showed that this transaction involved 15 stakeholders and 30 documents, containing 788 data elements (Fig 23). It was also revealed that while general cargos required 23 days, for frozen shrimp it needed 30 days to complete the export process. Most of the time out of the 30 days was spent on preparing customs documentation, product testing and obtaining sanitary certificates.

Figure XVIII – Time Procedure Chart: Export of Frozen Shrimp from Thailand



Source: Keretho 2009, data from 2006

[12] For exporting vegetable ghee through road transport to India, (Rajkarnikar 2010)

2. Accessing Information is Difficult

Article X of GATT 1994 highlights transparency as the "central element" of publishing trade related regulation. Besides, lack of publicly available information creates a ground for irregular payments for export and import transactions. Transaction cost can increase with lack of predictability and clarity of the trade rules and procedures. The unclarity of information causes more problems for SMEs than large exporters due to their inability to 'speed-up' processes through unfair means. Art X.1 requires that all WTO members "publish promptly" all their trade regulations of general application "in such a manner as to enable governments and traders to become acquainted with them" (UNCTAD 2011). The recent Technical Notes on Trade Facilitation Measures, published by UNCTAD also, stipulate "Timely, accurate and easily accessible information on trade legislation, applicable fees and tariffs, and related adjudicatory mechanisms is essential for the transparency, predictability and efficiency of international commercial transactions."

Inaccessibility, unavailability of organized information and transparency are central to trade-related information constraints. Access to accurate information on trade laws, regulations, and procedures in many Asia-Pacific economies is not readily available. Exporters need endless array of information on export markets, consumers, competitors, custom procedures, licensing rules, access to finance and so on. This creates a major problem for the traders as they cannot prepare for compliance with the regulations. This is particularly challenging for agro-products since the compliance requirements for product standards change regularly and the updated information is critical for the exporters to ensure compliance.

Traders need information on operational procedures, office opening hours, border control schedule and procedures, port procedures, tariffs and fees, new or additional changes in product standards requirements, financial regulations and other trade-transaction related information. This information is usually published through official gazette or notices from relevant agencies or published in newspaper. However, often these announcements are published in a delayed manner through these channels and often not easily accessible by public. Studies on The Lao People's Democratic Republic show that the existing laws and rules on compliance to SPS standards are not adequately published (World Bank 2010) (see Box 1).

Very simply, basic information on step by step procedures to receive certification/authorization or any other task is often not posted publicly. Relevant agencies (for example, ministry of agriculture, Customs control, plant quarantine agencies) could post this information on a notice board.

Information and communication technology (ICT) use is a powerful communication channel to reach out to maximum number of traders. For traders, internet could provide 24/7 access to information and help them prepare for the trade transaction on trade

procedures, rules, documentation and other relevant procedures. While many Asia-Pacific economies now have official websites and upload some forms or official documents, these are often not complete. Often, various portals link the official websites with old data or even worse the web link does not work. Besides, traders need to print the online forms and visit the authorities to submit them. Particularly in Central and South Asia, insufficient use of ICT and low penetration of internet are potential hindrance to easy access of trade related information.

Redundant information sometimes creates more confusion than having no information. Agro-trade processes require better coordination since it usually involves more agencies and is subject to strict adherence to standards. Government bodies, especially agencies involved for informing import product standards and conformity standards often do not feel the urgency of updating such information. Many agencies mention about their lack of capacity to do so as well. This is also caused by a lack of coordination between agencies. Many governments do upload similar information but often delayed and not updated. In a particular trade transaction, many public and private agencies are involved. Each of them may need to publicly disseminate information. But for the exporters, it is extremely difficult to access such information unless it is published or disseminated in a coordinated manner. Establishing a single point of contact is important, but, not prevalent in Asia-Pacific countries.

Box 1: Regulation and Transparency at the Borders of the Lao People's Democratic Republic

A report by the World Bank states that there is no published fee-schedule for services rendered by border control agencies at the border of China and the Lao People's Democratic Republic. It also mentions that fees are levied arbitrarily without providing a basis both at different locations on the border and on the roads inside the country. It also points out that the decentralization of authority is a barrier for cross-border trade. The SPS responsibilities including issuance of phyto-sanitary and veterinary certificates, conducting inspections, collecting fees are under Provincial Agriculture and Forestry Office (PAFO). However, the laws allow the provincial governors to adopt own regulations. This works as hindrance to uniformity of SPS measures.

(World Bank 2009)

3. Too-much Paperwork Delays Transaction

Trade procedures require exchange of data between the trader, custom authorities, other relevant ministries/agencies, border authorities and service providers such as freight forwarders. A significant amount of paperwork is required to perform the exchange of

information. Paperwork is usually time-consuming and can result in delays and duplication of information.

Procedures are linked with each other. So, almost every step forward in the supply chain depends on the completion of the previous step. For instance, an exporter needs to prepare a packing list before applying for a SPS certificate. Each function in this process takes time and incurs cost. Very often, all the processes add up to many days. Since the process for agricultural products is more complex than other products, number of days taken for these products is naturally higher. All these contribute to time delays and influence the quality of the agricultural products and thus the value. It affects the ability of the exporters to meet the 'just-in-time' needs of the foreign customers. It can also result in total loss of the entire consignment due to spoilage. Studies carried out in the UK show that single transaction from producers to retailers can take up to 150 documents with duplicate information entered many times (see Box 2). ESCAP studies show that Sri Lankan tea exporters require preparing 24 documents and visiting 9 agencies for exporting to Japan. Bangladeshi shrimp exporters also need to submit the same number of documents and visit 14 agencies for exporting their products to Japan. It takes about 8 days and up to 31 days to complete single transaction for tea and shrimp exports respectively in Sri Lanka and Bangladesh. Cambodia's rice and cashew exporters are also required to submit 21-24 documents whereas much less are necessary (see Box 3).

Box 2: The Perishable Food Exports of the United Kingdom

Evidence from the perishable foods in the UK shows that a single transaction from grower to retailer can consist of 150 documents resulting in duplicate elements of information being entered up-to 42 times. For imports, the total cost related to paper documents in the perishable food supply chain is at least GBP 1 billion or 10.6% of the annual import value. About 35% of this is spent on man hours only (including importers, freight forwarders and authorities)

(SITPRO 2009)

Automation is a widely accepted solution to address this problem. However, there is varied level of automation achieved by countries in this region. While some developed and emerging economies fully automated trade transaction procedures including e-SPS (Sanitary and Phyto-sanitary) certificates, most developing economies have gained inadequate or no automation processes to reduce paperwork. Even though sporadic, some of the initiatives taken by Asia-Pacific countries could provide good examples for others to follow and will be highlighted as good practices in the next chapter. Poor achievement in electronic data exchange can be firstly attributed to absence of legal framework for electronic commerce and exchange of trade data. Like many countries, the Central Asian country, Kazakhstan requires its traders to submit paper documents to obtain export permit since the law does not support electronic signature. This is a costly matter particularly for the traders who are

not based in Astana (the capital and location of relevant ministry) and need to travel for many hours from long distances. Studies show that countries with cumbersome procedures accrue less benefit from automation and e-commerce (ESCAP 2009). For example, Nepal's vegetable ghee exporters require three recommendation letters to receive the export quota. Automating this process without reducing the number of processes, will have limited impact on simplifying the. Therefore, it is important to harmonize national procedures, operations and practices that could benefit from automation or e-exchange of data.

Box 3: Cambodia's Rice and Cashew Exports

Rice is considered the most important agro-export product in the country. Rice exports amount to about $500 million according to formal statistics while the informal trading accounts for a major part of the trade. However, the time and cost related to rice exports are quite high making the transaction cost higher for the Cambodian traders. The Business Process Analysis (BPA) carried out for Cambodian rice export to Europe by UNNExT expert shows that exporters require to physically visit 6 agencies and prepare 24 documents for one export transaction. It requires $1,029 to export one 20-foot container. The process for obtaining the export related documents and licenses is cumbersome and expensive. In fact, only 8 documents are required for export while 11 of them are supporting document to obtain the export documents. On average, 16.5 days are required to complete one export transaction.

Cambodia is the 10th largest cashew producer in the world. India is one of the export destinations for Cambodia's cashew. A recent BPA study by UNNExT shows that it requires 21 documents and about 14 days on average to export to India. The cost of transporting a 20 foot container is $839 of which 38% is official administrative cost to traders including application for export permit, customs clearance and container check.

(Siphana, S. 2011)

4. Delays at the Border: An added Bottleneck

Delays at borders are a major bottleneck in clearing agro-products. Border delays often diminish the quality of agro-products, which ultimately reduces the value of the agro-products. This is the key motivation behind expediting the border controls. Land-locked countries face special challenges of inefficient border controls. Excessive physical inspection, lack of coordination among domestic border agencies and between neighbouring countries, lengthy custom clearance at both sides of the borders and limited working hours at border stations are some of the major procedure related factors. Non-transparency, complexity of procedures and frequent changes of procedures at the border controls also act as deterrent to improving border controls. For instance, Nepal's exporters of vegetable ghee go through a cumbersome process at the border for customs clearance. After submitting 10 required documents to Customs control, all cargoes are inspected, quantity and value of goods are recorded, clearance order is issued and export clearance is signed by Customs before dispatching cargo to destination (Rajkarnikar 2010).

Among the issues at the border, lack of inter-agency collaboration is a major concern. Traditionally, Customs agency has been the lead coordinating agency at borders with support from other bodies such as Veterinary and Health agencies, Banks, Immigration agency and so on (Alburo 2008). All these agencies need same information from the traders in various forms, provide separate receipts and follow separate information protocols. So, clearly there is a need to align the functions and services of these agencies, which will follow the same information protocols and harmonize their processes. For land-locked countries, lack of integrated border control forces traders to go through another round of border control when entering into the importing country. Non-harmonization of trade data element between countries adds another level of problem at the border crossing of the importing countries. The trader needs to submit the trade data in a different format according to the needs of the agencies of the importing countries. This leads to various procedures and standards requirements. Therefore, before establishing integrated border control, trading countries need to harmonize trade data elements. Study findings estimate that time delays for fruits and vegetables exports from Thailand to Greater Mekong sub-region is about 26 percent tariff equivalent figure. For China, the tariff equivalent for the import time delay was close to 28 percent for the same product groups. The Lao People's Democratic Republic was reported for high import time delays regarding processed food products estimated at 22 percent tariff equivalent. (Hufbauer and Wong 2011)

B. Product Standards

According to the ISO (2004), a standard is: “A document established by consensus and approved by a recognized body that provides for common and repeated use, rules, guidelines, or characteristics for activities or their results, aimed at the achievements of the optimum degree of order in a given context.” It also notes that: “Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits.” (FAO 2011)

Ensuring product standards for international trade of agricultural products is a complex topic. It encompasses institutions, infrastructure, logistics and administrative issues. In international trade, Standards “are generally established by consensus in technical committees of experts; compliance is not mandatory". A similar term, Technical Regulation is defined as “a document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions with which compliance is mandated by law. Unlike voluntary standards, technical regulations are set out by governments and are obligatory". The Sanitary and Phyto-sanitary (SPS) agreements and Technical Barriers to Trade (TBT) measures are technical regulations governed by the World Trade Organization (WTO).

Standards can be categorized into two types: (i.) Public Standards and (ii.) Private Standards. Public mandatory standards are legally binding and can be termed as regulations. Public standards can be voluntary and not legally binding, for example 'Label Rouge' developed by France (Henson and Humphrey 2009). Private standards are often interchangeably used with voluntary standards. These are standards developed by private bodies ranging from a large retailer to private sector coalitions such as British Retailers Consortium (BRC) to a non-governmental initiative such as Fairtrade. While the notion that public standards are mandatory and private standards are not, may not hold the whole truth. The table below could give a simpler view of the types of standards. On the contrary, private standards, if adopted by the government can become legally binding and mandatory. Some private standards, although not compulsory, are now so widely followed that they can be comparable with public mandatory standards. A good example for this type would be GlobalGAP. Section 3 discusses private standards in detail.

Table 2: Typology of Standards

	Public	Private
Mandatory	Regulations	Legally-mandated Private Standards
Voluntary	Public Voluntary Standards	Private Voluntary Standards

Source: Henson and Humphrey, 2009

The SPS and TBT agreements are mandatory public regulations set out by WTO. SPS agreement allows countries to set their own standards. It stipulates certain rules to maintain food safety and animal/plant health to avoid protectionist measures by individual countries. It also mentions that regulations must be supported by scientific findings and not arbitrary. It requires exporters to follow certain principles: (i.) products sourced from areas free of pests & diseases, (ii.) Fruits/vegetables - minimum pesticide residue standard, (iii.) Meats/fish - minimum antibiotic residue requirement and (iv.) standards of hygiene applied in manufacturing (HACCP/ISO 22000) (UNIDO 2011). The TBT agreement is established to ensure that standards, certification procedures and related regulations do not create hindrances for trade. The basic motivations to set these standards and technical regulations are to ensure food safety and protecting human and animal health, facilitating market access and reduced transaction cost. However, in several cases, developing countries have faced restrictions because of their inability to meet food safety or agricultural health requirements (World Bank 2005).In addition to the public or the compulsory standards, numerous private and voluntary standards have evolved. Some of these standards are widely promoted for compliance and act like mandatory standards. Private standards may go beyond the product standards and include principles on processes. Part of the motivation behind establishing these standards are product-differentiation strategies of private firms to attract increasingly health-conscious consumers. More often than not they act as additional hurdles for developing country exporters.

1. Compliance Concerns

Emergence of new and stricter standards in agro-products poses a serious challenge for the Asia-Pacific developing countries. Since the establishment of the WTO 12,975 TBT and 11,622 SPS notifications were submitted by WTO member countries during 1995 and 2010[13]. One study showed that imported goods to the European Union faced increasing number of rejections for Bangladeshi exports of fish and crustaceans, meat, fruit and vegetables, from only 230 in 1998 to 1,520 in 2003 (Ferrer 2005 in Deb 2007). Significant portion of these notifications relate to agriculture products and were submitted by major agriculture importing countries and emerging economies. Most European countries and emerging Asian economy such as China require agro-exporters to strictly conform to these standards to enable products into their countries. China alone submitted 184 and 199 SPS notifications in 2008 and 2009 respectively. Based on 2000-01 data, World Bank (2005) estimated the value of rejected agro-products at borders (see Table 5). For developing countries the amount is $1.8 billion, which is 47% of the global value of rejected agro-products.

Table 3 - Estimated Value of World Agricultural and Food Trade Directly Affected by Import Border Rejections Based on Technical Standards, 2000–2001 (million of United States dollars)

Product Group	Estimated Proportion of Trade	High Income Countries	Middle Income Countries	Low Income Countries	China	Total Trade Affected
Meat and dairy products	1.25	811	142	8	21	982
Fish and fishery products	1.00–2.00	232	417	145	90	884
Fruit and vegetables	0.75–1.50	367	439	44	61	911
Grains	0.50	160	40	6	8	214
Animal feed	0.50	65	39	4	2	110
Tropical beverages	0.25	25	18	16	0	59
Nuts and spices	0.75–1.50	16	33	30	1	80
Other processed food	1.00–2.00	122	53	3	6	184
All other categories	0.25	199	112	19	6	307
Total		1,997	1,332	275	195	3,799
Proportion of trade affected		0.70	1.10	0.93	1.25	0.84

Source: The World Bank 2005

[13] WTO Document G/TBT/29, 8 March 2011 and G/SPS/GEN/804/Rev.3, 7 October 2010

Standards compliance involves high cost for non-compliance. If rejected, the exporter needs to take back the product or have the entire consignment destroyed. There is concern of reputation if a country faces multiple rejection record in the past. Experts have identified a number of major factors behind the inability of developing countries to meet these standards. First of all, a comprehensive Quality Infrastructure is largely lacking in the developing Asia-Pacific region. Four elements (see Box 4) are considered to constitute a quality infrastructure: (i) Metrology, (ii) Standardization, (iii) Conformity assessment, and (iv) Accreditation (see Box 4). Secondly, multiplicity of standards including compliance to private standards is an ever-growing challenge to exporters with limited technical capacities. Frequent changes in product specifications in grading, size, labelling and corresponding conformity assessment procedures for agricultural products call for greater technical and physical capacity to address these changes and thus require more time and cost to export both at national and firm level. For traders, it is increasingly challenging to keep up with the new technologies and knowledge that come with the evolving standards. Thus, inadequate technical skills and the need for continuous investment in testing equipment and machinery are a problem (ITC 2009). Thirdly, limited awareness and information of the traders on the evolving public, private and voluntary standards requirements play a major role.

Box 4 – Elements of Quality Infrastructure

Metrology *is the technology or science of measurement and the ser vice is required to ensure internationally recognized traceability of measurements and calibration of measuring instruments. Metrology can be subdivided into: Scientific metrology, Legal metrology, Industrial metrology*

Standardization *is the development and publication of a formal document by a recognized body, generally by consensus, containing the requirements that a product, process or service should comply with. Standards can be the basis of technical regulation, contractual obligations or market expectations. Standards are developed on a number of levels, namely International standards Regional standards National standards Private standards*

Conformity assessment *is the collective term for services necessary to provide evidence that a supplier, product or service meets requirements such as provided for in a standard or technical regulation. The following are generally considered to be conformity assessment services: Inspection, Testing, System certification,*
Product certification

Accreditation*, including peer assessment, is the activity providing independent attestation as to the competency of individuals or organizations providing conformity assessment services, thereby facilitating international recognition of claims of conformity.*

(Source: ITC-ISO 2010)

In 2002, the European Union made traceability[14] (information on where the products were sourced from and input usage and other production details) mandatory for all food and feed businesses (European Commission 2007). Other international standards such as ISO22000 also made it a requirement for certification. Naturally food exporters from Asia-Pacific region are required to adopt traceability to be able to tap markets. However, exporters do not know the requirements for traceability or the exact method to follow and as a result do not develop any systems to record e.g. fertilizer schedule. Given the complexity of requirements, unclarity of information deter exporters to trade.

2. Inadequate Quality Infrastructure

A comprehensive Quality Infrastructure is a source of confidence for the agro-traders. It contributes to the competitiveness of an economy by providing a platform for ensuring product quality and improved standards conformance. For agricultural exports, product conformity is highly relevant to access the European Union and other developed markets. It is becoming increasingly important to access the Asian emerging markets also as countries such as China has begun to put more emphasis on such issues for their importing partners. Development of standards could be set aside for a separate discussion since developing countries are still facing the challenge of meeting international standards. The primary issue is the disparity in all other elements of Quality Infrastructure (Metrology, Conformity Assessment and Accreditation) in the Asia-Pacific region. On one hand, there are significant technological advancements of few economies such as the Republic of Korea. On the other hand, some countries do not have operational national accreditation bodies or accreditated laboratories. So, the capacities and services of the National Standards Body (NSB), Accreditation Body (AB) and Conformity Assessment Body (CAB) in these economies do not match. There are many countries in the region where no accreditation body exist. As a result, CABs (e.g. testing laboratories, inspection agencies) in these countries are not accredited to carry out testing and certify products. Often laboratory results from these countries are not accepted by importing countries. This tends to raise costs for exporters in developing countries as conformity assessments carried out by foreign institutions are generally highly expensive. The second issue is that even if accreditation body exists, it may lack capacity in terms of human resources and facilities to accreditate laboratories. A third reality for some countries is that the existing testing laboratories or inspection agencies may lack skilled human resources and physical facilities and are not in a position to produce reliable results. Studies carried out in India show that despite presence of accreditation

[14] Under EU law, "traceability" means the ability to track any food, feed, food-producing animal or substance that will be used for consumption, through all stages of production, processing and distribution (EC 2007)
Agricultural traceability simply refers to the collection, documentation, maintenance and application of information related to all processes in the supply chain in a manner that provides guarantee to the consumer and other stakeholders on the origin, location and life history of a product as well as assisting in crises management in the event of a safety and quality breach (APEC 2009)

bodies and tremendous upgrades of laboratories, some laboratories could not perform all the tests for residues and contaminants especially for the European markets (World Bank 2004). Even within the Asia-Pacific region, the capacity of the Lao People's Democratic Republic was found to be inadequate to obtain first –time import permits from China for agro-exports. This permit is based on risk assessment, which requires surveillance data and other criteria (World Bank 2010).

The United States FDA reported that during 2007-08, food imports from China were rejected mostly for unsafe additives, veterinary drug residues, pesticide residues and unhygienic food problems (USDA 2009). A UN study indicated that the Central and Western regions of China had limited resources for inspection and compliance assessment services (United Nations 2008). This is a major bottleneck for effective control and inspection for food safety given eighty percent of the food producers and processors are small and medium enterprises.

The evolving and stricter standards lead to changing conformity assessment procedures and technologies. While some countries can cope with this change by investing in capacity development or establishing advanced physical infrastructure, others cannot. Asia-Pacific countries practice various forms of conformity assessment procedures, which vary among the countries. The Government of India had mainly harmonized its regulations on hygiene for fishery products as early as 1995. However, EC banned Indian fish products in 1997 caused by lack of efficacy of hygiene controls (World Bank 2004)

In the Asia and Pacific region, the existing legislations of some countries permit accredited testing laboratory reports or certifications from exporting countries. A few countries require the product to be tested inside the importing countries. For example, in Japan imported food may be exempted from inspection upon importation into Japan if a cargo is inspected by an official inspection organization in the exporting country and bears the result of the inspection. One the other hand, while in case of some industrial products India allows foreign manufacturing units to take license from the India Standard Institute and export to India; in case of food item it requires testing of imported ones in India upon importation and does not accept certificates of exporting country laboratories. Mongolia also suffers from the same problem as there is no mutual recognition of certificates from inspection agencies with importing countries.

Questions may arise, why is it that exporters in the developing countries have to accept the standards requirements of partner countries? In international trade, developing countries have always been ‘standards taker’ rather than ‘standards maker’. It has not been possible for the developing countries to project the equivalence of conformity assessment practices in their own countries. They have had to face export rejections.

3. Multiplicity of Standards and Private Standards

The growth in global agro-trade has been coupled with an increase of product standards. The standards regime is going to be more stringent due to progressively higher demand of processed and high-value food products. As mentioned earlier, the basic categorization of standards is based on who forms it, either a public body or a private body. Public standards are government-established whereas private standards are established by non-governmental sources. National standards based market requirements vary and it is a major topic of discussion among WTO member countries. For example, there is no official standard for Cassava imports into China. But importers traditionally require 67% starch content in Thai Cassava. The Government of the Republic of Korea does not require any for certification but specifies 55% starch content, which is lower than the Chinese and European Union requirements (Kaplinsky et al. 2010).

'Private standards' is interchangeably used as 'voluntary standards'. In reality, private standards could be mandatory also, subject to the government endorsement. Following WTO classification, Henson and Humphrey (2009) categorized private standards into three groups based on who forms it: **i. individual firm standards ii. collective national standards and iii. collective international standards**. They explained that the individual firm standards were typically established by large private food retailers and spread across the supply chains. Individual private firm standards such as Tesco (Nature's Choice) and Carrefour (Filieres Qualite) have introduced their own standards in addition to the mandatory standards of the respective countries. Collective national standards are set by collective bodies (e.g. industry associations). While they are set nationally, they could be adopted internationally across the supply chains. The collective international standards are set by a coalition of organizations based in various countries or association with international members. For instance, Global GAP or EurepGAP, Safe Quality Food (SQF) are widely complied by exporters. International Organization for Standardization (ISO) is a unique example of standards setting organization, which includes members from both public and private sectors. ISO standards certification is often considered voluntary standards in some countries with a few exceptions.

A WTO survey of their member countries indicated that many developing country producers consider multiplicity of private standards and absence of harmonization among them to be constraints to access export markets (WTO 2009).Generally, private standards require all applicable national standards to be met. However, individual firm standards include more stringent provisions than the national regulations. The Codex Alimentarius Commission reported that many retail firms require a more restrictive maximum residue limit (MRL) of pesticide, a key numerical standards for maintaining food safety, at times 25-80% of national (FAO:WHO 2010). In general, large retail firms include both product and process standards and provide Standard Operating Procedures (SOP) to their suppliers. These include size, dimension, packaging and labeling guidelines, condition at delivery, safety and quality management processes during production, and traceability. Many of them

have their own inspection procedures. Often these are applied in addition to the collective national standards. For instance, for seafood, most large British retailers require the suppliers to follow British Retail Consortium (BRC) certification (FAO 2011). Some large retailers do depend on private certification schemes by third party such as SGS.

The scope for complying with multiple standards is quite large starting from the sourcing of raw materials upto reaching consumers. The European 'Farm to Fork' policy requires suppliers to follow track and trace the entire supply chain of the ingredients of food products or in other words 'traceability'. It is also mandatory to obtain HACCP (Hazard Analysis Critical Control Point) and GMP (Good Manufacturing Practice) certification for food imports to the European Union. A related matter is the cost of compliance to private standards. A WTO (2009) survey showed that cost of compliance to private standards is high and additional to official standards. It involves infrastructure, foreign consulting fees, annual auditor fee, personnel training fee and so on. Average annual certification fee was reported to be ranging from $2,000 to 8,000. As private standards are opting to track supply chain information, it is becoming more costly to the exporters to maintain such standards.

C. Trade Logistics

The competitiveness of the product depend significantly on reliable, fast and efficient supply chains systems. Trade transaction on such a supply chain depends on efficient logistics systems and robust infrastructure. In a fiercely competitive export market, the global economic crisis and reduced demand have forced exporters to further increase productivity and reduce costs. For agro-products, it is particularly critical due to its perishabilty, sensitivity to temperature and time. Agro products or ingredients for processed goods contain vitamins, minerals and other nutrients and need to retain their nutritional value until they reach the consumer. Hence, it is important to follow certain practices or adopt particular measures, which are critical to maintaining international standards. Generally, logistics performances have been described to be contingent upon: infrastructure and transportation, services and border procedures (World Bank 2007). Trade related infrastructure facilitates both movement of goods and exchange of trade information. It consists of mainly multimodal (road, air, water) transportation network, suitable vehicles, air/sea/land port facilities, warehouse facilities, and information technology and telecommunication facilities. Logistics services can be provided by both public and private entities. Private logistics service providers often provide entire service from transporting goods from factory gate to customers. There are other service providers such as clearing and forwarding agents, port management authorities and so on. Border procedures include many agencies including Customs, veterinary, plant quarantine and health agencies. Coordination of these agencies is a major bottleneck for movement of goods across borders. This implies that many components of trade logistics are beyond the control of the trader

such as conditions of transport networks or goods handling time at port. Naturally, keeping logistics costs to a minimum is a major challenge.

1. Poor Trade Related Infrastructure and Transportation System

Transport and logistics cost are a major part of the transaction costs. Within ASEAN, the logistics costs for exporting some products were as high as 25 percent (Hufbauer and Wong 2011). The national logistics costs for Thailand and Viet Nam were measured as 20 percent of GDP.

According to a report on ASEAN logistics, transporting products across the Lao People's Democratic Republic and Thailand border costs four times higher than the norm (Nathan Associates 2007). At sector level, ESCAP Business Process Analysis (BPA) studies for a few countries in South Asia showed that only inland transport and handling cost range in between 22% to 80% of transaction cost (Table 4). For some Central Asian countries, the estimated (2006) share of transport costs in total cost of exports and imports is 8% to 14% (Table 5). Distance from production centres (farms or distant locations where the products are produced) is considered an influencing factor for maintaining food value or freshness of the product, especially where transport networks are poor.

Table 4: Transport and Handling Cost as percentage of transaction cost in South Asia

Agro-products	Export From	Export To	Transport & Handling Cost (% of transaction cost)
Frozen Shrimp	Bangladesh	Japan	29
Cotton Yarn	India	Bangladesh	31
Hydrogenated Veg. Oil	Nepal	India	80
Tea	Sri Lanka	Japan	22

Source: Business Process Analysis Studies ESCAP 2010-11

Table 5: Share of Transport Costs as percentage of transaction cost in Central Asia

	Export	Import
Kazakhstan	10%	8%
Kyrgyzstan	13%	10%
Tajikistan	14%	10%
Uzbekistan	12%	8%

Source: ADB 2006

2. Spoilage during Post-harvest Handling

Logistics infrastructure and services including storage facilities, local market or collection facilities, and even relevant government regulation play a crucial role for agricultural supply chain reliability (ESCAP 2009).

Apart from the production, post-harvest handling is a key stage of the agricultural supply chain. A whole range of issues come into play during these stages. Absence of warehousing facility, inappropriate goods vehicles or trucks, long distance from nearby railways or inland waterways stations and so on.

An estimate by FAO (1994) suggests the total loss of agro-products during storage and transport could be as high as 16%. A much worse estimate from a study by the World Bank in India shows that the lack of adequate storage and marketing infrastructure can be as high as 20-40 percent of the total production (ESCAP 2009). IFC estimated the wastage caused by poor transportation and logistics system at $13 billion per year there (2010). According to an estimate of Thai fresh produce exports of fruits and vegetables, producers and exporters lose 2.92 billion baht (about $96.4 million) a year due to spoilage and poor storage. These are some of the startling figures available. Lack of cold chain maintenance until it reaches the consumer is one of the factors for this spoilage. It is especially important to keep the initial post-harvest quality of the product. Use of traditional vehicles, distance to nearest local markets or collection centres, method of packing during transportation could reduce the quality of the goods.

3. Weak Market Linkages

Rural logistics and agro supply chain are affected by the market structure including business relationships and terms of trade (in many cases informal) of various actors in the chain and access to market information. The lack of linkage between the producers and the processors or exporters up in the value chain creates a set of issues. Small producers often do not have the capacity to organize modern transport and appropriate logistics services. They depend on intermediaries to take care of such services. Therefore, it becomes costly for them when there is unnecessary delay by the intermediaries because the price of the product drops. Market information on price and demand are often subject to the business-ethics of these intermediaries. Lack of price information could also be a reason for inefficiency for diffusion of price signals. Even though consumer prices are high, producers may not receive any additional incentive due to the misinformation and hence may not bargain a good deal. The issues of spoilage, transportation and relevant logistics services thus do not only arise from inadequate rural infrastructure but also from weak market linkages. Landlocked developing countries and Least developed countries perform poorly on logistical performance index (LPI) developed by the World Bank and need greater attention to deal with such issues (see Box 5).

Box 5: Least developed and landlocked developing countries in the Asia-Pacific Region

The quality and performances of logistics services vary across the Asia-Pacific region. The World Bank Logistics Performance Index (LPI) provides an overview of the logistics performances. The case of Central Asian Land locked countries is quite appalling. The landlocked countries depend on transit through their neighbours for trade and it involves additional procedures and steps. LPI competence for Central Asian landlocked countries indicates a poor performance (2.18 on a scale of 5.0). Studies show that these performances are often not caused by poor infrastructure but by poor and an 'extended chain' of operations in the supply chain. They include delays for loading and unloading at borders, duplication of controls at each border, more lead time to load on a different mode of transport, multiple checkpoints en route, traffic congestion in corridors The resulting logistics cost therefore include i. compulsory fees ii. facilitating the transit processes and iii. agent fees, often based on complexity of transit cases (Arvis et al 2011). A study conducted in Uzbekistan by IFC showed that agro-exports suffered from extortions by border, customs or police officers (ADB 2008). In Kazakhstan, there are multiple check points on the road for import products (including agro products). A recent ESCAP finding has revealed that Mongolian wool and cashmere exports are only permitted to be transported by truck while in transit in China on grounds of sanitary control. This creates unnecessary congestion and delays at the border due to loading, unloading, low numbers of vehicle availability. Prevalent agro-exports in Central Asia such as wheat, vegetable, fruits and meat are more vulnerable to lengthy processes and costs related to additional procedures in the supply chains.

According to the LPI, South Asian landlocked developing countries have even a poorer score (1.84) in logistics competence. South Asian landlocked developing countries are Afghanistan, Bhutan and Nepal. These countries score 2.09, 2.24 and 2.07 respectively on a scale of 5.0. Bhutan, Afghanistan and Nepal rank 128, 143 and 147 in the overall LPI index out of 155 countries. Nepal and Bhutan are dependent on road transit through India for using ports in India. Long delays due to loading and unloading of cargos at borders, custom inspection and limited office opening hours at borders are major hurdles for these countries.

D. Trade Finance

In simple words, Trade Finance is defined as ''financing of imports and exports'' (ESCAP and ITC 2005). Trade finance can be better understood in the context of Trade Development Strategy. It is a major element of Trade Facilitation and often overlooked as only a 'support service'. It is however more than a 'support service'. However, the scope of trade finance is not as simple as it sounds. The scope for financing consists of financing at production, or import of raw materials for producing the export product. Failure to obtain financing at any

stage of agricultural supply chain may hinder a trade transaction. A prerequisite of a robust Trade Finance system is to establish a trade finance infrastructure. This means the development of relevant laws and institutions to support international trade. It requires developing (i) provision of capital to firms that are engaging in international trade transactions, (ii) provision of support services to manage the risk involved in these transactions, and (iii) provision of international payment mechanisms (ESCAP 2005). While it supports trade growth, a narrow look at financing trade or maintaining the traditional financing scheme is not the best strategy for the improving national competitiveness. It is reported that trade finance has been growing at about 11 percent annually over the last two decades (ESCAP 2005). However, agro-trade financing has not responded to the growing demand of perishable food products.

Trade finance is often found as the most difficult bottleneck to overcome for agricultural trade. The inherent disadvantage of agro-product is it is perishable and sensitive to time and temperature. It is particularly difficult to obtain financing for agro-products given the risk of spoilage due to poor post-harvest handling, poor storage facilities and thus reduction of value of the products. The global credit crunch impacted many importing countries with volatile prices and made financing even more challenging. Weather conditions, seasonality of production, varied quality of products work as major risk factors for lenders. While these factors can be dealt by integrated agro-exporters, SMEs are particularly vulnerable to these conditions.

1. Stringent Terms

The most commonly perceived logic for the lenders not to lend to producers is the inability of producers to meet the big collateral guarantees. Even if the banks provide loans, they usually come with high premiums putting pressure on the transaction cost. Only the large farmers or agro-exporters may be able to access in exchange of higher premiums. Small producers or traders suffer mostly from such situations. In agricultural commodity financing, only large producers or exporters are the main target market for banks (UNCTAD 2004). The 'terms of trade' for the loan is another major issue for the producers. For agro-exporters, it is particularly difficult to trade with stricter terms since it is a disincentive for the buyers.

2. Lenders' Lack of Understanding

Lending institutions consider providing financing for agro-exports generally riskier than for manufactured or other products. This stems from the lack of understanding of the agriculture sector as a whole. Traditionally banks have considered the price volatility, weather proneness and seasonality as reasons for not increasing their lending in this sector. Experts point to a lack of knowledge of lenders on value of agricultural commodities. A

UNCTAD (2004) report noted that agriculture financing mechanisms were mostly non-commercial, subsidized by governments or donor organizations in 1990s. This has made private sector discouraged and less innovative in developing new financial products. At a later stage, the non-agro portfolio would have been more than sufficient to ignore the agro-sector as a viable lending opportunity. As a result agro-trade remained as a non-lucrative sector for a long time. In addition, most developing country private banks were centred in and around cities only. Lack of insurance for agricultural crops was another reason for financiers not taking interest in agricultural products (UNCTAD 2005). What the banks did not realize was that the very reasons for not targeting agro-sector could be the opportunities to design new financial products. While there are some innovative examples of financing agricultural trade in the world nowadays, it is simply not sufficient to continue supporting agricultural trade.

3. Knowledge Gap of SMEs

SMEs in many Asia-Pacific countries are the major engines of trade growth and employment generation. However, in terms of business knowledge and planning, individual SMEs are behind large companies. Considerable knowledge on how to access credits gap remains a big obstacle for SMEs, especially for least developed countries[15]. ITC points out poor financial management, lack of understanding on risk mitigation strategies, alternative method of financing, budgeting and forecasting as some of the weak links for SMEs which are equally applicable for agricultural SMEs (ITC 2009). In Bangladesh, for instance, even after the introduction of SME-friendly products, knowledge gap to access such products was identified as a key bottleneck (The Financial Express 2011).

E. Transformation of Production Practices

Accessing export markets require producers to maintain suitable quality in an efficient manner, preferably with economies of scale. However, in many Asia-Pacific countries, agricultural production practices are still traditional. Traditional practices may lead to reduction of soil fertility and low production yield. Per capita land holding is reducing also. These issues are certainly not conducive to access export markets. To address such issues, modernization of production practices is taking place to a certain extent. However, appropriate production practices attuned with the export market is still lacking. While there are technological developments in fertilizer and seed production, educating the huge agricultural population on efficient production practices needs to continue as a major undertaking.

[15] A total of 90 percent of the total clients of freight forwarder and shipping agents are SMEs in Bangladesh