Executive Summary

Trends in exports and rejections of agricultural food products from East Asia

Since 2000, the value of agricultural and food exports from East Asia1 has steadily increased, although the exports dipped substantially in 2009 reflecting the global slowdown. The growth was such that in 10 years the value of exports has almost doubled to US$149 billion, which is similar to the value of exports from Latin America.

Within East Asia, Japan represents a large market for agricultural and food exports. In this market, there are a number of East Asian countries that have experienced frequent rejections of their agri-food exports at Japanese ports. These rejections are the result of inspections undertaken by Japanese authorities and indicate that the products in the rejected shipment do not comply with the regulations prevailing in the Japanese market. Similarly, public authorities in other countries refuse and reject the import of agri-food products that are not compliant with their food quality and safety standards and requirements. This report focuses on agri-food products from East Asian countries and analyzes trends, patterns and root causes of such import rejections in four major international markets, namely Australia, the European Union (EU), Japan, and the United States (US).

Among the 10 countries with the highest number of such rejections in the Japanese market, five are from East Asia, including China, Viet Nam, Thailand, Republic of Korea, and Indonesia. Among the agri-food products rejected at Japanese borders, "fish and fishery products" and "fruits and vegetables" are rejected most frequently. Reasons for such rejections vary. The most common root causes of import rejections by Japanese authorities are bacterial contamination, inadequate hygienic condition/controls, and the presence of pesticide residues, mycotoxins, and food and feed additives.

When looking at the rate of rejections per US$ billion of imports (an indicator that is termed unit rejection rate) for Asian exporting countries, food and feed products originating from Japan, Philippines and the Republic of Korea are among the most frequently rejected in the Australian market. In the EU market, China, Thailand and Republic of Korea are among the countries with the highest number of rejections. In the United States market, Hong Kong (China), Republic of Korea, Singapore, Viet Nam and China have rather high rejection rates. So, interestingly, not only lower-income countries but also relatively higher-income countries such as Japan and Republic of Korea perform poorly in some markets. For instance, among Asian countries, Japan saw the largest number of rejections in the Australian market in 2010. Food exports from the Republic of Korea seem to struggle in the Australian, EU and United States markets.

There is also a variation in the predominant reasons for rejection across the four markets analyzed here. In Australia and the United States, non-compliance with labelling requirements results in significant levels of rejection while Japan does not reject for labelling reasons and the EU only makes relatively few rejections on this basis. In contrast, bacterial contamination is the most prominent reason for rejections in Japan. Rejections in relation to hygiene conditions are significant in the United States.

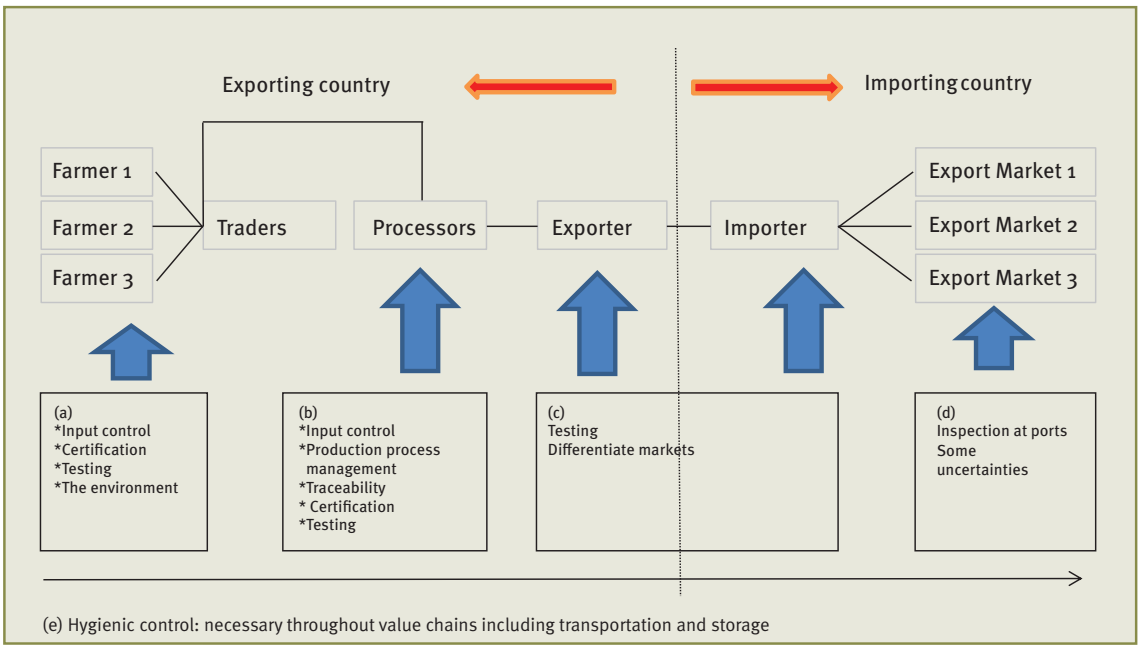
These rejection reasons all point to certain kinds of problems along the supply chain. Figure 1 displays a prototype of an agri-food supply chain, showing the different production stages and highlighting potential sources of non-compliance which possibly lead to rejections by authorities in the importing market. One of the big challenges for East Asia is that food processors cannot meet regulations/standards only with their own efforts but compliance often requires farmers and suppliers in the value chain to take measures as well. These farmers and suppliers could be (and typically are) located throughout the world. Hence, various requests to meet food safety regulations/standards need to be communicated well beyond borders.

Measures or incidents that lead to non-compliance with trade standards and international market requirements related to food quality and safety can occur at different stages along the supply chain, as follows (see also Figure 1):

(a) Pesticide residues, contaminants, mycotoxins, heavy metal, and veterinary drugs residues could enter to the food chain at the farming/growing/primary production stage. The occurrence of non-compliance at this stage of the supply chain may be related to the environment, input procurement or improper usage of these inputs.

1 In this report, we use the following abbreviation: EAP (East Asia and Pacific), LAC (Latin America and Caribbean), SSA (Sub-Saharan Africa), EU27 (EU 27 countries), SAR (South Asia), AUS (Australia), USA (the United States) and ROW (Rest of the World). This categorization follows the World Bank.

Figure 1: Prototype of agri-food supply chain - production stages and potential sources of non-compliance



Source: Author's own illustration

(b) Compliance issues related to bacterial contamination and hygienic conditions, food and feed additives, adulteration/missing documents, packaging and labeling could occur at the processing stage of the value chain. To avoid or counter this, a proper production management for hygiene controls needs to be in place.

(c) Problems with regard to labeling and documents could occur at the trading stage. As some exporters have more than one market to sell products, they differentiate products depending on the quality grade and the requirements of export markets.

(d) At the final stage of the supply chain, problems can occur in the form of non-compliance with private standards and conducting tests required by buyers. Some uncertainties remain even after product testing is done because importing countries require different testing methods and sampling methods.

(e) Throughout the value chain, hygienic control is crucial. It is needed not only at farm and processors levels but also during transportation and storage. A well-functioning cold chain is also needed to ensure product quality.

The present report examines the challenges of East Asian countries related to the compliance of their agri-food exports with international market requirements and food quality and safety standards, as reflected in the occurrence of import rejections. The report also presents the following four in-depth case studies on important export commodities: frozen vegetables and eel exports from China; and *pangasius* and shrimp exports from Viet Nam.

Case Studies on Chinese Frozen Vegetables and Eel Value Chains

The value of Chinese agro-food exports grew rapidly after the late 1990s, and China's accession to the WTO in 2001 further accelerated this growth. The total export value in 2011 exceeded US$40 billion, 3.6 times that of 2000. As Chinese agriculture deepened its linkage to the global agro-food market and became a major exporter of all kinds of agro-food products, a number of disputes regarding food safety occurred and the Chinese government has started to pay more attention to food safety problems.

Frozen vegetables value chain

Looking at the vegetables sector, it can be observed that, in the past, Chinese agribusinesses invested in the processing stage and introduced cold chain facilities. Some large-scale foreign-invested firms obtained global certifications for sanitation management in the processing stage of the value chain to demonstrate compliance with Hazard Analysis and Critical Control Point (HACCP) requirements and ISO standards. But less attention was paid to the safety of production and procurement of inputs (e.g. raw vegetables) and this has led to significant problems regarding compliance.

The prevailing system was deemed insufficient to correct the problem by the Chinese government and the national General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) decided to solve the problem by allowing only large and uncontaminated land to be used for vegetable production aimed at exports. AQSIQ's Announcement on Inspection and Quarantine of Import and Export Vegetables was put into force in 2002 and specified that a vegetable export firm must have more than 20 hectares of farmland which is assembled into

large plots with no prior contamination by banned substances; manage proper pesticide use; ensure traceability; and conduct sample inspection of chemical residuals. Export firms are not allowed to purchase vegetables from places other than registered farms; and each registered farm should have a technical extension officer called field man. This system is called the production base (PB). After the introduction of this system, small-scale processors and brokers who did not have access to PBs were shut out from lucrative export markets completely.

Processed eels value chain

In the case of processed eels imported from China, it was the discovery of antibiotic residues in processed eel in 2002 and the detection of residues of malachite green in subsequent years that raised red flags among Japanese authorities. These incidents have led Japanese authorities to implement monitoring inspections of eels exported from Guangdong province, which is the main cultured eel production site in China, and to temporary halt all exports from Guangdong province. As a result, exports of live and processed eels from China to Japan decreased dramatically.

These incidents of antibiotic and malachite green residues in Chinese eel revealed four basic problems. First, sales of agricultural chemicals and drugs are poorly managed in China. While the government bans sales and distributions of certain chemicals and drugs, these are still widely available in the domestic market. Second, even if proper agricultural chemicals, feeds and drugs are purchased, their applications, usages and dosages are not followed properly. Third, contamination of water for eel growing ponds and soil contamination from rotating several different crops and aquaculture are identified as another cause for rejections by importing countries. Sometimes this is beyond the control of farmers because contaminated water could be introduced to their ponds through flooding especially during the typhoon season. Fourth, there is a problem of mixing of eels from different producers with varying quality at the aggregation and processing stages. Large processing firms typically are vertically integrated and own growing ponds. Once the cultivation is done, eels are exported as live eels or sent to processing plants for further processing. In addition to eels from their own ponds, large firms also purchase from other ponds through middlemen. Small and medium processing firms typically do not have their own growing ponds but rely exclusively on middlemen for the supply of eels needed for processing. Many small and medium firms grow eels for sale in the Chinese domestic market where the standard is less stringent. Some firms buy these eels and mix them with eels meant for exports.

To solve these problems, the Chinese government is now considering revising the current "Regulations on Pesticide Administration". The envisaged revision would mandate the sellers of agricultural chemicals and drugs to keep sales records and to conduct inspections of these chemicals. It would also place licensing requirements on vendors of agricultural chemicals and drugs and it would mandate them to properly educate buyers in order to control the sales, distribution and use of agricultural chemicals and drugs.

To ensure the quality of ponds, the Chinese government requires that eels meant for exports are now grown in registered and certified ponds, and they are to be processed only in registered factories. Complementing these official efforts at controlling inputs and their usages is the increase in the frequency of inspections at various stages of production by both processing firms and government bodies. Some firms have invested in creating a specialized room for inspection, purchased necessary testing equipment, and hired specialized personnel. By doing so, firms can avoid high testing fees and are able to offer testing services to other firms to generate more revenue. In addition, measures like these help to introduce a traceability system.

Case Study on Vietnamese Pangasius and Shrimp Value Chains

Viet Nam is now among the top ten exporters of fish and fishery products and has moved up quickly in the ranking from the ninth rank in 2000 to the fourth in 2010. In 2010, Viet Nam was only after China, Norway, and Thailand in exporting fish and fishery products. Among Viet Nam's seafood exports, *pangasius* and shrimp play important roles. Yet, in recent years some of the seafood exports from Viet Nam have had difficulties in meeting the regulations of importing countries.

In Japanese ports, consignments of Vietnamese seafood have been the major target of intensive inspection in recent years. In May 2012, a shipment of shrimp to a Japanese port from Viet Nam was found to contain Ethoxyquin and this has triggered even more scrutiny regarding shrimp imports from Viet Nam by Japanese authorities. This incident was preceded by the detections in Vietnamese shrimps of Trifluralin in 2010 and Enrofloxacin in 2011. Both are banned substances in shrimp according to Japanese regulations. Shrimp exporters interviewed are expressing great concern over this issue and mentioned that many of the exporters are now refraining from exporting to Japan due to the fear of being detected once again. This could jeopardize future export growth in shrimp.

Data collected by EU, United States, Australian and Japanese authorities all point to relatively high incidents of rejections of Vietnamese fishery and aquaculture products. Over the last couple of years, 2,400 export consignments of Vietnamese fish and fishery products have been rejected by United States authorities (between 2002 and 2010), 422 shipments have been rejected by EU authorities (2002-2010) while Japanese and Australian authorities have refused market entry to 464 (between 2006-2010) and 206 Vietnamese shipments (2003-2010), respectively.

Among various agriculture commodities, fish and fishery products on average seem to face rather high rejection rates when scaled by US$ million imports (i.e. unit rejection rates). In the Japanese market, Viet Nam's unit rejection rate is the highest among all exporters of fish and fishery products while in the EU Viet Nam ranks ninth.

Looking at the root causes of non-compliance underlying the import rejections, one sees that fish and fishery products from Viet Nam are rejected for various reasons in the different markets. In the Japanese market, many rejections occur due to the presence of bacterial contaminants and veterinary drug residues. In

the EU market, veterinary drugs residues, bacterial contamination, and detection of heavy metal appear to be problems. In the United States market, compliance with requirements related to hygienic conditions, bacterial contamination, and labeling seem to pose difficulties for Viet Nam fishery exporters. In the Australian market, the bulk of rejections is caused by bacterial contamination, labeling issues, and veterinary drugs residues. This tells us that various weak links exist in the supply chain of fishery and aquaculture products from Viet Nam.

A key problem of the Vietnamese fishery industry seems to lie in the improper usage of inputs. Intensive cultivation of *pangasius* has led to high frequency of disease and this, in turn, has increased the application of prophylactic therapeutic treatments. Similarly, intensive farming of shrimp has necessitated increasing usage of antibiotics.

Many processing firms in the Vietnamese *pangasius* industry have obtained certification on quality management systems such as HACCP, ISO 9001:2000, and SQF 2000. Shrimp processing firms typically also obtain various certificates. In addition, most of the exporters also have in-house laboratories to check chemical residue levels in the products destined for export markets. They test the residue level before purchasing from traders or smallholders and before shipping to export. In interviews conducted for this study, some Vietnamese exporters also mentioned the use of outside labs which can detect antibiotics more accurately for shipment to countries like Japan where the requirements are very stringent. Processors which have a special relationship with foreign importing firms (i.e., subsidiary firms, long-term suppliers, contractors) are in a better position to receive technical advice and information about the required standards relative to independent firms.

Over time, the *pangasius* industry has seen an increase in the number of large farms and a decline in the number of relatively small farms. It is noted that *pangasius* production is more capital intensive compared to other aquaculture production so that smaller farmers cannot compete with larger ones. Processors are shifting the sourcing from smaller farmers to larger ones because the latter can provide them with fish that are of higher quality and better meet standard requirements.

Meanwhile, in the shrimp industry, collectors and/or wholesale buyers collect shrimps from different grow-out farmers and mix them together. This makes it more difficult for the processing companies to trace out the shrimps and ensure their quality than when buying shrimps directly from contracted farmers.

Overall, the greatest difficulty of compliance appears to lie at the level of small-scale producers as there are a large number of them and many even do not know the relevant standards and what they require.

Various governmental and nongovernmental organizations are regulating and facilitating the development of the aquatic sector in Viet Nam. The Ministry of Agriculture and Rural Development (MARD) and provincial Departments of Agriculture and Rural Development are the central and local governmental agencies, respectively, that manage the development of Viet Nam's aquaculture industry. Under MARD, the National Agro-Forestry-Fisheries Quality Assurance Department (NAFIQAD) consisting of six regional centers in Viet Nam is in charge of food safety assurance and quality control in the aquaculture industry. Among their activities and responsibilities, one that is important to the seafood export sector is the regular implementation of monitoring inspections for harmful substances, which are conducted annually according to the "Residue Monitoring Programme for Certain Harmful Substances in Aquaculture Fish and Products". The monitoring programme is considered to follow the levels of requirements by the EU. Besides these state administration agencies, the Viet Nam Association of Seafood Exporters and Producers (VASEP) and the Viet Nam Fisheries Society (VINAFIS) play an effective role in promoting the development of the industry.

Summary of key findings and policy lessons

This report analyzes trends and patterns in rejections of agri-food exports from East Asian countries to the Japanese and other key international markets. Special attention is given to four commodities from two countries: frozen vegetables and eels from China; and *pangasius* and shrimp exports from Viet Nam. These case studies were chosen because they are significant export commodities for these countries that, at the same time, face difficulties in clearing inspections at ports.

One finding that clearly came out from looking at these four commodities and their supply chains is that export activities in these countries are increasingly vertically integrating. This is because to meet the standards set by importing countries (especially those of advanced countries), exporting firms need to put in place some kind of traceability system so that they can identify where the problem occurred and how to deal with such problems when faced with import rejections.

The implication of this trend to vertically integrate is the bifurcation of these industries into export-oriented and domestic-oriented segments. Those that are export-oriented are typically led by large firms that can invest in their own quality control and inspection equipment. They also tend to contract with large farmers for their inputs and provide technical assistance if necessary. In contrast, domestic-oriented firms do not have such capacity to strictly control the quality of their products to the level required by importing countries. Both in China and Viet Nam the government is putting in place stricter domestic standards regarding agricultural and food products, partly motivated by the requirements coming from the export sectors. As income rises, the demand for safer food will only increase also in the domestic markets. Action plans and measures to improve the quality of agricultural and food products should be initiated now so that even smallholder farmers can adjust their production processes to meet higher standards in both international and domestic markets. Without such efforts, small-hold farmers will be further left behind which could potentially lead to an increase in inequality between export- and domestic-oriented sectors, and also between rural and urban areas.

The case studies in these two countries reveal that throughout the supply chain, there are still knowledge gaps among different players with respect to the proper usage of agriculture chemicals and medicines. For cultured aquatic products, in addition to the knowledge on medicines, sufficient knowledge on feeds is also required. To improve upon this knowledge aspect, two efforts need to be undertaken. The first is to raise the awareness among farmers and processors on the proper usages of agriculture chemicals, medicines, and feeds. Such effort needs to be coupled with proper technical assistance so that farmers can readily apply their knowledge in practice. In addition to the awareness raising efforts, the distribution of these chemicals, medicines, and feeds needs to be controlled and recorded more stringently to enable traceability. Furthermore, this kind of efforts should not be restricted to certain sectors but should be applied to a wider variety of commodities if applicable to allow rotation of crops or aquatic products to be cultured and to prevent negative spillovers coming from other farming activities conducted nearby.

Some markets (notably the EU and the United States) put emphasis on obtaining internationally recognized certification (e.g. to ISO or HACCP standards) and this is becoming a necessary condition to export. These certificates work as signaling devices at the processing stage. While difficulties in obtaining such certificates differ across Asian export countries, public assistance to firms may be necessary.

Some firms find it difficult to continuously scan and gather information on the required rules and standards of importing countries, especially when these rules and standards are subject to frequent changes. Industrial associations or similar organizations should have enough capacities to follow the trends in these standards. What is important is that such effort should include not only notifying concerned actors on the changes in the rules and standards, but also to let these players know of anticipated changes in these standards so that they have enough lead time to prepare until changes take effect.

Finally, as the case of China illustrates, the presence of foreign direct investment often provides great benefit to the development of the local industry. Multinational corporations (MNCs) typically have enough experience and capacity to meet the requirements set by importing countries. In addition, they tend to provide necessary technical assistance to local producers so that their products can meet prevailing trade standards. Through these kinds of vertical technology transfer, the competitiveness of local industries can be greatly enhanced. Thus, in addition to strengthening the capabilities through domestic efforts, liberalization of foreign direct investment in this sector could be pursued simultaneously.