T20 INDONESIA 2022 THINK

Policy Brief

REDUCING FOOD LOSS IN INTERNATIONAL TRADE

Task Force 4

Food Security and Sustainable Agriculture

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Abstract

Food loss occurs at every stage of the agri-food value chain from on-farm to distribution, including processing, and cross-border trade. In international trade, the rejection made by importing countries increases food loss which in turn has significant implications for the global status of food security and resilience. Recent studies reveal that the number of cases of imported food rejection has been at an alarming rate due to the inability to reduce it. Factors that contribute to the food loss are lack of the ability of exporting countries to meet food safety standards of importing countries, non-tariff measures (NTMs) performed by importing countries, and lack of attention from the international community on how to reduce food loss in the international trade. Despite strong recognition of the number of cases of food loss at the cross-border trade level, there is a lack of research and action focusing on the issue. The G20 has a strategic role in coordinating countries to exchange information related to the standards and regulations on food traded at the international level. Taking lessons from recent several research projects, this policy brief proposes three initiatives. First, at the micro-level, it is important to invest in quality and food safety controls before the produce is exported. Second, at the global level, a clearing house of information among trade partners of NTMs-related procedures needs to be established by developing national trade portals and establishing “help desk services” operated by governments in both exporting and importing countries. Third, there is a need to strengthen international agreements on the exchange of information concerning food safety standards that are accommodative to the effort of mitigating risks of food rejection by importing countries.

Keywords: food loss, global food security and resilience, international trade, non-tariff measures.

Challenges

The world today is in a hugely different place from where it was six years ago when it committed to the goal of ending hunger, food insecurity, and all forms of malnutrition by 2030 (FAO, 2021). In general, the world has not been steadily progressing either towards ensuring access to safe, nutritious, and sufficient food for all people all year round (SDG Target 2.1), or to eradicating all forms of malnutrition (SDG Target 2.2). Conflict, climate variability and extremes, and economic slowdowns and downturns are the major drivers slowing down the progress, particularly where inequality is high. The COVID-19 pandemic made the pathway towards SDG2 even steeper. The Ukraine-Russia crisis has made the global food supply at risk and worsened the current situation (McKinsey & Company, 2022).

According to the FAO report, the number of people in the world affected by hunger had increased in 2020 under the shadow of the COVID-19 pandemic. After remaining virtually unchanged from 2014 to 2019, the prevalence of undernourishment climbed to around 9.9 percent in 2020, from 8.4 percent a year earlier. In terms of population, taking into consideration the additional statistical uncertainty, it is estimated that between 720 and 811 million people in the world faced hunger in 2020. Considering the middle of the projected range (768 million), 118 million more people were facing hunger in 2020 than in 2019 – or as many as 161 million, considering the upper bound of the range (FAO, 2021).

Ironically, while the global food supply is at risk, the volume and value of food loss and waste (FLW) are still huge. Approximately one-third of the total food globally produced becomes FLW due to lack of food handling infrastructures, low technology in logistics and transportation systems, and institutional constraints in international trade, resulting in food rejection by importing countries. These problems can only be solved effectively by an intensive and well-planned international collaboration.

The root cause of food rejection by importing countries concerns food safety issues as reported by several scientific publications, such as *Salmonella* spp. contamination from African countries (Somorin *et al*., 2021), filth, microbial, inappropriate labeling from exporting countries to the US (Love *et al.*, 2021), especially Mexico, India, and China (Bovay, 2016) and from Indonesia (Indrotristanto *et al.*, 2022). The amount of food rejected by importing countries globally reached approximately 649,000 tons with a value of nearly USD 1.13 billion annually. This figure does not contribute much to the global FLW estimated by FAO (2013), which was 1.6 billion tons with a value of USD 750 billion every year. However, from the point of view of exporting countries, the percentage can be significant. For example, in the case of

tuna exported from Indonesia, the value of rejection by major importing countries (the USA, European Union, and Japan) was USD 3.15 million per year which is about 4.26 percent of the total value of tuna exported from the country (Rahayu *et al,* 2020). Yet, it is believed that a percentage is a minimum number because food rejection data are usually not completely recorded.

Special condition may be imposed by importing countries on the countries of origin of refused products—such as, in the case of Brazil (groundnut issue), and India and Indonesia (nutmeg issue) (Wahidin and Purnhagen, 2018). This condition may become barriers to trade that increases the refusals and decreases product values, which eventually contributes to the food loss.

The majority of rejected commodities include among others: fisheries, vegetables, fruit, meat, and their derived products, including cereals and bakeries. A study using refusal data from 2000 – 2017 of the European Union Rapid Alert System for Food and Feed found that approximately 22 percent of the rejected food was re-imported by the origin countries, while 11 percent was discarded (Pigłowski, 2020). The re-imported products could be repaired, re-exported, sold locally, converted into feed, or destroyed by the producers if the product could not be repaired (Indrotristanto *et al.,* 2022). The value of the re-imported products is typically much less than the original one.

Proposals for G20

Proposal 1 -- Improving the performance of quality control and food safety handling for food products at the exporting countries' level.

Activities conducted by the actors along the agri-food value chain might provide a significant contribution to the rate of food loss (FAO, 2019). The common agri-food value chain involves several activities including upstream, distribution, and cross-border trade. The first two occur at the domestic level, while the cross-border trade occurs at the global level (export-import activities). The micro-level in this policy brief refers to the agri-food value chain at the domestic level.

Recent literature reported several micro-level causes that contribute to food loss (Delgado, *et al*., 2021a; Trilaksani, *et al*., 2021; Otero, 2022; IPB and Ministry of Trade, 2020). First, factors associated with pre-harvest include product damage due to biological factors (predators, pests and microorganism contamination, and lack of rainfall), chemicals (poor water quality due to sewage contamination and pesticides), and physical factors (poor handling or treatment during pre-harvest due to the lack of appropriate post-harvest technologies). Food loss occurring at this stage affects the quality and quantity of harvest yields.

Second, at the harvesting and early handling levels, the schedules of harvest are particularly important to prevent excessive supply. Delgado, *et al.* (2021b) reported that lack of harvest technology also contributed to the higher share of loss. This brings implies the a critical need for investment and increasing knowledge and training for farmers to adopt technologies that can contribute to reducing food loss.

Third, lack of infrastructure and facilities including cold storage in logistics systems still impedes, particularly in remote areas. Post-harvest losses are highly likely to occur due to significant deterioration in quality. Evidence from five countries shows longer storage durations and the lack of appropriate storage techniques are consistently correlated with higher losses (Delgado, *et al*., 2021b). Improving storage infrastructure can mitigate these risks. Cold chains on perishable products can be used to control the temperature and quality of freshness through real-time temperature tracking of the products.

Over the last two decades, trade in agri-food products has increased significantly, approximately 7% in real terms annually in the period 2001-2019. As outlined previously, the

value chain of agri-food products spread over several countries. Increasing imports from developing countries in which many of them have not developed extensive food standards (including food safety standards) contributes to the rejection in importing countries. This motivates developing countries to implement stricter regulatory standards and enforcement measures (Grant and Anders, 2011).

In order to deal with the situation, it is imperative that actors along the agri-food value chain at the domestic level increase the quality control and food safety handling for agri-food products and its processed products by improving agri-food export quality infrastructures including landing facilities, cold chain management system and laboratories. Besides, it is also important to strengthen the capacity of actors within the agri-food value chains to implement best practices, such as Good Handling Practices (GHP) and Good Manufacturing Practices (GMP).

Proposal 2 – Establishing a clearing house of information among trade partners; instituting export facilitating measures via digitalization of NTM-related procedures; increasing transparency of national trade portals; and establishing official (government) help desk services in exporting and importing countries.

In international trade, NTMs are being increasingly used as substitutes for the declining ordinary tariffs. For example, in the case of the fisheries sector, Fugazza (2017) reported that fisheries products are significantly more affected by NTMs in comparison to non-fisheries products particularly sanitary and phytosanitary (SPS) measures (93 percent) followed by technical barriers to trade measures (82 percent), and pre-shipment related measures (41 percent). NTMs might result in a *conflicting* situation. On the one hand, NTMs can contribute to improving the overall quality of the products as they protect consumer health and well-being. Moreover, the implementation of NTMs has been potentially linked to increased economic benefits for exporters by improving consumer-specific attributes and hence raising demand for imports. Another benefit is related to enhancing the competitiveness in the food trade and creating a sound enabling environment eventually (Cato and Subasinge, 2003; Fugazza, 2013; Henson and Jaffee, 2008).

On the other hand, NTMs have the potential for being transformed into NTBs and hence increase trade costs. NTMs compliance entails certain cost and potentially hinders trade. Henson and Jaffee (2008) reported that to upgrade the landing site and laboratory to test for chemical and microbiological analysis, requires additional investment of USD 1.2 million and USD 1.1 million, respectively.

The inability to comply with the food safety standards set by importing countries with the main objective being to protect consumers in their respective countries poses another challenge in international trade. Each country has its own level of standards and usually developed countries apply more stringent standards than developing countries. This is exacerbated by the absence of institutions that facilitate and supervise exporters to meet the standards set by partner countries. The difference in the level of technology between developed and developing countries in export and import activities has the potential to increase rejection cases. For example, the difference in sampling technique and microbial test procedure conducted by Indonesian laboratories and those conducted by destination countries with different technology and laboratory infrastructure (methods, tools, and human resources) could cause different results, which leads to product rejection in the part of importing country.

Laboratories in developed countries have sophisticated equipment and have high precision (Rahmawaty *et al.*, 2014). Lord, Oktaviani, and Ruehe (2010) found that, with regard to conducting the analytical measurement of heavy metals, histamine, and antibiotics, the competence of Indonesia Export Quality Infrastructure (EQI) varies significantly. There has been some indication as well that the method for examining histamine in developing countries cannot comply with European Union standard requirements. Moreover, the calibration of tools and equipment is not satisfactory either. Complicated trading procedures to process export documents—such as procedures of loading and unloading/dwelling—increase the time required for the delivery of goods, which may cause the quality of exported goods to decrease accordingly.

To reduce the rejection rate of food products in international trade, it is important to provide a clearing house of information on food safety standards and NTMs among trade partners by putting forward export facilitating measures via digitalization of NTM-related procedures, increasing transparency of national trade portals (e.g., e-phyto 'electronic phytosanitary certificate') and establishing an official (government) help desk services in exporting and importing countries. In this case, the term "help desk" refers to the institutions that facilitate the smooth operation of international trade flow among trade partners, particularly through information exchanges. As stated previously, every country has its own set of regulations; and, the standards to fulfill the regulations vary among the countries. In this regard, the information exchange activities among trade partner countries related to these issues are important to provide preventive actions to reduce food rejection in international trade and avoid abuse of NTMs.

From the government side, help desk institutions can be organized by the ministry of trade, the embassy, or consulate general in the trading partner countries. From the private sector side, currently, several non-government institutions provide commercial "help desk" services[2]. These operation institutions facilitate international trade among partner countries by providing information related to the regulations in the exporting countries that should be fulfilled by the exporters and ensure the development of the quality infrastructure supported by mutual recognition of standards and accreditation.

Proposal 3 – Strengthening international agreements on standard of traded food safety for mitigating the risks of traded food rejection.

Within twenty years, the value of internationally traded food had doubled to more than USD 1.6 trillion in 2018. A substantial portion of the traded food, however, was rejected by the importing countries due to several reasons. To reduce the volume of rejected food, cooperation among trading partner countries should be strengthened by means of applying international standards, such as the Codex Alimentarius. The Codex Alimentarius, which was established by the FAO and WHO in 1963, has been immensely helpful in effectively strengthening international cooperation in food trade.

The Codex Alimentarius issued principles and guidelines for the exchange of information between countries on rejections of imported goods (CAC/GL 25-1997, Revision: 2016), and more generally, to support the trade in food (CAC/GL 89-2016). The former principles and guidelines merely provide considerations and actions that are advisable for handling rejections of imported goods. In other words, it addresses the problem after the traded food has been rejected by the importing countries. The latter principles and guidelines describe the process and content of information exchange that are needed to support the trade in food.

The principles and guidelines are particularly useful, but very few of them, if any, explicitly address the mitigation measures that can reduce the risks of food rejection. There is no official evidence thus far on the effectiveness of these principles and guidelines in reducing rejections of imported goods. Hence, several further steps can be proposed for improving the effectiveness of risk mitigation.

The critical risk that needs mitigation relates with the slow notification of newly updated regulations on food safety standard in the importing countries. Consumers in importing countries naturally demand high standards of food safety that often require very frequent

regulations updating. Unfortunately, often times it takes too much time to notify the change of food safety regulation to exporting countries. To mitigate the risk, it is important to improve the methodology of information exchange by intensively utilizing most advanced information and communication technology. This initiative can be best developed under the scheme of Codex Alimentarius.

The risk can also be mitigated by developing forums for discussing new methodology and technology of food safety assurance implemented in importing countries. The forums can facilitate a process of mutual understanding and recognition between exporting and importing countries. This good example of international cooperation can create a strong foundation for training programs on new methodology of food safety assurance implemented in importing countries for human resource development in exporting countries.

Standardization of best practices in the handling of rejected imported food can be highly effective for reducing food loss and waste in international trade. Instead of automatically discarding all rejected food, a substantial portion of it can be downgraded and treated as low quality food or feed, without compromising food safety standard. Naturally, every country has full sovereignty in adopting or not adopting any standard of food safety.

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Annex

The weight and value of rejected food in international trade

HS Code	Description	Estimated total weight (kg/year)	Estimated total value (US$/year)
02	Meat and edible meat offal	22,300,316	77,513,675
03	Fish and crustaceans, mollusks, and other aquatic invertebrates	58,172,444	134,009,697
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	36,111,617	67,434,733
07	Edible vegetables and certain roots and tubers	77,708,601	81,600,813
08	Edible fruit and nuts; peel of citrus fruit or melons	50,825,152	72,682,687
09	Coffee, tea, mate and spices	9,936,089	37,769,176
10	Cereals	111,663,282	105,712,012
11	Products of the milling industry; malt; starches; inulin; wheat gluten	13,124,086	12,561,094
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants ; straw and fodder	17,422,014	54,359,899
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes	21,129,418	24,989,586
16	Preparations of meat, of fish or of crustaceans, mollusks or other aquatic invertebrates	8,988,417	34,739,987
17	Sugars and sugar confectionery	37,108,694	35,036,037
18	Cocoa and cocoa preparations	9,714,744	34,262,658
19	Preparations of cereals, flour, starch or milk; pastrycooks' products	17,976,555	30,826,073
20	Preparations of vegetables, fruit, nuts or other parts of plants	35,407,807	56,356,413
21	Miscellaneous edible preparations	18,540,164	78,289,242
22	Beverages, spirits and vinegar	102,724,634	188,509,469
	Total	**648,854,034**	**1,126,653,250**

Calculated from UN Comtrade data (https://comtrade.un.org/data/) based on an assumption that the ratio of the re- imported and the destructed products is 2:1 (Pigłowski, 2020).