

Meeting Standards – Winning Markets

Trade Standards Compliance as a Contribution to Exports and Growth



Towards a Trade Standards Compliance Observatory



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Acknowledgements:

UNIDO's Trade Standards Compliance analyses and the resulting publications are the outcome of a collaborative effort to present a new view on trade development opportunities based on the analysis of challenges related to the compliance with trade standards faced by exporting countries and exporters for their priority export sectors and products. The Norwegian Agency for Development Cooperation (NORAD) has provided generous financial support to this work since 2008 and fully funded the first edition of UNIDO's *Trade Standards Compliance Report (TSCR)* and co-funded UNIDO's work on the second TSCR issue of which this collection of *TSC Footprints* is an outcome.

These trade standards compliance analyses are undertaken in partnership with the Institute of Development Studies (IDS), Brighton, UK, with Spencer Henson and John Humphrey as lead experts. This work and especially the harmonization of categorization schemes has also benefitted greatly from many exchanges with the Trade and Investment Unit, and particularly Ms. Juliana Salles Almeida, of the Inter-American Development Bank (IDB).

The work is coordinated by a UNIDO team including Steffen Kaeser and Thomas Bernhardt from the Trade Capacity-Building Branch, and was supported by Marie-Agnès Jouanjean, UNIDO consultant.

All *Trade Standards Compliance Footprints* are available for download at www.unido.org/tradestandardscompliance.

For comments, feedback and further cooperation, kindly contact us at tradestandardscompliance@unido.org.

1. Context: Trade, standards, growth and employment

Trade has been widely recognized as a potential engine for growth, economic development and in turn local employment and prosperity. In particular, there is widespread agreement that expanding and diversifying exports can accelerate economic growth; together with tariff reductions these have been among the main mechanisms for spreading the benefits of globalization. Yet, the transmission from trade competitiveness and economic success to social improvements is not always automatic or smooth. An important transmission mechanism is trade-related employment creation. Exports are a source of aggregate demand which can spur production and thereby generate employment and income in the exporting country. The labor intensity and employment elasticity of export production are, thus, important factors. Expanding exports from labor-intensive sectors will be particularly beneficial in terms of job creation. Indeed, a number of developing countries, and middle-income countries (MICs) in particular, have actually been quite successful and managed to significantly increase their share in global trade in recent decades, thereby promoting domestic employment, wealth creation and also poverty reduction.

However, the potential benefits from participating in international trade do not materialize automatically. Challenges differ across groups of countries but, as a matter of fact, many developing countries have not been able to reap the full benefits of market access opportunities despite the overall decline in tariff levels in recent years. One explanation for this is the difficulty they face in complying with trade-related standards which are among the gatekeepers to access global markets or supply chains. The multilateral trade system under WTO leadership has increasingly become a rule-based system built upon agreements such as those on Technical Barriers to Trade (TBT) or on Sanitary and Phytosanitary (SPS) measures. Such agreements lay the foundation for equitable treatment for all, but they require the capacity to both comply with and provide proof of compliance with the resulting trade-related standards.

Unlocking the full export potential of developing countries, thus, is contingent on a number of factors. UNIDO's "3Cs approach" to trade capacity-building offers a framework and useful starting point to understanding how integration into the global trading system can provide (the most) benefits to developing countries. It visualizes that the successful participation of developing countries in international trade requires three main elements to be present or developed:

1. Competitiveness of supply side (including productive capacity and the capacity to meet international trade standards and market requirements)
2. Conformity with market requirements (including capacities to ensure, assess and prove conformity)
3. Connectivity to markets and the multilateral trading system (including business partnerships, trade agreements, and efficient customs procedures and mechanisms)

In other words, for developing countries to exploit the potential gains from trade, their private sector needs to be competitive and produce what buyers and markets require (i.e. meet the technical requirements set by international regulatory authorities, fulfill the specifications of global markets and buyers, and

satisfy consumer needs); for this they must have an enabling environment where, amongst other things, internationally accepted services for the proof of compliance are easily accessible at an affordable price. Developing country governments, thus, have to ensure the efficient (public or private) provision of a quality and compliance infrastructure and related services, coordinate public-private sector efforts to establish a quality culture, and, more generally, put in place the right framework conditions that promote the country's successful integration into the global trading system. While conditions differ across (groups of) countries, in such an enabling environment that fosters competitiveness of the supply side, facilitates compliance with trade-related standards, and promotes connectivity to international markets and the multilateral trading system, export growth is more likely to materialize and act as engine for economic growth, employment, and prosperity.

2. Towards a Trade Standards Compliance Observatory: Supporting Policy Choices

UNIDO began its trade standards compliance analyses in 2008. The starting point was the compilation and analysis of data on import rejections of agri-food products for two markets, the United States (US) and the European Union (EU). Such import rejections give indications on the scale and root causes of compliance challenges of developing countries and allow to make estimations of the financial implications of non-compliance. Over time, UNIDO has been granted access to the data of two additional markets, Japan and Australia, which has made possible a comprehensive comparative analysis of import rejections of agri-food products for four major international export markets. The results from this analysis provide useful indications of where development efforts and technical assistance are most beneficial. The key findings can be summarized as follows:

- ◆ Middle-Income Countries (MICs), on which these *TSC Footprints* focus, account for the bulk of import rejections of agri-food products. In fact, across all four markets that are analyzed, the rankings of the countries with the highest number of rejections are dominated by MICs.
- ◆ The patterns and trends in rejections of developing country exports reveal which products and value chains are most affected by compliance challenges – and for what reasons.
- ◆ Some countries have high rejection rates in all markets for all or most of the commodities they export, suggesting systemic deficiencies and the need to strengthen their overall compliance capacities or quality infrastructure (QI).
- ◆ A number of countries face substantial import rejections in particular markets or commodities, suggesting that a critical examination of specific value chains and/or the introduction of specific food safety controls is needed to avoid future rejections.
- ◆ These analyses, thus, allow to identify whether compliance challenges are commodity-specific, export market-specific or rather systemic.
- ◆ The data also reveal the root causes of import rejections, thereby pointing developing country policy makers to the priorities in QI development that will facilitate access to markets and integration into global value chains.
- ◆ Import rejections imply foregone revenues for the supplier of the shipment. Over the period 2002 to 2010, the “export

losses” associated with US rejections of agri-food exports across four sub-sectors analyzed by UNIDO (i.e. fisheries, fruits and vegetables, herbs and spices, nuts and edible seeds) are estimated to amount to US\$715 million, averaging almost US\$80 million per year. Middle-Income Countries (MICs) accounted for 71% of these “export losses”.

- ◆ The corresponding financial losses are estimated to average US\$77 million per year for EU import rejections (with MICs incurring 57% of these “export losses”), US\$14 million per year for Japanese rejections (with MICs accounting for over 90% of them), and US\$7 million a year for Australian rejections (of which 52% were accrued by MICs).
- ◆ At a sub-sectoral level, “export losses” associated with non-compliance in the fishery sector are estimated to amount to almost US\$80 million per year across all four markets, while accumulated Australian, EU, US, and Japanese import rejections in the fruits and vegetables sector average about US\$35 million per year.

In order to support countries in their policy choices with regard to the development of exports, UNIDO has taken the initiative to collect evidence on a regular basis about trade-related challenges and their evolution over time, in particular in the area of compliance with (quality, certification, labeling, etc.) requirements set by international markets. With funding from the Norwegian Agency for Development Cooperation (NORAD) and in partnership with the Institute of Development Studies (IDS), UNIDO publishes since 2010 a periodical *Trade Standards Compliance Report* (TSCR) to systematically examine the challenges that developing countries face with regard to trade standards and international market requirements in the agri-food sector, and to support domestic policies and technical assistance to overcome these challenges. The TSC Report analyzes rejections of developing countries’ agri-food exports at border entry to ma-

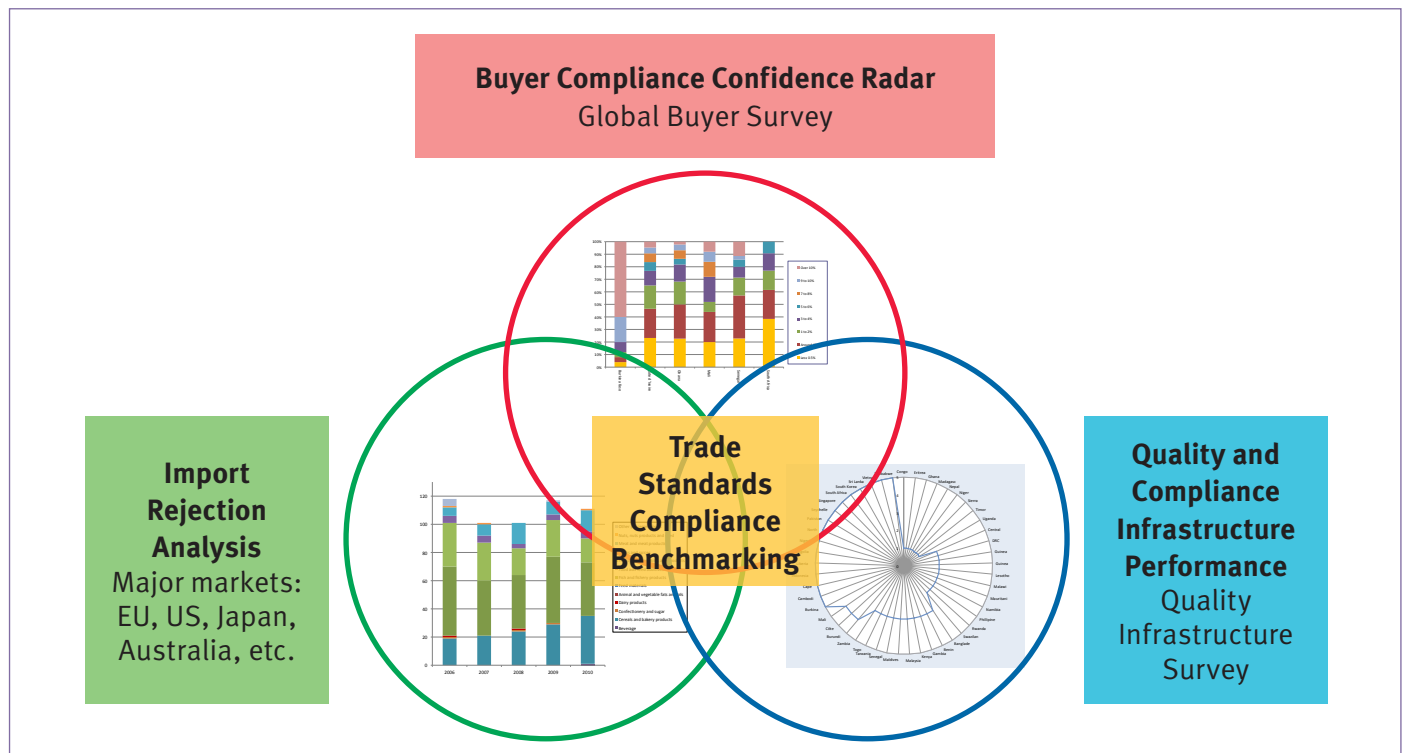
for international markets – which are an indicator for compliance challenges – and the reasons for such rejections, and it provides estimates of the financial implications of non-compliance (“export losses”). Against the picture of such trade standards compliance challenges, the TSC Report also assesses the exporting countries’ ability to detect and prevent non-compliance and the resulting export losses.

For this purpose, UNIDO has developed and applied new innovative methodological tools, including a Quality Infrastructure (QI) survey and a corporate buyers’ compliance confidence survey (among international buying/importing companies). The TSC Report presents the results from these surveys which, together with the insights gained through the import rejection analysis, help to identify weaknesses in a country’s compliance capacity that it needs to address to fully exploit its export potential. These different methodological approaches and comparative analyses also make possible the benchmarking of compliance capacity across countries and regions.

The three strands of TSC analysis carried out by UNIDO allow to look at the trade standards compliance capacity and challenges of developing countries from three different angles or through three different lenses which are complementary and provide a fairly holistic picture (see also Figure 1):

1. The **import rejection data** provide the importing markets’ (public) regulator’s perspective.
2. The **corporate buyers’ compliance confidence survey** looks at developing countries’ compliance capacity from the perspective of the importing private company.
3. The **Quality Infrastructure (QI) survey** provides the perspective of the exporting country’s (mainly public but also private) QI and conformity assessment institutions.

Figure 1. Three lenses on trade standards compliance capacity and challenges



It is important to emphasize that these exercises are work in progress. The Quality Infrastructure survey and particularly the corporate buyer confidence survey conducted in the framework of UNIDO's TSC Reports have to be understood as pilot applications of methodological devices that UNIDO has developed in collaboration with a number of international experts. Since their first conceptualization, UNIDO has been working to refine its analytical tools and these efforts will be continued. In the future UNIDO will, moreover, widen the geographical coverage of its analyses by expanding the survey samples.

In addition, UNIDO intends to complement in future work the current three strands of analyses with a survey among developing country companies (focusing on firms that are actual or potential exporters) to capture also their views and perspectives on the main trade standards compliance issues they face when exporting or trying to export agri-food products. This survey will collect information on the experiences and perspectives of developing country-based firms with regard to international trade standards. It will also serve to shed light on these firms' capacity and challenges to comply with international market requirements and to get their assessment of the performance of the quality and compliance infrastructure in their country or region. Thereby, this survey is to provide a fourth lens or perspective on developing countries' trade standards compliance challenges and capacities.

Recently UNIDO has also started to conceptualize and establish – in collaboration with the Institute of Developing Economies of the Japanese External Trade Organization (IDE-JETRO) and the Inter-American Development Bank (IDB) – regionalized versions of the TSC Report that more strongly take into account regional conditions and specificities, thereby allowing the tailoring of policy recommendations to regional circumstances. It is intended to establish a series of such regional TSC Reports for Africa, Asia, and Latin America and the Caribbean. These regional TSC Reports will not only present the findings of an in-depth import rejection analysis for countries in the region but will also feature detailed case studies of value chains supplying to regional or international markets. These case studies will trace the supply chain in a country from producers or farmers to exporters, characterize differences between successful and unsuccessful exporters (or supply chains), identify possible weak links in the supply chain which may result in rejections in exporting, and propose possible policy actions to remedy the problems.

More generally, the TSC analyses and reports aim to enhance transparency on trade standards and to increase awareness and understanding of present and future compliance challenges for developing countries. They also aim to serve as resource documents for a variety of stakeholders, and to fulfill an analytical function in the identification of country needs and priorities. As such, the TSC studies undertaken by UNIDO can provide analytical support and inputs for the design and development of technical assistance projects and local trade and compliance capacity-building programs.

Overall, the TSC analyses and reports represent a global public good in the form of a strategic decision-making support and policy guidance tool that assists a variety of stakeholders (including policy makers and private sector actors in developing countries, donor agencies, technical assistance organizations) in taking more informed decisions regarding how to best strengthen the trade standards compliance performance of developing countries

and how/where to make related investments. With that, the TSC analyses and reports are an integral part of UNIDO's advocacy efforts for "smarter" and more targeted trade capacity-building.

All this is work in progress towards a *Trade Standards Compliance Observatory*. So far, the TSC analyses have been made available both in hardcopy format (i.e. as printed editions of the *Trade Standards Compliance Report*, its *Rationale and Key Findings*, a related *Working Paper*, this collection of *TSC Footprints*) and for web-download on www.unido.org/tradestandardscompliance. For the future, UNIDO plans to establish an online *Trade Standards Compliance Observatory* as a central platform and web tool which pulls together all the different strands of TSC analyses and related documents. In addition to making digital copies of the global and regional TSC Reports, TSC Footprints, and related material available for download, this *Trade Standards Compliance Observatory* is also to offer an interactive import rejection database that covers the key international export markets. In this context, UNIDO has recently started to collaborate with the Inter-American Development Bank (IDB) on the further development and enrichment (through the expansion of data coverage to additional markets beyond those currently covered and the inclusion of indicators such as those developed in the TSCRs) of the current rejection module within the IDB's INTradeBID online database portal (www.iadb.org/topics/trade/int/tools/sps/). Through offering different resources and tools, the *Trade Standards Compliance Observatory* will aim to serve as a point of reference for stakeholders seeking information to support and guide their decision-making on trade and compliance capacity-building.

3. Trade Standards Compliance Footprints: Objective, Rationale and Structure

The *Trade Standards Compliance Footprints* (TSCFs) have to be understood as part of UNIDO's endeavor to disseminate the insights gained through its analysis of developing countries' trade standards compliance challenges. They represent country fact sheets that provide a snapshot on selected countries' challenges to comply with export market requirements in agri-food trade. They give a synopsis of the information that can be extracted from import rejection data and what they tell us about compliance issues in agri-food sub-sectors such as fruit and vegetables or fish and fishery products. For now, the *TSC Footprints* cover just one of the various dimensions of trade standards issues, namely those related to compliance with public regulations in import markets which is what the rejection data capture. As elaborated above, there are also other perspectives on compliance challenges and compliance capacity and UNIDO has developed methods to capture also these other facets and dimensions which can and will be used to expand future editions of the *TSC Footprints*. To contextualize and complement the import rejection data, the *TSC Footprints* also present data on the country's economic, trade and poverty characteristics as well as on the trends, composition and destinations of its agri-food exports.

By offering such a quick overview, the *TSC Footprints* aim at policy makers and seek to provide them with a simple decision-making support tool to inform and guide their setting of priorities when it comes to trade capacity-building and investments in the development of their country's quality and compliance infrastruc-

ture. In particular, they allow for a comparison across countries and they enable trade standards stakeholders like policy makers, donor agencies, and technical cooperation organizations to benchmark a country's trade standards compliance performance against that of its peers in the same region or income group.

In a first step, UNIDO is producing such *TSC Footprints* for a limited number of countries and focusing on import rejection analysis only. As a consequence, the availability of such rejection data was the key criterion for selecting the countries to be included in this compilation of TSCFs. It should be noted here that there are actually also several developed countries that have seen quite a number of their agri-food exports rejected by Australian, EU, Japanese or US authorities. However, while the present collection includes a few low-income and high-income countries, the focus is on middle-income economies and this first edition collates *TSC Footprints* for those countries that have been most affected by agri-food import rejections during the past couple of years.

The structure and logic of the TSC Footprints

Each *TSC Footprint* gives a snapshot on economic, social and particularly trade-related facts for the country in question. While the emphasis is on indicators for trade standards compliance capacity (derived from import rejection data), each *TSC Footprint* also presents some information on the country's economic and social structure and poverty characteristics as well as on the trends, composition and direction of its agri-food exports. Broadly speaking, each *TSC Footprint* comprises four sections with the following logic:

- ◆ The first section presents data on the country's economic structure and some social indicators. This serves to complement the trade and rejection data and to shed light on the importance of the agri-food sector for the economy at large.
- ◆ The second section focuses on the trends and patterns of the country's agri-food exports. This serves to give an idea of the importance of agri-food trade for economic activity in the country and to position the country as exporter in world markets. These trade data also help to contextualize the import rejection analysis that follows.
- ◆ Presenting various indicators based on import rejection data (see below), the third section aims at giving an indication of the country's trade standards compliance performance and challenges. It focuses on the graphical presentation of findings from a detailed comparative analysis of import rejection data, first, for the agri-food sector in general and, second, for two key agri-food sub-sectors (fish and fishery products, fruits and vegetables).
- ◆ Following this presentation of patterns and trends in the rejections of a country's agri-food exports over time and across markets and sub-sectors, the last section provides a detailed overview of the primary reasons for such import rejections, focusing on the fishery sector and the fruits and vegetables sector.

Data and analysis presented in the TSC Footprints

In line with this overall logic, each *TSC Footprint* starts with reporting a number of basic economic and social indicators such

as (rural) population size, GDP per capita, Human Development Index rank, or share of agriculture in overall female employment (all data are for the year 2011 unless otherwise noted). The *Footprints* also use information from the *World Bank income group* classification which indicates in which range the country's Gross National Income (GNI) per capita falls. The World Bank divides countries into different income groups according to their GNI per capita as follows: Low-income countries (LIC; GNI per capita of US\$1,025 or less); lower middle income (LMIC; GNI per capita between US\$1,026 and US\$4,035); upper middle income (UMIC; between US\$4,036 and US\$12,475); and high income (HIC; US\$12,476 or more).

Reporting these basic indicators serves to shed light on the importance of the agri-food sector for the economy at large, its contribution to GDP and its relevance for poverty alleviation efforts. Next, each *TSC Footprint* displays two tables that report data on the share of food exports in total exports, the country's rank as world exporter for food, fishery products, and fruit and vegetables, and the main export markets for these product groups. They are followed by four graphs (two line charts and two bar charts) showing trends and patterns in the country's international trade in food products and certain sub-sectors.

The first of the two line charts plots the value of the country's exports to the world in four major agri-food sub-sectors (fish and fishery products, fruit and vegetables, herbs and spices, nuts and edible seeds). These are actually the four agri-food sub-sectors where most of the import rejections occur. The second line chart displays the value of the country's food exports to the four key international markets for which rejection data are available and reported later in the *TSC Footprint* (Australia, EU, Japan, US). Next, the bar chart at the top shows the importance of each of these four markets as destinations for the country's exports of fish and fishery products, fruit and vegetables, herbs and spices, and nuts and edible seeds. Meanwhile, the second bar chart displays the share of these four sub-sectors in the country's total food exports to Australia, the EU, Japan, the US, and the world, respectively.

These tables and graphs, thus, serve to position the country as exporter in world markets and give an idea of the country's performance as an exporter of food and certain food products. They also specify the composition and destinations of its agri-food exports and the relative importance of the agri-food sector (and the four sub-sectors) for the country's foreign trade.

The remaining parts of the *TSC Footprints* focus more narrowly on import rejection data and, based on these data, give an indication of the country's trade standards compliance performance and challenges. First, an overview is given of what import rejection data tell us about the country's trade standards compliance performance in the overall agri-food sector. This will be followed by a similar analytical overview of the country's trade standards compliance performance in two agri-food sub-sectors, namely fish and fishery products on the one hand and fruit and vegetables on the other hand. These two sub-sectors were selected because they account for a large share of all import rejections recorded by EU, US, Japanese and Australian authorities.

This assessment of compliance performance is based on three indicators developed by UNIDO in its *Trade Standards Compliance Report*: First, the absolute number of import rejections,

second the *Unit Rejection Rate* (URR) which relates the number of rejections to the value of exports, and third, the *Relative Rejection Rate Indicator* (RRRI) which relates rejection shares to import shares and thereby allows for the benchmarking across countries. Both the URR and the RRRI as well as their computation will be explained in more detail further below.

The absolute numbers of import rejections over the period 2006 to 2010 for the agri-food sector in general are reported in a table at the beginning of page 2 of each country *TSC Footprint*. For the two sub-sectors, the absolute numbers of import rejections are presented on the following page in a bar chart together with the respective annual export value to the four different markets (where the bars represent the export value while the number of rejections, labeled as R, is added through a small insertion at the top of each bar).

The URR and the RRRI are plotted both for total agri-food exports and for the two sub-sectors. In each graph on the RRRI, the country under consideration is positioned as a labeled dot within four bars that represent the four export markets; if the country is positioned in the green / orange / red area of the bar, this indicates that its RRRI is low / medium / high, reflecting relatively good / medium / poor compliance performance. In those cases where the country has not experienced any import rejection in a certain market in the sub-sector under consideration, there is of course no dot with the country label in the corresponding three-color bar in the RRRI diagram. Moreover, the RRRI analysis also excludes countries with a sectoral trade value of below one million US\$.

The URR is reported and displayed not only for the country under consideration (represented by the dots in each of the corre-

sponding graphs) but also for the country's peer group (defined as the World Bank income group; represented by the line in each of the graphs). This is to facilitate comparison and benchmarking. Please note that the four graphs displaying the URR for the four different markets (Australia, EU, Japan, and US) have different scales. While this makes comparisons across markets a bit more difficult it helps to prevent that extreme outliers in one market skew the graphs for the other markets and impair their legibility.

The *TSC Footprint* concludes with detailed information on the major reasons for import rejections of fishery products and fruit and vegetable shipments in the four different markets. This information is presented in pie charts with each pie chart covering one export market. For each country, these graphs give an indication of the root causes of observed non-compliance in the two sub-sectors.

The *TSC Footprints* draw on data from different sources. The import rejection data was provided to UNIDO by the following authorities: the Australian Quarantine and Inspection Service (AQIS), the European Commission's Directorate-General for Health and Consumers (DG SANCO, from its Rapid Alert System for Food and Feed (RASFF) database), the Japanese Ministry of Health, Labour and Welfare (MHLW), and the US Food and Drug Administration (FDA; from its Operational and Administrative System for Import Support (OASIS) database). All trade data were taken from the United Nations Commodity Trade Statistics Database (UN Comtrade). Finally, data on the basic economic and social data reported at the beginning of each *TSC Footprint* were drawn from the World Bank's World Development Indicators (WDI) database, the FAO's FAOSTAT database, and the UNDP's Human Development Reports.

Annex

I. Harmonization of data categorization schemes

The different public authorities record their import rejection data differently. As a consequence, they report this information at different levels of detail and use different classification schemes. In other words, the categories they use to report, for example, rejection reasons or product groups are not the same across datasets. In order to facilitate comparability across export markets, it is thus necessary to establish harmonized categorization schemes. UNIDO has therefore, in cooperation with the Institute of Development Studies (IDS) and the Inter-American Development Bank (IDB), established common categories which it applied to all datasets in order to classify data in a consistent way.

For each dataset received from the four public authorities, different products were classified into a common set of categories of more aggregate product groups (or agri-food sub-sectors). Second, each dataset contains information on the reason(s) underlying each import rejection. These rejection reasons have been grouped into thirteen more aggregate categories, as follows (in alphabetical order):

1. **Additives:** Presence in the rejected product of a food or feed additive banned or in a proportion that exceeds the level permitted by law (e.g. coloring, flavorings, sweeteners, preservatives, antioxidants, etc.).
2. **Adulteration/missing document:** Import rejection due to a document or information (e.g. registration, certificate, license or authorization for the exporting company or the export product) being missing, incomplete, incorrect, deceitful or fraudulent. This category includes cases where the rejected product is not yet authorized to be commercialized (for example, genetically modified organisms/GMOs or novel food products).
3. **Bacterial contamination:** Import rejection based on the finding that the product is contaminated with pathogenic microorganisms and bacteria such as enterobacteria (e.g. escherichia, shigella, salmonella), vibrios (e.g. vibrio cholera, vibrio parahaemolyticus, vibrio vulnificus), listeria, etc.
4. **Heavy metals:** Detection in the rejected product of heavy metals such as arsenic, cadmium, lead, mercury, tin, etc.
5. **Hygienic conditions/controls:** Import rejection of products that are found to be in poor hygienic condition or conservation status, or in a state of filthiness, deterioration or decomposition. This category also includes organoleptic aspects (such as spoilage or abnormal color or smell) and products that have been produced, processed, stored, packaged or transported under unhealthy or improper conditions (e.g. not in compliance with the requirements laid out by the principles of *Good Manufacturing Practices*, GMP, or *Hazard Analysis and Critical Control Points*, HACCP), or under poor or insufficient controls (e.g. inadequate temperature control).
6. **Labeling:** Cases where the labeling of the product is absent, misplaced, incomplete or incorrect in that it contains misleading or inaccurate information.
7. **Mycotoxins:** Presence in the rejected product of mycotoxins such as aflatoxins, ochratoxin A, trichothecenes (including deoxynivalenol or vomitoxin), patulin, fumonisins, zearalenone, etc.
8. **Other microbiological contaminants:** Import rejection due to parasitic infestation or the presence of non-pathogenic micro-organisms (such as coliforms, moulds or mesophiles).
9. **Other contaminants:** Import rejection resulting from the detection in a product of contaminants not listed in the other categories presented here, including foreign bodies, industrial contaminants (e.g. dioxins, melamine, hydrocarbons or polychlorobiphenyls), biocontaminants (e.g. histamine), as well as biotoxins and chemical contaminants not included elsewhere.
10. **Others:** Import rejection due to reasons not listed elsewhere, including unauthorized or unlabeled irradiation and the presence of allergens, transmissible spongiform encephalopathies (TSEs), or poisonous substances not included in other categories.
11. **Packaging:** Instances where an import rejection is caused by the product packaging being defective, damaged, broken, incorrect, or unsuitable for foodstuffs, or where migration from the packaging to the product has occurred.
12. **Pesticide residues:** Import rejection due to the discovery of residues (e.g. chemicals) of an unauthorized pesticide or the discovery of residues of an authorized pesticide that exceeds the *maximum residue limits* (MRLs) for that pesticide as stipulated by the *Codex Alimentarius* or the relevant legislation or authority of the importing market.
13. **Veterinary drug residues:** Cases of import rejections of products due to the presence of residues (e.g. chemicals) of an unauthorized veterinary medicinal product or the presence of residues of an authorized veterinary drug in excess of the *maximum residue limits* (MRLs) for that veterinary drug as determined by the *Codex Alimentarius* or the authority in charge in the importing market.

A similar issue of definition and aggregation arises when defining a sector using trade data (from UN Comtrade or any other source) as different classification schemes and reporting systems are in existence and use. When defining the overall food sector, we follow the WTO Agreement on Agriculture which covers chapters 01 to 24 plus selected tariff sub-headings in chapters 29, 33, 35, 38, 41, 43, 50, 51, 52, and 53 of the *Harmonized Commodity Description and Coding System* (HS). In our analysis, we excluded the latter sub-headings as well as the following HS chapters entirely devoted to non-food products: HS 01 (live animals), HS 06 (live plants), HS 13 (lac; gums, resins and other vegetable extracts), HS 14 (vegetable plaiting materials), and HS 24 (tobacco). Meanwhile, the “fruit and vegetables” sub-sector is defined to comprise HS chapters 07, 08, and HS chapter 20 except for sub-chapters 200811 and 200819. Finally, “Fish and Fishery Products” are defined to include HS chapters 03, 1603, 1604 and 1605.

II. Overview, rationale and computation of indicators

Import rejection data are used here to give an indication of developing countries' capacity to comply with international trade standards and market requirements. While the crude absolute numbers of import rejections provide a broad picture of patterns and trends across products, exporting countries and/or destination markets, these data also reflect changes in the volumes and composition of exports over time. In fact, there are various factors that can influence the level of rejections, including the volume of exports, the rate of inspection, and the rate of non-compliance (which, in turn, depends on public and firm-level compliance capacity which is what we are interested in). There is, thus, a need for consistent summary measures which are more informative. For this purpose, in its *Trade Standards Compliance Report* UNIDO has developed three indicators that, individually and as a collective, aim to provide a more complete picture of patterns and trends in non-conformity. The *TSC Footprints* also report these three indicators for each country both at the level of the overall food sector and at the level of two major food sub-sectors (fish and fishery products, and fruits and vegetables). These three indicators are defined and calculated as follows:

1. *Aggregate number of rejections*: Simple sum of the annual number of rejections (at sectoral or sub-sectoral level) over the period 2006 to 2010. Increases in the number of rejections can reflect increases both in the volume of exports and in the rate of non-compliance.
2. *Unit Rejection Rate (URR)*: Number of rejections per US\$ 1 million of exports over the period 2002 to 2010. This measure takes account of changes in the volume of exports such that it provides a direct measure of the rate of non-compliance. This indicator can also be presented as a moving average to smooth out often appreciable year-on-year variations (see UNIDO's *Trade Standards Compliance Report* for this approach).
3. *Relative Rejection Rate (RRR) and Relative Rejection Rate Indicator (RRRI)*: The RRR is calculated as the ratio of a country's share of total rejections in one market to its share of total imports in this market for the entire period for which data are available (i.e. 2002-2010 for EU and US data, 2003-2010 in the case of Australian data, and 2006-2010 for Japanese data). This ratio is then converted into natural logarithms in order to generate a normal distribution. The natural logarithms are divided into three equal groups to create a tercile distribution. Countries in the highest tercile are labeled 'high', those in the middle tercile are labeled 'medium', and those in the bottom tercile are labeled 'low'. This provides a convenient measure of the performance of countries relative to one another over the medium term. A country whose share of rejections is less/more than its share of imports will have

a 'low'/'high' RRRI and is defined as a relatively good/bad performer in terms of rates of non-compliance. The RRRI, and to a lesser extent the URR, thus, provide a more reliable basis for cross-country benchmarking and for comparisons across export markets and product groups than the crude absolute rejection numbers.

III. Limitations of import rejection analysis

Finally, a note of caution is warranted about what analyzing import rejection data can actually deliver. In using rejection data, the intention is to throw some light on the compliance performance of developing countries, individually and as income sub-groupings. It is necessary from the outset to reflect on how reliable rejection data are for this purpose and, perhaps more importantly, how patterns and trends in rejections should be interpreted.

First, it is crucial to recognize that rejection data are generated by specific instances where an exporter attempts to gain access to foreign markets (EU, US, Japan or Australia) and where there is a failure due to non-conformity with official requirements that are enforced through border or market inspection. They tell us nothing about the state of capacity in countries that do not export. These countries may have very weak compliance capacity (and perhaps this is the reason they do not export), or alternatively very good compliance capacity while not exporting for other reasons (for example lack of productive capacity and/or high transport costs). Zero exports could also result from prohibitions on exports due to persistent non-compliance and/or non-approval of food safety control systems in the exporting country.

Second, border inspections cover a small fraction of total food imports. Further, authorities in the importing markets typically do not record the number of consignments offered for inspection or the number of inspections undertaken. As a result, it is not possible to estimate the share of non-compliant consignments from any one country or over time.

Third, the rate of rejection will reflect the exporting country's compliance capacity relative to the importing market's official requirements, which is of interest here. However, it will also be influenced by the efforts and attentions of border officials in the importing country, which may vary in a non-random manner across time, products, exporting firms and/or country of origin according to historical rejection rates, administrative priorities in the importing country, etc.

In conclusion, rates of rejection at best provide a crude and partial picture of the compliance difficulties faced by developing countries with agri-food product exports. While patterns and trends in rates of rejection present a broad picture of where problems exist and how the scale of problems differs across countries and/or changes over time, in terms of compliance challenges they arguably represent only the 'tip of the iceberg'.



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Telephone: (+43-1) 26026-0, Fax: (+43-1) 26926-69
E-mail: unido@unido.org, Internet: <http://www.unido.org>

E-mail: tradestandardscompliance@unido.org
Internet: www.unido.org/tradestandardscompliance

