TRAINFORTRADE

Strengthening knowledge and skills through innovative approaches for sustainable economic development

Module 3

Production and Compilation

Participants Manual

Training Course on International Merchandise Trade Statistics (IMTS)

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Foreword

E-learning course on international merchandise trade statistics

International trade in goods are an increasingly important part of global commerce. International Merchandise Trade Statistics (IMTS) play a vital part in monitoring, analyzing and projecting of macroeconomic developments in individual economies and the world economy. IMTS are well developed and international standards have been defined in the IMTS 2010 to harmonize standards and practices. However, many measurement issues and comparability problems remain. Increasingly the important phenomenon of globalization, entailing the internationalization of production and sales and new forms of delivering goods and services to customers across countries, new developments in information and communication technologies and the growing importance of e-commerce requires new approaches and poses new methodological challenges.

The objective of this e-learning course on IMTS is to provide more easily accessible and rather complete training material for those involved in the collection, compilation, analysis and dissemination of IMTS.

The main goals are to enhance statisticians' ability to apply the most recent internationally agreed recommendations on IMTS, define best possible data sources, set up adequate collection systems, and enhance statistics compilation processes. Furthermore, the course would communicate the importance of quality, metadata, timely dissemination, and links to economic analysis and national policy objectives. The training would guide trainees on how to better use the internationally available guidance, especially the IMTS Concepts and Definitions 2010 and the related Compilers Manual.

Notes and acknowledgements

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- UNCTAD, Division on Globalization and Development Strategies, Development Statistics and Information Branch,
- UNCTAD, Division on Technology and Logistics, Knowledge Development Branch, Human Resources Development Section/TrainForTrade,
- WTO, Economic Research and Statistics Division, International Trade Statistics Section and
- UN Statistics Division.

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INTRODUCTION

International trade is defined, in the Balance of Payments as in the System of National Accounts, as the whole set of international transactions in items that are outcomes of production activities. The term "international merchandise trade statistics" (IMTS) refers to a specialized multipurpose domain of official statistics concerned with the provision of data on the movements of goods between countries and areas.

This module on 'Production and compilation' describes the data collection, data sources, structure of data for database storage, evaluation of the detailed trade data and the detection of outliers.

This module is based on the recommendations contained in chapter VIII of 'IMTS: Concepts and Definitions 2010' (IMTS 2010), on data compilation strategies and in chapter IX on data quality and metadata, as well as on chapter VIII of 'IMTS: Compilers Manual' (IMTS 2010-CM), on data processing and database management.

The collection of data on international merchandise trade through customs administrations has a long history, although the primary purpose of customs activity has not been for the collection of statistical data. In a growing number of cases, the full coverage of international merchandise trade statistics cannot be achieved by use of customs records only and countries are encouraged to review their current data compilation practices and to develop a long-term strategy for dealing with the emerging issues in order to ensure uninterrupted availability of high-quality and timely trade statistics.

2. IMTS 2010 RECOMMENDATIONS

Data compilation strategies (chap. VIII)

38. Use of customs records: Use customs records as the main and normally preferred data source (para. 8.2). New recommendation

39. Allocation of customs procedures: Closely cooperate with customs experts in order to correctly allocate customs procedure codes and associated trade transactions according to the general or the special trade system (para. 8.4). New recommendation

40. Use of non-customs records: Supplement customs-based data with information obtained from other sources, as necessary, to ensure full coverage of international merchandise trade statistics. Use non-customs sources as substitutes for available customs records only if they provide a cost-effective way to improve the quality of trade statistics (para. 8.9). Updated recommendation

41. Integrated approach to data collection: In the case of the use of non-customs data sources, such as enterprise surveys, use an integrated approach to data collection and make use of business registers and enterprise identification numbers in order to obtain the required information with minimal costs and burden on enterprises (para. 8.11). New recommendation

3. USE OF CUSTOMS RECORDS

It is recommended that statisticians use customs records as the main and normally preferred data source since they reflect the physical movement of goods across borders that international merchandise trade statistics aims to record and are, in general, reliable, detailed and readily available in most countries.

Customs declarations

Statistical information is mostly derived directly from customs declarations. A customs declaration is "any statement or action, in any form prescribed or accepted by the customs, giving information or particulars required by the customs". The customs declaration indicates the customs procedures under which goods enter, move within or leave the country.

Access to supportive documentation

Information available at customs is not limited to the customs declaration since supportive documentation, such as the commercial invoice, transport documents, import licenses and certificate of origin, usually accompanies the customs declaration. Compilers should make arrangements with customs authorities to have access to these documents, as required (e.g., to solve gaps and quality concerns) and as permitted by law and to use them as additional sources of information.

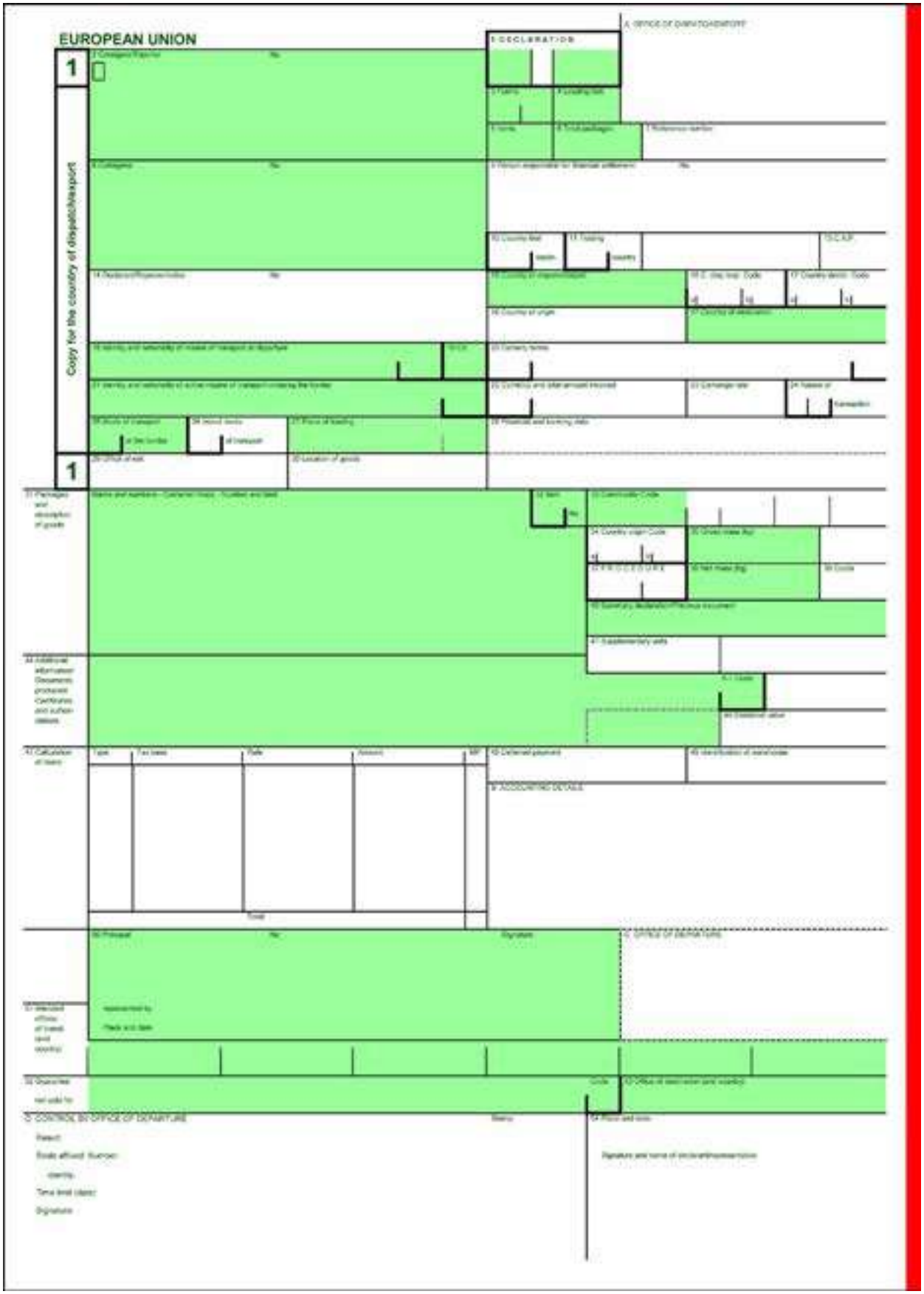
Additional information at customs

Depending on the national legislation and practices, customs records can include or exclude transactions of certain goods, such as electricity, gas, oil, ships and aircraft, goods sent by parcel and letter post, etc. Compilers should be aware of the coverage of the customs recording and should use additional data sources when necessary. Customs authorities may also have valuable information about transactions in goods carried out within the economic but outside the customs territory, such as about goods entering and leaving free zones. Compilers should be aware of such information and obtain access to it in order to compile international merchandise trade statistics to the fullest possible extent as recommended in herein.

The single administrative document (SAD)

The single administrative document (SAD) is the documentary basis for customs declarations in the European Union and in Iceland, Norway and Switzerland. The single administrative document comprises a set of eight copies. Figure below contains a representation of the first copy, which is the copy retained by the country where the export or transit formalities are carried out.

The single administrative document (SAD) form



Explanation of the single administrative document fields

The following table provides a brief description and the use of each field on the SAD.

Table 1a: SAD

FIELD	DESCRIPTION	USE
A	**Office of Destination**	Label as Office Code: HQ (Headquarters)
1	**Declaration**	Customs procedure code is identified in this field which is of two parts. The first part tells the type (or 'model') of declaration ('IM' for import declaration and 'EX' for export declaration). Model — Description EX 1 — Export entry IM 4 — Import entry
2	**Exporter / Consignor**	As the SAD is used for both import and export declaration, this field has a different purpose according to the declaration model, either "IM" or "EX". IM For import declarations enter the code, or full name and address of the overseas or foreign exporter of the goods to Samoa. This is usually the name of the person or organization from whom the Samoan importer purchased the goods or supplier. EX For export declarations, the consignor code or full name and address must be entered. This is usually the name of the person or organization that is exporting the goods from Samoa.
3	**Forms**	Total number of pages in this form, including the front page and any insertions of page two, three repeated, eg If only one page, it means one of one on the declaration and the same applies if it's one of two and two of two and so forth.
4	**Lists**	Loading lists
5	**Items**	Total number of items declared on declaration Entry lines of declaration consists of 298 items and 99 pages.
6	**Total number of packages**	The Declarant must state the number of packages declared in declaration, except for bulk goods the field can be left blank and refer to field in box 31.
7	**Declarant / Entry reference number**	Assigned reference code for declaration. Year / internal reference eg. Order or job number. First stage will be optional until second stage will become mandatory.
8	**Consignee**	Like field 2, this field has a different purpose according to the declaration model, either 'IM' or 'EX'. IM For import declaration the consignee is usually the Samoan "importer. For imports, traders consignee code or full name and address must be entered. EX For export declarations, the consignee code or name and address must also be entered. This is usually the name of the person or organization that the goods are consigned to overseas, in the foreign country. The export consignee is usually the person to whom the Vanuatu exporter has sold the exported goods .For 'EX' model declarations a consignee code number is needed. Compulsory (mandatory), but if a new importer comes to customs for registration. This is to be verified by customs in order to become mandatory"

Table 1b: SAD (continued)

FIELD	DESCRIPTION	USE
9	**Person responsible for financial settlement**	If the responsible person is not the consignee, then the code number, or name and address of person responsible for settling duty and taxes to Customs, must be entered.
10	**Last country / First Destination**	IM For import declarations this field is for a code that shows the country from which the goods were exported. This is usually the code for the country where the goods are placed on board the mode of transport for shipment to Samoa, e.g., ship & airport. EX For export declarations, this is the code for the country where the goods are first destined e.g., where the goods are unloaded after transport from Samoa. (If it is a Trans shipment consignment then it becomes a mandatory field) Country Codes follow the international standard of two latin characters, e.g. WS for Samoa, FR for France, AU for Australia.
11	**Trading country**	Trading Country code.
12	**Value details**	Value details
13	**C.A.P.**	Common Agricultural Policy (European countries only)
14	**Declarant / Representative name and number**	The declarant is the person or organization declaring the goods to Customs. In certain circumstances the owner of the goods themselves, however it is usual that declarations are prepared and the goods 'declared' to Customs by agents authorized by the owners. These agents (Customs clearing agents or Customs brokers) are skilled in Customs procedures and authorized by Customs to act for the owners in declaring goods. Customs authorized brokers must enter their Declarant number which is assigned by Customs.
15	**Country of export code (a)**	Country Code of exporting country. IM For import declarations, this field shows the country from which the goods were exported from EX For export declarations, this shows the country were goods are destined.
	(b) Previous country of export	Country Codes follow the international standard of two latin characters, e.g. WS for Samoa, FR for France, AU for Australia.
16	**Country of origin**	Import declaration only (Model 'IM') The country where the particular goods declared, were originally made. Enter the name of the country of origin or manufacture of the goods.
17	**Country of destination**	Export Declarations only (Model 'EX') The country where the particular goods declared were exported. Entry the country code of the final destination of the goods. The country code follows the international standard, of two Latin characters.

Table 1c: SAD (continued)

FIELD	DESCRIPTION	USE
19	**Container flag**	Nature of container were the particular goods declared were packed In, e.g. 0 = No container / 1 = F.C.L. container
20	**Delivery terms**	This field is for a code describing the terms of delivery specified in the sale contract between the buyer and the seller of the declared goods. The code is the international standard incoterms code, promoted by the International Chamber of Commerce. Delivery terms format is of three characters, e.g. C.I.F., F.O.B.,etc..
21	**Identity and nationality of transport in border**	Identity and nationality of means of transport at departure.
22	**Currency and total amount invoice**	Total amount invoiced and currency code of particular goods declared. The first block states the currency code, where as for the second block represents figure of that respective country. Eg. France, NZ. AUL ...etc
23	**Exchange rate**	Rate of exchange of foreign currency, which the goods in this entry were paid. For full implementation of ASYCUDA, this field will not be required to be entered. It has been agreed that it will be effective on the first day of every month. (Validity date)
24	**Nature of transaction**	Financial data which provides transactions, agreements and settlement of accounts between buyer and seller.
25	**Mode of transport at entry and departure.**	Means of arrival at the country.
26	**Inland mode of transport**	Inland mode of transport
27	**Place of loading / unloading**	Place of loading / unloading
28	**Financial and banking data Bank code**	Reserved for future use in phase 2 and not applicable to phase 1.
29	**Office of entry**	Customs office code i.e. office where the particular goods declared are cleared.
30	**Location of goods**	At places where transit sheds or airport areas are given identity codes, use the code. For other declarations enter in plain language the precise location at which the goods are available for examination.
31	**Marks and numbers** **Number & kind of packages**	The description in this field must include the shipping marks and numbers, the number of packages for this item, (the same commodity code), and naming of the type of packages (e.g. sacks, cartons, crates, etc.)
32	**Item number**	Reference to the item number declared for this declaration.

Table 1d: SAD (continued)

FIELD	DESCRIPTION	USE
33	**Commodity code**	Commodity code of the goods declared according to the harmonized system. 8 digits – Commodity code (Mandatory)
34	**C.O. Code**	Country code of country of origin of goods. (Line entry)
35	**Gross mass kg**	The gross mass of the goods declared. If there is a need for additional information in regards to units, liters, cubic meters etc, then refer field 41, which is supplementary units.
36	**Preference code (Agreements between countries)**	Used to enter a code that shows that the declarant is claiming a reduced rate of import duty allowable when the goods conform to a description with a regional trade agreement, for 'preference' on certain kinds of goods.
37	**Procedures** **Incentives and Excise**	Customs Procedures Code used to identify customs regime under which goods are being moved to and from, i.e. procedure 4071 represents import for home use from bonded warehouse. The second part represents an additional procedure code.
38	**Net mass kg**	The net mass of the goods declared.
39	**Quota reference**	Reserved for future use.
40	**Summary declaration / previous Document**	Enter the transport document number. Usually the transport document is the shipping bill of lading (BL) or air waybill (AWB) number. There will be no validation, since it has been identified as optional.
41	**Supplementary units**	When a quantity other than net mass is required i.e. other units. Total supplied units declared under a particular commodity code. (This is can also be cross referenced to fields 33(sitc codes), 35 and 38).
42	**Item price**	Item price of a particular commodity code.
43	**V.M. code**	Reserved for future use.
44	**Additional information documents**	License reference number and other relevant certificate to assist in the clearance of a particular goods plus a value amount (where the license is conditioned according to value) and/or a quantity such as weight or number of units.
45	**AI Code**	Adjustment Code
46	**Statistical Value**	Enter the value in tala currency of the goods described in Field 31, according to the rules for Customs valuation under Samoan law. This value is the price of the goods as adjusted in accord with Articles and principles of the Brussels definition of value.In most cases this is the invoice price adjusted by the cost elements described in Field 46A, to value the goods at the landed, CIF level.

Table 1e: SAD (continued)

FIELD	DESCRIPTION	USE
B	**Accounting Details**	Mode of Payment Method of payment for duty fees, Number assigned to declaration post assessment. Receipt No. Number assigned to receipt for payment of this declaration Total Fees Additional charge Total declaration Total amount payable by declarant. (Total calculation of taxes + Total fees)
49	**Identification of warehouse**	Enter warehouse name. If the warehouse is not coded, enter the formal or business name of the warehouse, as registered with the Customs. In the second part of the field, enter the period (as the number of days) that the goods are approved for storage in that warehouse.
50	**Principal: No.: Signature:**	Principal: No.: Signature:
51	**Int. Offic. Trans. + Cty**	Intended Offices of Transit (and country)
52	**Guarantee**	Guarantee
53	**Office of Destination (and country)**	Office of Destination (and country)
D	**Control by Office of Destination Result: Stamp: Signature:**	Space for Customs of importing country to approve the declaration and to record any examination result.
54	**Place and Date**	Signature and Name of Declarant / Represent.

Electronic declaration

A declaration can exist not only as a printed document but also in electronic form. For example, many countries use electronic declarations for a significant proportion of imports. Many developing countries use the Automated System for Customs Data (ASYCUDA), a computerized system developed by The United Nations Conference on Trade and Development (UNCTAD). The electronic declarations significantly facilitate the processing of data.

Statistical requirements

The data requirements of customs may not always fulfil all statistical needs. In particular, for most customs procedures, the Revised Kyoto Convention (RKC) leaves it to national legislation to decide what customs records are to be kept, whether or not a goods declaration should be lodged and what information it should contain. Compilers of trade statistics are advised to cooperate with customs to design such forms of customs records which, while not adding administrative or financial burden to customs and traders, contain all statistically significant data fields and allow the collection of the data required for trade statistics. The statistical requirements should be addressed systematically with customs and included in a Memorandum of Understanding and should also be addressed in the joint work programme of customs and the agency responsible for compiling international trade statistics. In this connection, the statistical agencies could seek also greater access to such information as shipping manifests.

Use of non-customs records

The full coverage of international merchandise trade flows cannot be achieved by the use of customs records only, either because the relevant transactions are not or are no longer subject to customs controls or customs surveillance (e.g., within customs unions or when customs authorities move to system-based rather than transaction-based customs control) or because record-keeping may not be adequate from a statistical point of view. It is recommended that in such cases, customs-based data be supplemented with information obtained from other sources, as necessary, to ensure full coverage of international merchandise trade statistics. It is recommended to use non-customs sources as substitutes for available customs records only if they provide a cost effective way to improve the quality of trade

statistics. A description of the non-customs sources used, including how they were used, as well as an assessment of their quality, should be provided in the metadata.

Non-customs data sources

There are various non-customs sources of data. Foreign shipping manifests can be used for cross-checking and supplementing information gathered from customs declarations. Many countries utilize enterprise surveys as a means to collect data on transactions, which may not be captured by customs authorities (e.g. trade in electricity, water, gas, oil and goods for military use). The Member States of the European Union have developed, for the purposes of intra-Union merchandise trade statistics, a data collection system (Intrastat) that relies on monthly reporting by enterprises; additional information is supplied via the fiscal authorities through the value-added tax collection system. Surveys are also used to capture so-called shuttle trade and border trade. Currency exchange records and records of monetary authorities often provide timely information about international transactions, including merchandise flows. Aircraft and ship registers may be utilized to capture trade in aircrafts and ships in case customs records are incomplete or non-existent. Parcel post and letter post records are used to ensure that the merchandise flows via parcel and postal services are adequately covered. Reports from commodity boards may supplement and help to cross-check customs recording of trade in certain goods.

UK INTRASTAT forms - Form to be completed to declare goods when moving in and out of the UK to any EU Member State:

UK INTRASTAT forms

Data sources for special categories of goods

As transactions in certain categories of goods may not appear in customs records, the compiling agency may have to use additional data sources to achieve full coverage of the country's merchandise trade statistics. Relevant non-customs data sources for the compilation of those categories of goods are described in IMTS 2010-CM chapters III and IV.

Those categories of goods include the following:

- Goods delivered through postal or courier services;
- Electricity transmitted through fixed power lines;
- Petroleum, gas and water delivered through pipelines;
- Petroleum and gas produced outside the customs territory and shipped directly by vessel;
- Border trade (i.e., trade between residents of adjacent areas of bordering countries as stipulated by national legislation);
- Sales and purchases made by aircraft and ships in foreign ports;
- Sales and purchases of aircraft, ships and other mobile equipment;
- Transactions on the high seas;
- Military goods.

Data sources for trade information regarding specific territorial elements

IMTS 2010 (see para 2.13 and chap. VI) recommends the implementation of the general trade system under which the statistical territory covers all applicable territorial elements. For certain territorial elements such as free zones, no or very limited information from customs declarations is available, and compilers need to use either other administrative information collected by customs (i.e., information required for security purposes) or non-customs data sources, in order to obtain information on the trade transactions involving these areas. The compilation of trade data for other territorial elements such as islands, territorial waters, etc., that are included in the statistical territory also requires the use of non-customs data sources if customs records are insufficient or absent.

5. ALLOCATION OF CUSTOMS PROCEDURES

Information on the custom procedures applied to individual transaction are of critical importance for the compilation of IMTS, as those procedures indicate whether certain transaction should be included in or excluded from merchandise trade statistics (IMTS 2010, paras. 8.5 and 8.6). For example, the ASYCUDA system uses customs procedure codes for determining the trade type (system) and flow. Further, customs procedures might be used for the separate identification (recording) of certain types of trade transactions such as those involving goods for processing and intra-firm. In general, the customs procedure applied to an individual transaction frequently contains information about the purpose of the transaction, which is useful for analytical purposes.

Often, the information on customs procedure codes is not included in the data set provided by customs to the trade statisticians, possibly because, in the past, this information was not often seen as suitable or relevant for statistical purposes. However, owing to globalization, goods production processes are increasingly split up across many countries. Therefore, there is now a very strong need to obtain additional information about the nature of the trade transactions so that the impact of trade on and its relationship to employment, growth and the environment can be analyzed.

Customs procedures and trade statistics

Most of the international transactions of goods pass through the customs administrations of the exporting and the importing countries, and are subject to customs procedures. Customs records created as a result of the application of such procedures are the most prevalent and most important source of data for trade statistics. Furthermore, the customs procedures are used to determine what movements of goods are to be included or excluded from international merchandise trade statistics. However, countries may not always strictly follow the standards and recommended practices of the RKC or may have other procedures or procedures in addition to those identified within it. Therefore, compilers should carefully review the details of the customs procedures and then decide on whether to include or exclude any given procedures, following the IMTS 2010 recommendations on the scope of recording (see IMTS 2010, para. 8.5).

Inclusion and exclusion of goods based on specific customs procedures.

The most common customs procedure for imports is the declaration of goods for Clearance for home use, whereas for exports it is the procedure of outright exportation. Goods transactions under these customs procedures are, as a general guideline, to be included in the international merchandise trade statistics. Goods movements under the procedures transit, transhipments and temporary admissions are, in general, to be excluded. The paragraphs 'Customs procedures covering goods to be included in IMTS' and 'Customs procedures covering goods to be excluded from IMTS' below provide the list of customs procedures identified in the RKC under which, as a general guideline, goods are to be included in or excluded from trade statistics, assuming that the country follows the RKC in the definition and application of these customs procedures (see IMTS 2010, para. 8.5).

Customs procedures

A customs procedure is a "treatment applied by the customs to goods which are subject to customs control". The customs procedure is the basis for the correct identification of the flows of goods for inclusion or exclusion under general or special trade. Customs usually apply a system of codes that allows flows of goods to be identified and prevents double recording of the goods which have undergone several customs procedures. It is recommended that statisticians closely cooperate with customs experts in order to correctly allocate customs procedure codes and associated trade transactions according to the general or the special trade system. The annexes to the Revised Kyoto Convention identify a set of customs procedures, and provide standards and recommended practices regarding those activities.

Information about customs procedures

It is recommended that information about the customs procedures applied to individual transactions be part of the data set provided by customs to the agency responsible for the compilation of international merchandise trade statistics.

Customs procedures covering goods to be included in IMTS

1. Imports

Clearance for home use (Specific Annex B, Chapter 1)

Specific Annex B of the RKC defines "clearance for home use" as the Customs procedure which provides that imported goods enter into free circulation in the Customs territory upon the payment of any import duties and taxes chargeable and the accomplishment of all the necessary Customs formalities. It further defines "goods in free circulation to" mean goods which may be disposed of without Customs restriction.

Customs warehouses (Specific Annex D, Chapter 1)

"Customs warehousing procedure" means the Customs procedure under which imported goods are stored under Customs control in a designated place (a Customs warehouse) without payment of import duties and taxes. Customs can establish public and private customs warehouses, for which Customs shall lay down the requirements for the establishment, suitability and management and the arrangements for Customs control. The arrangements for storage of goods in Customs warehouses and for stock keeping and accounting shall be subject to the approval of the Customs. As mentioned above, the authorized operations are strictly defined. Goods are allowed to stay in the warehouse for at least one year, unless the goods are perishable.

Free zones (Specific Annex D, Chapter 2)

"Free zone" means a part of the territory of a Contracting Party where any goods introduced are generally regarded, insofar as import duties and taxes are concerned, as being outside the Customs territory. National legislation shall specify the requirements relating to the establishment of free zones, the kinds of goods admissible to such zones and the nature of the operations to which goods may be subjected in them. Customs shall lay down the arrangements for Customs control, including appropriate requirements as regards the suitability, construction and layout of free zones, and have the right to carry out checks at any time on the goods stored in a free zone.

Inward processing (Specific Annex F, Chapter 1)

"Inward processing" is defined as the Customs procedure under which certain goods can be brought into a Customs territory conditionally relieved from payment of import duties and taxes, on the basis that such goods are intended for manufacturing, processing or repair and subsequent exportation. Specific Annex F further defines that inward processing shall not be limited to goods imported directly from abroad, but shall also be granted for goods already placed under another Customs procedure and that it should not be refused solely on the grounds of the country of origin of the goods, the country from which they arrived or the country of destination.

Processing of goods for home use (Specific Annex F, Chapter 4)

"Processing of goods for home use" means the Customs procedure under which imported goods may be manufactured, processed or worked, before clearance for home use and under Customs control, to such an extent that the amount of the import duties and taxes applicable to the products thus obtained is lower than that which would be applicable to the imported goods. The granting of the procedure of processing of goods for home use shall be subject to the conditions that:

a. the Customs are able to satisfy themselves that the products resulting from the processing of goods for home use have been obtained from the imported goods;

b. the original state of the goods cannot be economically recovered after the manufacturing, processing or working.

2. Re-imports

Re-importation in the same state (Specific Annex B, Chapter 2)

"Goods exported with notification of intended return" means goods specified by the declarant as intended for re-importation, in respect of which identification measures may be taken by the Customs to facilitate re-importation in the same state.

"Re-importation in the same state" means the Customs procedure under which goods which were exported may be taken into home use free of import duties and taxes, provided they have not undergone any manufacturing, processing or repairs abroad and provided that any sums chargeable as a result of repayment or remission of or conditional relief from duties and taxes or of any subsidies or other amounts granted in connection with exportation must be paid. The goods that are eligible for re-importation in the same state can be goods that were in free circulation or were compensating products.

3. Exports

Outright exportation (Specific Annex C, Chapter 1)

Specific Annex C states that "outright exportation" means the Customs procedure applicable to goods which, being in free circulation, leave the Customs territory and are intended to remain permanently outside it. The Customs shall not require evidence of the arrival of the goods abroad as a matter of course.

Outward processing (Specific Annex F, Chapter 2)

"Outward processing" means the Customs procedure under which goods which are in free circulation in a Customs territory may be temporarily exported for manufacturing, processing or repair abroad and then re-imported with total or partial exemption from import duties and taxes.

Drawback (Specific Annex F, Chapter 3)

"Drawback" means the amount of import duties and taxes repaid under the drawback procedure.

"Drawback procedure" means the Customs procedure which, when goods are exported, provides for a repayment (total or partial) to be made in respect of the import duties and taxes charged on the goods, or on materials contained in them or consumed in their production.

Postal traffic (Specific Annex J, Chapter 2)

According to the RKC, clearance of goods in postal traffic "shall be carried out as rapidly as possible" and customs control shall be restricted to the minimum".

Relief consignments (Specific Annex J, Chapter 5)

The RKC stipulates that clearance of relief consignments for export, transit, temporary admission and import shall be carried out as a matter of priority. In the case of relief consignments the Customs shall provide for: (a) lodging of a simplified Goods declaration or of a provisional or incomplete Goods declaration subject to completion of the declaration within a specified period; (b) lodging and registering or checking of the Goods declaration and supporting documents prior to the arrival of the goods, and their release upon arrival; (c) clearance outside the designated hours of business or away from Customs offices and the waiver of any charges in this respect; and (d) examination and/or sampling of goods only in exceptional circumstances.

Customs procedures covering goods to be excluded from IMTS

Customs transit (Specific Annex E, Chapter 1)

"Customs transit" means the Customs procedure under which goods are transported under Customs control from one Customs office to another. The Customs shall allow goods to be transported under Customs transit in their territory:

a. from an office of entry to an office of exit;

b. from an office of entry to an inland Customs office;

c. from an inland Customs office to an office of exit; and

d. from one inland Customs office to another inland Customs office.

Goods being carried under Customs transit shall not be subject to the payment of duties and taxes. The Customs at the office of departure shall take all necessary action to enable the office of destination to identify the consignment and to detect any unauthorized interference.

Transhipment (Specific Annex E, Chapter 2)

"Transshipment" means the Customs procedure under which goods are transferred under Customs control from the importing means of transport to the exporting means of transport within the area of one Customs office which is the office of both importation and exportation. The Customs should accept as the Goods declaration for transshipment any commercial or transport document for the consignment concerned which meets all the Customs requirements. This acceptance should be noted on the document.

Temporary Admission (Specific Annex G, Chapter 1)

"Temporary admission" means the Customs procedure under which certain goods can be brought into a Customs territory conditionally relieved totally or partially from payment of import duties and taxes; such goods must be imported for a specific purpose and must be intended for re-exportation within a specified perioda and without having undergone any change except normal depreciation due to the use made of them.

National legislation shall enumerate the cases in which temporary admission may be granted and temporary admission shall be subject to the condition that the Customs are satisfied that they will be able to identify the goods when the temporary admission is terminated. The Customs shall fix the time limit for temporary admission in each case.

Temporary admission with total conditional relief from duties and taxes should be granted to the goods referred to to in the Annexes to the Convention on Temporary Admission (Istanbul Convention) of 26 June 1990:

a. "Goods for display or use at exhibitions, fairs, meetings or similar events";
b. "Professional equipment";
c. "Containers, pallets, packings, samples and other goods imported in connection with a commercial operation";
d. "Goods imported for educational, scientific or cultural purposes";
e. "Travellers' personal effects and goods imported for sports purposes";
f. "Tourist publicity material";
g. "Goods imported as frontier traffic";
h. "Goods imported for humanitarian purposes";
i. "Means of transport";
j. "Animals".

6. INTEGRATED APPROACH TO DATA COLLECTION

Integrated approach to data collection

In the case of the use of non-customs data sources, such as enterprise surveys it is recommended that countries take an integrated approach to data collection and make use of business registers and enterprise identification numbers in order to obtain the required information with minimal costs and burden on enterprises. The integrated approach to data collection is of particular importance for the fulfilment of additional information requirements, such as for goods for processing (including obtaining information on change of ownership), intra-firm trade, etc., which often cannot be satisfied by the use of customs declarations only.

Comparison of customs and non-customs data sources

Both customs and non-customs sources have their specific merits and shortcomings. Compilers should be aware of them when deciding what data sources are the most appropriate to use. Customs records, for example, may not provide full coverage of all transactions, may not be subject to adequate statistical quality control at customs, or may not be made available to statistics compilers in a comprehensive and unrestricted manner. The use of non-customs data sources may increase the burden on data providers and compilers. Also, these sources may suffer from a lack of a consistent classification (e.g., of goods, countries), under-coverage (e.g., non-responses in surveys) and may not follow standards recommended for valuation, time of recording and partner country attribution. Trade statistics compilers should pay special attention to these issues in order to obtain information from customs and non-customs sources that fulfils the requirements of trade statistics.

Reconciliation and integration of customs and non-customs data

The reconciliation and integration of customs and non-customs data is a complex and time-consuming activity and includes merging and cross-checking large amounts of collected data. Compilers need to be aware of the conceptual and practical difficulties in reconciling and integrating data from different sources and users should be informed accordingly.

Institutional arrangements

It is recommended that countries consider the establishment of the institutional arrangements necessary to ensure the compilation of high quality trade statistics as a matter of high priority and periodically review their effectiveness.

Laws and regulations: The compilation of IMTS is organized on the basis of the statistical and other applicable national laws and regulations of countries, which, to different degrees, specify the rights and responsibilities of the agencies involved. The data sources for IMTS (in terms of their contents and availability) are subject to their own laws and regulations. In particular, customs records, the main data source for IMTS, are subject to customs laws and regulations. The national agency responsible for the overall compilation and dissemination of IMTS should, whenever appropriate, actively participate in the discussion of respective national legislation or relevant administrative regulations in order to establish a solid foundation for the high quality and timeliness of trade statistics.

Institutions involved in compilation: In most countries, several institutions and agencies are involved in the compilation of trade statistics. Typically, the most important are national statistical offices, customs administrations and central banks. In some countries, the ministry of trade or other specialized governmental bodies may be assigned responsibility for trade statistics or may play an important role, for example, by providing additional information.

Effective institutional arrangements: It is recognized that different institutional arrangements (depending on the structure of a country's Government and other considerations) can result in acceptable trade statistics provided that the agency responsible for the overall IMTS compilation follows internationally recognized methodological guidelines, utilizes all available statistical sources and applies appropriate compilation procedures. Effective institutional arrangements are usually characterized by (a) the designation of only one agency responsible for the dissemination of official trade statistics, (b) a clear definition of the rights and responsibilities of all agencies involved, and (c) the establishment of formalized working arrangements between agencies including agreements on holding inter-agency working meetings, as needed, and on the access to micro-data that those agencies collect. Formal arrangements should be complemented by informal agreements between the involved agencies and institutions, as required.

Quality insurance: Whatever the institutional arrangement, the national agency responsible for the overall IMTS compilation should periodically review the definitions, and methods used and the trade statistics themselves to ensure that they are compiled in accordance with relevant international recommendations and recognized good practices, are of high quality and are made available to users in a timely fashion.

Integration of different data sources

To achieve full coverage of the international merchandise trade statistics, data compilers often have to merge and cross-check data collected from customs and non-customs sources, which is a highly complex and time-consuming activity. Merging customs and non-customs data includes adding non-customs data to the customs data and substituting non-customs data for the customs data. For the purpose of quality control and/or for the information of the users, compilers might wish to differentiate data based on customs data sources and data based on non-customs data sources.

Issues encountered when merging data from different sources

Compilers should need to be aware that the following issues need to be addressed when merging data from different sources:

a. Different sources may provide different data elements or levels of detail, e.g: parcel and letter post records might not contain any commodity detail; cross-border surveys might provide data only at the higher HS levels (e.g., that of HS chapters); and commodities that are difficult to classify might be allocated to a few broad categories in non-customs sources, making it difficult to merge them with the more detailed customs data (see the example of Uganda's Informal Cross Border Trade Survey below);

b. Some transactions might be subject to simplified reporting requirements at customs;

c. There may be conceptual differences between sources: e.g., enterprise records might contain the country of purchase and sale but not the country of origin or last known destination;

d. There may be delays in data forwarding by some source agencies or these agencies may use different release calendars, which may lead to unsynchronized provision of data;

e. There may be a risk of double counting due to overlaps in the information provided by different sources: e.g., between data on goods on consignment supplied by customs, and data on sales of the same goods reported by the controlling governmental agency;

f. It may be difficult to organize data processing in an efficient manner, since source agencies may use different data submission media (hard copies, portable storage, electronic transmission, e-mail, etc.) or incompatible computer data files (the integration of different hardware and software systems is a problem in numerous cases);

g. Data entry from certain sources (e.g., postal forms, passenger manifests) may involve the use of a disproportionate amount of time and resources;

h. There is a need to cross-check data from complementary sources (e.g., customs and commodity boards) and to determine which sets are of greater reliability;

i. Survey results that apply to a period longer than the reference period used for the compilation of trade statistics cannot be easily added to the customs data;

j. It is not always possible to identify partner countries in detail and some rest categories will need to be used at times;

k. The statistical value is made up of several components, some of which may not be available in some cases;

l. In enterprise surveys, quantity information is frequently not collected, or cannot be provided at a level of sufficient detail.

Supportive measures

Country experience indicates that certain measures can be taken to facilitate the merging of data from different sources. Compilers may consider:

a. Establishing effective controls in the compiling agency to ensure timely replacement of preliminary data from one source by final data obtained from another source (e.g., partner data on a country of consignment basis received from customs may be replaced by data on a country of last known destination basis (for the same goods) received from other governmental agencies, if the latter are judged to be of better quality);

b. Developing estimation and imputation procedures to deal with the missing data fields (e.g., estimates of quantities for the current month can be based on current values and on the unit value of the previous month);

c. Conducting an ongoing campaign to sensitize customs officers and employees of other source agencies regarding the importance of trade statistics for various purposes;

d. Establishing a system-wide terminology management strategy to ensure the use by all agencies of a consistent terminology in questionnaires. Further, the same classifications for commodities, partner countries, quantity units and modes of transport should be used;

e. Running training programmes for staff involved in data compilation (both those of the compiling agency and those of the source agencies, particularly on statistical standards and requirements, conceptual standards and the use of appropriate software) in order to improve staff skills in compiling and merging data from different sources;

f. Conducting regular meetings between staff of compiling agencies and staff of source organizations (including staff of large importing and exporting enterprises) to establish stable and efficient working arrangements and complementing such meetings by periodic follow-up phone calls and visits;

g. Establishing, to the extent possible, a direct computer link with data suppliers to facilitate data transmission and allow for better and faster verification of incoming data; and using standard classifications and appropriate correlation tables to identify and link the various sets of data;

h. Coordinating the installation of computer hardware and software in the compiling and source agencies to ensure their compatibility.

7. DATA PROCESSING

Statistical data processing and statistical information systems

As in other domains of official statistics, the compilation of international merchandise trade statistics involves collecting, processing, storing, retrieving, analysing and disseminating statistical data. In practice, these processes are structured according to particular institutional arrangements in countries and are mostly carried out with the help of information systems infrastructure (including database management systems). The resulting organizational and information systems architecture provides the framework within which different statistical compilation and dissemination processes and subsystems play their respective roles and interact with one another. While the architecture of a statistical data processing system will respond to the specific needs and constraints faced by each country, there are various general frameworks available which provide guidance and best practices, including the Generic Statistical Business Process Model (GSBPM) proposed by the joint Economic Commission for Europe (ECE)/ Eurostat / Organization for Economic Cooperation and Development (OECD) work sessions on statistical metadata (METIS).

Database management systems

The basic functions of a statistical database management system are to create, retrieve, update and delete (CRUD) specified data during the various stages of the statistical data processing cycle. These operations are performed by the database management system on data stored in a database according to a particular data model, such as the relational data model, which is the de facto standard for a wide variety of database management systems and database-related applications. The Structured Query Language (SQL) is a widely accepted interface between relational database management systems and database-related applications.

Characteristics of data processing at customs

The characteristics of data processing at customs encompass the electronic submission of customs declarations (and/or provision of paper declarations) and the provision of additional documentation at geographically dispersed locations and the application of uniform but complex processing procedures leading to the clearance of the goods and the sharing of information with the parties involved. These tasks are greatly facilitated by the establishment of a single window environment which provides the benchmark for modern data management at customs. The implementation of a single window generally entails the harmonization and alignment of the relevant trade documents and data sets.

Automated System for Customs Data (ASYCUDA)

ASYCUDA is a computerized customs management system that covers most foreign trade procedures and has been implemented in many countries. The system handles manifests and customs declarations, accounting procedures, and transit and suspense procedures. It generates trade data that can be used for statistical and economic analysis. The ASYCUDA software has been developed by United Nations Conference on Trade and Development (UNCTAD) in Geneva and operates on microcomputers in a client server environment. ASYCUDA is fully compliant with international codes and standards developed by the International Organization for Standardization (ISO), WCO and the United Nations. ASYCUDA can be configured to suit the national characteristics of individual customs regimes, national tariffs and legislation. The system also provides for electronic data interchange (EDI) between traders and customs using UN/EDIFACT (United Nations rules for Electronic Data Interchange for Administration, Commerce and Transport). The most recent Web-based version of ASYCUDA will allow customs administrators and traders to handle most of their transactions through the Internet.

EUROTRACE software: data processing software for external trade statistics

The Eurotrace software, distributed free of charge by Eurostat and implemented in many developing countries, allows (a) the importation and management of the data necessary to the development of the external trade statistics (in particular the customs data), (b) the treatment of these data, in particular through carrying out quality controls and the application of standards, (c) the working out and calculation of a certain number of aggregates, in particular

indices of foreign trade and (d) their export for dissemination and publication.

EUROTRACE is a software suite consisting of three applications, which can operate together or independently. The three applications are:

EUROTRACE DBMS: EUROTRACE provides the structures and tools for the management of statistical data. EUROTRACE can be used as a production system for the integration, validation and management of statistical datasets. It includes tools for defining data structures, inserting validation rules (simple and complex), loading and managing all types of raw data required to produce reliable External Trade statistics (mainly based on customs data).

EUROTRACE Editor: The EUROTRACE Editor enables users to view and edit extractions of data made by the EUROTRACE DBMS application. It includes tools for gathering, editing and validating all types of data, mainly used for processing customs entries or for data quality validation.

COMEXT standalone: COMEXT standalone is the system for EUROTRACE extractions and a tool for consulting data in a multidimensional browser designed for data dissemination and data analysis. COMEXT standalone incorporates several advanced functions, such as the calculation of aggregates, the definition of complex formulae, ranking facilities, time series productions, etc.) A variety of export formats is available for the extraction results (Excel, HTML, TXT, etc).

The software has been developed by Eurostat and is currently used in more than 60 countries and international organizations.

- Eurotrace provides functions to capture and process the basic information from the customs declarations, store them in a production database, and compile and disseminate the national IMTS.
- The implementation of the software and its adaptation of the country IT environment will consist of:
- Checking the sources and nomenclatures that are used to compile trade in goods statistics;
- Checking the equipment available and identifying any requirements;
- Preparing and configuring the Eurotrace database;
- Installing and defining the database;
- Designing the domain and tailoring the domain to the requirements of the country;
- Defining the metadata, and initialising the dictionaries, relations (correlation tables) etc;
- Analyzing the customs procedures;
- Preparing and implementing the validation and action rules;
- Preparing the procedures to load the current and historical data from the existing data processing system into Eurotrace for testing;
- Preparing the procedures to produce the derived datasets;
- Identify the output features (reports, publications and analyses) and implementing them in Eurotrace (creation of the derived datasets and production testing with Comext Stand-alone).

Characteristics of data processing at the responsible agency in contrast with other statistical activities

The statistical processing of merchandise trade data involves dealing with large numbers of data sets of relatively

simple structure. These data sets are in general obtained from customs declarations and received from customs. Further characteristics are the use of extensive and usually automated validation and quality checking procedures, the storing of processed data and metadata in well-maintained databases capable of performing customized data queries, and timely provision to users of large data sets in various formats. All these activities imply the intensive use of information technology which frequently requires that significant IT resources be specifically dedicated to trade statistics. Particular challenges for statistical data processing can arise when revisions or corrections need to be coordinated and agreed between customs and the responsible agency. A further potential difficulty is the integration of data from other sources, as those data, for example, might not follow the required standard format.

Data transformations

The following data transformations are often executed at the responsible agency: suppression or removal of certain information (due to issues of confidentiality or quality), correction of existing data and supplementation of existing data through estimation or other means (i.e., if certain characteristics are not provided).

The role of customs

Custom declarations are the main and usually preferred data source for merchandise trade statistics. Not only are customs authorities providing this information to the responsible agency, but, they have a very strong influence on the quality of the information provided. In this context, it is critical that customs work with the traders or brokers who enter the information to ensure that the data required for statistical purposes are adequately captured in the customs declarations. At the same time, the responsible agency needs to make customs aware of these requirements.

Data fields required for statistical purposes

Table 2: Data for statistical purposes

Field name	Recommended field content
Reference year	Gregorian calendar (January through December)) : in YYYY format (e.g., 2011, 2012, ...)
Period	Annual, monthly or quarterly period identification (e.g., M01, M02, ..., Q1, Q2, ..., A00)
Trade flow	Imports, Re-imports, Exports and Re-exports
Commodity code	According to the Harmonized System (HS) at the most detailed commodity level available (six-digit HS)
Partner country or area	In national nomenclature; country of origin (for imports) and country of last known destination (for exports)
Value	Monetary value (in national currency or United States dollars); CIF for imports and FOB for exports
Net weight	Physical quantity (in kilograms)
Supplementary quantity	Physical quantity (in the WCO recommended standard units of quantity)
Supplementary quantity unit	Description of units of quantity employed for supplementary quantity data (e.g. Number of items)
New data fields following the adoption of IMTS 2010 (include if already available)	
Second partner country or area	In national nomenclature; country of consignment for imports and country of consignment (destination) for exports
Second value for imports	Monetary value (in national currency or US dollars); FOB for imports
Mode of transport	Means of transport used when goods enter or leave the economic territory (in the nomenclature encouraged and provided by IMTS 2010, para. 7.2, or national nomenclature)
Customs procedure code (or applicable transaction code)	Code of the customs procedure applied to individual transactions by customs; any applied procedure or transaction code if customs procedure codes are not available or if additional codes are used

Information relevant or required to complete a goods declaration

- Point of import/export: the point at which the goods actually enter or leave the customs territory of a country;
- Date of importation/exportation: for imports, the date on which the carrier transporting the goods arrives at the customs territory; for exports, the date of departure or date of clearance;
- Date of lodgement: the date on which the customs accepts the declarations submitted by importers, exporters or their agent;
- Importer/exporter: in general, refers to the party in the customs territory who signed the contract of purchase/sale and/or who is responsible for executing the contract (i.e., the agent responsible for effecting import into or export from a country). Each importer or exporter is usually assigned a unique identification number;

- Nature of transaction (e.g., purchase/sale, processing, barter, lease, gift);
- Mode of transportation: the type of carrier which transports the goods into or out of the customs territory (e.g., sea and water, rail, road (truck), air, postal, other);
- Carrier identification: the name and the voyage/flight/wagon/vehicle number of the carrier actually transporting the goods into or out of the customs territory;
- Bill of lading/airway bill: the importing or exporting carrier 's bill of lading, airway bill number, rail receipt number, post office number;
- Consignee/consignor: the party to whom goods are consigned/the party who consigns the goods;
- Country of consignment: the country from which goods were dispatched to the importing country (to which goods were dispatched from the exporting country), without any commercial transactions or other operations that change the legal status of the goods taking place in any intermediate country;
- Customs procedure (regime): the type of customs procedure under which imported or exported goods are cleared from customs;
- Licence number: validated import or export licence number, for goods subject to import or export licence;
- Related party transaction (i.e., one between parent company or sister company);
- Location of domestic consumer/producer: location of domestic consumer refers to the location in the customs territory for which imported goods are destined or where they will be ultimately consumed or utilized. Location of domestic producer refers to the location in the customs territory where the exported goods are produced or manufactured or from which the goods actually start their journey to the point of export, if the origin of production is unknown;
- Port of loading/destination: port of loading means the last foreign port where the imported goods were loaded on the carrier that brought them to the compiling country; port of destination means the ultimate foreign port for which the exported goods will be designated;
- Terms of delivery: the transaction terms of delivery is required to be reported, usually the Incoterms 2000 rules;
- Freight: the freight charges;
- Insurance: the insurance charges;
- Unit value: the price actually paid for one unit (by quantity unit) of the given commodity when sold for exportation to the compiling country or purchased for importation from it, or the cost of one unit of the commodity if not sold or purchased;
- Total value: the price actually paid for all units (by quantity unit) of the given commodity (unit price multiplied by quantity), or the cost of the commodity if not sold or purchased;
- Customs value: the value of goods established in accordance with the customs law of a country;
- Type of financial transaction: an indication of payment method;
- Unit of account: the currency in which it is required that the transaction that has occurred be reported;
- Statistical value: the value assigned to goods by a compiler of trade statistics, according to the rules adopted by the compiling country;
- Number and kind of packages: the number and kinds of packages (bulk, boxes, barrels, baskets, etc.);
- Marks: marks or other identification shown on the packages and the numbers and kinds of packages (boxes, barrels, baskets, etc.);
- Commodity code: usually the HS-based code, where the first six digits are the HS codes and the others are national extensions;
- Commodity description and specification: a description of the commodity sufficient to permit verification of the classification code or the description and specification, as shown on the validated import or export licence;

- Gross weight (kilograms): the gross weight of shipments, including the weight of moisture content, packings and containers (other than containers, such as cargo vans and similar substantial outer containers used for containerized cargo);
- Net weight (kilograms): the net shipping weight, excluding the weight of packages or containers;
- Domestic or foreign goods: specification of whether the good is of domestic or foreign origin;
- Quantity and quantity unit: the amount reported in terms of the unit(s) adopted by national legislation; in many cases, they are based on the standard units of quantity recommended by WCO. It is also required that the unit of quantity specified in the transaction be reported, if it is other than the customs standard units;
- Country of origin: as established in accordance with the country's rules of origin;
- Country of destination (also called country of final or ultimate destination): the country in which the merchandise is to be consumed, further processed or manufactured; the final country of destination as known to the exporter at the time of shipment or the country of ultimate destination as shown on the validated export license. Two- or three-digit (alpha character) International Organization for Standardization (ISO) codes or other codes may also be used;
- Tariff preference, if any;
- Producing/importing State or province;
- Form of payment;
- Agent's commission;
- Date of shipment or discharge;
- Country of purchase.

8. DATA QUALITY ASSURANCE

Methodological soundness

Quality assurance requires the adoption, application and enforcement of a conceptual framework for foreign trade statistics, preferable in line with the international recommendations. Decisions in respect of treatment of transactions in specific categories of goods (scope of trade statistics), and of transactions destined for or originating in certain territorial elements, their classification and valuation, quantity measurement and attribution of partner country are part of the daily work of customs officers and trade statistician and require the existence of a clear methodological framework. Any automated quality assurance and data validation must be based on and derived from the conceptual framework adopted by a country.

Data processing and validation: types of checks and tools

Statistical data processing requires the capture of individual trade transactions, the creation of trade records, and their validation and integration into data sets encompassing all the records of a specific period. Validation checks are commonly used for: completeness, validity of codes, range check of values, internal consistency and aggregate consistency. Often, the estimation and insertion of missing values and codes are integrated into the completeness check. Tools for validation include validation at data entry ("in dialog"), batch validation with the creation of error lists, generation of error statistics, flagging of significant transactions, classification of errors into certain versus possible errors and automated versus manual error correction. The inclusion of additional sources of information usually requires manual corrections as such information is external to the system. In some offices, manual corrections will always require that additional and/or external sources be used (e.g. by contacting the declarant). However, it might not always be possible to obtain the additional information in the time available, and manual corrections might be made without the use of such additional sources.

The information problem at data entry

The starting point of the statistical quality assurance process is the point at which the information is provided. This usually occurs when the customs declaration is completed, as customs records are the main, and normally the preferred, data source for merchandise trade statistics. Customs declarations are themselves administrative records containing selected information about commercial (or non-commercial) transactions and the logistics of moving the goods from the seller to the buyer (or from the sender to the receiver). Usually, the information on the customs declaration is entered separately and is not, for example, derived electronically from existing information; hence, those completing the customs declarations (commonly the shipping agent or trader) might not have complete information about the transaction, logistics and subsequent transactions.

Data entry

The most important stage of quality assurance for trade statistics occurs when the required information is entered into the customs declaration, as the agent or the person completing the customs declaration should have available all the required information to the best possible extent. Electronic data entry systems allow the implementation of comprehensive validation rules which can prevent certain types of typing errors, entry of invalid or implausible codes, and entry of values outside a certain range, as well as invalid or implausible combinations of entries. The development and implementation of such rules require significant knowledge and investment in the IT system. Also, the validation systems need to be carefully designed so as not to obstruct the entry of accurate information or invite "gaming with" or circumventing the validation system, thereby leading to a deterioration of data quality.

Quality assurance at customs

Security and safety and the collection of revenue are the core functions of customs and can be viewed as the prime objectives of data quality assurance at customs. Therefore, the customs information on imports is in many countries considered as being of higher quality than the data for exports, as customs duties usually apply only to imports and not to exports. However, this traditional view is not an adequate description of the situation in many countries. Many customs offices have statistical units that aim to ensure comprehensively the quality of statistical information.

Quality assurance, seen as a comprehensive concept and supported by the automation at customs, will lead to an improvement in quality of all elements of the data. Further, the concept of an integrated data pipeline extending from the buyer to the seller (see para. 8.8 of IMTS 2010-CM) demonstrates than an emphasis solely on import information is outdated, since in a possible future global customs system, the information for export and imports will be integrated and treated as two sides of one transaction.

Quality assurance at the responsible agency

The responsible agency is expected to conduct a systematic quality assurance programme covering all elements of the statistical information, using the full range of validation checks and tools (as specified in para. Data processing and validation: types of checks and tools above) and ensuring the timeliness of the information provided to users. A special focus is often given to the aggregated data and the final results which are compared with the ones from previous periods. However, frequently, special attention is also given to certain transactions that might be of particular importance or of high value, or might be potentially outside the scope of IMTS (e.g., goods for repairs and transactions in ships and aircraft). Often, the responsible agency has or can gain access to the original record and its accompanying information at customs. In many ways, the quality assurance at the responsible agency depends on data provision by and cooperation with customs, unless, of course, customs itself is the responsible agency.

Main quality issues from the user's perspective

Gaps in coverage, asymmetries in partner information, unreliable quantity information and insufficient timeliness are often perceived as the major quality issues associated with international merchandise trade data. The issues raised are discussed briefly below. However, certain country practices, discussed further on this publication, address some of these issues in more detail.

Quality issues: Coverage

Some major coverage issues such as the application of the special trade system or the need for confidentiality of certain transactions are beyond the scope of the regular quality assurance at the responsible agency. However, in many countries, transactions in certain commodities, such as oil, gas, electricity, raw materials, ships and aircraft, are not or not adequately captured by customs or by the responsible agency. In other countries, border or shuttle trade maybe important but is not fully recorded by the responsible agency. Lack of coverage can also arise in the case of the applications of various thresholds for simplification purposes at customs (see chap. XIX, sect. E of IMTS 2010-CM). Possible approaches to these issues of coverage entail use of additional data sources and, if necessary and appropriate, addressing them with the relevant governmental authorities, which, for example, can mandate that information be made available to statistical authorities. In the case of trade below certain reporting thresholds, appropriate estimation methods might need to be developed.

Quality issues: Asymmetries in partner data

Asymmetries in partner data, that is, differences between the compiling country's own data on exports and imports and the partner country's data on imports and exports, can have multiple causes, including differences in the time of recording, differences in the classification of commodities, partner country attribution, trade system, confidentiality, etc., and many bilateral studies have been conducted to examine this issue and to reduce these asymmetries. However, an important factor in these asymmetries is trading partner information which may be impossible to align owing to conceptual as well as practical factors in particular in the case of global value and supply chains. In order to improve the situation, IMTS 2010 strengthened the recommendation to provide the country of consignment as second partner with information not only for imports but also for exports (see IMTS 2010, para. 6.26). As indicated, one way to examine and address these asymmetries is to conduct reconciliation studies.

Quality issues: Quality of quantity information

Many users and producers of trade statistics agree that quantity information (quantity in WCO standard units of quantity and net weight, where the standard unit is different from net weight) is the weakest data element in the

core data set for trade statistics. In some countries, the provision of quantity or net weight is not mandatory, and often the information is not complete for other reasons. Information on quantity is internationally comparable only when reported by countries in a uniform manner. However, often quantities are reported in units different from the ones recommended by WCO for each specific commodity. An important quality problem is the incorrect reporting of the quantity or net weight, which might be difficult or impossible to determine. There are several possible means of improving the quantity information. For example, as part of a standardized quality assurance procedure, suspicious high quantity values could be identified and the data provider contacted to verify them; or suspicious or missing quantities could be replaced with estimates based on the data provided by the same firm or other reporters. A further option is to use additional data sources such as shipping documents to verify the quantity information. Yet another possibility is to allow data providers to estimate missing information using empirical values or to allow the provision of quantities in quantity units from which standard units of quantity or net weight could be derived using appropriate conversion factors. Whatever the method used, it should be documented in the metadata that are made available to users.

Quality issues: Quantity aggregation

The quantity and net weight information provided by countries at the six-digit level of HS is frequently an aggregation of multiple trade transactions. Usually each transaction has a trade value, but the same is not true for net weight and quantity values, which can be missing. Further, quantity data for various transactions within the same six-digit commodity code might be reported in different quantity units. Hence, countries generally need to apply estimations for any missing net weight and quantity data and conversions or estimations for any non-standard quantity units in order to provide information on net weight and quantity at different levels of aggregation, or to refrain from providing aggregations that are not of sufficient quality. The difficulties in quantity and net weight aggregation constitute a quality issue on their own which has to be carefully addressed in view of the multiple and growing uses of these data, including for health and environmental policymaking. It is good practice for the responsible agency to work closely with customs on this issue.

Quality issues: Timeliness

The relevance of trade statistics is greatly increased if the data are provided in a timely manner. However, in many countries, the information is provided much later than suggested (see IMTS 2010, para 10.7) requiring data users to make their own estimates. One means of improving the timeliness of information is to review the data production process in light of existing best practices and to publish preliminary data (see IMTS 2010, para. 10.8).

Best practice: Implementation of validation rules

Validation rules. The validation rules specify acceptable values for the different variables, the appropriate controls and checking rules, metadata, possible errors and actions in case of errors. The fields (or variables) of a record (single administrative document (SAD) are checked for whether the values (codes) comply with the permitted entries (i.e., 1: imports; and 2: exports), whether the combination of values (codes) of two or more fields are permitted (e.g., commodity code against mode of transport), whether numerical values or combinations of numerical values (e.g., statistical value against quantity expressed in net mass) are within a certain range, and whether aggregated numerical values (e.g., aggregated statistical value by flow and commodity code) are within a certain range.

Application of the validation rules. These validations referring to individual SADs are expected to be performed through automated systems at customs, while the responsible agency would perform at the input data stage only a few additional checks on the aggregated data. However, in respect of the output data, the responsible agency would perform similar validation checks of all output fields (sections) to ensure correct values. The output data validation at Eurostat would not repeat the previous checks but would mainly check for outliers, in particular as Eurostat would strive to harmonize settings (calibration) of validation limits and thresholds for automatic correction in the validation rules for numerical fields (variables). The annex to harmonized framework presents in summary the statistical methods proposed for the validation and correction of numerical variables, as well as the methodological procedure to be followed for the editing of combinations of categorical variables.

Best practice: ASYCUDA, data quality assurance, measurement and reporting.

In any computer system, the quality of the data entered for processing or storage is of paramount importance, as wrong data can jeopardize all of data processing and can yield incorrect results. In this regard, the Automated System for Customs Data (ASYCUDA) ensures the highest quality of the keyed-in or imported data by performing several types of data validation and control. Some of them are set to be mandatory and others are configurable (to be mandatory or remain optional) depending on specific needs and national circumstances. The following types of data validation and control are integrated into ASYCUDA: (a) existence controls, (b) data format controls, (c) referential and validity controls, and (d) consistency controls; in addition, ASYCUDA provides a statistical reporting module that can also be used for validation purposes

Existence controls. This type of controls checks whether the data element that has been declared as mandatory is really entered. A data element can be declared as mandatory by programming or through the configuration module. The configuration module allows the ASYCUDA user countries to adapt the data capture of any document to their specific requirements and circumstances (e.g., a data element could be declared as mandatory in country A and prohibited in country B).

Data Format controls. This type of controls verifies that the format of the entered data element corresponds to the format that has been declared during the implementation (e.g., the data element must be a numeric with three decimals, or a date format). ASYCUDA supports various data formats (or data types): numeric (with or without decimals), characters and date.

Referential and validity controls. This type of controls verifies whether the data element is correct according to the reference table to which it is related. This means that the data element must exist in the reference table and is valid for the respective time period (date of validity). A simple example is the list of (partner) countries, which also includes its validity. There are more than 40 reference tables on, for example (this list is not exhaustive): importers or exporters, declarants, countries, customs procedure codes, terms of delivery (INCOTERMS), places of loading/discharge, terms of payments, mode of transport, etc. The customs integrated tariff consists in a specific and complex reference table allowing the checking of the customs commodity code and other related elements (e.g., quantity units associated with a specific tariff).

Consistency controls. This validation ensures that:

(a) The use of several data elements is consistent, depending on the content of one or more control tables. This means that a specific data element must be valid not only per se (as indicated in the above para.) but also in combination with one data element controlled in another table (e.g., not only must the mode of transport at the border exist in the table of the modes of transport but it must also be authorized for the declared customs office of entry/exit);

(b) The existence of a specific data element depends on the value of the other data element (e.g., the quantity unit number of items is not mandatory in all cases but if requested by the tariff commodity code then it becomes mandatory).

ASYCUDA statistical reports. In addition to the checks explained above, which are mainly performed during data entry, ASYCUDA also provides a statistical reporting module. These reports are intended to provide a summary or overview in a specific time period; however, they can also be used for validation purposes.

Cross-country data comparability

Cross-country data comparability remains an important issue. Non-comparability is caused, inter alia, by differences in coverage, different methods for the treatment of certain goods (e.g., military goods, ship's stores, confidential data), value increases in intermediary countries, differences in classification of goods, time lags in reporting, differences in valuation, including CIF/FOB differences, currency conversion, methods of partner country attribution, and trade via third country intermediaries. Such non-comparability may be substantially reduced by the adoption of the recommended IMTS 2010 concepts and definitions. Nevertheless, a certain amount of non-comparability will remain because of differences resulting from following the recommended approaches to valuation and partner

country attribution for imports and exports, as well as variations in data sources, reporting errors, errors in data collection or the processing and forwarding of results, the use of fraudulent documents or the inability of traders to furnish accurate information. Countries are encouraged, therefore, to periodically conduct bilateral and multilateral reconciliation studies or implement data exchanges so that their statistics can be made more accurate and useful for both national purposes and for international comparisons.

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