Monograph Series on Transport Facilitation and Logistics Development in Asia and the Pacific

STUDY ON PAPERLESS TRANSIT

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

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This study report was prepared by Transport Division ESCAP under the joint ESCAP (TID, TD and IDD) and ECE Development Account Project - Eighth Tranche entitled “Deepening Regional Connectivity: Strengthening Capacities of Asian Developing Countries to Increase Intra-regional Trade by Implementing Paperless Trade and Transport Facilitation Systems”. The preliminary draft of the study was prepared by Mr. Gordon Linington, Consultant, which was further elaborated and completed by Mr. Goran Andreev, Consultant, under the supervision of Mr. Sandeep Raj Jain, Economic Affairs Officer, Transport Facilitation and Logistics Section (TFLS), Transport Division. The study was guided by Mr. Li Yuwei, Chief, TFLS.

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LIST OF ABBREVIATIONS and ACRONYMS

ACDD	ASEAN Customs Declaration Document
ACTS	ASEAN Customs Transit System
ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
ASYCUDA	Automated System for Customs Data
B2B	Business to Business
B2C	Business to Customs
B2G	Business to Government
C2C	Customs to Customs
CCN/CSI	Common Communications Network / Common Systems Interface
CCS	Cellular communication systems
CMR	Convention on the Contract for the International Carriage of Goods by Road (*French: Convention relative au contrat de transport international de Marchandises par Route*)
COMESA	Common Market for Eastern and Southern Africa
COMESA RCTG	COMESA Regional Customs Transit Guarantee
DG TAXUD	Directorate-General for Taxation and Customs Union
DTI	Direct traders input
EAC	East African Community
EDI	Electronic data interchange
EDIFACT	Electronic Data Interchange for Administration, Commerce and Transport
EFTA	European Free Trade Association
EU	European Union
G2G	Government to Government
GATT	General Agreement on Tariffs and Trade
GNC	Globally Networked Customs
GOVCBR	Government Cross-Border Regulatory message
GPS	Global positioning systems
IBRD	International Bank for Reconstruction and Development
ICT	Information and communication technology
IDB	Inter-American Development Bank
IRU	International Road Transport Union
ISO	International Organization for Standardization

MRN	Movement reference number
NCTS	New Computerized Transit System
NSW	National Single Window
OECD	Organisation for Economic Co-operation and Development
PKI	Public Key Infrastructure
RADDEx	Revenue Authorities Digital Data Exchange
RFID	Radio frequency identification
SAD	Single Administrative Document
SADC	Southern African Development Community
TAD	Transit Accompanying Document
TIFFA	Thai International Fright Forwarders Association
TIM	International Transit of Goods (*Spanish: Tránsito Internacional de Mercancías*)
UCR	Unique Consignment Reference
UML	Unified Modelling Language
UMM	UN/CEFACT Modelling Methodology
UN ESCAP	UN Economic and Social Commission for Asia and the Pacific
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UNCITRAL	United Nations Commission on International Trade Law
UNCTAD	United Nations Conference on Trade and Development
UNECE	United Nations Economic Commission for Europe
UNNEXT	United Nations Network of Experts for paperless Trade
UNTDED	United Nations Trade Data Elements Directory
USAID	United States Agency for International Development
WB	World Bank
WCO	World Customs Organization
WTO	World Trade Organization
XML	Extensible Mark-up Language

I. BACKGROUND

This study is developed under the United Nations Development Account Project - 8th tranche – Deepening Regional Connectivity: Strengthening Capacities of Asian Developing Countries to Increase Intra-regional Trade by Implementing Paperless Trade and Transport Facilitation Systems.[1]

Enhanced regional integration is commonly recognized as a key element for sustained growth and reduced vulnerability of developing countries from global economic turbulences. In order to enhance intra-regional trade it is essential to deal with the challenges of the regional integration. Strong political will, supported with clear strategies and comprehensive actions to facilitate trade and transport can provide enormous benefits from regional cooperation. Close inter-country cooperation to identify priority corridors for optimal utilization of transport capacity and investment in their development; recognition of non-physical barriers and initiation of regulatory and procedural reforms to overcome those barriers will provide favourable conditions for trade and transport by reducing transport costs leading to enhanced trade and transport.

The land transport in general, and the road transport in particular have a major role in intra-regional trade and they are particularly important for the landlocked countries. Benefits offered by the land transport are apparent for intra-regional trade, as the geographical proximity of trading partners offers lower average transport costs. However, various physical and non-physical barriers especially during transit adversely affect the potential of the road transport. Instead of contributing to regional trade expansion, road transport is frequently challenged not only by insufficient physical infrastructure but is also plagued with inconsistent, complicated and cumbersome border-crossing formalities and procedures; high and numerous charges for transit; lack of coordination among control authorities and various stakeholders; and restrictions imposed on foreign carriers.

Rapid decrease in transport costs has been acknowledged as a driving force behind global trading system.[2] However in practice, these costs vary substantially due to due to various factors. Many countries in Asia and the Pacific region are better connected with the markets in Europe and North America, and thus it is cheaper to trade with countries on other continents then with some countries in the region.[3] High land transport costs resulting from non-physical barriers to road transport reduce competitiveness of the exports and hamper the growth of intra-regional trade. These costs are much more sensitive to distance then the maritime transport costs. Hence,

[1] Development Account Projects – Deepening regional connectivity: strengthening capacities of Asian developing countries to increase intraregional trade by implementing paperless trade and transport facilitation systems; http://www.un.org/esa/devaccount/projects/2012/1213AJ.html

[2] WTO, World Trade Report 2013, http://www.wto.org/english/res_e/booksp_e/world_trade_report13_e.pdf

[3] UN ESCAP, 2013, Trade and Investment Division, Staff Working Paper, rev. May 2013, 'Trade Facilitation and Paperless Trade in Asia: Results from an Expert Survey' (p.2). Accessible at: http://www.unescap.org/tid/publication/swp113.pdf

reduction of transport barriers on regional level is one of the priorities for the countries and will strengthen transport connectivity and provide easier access to regional markets, which would enable growth of intra-regional trade, and furthermore it could make countries and sub-regions more attractive for foreign direct investment.

To improve road transport connectivity by addressing the non-physical barriers the ESCAP member states adopted Regional Strategic Framework for the Facilitation of International Road Transport[4] a document that provides strategic vision and common approach to address international road transport challenges. Key measures for facilitation of operations on the regional transport networks relate to tackling non-physical barriers in cross-border transport; improve efficiency of border crossings and adopt Information and Communication Technology (ICT) in logistics sector.[5] With advancement of ICT it is becoming much easier to share information among all participants involved in transport movements. Electronic documents reduce the need for submission of documents in hard copies leading to multiple benefits. Innovative information and communication solutions are opening opportunities for transport facilitation, and business processes reengineering which could transform international transport in order to be much more integrated and streamlined.

This study is focused on paperless transit in the regional context and its role in boosting intra-regional trade. The term "paperless transit" used in this study primarily refers to transit based on electronic documents instead of paper-based documents. However paperless transit also includes a transit with simplified processing of a paper based documents, when the simplification is a result of electronic information exchange and communication of electronic documents related to those paper based documents.

Even the most advanced transit transport systems currently use some paper documents. Therefore, the paperless transit could be understood as a process of optimization of transit facilitation measures with use of available and affordable ICT, rather than achievement of the ultimate goal of total absence of paper documents in transit per se. It should be also noted that regulatory and procedural reforms are major factor in reduction of number of transit related documents and simplified processing of paper documents, thus transformation towards paperless transit should not be regarded only as simple translation of paper based documents to documents in electronic form.

General principles of transit systems and paperless trade and transport which are presented in international conventions and recommendation such as: the International Convention on the Simplification and Harmonization of Customs Procedures (Revised Kyoto Convention), International Convention on the Harmonization of Frontier Control of Goods, Convention on Temporary Admission and various UNECE recommendations on electronic data are commonly accepted. However, practical implementation of transit

[4] Regional Strategic Framework for the Facilitation of International Road Transport adopted at the UN ESCAP Ministerial conference on Transport (Bangkok, March 2012) is accessible at http://www.unescap.org/ttdw/common/TFS/RSF/UNESCAP-RSF.pdf

[5] UN ESCAP, 2013, 'Review of Development in Transport in Asia and the Pacific 2013' (p.41). Accessible at: http://www.unescap.org/ttdw/review/files/review2013/TransportReview_2013_full_text.pdf

regimes varies across the countries. Despite the generally recognized advantages of paperless solutions, establishing inter-country exchange of electronic documents and development of international paperless transit system could be a challenging process. Designing transit systems which, provide fast and easy cross-border movement of goods, requires close and effective cooperation among interested countries. With increased global market competition countries are faced with a race to provide best conditions for business and trade. Embracing transport facilitation measures, such as paperless transit, could significantly reduce transport costs, and provide productive environment by reducing transaction costs for economic growth in developing countries.

The objective of this Study is to raise awareness and support capacity building efforts of national governments for development and implementation of paperless cross-border transit systems. The Study aims to offer understanding of paperless transit, including the best practices, as well as some global and regional examples of initiatives in this regard. The Study also identifies challenges pertaining to regulatory, procedural and ICT gaps which could limit successful paperless transit facilitation; and provide ways for integration of transit systems and developing efficient paperless transit solutions.

The study is organised as follows, Chapter II details on the key requirements of a transit system including transit definition and types of transit. It gives an overview of customs related requirements of transit and presents other requirements of transit. Chapter III documents existing regional paperless transit systems, namely European Common Transit System. Key principles of this system including practical implementation of transit procedures are explicated. Chapter IV provides advantages of the paperless transit systems, particularly to the private sector and governments to foster trade and transport. Chapter V explores potential linkages of paperless transit modules with electronic data processing systems, the Single Window concept and the World Customs Organization (WCO) data model, and stresses the importance of data harmonization and standardization. Chapter VI documents regional and national case studies in the paperless transit systems. Case studies presented include ASEAN Customs Transit System, International Transit of Goods (TIM) System in Mesoamerican countries, examples of sub-regional customs transit systems in Africa, as well as national experiences of paperless transit systems in Malaysia, Thailand and Ghana. Chapter VII provides major challenges for development and implementation of paperless transit systems with regard to political commitment, involvement of all relevant participants, design of paperless transit systems, establishment of legal framework, ICT infrastructure and interoperability, implementation capacity, lack of demand and resistance and other impediments to transport environment. Chapter VIII explains role of individual governments, regional and sub-regional bodies and international organizations in supporting and promoting paperless transit systems. Chapter IX gives recommendations and options for the way ahead to develop and implement paperless transit systems, and suggests long term and intermediate solutions. Going forward, it proposes implementation of ESCAP Secure Cross-Border Transport Model to support development of paperless cross-border and transit transport systems.

II. MAIN REQUIREMENTS OF TRANSIT SYSTEMS

A. Defining transit

With reference to transit, a number of terms are in existence some of which are transit trade, transit traffic, transit transport and customs transit. Generally, transit trade is referred to as the external trade of country that passes through the territory of one or more third countries prior to reaching its destination. In discussing transit traffic or transit transport the term transit is used to refer to actual movement of goods or passengers and means of transport through one or more third countries. Customs usually refers to movement of bonded goods and means of transport between customs stations. Transit traffic or transport is often used in context of 'transit freedom' or 'customs transit'.

The freedom of transit represents a basic principle, which is set out by the General Agreement on Tariffs and Trade (GATT) and includes provisions for non-discrimination with respect to the place of origin, departure, entry, exit or destination, or any circumstances relating to the ownership of the goods or of the means of transport.[6] Customs transit is described as a procedure whereby goods are transported under customs control from one customs office to another and includes outbound transit, through transit and inbound transit. The customs transit system enables inland movement of goods by postponing customs clearance formalities including temporary suspension of payment of applicable customs duties and taxes.

The four main legal instruments containing definition of transit traffic are (a) Convention and Statute on Freedom of Transit 1921, (b) General Agreement on Tariffs and Trade (GATT), that is now part of the WTO, (c) Convention on Transit Trade of Landlocked States, 1965 and (d) United Nations Convention on the Law of the Sea addresses the right of access to and from the sea for landlocked countries.[7]

Broadly, these instruments define transit as a passage through the transit country where the journey starts and ends outside the country and journey through the transit country is only portion of the entire journey. These conventions contain provisions for equal treatment and transit facilitation and define transit traffic and freedom of transit. It may however be pointed out that the four legal instruments do not provide harmonised definitions of various concepts in transit. Other than the United Nations Convention on the Law of the Sea, they also contain provisions on duties, taxes and charges.

Where appropriate, transit may be accompanied with transhipment, warehousing, breaking bulk, or change of the mode of transport. Transit of goods is essential for landlocked countries, which totally depend on transit corridors passing through their neighbours, but they could be very important for coastal countries as most active transit

[6] WTO, GATT (1994), Article V, http://www.wto.org/english/res_e/booksp_e/gatt_ai_e/art5_e.pdf

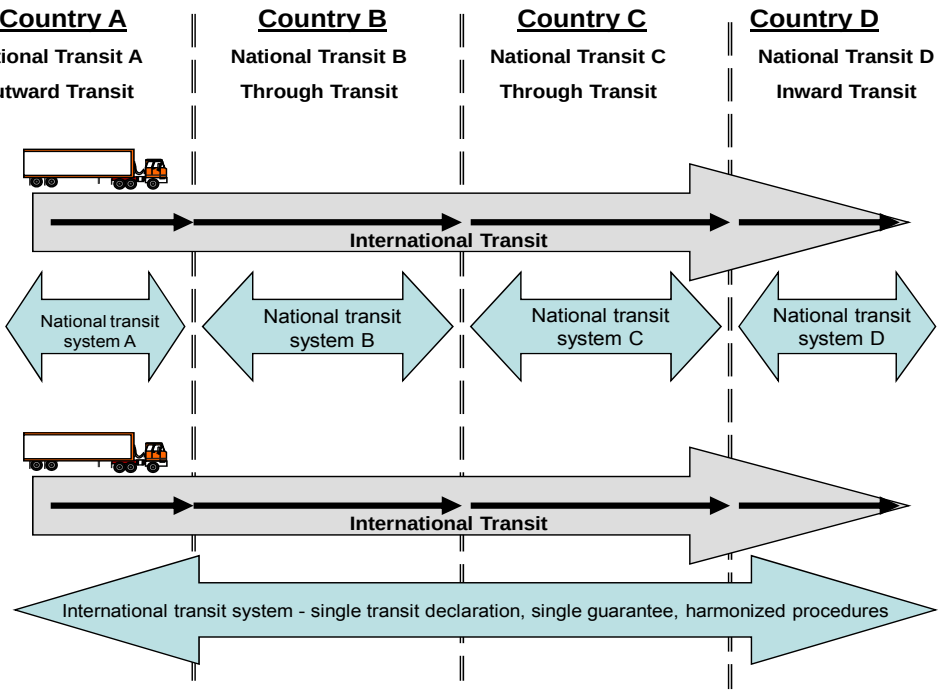
[7] United Nations Convention on the Law of the Sea, 1982. Accessible at: http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf

corridors are actually between coastal countries.[8] Goods in transit should be able to simply and easily move through the transit country and various measures of commercial policy generally should not be applied for them. Transit movements which are beginning or ending with inland clearance could be very convenient for the business community, especially if they are combined with further transit simplifications such are those for authorized consignors and consignees empowered to start or end the transit procedures directly at their premises.

Types of Transit

Transit of goods transported in a single customs territory under the corresponding national legislation[9] is known as "national transit". The goods could move under national transit procedure from a customs office of entry to a customs office of exit of that customs territory (through transit); from a customs office of entry into the customs territory to an inland customs office (inward transit); from an inland customs office to a customs office of exit from the customs territory (outward transit); or from one inland customs office to another.

Figure 1: International Transit and Relation with National Transit Systems



Source: Author's depiction of information in the text.

[8] Jean-Francois Arvis, IBRD/WB, 2011, Border Management Modernization, Chapter 17 – Transit regimes (p.279). Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

[9] In case of European Union the term "national" used in this Study often refers to term "community". So in this example European Community legislation is regulating "community transit".

Outward transit includes the movements of goods from the inland departure points (e.g. inland customs depots, free zones, of other bonded areas) to the exit points of the customs territory. Inward transit includes the movements of goods from the entry points in the customs territory to the inland destination (e.g. inland customs depots, free zones, of other bonded areas) where the goods in transit could be cleared for home use or other customs procedure.

"**International transit**" differs from the national transit by the fact that transport of goods covers not one but several customs territories, therefore the international transit may be represented a chain of national transits movements between neighbouring countries. When two or several national transits movements are combined, the challenge of creating efficient international transit procedures is substantial. To provide seamless flow of transport in this case large number of issues needs to be addressed including harmonization of transit legislation and procedures, compatibility of transit related documents and guarantee requirements, communication and exchange of information and interconnectivity.

Thus, for developing efficient international transit it may be necessary to develop an international instrument (e.g. bilateral, regional, or multilateral agreement), which could provide much better grounds for integration. Examples of international and regional transit systems, including European Common Transit system and ASEAN Customs Transit System will be discussed in the subsequent chapters.

Box 1: Essential Components of International Transit

Core components from which international transit is consisted of include:

- Political commitment of partner countries which could formalize international treaties;
- Appropriate physical infrastructure for transit; public and private institutions and people with adequate capacities and competences;
- Efficient transportation services, including the trucking industry, customs brokers, and freight forwarders;
- Operational trust building mechanisms, partnerships, and cooperative initiatives that could support cooperation among the many participants in the transit operations;
- An enabling environment for movements of vehicles and people including vehicle regulations, the provision on freight services across countries, allocation visas for drivers, mutual insurance recognition, integrated financial system and
- Provisions and procedures applicable to shipments in transit and to the carriers or traders of the goods.

Source: Jean-Francois Arvis, IBRD/WB, 2011, Border Management Modernization, Chapter 17 – Transit regimes (p.280-281), Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

The system of international transit has a variety of essential components, which could be clustered in several groups. Among these components, provisions and procedures governing the transit are often regarded as the vital piece of international transit systems.[10]

B. Customs Related Requirements of Transit

The basics of the regulatory requirements and principles of the transit with regard to customs provisions and procedures could be found in several international conventions, which are generally accepted by the customs administrations around the world.

The Revised Kyoto Convention [11]**(RKC)** along with many other WCO instruments supports harmonization of customs transit procedures. It recommends developing common principles and practices and outlines the technical details on implementation of transit procedures. The stipulated rules for customs transit procedures address customs transit formalities, such as: at the customs office of departure, en route and at the termination of customs transit; goods declaration for transit and identification of consignments; customs seals including provisions for sealing and minimum requirements; security (guarantee system) for potential claims of customs duties and taxes; responsibility of persons included in customs transit procedures; and simplified procedures.

The **International Convention on the Harmonization of Frontier Control of Goods**[12] advocates simple and speedy treatment for goods in transit, especially for those travelling under an international customs transit procedure. Limiting inspections only when they are justified by the actual circumstances or risks; and transit facilitation when the containers or other transport units afford adequate security is recommended. Co-operation between adjacent countries is encouraged on best endeavour basis with arrangement of joint control of goods and documents, and shared facilities. The issues of working time harmonization, operating control services, and accepted categories of goods and modes of transport are also addressed.

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[10] Six essential groups of components are identified by Jean-Francois Arvis, IBRD/WB, 2011, Border Management Modernization, Chapter 17 – Transit regimes (p.280-281). Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

[11] WCO, 'International Convention on the Simplification and Harmonization of Customs Procedures, as amended, is often referred as Revised Kyoto Convention. Customs transit is addressed in Specific Annex E of the Convention, Accessible at: http://www.wcoomd.org/Kyoto_New/Content/content.html.

WCO also offers additional commentaries guidance of The Revised Kyoto Convention such as Guidelines to Specific Annex E (Chapter 1 - Customs Transit) that are available at: http://wcoomdpublications.org/cd-rom-convention-de-kyoto-revisee.html

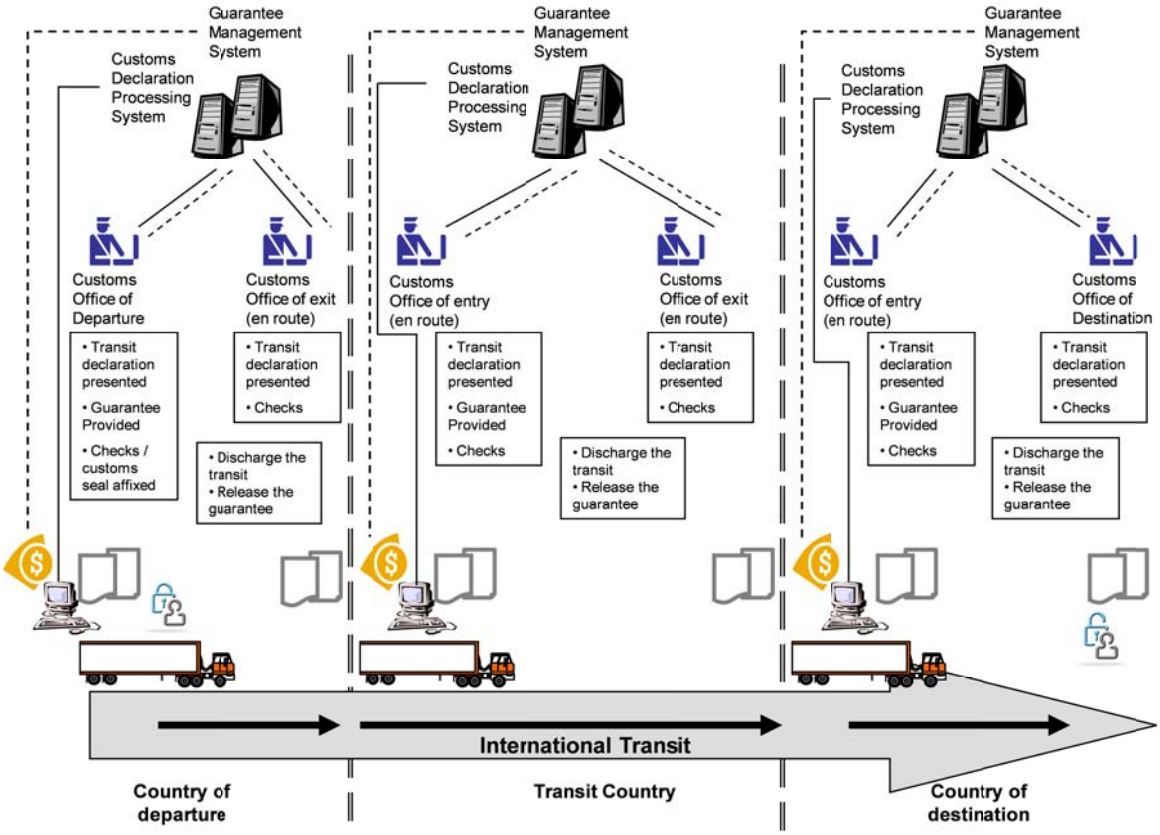
[12] UNECE, 'International Convention on the Harmonization of Frontier Control of Goods', Accessible at: http://www.unece.org/trans/conventn/harmone.pdf

Istanbul Convention supports facilitation and simplification of transit procedures with regard to temporary admission of transport means.[13] This Convention provides possibility for temporary admission with total conditional relief from import duties and taxes and without application of import restrictions or prohibitions of economic character. Temporary admission could be granted without a customs declaration or security being required.

1. Customs Transit Formalities

Customs transit procedure could be understood as formalities involved in movement of goods between "customs office of departure" and the "customs office of destination". These offices could be located at different locations in the same country (e.g. at border on entry or exit of the customs territory or inland) and in case of international transit system they are located in different customs territories.

Figure 2: Repetitive Cycle of Transit Formalities in International Transit



Source: Author's depiction of information in the text.

[13] WCO, Convention on Temporary Admission is often referred as Istanbul Convention, Accessible at: http://www.wcoomd.org/en/about-us/legal-instruments/~/media/2D53E23AA1A64EF68B9AC708C6281DC8.ashx

Formalities at the customs office of departure include, lodging of a goods declaration for transit with appropriate supporting documents such as guarantee required; acceptance of the goods declaration; checking the goods declaration; examination of goods and inspection of transport means if required; affixing customs seal and release of the goods in the customs transit. Requirements for termination of customs transit include presentation of the goods with the relevant goods declaration at the customs office of destination, intact customs seal and compliance with other transit requirements.

One of the challenges of international transit is to avoid, or reduce the burden of repetitive customs formalities while crossing the border from one country to another. When full set of the transit formalities in the office of departure and in the office of destination are repeated in each of the customs territories covered, which still happens in many cases in international transit, the transport of goods suffers from delays which increases the transport costs.

Having transit formalities in focus, most logical streamlined transit solution for improvement of effectiveness of international transit will be to cover whole international transit movement with single transit document. In that case the office of departure will be where the transit procedure is initiated and the office of destination will be where the transit procedure is terminated and goods released for home use or other customs procedure. Formalities in customs offices en route could be greatly simplified, without termination and start of the transit at each border crossing. There will be no need to lodge new goods declaration or to start new customs transit procedure in each country. Reduction of customs documents for transit and procedural simplification in this case will be most evident in customs offices en route at the entry in each subsequent transit country. A number of issues will emerge from this solution such as: mutual recognition of the transit document; mutual acceptance of customs controls and custom seals; guarantee requirements covering different customs territories; exchange of information and interoperability between customs administrations of different countries. The challenges and paperless options to deal with such issues are discussed further on in this Study.

2. Goods Declaration for Transit

The form and the manner of presentation of the transit goods declaration is usually prescribed by the national customs administrations or it could be agreed multilaterally with an international agreement. A distinction could be made between a paper based goods declaration and a goods declaration in electronic format, the latter being of particular interest in this Study.

The format of the electronically lodged goods declarations for transit, their processing and exchange is expected to base on the international ICT standards, such as WCO Data Model and UN/EDIFACT Rules for Electronic Data Interchange. For the

paper format of transit related documents conformity with the UN-Layout Key[14] which promotes the principle of establishing aligned series of documents and outlines a set of minimum data elements of key trade and transport documents is desirable.

The WCO Data Model[15] is one of the key instruments for standardization of data requirements for preparation and exchange of electronic goods declarations and data requirements for various cross-border formalities, including customs transit. This model includes data sets and code lists; technical solutions for information exchange such as UN/EDIFACT and XML message design; business process and information models. The data sets are based on international conventions and the other common requirements of the customs administrations and the requirements of other cross-border regulatory agencies. Benefits of the WCO Data Model and standardization of data requirements should be visible in reducing the time for fulfilling regulatory procedures, which will ultimately lead to benefits for business community from reduced costs for preparation of goods declaration and other necessary documentation.

The content of goods declaration for transit may be limited only to such particulars as deem necessary. The same limitation applies to the documents supporting the declaration. As it could be expected, interpretation of the 'necessity' differs among countries and examples of asking more data and more supporting documents then actually needed and effectively used seem to be common. The fact that customs clearance formalities are postponed and payment of applicable duties and taxes is suspended can lead to decreased data requirements.

The description of goods should be focused on identification of the goods rather then on establishing the elements necessary for calculation of customs duties and taxes (e.g. tariff classification, customs valuation and origin of goods) which will be done in subsequent phase of customs clearance.

Instead of creating new supporting documents (e.g. a specification of goods created exclusively for the transit procedure) it is recommended to use existing and common transport or commercial documentation (e.g. loading lists or other commercial descriptive lists) which will reduce the burden of providing supporting documents and will enable audit trail. Use of documents based on the UN Layout Key and other internationally standardized forms is also encouraged in order to simplify processing of

[14] UNECE, 1981, Recommendation N°.1 - United Nations Layout Key for Trade Documents, accessible at: http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec01/rec01_ecetrd137.pdf

UNECE, 2001, Addendum to Recommendation N°.1 - UN Layout Key for Trade, accessible at: http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec01/rec01_01cf15.pdf

UNECE, 2002, UN Layout Key for Trade Documents - Guidelines for application – Informative Annex to Recommendation No.1, accessible at: http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec01/rec01_ecetr270.pdf

[15] Additional information of WCO Data Model are available on http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/pf_tools_datamodel.aspx#{A6A2ADDD-5C4E-410F-B6F4-9FC703BB1DC9}

the goods declaration. Generally the customs authorities should not require a translation of the particulars from the supporting documents.

3. Security (Guarantee System)

Guarantee for customs transit provides security to the customs administration that in case of violations and consequent liability for customs dues during transit they are recoverable. Guarantee usually takes the form of a deposit or of a legal obligation (a bond). A surety to the bond is usually required. “Guarantee” is defined as an undertaking by which the surety assumes obligations towards the customs administration.[16] Providing a security (guarantee) and efficient guarantee management system are other essential requirements of a customs transit. A guarantee should cover potential claims of customs duties and taxes in the transit country if the transit procedure is not properly terminated. Main characteristics of guarantees are the form of guarantee, amount of guarantee and its validity.

The guarantee may be individual - covering a single transit journey, or comprehensive guarantee - covering several customs transit movements. Guarantees are usually issued in form of a bond as a legal obligation accepted by a bank or other financial institution, or insurance by an insurance company or issuing/guaranteeing association reinsured by reliable insurance company. Other forms of securities such as a cash deposit, or other instruments (e.g. mortgage, cession of a claim, savings bank book or entry in the national debt register etc.) are not commonly in use, nor are recommended.

The amount of guarantee required could be:

- flat, with determined maximum amount (e.g. sum per transport operation) which customs authorities may claim;
- any amount sufficient to cover full amount of the customs duties and taxes that may become due for single transport operation (applicable for individual guarantee); or
- up to a reference amount that shall cover customs duties and taxes that may become due for several transport operations (applicable for comprehensive guarantee). Reference amount could be set by the transit regulation or calculated on basis of estimated number of transport operations carried out during a specified period (e.g. one week).

When simplifications are enabled, the customs authorities may authorize reduction of guarantee amount or guarantee waiver. Such simplifications are usually provided for persons who meet established criteria for higher standards of reliability.

[16] WCO, 2013, Glossary of International Customs Terms, Accessible at: http://www.wcoomd.org/en/topics/facilitation/resources/~/media/949B39871CE147BAB2667EC6758F29C8.ashx.

With regard to validity, guarantee could cover liabilities for defined period of time. Guarantee could be valid only in one country (national guarantee), or in several counties (international guarantee). In the case of international transit, a regional guarantee is more efficient than a chain of national guarantees.[17] Guarantees are sometimes limited in relation to value and types of the goods.

Guarantee management system is expected to provide efficient handling of guarantee documents such as: a) registration of guarantee documents and guarantee waivers; b) information exchange between offices on central level (e.g. customs office(s) designated for acceptance of guarantee documents and authorization of applications for reduced amount of guarantee or guarantee waivers) and customs offices involved in customs transit operations; c) control of validity and available amount of guarantee at start of transit operation; d) release of guarantee at the end of transit operation. Well-managed guarantee management systems could support paperless transit initiatives, reducing the number of paper based guarantee related documents. Full integration of guarantee management systems and information systems for processing of goods declarations could further improve efficiency of customs transit.

Guarantee requirements are not generally harmonized and national provisions of transit countries regulate them. In the case of specific international transit systems, guarantee requirements may be addressed by corresponding international agreements.

4. Responsibility of Persons in Customs Transit Procedures

Provisions on responsibility of persons for compliance with the obligations incurred under customs transit procedures are laid down in national legislation of the transit countries, and they vary from customs territory to customs territory. In general distinction can be made for responsibility to lodge goods declaration for transit, to furnish a guarantee, to follow customs control measures for the transit operation, to ensure that the goods are produced intact at the office of destination and to pay the customs duties and taxes if the goods declaration for transit is not properly discharged. The principals of the transit procedure are usually identified as the persons liable for all of the responsibilities mentioned. The carriers are often identified as principals and they are responsible to follow customs formalities for the transit operation and to present the goods intact at the office of destination. Freight forwarders, customs agents and customs brokers could be legally required to lodge goods declaration for transit as well.[18]

[17] IBRD/WB, 2011, Border Management Modernization, Chapter 17 – Transit regimes, Jean-Francois Arvis Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

[18] WCO Research Paper No. 11, February 2011, Case Studies on Systematic Exchange of Commercial Information between Customs Administrations in Bilateral and Regional Arrangements, Tadashi Yasui. Accessible at: http://www.wcoomd.org/en/topics/research/~/~/media/A69B791DADF9434DB5BEB2B8CF11D92A.ashx

Guarantors are usually banks, financial institutions, insurance companies or guaranteeing associations, which are responsible for furnishing a guarantee to the principal. The guarantors undertake to pay jointly and severally with the principal potential claims of customs duties and taxes that may become due as a result of irregularities in customs transit procedure.

5. Customs Seals

One of the main requirements of transit system is to ensure that the goods will arrive at the customs office of destination in the same state and quantities as they left the customs office of departure. However customs transit is vulnerable to security breaches and customs authorities implement various customs control measures to secure movement of goods. Most common measure is sealing of load compartments and containers with customs seals. This should ensure that goods in transit procedure cannot be removed from sealed space or other goods cannot be added without either breaking the customs seal or leaving visible marks on the sealed compartment or container. Construction of loading compartment and containers should provide that any unauthorized interference could be easily detected.

Customs seals, used as a mechanism to ensure the physical integrity of the goods, could be mechanical or electronic. Mechanical seals could be indicative (which could be easily broken by hand), secure (which are relatively more difficult to tamper) and highly secure (which offer greater protection against intrusion and must be removed by bolt or cable cutters). Electronic seals combine physical seals, data storage and radio frequency identification (RFID) components. Electronic seals could be equipped or interfaced with satellite positioning systems (SPS) and cellular communication systems, which will enable vehicle electronic tracking through the transit movement. Possibility to interrogate electronic seals by readers is opening new options for communication between electronic seals and other customs information systems, which could contribute to further automation of customs formalities and support entirely paperless transit.

In the case of international transit, acceptance of customs seals affixed by customs administration of other countries reduces the need for repeated inspections at border customs offices. In this regard Revised Kyoto Convention recommends customs seals affixed by foreign customs authorities to be accepted for the purposes of the customs transit, unless they are not sufficient and secure. However the customs authorities en route will retain the right to decide to proceed with an examination of the goods in justified situations. Minimal requirements for customs seals are internationally standardized.[19] Conditions for sealing of load compartments of vehicle and containers, including standardization, criteria and technical details required to recognize vehicles

[19] Minimal requirements for customs seals are laid down in Annex of Chapter 1 of Specific Annex E of Revised Kyoto Convention.

and containers as suitable for sealing, are also addressed in some international conventions.[20]

6. Simplified Procedures

Various simplifications of transit procedures are implemented from customs administrations and they could facilitate and simplify: customs transit formalities; data requirements and supporting documents of goods declaration for transit; formalities for affixing the customs seals; requirements to use a prescribed itinerary or guarantee requirements.

Most significant simplifications of transit procedures, recommended by Revised Kyoto Convention is to designate the person(s) carrying out transit processes as authorized consignor or authorized consignee status upon fulfilment of conditions set by customs administrations. Authorized consignee is person empowered to receive goods directly at his premises without having to present them at the office of destination. Authorized consignor is person empowered to send goods directly from his premises without having to present them at the office of departure. Among other conditions, those simplifications usually depend on effective communication with customs authorities, which includes electronic goods declarations and electronic exchange of other relevant information and messages.

Authorised economic operators[21] are operators such as importers, exporters, carriers, freight forwarders, customs agents or customs brokers, who could meet the criteria, set by customs administrations, which confirm their high compliance and reliability. Examples of benefits for authorized economic operators in customs transit procedures include: reduction of guarantee amounts or guarantee waivers, fewer data elements in goods declaration for transit, fewer physical and document-based controls and inspections, receiving authorized consignor and/or authorized consignee status.

C. Other Requirements of Transit

While customs administrations are essential for complying with the customs transit procedures, the transit system extends beyond the customs related requirements. Responsibilities and organisations involved may vary from country to country, but most common government agencies present at border crossings are: border police and immigration authorities, transport authorities, sanitary, veterinary and phytosanitary inspections. Each of those agencies could be assigned with transit related tasks in their field of competencies.

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[20] Conditions to recognize containers and loading compartments as suitable for sealing are laid down in UN Customs Convention on Containers - 1972 and UNECE Convention on the International Transport of Goods under Cover of TIR Carnets – 1975 as amended

[21] Authorized Economic Operator concept is part of the WCO SAFE Framework of Standards to Secure and Facilitate Global Trade. Additional information on WCO SAFE Package are available at: http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/safe_package.aspx

When legal basis are provided, some of the responsibilities of some government agencies could be transferred to other partner agencies (e.g. in some countries part of the responsibilities for transport legislation requirements from the transport agencies are transferred to customs authorities or border police). Transfer of responsibilities between border crossing authorities could reduce the number of agencies present and border crossings, streamline border-crossing formalities, reduce the time for processing the transit operations and lower the costs. It should be noted again that customs transit postpones clearance formalities so accordingly commercial policy measures applied to transit should be reduced and limited compared to the measures applied on actual import. Limitation of inspections on transit only when they are justified by the actual circumstances or risk should apply not only to customs administrations but to other border crossing agencies as well.[22]

Transport requirements related to transit include road transport permits and traffic rights, insurance coverage for vehicles, vehicle weights and dimensions limitations, and registration and inspection of vehicles. Visas for professional drivers and crews of road vehicles are requirements of immigration department also have impact on transit. Sanitary, veterinary and phytosanitary measures are often required on goods in transit, though on lower level than those anticipated for import formalities. Sanitary requirements address issues for protection of the life and health of persons. Veterinary requirements are focused on animals and animal products with a view to protect the life and health of persons and animals; and phytosanitary requirements are concentrated on prevention of the spreading of pests of plants and plant products. Other requirements on prohibitions or restrictions with respect to transit of goods are often imposed in relation to public safety, morality and health, or for the protection of the environment, of cultural heritage or industrial, commercial and intellectual property. Some of the requirements and measures mentioned in this paragraph could be supported by paperless solutions such as: electronic application for different permits, certificates or visas; access in data bases on national level between partner border agencies, sharing of relevant data, including electronic documents, on an automatic basis, on national or international/regional level between corresponding partner agencies.

Existence of various requirements in relation to transit procedures and involvement of many agencies at border crossings creates a complex environment which is mirrored on both sides of the border crossing and furthermore this situation is repeated at every border crossing along the transport corridors. Such complexity is a serious impediment to seamless international transit and regional integration. Therefore it is essential to harmonize customs and other controls and to apply border crossing facilitation measures in order to develop effective and efficient transit systems. This is well recognized by many international institutions, regional initiatives and individual countries and there are various programs and activities in support of facilitation of border crossing formalities, which include transit. Paperless transit solutions could contribute to

[22] UNECE, 'International Convention on the Harmonization of Frontier Control of Goods', Accessible at: http://www.unece.org/trans/conventn/harmone.pdf

better integration of cross border movements of goods, providing basis for easier way of communication and exchange of information between all interested parties.

Coordination, cooperation and exchange of information between customs authorities and all other government agencies, should be regarded on national level and on bilateral or regional level as well. Successful implementation of any border crossing facilitation initiative requires strong political commitment, comprehensible legal basis in form of international agreements and memorandum of understandings, coherent legislation based on harmonized international standers and practical and effective mechanisms of cooperation and exchange of information.

Single window initiatives are one of the mechanisms for cooperation and exchange of information between different agencies, which could cover transit as well. There are several Single Window initiatives all over the world and despite harmonization efforts of WCO and UN agencies, the scope and approaches to the Single Window environment differ from case to case due to unique requirements and conditions in different countries.[23] Simplifications and facilitations enabled with implementation of Single Window concept could considerably improve the process of providing and sharing the necessary information. When transit is implemented in Single Window environment it could be expected that the number of paper based transit related documents will be reduced and procedures will be streamlined and better organized, which could strongly support the efforts for introduction of paperless transit.

Another general issue that should not be neglected is payment of different fees that might be imposed for transit movements by various government agencies. The transport operators usually deal with several agencies at each border crossing and often they have to pass several border crossings during the transit movement, burden of accumulated fees could seriously hamper international transit. GATT provisions on fees and charges stipulate that they should be limited in amount to the approximate cost of services rendered and shall not represent an indirect protection.[24]

Transit systems need strong partnership with transport and trade sectors. Public-private consultation will improve understanding of business community needs. Responding appropriately to reported difficulties, observations and suggestions initiated by private sector could improve implementation of transit systems. Involvement of trade

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[23] Detailed information on Single Window Environment are available at:

- UNECE, UN/CEFACT, 2005, Recommendation 33 - Recommendation and Guidelines on establishing a Single Window. Accessible at: http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf

- WCO, 2011, WCO Compendium: How to Build a Single Window Environment. Accessible at: http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/single-window/~/media/252D1BF37A814526BF5BFFEAB7F13692.ashx - Volume 1 and

http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/single-window/~/media/861FFA93206B41D8BE754371ADA7A112.ashx - Volume 2

[24] WTO, GATT (1994), Article VIII. Accessible at: http://www.wto.org/english/docs_e/legal_e/gatt47_01_e.htm#articleVIII

and transport associations in the process of changes of transit systems in all stages, from planning, developing legal and procedural aspects and testing of new solutions could contribute to straightforward acceptance of those changes. Transparency in respect of transit systems should be provided by all government agencies involved, with publication of regulations, procedural requirements and applicable fees in easy and accessible manner for all interested parties.[25] Furthermore it might be very useful to have integrated transit information on national level or even better on transit corridor level, including information from several countries. Improved knowledge and access to accurate information could have positive effect to uniform application of transit regulation and compliance. Increased predictability could enhance the use of transit systems and reduce corruption. Partnership with private sector and transparency are important requirements for introducing novelties in transit systems, and the same is applicable for introduction of paperless solutions.

Last but not least well functioning and ethical customs administration and other government agencies are essential for efficient transit systems. When this requirement is not fulfilled all other efforts for improvement of transit systems, including most sophisticated paperless transit systems could be easily undermined. Therefore the countries should put integrity issues, continuous training, and organizational improvements high on their transport facilitation agenda.

[25] Publication and administration of trade Regulations is addressed by Article X of GATT. Accessible at: http://www.wto.org/english/docs_e/legal_e/gatt47_01_e.htm#articleX

III. European Common Transit System

Developing international transit system can be demanding. Despite many initiatives around the globe only the European common transit system is recognized as fully developed paperless international transit system, because attempts to built similar systems in developing regions have not been proved as successful, mainly due to implementation difficulties.[26]

The European common transit represents regional transit system that is presently used for the movement of goods between the 28 EU Member States, the EFTA countries (Iceland, Norway, Liechtenstein and Switzerland) and Turkey.[27] The system is based on the Convention on Common Transit.[28] The European common transit system is managed with New Computerised Transit System (NCTS), which offers some of the most advanced paperless transit solutions regionally implemented.

Customs transit is often regarded as one of the cornerstones of European integration.[29] It is fundamental to economic activities and supports enhanced connection of European businesses. During enlargement process of European Union, integrated customs transit also had an important role in pre-accession phase for the countries joining the EU. One of the specifics important for transit in Europe is having a single customs territory of the European Community combined with multiple fiscal territories of the Member States.

There are two main European customs transit systems: Community and Common transit system. The **Community transit system** is used for movement of:

- non-Community goods between the EU Member States, and
- Community goods between two points in EU through the territory of a third country.

[26] IBRD/WB, 2011, Border Management Modernization, Chapter 17 – Transit regimes, Jean-Francois Arvis Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

[27] Data from European Commission website: http://ec.europa.eu/taxation_customs/customs/procedural_aspects/transit/common_community/index_en.htm last accessed on 15.04.2014

[28] Convention on Common Transit: The Convention of 20 May 1987 on a common transit procedure, as amended. Accessible at: http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=en&numdoc=21987A0813per cent2801per cent29&model=guicheti

[29] European Communities, 2001, New Customs Transit Systems for Europe (p.6). Accessible at: http://ec.europa.eu/taxation_customs/resources/documents/annex_i_transit_brochure_en.pdf

The Community transit is based on the Community Customs Code[30] and from the customs point of view the Community transit for the European Community is similar to a national transit for other non-EU countries.

The Common transit system is used for the movement of goods between the EU Member States, the EFTA countries and Turkey based on the Convention on Common Transit Procedure of 20 May 1987.[31] Historically many present EU Member States have used the Common transit before they join EU. The Convention on Common Transit Procedure with its annexes is providing all procedural details for implementation of the Common transit system and it is incorporated in the Community customs legislation. Community transit rules and Common transit rules are highly harmonized which improves integration of the transit systems. This study is primarily focused on the Common transit system.

The New Computerized Transit System (NCTS) is a result of the computerization reform on transit systems, which began in 1999 as a pilot project in several EU countries and started with implementation in 2001 and progressively extended to all customs offices in all countries included.[32] The system is applicable to the European Community and other Contracting Parties to the Convention on Common Transit Procedure. The NCTS represents a tool for management and control of the transit systems including the Community transit, Common transit and TIR transit and it provides harmonized operating environment. The NCTS supported transformation from a paper based transit to transit based on electronic information exchanges and greatly promoted paperless transit solutions. One of the main requirements of the system is to establish effective procedures for electronic exchange of data.

A. Key Principles of the Common Transit Procedure

The Common transit procedure applied in NCTS upgrades the transit solutions in Europe and enables efficient and modernized regional transit.[33] Application of the Common transit procedures is characterized with:

- Electronically connected economic operators, national customs offices and customs administrations;

[30] Council Regulation (EEC) No 2913/92 of 12 October 1992 establishing the Community Customs Code, as amended. Accessible at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992R2913:20070101:EN:PDF

[31] Convention on Common Transit Procedure of 20 May 1987 (Consolidated version; situation as of 5.12.2013). Accessible at: http://ec.europa.eu/taxation_customs/resources/documents/customs/procedural_aspects/transit/common_community/convention_en.pdf

[32] European Communities, 2001, New Customs Transit Systems for Europe (p.14). Accessible at: http://ec.europa.eu/taxation_customs/resources/documents/annex_i_transit_brochure_en.pdf

[33] Detailed information on the Common transit procedure is provided at Transit Manual (Consolidated Version). European Commission, DG TAXUD, 1 July 2010, TAXUD/A3/0007/2010, Accessible at: http://ec.europa.eu/taxation_customs/resources/documents/customs/procedural_aspects/transit/common_community/transit_manual_consolidation_en.pdf

- Single electronic customs transit declaration and electronic processing of the declaration;
- Exchange of electronic messages with respect to each step of customs transit procedure, including pre-arrival information automatically distributed from customs office of departure to customs offices of transit and customs office of destination;
- Printed transit accompanying document with bar code included, which provides easily readable information on customs transit operation in question;
- Simplifications of regular customs transit procedures with authorization for compliant traders;
- Integrated customs information systems and guarantee management systems;
- Various options for single guarantee and automatic control of the guarantee;
- Automated termination and discharge of the customs transit procedure, and quick release of the guarantee.

Application of common transit procedure requires using electronic messages including electronic customs transit declaration by means of data processing techniques. Use of the electronic data processing techniques for transit formalities during Common transit procedure through NCTS is laid down as a standard procedure.

Submission of a paper based transit declaration in the NCTS, is an exception and such declaration could be accepted only in special circumstances, for example in the case of fall-back procedures. Paper-based transit declaration is usually in a form of Single Administrative Document (SAD).[34]

Rules for the electronic messages, common data sets and format of the data messages, including electronic transit declaration are defined in various technical specifications. Security of electronic communication and storage of electronic data is addressed with appropriate measures and arrangements.

The electronic message exchange takes place at three domains of responsibility:

- External domain: for interconnection between economic operators (e.g. declarant, principal, consignor, consignee) and the national customs administration; under sole responsibility of that administration;
- National domain: for interconnection between customs offices of one country; under sole responsibility of the national customs administration; and

[34] In accordance with Convention on the simplification of formalities in trade in goods of 20 May 1987 accessible at: http://ec.europa.eu/taxation_customs/resources/documents/customs/procedural_aspects/general/sad/convention_simplification_formalities_en.pdf

- Common domain: for interconnection amongst national customs administrations themselves and the European Commission; under shared responsibility of national customs administrations and the European Commission.

Box 2: Main Electronic Messages in the Common Transit Procedure

- The electronic transit declaration data (IE015).
- The allocation of movement reference number (MRN), a unique registration number, given by the national NCTS system to the transit declaration to identify the movement after acceptance of transit declaration (IE028).
- The 'anticipated arrival record' (AAR) message, sent by the office of departure to the declared office of destination (IE001).
- The 'anticipated transit record' (ATR) message, sent by the office of departure to the declared office(s) of transit to notify the anticipated border passage of a consignment (IE050).
- The 'release for transit' message, sent by the office of departure after having checked the consignment to confirm that the transit movement can actually start (IE029).
- The 'arrival advice' message, sent by the office of destination to the office of departure when the goods arrive (IE006).
- The 'control results' message, sent by the office of destination to the office of departure after the goods have been checked, where necessary (IE018).
- The 'guarantee use' message, sent by the customs office of departure to customs office of guarantee (IE203).
- The "guarantee use result" message sent as reply by customs office of guarantee to customs office of departure after automated control of the guarantee (IE205).
- The "guarantee use cancellation" sent after termination of customs transit procedure, which will enable automated release of guarantee, once the customs procedure is discharged (IE204).

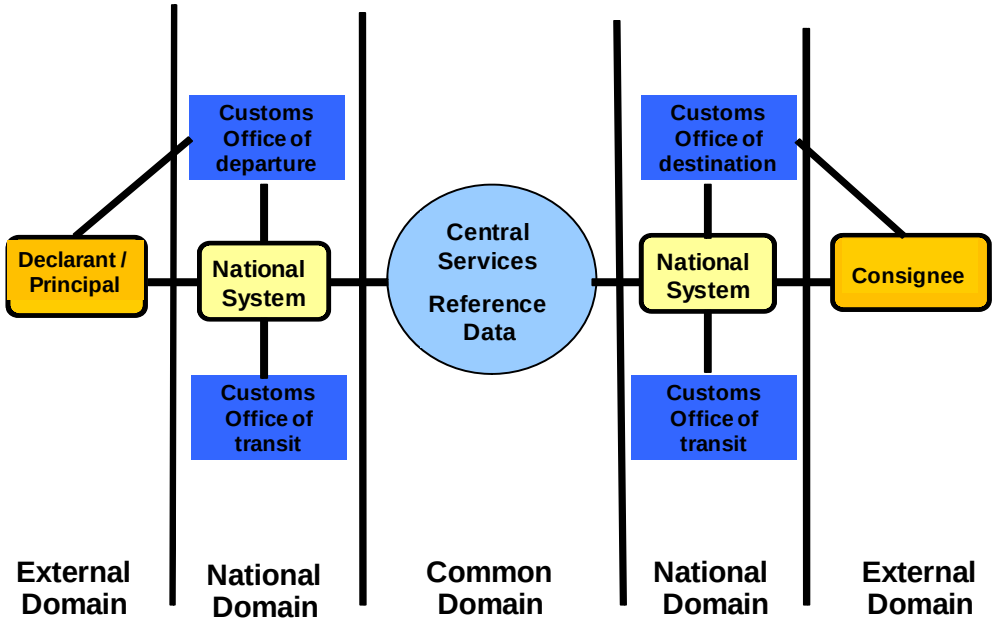
Source: European Commission, DG TAXUD, 1 July 2010, TAXUD/A3/0007/2010, Transit Manual (Consolidated Version) (p.178-179).

In the common domain there is not a central NCTS application, but European Commission operates central services such as monitoring; maintenance of common reference data; coordination and compiling of statistics on the overall system. [35]

[35] IBRD/WB, 2011, Border Management Modernization, Chapter 15 - Information and communications technology in support of customs unions: a case study of the European Union, Tom Doyle and Frank Janssens. Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

For the secure exchange of data in the common domain the parties are using the European Community's Common Communications Network/Common Systems Interface (CCN/CSI) with support for various technologies.

Figure 3: Architecture of NCTS



Source: Authors' adaptation from UNECE Informal document No.6 (2001), Technological Approaches and Solutions, NCTS approach, transmitted by the European Community, (p14, Diagram 6), Accessible at: http://www.unece.org/fileadmin/DAM/trans/bcf/adhoc/computerization/documents/inf01-06.pdf

Exchange of the electronic messages in the national domain has to be done on secure national networks of each of the national customs administrations. Each Member State of the European Community and other Contracting Parties to the Convention has to set up its own national NCTS infrastructure and organization, including operating national NCTS application. All national NCTS applications are connected through CCN/CSI.

In the external domain, national customs administrations are authorizing access to their national NCTS applications to interested economic operators. Options for the access may vary between the countries,[36] however generally we could distinct:

- Web based access through Internet; In this case the access is provided directly on dedicated NCTS websites usually managed by national customs administration or through web-based service provider. Access could be protected

[36] More information about access options to national NCTS applications are available on websites of national customs administrations. For example UK HM Revenue and Customs website: http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?_nfpb=true&_pageLabel=pageVAT_ShowContent&id=HMCE_PROD_009345&propertyType=document

with digital certificate, pin or other appropriate method. This access method is not costly and does not require special software. Economic operators with low and medium volume of transit operations could find this method most appropriate for use. This method is relatively more rigid then other methods.

- Access using Electronic Data Interchange for Administration, Commerce and Transport (EDIFACT)[37] messaging; In this case the access could be provided with specialised NCTS software application which is using EDIFACT coded messages for communication with national NCTS application. This method provides improved security and accuracy and option for integration with internal information systems of the economic operators. Costs for procurement or developing of such software could be substantial and therefore this method might be more appropriate for economic operators with higher volume of transit operations;
- Access using Extensible Mark-up Language (XML) channels; In this case the access is provided with specialised XML web based applications. This method provides fully automated solution with possibility to structure message transport and data representation. This method is also more appropriate for economic operators with higher volume of transit operations.

Electronic transit declaration produced by means of a data processing technique could be made by:

- Direct traders input (DTI), for example when web based access to national NCTS application is provided; or
- Electronic data interchange (EDI), for example when access to national NCTS application is provided by UN/'EDIFACT messaging or XML channels.

The electronic transit declaration is based upon the particulars of SAD in accordance with the detailed structure and content defined in the technical specifications provided by national customs authorities. For the supporting documents, that might be necessary for implementation of transit procedure, the customs authorities may provide possibility for submission of those documents in electronic form or to allow such documents not to be lodged with the electronic customs declaration. For the latter, reference to the documents will be recorded in the transit declaration and the trader will be obliged to keep necessary supporting documents to the customs authorities' disposal.

B. Common Transit Procedure in Practice

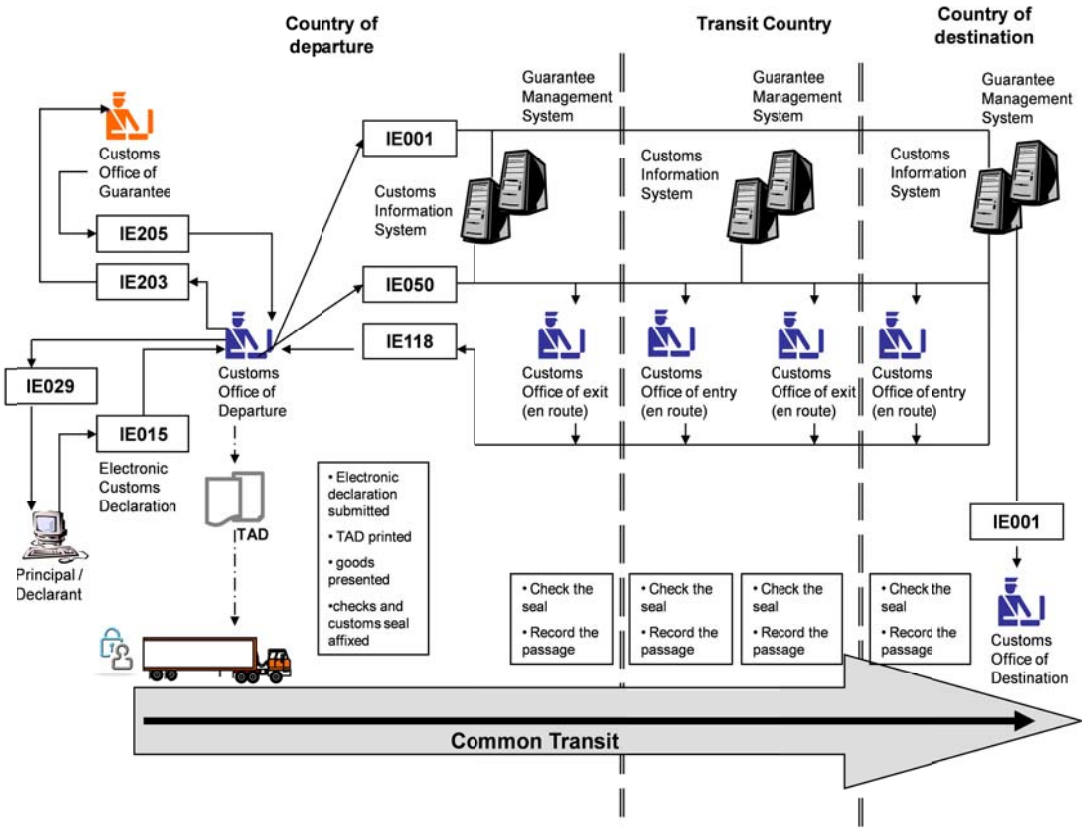
The Common transit procedure offers two possibilities for carrying out the transit customs formalities:

- Standard (regular) procedure, or
- Simplified procedure.

[37] More information on EDIFACT are available on UNECE website: http://www.unece.org/cefact/edifact/welcom.html

Traders that have low volume of transit operations or traders that cannot meet conditions to use simplified procedures are the users of regular Common transit procedures.

Figure 4: Common Transit Procedure
(at the Customs Office of Departure and Customs Offices of Transit)



Source: Author's depiction of information in the text.

The regular procedure starts at the customs office of departure where the electronic transit declaration is submitted (IE015) and the goods and transportations means should be presented. It may be noted that the electronic transit declaration should be lodged by principal or by authorized representative who makes the electronic declaration on behalf of the principal. The principal has a responsibility to provide a guarantee for the transit operation. In this case the customs office of departure is responsible for taking identification measures, as a general rule with sealing of means of transport and containers with customs seal.

Following the "release for transit" message (IE029) the Transit Accompanying Document (TAD) based on transit declaration will be printed by the customs NCTS

application. The form and the content of the TAD are specified with the Convention for Common Transit Procedures.[38]

The TAD bears an identification of unique 18 digits Movement Reference Number (MRN), which is also printed in bar code mode. Where necessary a list of items shall be printed by the computer system and attached to the TAD. During the transit movement the TAD shall accompany the goods under the Common transit procedure.

The national NCTS application at the customs office of departure automatically sends messages with relevant information on the transit operation to all indicated customs offices of transit and to the customs office of destination. At the external land border crossings of the Contracting Parties of the Convention on Common Transit Procedure, the consignment and the TAD shall be presented at each of the customs offices of transit.

The office of transit, which has already received pre-arrival "anticipated transit record" message (IE050) from the office of departure, shall record the passage of the consignment in the national NCTS application. Customs seals and customs controls are mutually recognized by all Contracting Parties, however where necessary the customs offices of transit may examine the goods and inspect transport means. After completion of any necessary controls, the customs office of transit shall notify the customs office of departure for crossing the frontier with relevant message (IE118).

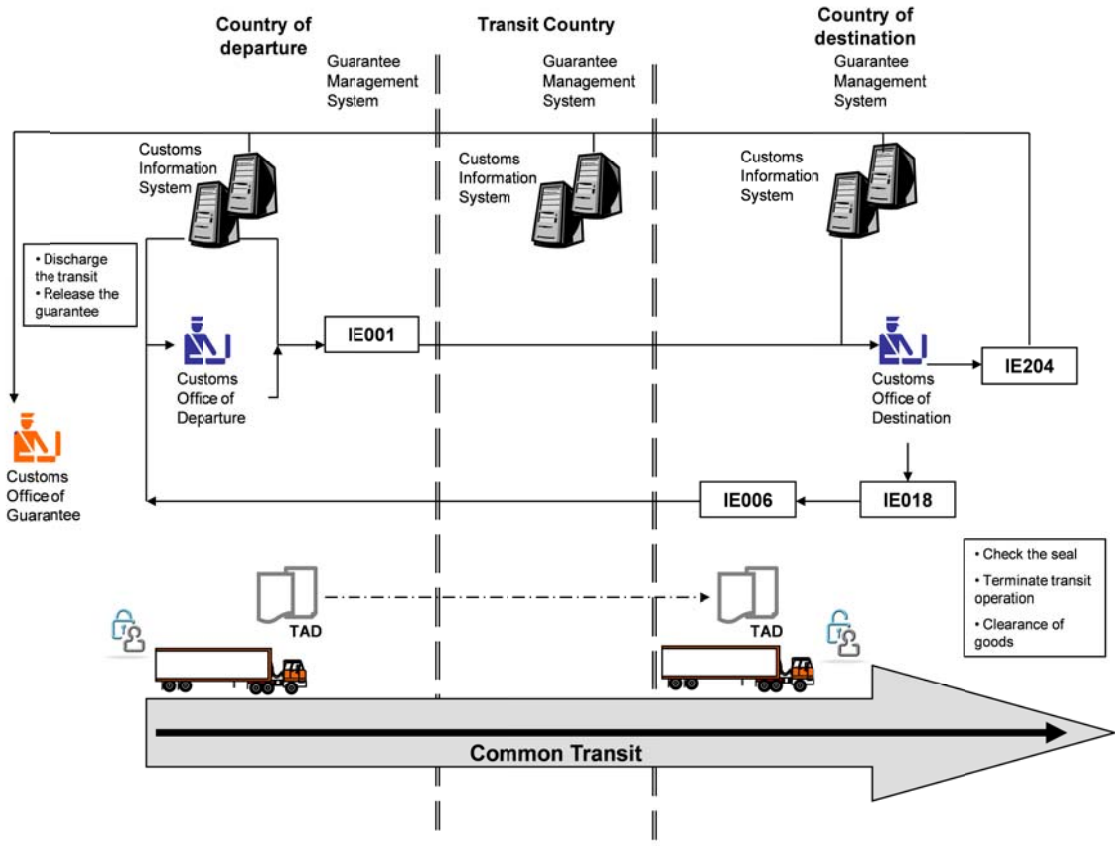
Transport operation ends at the customs office of destination where the goods and other required documents are presented. The customs office of destination, which already received "anticipated arrival record" message (IE001) from the office of departure, shall notify back the arrival of the goods with "arrival advice" message (IE006). This notification is done on a same day when the goods and the transport means are presented.

After completion of any necessary controls, the customs office of destination sends to the customs office of departure the "control results" message (IE018). This message includes any additional information introduced during the transport (e.g. transhipment, new seals or incidents).

The customs authorities discharge the Common transit procedure when they compare data available to the office of departure and those available to the office of destination, and confirm that the procedure has ended correctly. Customs information systems NCTS usually provide automated termination and discharge of customs transit procedure. Enquiry procedure in order to obtain the information needed to discharge common transit procedure will start if customs office of departure does not receive the "arrival advice" message or "control results" message from the office of destination.

[38] Specimen of Transit Accompanying Document - Annex A3 to Appendix III of Convention on common transit procedure of 20 May 1987 (p.136) (Consolidated version; situation as of 5.12.2013). Accessible at: http://ec.europa.eu/taxation_customs/resources/documents/customs/procedural_aspects/transit/common_community/convention_en.pdf

Figure 5: Common Transit Procedure (at the Customs Office of Destination)



Source: Author's depiction of information in the text.

International transit between the Contracting Parties may be carried out across third countries. In that case Common transit procedure may be applied only if the carriage across the third countries is effected under cover of a single transport document (e.g. CMR[39]) drawn up in the territory of a Contracting Party. In such case the transit operation under Common transit procedure could start at the customs office of departure, it will be suspended at the customs office of exit and through the territory of the third countries and it will resume in the transit office of entry in the customs territory of a Contracting Party.

Simplifications of regular procedure are another area, which makes common transit distinctive. There are several different types of simplifications laid down in Convention on Common Transit Procedure, which provide transit facilitation to the compliant traders (Box 3).

All simplifications are subject of authorization granted by the customs authorities. General conditions for authorization include: requirement to be established in a

[39] In accordance with the Convention on the Contract for the International Carriage of Goods by Road (CMR). Accessible at: http://www.unece.org/fileadmin/DAM/trans/conventn/cmr_e.pdf

Contracting Party of the Convention where activities of the applicant could be traced and controlled by customs authorities; to regularly use the Common transit arrangements; not to have committed any serious or repeated offences against customs or tax legislation, to keep records which enable the customs authorities to carry out effective controls.

Box 3: Simplifications in Common Transit Procedure

- Use of a comprehensive guarantee or guarantee waiver;
- Use of seals of a special type;
- Exemption from the requirement to use a prescribed itinerary;
- Authorised consignor status;
- Authorised consignee status;
- Procedures specific to certain modes of transport:
  - goods carried by rail or large container;
  - goods carried by air;
  - goods moved by pipeline;
- Simplified procedures introduced among the countries based on bilateral or multilateral agreements.

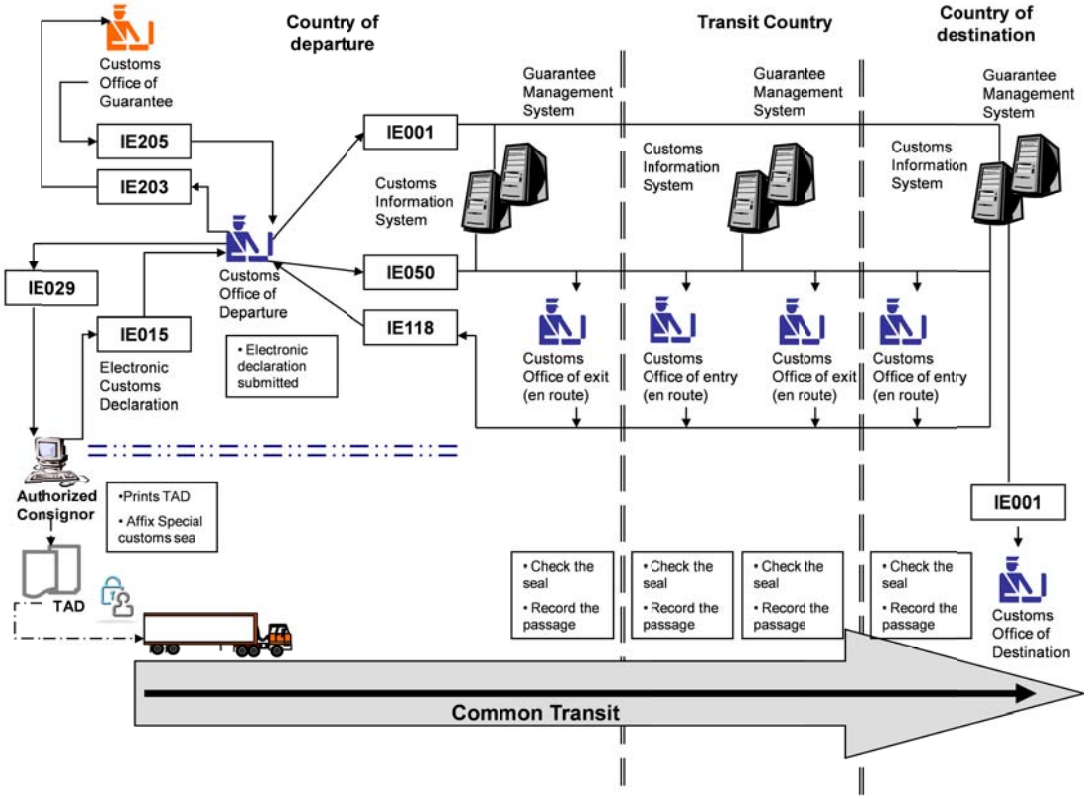
Source: Title III – Simplifications to Appendix I of Convention on common transit procedure of 20 May 1987 (p.35) (Consolidated version; situation as of 5.12.2013). Accessible at: http://ec.europa.eu/taxation_customs/resources/documents/customs/procedural_aspects/transit/common_community/convention_en.pdf

Simplified procedure with authorized consignor status enables start of Common transit operation without presenting the goods at the customs office of departure. The authorisation for this simplification specifies the office responsible to supervise and control the start of transit operations under the authorization. Authorized consignor will have to prepare the goods for beginning of transit operation at his premises and to submit electronic transit declaration (IE015) to designated customs office of departure.

A time limit has to be set at the authorization, defining the period after lodging of transit declaration, for waiting before the release of the goods in transit procedure. This time period should allow the customs authorities to take actions for checking the consignment, if necessary. Within this time period customs authorities may come to perform the checks at the authorized consignor's premises or to notify the authorized consignor about the further course of actions for carrying out the checks.

Authorized consignor has to be authorized to use and to affix special seals without presence of customs authorities. After receipt of the message that the goods are "released for transit" (IE029) from the office of departure, authorised consignor can print out TAD from his own computer system. Customs authorities may limit or prohibit certain categories or movements of goods to be used with this simplification.

Figure 6: Common Transit Procedure (Authorized Consignor)



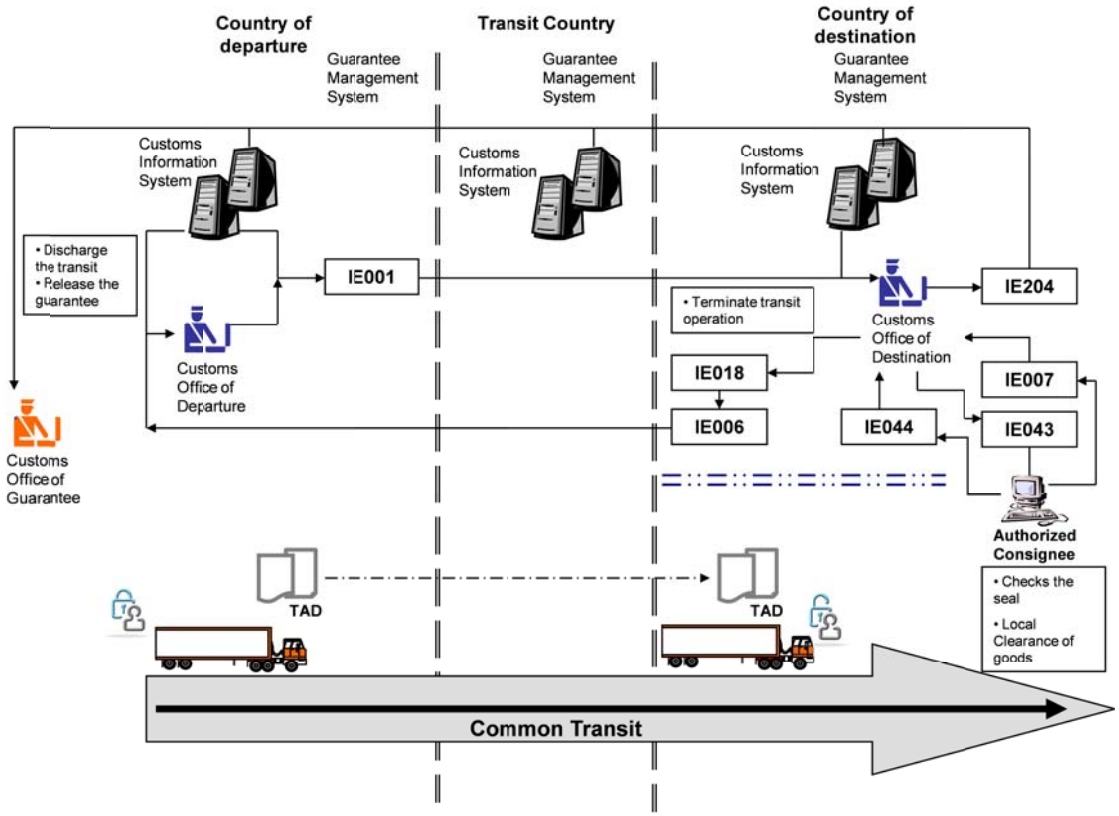
Source: Author's depiction of information in the text.

Simplified procedure with authorized consignee status enables receiving of goods under Common transit procedure at the premises of authorized persons or at any other specified place goods without presenting the goods and TAD at the office of destination. When the goods arrive at the premises specified in the authorisation, the authorised consignee immediately informs the responsible office of destination by the "arrival notification" message (IE007) and wait for the "unloading permission" message (IE043) before starting unloading. If necessary, the customs authorities may take appropriate actions for checking the consignment.

After having received the permission to unload the goods, authorized consignee shall send "unloading remarks" message (IE044) and report any differences to the office of destination, in accordance with the procedure laid down in the authorisation.

Obligations of the principal under common transit procedure are fulfilled and transport operation deemed to have ended, when the TAD together with the intact customs seals and goods are delivered within the prescribed period to the authorised consignee. The authorized consignee is obliged to send to the office of destination a copy of the TAD. The office of destination is responsible to introduce the "control results" message (IE018) in the NCTS system. Customs authorities may limit or prohibit certain categories or movements of goods.

Figure 7: Common Transit Procedure (Authorized Consignee)



Source: Author's depiction of information in the text.

The Common transit system, which offers possibilities for simplified procedures, has introduced significant improvements of transit formalities and it is providing considerable benefits to its users with respect to time and costs savings related to transport operations.

Guarantee requirements

In general, the Common transit procedure is be covered by a guarantee valid for all Contracting Parties involved in any particular transit operation. However, Contracting Parties may agree among themselves to waive the guarantee for transit operations in the part of their territories, or to decide not to require a guarantee for the part of the operation between the office of departure and the first office of transit. In addition, as a form of simplification, use of a comprehensive guarantee with reduced reference amount or guarantee waiver may be authorized.

The principal is responsible to provide a guarantee to cover the amount of customs duties and taxes suspended during the movement of the goods. The guarantee can be a cash deposit or an undertaking furnished by a financial institution acting as a guarantor. The cost and the conditions for obtaining the guarantee is a part of private business relationship between principal and the guarantor.

The guarantor undertakes in writing to pay jointly and severally with the principal any potential claim of customs duties and taxes up to the limit of the amount guaranteed. The guarantor is established in the country of the Contracting Party where the guarantee is furnished and approved by the customs authorities. One important requirement for guarantors is to have offices for service or to appoint an agent in the country of each of the Contracting Parties. The requirement for the guarantors (usually banks) to issue guarantees that could be used and when necessary cover claims in other countries requires a high degree of integration and harmonization of financial legislation in the Contracting Parties.

The customs authorities of each country are designating an office(s) of guarantee where the guarantors shall lodge their guarantees. The office of guarantee may: a) accept the guarantee and allocate unique guarantee reference number for the use of that guarantee or b) refuse to approve a guarantor who does not appear certain to ensure payment of any debt liable to be incurred, or up to the maximum amount of the guarantee.

When regular procedures of the Common transit are used, the principal should furnish a guarantee valid only for one single transit operation (an individual guarantee). That guarantee should cover full amount of the potential customs duties and taxes. Individual guarantee issued by the guarantor to the principal may be in a form of a bond or in a form of vouchers for an amount of EUR 7000. The principal shall lodge to the office of departure the guarantee or required number of vouchers to fully cover potential amount of custom duties and taxes.

A comprehensive guarantee is a simplification, which may be granted to the persons who regularly use the Common transit procedures. Such guarantee is providing an option of covering several transport operations in defined period of time. Authorizations for simplified procedures with authorized consignor and authorized consignee status may be granted solely to persons authorised to use a comprehensive guarantee or a guarantee waiver. The comprehensive guarantee is issued by the guarantor in form of bond up to a reference amount.

The reference amount is set up by the office of guarantee and estimated as the amount of the customs duties and taxes which may became a due in respect of the goods that the principal places under the Common transit procedure during a period of at least one week. Such estimation shall be made in collaboration with the principle and should be based on the information for goods carried in the past and approximated intended volume in the future. The calculation shall be done with the highest rates of customs duties that would be applicable in the country of the office of guarantee if goods of the same kind were imported from a third country and cleared for home use.

When the principal could prove that its finances are sound and that he meets the standards of reliability laid down in the Convention on Common Transit Procedure Customs authorities may authorize:

- Reduction of reference amount (to 50 percent or 30 percent) or

- Guarantee waiver.[40]

Additional requirements for such authorizations include sufficient experience of the Common transit procedure, very close cooperation with the customs authorities and command of the transport operations. The guarantee waiver authorization empowers principal to use the Common transit procedures without guarantee. The goods involving increased risk are identified and special provisions are provided for reduced reference amount for them as well.[41] Customs authorities issue to the principal one or more comprehensive guarantee certificates or guarantee waiver certificates based on the authorization for reduction of reference amount or guarantee waiver.

With the implementation of simplifications related to guarantee reference amount reductions and guarantee waivers the level of guarantee requirements is adjusted with the level of actual risk and the principle of introducing incentives for compliant traders is promoted.

Table 1: Requirements for Reduction of Comprehensive Guarantee and Guarantee Waiver

Reduction per cent and Waiver / *Requirements*	50per cent		30per cent		Guarantee Waiver	
	NSG	SG	NSG	SG	NSG	SG
Sound finances	Yes	Yes	Yes	Yes	Yes	Guarantee waiver may not be granted
Sufficient experience of the Common transit procedure	Six months	One year	One year	Two years	Two years	
Very close cooperation with the customs authorities	-	Yes	Yes	Yes	Yes	
Command of transport operations	-	Yes	-	Yes	Yes	
Sufficient financial resources to Meet obligations	-	-	-		Yes	

(NSG – Non sensitive goods; SG – Sensitive goods involving increased risk)
Source: the Convention on Common Transit Procedure

[40] Rules and provisions for reduction of reference amount and guarantee waiver are laid down in Article 53 and Annex III of Appendix I of the Convention on common transit procedure of 20 May 1987 (Consolidated version; situation as of 5.12.2013). Accessible at: http://ec.europa.eu/taxation_customs/resources/documents/customs/procedural_aspects/transit/common_community/convention_en.pdf

[41] Special provisions for sensitive goods listed in Annexe I of Appendix I are laid down in Article 54 of Appendix I of the Convention on common transit procedure of 20 May 1987 (Consolidated version; situation as of 5.12.2013). Accessible at: http://ec.europa.eu/taxation_customs/resources/documents/customs/procedural_aspects/transit/common_community/convention_en.pdf

The guarantee management systems of the customs administrations are integrated with the national NCTS applications. Effective guarantee management systems provide exchange of electronic messages between various actors involved: the office of guarantee, guarantors, principals, declarants and customs offices involved in the Common transit procedure. The guarantee management system is handling registration and allocation of guarantee reference numbers including revocation and cancellation.

When the principal submits an electronic transit declaration he proves with the access code that he is authorized to use the guarantee. At the time of initiating the transit operation the existence and validity of the guarantee is automatically checked using guarantee reference number and access code. This check is completed with automatic exchange of messages between national NCTS application at the customs office of departure and guarantee management system at the office of guarantee (IE203 and IE205). Guarantee management systems provide automatic control of the sum of the guarantees in use and information on free amount of the guarantee.

After receiving the control message from the customs office of destination and discharge of the transit operation at the office of departure, the guarantee used for that purpose could be released. This action is also provided with an automatic exchange of messages between the national NCTS application and the guarantee management system (IE204). When the transit operation is not properly ended and enquiry procedure can not provide information needed to discharge the Common transit procedure, the customs authorities establish whether a customs duties and taxes and other charges have became a due and identify the person(s) directly liable.

The customs authorities may carry out post-clearance verification of the information and documents related to the Common transit procedure, especially where doubts arise or fraud is suspected; or on the basis of risk analysis; or by random selection. As result of such verification the customs authorities may also detect irregularities that lead to a customs duties and taxes and other charges becoming a due in respect of the goods placed under the Common transit procedure. Examples of irregularities include: unlawful removal of the goods, failure to comply with conditions or failure to fulfil obligations arising from the Common transit procedure.

The customs authorities claim payment of the customs duties, taxes and other charges from the person(s) directly liable, which will not affect the continuation of guarantor's liability. The customs authorities notify the guarantor first time to inform him that the transit operation has not been discharged and second time to inform him about the claim of the customs duties, taxes and other charges that he is or might be required to pay.

Where necessary and on request, the customs authorities in the countries where the Common transit procedure is used communicate between themselves all findings, documents, reports, records of proceedings and information with respect to the transport operations under common transit procedure, including information on irregularities or

infringements in connection with such operations. They assist each other in determining which customs authorities are competent for claims of the customs duties, taxes and other charges. They also render each other assistance for the recovery of such claims.

The Common transit system is often regarded as a streamlined evolution of a regional carnet system.[42] The system provides reduced intermediation unlike TIR system where national associations and IRU are key players. The Common transit system is used extensively by economic operators such as freight forwarders, customs agents, customs brokers, exporters and importers.

The Common transit system and NCTS almost eliminates direct contacts between customs authorities and freight forwarders, customs agent and customs brokers due to computerization and electronic exchange of messages. Present advantages of the Common transit system over TIR system are based on successfully implemented paperless solutions and integration with national/community transit systems. However the Common transit system is very demanding and requires integrated operation of highly developed ICT, and depends on higher level of regional integration with legislative harmonization in customs and other related fields.

Electronic data processing options of present paper based TIR system and initiatives for paperless TIR procedure in the future are presented in Annex I of this Study.

[42] IBRD/WB, 2011, Border Management Modernization, Chapter 17 – Transit regimes, Jean-Francois Arvis (p.288) Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

IV. Advantages of Paperless Transit Solutions in International Transit Systems

Effective transport connectivity, which is essential for regional economic cooperation, could be achieved if several conditions are fulfilled such as developed physical infrastructure and efficient international transit systems with streamlined cross-border formalities. International transit is particularly vulnerable to various non-physical barriers, which could potentially emerge in every country and at each border crossing along the transport corridors. Long and burdensome multiple customs transit procedures under different national legislations, multiple transit documents, long waiting time at the border crossings, multiple examinations and inspections of the goods and the transport means, could significantly increase the time and the costs of the transport and hamper regional trade.

Various hidden costs that are included in the value of the traded goods could be directly incurred (e.g. expenses for transit declaration, and transit guarantee) or indirectly incurred (e.g. border crossing delays and lost opportunities). Direct and indirect trade transaction costs are estimated to vary in a similar range between 1-15per cent of the value of traded goods. The reasons for such considerable variation are associated with differences of quality of the border processes and empirical information on differences of border waiting times.[43] Thus it could be expected that improvement of customs efficiency in border crossing processes, including customs transit procedures could have important impact on lowering trade transaction costs. The contribution of the various transit performance bottlenecks to the cost factors also vary as shown in Table 2.

Table 2: Contributions of Transit Performance to the Cost Factors

	Direct Costs	Overheads	Delay	Uncertainty
Transit declaration and initiation of transit procedure	average to high (depending on bond system)	high	high to very high	very high
Transit convoys	moderate	moderate	moderate	high
Border crossing	low	medium	moderate to high	average to high

Source: Information extract from World Bank, June 2007, WPS4258, The Cost of Being Landlocked: Logistics Costs and Supply Chain Reliability (p.17), Jean-François Arvis, Gael Raballand, Jean-François Marteau. Accessible at: http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-4258

[43] The quality of the border processes in this case is evaluated as complex survey-based evidence, which includes customs efficiency. OECD, 2009, Overcoming Border Bottlenecks – The Costs and Benefits of Trade Facilitation, Peter Walkenhorst and Tadashi Yasui, Chapter 1 - Quantitative Assessment of the Benefits of Trade Facilitation (p.36), Accessible at http://browse.oecdbookshop.org/oecd/pdfs/product/2209021e.pdf

Many initiatives at international and regional level are trying to promote and ensure secure and efficient transit systems. Fully developed international transit systems such as Common transit system have proved to be attractive for the transporters. Common transit system is widely used in Europe providing extension of national/community transit systems in the larger economically closely connected area.[44]

Efficient international transit systems reduce transport costs, improve the competitive position of business, and provide positive environment for increased regional trade flows and integration. Use of ICT and paperless solutions in transit systems are powerful tool for improving efficiency of customs transit systems. Technological innovations in ICT and use of the Internet in the 1990s have enabled important changes of organizational and operational level of customs authorities. Possibilities to have instant and direct communication with all participants in transit procedures and to exchange electronic data on secure way have triggered process of replacement of paper based with electronic documents.

Paperless transit systems are becoming more and more visible and implementation of customs transit procedures has been considerably improved over the years. Introducing electronic exchange of information and other electronic conveniences for faster and easier processing of paper documents is becoming standard for many customs administrations. Such paperless systems are providing solutions for the weaknesses of paper based systems, they are enhancing general advantages of international transit systems, and they additionally offer further benefits for the transport and trade sector which paper based systems are not able to support.

Development of the New Computerized Transit System (NCTS) is a product of the transit reform in Europe, which started in mid 1990s, and it was backed up by ICT progress. This reform has provided opportunities to overcome weaknesses of paper based Common and Community transit systems, detected in the early 1990s (Box 4).

Introduction of paperless transit systems requires high initial costs, but the benefits for the transport and trade sectors and for the customs authorities and the countries in general could be significant as well. High operational savings could be generated, transport operations will be more secure and potential revenue losses prevented.

[44] Total of 17 million transit customs declarations were processed in EU in 2012. (http://ec.europa.eu/taxation_customs/customs/policy_issues/facts_and_figures/eu_customs_union_unique_en.htm). Recent data for the proportion of common transit declarations is not easily available. The data from 2003 report (ADE, The Community Transit System in the Perspective of Enlargement (p.12). http://www.europarl.europa.eu/meetdocs/committees/cont/20031007_audition/488412EN.pdf) are showing that from total of 18.7 million transit declarations about 12 million are Community transit documents, 4 million Common transit documents and 2.7 million TIR carnets. Having in mind enlargement of EU since 2003 it could be expected that the use of the Common transit procedures and TIR carnets is decreased and the number of Community transit procedures could be increased.

Box 4: Weaknesses of paper based Common and Community transit systems, detected in the early 1990s

- The paper-based system turned out not to be fraud-proof;
- There was a growing lack of clarity in procedures and an increasing lack of parallelism between the two systems;
- The incapacity of the systems to deal with specific situations, which meant the risks grew higher and reliability decreased;
- The administrations were incapable of complying with the regulations in force as administrative communication and cooperation were insufficient.

Source: European Communities, 2001, New Customs Transit Systems for Europe (p.6). Accessible at: http://ec.europa.eu/taxation_customs/resources/documents/annex_i_transit_brochure_en.pdf

The NCTS experience suggests that implementation costs have reached an approximate amount of €68 million (or around US$92 million) and 531 man/years, however the operational savings of the customs administrations from the introduced transit improvements are estimated to offer more than a satisfactory return on investment for each participating country, even before taking in consideration the impact of the NCTS on trade as well as on the fight against fraud.[45] Trade community surveys in Europe have shown productivity gain of 30 minutes for each transit operation with introduction of the NCTS, which could lead to estimated €132 million (or around US$180 million) annual cost savings, calculated on the basis of average labour costs and number of transit movements.[46] Such indications strongly suggest that investment in paperless transit could repay itself and bring additional benefits and savings.

A. General Advantages of International Transit Systems

Well-designed international transit systems, even if they are paper based have clear advantages over international transit, which consists of simple chain of national transits systems. Movement of goods through several countries with one goods declaration for transit instead producing customs transit declaration in every border crossing is reducing the documentary costs of transit. Advantages of having single transit document are numerous and they could contribute to the reduction of costs directly and indirectly. It is obvious that less time is needed to make a single document instead of many different documents, which reduces the workload for the generation of such documents. Thus, producing the single international transit document has to be cheaper then making multiple national transit declarations.

[45] ADE, September 2003, The Community Transit System in the Perspective of Enlargement (p.5). http://www.europarl.europa.eu/meetdocs/committees/cont/20031007_audition/488412EN.pdf

[46] IBRD/WB, 2011, Border Management Modernization, Chapter 15 - Information and communications technology in support of customs unions: a case study of the European Union, Tom Doyle and Frank Janssens. Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

With a single international transit document prepared in advance or at the initiation of the transit operation the waiting time on the border crossings is going to be reduced. Transport operators will not be required to stop at the border crossings and to make new national transit declarations in every subsequent country. Lodging national transit declaration in a foreign country often includes seeking services from the local customs clearing agents which could bring possible delays in respect to availability of such agents and communication difficulties with them.

Transparency and predictability is another advantage of the single international transit document, which is based on international instrument accepted by all contracting parties. All parties know what information to provide regarding transit documentation in each of the contracting parties. Such instruments are translated into the national language; transit related provisions are introduced in national legislation and officially published on national level. Further guidelines and information for practical implementation may be provided in various forms from competent authorities and other parties (e.g. customs authorities, national associations). This leads to increased knowledge for the requirements with respect to the single international transit document compared to the knowledge for national transit declarations of other countries based on their national legislation. Carriers could prepare themselves better, easier and less costly for the transit operations if they travel with a single transit document. Providing specific information on regulation from other countries is not very straightforward and it could involve time and costs. Regular following of any changes at the foreign transit regulation could be also challenging. Significant delays at the border crossings are possible if new requirements concerning transit documentation are introduced and if carriers are not aware of them.

The principals will pay only once to obtain a single transit document, which could include services rendered for producing and filling in such document. Multiple payments could add to the time required for the transit operation, and may include currency exchange issues and payment related delays at border crossings.

Customs transit procedure covered with single, internationally accepted guarantee, which covers potential claims of customs duties and taxes in all countries where the transit operation is carried out is contributes to the reduction of guarantee related costs. The guarantees are financial products and their price could vary depending on national financial regulation that provides access to guarantees, market liberalization and competition. The form and the type of the guarantee could contribute to the variation of the price, as well as specific guarantors risk coverage policies. Guarantors evaluate the risk in relation to the guarantee applicants, so unknown and small companies usually do not have easy access to guarantees.

Cost of the guarantees increases with higher risk as result of unclear transit procedures and imperfections of customs transit systems. Efficient international transit systems reduce the risk for the transit operations and consequently lower the cost of the guarantees. However to be able to issue internationally recognized guarantees, the

guarantors need clear and harmonized rules, strong regional presence, knowledge and trust in regionally integrated economic areas. If these conditions are not fulfilled the advantages of having single international guarantee over time consuming procurement of multiple national guarantees at each border crossing could be diminished.

Relative costs of the guarantee for multiple uses (e.g. comprehensive guarantee) could be reduced if the time for discharge of transit operations is shorter and the guarantee is released faster, so the holder could use such guarantee more efficiently. The guarantees for single use (e.g. TIR Carnet) are not affected on similar way and they may be more expensive. However, a cost of basic guarantee for the TIR Carnet, based on a chain of national guarantee associations, is on average priced at 0.2 per cent of customs duties and taxes or 0.1 per cent of the value of the goods, and it is often cheaper than providing a national guarantee in each transit country.[47]

Advantages of TIR guarantee is in the simplicity and uniformity of the system, which provides easy access to the interested transport operators. The Common transit guarantee system on the other hand might be more complex and demanding to be established, however it has its advantages in providing more customized solutions to the specific needs of the traders and principals, and unlike TIR System the competition is enabled between various guarantors, which could reduce overall costs.

Fully developed international customs transit systems reduce costs from reduction of various border-crossing formalities. Such costs could be hidden but significant impediment to the transport and they are mostly visible as increased time needed for border crossing formalities. Border crossing formalities are result of regulatory and implementation requirements enforced by customs authorities and other border agencies. Excessive customs border formalities as result of multiple examinations of goods and inspections of the vehicles and affixing new national customs seals in each country increase border crossing waiting time and creating additional transport costs.

International customs transit systems provide basis for mutual recognition of customs controls, harmonized sealing requirements and acceptance of foreign customs seals. In international customs transit systems the customs controls and new identification measures on border crossings could be generally avoided, the customs authorities could reduce their formalities to minimum and decrease overall border crossing waiting time.

In addition, when a single international customs transit document is used customs authorities on the border crossings could adjust processing of the transit flows and open “fast” lanes for such international transit and additionally contribute to reduced transit clearance time.

[47] IBRD/WB, 2011, Border Management Modernization, Chapter 17 – Transit regimes, Jean-Francois Arvis (p.289) Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

Improved security of transit operations is another advantage of international customs transit systems. Consistency of the data is improved with existence of a single document. Single goods declaration for transit provides description of the goods that is valid for all customs authorities during the transport. Therefore the use of single transit document reduces the risk of presenting inaccurate information and making changes of the goods description. Reduction of intermediaries at border crossings for production of new national transit declarations and elimination of payments for such services is shrinking the window for informal and illegal payments and other corruptive actions and thereby increasing integrity and security of transit operations.

B. Advantages of Paperless Transit to Private Sector

The paper based transit systems have serious disadvantages if compared with transit systems with computerized and paperless solutions. Handling physical documents creates unwarranted delays and increased costs. Submission of paper-based transit declaration is more burdensome, tracing and monitoring of transit operation is not available. Discharging of transit is very slow because paper based proof for termination of transit has to be sent by mail from the office of destination to the office of departure, which can be time-consuming. Slow and inefficient management of paper based transit systems reduce capacity for timely detection of frauds.

Paperless transit systems are based on the use of advanced computer systems and effective electronic communication between all participants in the transit operations. Electronic data processing includes data from the goods declaration for transit and other necessary information in order to provide streamlined implementation of transit procedures. Objectives of paperless transit systems are to provide modern and efficient management of transit operations and to overcome many weaknesses of the paper based transit systems.

Box 5: Main Objectives of the NCTS

- To increase the efficiency and effectiveness of transit procedures;
- To improve both the prevention and detection of fraud;
- To accelerate transactions carried out under a transit procedure and to offer security for them.

Source: Source: European Commission, DG TAXUD, 1 July 2010, TAXUD/A3/0007/2010, Transit Manual (Consolidated Version) (p.39). Accessible at: http://ec.europa.eu/taxation_customs/resources/documents/customs/procedural_aspects/transit/common_community/transit_manual_consolidation_en.pdf

One of the advantages of paperless transit systems is to significantly increase efficiency and effectiveness of the transit operations with reduction of time consuming paper work, automation of processes and decrease in idle time which results in reduction of administrative burden and lower transaction costs.

Computerization of paper based transit procedures, is not offering only simple translation of paper with electronic documents and replacement of paper based with automated processes, but is regularly accompanied by reengineering of business processes with a goal to simplify existing complicated procedures. As result of this exercise the transit processes have a potential to become more streamlined and easier to implement. Electronic data processing systems enable exchanges of electronic documents and electronic messages. Some of the processes based on paper document could be reduced or even eliminated when they are replaced with automatic checks running in the background of the customs information systems and automatic creation of messages. Amount of paper documents in transit procedures could be drastically reduced and simplified (for example in common transit procedure the sole paper based document is TAD printed out from national customs NCTS application or traders computer systems). In that way the unnecessary workload, which is typically associated with paper based documents will be significantly reduced.

Electronic filing and lodging of customs transit declarations provides flexibility for presenting such declarations as the declarants can send electronic transit declaration directly from their offices and availability of those services is 24/7, regardless of the working hours of customs authorities. When convenient, electronic systems provide options to save incomplete declarations and finalize lodging of the declaration when all necessary data are available. Declarants and principals can more efficiently use the time for filing and lodging the customs transit declarations according to their needs.

With the use of electronic customs declarations, declarants will not have costs for going to the customs office of departure to physically present customs transit declaration and the time for waiting and customs offices will be eliminated which will increase their efficiency. Because electronic declaration will be sent in advance, transport operators will reduce the waiting time at customs offices of departure.

In the case of authorized consignors, reduction of the costs is even more substantial. The authorized consignors are entitled to start the transit procedure from their facilities and they are not obliged to go to the customs office of departure to present the goods, they will have additional savings in terms of transport expenses and time. Authorized consignors could start transit operations 24/7 without regular presence of customs authorities and without limitation of working hours of the customs office of departure, which will increase efficiency of transport operators, and give further benefits to the traders.

Electronic transit systems facilitate filing of customs transit declarations using lists of different codes (e.g. customs offices codes, and other customs codes) and automatic filling of data when possible. An automatic validation is also regularly provided (e.g. on principal/declarant identity, guarantee validity and free amount) as well as an automatic check for filing of mandatory data. Instant feedback is provided to the declarants about errors, or various warnings, possible restrictions or specific rules and conditions. Regular updates of the system ensure better compliance with the transit

related requirements. In general electronic transit systems improve accuracy and reduce possible errors. For example quality of the operations in NCTS in the 2012 was highest when compared with other business domains in EU with a minimal error rate of 0.14per cent.[48] Reduction of errors from processing of the transit documents also contributes to reduction of unnecessary waiting time for the transport operators.

Electronic transit systems enable reduction of repeated data entry in several levels. First, in the case of trader/declarant integrated information systems, when data entered in internal information systems can be used for further creation of electronic transit declaration. Internal information systems or other electronic systems used by traders/declarants or principals could offer an option to create and print other transport documents that may be required (e.g. CMR consignment note) or transit related documents (TAD or other accompanying documents such as loading lists). For such actions they could automatically use the same data as the data from the related transit declaration without repeated data entry. Second, where the declarants are using pre-defined templates for creation of new electronic transit declarations. And third, in the case of international transit systems, when the data from the office of departure will be automatically sent to the customs offices of transit and customs office of destination and there will be no need to involve other customs agents en route or to be required from the customs authorities to repeat the data entry. Reducing repeated data entry is making the process of submission of the transit declaration more efficient and less costly.

Different options to access the electronic customs transit systems offers various benefits in accordance with the needs of the businesses. In the case of EDI access solutions with specialized transit software integrated with the internal information systems of the companies, the advantages available include: high reduction of data entries, greater accuracy of data in business systems, improved operational and financial planning, effective internal audit, and improved security of data transfers. Such solutions can be costly and economically justified only in case of high volume of operations.

Web-based service providers could offer solutions for submission of transit declarations where specialized software is not required on traders' side. They usually offer standard benefits for reduction of paperwork. Specialized software is also not needed when direct traders input is used for submission of transit declarations to the specialized web site of the customs administration. In this case the main advantage is that an investment on the traders' side is not required, except access to Internet.

Electronic systems for transferring, processing and exchanging of transit related messages with customs authorities provide transparency of the transit operation. Exchange of electronic messages is provided in real time, and all participants are instantly aware about status of each step in processing of transit operations. The

[48] European Commission, DGTAXUD, 01 August 2013, 3(2013) 3213327, 2012 E-Customs annual progress report (p.14). http://ec.europa.eu/taxation_customs/resources/documents/customs/policy_issues/e-customs_initiative/2012_progress_report.pdf

principals and declarants can closely follow-up lodged transit declarations and their status. Tracing of transit operation could be provided and traders could timely follow passing of their consignment through each customs office of transit and arrival at customs office at destination. For the users of EDI solutions the option for real time following of the status of the transit operations can be incorporated in their software applications by default. And for the users of web based applications options to check the status of their transit operations may be offered as well. Tracing of transit operation addresses the concerns about security of the transit and timely delivery of the goods.

Customs transit formalities in paperless transit systems can be accelerated in all customs offices under such system, which reduces the waiting times and cost of the transport. Pre-arrival electronic transit declarations and other messages are automatically sent to all customs offices of transit and to the customs office of destination. They are utilized for early risk analysis and making decision of possible control of the goods before they actually arrive on the border. The customs authorities can expedite the customs formalities at transit offices and minimized them only to reading of the bar code printed on TAD with a bar code reader; and checking the customs seals.

Simplified procedures for the authorized consignees enables advantages for reliable traders, which no longer need to physically present the goods at the customs office of destination. In this case transport operators will directly go to the approved location where the procedure for termination of the transit procedure could be initiated. It should be noted that simplification of authorized consignee status is usually associated with other authorizations for simplification such as authorization for temporary storage facility and local clearance, which will allow continuation with intended customs procedure upon ending of the transit procedure. Transport operators will benefit from this simplification in similar way as in the case of the authorized consignor with savings in terms of transport expenses and time. Authorized consignees could initiate ending of transit operations 24/7 without regular presence of customs authorities and regardless of the working hours of the customs office at destination, which increases efficiency and reduces the transport costs.

Another important advantage of electronic transit systems is faster discharge of transit procedure because an electronic message is used between customs office of destination and customs office of departure instead returning the paper based proof about termination of transit procedure by mail. Discharge of transit procedure with paper documents has shown many weaknesses as result of slow postal services and inefficient operations where some of the paper documents could be misplaced and lost. In such cases delays could be substantial and that could affect release of the guarantee and increase guarantee related costs.

With the use of electronic messages the time of release of the guarantee is shortened leading to reduction in related cost. It is recognized that a functional transit regimes effectively synchronizes physical movement of goods with information flows

(e.g. transit declaration) and financial flows (guarantee).[49] Electronic transit systems represent great tool for such synchronization. Well designed and effectively implemented electronic transit systems could provide almost simultaneous monitoring of the end of transit movement, followed with quick processing of transit declaration for termination of transit procedure, discharge of transit and release of the guarantee.

Electronic transit systems improve the management of transit declarations, and traders could easily store transit related information, make relevant queries, and download their transit customs declarations and other transit information they may need from the system.

Efficient and effective transit systems supported with ICT solutions offer: minimum interference and reduced direct contacts with the customs authorities; improved transparency; timely exchange of relevant information; consistency of transit data across the customs administrations; and uniform implementation of customs formalities. This will not only speed up the transit operations and reduce transport costs but could also significantly reduce corruption and any informal and illegal payments which could also represent serious obstacle to transit movements.

Transport and trade sector can enjoy the benefits offered by electronic transit systems when fully electronic transit declaration is in use and when international transit systems support effective exchange of electronic transit data among various customs administrations. In case of dual systems when customs authorities request paper based transit declaration in addition to electronic information the benefits of reduced processing time will be probably diminished to certain extent. In the case of national electronic transit systems of the customs administrations which are not successfully integrated or interconnected potential benefits will be reduced not only with regard to the effectiveness and costs but in relation to security of transit operations as well.

C. Advantages of Paperless Transit to Governments

It is obvious that many of the advantages of the electronic transit systems for the private sector elaborated above could be considered as advantages for the governments and customs administrations as well. For instance, increased effectiveness of processing the transit operations with the use of automation, which reduces time consuming paper workload (e.g. using lists of codes, reduction in repetitive activities, automatic validation and background checks) are the same. Customs administrations could also indirectly benefit from advantages offered to the principals and declarants. For example increased compliance, accuracy and low level of errors in transit declarations will increase efficiency of customs authorities. Electronic transit systems are

[49] IBRD/WB, 2011, Border Management Modernization, Chapter 17 – Transit regimes, Jean-Francois Arvis (p.281) Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

efficient tool for simplification of administrative procedures and developing business oriented approach.

In addition to increased efficiency and effectiveness the main advantage of paperless transit systems is improved security of transit operations. Electronic information is easier to process and also more reliable. Real time data and automatic processes (e.g. validation of guarantee and check of available free amount) reduce manual interventions and address associated risk at the same time. Improved communication between customs authorities with automatic information sharing of transit related electronic messages (e.g. advance cargo information and data related to transit declaration) not only accelerate and facilitate customs transit formalities, but also enable better risk management in order to address security and fraud threats to safety and revenue losses.

International electronic transit system could enable cross border automatic electronic exchanges of transit data from the customs authorities in the country of departure to the customs authorities in the transit counties and the country of destination. That will increase their effectiveness and capacity to deal with security issues. An automatic reconciliation of transit data between customs authorities in departure country and customs authorities in destination country tremendously accelerates discharge of transit procedures and enables early identification of potential irregularities.

Paperless transit systems could provide efficient real time tracking of goods from start of the transit operation at the country of departure, through their passage at border crossings of transit countries until end of the transit procedures at the country of destination. In addition, those systems could be supported with optional use of vehicle electronic tracking systems, where monitoring of movements is enabled with use of electronic seals and other equipment, based on technologies that may include radio frequency identification (RFID), global positioning systems (GPS) and cellular communication systems (CCS). Tracing and tracking systems are regarded as an effective tool to improve customs control during transit operations, instead of current practices such as frequent inspections en route, mechanical customs seals, customs convoys, and high guarantees.[50]

Transit systems have always been vulnerably to fraud, because temporary suspended payment of applicable customs duties and taxes involves huge amount of money. For example in 1990s international criminal organizations in Europe have exploited weaknesses in paper based transit procedures and lack of timely and

[50] WCO Research Paper No. 28, April 2013, Transit Facilitation for Regional Economic Integration and Competitiveness (p.11), Tadashi Yasui. Accessible at: http://www.wcoomd.org/en/topics/research/~/~/media/30EA73887EED41E1A3E774175C7FE097.ashx

systematic communication and control of transit operations to evade customs surveillance of considerable quantities of high-tax products.[51]

Computerized transit systems could overcome inefficiency of paper based system, designed to cope with small volumes of trade and successfully deal with various types of fraud: a) fraud due to false customs declarations (changes of the type or quantities of goods) and false clearance (forged or stolen stamps, etc.) which could be addressed and eliminated with timely exchange of transit information between customs administrations and replacement of paper with electronic transit declaration; b) fraud due to unlawful unloading of goods during transit movements which could be addressed with improved tracing and tracking capabilities, accelerating discharging and inquiry procedures and early identification of potential irregularities and c) fraud on guarantees (false guarantee documents, and insufficient guarantees etc.) which could be eliminated with real time verification of validity and free amount of the guarantees.[52]

Efficient management of transit systems will help customs administrations to utilize better available human and other resources, which could bring fiscal savings and improvements of low enforcement capacity because customs officers could be reassigned from purely administrative duties to risk assessment, customs control and combating fraud tasks. For example with introduction of NCTS important operational cost reductions were achieved (e.g. the Czech customs administration expected that approximately 500 customs officers will be released from operating the transit system and assigned to other tasks).[53]

We can conclude that international and regional transit systems with paperless transit solutions could provide important advantages to the transport and trade sector; and to the governments and customs administrations. With streamlined, efficient and effective transit procedures transport costs in regional transit operations could be significantly reduced, and international trade and transport could have substantial savings. Reduced transport costs will have a positive impact on increased intra regional trade and regional integration. Paperless solutions ensure security of transit operations, reduce the vulnerability to fraudulent actions and corruption, which contributes to protection from revenue losses, security and safety threats and improves business environment.

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[51] The revenue lost to the Community and national budgets as result of transit fraud has been estimated at some € 1,27 billion over the seven years 1990 to 1996; Communication from the Commission to European Parliament and Council; Action plan for transit in Europe - a new customs policy COM(97) 188 final, (Submitted by the Commission on 30 April 1997). Accessible at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:51997DC0188:EN:HTML.

[52] ADE, The Community Transit System in the Perspective of Enlargement (p.11). http://www.europarl.europa.eu/meetdocs/committees/cont/20031007_audition/488412EN.pdf

[53] ADE, The Community Transit System in the Perspective of Enlargement (p.4). http://www.europarl.europa.eu/meetdocs/committees/cont/20031007_audition/488412EN.pdf

V. Paperless Transit and its Linkages to Electronic Information Systems

A. Paperless Transit and Electronic Customs Declaration Systems

Efficient customs declaration processing systems are essential for paperless transit. Customs transit procedure directly involves at least two customs offices and information systems should enable effective monitoring of goods declarations for transit, with established communication and exchange of information between the office of departure and destination. Many customs administrations have their nationally developed customs information systems for processing of goods declaration for transit.

United Nations Conference on Trade and Development (UNCTAD) has developed popular customs management system ASYCUDA, which has significant global contribution for customs modernization and computerization, and it is widely used around the world.

Box 6: ASYCUDA - Automated SYstem for CUstoms DAta

- Handles manifests and customs declarations, accounting procedures, transit and suspense procedures;
- Takes into account the international codes and standards developed by ISO, WCO and UN;
- Can be configured to suit the national characteristics of individual Customs regimes, National Tariff and legislation;
- More than 90 countries have adopted the ASYCUDA programme, there are 51 operational projects, including 7 regional and interregional projects;
- Current versions of software
  a) ASYCUDA World: Internet client-server, 100per cent Web-based, Any devices (PCs, PDAs, Mobile Phones, Tablet PCs …), communication via Web, Internet & Intranet, data exchange using EDIFACT and XML, Built-in PKI, electronic signature etc.
  b) ASYCUDA++: Client-server, PCs under Microsoft Windows, communication via TCP/IP protocol, data exchange using EDIFACT.
- Transit functions are used to monitor and control the movement of goods within national borders.
- Can be integrated into the national computer network and the control of moving cargoes can be introduced through the ASYCUDA manifest module.

Source: UNCTAD ASYCUDA web site: http://www.asycuda.org/default.asp

Present national transit systems are well supported by computer based customs declaration processing systems and the WCO 2011 survey of 56 customs administrations shows that an average (mean) of 95 percent of customs declarations for transit are reported electronically to the customs authorities, which is even slightly higher

than average (mean) of 92 percent for customs declarations for import and 91 percent for customs declarations for export.[54]

However wide spread opportunities for electronic submission of customs declarations does not reflect achievement of paperless customs solutions because in many cases paper based declarations are still required for continuation with transit customs procedure. Situation in this regard differs among countries and regions. In more than half OECD high-income counties traders are not obliged to provide hard copies of all trade documents electronically submitted, however in Sub-Saharan Africa, Eastern Europe and Central Asia, requirements for submission of paper based documents are often imposed, despite existence of electronic systems.[55]

Paperless transit assumes lodgement of goods declaration for transit by electronic means, which might be accompanied with electronic submission of supporting documents as well. However, distinction can be made between fully electronic and dual systems that provide electronic submission. The fully electronic systems support paperless transit because electronically submitted goods declaration for transit could be accepted as a legally binding document for application of customs transit procedure. In dual systems an electronic lodgement of goods declaration only simplifies administrative processing and it could initialize risk assessment, but for releasing the goods in the customs transit procedure and for actual movement of the goods a paper based goods declaration for transit is still required.

General requirements for the systems that support paperless transit based on an electronic goods declaration consist of: appropriate legislation; suitable information systems including software solutions and databases; network connections; and information technology equipment. Legal provisions should enable implementation of customs transit procedures with valid electronic documents, and should also deal with the issues of authentication of electronic documents, such as electronic signatures, storage and protection of electronic information. In case of international transit systems, which enable connection and exchange of information among several countries additional challenge will be to provide integration creating a joint or interoperable environment, based on an international legally binding instrument.

Information sharing between customs administrations is important aspect for efficiency improvement in terms of facilitation and represents the first step towards integration of international transit and developing efficient international transit system. Evident political will, close international cooperation and trust and a legal framework are preconditions for information sharing. Automation greatly increase efficiency for

[54] WCO Compendium, 2011, How to Build Single Window Environment – Volume 2: The Professional Practice Guide (p.12), Accessible at: http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/single-window/~/media/861FFA93206B41D8BE754371ADA7A112.ashx

[55] Doing Business web site - Trading Across Borders - Good Practices (last accessed on 15.03.2014) http://www.doingbusiness.org/data/exploretopics/trading-across-borders/goodper cent20practices

exchange of electronic information related to processing of goods declarations for transit and enables effective risk analysis.

For risk management providing advance electronic cargo information is as an important standard in accordance with the WCO SAFE Framework of Standards.[56] To support it, many customs administrations have introduced legal requirements for electronic pre-arrival information, which applies to the customs transit as well. Primary role of advance electronic cargo information relates to security purposes, however focusing on risky consignments would also help the customs administrations to facilitate the rest of the transit. Pre-arrival information is recognized as one of the emerging trends of transit facilitation.[57] Systematic exchanges of electronic information could be beneficial for transit procedures if link with national transit systems is provided. Linking of national transit systems could guide the way towards enhanced cooperation across the borders and possible development of further comprehensive bilateral, sub-regional or regional paperless transit systems.

B. Paperless Transit and Single Window Environment

1. Understanding of Single Window Concept

International customs transit operates in a complex environment with different participants directly or indirectly linked with the customs transit. The movement of the goods under international transit is a result of trade processes, which include buyers, sellers and manufacturers of goods, involving numerous documents (e.g. invoice, goods specifications) linked with the transit procedures. Physical carriage of goods under customs transit, as a part of transport processes, could include various transport operators, as well as logistics and service operators at ports, airports, land border crossings, warehouses and inland customs depots where transit operation could start or end. Again several documents in the transport process may be connected with the customs transit procedure or being included as supporting document in customs transit declarations (e.g. CMR consignment note, packing list, loading list).

Customs functions are only one part of the overall border management functions that has to be taken in to consideration. Entry and exit of the carriers, transport means and goods under the transit procedure is also subject to other regulatory requirements in each of the countries where the transit movement is carried out. Those requirements may include measures with respect to immigration; transport and traffic; sanitary, veterinary and phytosanitary protection; public safety and security; protection of the environment, intellectual property etc. To enforce compliance with those regulatory requirements various cross-border agencies have their presence at the border crossings

[56] WCO, SAFE Framework of Standards to Secure and Facilitate Global Trade, Accessible at: http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/~/media/55F00628A9F94827B58ECA90C0F84F7F.ashx

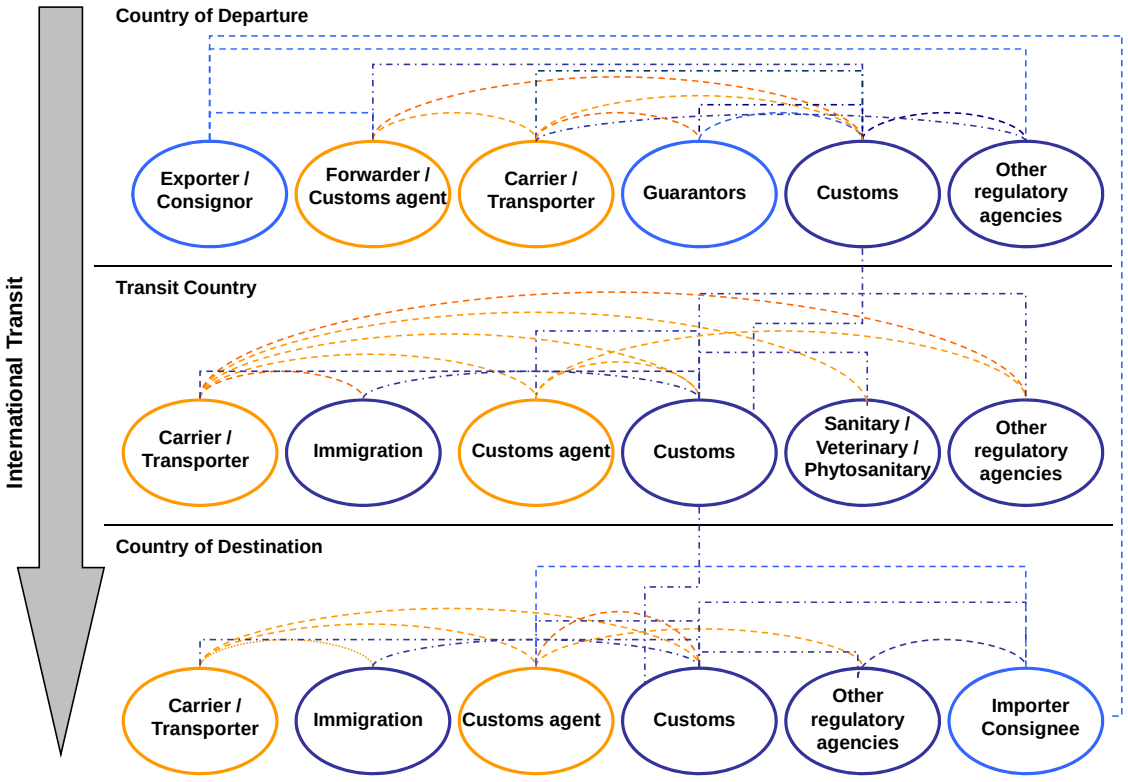
[57] WCO Research Paper No. 28, April 2013, Transit Facilitation for Regional Economic Integration and Competitiveness (p.9), Tadashi Yasui. Accessible at: http://www.wcoomd.org/en/topics/research/~/~/media/30EA73887EED41E1A3E774175C7FE097.ashx

(e.g. border police and immigration authorities; transport authorities; sanitary, veterinary and phytosanitary inspections; other specialized inspections).

Unlike exports and imports where customs and other border crossing formalities are at a single location, the customs transit by its nature involves several countries and border crossings, which multiply complexity of the transit environment. Functions of the customs administrations and other regulatory agencies and their regulatory and documentary requirements vary from country to country depending on their priorities in revenue protection, trade and transport policies, internal security and protection of society issues.

The requirements of international transit with numerous participants, different procedures, repeated exchanges of various documents represent an operational challenge if participants cannot communicate and exchange all necessary information among them in efficient and cost effective way. Significant delays can be caused by poor coordination between participants in international transit and inefficient manual systems with paper documents, fax and e-mail communication or non-compatible computer systems. Improving national customs transit systems, introducing international transit systems and paperless transit solutions is only part of the resolve these challenges.

Figure 8: Complex Environment of International Transit

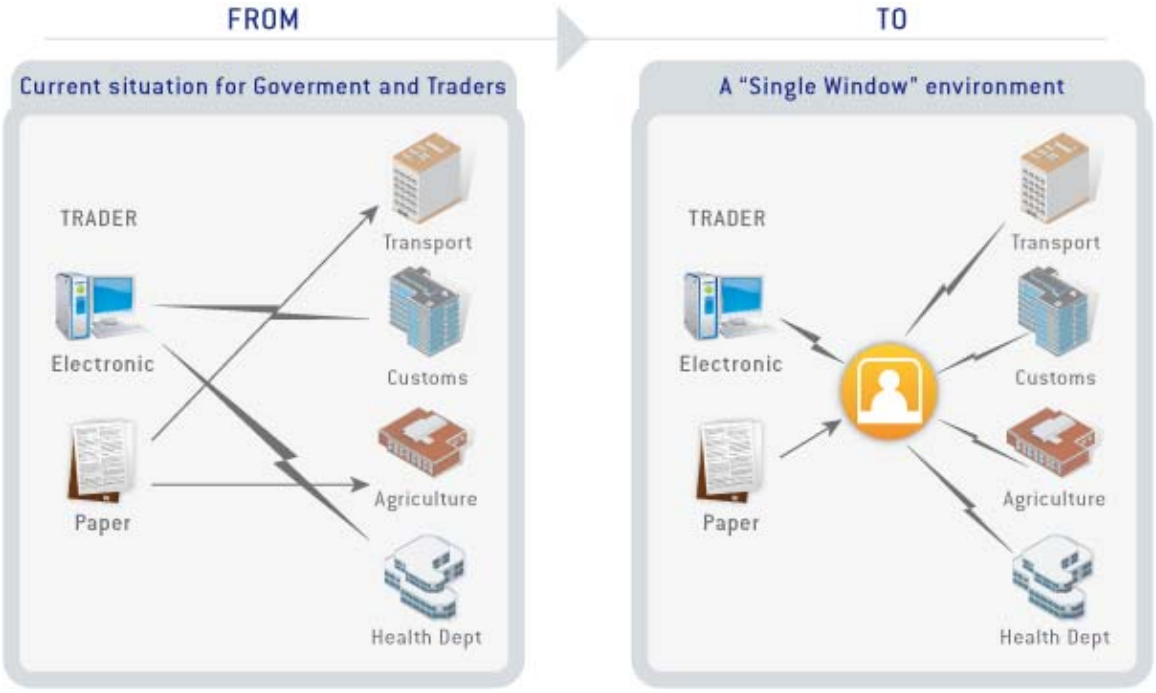


Source: Author's depiction of information in the text.

Many countries are looking solution of this problem in Single Window concept and integration of customs transit systems in Single Window environment. The Single Window concept is not a new idea and there are many examples where governments have been making efforts to organize their operations in a way that a single front office will enable transparent and easy single entry point for the paper or electronic communication and subsequent reorganized back-offices will provide relevant individual services. Even though paper based documents and manual systems of communication are not excluded from Single Window concept, efficient exchanges of variety of documents and messages between various participants in the complex transit environment could be done only with use of ICT and Internet.

There are many ways of defining, understanding, designing and implementing this concept. Single Window as specified in UN/CEFACT Recommendation Number 33, could be understood as "a facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfil all import, export, and transit-related regulatory requirements. If information is electronic, then individual data elements should only be submitted once".[58]

Figure 9: Single Window Concept



Source: UNECE Trade Facilitation Implementation Guide: Single Window for Trade - http://tfig.unece.org/contents/single-window-for-trade.htm

[58] ECE, UN/CEFACT, 2005, Recommendation 33 - Recommendation and Guidelines on establishing a Single Window. Accessible at: http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf

The WCO is usually using the term “Single Window environment “ defined as “intelligent facility that allows parties involved in trade and transport to lodge standardized information, mainly electronic, with a single entry point to fulfil all import, export and transit related regulatory requirements”. Categorizations of various Single Window models are presented in Annex II of this Study.

Customs administrations around the world are in the process of developing or improving Single Window models. Number of countries, which have implemented some form of Single Window, is gradually growing and presently 71 countries reported their experience in this field.[59] Phased approach in development of Single Window environment enables customs authorities to steadily increase the range of business processes, functionalities and services covered with their Single Window system.

2. Planning and Implementing a Single Window Environment

Creating and implementing Single Window environment on national level that will include all participants from trade and transport sector and all cross border regulation agencies; and which will cover all import, export and transit related regulatory requirements is complex, time consuming and expensive process. Understandably countries are taking more pragmatic step-by-step approach based on their priorities and capacity for such demanding undertaking. The United Nations Network of Experts for paperless Trade (UNNEXT) presents the evolution of the Single Window implementation in five development levels:

- Paperless customs, when paperless customs declaration system is developed;
- Regulatory Single Window, when integration is achieved among paperless customs and other regulatory bodies issuing permits, certificates or other documents with respect to export, import or transit;
- Port Single Window or B2B Port Community System, when the Single Window is extended to entire trade and logistics communities within airports, seaports and dry ports;
- Fully integrated Single Window, when national integration of Single Window is completed with extension to the companies and service sector related to the import, export and transit operations such as: banks and trade finance, cargo insurance companies, traders, freight forwarders, customs agents and customs brokers, ship agents and carriers; and
- Cross-border Single Window, when interconnection and integration of national Single Windows models into bilateral or regional electronic information exchange platform is achieved.[60]

[59] Doing Business web site - June 2013 data - Trading Across Borders - Good Practices http://www.doingbusiness.org/data/exploretopics/trading-across-borders/goodper cent20practices

[60] UNESCAP/UNECE/UNNEXT, 2012, Single Window Planning and Implementation Guide. Accessible at: http://unnext.unescap.org/tools/implement-guide.pdf

Developing paperless customs transit solutions represents the first step towards building effective Single Window environment, which could cover transit processes. Paperless customs transit systems on national level are already successfully implemented by many customs administrations. Such paperless customs transit systems are within reach to other customs administrations, which have to make further step in abandoning dual systems where paper based transit declaration and/or accompanying documents are still required. Process of developing paperless customs transit systems on regional level is more demanding however such systems are offering further benefits as discussed in previous Chapter.

Interoperability is important aspect that a Single Window environment should take into account. This concept refers to ability of participants in transit procedures to work together towards mutually beneficial and commonly agreed goals. The business processes of the participants and their information and communication systems for exchange of data are in the focus of interest of this concept. Interoperability should be addressed on various levels such as legal, organizational and technical.[61]

A number of guidelines and methodological proposals have been developed by international organization such as the UNECE, UN ESCAP and WCO, which could support process of planning and implementing a Single Window environment.[62] The governments, customs administrations and other cross border regulatory agencies and all other stakeholders could use those important tools to overcome legal, technical or organizational challenges for developing or upgrading a Single Window environment.

When developing Single Window environment, which covers international transit procedures, the main challenge is dependency on cross border information exchanges. Efficient cross border information exchanges are desirable but could be demanding to achieve, however even without them, a national Single Window (NSW) could streamline

[61] WCO Compendium, 2011, How to Build Single Window Environment - Volume 1: The Executive Guide (p.104), Accessible at: http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/single-window/~/media/252D1BF37A814526BF5BFFEAB7F13692.ashx, based on Annex 2 to Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions 'Towards interoperability for European public services', Accessible at: http://ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf

[62] For Example:

- UNECE, UN/CEFACT, 2005, Recommendation No.33 - Recommendation and Guidelines on establishing a Single Window - Annex B: Practical Steps in Planning the Implementation of a Single Window. Accessible at: http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf

- UNECE/UNCEFACT, 2010, Recommendation No.35 - Establishing a legal framework for international trade Single Window. Accessible at: http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec35/Rec35_ECE_TRADE_401_EstablishingLegalFrameworkforSingleWindow_E.pdf

- UNESCAP/UNECE/UNNEXT, 2012, Single Window Planning and Implementation Guide, Accessible at: http://unnext.unescap.org/tools/implement-guide.pdf

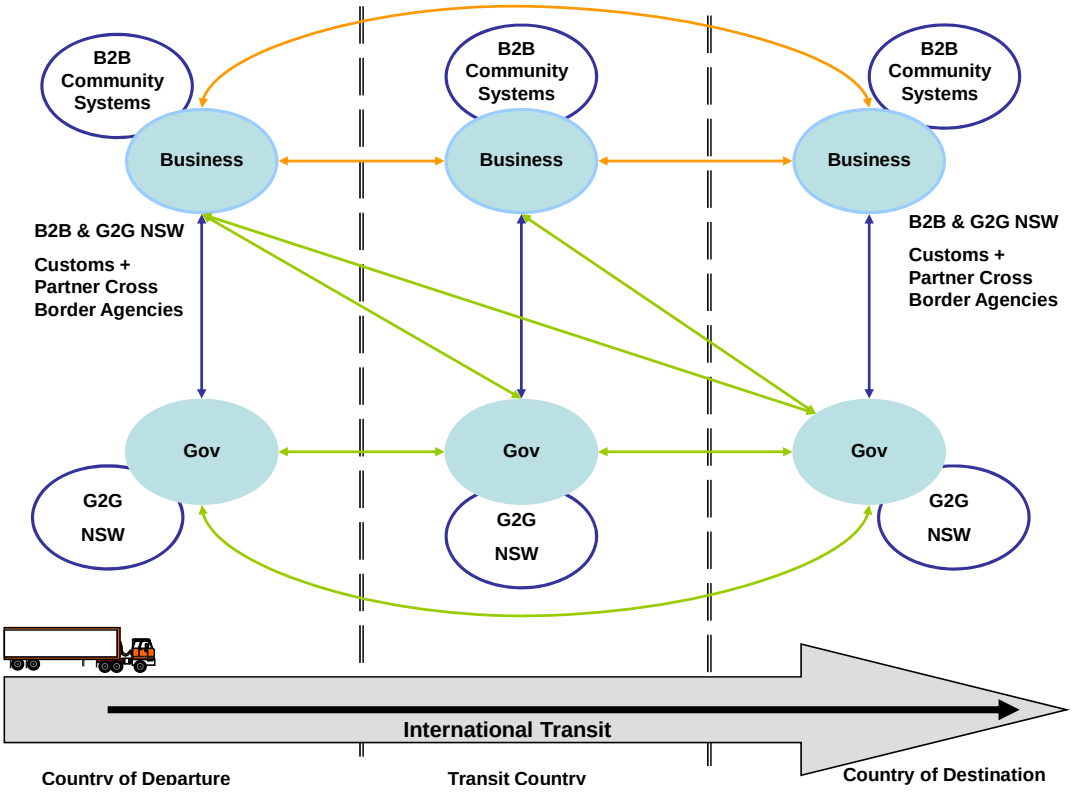
- UNESCAP/UNECE/UNNEXT, 2012, Electronic Single Window Legal Issues: A Capacity-Building Guide, Accessible at: http://www.unescap.org/resources/electronic-single-window-legal-issues-capacity-building-guide

- WCO Compendium, 2011, How to Build Single Window Environment - Volume 1: The Executive Guide, and Volume 2: The Professional Practice Guide

transit procedures as result of improved interaction among national border agencies and introduction of paperless solutions. Such NSW paperless solutions may include automated information transaction system for electronic submission of various applications required and electronic transmission of approvals/permits back to the principal or his agent. However, this procedure has to be repeated in each of the countries involved in international transit.

Even perfect NSW environment will address only one part of the international movement of goods and full potential of the facilitation will be achieved only through cross border interconnection and integration of NSWs. In the first stage, cross border business to business (B2B) exchanges with or without direct links to NSWs might be more dominant. If international Single Window environment and cross border interconnections are developed, customs to customs (C2C) or even government to government (G2G) cross border exchanges should be expected. With further development of international Single Windows possibilities, options for business to government (B2G) cross border exchanges may be opened.

Figure 10: Cross Border Regulatory Exchanges



Legend: ■ National Single Window exchanges (**blue lines**); ■ B2B cross border exchanges (**orange lines**); ■ International Single Window cross border exchanges (**green lines**).

Source: Author's depiction of information in the text.

With integration of NSWs when international and regional Single Windows will be operational and supported by globally networked customs administrations, cross border transit exchanges could be ultimately streamlined and the aim for one time submission of information, which will cover whole international transit may be achieved.

If international transit systems are operating in international Single Window environment, information on advance cargo declaration and customs transit declaration will be submitted only once from the country of departure to all customs offices in the transit countries and in the country of destination. In addition to customs data the same cross border exchanges form the country of departure could address the other transit related regulatory requirements in the transit countries and the country of destination.

Exchange of information on the cross border customs transit procedure, and customs transit formalities en route should be based mainly on Government to Government (G2G) platforms. However B2G cross border exchanges might be useful for more specific regulatory requirements (e.g. regarding customs simplifications or various permits in transit country).

If the international Single Windows environment is providing options for effective cross border exchanges, intermediary parties at border crossings will not be required, re-submission of customs transit declaration will be eliminated and multiple exchanges with other cross border regulatory agencies will be avoided. Such Single Window environment could provide one time submission of all necessary information across all national Single Windows and it could enable most streamlined transit formalities. Since cross border interoperability and harmonization required for development of regional Single Window models is still in early implementation stages it may take more time for feasible Single Windows solutions that could fully cover international transit.

ASEAN Single window is one of the first regional Single Window initiatives for integration of national Single Windows. Several ASEAN Countries have already developed and implemented National Single Window environment and others are working in that direction. Pilot project of seven ASEAN countries currently supports the regional exchange of the intra-ASEAN certificate of origin (ATIGA Form D) and ASEAN Customs Declaration Document (ACDD). [63] Full implementation of ASEAN Single Window was initially planned for 2012, however due to several challenges the completion has been delayed and presently finalization of ASEAN Single Window is foreseen for 2015.[64] Future ASEAN Custom Transit System that is currently being developed could use ASEAN Single Window environment for the exchanges of information needed for the implementation of this regional customs transit system.

[63] ASEAN Single Window general information from ASEAN Single Window web site: http://asw.asean.org/about-as. Last accessed on 15.04.2014

[64] UN ESCAP, 2013, Study on Regional Arrangements for Facilitation of Cross-Border Paperless Trade in the Asia and the Pacific (p.37). Accessible at: http://www.unescap.org/tid/projects/bpatf-report.pdf

3. Single Window Data Harmonization

Customs authorities and other cross border regulatory agencies have different transit related business processes and often use different paper or electronic documents, however, for each specific transit operation, many information and data are the same. With paperless transit in Single Window, most of the formalities will be based on electronic data and information exchanges could become easier. However, even if the information and data are same or similar the challenge of compatibility for efficient exchange remains to be addressed. Therefore harmonization of information and data requirements among cross border regulatory agencies and other relevant government institutions is an important step in development of Single Window environment. Data harmonization will enable simplified exchanges between all participants in transit in a Single Window environment.

The use of internationally accepted standards could reduce implementation costs, mitigate the risks and enable integration of national Single Window system into international or regional Single Window platform. National and international Single Windows developed on the basis of harmonized regulatory data and standardized data requirements could enable replacement of different electronic or paper documents intended to be used by various cross border regulatory agencies with single combined national or international dataset.

International organizations such as the UNECE, UN ESCAP and WCO have been working on data harmonization and have produced several important guidelines and tools, which could assist governments and all stakeholders in Single Window projects to implement harmonization of paperless transit solutions in a Single Window environment.[65]

Standards used for harmonization process could include: business processes analysis standards; communication networks standards and standards for internet protocols; data elements and electronic message standards (e.g. United Nations Trade Data Elements Directory (UNTDED),[66] UN/CEFACT Core Component Library (CCL),[67]

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[65] For Example:

- UNECE, UN/CEFACT, 2010, Recommendation 34 - Data Simplification and Standardization for International Trade. Accessible at: http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec34/ECE_TRADE_400_DataSimplificationand_Rec34E.pdf

- UNESCAP/UNECE/UNNEXT, 2012, Data Harmonization and Modelling Guide for Single Windows Environment, Accessible at: http://www.unescap.org/resources/data-harmonization-and-modelling-guide-single-windows-environment

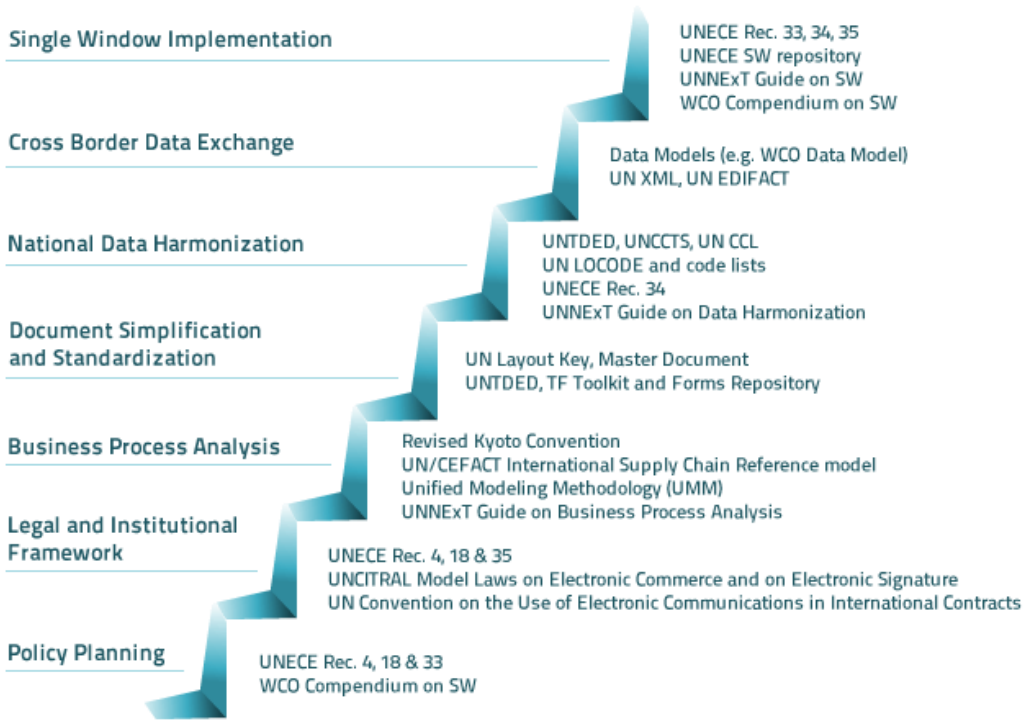
- WCO, 2007, WCO Data Model, Single Window Data Harmonization. Accessible at: http://wcoomdpublications.org/downloadable/download/sample/sample_id/30/

[66] UNECE, 2005, United Nations Trade Data Elements Directory (UNTDED 2005), Accessible at: http://www.unece.org/fileadmin/DAM/trade/untdid/UNTDED2005.pdf

[67] UNECE, Core Component Library, Accessible at: http://www.unece.org/cefact/codesfortrade/unccl/ccl_index.html

UN/EDIFACT messages,[68] and XML schemas[69]) and various codes for identification and classification (e.g. ISO country codes,[70] the WCO Convention on the Harmonised Commodity Description and Coding System, the UN/CEFACT Recommended code lists etc.). In addition to international standards, regional standards could be also included in development of Single Window environment, which could take into account regional requirements and specifics.

Figure 11: International Instruments and Step by Step Development of Single Window



Source: UNECE, Trade Facilitation Implementation Guide: Single Window Implementation - http://tfig.unece.org/contents/single-window-implementation.htm

UN Layout Key for Trade Documents is an international standard for layout and content of trade documents, which is crucial in process of harmonization of transit related documents.[71] The use of UN Layout Key promotes standardization of various forms of documents with design of aligned series of forms. The process of harmonization is based on preparation of master document and reproduction techniques to transfer the information from the master to the one or more forms that constitute an aligned series.

[68] UN/CEFACT, UN/EDIFACT Directories, Accessible at: http://www.unece.org/tradewelcome/areas-of-work/un-centre-for-trade-facilitation-and-e-business-uncefact/outputs/standards/unedifact/directories/2011-2013.html

[69] UN/CEFACT, XML Schemas, Accessible at : http://www.unece.org/cefact/xml_schemas/index

[70] ISO County Country Codes - ISO 3166, Available at: http://www.iso.org/iso/country_codes.htm

[71] UNECE, UN/CEFACT, 1981, Recommendation 1 - UN Layout Key for Trade Documents http://www.unece.org/fileadmin/DAM/cefact/recommendations/rec01/rec01_ecetrd137.pdf

Principles for design of forms ensure that data elements specified in UN Layout Key will be placed in the specific corresponding place in each of the forms, and other non-specified data elements will be placed in the designated area for them.

UN Layout Key takes into account layout of the paper based documents and the relationship with their electronic forms, thus it could be applied for the layout of visual display in electronic data applications. Application of UN Layout key provides harmonization on international, national and company level. Existing international standard forms aligned to the UN Layout key include: International Road Consignment Note (CMR Convention), Goods Declaration of Transit (Kyoto Convention), Single Administrative Document (SAD), Phytosanitary Certificate (Plant Protection Convention), Dangerous Goods Declaration and many other documents in commercial, transport and official control sector.

C. Paperless Transit and its Linkages with the WCO Data Model

One of the important tools for harmonization and standardization for cross border exchanges and Single Window environment is the WCO Data Model.[72] This Model is used as a base document for the implementation of message formats. The WCO Data Model is described as "a maximum set of carefully combined and harmonized data requirements derived from cross-border regulation".[73] Those requirements are identified and updated in accordance with procedural and legal needs for customs authorities and various other cross border regulatory agencies.

The WCO Data Model is based on Revised Kyoto Convention and includes transit requirements. Transit was first added with the WCO Data Model version released in 2005 and further developed with the updated version in 2009. Transit data set, developed with this model, consist a list of transit data elements in standardized form for automated data exchange between parties involved in transit operations. The WCO Data Model provides the basis for electronic transit declarations and therefore represents one of the cornerstones for paperless transit. However, the WCO Data Model is not just a list of data elements, because this model offers an analysis and optimization of procedural requirements and processes; develops related customs business processes; illustrates the information flows from all cross border regulatory agencies and provides their categorization; assembles a range of models and produces messaging guidelines.

The WCO Model supports the WCO Framework of Standards, and it takes in consideration many other international conventions related to customs, transport and cross border movement of goods. This model also provides alignment with several international standards and it should be considered as comprehensive toolbox with several components.

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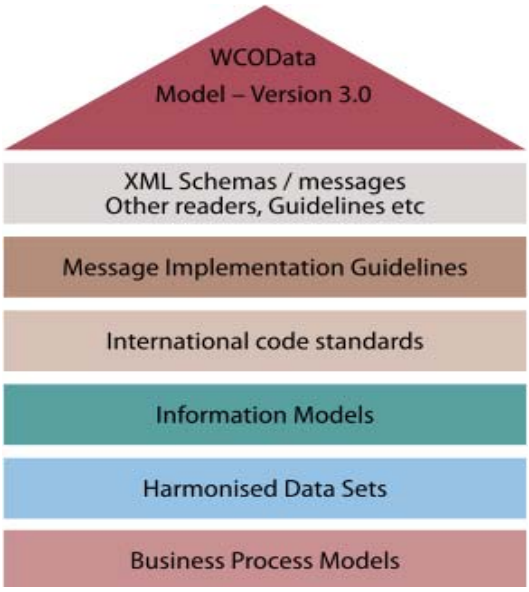
[72] WCO, 2010, WCO Data Model 3. Available at: http://wcoomdpublications.org/data-model-3.html

[73] WCO, 2009, WCO Data Model – Technical Brochure (p.9), Accessible at: http://www.wcoomd.org/en/topics/facilitation/resources/~/media/70998C307D3C47C996DB047B664B92AE.ashx

Figure 12: WCO Data Model Components



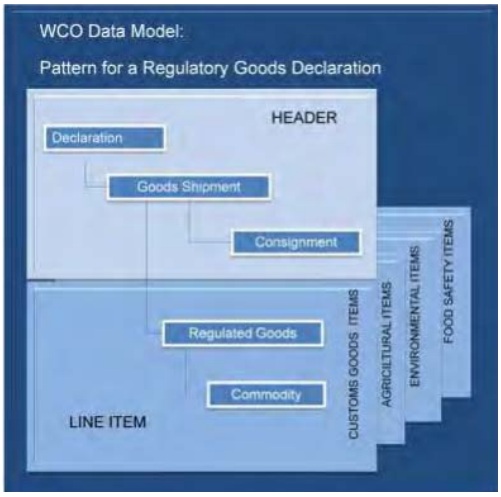
Source: WCO, 2009, WCO Data Model – Technical Brochure (p.14)

The WCO Data Model data sets and data elements could be effectively accepted and employed by customs administrations and other cross border regulatory agencies because they are based on international conventions and relevant common requirements. Transit requirements for national and international customs transit systems are included in transit data set.

The WCO Data Model data sets and data elements enable goods declarations (e.g. goods declaration for customs transit) to be captured and organized for structuring electronic format of the documents. Harmonization of a data set among other regulatory declarations (e.g. declaration for agricultural items) enables arranging a common regulatory declaration pattern (Figure 13).

To obtain electronic structure of the document a specific EDI or XML syntax has to be applied. Those electronic structures represent the equivalent of the paper declaration in electronic format. The WCO Data Model message implementation guidelines for EDI and XML messages support creation of messages between Business-to-Government (B2G), Government-to-Business (G2B) and Government-to-Government (G2G). In that way electronic submission of goods declaration, exchange of relevant information and relevant messages could be provided between all participants in specific procedures (e.g. transit procedure). Simplification of message processing is also possible using re-usable message components.

Figure 13: Common Regulatory Goods Declaration



Source: WCO Compendium, 2011, How to Build Single Window Environment - Volume 1: The Executive Guide (Figure p.110)

Paperless transit rely on effective and efficient information exchange, therefore the WCO Data model, with its harmonized and standardized data sets and guidance for electronic messages, could offer to the customs administrations significant support for design and implementation of international transit systems with paperless solutions. In order to achieve cross border compatibility and efficient exchange of data, customs administration and other cross border regulatory agencies should extensively use the WCO Data Model. Alignment with international standards will provide possibility for effective integration and interaction between information and communication systems of different agencies. It should be noted that the WCO Data Model is neutral with regard to the type of information system, kind of computer hardware or software platform.

Countries that wish to implement efficient international paperless transit procedures and to benefit from Single Window have every reason to put adoption of the WCO Data Model standards high in their agenda. Having strategic policy decision at national or regional level could strongly endorse such process. Customs administrations and other cross border regulatory agencies should review their existing information systems and software applications and assess the level of alignment with the WCO Data Model.

There are several benefits from implementation of the WCO Data model, which could apply for paperless transit as well. Efficiency of cross border movements will be improved as result of simplified data requirements and improvements in information exchange. Harmonized electronic information, which could be exchanged among various information systems reduces amount of regulatory data required and eliminates redundant and repetitive data. This is particularly valuable for transit systems, which are prone to cycles of repetitive data exchanges. Improved efficiency of cross border procedures could increase the pace of cross border formalities, enabling faster release of goods and reduced costs for the regulatory agencies and for the business.

VI. Regional and National Paperless Transit Related Case Studies

Best practices for international customs transit systems around the world are clearly set by most developed worldwide systems, such as European common transit system. New Computerized Transit System (NCTS), which manages transit systems in EU, offers good practices for automation of regional customs transit systems and practical use of paperless transit.

European common transit system and NCTS, have been role model for many other regional initiatives around the world, which aim to develop efficient customs transit systems with paperless solutions. Naturally those other regional initiatives take into account needs and specifics that distinguish their regions and they look for innovative solutions to adapt customs transit systems according to their economic environment and their goals for transit facilitation, regional integration and development.

Presently there are several sub-regional transit systems with distinctive differences, in respect of:

- transit documents and guarantee requirements; and
- options for electronic exchange of transit related information.

Paperless solutions have been planned and developed for some sub-regional transit systems and few are successfully implementing them. In this chapter a short overview is presented of customs transit systems with paperless solutions in the case of ASEAN countries, Mesoamerican countries and sub-regional initiatives in Africa.

We need to have in mind that international transport of goods is often not supported with international customs transit systems. In that case international transport relies on national customs transit systems and various bilateral transport related agreements. Well-designed national customs transit systems with paperless transit solutions could facilitate national part of the transit and have great potential to support international transit as well. When an international transit is operated as a chain of national transits, the benefits from national paperless transit movements could be used in each part of the journey. Furthermore a developed national paperless transit system is a precondition for any further integration in efficient sub-regional or regional customs transit systems.

Several countries in Asia and Pacific region have highly developed electronic customs declaration-processing systems integrated with national Single Window. In this study we are interested in examples of national paperless customs transit systems which could be part of international land transit movements and we will give examples of transit systems in Malaysia, Thailand and Ghana.

A. The ASEAN Customs Transit System (ACTS)

ASEAN Member State Ministers signed ASEAN Framework Agreement on the Facilitation of Goods in Transit, in 1998, which has been expected to provide transport facilitation and to resolve a number of impediments to movements of vehicles and goods across borders.[74] ASEAN Framework Agreement on the Facilitation of Goods in Transit came into force in 2000 however it cannot be implemented so far, pending finalization and signing of the Protocols of this Agreement.[75]

The objectives of ASEAN Framework Agreement on the Facilitation of Goods in Transit include:

- Transport facilitation of goods in transit, in order to support the ASEAN Free Trade Area, and to provide favourable conditions for integration of the economies in the region;
- Simplification and harmonization of transport, trade and customs regulations and their requirements concerning goods in transit; and
- Establishing an efficient and integrated transit system.

This Agreement determines the rights of transit transport in the meaning of transport across the territory of one or more Contracting Parties, when the passage across such territories is only a portion of a complete journey. Inter-State transport is agreed among ASEAN Contracting Parties with another Agreement.[76]

ASEAN Framework Agreement on the Facilitation of Goods in Transit and ASEAN Framework Agreement on the Facilitation of Inter-State Transport are comprehensive and both address the issues of: designation of transport routes and facilities; traffic regulations; transport services; road transport permits; technical requirements of vehicles; mutual recognition of inspection certificates and driving licenses; third-party insurance scheme; customs control and sanitary and phytosanitary measures; and other special provisions from the transit transport perspective and the inter-state transport perspective accordingly. Many of those specific issues covered with those agreements have to be detailed in the nine protocols of ASEAN Framework Agreement on the Facilitation of Goods in Transit and their negotiation has been prolonged and it is still on going.

Implementation of the ASEAN agreements on transport facilitation is identified as one of the priorities in achieving ASEAN connectivity, and the importance of finalization of the Protocols, providing technical assistance and political support is stressed with

[74] The text of ASEAN Framework Agreement on the Facilitation of Goods in Transit is published of ASEAN web site http://www.asean.org/news/item/asean-framework-agreement-on-the-facilitation-of-goods-in-transit-2

[75] The status of ASEAN legal instruments as shown at ASEAN web site: http://agreement.asean.org/search/by_pillar/2/9.html. Last accessed on 15.04.2014

[76] ASEAN Framework Agreement on the Facilitation of Inter-State Transport, December 2009, in force from December 2011. Accessible at ASEAN web site: http://agreement.asean.org/media/download/20140119020132.pdf

ASEAN strategic plans.[77] Last two Protocols which remain to be finalized are Protocol 2: Designation of Frontier Posts and Protocol 7: Customs Transit System (Box 7).

Box 7: ASEAN Framework Agreement on the Facilitation of Goods in Transit: Status of Protocols

Protocol 1: Designation of Transit Transport Routes and Facilities – signed in 2007

Protocol 2: Designation of Frontier Posts – not signed yet

Protocol 3: Types and Quantity of Road Vehicles – signed in 1999

Protocol 4: Technical Requirements of Vehicle – signed in 1999

Protocol 5: ASEAN Scheme of Compulsory Motor Vehicle Insurance – signed in 2001

Protocol 6: Railways Border and Interchange Stations – signed in 2011

Protocol 7: Customs Transit System – not signed yet

Protocol 8: Sanitary and Phytosanitary Measures – signed in 2000

Protocol 9: Dangerous Goods – signed in 2002

Source: ASEAN web site: http://agreement.asean.org/search/by_pillar/2/9.html last accessed on 15.04.2014

Negotiation on these Protocols and preparatory work seems to be very lengthy process with need for intensified cooperation and technical assistance support (e.g. ASEAN-EU Programme for Regional Integration Support). Presently Protocol 2 is under negotiations and Protocol 7 has been concluded and agreed upon and signing is expected on ad-referendum basis.[78]

Development of the ASEAN Customs Transit System, which is one of main pillars for transit facilitation, will be based on Protocol 7. This Protocol should provide legal basis for implementation of ASEAN Customs Transit and define the core elements such as uniform customs transit declaration/document, regulated guarantee system and management of the transit system. ASEAN Countries have expressed their determination for increased use of computerized customs clearance processes based on international standards for electronic information exchange developed by the WCO and other relevant international organizations.[79]

Accordingly Protocol 7 should provide opportunities for computerized ASEAN Customs Transit System and paperless transit solutions. The design of ASEAN Customs Transit System is expected to offer:

[77] ASEAN, Master Plan on ASEAN Connectivity, January 2011. Accessible at: http://www.aseansec.org/wp-content/uploads/2013/06/MPAC.pdf

[78] ASEAN annual report 2012-2013 (p.45) http://www.asean.org/images/2013/resources/publication/Annualper cent20Reportper cent20ASEAN_OKper cent20Final.pdf

[79] ASEAN Agreement on Customs signed on March 2012, Accessible at: http://agreement.asean.org/media/download/20140117163238.pdf

- Access to the ASEAN Customs Transit System to all authorized traders in accordance with mutually agreed criteria;
- Electronic communication between traders and customs authorities, as well as electronic communication between customs authorities of member countries themselves for each step in application of ASEAN Customs Transit procedure;
- Single regional customs transit declaration;
- One transit guarantee valid for all ASEAN countries, provided by approved guarantors from financial sector;
- Simplifications and exemptions from standard requirements for authorized compliant traders based on risk profiling.[80]

ASEAN Customs Transit System should provide real time exchange of electronic messages between traders and customs authorities for the submission of electronic transit declarations, for discharge of transit movements, and other transit formalities, which will strengthen risk management and support, fight against fraud.[81]

ASEAN Customs Transit System could benefit from the infrastructure of ASEAN Single Window, which has been developed to provide communication and cross border information exchange. The ASEAN Single Window supports exchange of ASEAN Customs Declaration Document (ACDD), a transit declaration in the form of sub-set of ACDD has been already developed. A pilot project for paperless transit based on computerized ASEAN Customs Transit System is viable in near future (e.g. a pilot North-South corridor between Singapore, Malaysia and Thailand) using the same infrastructure as the ASEAN Single Window.[82] Further integration and development of Single Window environment may provide systematic exchange of advance cargo information for more effective risk analysis and exchange of information with other cross border regulatory agencies.

ASEAN Customs Transit System has a potential to become efficient regional transit system with paperless transit procedures, provided that implementation challenges are going to be successfully addressed. When actually implemented real benefits offered by this system could be tested. Transit facilitation, streamlined cross border transit movements with reduced border delays and transport costs are possible outcomes under the design of this system and certainly will be very welcomed. However overcoming implementation challenges, starting from legal harmonization of national transit procedures among ASEAN countries, creation and successful operation of

[80] ADB, 2012,Trade and trade facilitation in the Greater Mekong Subregion. Chapter 4: Trade Transit System in the GMS—Can It Work as Proposed? Des Grimble and Gordon Linington; (p.93)

[81] ASEAN / EU, APRIS II: The ASEAN Programme for Regional Integration Support Phase II document (p.12): Accessible at: http://eeas.europa.eu/delegations/indonesia/documents/eu_asean/apris2_successstories_en.pdf

[82] ASEAN / EU, APRIS II: The ASEAN Programme for Regional Integration Support Phase II document (p.10) : Accessible at: http://eeas.europa.eu/delegations/indonesia/documents/eu_asean/apris2_successstories_en.pdf

guarantee system and easing restrictive transit and transport related requirements is another critical phase where partnership with trade and transport sector is crucial.

B. International Transit of Goods (TIM) System in Mesoamerican Countries

In 2004 Mesoamerican countries[83] initiated development of International Transit of Goods (TIM),[84] a sub-regional customs transit system project based on use of ICT and paperless transit solutions. The objectives of the project include reduction of trade transaction costs and border crossing waiting times, with improved interoperability of government agencies; expeditious customs and administrative procedures based on simplification and/or harmonization of customs procedures and border formalities; and efficient use of ICT for improved electronic data exchange and control of transit procedures.[85]

International best practices and particularly EU NCTS were used as a reference model for TIM, however that does not mean that the EU system was simply replicated, but rather has been adjusted to legal requirements and implementation related specifics of the countries in Central America (e.g. requirements for predetermination of transit routes).[86]

First implementation phase of the TIM project began in 2008 with testing the system at one border crossing between El Salvador and Honduras (El Amatillo) where the volume of transit movements in Central America is highest.[87] The results of TIM project were very encouraging with reduced border crossing time from an average of 62 minutes to an average of 8 minutes. The volume of paperwork has been greatly reduced and traceability and security of transit operation has been strengthened.[88]

As a result, of successful implementation at El Amatillo the presidents of Mesoamerica Project member countries agreed to expand TIM to customs processes in

[83] Information on regional integration in Mesoamerican countries is presented in Annex III of this Study.

[84] TIM is Spanish acronym for “International Transit of Goods” or “Tránsito Internacional de Mercancías“.

[85] Inter-American Development Bank, 2011, Aid for Trade Case Story: International Transit of Goods (TIM) (p.2-3), Accessible at: http://www.oecd.org/aidfortrade/47751316.pdf

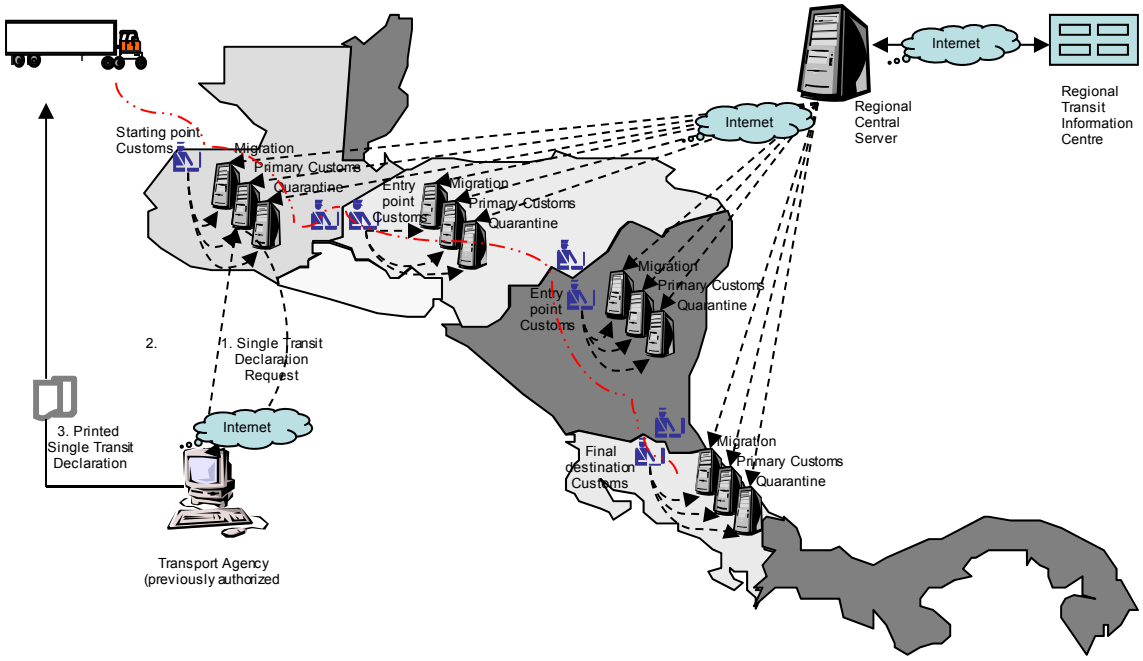
[86] Alvaro Sarmiento, Krista Lucenti and Aurelio Garcia, May 2010, Automating the Control of Goods in International Transit: Implementing the TIM in Central America. Accessible at: https://openknowledge.worldbank.org/bitstream/handle/10986/10495/558890BRI0IFC010942211IDB1TIM1FINAL.pdf?sequence=1

[87] IDB, INTAL Monthly Newsletter N° 186, February 2012, IDB supports full implementation of Transit of Goods in Central America (p.12-14); Accessible at: http://www10.iadb.org/intal/cartamensual/Cartas/PDF/186/en/MonthlyNewsletter186_Integrationpercent20Blocs_Centralper cent20America_Art1.pdf

[88] Alvaro Sarmiento, Krista Lucenti and Aurelio Garcia, May 2010, Automating the Control of Goods in International Transit: Implementing the TIM in Central America (p.2). Accessible at: https://openknowledge.worldbank.org/bitstream/handle/10986/10495/558890BRI0IFC010942211IDB1TIM1FINAL.pdf?sequence=1

Mexico, Guatemala, Nicaragua, Costa Rica, and Panama.[89] Presently TIM transit system is extended at many border crossings of Pacific Corridor from Mexico to Panama.[90]

Figure 14: Operation of TIM System in Central America



Source: Adapted from Alvaro Sarmiento, Krista Lucenti and Aurelio Garcia, May 2010, Automating the Control of Goods in International Transit: Implementing the TIM in Central America (p.2). Accessible at: https://openknowledge.worldbank.org/bitstream/handle/10986/10495/558890BRI0IFC010942211IDB1TIM1FINAL.pdf?sequence=1

The TIM transit system is based on single transit document that integrates transit data requirements for customs authorities and other data needed by migration and phytosanitary agencies, which is electronically submitted. IT infrastructure is providing the information exchange on transit control procedures between the participating agencies through a common Intranet platform. Risk analysis options are also included in the system. Local transit systems are interconnected with regional central server and they are using services of web based regional transit information centre.

Further development of TIM system is considered with respect to extension of information exchange between all land, sea and air border ports in the region, adaptation of TIM system in order to cover multimodal transport modality, and involving all countries

[89] Inter-American Development Bank, 2011, Aid for Trade Case Story: International Transit of Goods (TIM) (p.2), Accessible at: http://www.oecd.org/aidfortrade/47751316.pdf

[90] Border crossings where TIM system operates are listed in Project Mesoamerica web site: http://www.proyectomesoamerica.org/joomla/index.php?option=com_content&view=article&id=656&Itemid=112

from the Mesoamerica Project.[91] The countries of the Andean Community (Bolivia, Colombia, Ecuador, and Peru) are also expressing the interest to explore TIM system, which may open possibility for extension of this system in wider regional area.[92] The TIM system represents an example of paperless transit, which contributes to transport facilitation and provides increased traceability and security of transit movements. Supported by Single Window environment this system offers comprehensive cross border solution.

C. Examples of Sub-Regional Customs Transit Systems in Africa

Regional integration initiatives in Africa are providing grounds for development and implementation of numerous sub-regional customs transit systems. Main sub-integration initiatives in eastern and southern Africa are: Common Market for Eastern and Southern Africa (COMESA), the East Africa Community (EAC) and the Southern African Development Community (SADC).[93] COMESA and SADC have developed their own customs transit systems, and presently are working on their integration. Revenue Authorities Digital Data Exchange (RADDEx) system is another system that connects national transit systems in EAC countries.

COMESA and SADC transit systems have many similarities; however they differ in area of guarantee requirements. Transit management system based on COMESA Regional Customs Bond Guarantee System was agreed in 2005, and after testing the system with pilot activities it was officially launched in 2010. The SADC Customs Bond Chain Agreement and related transit regulation was finalized in 2008 and pilot trials have started afterwards. Both transit management systems are based on single transit document (COMESA Customs Declaration or SADC Customs Declaration) and have similar basic principles.

The COMESA Regional Customs Transit Guarantee (RCTG) system uses a carnet based on TIR model and a network of financial bodies where the banks and insurance companies are organized in the Council of Surety. SADC transit management system requires a bond taken by the principal. In this case it is necessary to establish a network of designated representatives, related to the bond guarantee respectively in each transit country.

COMESA and SADC transit systems have faced number of implementation issues including difficulties to transform the pilot test activities into mainstream

[91] IDB, INTAL Monthly Newsletter N° 186, February 2012, IDB supports full implementation of Transit of Goods in Central America (p.14); Accessible at: http://www10.iadb.org/intal/cartamensual/Cartas/PDF/186/en/MonthlyNewsletter186_Integrationper cent20Blocs_Centralper cent20America_Art1.pdf

[92] Inter American web site information: http://www.iadb.org/en/topics/trade/countries-of-the-andean-community-prepare-for-the-implementation-of-tim-system,7878.html

[93] Information on regional integration in eastern and southern Africa are presented in Annex III of this Study.

operations, lack of awareness and very low interest and involvement on trade during the trials. Operational challenges related to guarantee requirements are especially evident in the case of SADC transit system.[94]

Among other measures to improve efficiency of the regional transit systems both COMESA and SADC have been working on enabling electronic data exchange of transit related information. COMESA was supported with Regional ASYCUDA Project (CARP) executed by UNCTAD. In addition of provided ASYCUDA software and training, which contributed to faster, simplified and standardized national customs procedures, the project designed and developed Web-based Transit Data Transfer Module (TDTM), which was first tested in 2009. SADC also started developing similar Transit Data Transfer Module.

TDTM allows transit declaration to be automatically uploaded and centrally stored on regional web servers at COMESA or SADC centers accordingly. Dissemination of transit information to the users is enabled with "pull" system where the XLM format of transit declaration could be used by authorized operators to view and downloaded the information which could be used in lodging of customs declaration in next customs office. Customs authorities could also benefit from such exchange having advance cargo information and easier verification of cross border information.[95] COMESA TDTM systems trials began in 2009, however real benefits of the system were delayed until 2012 when some of the difficulties of the implementation of COMESA scheme were addressed and the usage of RCTG system on pilot corridors started to steadily grow.[96] Links between TDTM and web based RCTG application, were also developed which could improve operational potential of the system.

Revenue Authorities Digital Data Exchange (RADDEx), developed and implemented with assistance from USAID, was initiated in 2007 between Uganda and Kenya and has provided practical solution for communication between different nationally owned and managed electronic customs systems (e.g. ASYCUDA++ in Uganda and SIMBA 2005 in Kenya).

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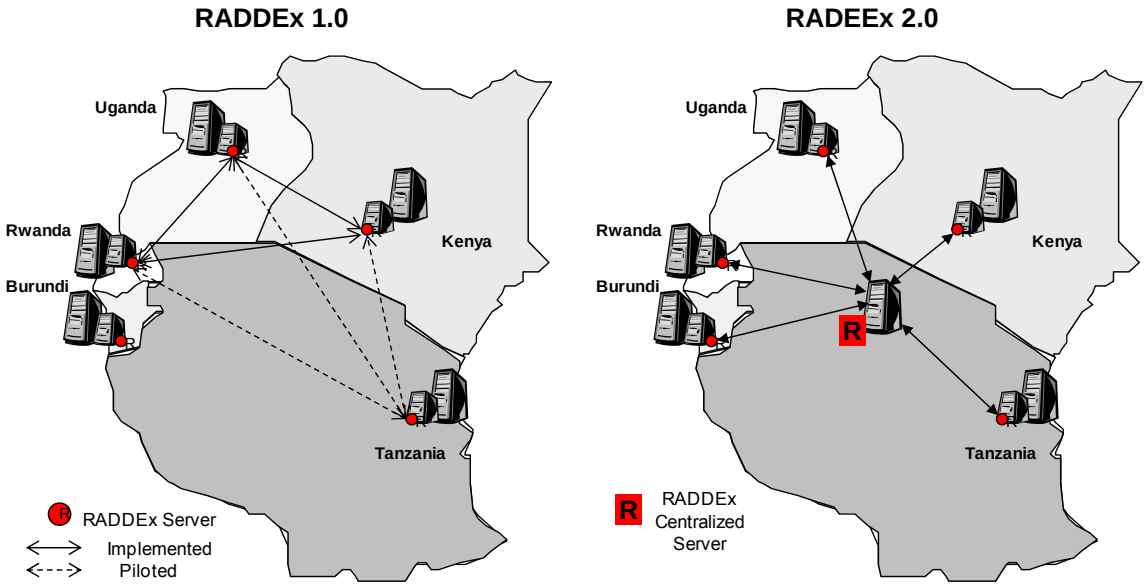
[94] COMESA/EAC/SADC, September 2011, Evaluation of the COMESA/SADC Transit Management Systems, Final Report, Stallard Mpata. Accessible at: http://www.trademarksa.org/sites/default/files/publications/Finalper cent20Reportper cent20|per cent20Evaluationper cent20ofper cent20theper cent20COMESA:SADCper cent20Transitper cent20Managementper cent20System.pdf

[95] UNCTAD COMESA EU partnership project for trade facilitation in region, Newsletter - COMESA Regional ASYCUDA Project (CARP) meets most of its project objectives. Accessible at: http://www.google.co.th/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CDAQFjAA&url=httpper cent3Aper cent2Fper cent2Ffamis.comesa.intper cent2Fpdfper cent2Fper cent2FNewsletterASY6.doc&ei=BHU6U6aBMOmSiQfx-ICQDQ&usg=AFQjCNEEB7TnsjPsNEgl_CEO8i8Pagz2RQ&bvm=bv.63934634,d.aGc&cad=rja

[96] COMESA informs of increased use of RCTG amounting US$89 million and higher number of RCTG carnets within the two years since the Scheme resume to be operational in the Northern Corridor countries in 2012. COMESA information on its web site: http://www.comesa.int/index.php?option=com_content&view=article&id=1050:bonds-worth-89-m-executed-in-northern-corridor&catid=5:latest-news&Itemid=41

Introduction of RADDEx was well accepted by trade community, and transit transactions were covered in high percentage on some key transit routes. Introduction of RADDEx reduced average release time on Ugandan border from 3-4 days before introduction to the system to 3 hours in 2010.[97] Presently RADDEx platform enables exchange of customs declarations information among the five countries of the EAC and access to authorized public and private sector. First version of RADDEx that was based on bilateral approach was replaced with RADDEx 2.0 version, officially launched in November 2012. The new version of RADDDEx provides the architecture for regional interconnectivity.

Figure 15: RADDEx1.0 and RADDEx 2.0 comparison



- National initiative
- Country by country roll out
- No reporting capability
- Distributed control
- Multiple systems for users
- Multiple training courses/manuals

- Regional EAC driven initiative
- Regional roll out
- Comprehensive regional reporting
- Central control
- One system for users
- One training course/set of manuals

Sources: Adapted from: WCO Research Paper No. 11, February 2011, Case Studies on Systematic Exchange of Commercial Information between Customs Administrations in Bilateral and Regional Arrangements (p.23), Tadashi Yasui. Accessible at: http://www.wcoomd.org/en/topics/research/~/~/media/A69B791DADF9434DB5BEB2B8CF11D92A.ashx;

USAID, Revenue Authorities Digital Data Exchange (RADDEx) – Customs Technology that Reduces the Cost of Doing Business (p.1). Accessible at: http://www.competeafrica.org/Files/RADDEx_2_0_Benefits_Final.pdf and USAID, October 2013, RADDEx in the Making - Background, Strategy and Implementation (p.13). Accessible at: http://www.competeafrica.org/Files/RADDEx_in_the_Making_Oct_2013.pdf

[97] WCO Research Paper No. 28, April 2013, Transit Facilitation for Regional Economic Integration and Competitiveness (p.7), Tadashi Yasui. Accessible at: http://www.wcoomd.org/en/topics/research/~/~/media/30EA73887EED41E1A3E774175C7FE097.ashx

Access to RADDEx 2.0 application on local servers of national revenue authorities so-called satellites, is provided for clearing agents and customs officers for their daily operations. Satellites communicate only with a centralized server and the Central Control Server manages control of the exchange of information between the countries on regional level. When a new declaration is lodged in a national customs information system, a communication between the Central Control Server and partner states satellites will be initiated. Central Control Server will assign unique identification and push the declaration to the satellites on the transit route. Clearing agent in the subsequent country can access the declaration at local satellite and download it in appropriate format, which could be used for lodging of new national customs declaration.

The Central Control Server verifies the declaration comparing its details with previous records and when discrepancies are not found, it pushes the declaration to the affected satellites. With the RADDEx unique identification each declaration will be associated with the previous declaration entry, which enables tracking of the declaration. On that way, it is possible to follow the history of the declaration, and to determine the status of the declaration through the transit route.[98]

Even though transit movements supported with RADDEx system rely on paper based customs documents improvements of transit system with electronic exchange of transit related data could be very important. Benefits reported from use of RADDEx system include: elimination of delays due to lack of information; simplified preparation of customs documents, elimination of multiple data entries and reduction of clearing agents processing time as a result of reuse of the transit data entries; advance clearing of goods and reduction of delay time on border crossings, providing electronic proof for termination of transit procedure which enables faster bond release. Those benefits have contributed to reduction of transit costs. Estimations for the Malaba border from Kenya to Uganda are indicating that RADDEx advance clearing could save US$32,000 a day in transit cost or US$11.68 million in a year.[99]

Tripartite agreement among COMESA, EAC and SADC is opening new opportunities and new challenges in process of harmonization of transit systems, which includes integration of customs declaration processing systems, guarantee schemes and cross border exchange information systems. For the harmonization of ICT no major difficulties are foreseen, however the need to ensure compatibility in linking regional transit gateways and providing interconnection of regional servers has to be addressed.[100]

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[98] USAID, October 2013, RADDEx in the Making - Background, Strategy and Implementation (p.20-21). Accessible at: http://www.competeafrica.org/Files/RADDEx_in_the_Making_Oct_2013.pdf

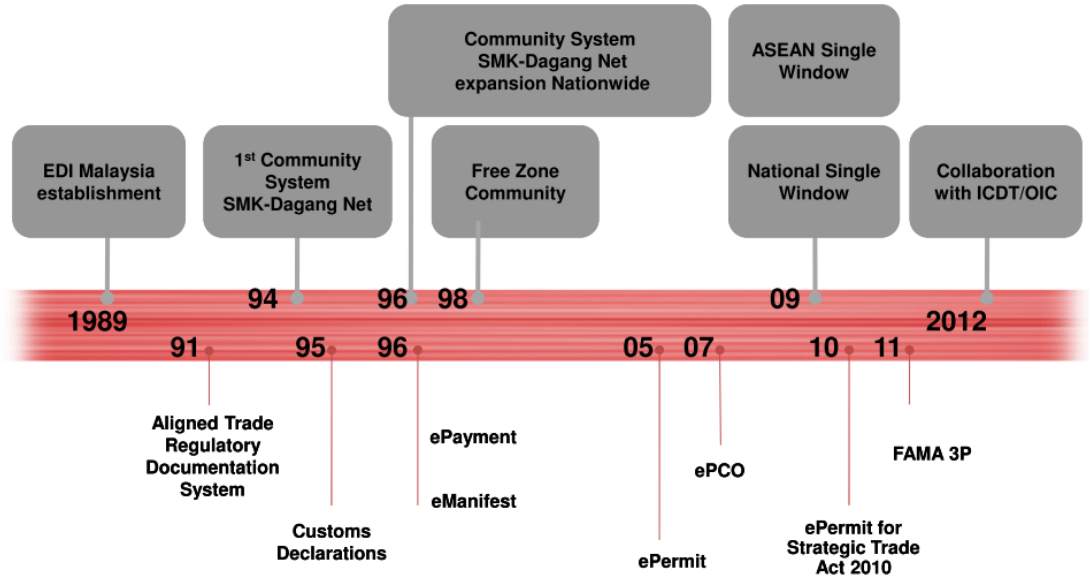
[99] USAID, Revenue Authorities Digital Data Exchange (RADDEx) – Customs Technology that Reduces the Cost of Doing Business. Accessible at: http://www.competeafrica.org/Files/RADDEx_2_0_Benefits_Final.pdf

[100] COMESA-EAC-SADC Tripartite, 2013, Meeting of the Committee of Ministers responsible for Transport and Metrology, A report on the System, Current Status and Progress on Reporting and Elimination of Non-Tariff Barriers (p.6). Accessible at: https://www.google.co.th/url?q=https://extranet.sadc.int/files/3313/7992/2927/Final_-

D. National Customs Transit System in Malaysia

Malaysia is one of the countries in the Asia-Pacific region that is strongly committed to trade and transport facilitation initiatives, supporting investments and wide usage of ICT. Malaysian customs modernization is taking part of this trend since 1995 when comprehensive Customs Information System was implemented known as "Sistem Maklumat Kastam (SMK) – DagangNet". Customs modernization started with improvements in seaports and airports, and eventually has covered national customs transit between various customs checkpoints and border posts. The SMK – DagangNet was available all over the country in 2002 when necessary networking, hardware and software support was completed. Use of EDI, replacement and upgrading of traditional information systems in order to provide more sophisticated IT solutions has been implemented by many other government agencies as well.[101] These initiatives have provided solid grounds for development of national Single Window environment and improvement of customs information system, which enables effective use of paperless solutions including paperless transit.

Figure 16: Development of Malaysian Single Window Environment



Source: Zahari Azar Zainudin, Dagang Net Technologies, October 2012, APEC Regional Workshop on Single Window: Malaysia Experiences (p.6).

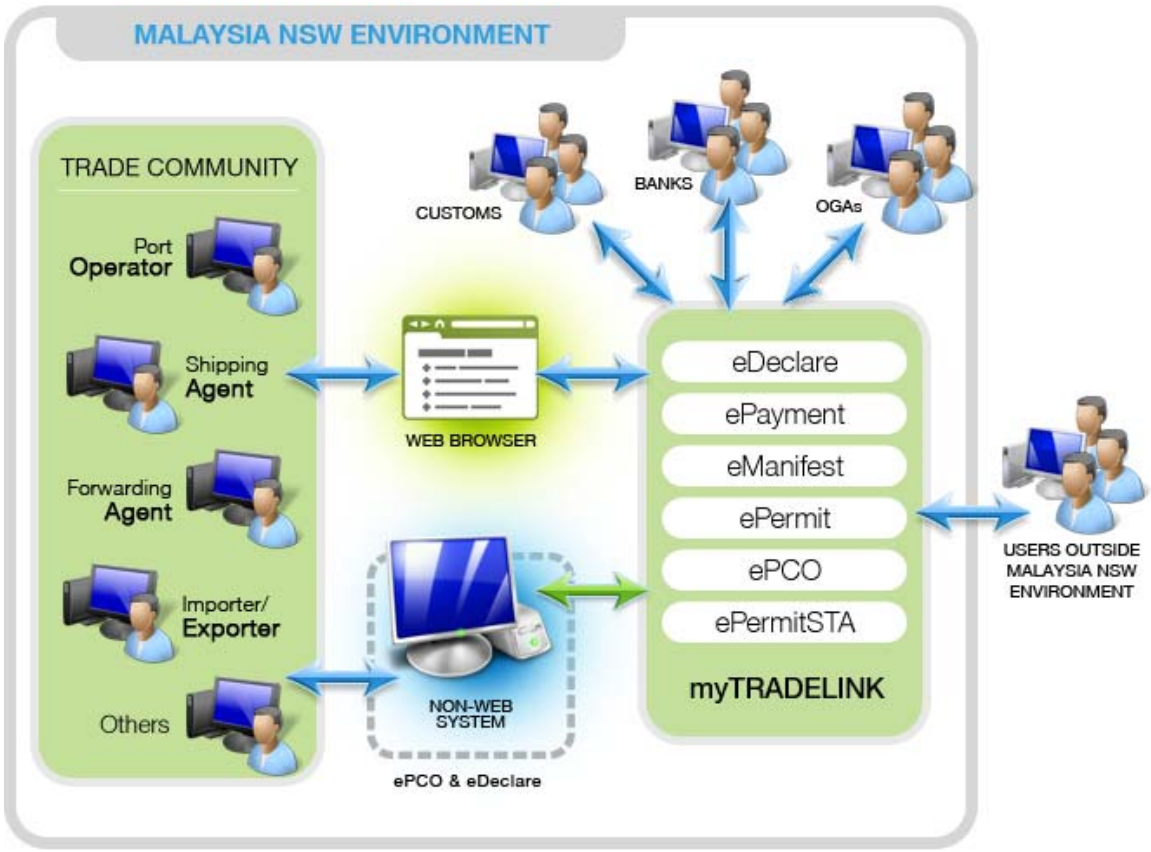
Malaysian Single Window environment was upgraded in 2012 with launch of the new Single Window portal "myTRADELINK" with improved functionality; electronic document exchange and reporting; and new value added services, including electronic

Tripartite_NTB_Mechanism_Report_September_20131.docx&ei=mGo6U53YOoaliQf604GIBA&sa=X&oi=unauthorizedredirect&ct=targetlink&ust=1396339104964558&usg=AFQjCNE_uh3_CqctHsZst3E9IP4QeAFQDw

[101] Mohd Afandi Md Amin, September 2010, World Customs Journal Volume 4 Number 2: Measuring the performance of Customs Information Systems (CIS) in Malaysia (p.98). Accessible at: http://www.worldcustomsjournal.org/media/wcj/-2010/2/Amin.pdf

cargo tracking. The portal is accessible 24/7 via Internet and provides a single point for exchange of information among all participants, with respect to fulfilment of requirements in regulatory trade processes for import, export or transit. There are six core services provided by Malaysia's national Single Window: e-Manifest (submission of electronic vessel and cargo manifests from the port users to the relevant authorities); e-Declare (preparation and submission of electronic customs declarations to customs authorities), e-PCO: (application and approval system for Preferential Certificate of Origin); e-Payment (preparation and submission of duty payments to the customs authorities); e-Permit (electronic application and approval system for various licenses, certificates and permits from multiple permit issuing agencies) and e-PermitSTA (electronic permit application systems for strategic items and technology, under national security legislation and international obligations).

Figure 17: Malaysia's Single Window Environment



Source: myTradelink Portal, http://www.mytradelink.gov.my/aboutus

Implementation coverage of operations under national Single Window is wide and well advanced. e-PCO is currently implemented at all responsible offices of Ministry of International Trade and Industry (MITI) and it fully covers procedures with Certificates of Origin, since manual application has been phased out from 2013. e-PermitSTA operations are also fully covered in the four agencies involved. Data from 2012 are showing that around 95 percent of importation, exportation, transhipment, and transit

movements are covered with electronic declarations under national Single Window at 166 out of 167 customs offices nationwide. e-Permit operations are covered around 78 percent with Malaysian Single Window and paperless implementation is supported by 19 out of 26 participating agencies. Around 29 per cent of coverage is provided under e-Payment service with 3 different modes of payment and 8 local participating banks. In 2012 e-Manifest covered around 23 per cent of total transactions at eleven ports and more than 500 companies subscribed. Extension of the system at twelve other ports and 350 more companies included in 2013 is increasing percentage of coverage and further extension may be expected in the future. The e-Manifest includes seven government bodies and six trade and industry players. It should be noted that e-Manifest is not covering transit manifests.[102] National Malaysian legislation that enables national Single Window and paperless transit includes E-Commerce Act 2006, Personal Data Protection Act 2010, Digital Signature Act 1997, Customs Act 1967, Strategic Trade Act 2010 and other related sub laws and implementing regulation.[103]

With the Security and Trade Facilitation System project initiated in 2011, Malaysian Customs have provided new paperless transit opportunities and improvement of customs transit formalities. With introduction of secure transit procedures and electronic submission of transit declaration, subsequent lodgement of paper based transit declaration (K8 form) was no longer required. The objectives of this system include: easy detection of security threats, reduced traffic congestion at checkpoints, efficient automatic and paperless customs transit clearance, and improved customs formalities for discharge of transit procedure.

Security and Trade Facilitation System is based on use of Radio Frequency Identification (RFID) technology. Electronic customs seals, which combine physical seal and Radio Frequency Identification (RFID) component, are utilized on transit movements under a RFID system. They enable tracing of transit movements, which is addressing security concerns, and in the same time offer new possibilities for transport facilitation. The RFID system and the Customs Information System are integrated and tracing information could be used to automate processing of transit customs clearance. The RFID system promotes streamlined and simplified transit formalities where, paper transit declaration has become redundant, and totally paperless checkpoints could operate.

After successful trial period and gradual extension of checkpoints where the RFID system was tested, standard pilot program started in middle of 2012. In 2013 the RFID system has been installed at 35 stations including 29 customs checkpoints and 6

[102] Information from 2012 Dagang Net presentation in National Single Window Awareness Program, accessible at:, http://www.mytradelink.gov.my/documents/10179/33840/NationalSingleWindow_Awareness_Program_KKinabalu.pdf and ASEAN Single Window web site on Malaysia NSW Services accessible at: http://asw.asean.org/nsw/malaysia/malaysia-nsw-services

[103] ASEAN Single Window web site: http://asw.asean.org/nsw/malaysia/malaysia-legal-regulatory-informations

Public Bonded Warehouse, providing services for 71 registered traders who are moving goods in transit using benefits which this system offers.[104]

Registered traders for the services in Security and Trade Facilitation System are authorized to submit electronic customs transit declaration on the portal and to proceed with transit formalities without paper based form of the declaration. They have right to program electronic seal with their desktop RFID readers after receiving transit approval message from customs authorities and to affix the electronic seals at users' premises by themselves (in a case of high compliance traders) or bring the electronic seal at customs office to be affixed by customs officers (in a case of standard traders). Beginning of transit procedure is automatically detected at the customs checkpoint of departure. When electronic customs seal is activated a unique number is assigned (Electronic Product Code – EPC), stored and exchanged in the system. Along transit movement, information could be gathered in regards to the location and time of the events during transport, including alerts on tampering the seals. The customs authorities could automatically retrieve information on transit movement with each passing through the customs checkpoints. The customs authorities could monitor the movement and in a case of alerts they could investigate the cause and react promptly. On arrival at destination customs checkpoint, the status of the electronic seals will be automatically detected. If the RFID has not recorded any tampering, the seal will be automatically unlocked and transport procedure terminated. In the case of alerts, the customs authorities will proceed with investigation and inspection and take all necessary measures.

With automation of the customs formalities at destination point manual operation with paper based transit declaration are not required and transit procedure could be discharged without manual entries. As additional measures the system is supported with auto number plate recognition service and CCTV at the customs check points. The design of the system, supported with additional measures, make possible operation of fully automated paperless transit to be achieved.[105]

Advantages of Security and Trade Facilitation System include reduced processing time and minimized waiting time at the customs check points and border offices. Paperless transit eliminates paper based customs documents and reduces the load of paperwork. Optimized human resources contribute to improved services and efficiency. Fast automated clearance brings various cost savings with respect to lower waiting time and operational improvements such as decreased direct contacts with customs officers and of reduction of manual interventions. Enabled visibility and tracing of the transit movement is providing higher level of security. Malaysian experience is

[104] Patrick Ong, 2013, GS1 SC Summit-presentation, Secured Trade Facilitation System using RFID. Accessible at: http://www.fmm.org.my/images/articles/events/Patrickper cent20Ongper cent20-per cent20Smartag.pdf

[105] Process Flow for Goods in Transit (K8) using RFID Seal are described in details in Smartag Agent Training Presentation: Secured Trade Facilitation System using RFID. Accessible at http://www.securedtrade.net/tutorial/agenttrainingv67.pdf

showing that automated clearance provided with the RFID system is nine times more efficient than manual process and it saves on average 47 minutes in time per container.[106] Indications that this system could generate US$202 million in gross national income and create about 400 jobs is suggesting that investments in RFID infrastructure costs estimated at US$15 million could be returned multiple times.[107]

Another customs modernization project - uCustoms ("ubiquitous" Customs) has been announced in Malaysia, which is intended to facilitate access to the relevant services (e.g. via mobile devices), to strengthen centralization of clearance, to improve risk management and to extend the use of automatic approval processes. Based on exchange of electronic information and Single Window environment the system is expected to further streamline customs procedures including customs transit, to reduce repetitive actions and lower the costs for the business. The uCustoms system is expected to be fully operational in 2016/2017.[108]

Malaysian case shows an advanced paperless transit solutions on national level. Further challenge will be to extend the benefits of paperless transit solutions to international transit in future and to provide more integrated options, which could connect national transit system in the region. It should be noted that Malaysia's neighbours are using or developing similar RFID systems as well. Connecting those systems will represent a challenge as well.

E. National Customs Transit System in Thailand

Thailand also has advanced support for trade and transport facilitation with use of ICT, which promote exchange information and paperless environment. Submission of electronic customs declarations and electronic cargo manifest was enabled from 1998 based on EDI/EIDFACT messages, however paper based documents have been required as well. Transformation towards paperless customs environment began in 2006 with development of web based e-Customs system based on ebXML messaging standards and introduction of legal and operational requirements for digital signatures.[109] E-Customs offers several services including: e-Import, e-Export, e-Manifest, e-Payment, and e-Warehouse and they provide paperless environment for carrying out wide range of customs operations. Improvement and facilitation of export and import processes, has

[106] Lee Cheng Suan, 2012, GS1 Asia Pacific Regional Forum 2012, Malaysian Customs Security & Trade Facilitation System Using RFID. Accessible at: http://www.gs1ph.org/wcmqs/wp-content/uploads/2012/11/Malaysia-Custom-Security-and-Trade-Facilitation-Project.pdf

[107] Johanna Morden , April 2011, Malaysian Customs launches RFID. Accessible at: http://www.futuregov.asia/articles/2011/apr/27/malaysian-customs-launches-rfid/

[108] Karamjit Singh, December 2013, Malaysia's uCustoms project about to get off the ground. Article available at: http://www.themalaymailonline.com/tech-gadgets/article/malaysias-ucustoms-project-about-to-get-off-the-ground

[109] Sinmahat Kiatjanon, UNNExT, Brief No. 08, August 2012, Towards a Single Window Trading Environment: Developing a National Single Window for Import, Export and Logistics in Thailand (p.2). Available at: http://unnext.unescap.org/pub/brief8.pdf

been main focus of e-Customs initiative, with objectives to reduce paperwork requirements and lower operational costs to business and government agencies.[110]

Thailand national Single Window, which is closely connected with e-Customs, began its official operation in 2008, and it involves various key stakeholders such as importers, exporters, customs brokers, freight forwarders, commercial banks and government agencies. Electronic information in relation to import, export and transit regulatory requirements could be exchanged within Single Window environment, among government authorities and business communities. E-Licensing and e-Certificate services under National Single Window (NSW) are providing opportunities for traders to submit paperless electronic applications for various import and export licenses and certificates, reducing the costs and enabling faster and efficient document processing.[111]

Table 3: Cargo Clearance through ICT and NSW Development in Thailand

Customs Clearance	Before 1998	1998 - 2007	2008 – 2011
Customs intervention	6-8 steps	2-4 steps	0 step (green) 1 step (red)
Document requirement	5 copies	1-3 copies	0 copy (green) 1 copy (red)
Intervention time	3-10 days	½ - 1 day	0 hour (green) 0.5-1 hour (red)
Turn around time (per declaration)	3-10 days	10- 30 minutes	95% < 5 minutes

Source: Sinmahat Kiatjanon, UNNExT, Brief No. 08, August 2012, Towards a Single Window Trading Environment: Developing a National Single Window for Import, Export and Logistics in Thailand (Table 2, p.6). Available at: http://unnext.unescap.org/pub/brief8.pdf

Statistics for Thailand NSW from 2013 show about 10,100 subscribers, serving about 100,000 trading companies and about 6.3 million electronic messages exchanged.[112] Presently 36 government agencies and trading communities are involved in paperless information exchanges. Thailand NSW covers about 660 customs stations nationwide (e.g. customs houses, container yards, inland container depots, free zones, export processing zones, warehouses, seaports and airports) and provides exchange of wide range of key documents including Land Cargo Manifest Declaration, Cargo Movement Declaration, Cargo Release Notification, Good Transit Declaration, RFID Declaration.[113]

Customs modernization efforts in Thailand and initiatives to provide balance between trade facilitation measures for compliant traders and effective customs control,

[110] Thailand Customs Departments web site: http://www.customs.go.th/wps/wcm/connect/custen/e-customs/e-customs

[111] Thailand Customs Departments web site: http://www.customs.go.th/wps/wcm/connect/custen/nationsinglewindow/nationsinglewindow

[112] ASEAN Single Window web site: http://asw.asean.org/nsw/thailand/thailand-general-information

[113] Sinmahat Kiatjanon, UNNExT, Brief No. 08, August 2012, Towards a Single Window Trading Environment: Developing a National Single Window for Import, Export and Logistics in Thailand (p.5). Available at: http://unnext.unescap.org/pub/brief8.pdf

resulted with development of RFID Electronic Seal (e-Seal) public-private collaboration project. The project was initiated as Secure Free Zone project with objective to facilitate movements of bonded goods among free trade zones, export processing zones and airports in Bangkok area. After few years of development and testing by Thai International Freight Forwarders Association (TIFFA) EDI Services Co., Ltd and their partners the project sponsored by Western Digital (Thailand) Co., Ltd was officially launched at 2006.[114] In the beginning technology behind e-Seal service was based solely on communication with Radio Frequency Identification (RFID) signals. Web based application platform designed for the Secure Free Zone project has been used to exchange details for movement of the consignment between authorized trader and customs authorities. Electronic seals with RFID components were used for exchange of relevant movement information.

The trader could affix the e-seals before the start of the movement, provided that customs authorities have not decided to make inspection before departure. Mobile or fixed RFID devices have enabled electronic activation or deactivation. RFID reader devices on exit points of free zones will register the start of the movement and through RFID signals could transmit the status of electronic seal to web application platform. At the destination RFID reader devices will check the status again, including all information recorded by electronic seal during the movement. If irregularities or tampering attempt are not detected, the end of the movement will be registered. Otherwise customs authorities will be alerted through the communication between RFID reader and web platform, and they could proceed with all necessary measures. Secure free zone project has offered successful paperless solution for secure movement of bonded goods, and provided savings in terms of time and operational costs.

Table 4: Benefits of Using e-Seal (RFID) for the Export in Thailand

Procedures	Before	Present
Customs Procedure at the Source	Manually Inspection Against the Documents	No Customs Inspection Required
Processing Time at the Source	Hour	5 Minutes for Locking e-Seal
Customs Procedure at the Border	Manually Submit Car Manifest and Customs Inspection	Submit Car Manifest in Advance to e-Customs Before the Truck Arrives
Processing Time at the Border	2-3 Hours	Less Than a Minute

Source: Sinmahat Kiatjanon, February 2013, Presentation for The Customs and Excise Committee: Thailand National Single Window. Accessible at: http://www.thainsw.net/INSW/index.jsp?nswLang=E

[114] More information on this project and use of RFID and other related technologies are presented in UN ESCAP, 2012, 'Secure Cross-Border Transport Model'. Accessible at: http://www.unescap.org/ttdw/Publications/TFS_pubs/SCBM/SCBM-fulltext.pdf

E-Seal project evolved and improved over the time. In 2008 Customs authorities introduced new specific requirements for communication within the customs network. Technologies that could provide real time tacking have been included, and RFID technology was combined with GPS and GPRS communication. New solutions, which include new requirements, were developed (e.g. an e-Lock system with device that combines RFID, GPS and GPRS technologies has been developed and tested in 2010). The options for use of e-seal services with included e-tracking have been extended to import and export bonded movements between border posts, seaports and airports, inland customs depots, free zones, export processing zones and other bonded areas.

Table 5: Benefits of Using e-Seal (RFID) for the Import in Thailand

Procedures	Before	Present
Submit Car Manifest	Manually Upon the Arrival of Truck	Submit Car Manifest in Advance to e-Customs before the truck arrives
Customs Procedure at the Border	Manually Inspection Against the Documents	No Customs Inspection Required
Processing Time at the Border for the Import	6 Hours	5 Minutes for Locking e-Seal
At the Destination in Thailand	Manually Inspection Against the Documents	No Customs Inspection Required IF the e-Seal is not Tampered and the Traveling Time is Within the Limit
Processing Time at the Destination	1 Hour	Less Than a Minute

Source: Sinmahat Kiatjanon, February 2013, Presentation for The Customs and Excise Committee: Thailand National Single Window. Accessible at: http://www.thainsw.net/INSW/index.jsp?nswLang=E

E-Seal services implemented in Thailand have improved efficiency of bonded transit movements and they bring benefits to the participating traders. It is estimated that decreased operational costs and significant reduction of paperwork processing in the case of the Western Digital Secure Free Zone project reduced the whole expenses for transportation by 60 percent.[115] Experience from this project is also showing benefits for Customs authorities, with improved security of the movements, monitoring of late arrivals and tampered shipments and efficient use of human resources potential.[116]

Challenges to extend paperless solutions across the borders for international transit arrangements remain. As previously elaborated in this Chapter it is expected that

[115] U-Koj Plangprasopchoke and Wutjanin Muttitanon, March 2013, Intelligent Evaluation for E-Seal Adoption in Customs. Available at: http://tar.thailis.or.th/bitstream/123456789/604/1/Paperpercent20ID_111.pdf

[116] UN ESCAP, 2011, Monograph Series on Facilitation of International Road Transport in Asia and the Pacific (p.43) (based on presentation by Mr. Anusorn Lovichit, TIFFA). Accessible at: http://www.unescap.org/sites/default/files/pub-2607-fulltext.pdf

long awaited ASEAN customs transit system will bring new quality for paperless transit on sub-regional level.

F. National Customs Transit System in Ghana

Responding to the concerns on trade sector with regard to slow, cumbersome and expensive clearance procedures, and decreasing the cost for exports and imports, Ghana's government introduced several important customs reforms in last decade including computerization, single window environment and transit tracking system.

An important reform in customs has been introduction of Ghana Community Network Services (GCNet) as a public private partnership. The GCNet trials started in 2002 and the GCNet system has been operational in Ghana since end of 2003. The GCNet system consists of two main complementing components:

- Ghana Customs Management System (GCMS) – an automated system for processing and management of customs declarations and other customs formalities, based on Electronic Data Interchange (EDI) environment; and
- Ghana TradeNet – the EDI platform that enables GCMS to exchange electronic messages between traders, customs authorities, other regulatory agencies and other parties involved.

GCNet System design provides: electronic submission of manifests and customs declarations; electronic confirmation of payment of duties and taxes; electronic transmission of customs clearance approvals; and transfer or various electronic messages between traders, customs authorities, other parties concerned regarding import, export, warehousing, free zones and transit operations. System users include customs, port authorities, shipping lines, customs agents, commercial banks, freight terminals, driver and vehicle licensing authority, and various ministries, departments and agencies. The system is connecting stations at seaports, international airport and land borders. GCNet System has facilitated processing of cargo clearance and reduced transaction costs and delays trade operators encounter in clearing consignments.[117]

The GCNet System has been continuously developing and it also supported transit reform in Ghana with regard to its national transit. Reengineering of national transit procedures began in early 2006, which included:

- Changes in customs sealing practices for non-containerized trucks;
- Introduction of electronic processing of transit guarantees granted by State Insurance Company, which is connected through GCNet and has real time information from GCMS for verification and release of transit bonds;
- Gradual introduction of new transit module (i-Transit) that connects customs offices at ports with customs offices at land border crossings; improved document flow, where the manual system for discharge of transit procedure was

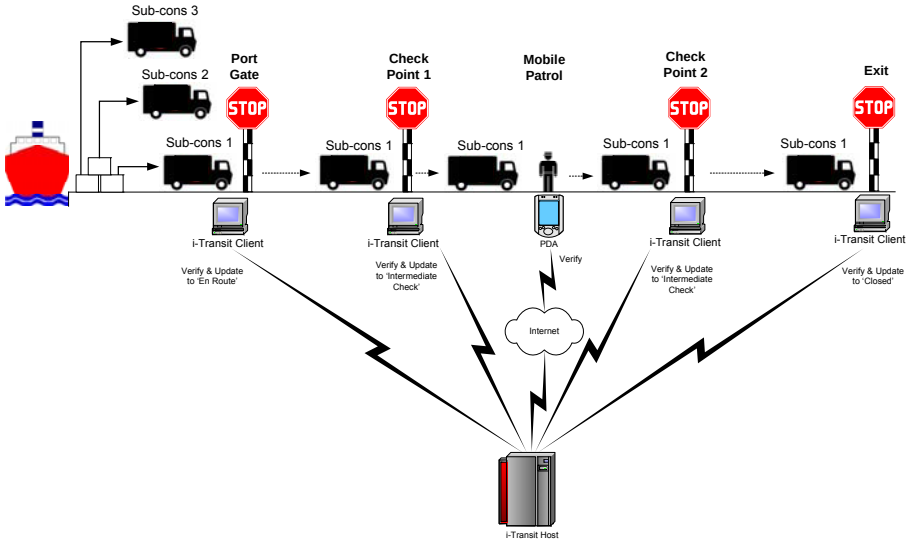
[117] Ghana Community Network Services (GCNet) website: http://www.gcnet.com.gh/procedures/procedure.asp?PCH_ID=1

replaced with electronic system, and also enables prompt release of transit guarantees;

- Training and authorization of operators and agents which participate in transit trade and
- Replacing reliance on ineffective and costly customs escort system with electronic transit tracking system.[118]

Transit vehicles and foreign importers have to be registered in order to use electronic tracking system. The cargo is secured with customs seals and customs officers supervise the sealing of trucks. Electronic tracking is enabled by integrated solution with use of combination of specialized software and hardware. On-line tracking on port gate, defined checkpoints and exit border crossing provides logical tracking on predefined route.

Figure 18: On-line Tracking and Check Points in Ghana's i-Transit System



Source: GCNet 2007 presentation: Ghana CEPS i-Transit System

Satellite tracking is enabled with electronic tracking devices fixed to the vehicles, which are registered in i-Transit system. Vehicle position is determined by global positioning system (GPS) and the data about truck position is communicated to Transit Control Centre via communication satellite system and Internet. IP Camera System at entry and exit points, as well as at checkpoints supports the electronic tracking system. Customs officials can monitor transit cargo in real time and communicate with mobile teams on ground to intervene if needed. Authorized traders can also track their cargo on GCNet.

[118] Luc De Wulf, 2010, World Bank, Ghana Leads West Africa in Transit Reform (p2). Accessible at: https://openknowledge.worldbank.org/handle/10986/10500

The system presently covers south-north and east-west corridors through Ghana and it is used for monitoring between 2,500 and 3,200 trucks per month.[119] The transit reform has proved to be beneficial for the traders and the customs authorities with faster clearance times, more transparent and predictable processes, improved professionalism and increased customs revenue. Streamlined national customs transit has significantly decreased transit times and costs.

The example of 818 kilometres Ghana – Burkina Faso corridor (between Tema and Paga) shows that transit time exceeded 5 days before 2006, it was cut down to 3.3 days for containerized trucks and 3.4 days for non-containerized trucks in late 2006, and further reduced to 3 days in 2008.[120]

With respect to regional transit in the Economic Community of West African States (ECOWAS) and West African Economic and Monetary Union (WAEMU), as well as on specific transit corridors essential for the landlocked countries such as Burkina Faso, Mali and Niger, the Ghanaian experience in national transit reform could be also helpful and it could support transit facilitation initiatives and introductions of paperless transit solutions.

[119] SGS, Omnis in Action, Cargo Control in Ghana. Accessible at: http://www.sgs.com/~/media/Global/Documents/Caseper cent20Studies/SGS-GIS-OMNISper cent20Ghanaper cent20Caseper cent20study-A4-EN-12-V1.pdf

[120] Luc De Wulf, 2010, World Bank, Ghana Leads West Africa in Transit Reform (p2). Accessible at: https://openknowledge.worldbank.org/handle/10986/10500

VII. Challenges to Paperless Transit in the Region

Developing international transit systems and introducing paperless transit is complex undertaking and numerous challenges could be expected. The challenges could appear in various stages from inception phase to final implementation of paperless transit systems. Identification of those challenges in order to carry out appropriate mitigation actions before they could emerge as a major concern is important step in development of new or upgrading existing transit systems. Those challenges could differ from country to country and from region to region. This chapter presents general overview of the factors, which could impede introduction of paperless transit and related challenges, which could be relevant for development of specific transit systems in the region as well. Sub-regional and national differences and particulars have to be considered when the challenges of specific transit systems are being analysed.

A. Political Commitment

Strongly expressed political will and leadership to decide on introduction of international transit system with paperless solution is necessity for development of new or upgrading present transit systems. Countries in the region are generally expressing the will to improve transit systems and to increase the use of ICT solutions, and it seems that general political will in that direction is not lacking, however the real challenge is to harmonize strategic objectives among countries and to provide political support for actual reform of transit systems. Making political decision to introduce international transit system requires joint vision, trust, and high level of cooperation between the countries and their respective administrations, which could be challenging to achieve.

The vision and strategic objectives for introduction of international paperless transit depends on national priorities regarding transit and requires awareness for the transit related issues and options available. Public private partnership, and sustainability and cost–benefit studies could contribute toward proper identification of those national priorities. For the landlocked countries priorities for improvement and facilitation of international transit are very high, while for their costal neighbours those priorities may be not so vital. Large differences between national priorities could represent significant challenge for reaching consensus on the vision and strategic objectives for international paperless transit system. Strong political commitment is necessary for harmonization of strategic objectives and development of joint vision concerning introduction of international paperless transit system.

Multilaterally agreed vision and strategic objectives for international paperless transit will provide basis for clear strategic planning, which will ensure coherent national transit policies and enable development of integrated or interoperable transit systems. Strategic plans for introduction of paperless transit have to be within the framework of national plans for overall ICT development. If the vision for the regional or sub-regional integration is not very clear and if national plans for ICT development are lacking, it will be very challenging to plan development of new paperless transit system.

Countries are often consider and join various trade and transport facilitation initiatives, which include paperless trade, single window environment, electronic customs and cross-border cooperation and those initiatives might overlap the coverage of paperless transit. Thus, it is important to have coordination and prioritization amongst the various initiatives. It will enable to address the issue of development of paperless transit system from all possible perspectives such as planning the use of resources in most efficient way, the absorption capacity of administrations and other participants concerned with the reform processes.

The challenge for providing practical political support in later stages of design and implementation of paperless transit systems also has to be addressed. Political support from the national governments to the lead and other agencies to coordinate and re-engineer transit processes and procedures could be essential for successful introduction of paperless transit system. In absence of strong political support the agencies concerned may lack necessary motivation for efficient involvement in the process of developing paperless transit system. Some of them could also face difficulties dealing with vested interest and being able to effectively bring in legislation reform and implementation of paperless transit.

B. Challenges of inter-agency coordination and collaboration with private sector

As previously discussed, an international transit environment includes large number of participants from public sector (e.g. customs authorities, border police and immigration authorities; transport authorities; sanitary, veterinary and phytosanitary inspections; other specialized inspections) and private sector (e.g. exporters, importers, carriers, freight forwarders, customs agent, customs brokers, declarants, banks, insurance companies or issuing/guaranteeing associations, logistics and service operators at ports, airports, land border crossings, warehouses and inland customs depots) in every country along transit corridors. The challenges, for coordination and communication to involve all participants and development of effective public private cooperation could be substantial. It needs to be addressed at national level and were appropriate at regional or sub-regional level.

Having efficient technical coordinative structures at regional or sub-regional to discuss and propose options for development of paperless transit system based on previously agreed strategic objectives will strengthen the process of coordination and communication and expedite whole process for introduction of new transit system.

Designation of national leading agency (e.g. customs authorities) could facilitate coordination at national level in the process of development and implementation of the paperless transit. Ensured representation and active participation, of all agencies concerned, in interagency management and coordinative structures on national level in early phases of development of international transit system is important in order to develop strong joint ownership and full commitment for such project. Some agencies may be reluctant to adopt the necessary legislative, organizational, and ICT

infrastructural changes required by paperless transit systems and their early involvement will help them to better understand overall strategic objectives and benefits of the future transit paperless system and to adapt the use of the system within their internal plans for development of paperless environment. With transparent process of decision making, where total control of the leading agency is not assumed and where appropriate mechanisms for dispute settlement are agreed, the newly developed paperless transit system could be better accepted and implemented by all regulatory agencies involved.

A crucial part for development of paperless transit systems is providing effective public private partnership and extensive efforts are needed to reach on organized way to large number of relevant participants from private sector; to present the objectives, benefits and requirements of the future transit system with respect to the interest of specific groups of participants; to receive useful feedback; and finally to mange to incorporate sometimes opposite and conflicting requirements of various participants in consistent national polices. Various public private consultative bodies and interagency management and coordinative structures are already in place in some of the countries in the region. Functional National Trade and Transport Facilitation Committees (NTTFC) and other similar facilitation bodies could be involved in paperless transit initiatives as well, even though their scope is broader and covers all major trade and transport facilitation issues, including introduction of single window environment and electronic customs.

C Designing, improving and/or adopting existing paperless transit regimes

Designing international paperless transit system brings number of challenges not only due to the complexity of the process, but with regard to the choice of the most feasible type of transit system as well. It would be more convenient if outline and preference for the type of transit system were already suggested with agreed strategic objectives. Intended level of regional or sub-regional integration could also influence the choice of the type of transit systems. With regard to the type of the transit system and design options, the countries may decide about:

- joining or upgrading existing transit systems or developing new regional or sub-regional transit alternatives;
- preference between centralized or decentralized transit system application;
- mandatory or optional use of paperless transit systems;
- the level of integration of national transit with international transit systems.

All of these options have their own advantages, disadvantages and risks.

Options for joining existing transit systems in the region are limited. ASEAN Customs Transit System is not implemented yet and its advantages and risks are still not demonstrated in practice. Successful implementation of ASEAN Customs Transit System could raise the interest for extension of this system. Shorter time for implementation and reduced implementation risks are some of the advantages of joining

existing transit systems. On the other side joining existing transit systems limits possibilities for designing the transit system in accordance with specific needs of the countries, and brings some known disadvantages of the existing system. Upgrading existing transit systems may involve improvement of present transit options and replacement of paper based transit declarations with electronic paperless solutions.

Developing new regional or sub-regional transit system, based on European transit model offers possibility to adapt the transit system to the regional or sub-regional requirements and characteristics, however it also brings higher implementation risks and challenges including introduction of operational international transit guarantee. The international guarantee is one of the specific issues that characterize the international transit system. With development of new transit system the challenge of choosing most appropriate type of guarantee appears. The countries usually opt between:

- Centralized – carnet system where the bond is represented with standardized carnet issued by national issuing/guaranteeing organization member of organized network of organizations across the participating member countries and
- Decentralized - bond systems where the bond is issued by various financial institutions (e.g. banks) which have appointed representatives in each of the transit countries.

Both systems have their advantages and disadvantages. Centralized carnet system offers simplicity and uniformity of the international guarantee. Establishing network of issuing/guaranteeing organization might represent the challenge, but once that network is set the implementation should be very straightforward. The price of the guarantee is one of the risks of this system because competition between guarantors is lacking. Advantages of decentralized bond systems are in providing more customized solutions tailored to the needs of the traders; including options for simplification and reduction of the amount of the bond. However this system is more complex and challenging to be established. Legal and practical implementation could also represent significant challenge because the financial responsibility should be extended from the guarantor in one country to his representative in another transit country.

An option for centralized transit system with single transit application could be suitable solution if the level of sub-regional integration is very high and transit legislation is fully harmonized. Development, maintenance and operational efforts and costs in the case of central transit application could be reduced; the interested parties could use single help-desk, and the principals and declarants will access only one system, which will further simplify transit formalities. However in this case the role of sub-regional centre has to be considerably strengthened and experience suggests that it is very difficult to develop and operate a centralized system mainly due to political rather than technical reasons. EU experience with centralized ICT solutions is pointing out to the

challenges of developing various versions in several languages, specific national requirements and operational support for various platforms in use.[121]

Decentralized transit systems with distributed architecture are operating using several existing or newly developed national customs software applications were interoperability of the customs information systems should be provided. Development of decentralized transit system provides better individualization of the national applications tailored to the national requirements; however it entails the challenges of high-level coordination among national authorities, which will remain responsible for management and maintenance of their national applications for the international transit. In this case the regional or sub-regional centre will not have the operational role but it could facilitate and support interfacing of national systems. If newly introduced paperless systems are optional, the principal and declarants could choose to use paper-based systems as well, depend on which solution they find more suitable for them.

Submission of electronic transit declarations could be mandatory or optional. Mandatory submission is in line with increasing demands for higher security and also enables using full potential of cross border facilitation. However if the present level of computerization is not very high, mandatory introduction of paperless transit system could bring substantial initial costs, various implementation difficulties and resistance. Therefore in such gradual introduction of paperless transit systems and optional use of paperless might be more viable.

The decision on the level of integration between national transit and international transit systems will also have impact on the design of the transit system. If international transit system and national transit systems are totally divided with separate solutions for through transit, for inter-state transit and for outward and inward transit it might be easer for the countries to reach consensus on the design of the new international paperless through transit system because overall reform of the transit system in the countries will not be required. However this option may bring implementation challenges from operating various transit systems with different rules and distinctive transit formalities, diverse transit documents and separate information systems. If international transit system is highly integrated with national transit systems and same or very similar rules and transit formalities are implemented; and all transit forms on national level are managed by single national customs transit information systems, conditions for flawless international transit could be established where international transit represents natural extension of national transits. However if national transit regulations in the countries are not previously aligned the challenges and resources required for a reform of the overall transit systems could be substantial.

[121] Tom Doyle and Frank Janssens. IBRD/WB, 2011, Border Management Modernization, Chapter 15 - Information and communications technology in support of customs unions: a case study of the European Union (p.255-257), Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

The design of new paperless transit system should provide seamless transit movement of the goods responding to the requirements of all participants included. The needs of the trade and transport sector have to be considered, as well as requirements of customs authorities and other regulatory agencies. The newly introduced international transit system should provide clear benefits over existing national transit systems. Challenges of various complex procedures and document requirements have to be addressed with simplification and business reengineering processes, under the framework of international acceptable standards and best practices. When the participants (e.g. on the level of technical coordinative structures) agree on common international standards the process of designing the operational solutions for paperless transit will be facilitated, which will allow standardization and harmonization in order to achieve functional interoperability of transit systems.

D. Establishing Legal Framework

After the agreement for general design of the paperless transit system is reached, appropriate legal framework, which will provide stability and predictability of the paperless transit system, should be developed. On international level an international instrument (e.g. sub-regional or regional transit agreement) should be produced which will:

- Standardize customs transit formalities for the international transit across the countries;
- Enable cross border harmonization of documents (e.g. transit declaration and international guarantee); and
- Provide legal basis for electronic exchange of information and their use.

Different types of information, documents and data requirement could make this undertaking very challenging, especially if developing of the new transit system is in the framework of Single Window environment. Therefore harmonization of legislation instruments with international standards and recommendations with regard to: a) transit formalities; b) Single Window environment; and c) ICT requirements, is important precondition for successful development of legal framework required for paperless transit systems.

Transposing international instruments into national legislation and implementing regulation may require drafting a new national legislation or amending existing one and this process could be very time consuming and burdensome if national legislation is not already harmonized with international standards and recommendations. If the national transit related legislation is highly harmonized with international standards and recommendations it is more likely that new international transit instrument will not make significant intrusion and that required changes of national legislation should be minimal, better accepted and more easily implemented. The implementation of newly introduced transit system could experience delays as all the participating countries have to align their national legislation with provisions laid down in the international instrument and

some countries may have more efficient processes for introduction of new regulation than others.

ICT regulation is very important part of paperless transit system, which is based on electronic exchange of documents and messages. Harmonization of regulation regarding ICT requirements could represent the challenge, which should be addressed as well. ICT requirements may refer to legal requirements for accessing and sharing of cross-border information; validation of electronic documents, recognition and acceptance of electronic signatures; mutual recognition of electronic information exchanges; data security, data protection, privacy and confidentiality; data retention and electronic archiving; data integrity, procedures for correction of electronic data and audit trail; recognition of electronic evidence in judicial and administrative proceedings; liability for submission of electronic data and disputes settlements. Unlike regulation for customs transit which is usually covered with few national laws and regulations, ICT related regulation may be spread in several laws and regulations and furthermore it may differ from country to country. With regard to the level of coverage, some countries may have fully regulated and very detailed ICT requirements, however in other countries such provisions could be very basic and general. This variety with regard to regulation of ICT requirements brings the challenges for identification of jointly acceptable level of ICT regulation.

Standardization and harmonization of legal framework sometimes requires to be extended to common guidelines and common working methods especially if national laws and regulations are making possible to have different interpretation of the same provisions from international instruments, which may burden implementation of international transit system. Developing and maintaining regional or sub-regional legislation database for all national transit related laws, regulations and guidelines will support the process of establishing legal framework for the new transit system and could also facilitate implementation, once the system will be operational.

E. ICT Infrastructure and Interoperability

Even though ICT development is evidently progressing around the world, which includes increasing use of ICT and paperless solutions in the areas of trade and transport facilitation, a lack of adequate ICT infrastructure could still represent important challenge. Computerization of customs and other border processes is advanced in many countries; however integration of various systems on national level and providing cross-border interoperability is yet to be developed and requires a lot of attention.

On national level, in the case of customs information systems it is important to integrate international transit processing system with other customs information systems (e.g. risk management system, transit control system and guarantee managements systems). That will allow more effective risk analysis and monitoring of transit operations. On regional or sub-regional level interoperability of national customs information systems has to be provided which will allow a seamless exchange of information (e.g. on transit declaration, various control messages, international

guarantee). If the transit system operates in single window environment, interoperability with information systems of other regulatory agencies has to be enabled as well. ICT coordination efforts in the case of implementation of paperless transit in single window environment could be very demanding and challenging.

Box 8: Challenges to Electronic Linkage among Border Agencies

Key factors hindering the establishment of an electronic linkage among border agencies in accordance with 2011 WCO Survey:

- Lack of information and communication technology (ICT) (34per cent);
- Budget and human resource constraints (25per cent);
- Inadequate legal framework (21per cent);
- Difficulties in inter-agency co-ordination (12per cent);
- Others (lack of political decision, lack of strategy, etc.) (8per cent).

Source: Jae Young Choi, August 2011, WCO Research Paper No. 17- A Survey of Single Window Implementation (p.9). Accessible at: http://www.wcoomd.org/en/topics/research/~/~/media/2DF5A36D3ECA46CCB7B17BDF77ACC021.ashx

Cross border exchange of information and electronic messages requires integration or interface of several information systems. In order to enable cross border exchange of information it is essential to apply international standards on message design (e.g. UN/EDIFACT and XML) and data formats (e.g. WCO Data Model), because without such standardizations the chances for interoperability will be diminished. Efforts to provide integration and interoperability of various information systems on national, sub-regional or regional level could be substantial given the different level of ICT development among various agencies within the same country and among different countries that will participate in the new paperless transit system. Customs administrations in different countries in the region are using different customs information systems, and other regulatory agencies have their own distinctive information systems. Diversity of ICT infrastructure with respect to hardware, software solutions, data basses and communication options is burdening interoperability of the information systems which requires investment in communication infrastructure and appropriate interface solutions. EU experience shows that inability to create a more homogenous ICT environment has resulted in costly operations of systems integration.[122]

Due to rapid changes in ICT, it is necessary to invest in up-to-date technologies, which could meet future improvements and requirements. When developing or purchasing transit system software applications it should be consider that those software

[122] Tom Doyle and Frank Janssens. IBRD/WB, 2011, Border Management Modernization, Chapter 15 - Information and communications technology in support of customs unions: a case study of the European Union (p.255), Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

solutions will have to be relatively easy to upgrade and adapt as may be required by future development or the transit system.

F. Addressing implementation issues

Changeover from existing national transit systems to international transit system in paperless environment requires political support, appropriate management and adequate implementation capacity. Implementing new international paperless transit system is very demanding process, which could be followed by several challenges. Complexity of such project requires detailed and well-developed implementation strategy and plans; and use of project management tools to track the progress and efficient use of the resources. In-house expertise is very desirable and if such knowledge is lacking appropriate measures are necessary before the start of the project. Selection of capable and experienced national project managers is one of the crucial steps of the project because they will have very challenging role to lead the project; and to maintain effective liaison with their respective governments, regional or sub-regional coordinative structures and national interagency management structures in the spirit of team building and trust. Adequate human resources have to be dedicated to the project, which should be based on performance management.

Processes of planning, reporting, tracking and monitoring and evaluation in the implementation of paperless transit have to be well organized and lead to prompt corrective actions because weak practices could result in serious wastage of resources, implementation difficulties and delays. Customs administrations and other cross border regulatory agencies have to be prepared for actual implementation of new transit systems which requires adequate training. Trade and transport sector have to be included in awareness programs and training and when necessary additional assistance for better acceptance of the transit systems novelties may be provided.

Transition from paper based to paperless environment could represent an implementation challenge if not managed properly. Development and testing of the new system have to be synchronized on international level, which requires significant efforts for coordination. Step by step introduction of the new transit system from few pilot sites and selected participant countries and gradual expansion will enable performance analysis, identification of weaknesses, remedial actions and improvements, before the system is spread out to other countries and whole customs territories. In this area EU experience suggests that very long transition periods should be avoided in order to minimize risks and problems from running two systems (paper based and paperless) in parallel, which requires prolonged technical support to both functionalities and produces difficulties for the customs administrations and for the traders.[123]

[123] Tom Doyle and Frank Janssens. IBRD/WB, 2011, Border Management Modernization, Chapter 15 - Information and communications technology in support of customs unions: a case study of the European Union (p.255), Accessible at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/01/07/000356161_20110107013015/Rendered/PDF/588450PUB0Bord101public10BOX353816B.pdf

Implementation of comprehensive paperless transit system is resource demanding, and high initial costs could represent serious financial challenge. High commitment in terms of resources and budget is necessary for successful introductions of new or modification or existing transit systems.

G. Demand and resistance from users

If new paperless transit system is not properly designed and implemented, lack of demand from trade and transport sector and high resistance from all participants included could represent important challenges. Thus, as it was stated earlier in this chapter it is vital to have effective public private partnership in the processes of design and implementation of the transit system; to take into consideration requirements of trade and transport sector; and to provide clear benefits from the use of the new system over existing processes. Possible cost savings from introduction of international transit system, as well as preliminary results from testing the paperless transit system should be carefully analysed; cost-benefit analysis should be documented and presented to trade and transport community. The design of the paperless transit system should enable simplifications, which compliant traders and principals could obtain with reasonable efforts, and effectively use in practice. Without obvious advantages of the paperless transit, the traders and principals may not be interested to implement new systems, particularly where joining the systems requires investment in new skills, application software, and ICT equipment with substantial initial costs. High initial costs, reluctance of traders to incur any additional costs unless they see the benefits and resource constrains of small and medium enterprises are often seen as most usual arguments against changeover from paper documents to paperless environment.[124]

Awareness activities have to start from the initiation of the new transit systems. Continuous training has to be provided and where possible support programs, which may include financing of some of the initial costs, could be offered to the interested traders and principals. Those activities will strengthen cooperation and they could bring the private sector on board to join the efforts for introduction of the new paperless transit system.

If the services provided with the new transit system is not possible to be offered free of charge due to budgetary constrains, which will be preferable option for the traders, payment schemes for possible fees have to be very carefully chosen, because any increase of the fees from the existing level will not be willingly accepted regardless of potential benefits from the new system. Improved cooperation between private and public sector and increased awareness on new transit system should reduce the fear of changes and resistance, which could appear with transition from established transit practices to new transit formalities and procedures.

[124] UN ESCAP, 2013, 'Study on Regional Arrangements for Facilitation of Cross-Border Paperless Trade in the Asia and the Pacific' (p.6). Accessible at: http://www.unescap.org/tid/projects/bpatf-report.pdf

Box 9: Great Mekong Subregion – Customs Transit System (GMS-CTS)

Development of GMS-CTS began in late 1990s as a part of GMS Cross□Border Transport Agreement (CBTA) between and among Laos, Thailand, Viet Nam originally signed in 1999, and acceded to by Cambodia in 2001, China in 2002, and Myanmar in 2003. GMS-CBTA offers transit facilitation through establishment of Single Window and single stop inspection at the borders; nevertheless provisions of electronic exchange of customs transit declarations and paperless transit solutions are not foreseen.

The GMS-CTS is based on TIR concept, however the principles of this transit system differ from TIR's principles and diverge from current international best practices supported with new technologies. The main features of the GMS-CTS are:

- A single customs declaration for goods called the transit and inland clearance customs clearance document (TICCCD); Motor vehicle temporary admission document; and Container temporary admission document;
- Authorization of national issuing and guaranteeing organizations to manage the CTS by their Customs Administration; Selection of operators by national issuing and guaranteeing organizations;
- National associations have to provide a guarantee in each host country (set to SDR55,300) in form of bank guarantee or bank deposit. The amount guaranteed against each consignment of goods is SDR35,000.
- Simplifications of transit procedures are not offered; Option for computerization is envisaged however details for such computerization are not provided/implemented.

GMS-CTS officially started with implementation in 2009, however traders still prefer to use bilateral agreements rather then using options provided with GMS-CTS. The reasons behind the lack of use of the GMS-CTS are deemed to be structural and related to the design of the CTS. Various restrictive factors have been identified, including:

- The design of the customs procedures and guarantee arrangements, which is perceived by the customs officials, traders, and their representative bodies as complex and difficult to use in practice.
- The design and implementation of the transport elements of the GMS□CTS, involving: a) route and border crossing restrictions; b) restrictive traffic destination limits and corridors; c) difficulties in obtaining necessary permits or licenses; d) restrictions relating to vehicle weights and dimensions and mutual recognition of test certificates; e) lack of traffic rights;
- Economic viability, given difficulties in obtaining return loads (due to the issues to obtain transit documentation and guarantee for return loads), and the structure of the domestic transport markets.
- Other factors outside the GMS transit system, which include: infrastructure; driving conditions and road safety concerns; traders' awareness of transit opportunities, vehicle insurance issues.

In conclusion it appears that the GMS CBTA is not offering clear advantages to traders in order to be motivated to switch from using national and bilateral transit procedures however inefficient they presently might be.

Source: ADB, 2012,Trade and trade facilitation in the Greater Mekong Subregion. Chapter 4: Trade Transit System in the GMS—Can It Work as Proposed? Des Grimble and Gordon Linington; (p.94-95)

A resistance from the parties that benefit from existing paper based transit system could be expected due to their vested interests. In the absence of an international transit system, international transport rely on national transit systems and services of domestic freight forwarders, customs agents, insurance companies, and in the cases where transport and traffic rights are lacking the services for local transhipment and transport are required. With introduction or new efficient international paperless transit system all those services on border crossings en route will not be longer necessary and for the providers of such services the support for adjustment and structural reform have to be offered.

H. Overall International Transport Environment

International customs transit system should be regarded as integral part of overall international transport environment in the region. Therefore challenges within transport environment such as limited road transport permits and traffic rights, and difficulties to provide international insurance coverage for vehicles could be reflected as challenges for successful introduction of new international transit system. The measures which protect or favour domestic transport and logistic sector over foreign carriers could lead to increased practices of transhipment from foreign to domestic transport means. In such case instead of newly introduced international transit procedures, the use of existing national transit systems, or even import/export procedures could prevail and hamper successful introduction of international transit system. However transhipments affected by such protective measures will contribute to bottlenecks on border crossings, increased waiting times, and ultimately they will add to higher transportation costs. Restrictive policies in respect of selection of transit routes could also represent impediment to international transit, if they not allow transit movements corresponding to the needs of the traders and if adequate simplifications (e.g. authorized consignors and authorized consignees) are not provided.

VIII. The Role of Governments and International Organizations in Introducing and Promoting Paperless Transit

Individual governments have essential role in initiating international paperless transit system, as well as in developing, promoting and implementing such system in practice, in coordination with their counterparts. Regional and sub-regional bodies often do not have operational role in development of transit systems; however they are in position to promote such systems and to assist the countries in the process of harmonization of related strategic objectives; to facilitate coordination in the process of development and implementation of new systems; and to offer financial or technical assistance where such support is mostly needed. UN and other international organizations have main role in creating positive environment for introduction of international paperless transit with various conventions, international standards, models of legislation, dissemination of best practices, providing technical assistance and supporting or implementing various projects related to transit and cross-border facilitation.

A. The Role of Individual Governments

Taking into consideration demand from trade and transport sector and governed by their strategic interest for more efficient international transport of goods, the individual governments may decide to initiate or join initiatives for introduction of an international paperless transit system. Such decision requires a background in development of related national policies and strategies. Consistency and coordination with regard to transit related issues at national level and appropriate articulation of polices and strategies concerning investment in transport infrastructure, liberalization of transport sector, trade and transport connectivity and facilitation priorities, are necessary. The scope of planed integration in regional or sub-regional economic environment, overall plans for modernization of customs and other cross-border formalities and ICT development have to be considered in order to set sound foundations for development of future paperless transit system.

Various trade, transport, customs and ICT policies and strategies developed on national level will normally differ from country to country in accordance with their priorities and specificities, however for the countries that intend to introduce new transit system it is very important to have harmonized specific strategic objectives about development of an international paperless transit system. Even though it is more likely that in the beginning international paperless transit systems could be introduced on sub-regional or bilateral level, harmonization of vital strategic objectives on regional level could provide easier integration of various sub-regional or bilateral transit systems in wider regional transit system in the future. When the governments clearly express their harmonized strategic views on international transit and paperless environment, and when they are coherent with all related national policies and strategies the viability for introduction of efficient international paperless transit system could certainly improve.

Governance and coordinative structures on national level in coordination with regional or sub-regional coordinative structures are usually responsible for managing the process of development and implementation of an international paperless transit system. Transition from national paper based system, or even from national paperless transit system, to international paperless transit system is a long-term process, which involves various participants from public and private sector. On national level, governance and coordinative structures have to be supported by public private partnership initiatives. Efficient coordination between national governance and coordinative structures, where the national proposals concerning paperless transit system are agreed, and regional or sub-regional coordinative structures where such proposals are negotiated, is essential for successful development and introduction of paperless transit.

Once the interested parties have harmonized their strategic objectives with respect to international paperless transit system, and the coordination and managing structures are established, the negotiation process could start with the aim to change the transit legal environment with introduction of new transit system. In the beginning of the negotiations the governments have to reach an agreement for the concept and general design of the new transit system taking into consideration corresponding challenges as described in previous Chapter. High-level commitment and leading role of the governments is essential in this phase.

Even though certain extent of technical understanding on transit systems is necessary, reaching agreement on concept and general design is political rather than technical decision. Interested governments are responsible for negotiation and drafting an international instrument which will enable appropriate legal environment for implementation of the paperless transit system and provide interoperability between national information systems for cross border exchange of electronic transit declarations and related messages.

If the level of political integration among the countries interested to introduce new transit system is low, the countries have different priorities about international transit and there is an absence of common or fully harmonized customs transit legislation, then managing the process of development a new transit system could be very challenging. The example of on going activities for introduction of ASEAN Customs Transit System for more than 15 years, where efficiency of the overall process and established coordinative structures have not been demonstrated, shows that challenges for introduction on a new transit system could be substantial.

When the international instrument is agreed, the governments concerned should initiate a revision process of domestic legislation in order to provide alignment of internationally agreed provisions with national legislation and implementing regulation. New legislation or amendments should address international customs transit and related domestic legislation; and ICT requirements and related national legislation (e.g. recognition and acceptance of electronic signatures; data security and data protection, recognition of electronic evidence in judicial and administrative proceedings, etc.)

The governments of the countries, which are going to introduce international paperless transit system, have to demonstrate financial commitment and to extensively invest in ICT development, awareness programs and training for the public and private sector in order to respond to the challenges of implementation capacity discussed in the previous Chapter. The countries that are already using modern ICT, and paperless environment in their national information systems, should be better prepared for the next step in cross border electronic exchanges of information related to international transit procedures. The costs for ICT investments in hardware, software and networks for introduction of new transit systems could be substantial; however the cost will vary depending on the initial state of the ICT infrastructure, alignment with international standards and the scope of the reform. Long-term operating, maintenance and upgrading costs also need to be considered.

Training for the public sector personnel (e.g. customs administrations and other cross border regulatory agencies) is one of the important factors for the future success of newly introduced paperless transit systems. Lack of awareness and skills needed for dealing with new transit formalities, and new or upgraded information system requirements could impede smooth implementation. Training activities may include seminars on specific topics, comprehensive transit training module as a part of activities of national customs training centres, training programs for border-crossing agencies, and on the job training programs. Awareness programs and training for trade and transport sector are also necessary in order to support the implementation of paperless transit system. That will help all involved stakeholders to understand paperless transit concept, possible options, benefits and cost of the systems; and to assist them to successfully meet the requirements and to effectively use the new transit system.

It is advisable to provide assistance and support to the participants of the paperless transit system and to include operational help-desk **(**e.g. web-site and call centre), easily available regulation, detailed technical specifications and requirements and specific guidelines for use of paperless transit system, newsletters and public announcement which will provide timely information on all important steps and changes with regard to the new transit procedures. Integrity programs may be combined with capacity building programs and training activities in order to maximize the effects of introduction of new transit systems.

Implementation of new international transit should be coordinated among individual countries and gradually expanded with the trial phase, where the system could be tested, and the operational phase when the paperless systems will begin to replace paper based transit procedures. Individual governments are responsible to provide appropriate measures and to check if correct and uniform application of the new transit rules is provided, as well as to carry out activities for monitoring and evaluation of the effects from introduction of the new international transit system.

B. Regional or Sub-Regional Bodies and International Organizations

International transport requires harmonization of legislation, practices and their implementation and that process of harmonization begins with harmonization of related strategic objectives, which may include introduction of international paperless transit system. This process could be promoted and facilitated by various international, regional or sub-regional bodies. For example, UNESCAP supported and promoted Regional Strategic Framework for the Facilitation of International Road Transport, which was adopted with Ministerial Declaration on Transport Development in Asia and the Pacific from March 2012.[125] One of the important components of the Regional Strategic Framework is establishment of the Regional Network of Legal and Technical Experts on Transport Facilitation, and its initial work is also supported and facilitated by UNESCAP.[126] This Regional Network, designed as a forum for exchange of information, coordination, and identification of constrains and solutions for the transport facilitation instruments could have major role in promotion and harmonization efforts.

Box 10: Regional Strategic Framework (RSF) for Transport Facilitation

RSF establishes several common long term targets and approaches, which could guide ESCAP members in formulation of their national transport policies, and provide harmonization of strategic objectives.

Common targets for fundamental elements of international road transport:

- wider application of multiple-entry and multilateral road transport permits,
- multiple entry visas for professional drivers and crews of road vehicles,
- application of international conventions on temporary importation of road vehicles,
- third-party insurance through the use of Green Card or similar system,
- unification of vehicle weights and dimensions requirements,
- standardized vehicle registration and inspection certificates.

Common approaches for key modalities for international road transport facilitation:

- building an effective legal regime,
- wider application of new technologies,
- development of professional training for international road transport,
- establishment/strengthening of national facilitation coordination mechanisms,
- promotion of joint control at border crossings,
- promotion of economic zones at border crossings, dry ports and logistics centres,
- further application of facilitation tools.

Source: Extracts from UNESCAP Booklet, June 2013, Regional Strategic Framework for the Facilitation of International Road Transport, accessible at: http://www.unescap.org/sites/default/files/Booklet_A_Strategic_Framework.pdf

[125] Annex 2 from Ministerial Declaration on Transport Development in Asia and the Pacific from March 2012, accessible at: http://www.unescap.org/sites/default/files/Booklet_A_Strategic_Framework.pdf

[126] More information on First Meeting of the Regional Network of Legal and Technical Experts on Transport Facilitation held in February 2014 in Phuket Thailand are available at UNESCAP 2014 web site: http://sswa.escap.asia/events/first-meeting-regional-network-legal-and-technical-experts-transport-facilitation

The implementation of suggestions in the framework will provide conducive environment for implementation of paperless transit system. Building an effective legal regime and wider application of new technologies will support transition to paperless transit transport.

In 2012 ESCAP members also adopted Resolution 68/3 on "Enabling paperless trade and the cross-border recognition of electronic data and documents for conclusive and sustainable intraregional trade facilitation" which invites the member States to work towards the development of regional arrangements on the facilitation of cross-border paperless trade which could also include elements of paperless transit systems.[127] The Governments of ESCAP member States as of January 2014 have nominated national focal points to ensure effective communication with regard to implementation of this resolution.[128]

Implementation of Resolution 68/3 is also supported by activities of United Nations Network of Experts for Paperless Trade in Asia and the Pacific (UNNExT). UNNExT activities include promotion of international standards in this area; training and sharing lessons learned and outcomes from the existing bilateral and sub-regional pilot projects on the recognition and exchange of trade-related electronic data and documents, as well as actions to initiate new projects.[129] The activities related to Resolution 68/3 are closely connected to establishment of Single Window environment however they could also have important role in harmonization and facilitation with regard to paperless transit initiatives.

Necessary harmonisation for introduction of paperless transit system will be more viable if the countries already participate in some form of sub-regional economic or political integration structure. ASEAN Customs Transit System, will probably be the first operational international paperless transit system in the region in near future. Other countries in the region may decide to use existing sub-regional bodies, entities or initiatives and their structures (e.g. Economic Cooperation Organization (ECO), the Mekong River Commission (MRC), South Asian Association for Regional Cooperation (SAARC), Shanghai Cooperation Organization (SCO)) which already have experience with implementation and negotiation of Sub-regional Transport Facilitation Agreements to discuss and promote paperless transit systems, harmonize their strategic objectives and proceed with further actions if they reach a common ground for introduction of such systems.

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[127] UN ESCAP, RESOLUTION 68/3, Enabling Paperless Trade and the Cross-Border Recognition of Electronic Data and Documents for Inclusive and Sustainable Intraregional Trade Facilitation, accessible at: http://www.unescap.org/sites/default/files/9per cent20-per cent20Annexper cent202per cent20Fullper cent20textper cent20ofper cent20ESCAPper cent20resolutionper cent2068_3.pdf

[128] UN ESCAP, February 2014, Update on the implementation of Commission resolution 68/3, accessible at: http://www.unescap.org/sites/default/files/Updateper cent20onper cent20theper cent20implementation_English.pdf

[129] More Information on UNNExT are available on: http://unnext.unescap.org/

Establishing international paperless transit system on regional or sub-regional level is achievable, however demanding endeavour. Therefore the governments of interested parties have to establish regional or sub-regional coordinative structures with high-level political support, which could effectively lead and facilitate the process of development of new transit system. The coordinating structure on regional or sub-regional level should make suggestions and discuss national proposals in order to agree on jointly acceptable operational solutions for development and introduction of paperless transit.

For example in the case of development of ASEAN Customs Transit System, a National Transit Transport Coordinating Committee was established in each of the Contracting Parties and a Transit Transport Coordinating Board was established on sub-regional level in accordance with provisions for institutional arrangements from ASEAN Framework Agreement on the Facilitation of Goods in transit.[130] The National Transit Transport Coordinating Committees have role in coordination and implementation of the Agreement on national level, and the Transit Transport Coordinating Board composed of senior officials nominated from each Contracting Party and a representative of the ASEAN Secretariat, oversees coordination and supports implementation of this Agreement.

Coordination on regional or sub-regional level in designing legal framework and interoperability requirements, compliant with international standards, for introduction of international transit systems need to be supported by regional or sub-regional bodies and coordinative structures. They will have important role in this process, which will require more legal and technical involvement, as well as political support. When the concept and general design is previously clearly agreed and accepted by all parties, the process of developing legal framework and providing conditions for interoperability will be significantly facilitated, especially if harmonization and compliance with international standards is ensured. Certainly, the challenges with respect to the legal framework, ICT infrastructure and interoperability have to be addressed as discussed in the previous Chapter. Domestic legislation may need to be revised with regard to various transit and ICT provisions (e.g. cross border sharing of electronic information, electronic signatures, mutual recognition of electronic documents and evidence).

International organizations and various development partners (e.g. WTO, WCO, UNECE, UN ESCAP, World Bank, ADB) have been contributing to promotion and harmonization of trade and transport facilitation initiatives relating to paperless transit with various instruments, standards, activities and projects. Harmonization efforts of international organizations could reduce incompatibility among different national transit systems from legal, procedural and technical point of view.

[130] Article 29 of Agreement on the Facilitation of Goods in Transit lays down provisions for institutional arrangement, December 1998. Accessible at: http://www.asean.org/news/item/asean-framework-agreement-on-the-facilitation-of-goods-in-transit

Agreement on Trade Facilitation[131] is the latest WTO instrument, which addresses the issues of harmonized and streamlined customs and cross border procedures. Among other topics, the Agreement: a) clarifies and improves relevant aspects of Articles V of the GATT 1994 with regard to freedom of transit; b) introduces provision for advance lodging of documents in electronic format for pre-arrival processing; c) promotes simplification of formalities and documentation requirements, acceptance of electronic copies, use of international standards and single window; d) establishes institutional arrangement for cooperation with the Committee on Trade Facilitation – on international level and national committees for trade facilitation. The Agreement does not regulate cross border exchanges of customs information and data, however a reference for possibility of bilateral, multilateral and regional agreements in such direction is mentioned.

WCO tools, international instruments and programs are promoting harmonization, uniform application and simplification of customs procedures, including transit and enhanced use of ICT. WCO Revised Kyoto Convention, WCO Data Model and WCO Single Window Compendium, which have been discussed previously in this Study, are contributing to global interoperability of customs systems. Globally Networked Customs (GNC) is one of the building blocks of the WCO strategic vision – Customs in the 21st Century.[132] The work on GNC is focused on rationalization, harmonization and standardization of secure and efficient exchange of information between WCO Members. Information exchange between business and Customs and between the Customs administrations should be based on set of protocols; standards and guidelines aligned with existing WCO instruments, which the countries should follow.

The long-term vision of GNC implies gradual "creation of an international "e-Customs" network that will ensure seamless, real-time and paperless flows of information and connectivity".[133] Under GNC model customs business processes are divided into individual Utility Blocks (e.g. transit, Authorized Economic Operator, commercial fraud, etc.) and the customs authorities could choose, in accordance with their priorities, which information they prefer to share. WCO Members are initiating and working on development of individual utility blocks on a voluntary basis, and after finalization of certification process coordinated by WCO, those utility blocks will be offered for re-use to other members. The process of development of utility blocs includes strategic aims, business processes, legal issues, functional approaches and technical

[131] With WTO Ministerial Decision from December 2013 (Bali), the negotiation of an Agreement on Trade Facilitation was concluded. This Agreement should enter into force upon finalization of the procedure in accordance with the WTO Agreement. Text of the Agreement and further information are available at: http://www.wto.org/english/thewto_e/minist_e/mc9_e/balipackage_e.htm#trade_facilitation

[132] More information on Globally Networked Customs are available on WCO web site: http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/gnc.aspx

[133] WCO, 2008, Customs in the 21st Century: Enhancing Growth and Development through Trade Facilitation and Border Security. Accessible at: http://www.wcoomd.org/en/topics/key-issues/~/media/3EE76BC165B9409CBE6E31F9923CABB8.ashx

specifications and several layers of interoperability (e.g. entities, business rules, data cluster, trigger, interface, integration and communication).

United Nation Economic Commission for Europe (UNECE) and United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) are extensively contributing to the process of trade and transport facilitation, which includes transit, and have significant role in standardization and promotion of paperless trade and transport environment. Various UNECE conventions (e.g., Customs Convention on the Temporary Importation of Commercial Road Vehicles (Istanbul Convention), International Convention on the Harmonization of Frontier Controls of Goods); facilitation recommendations (e.g. UN Layout Key for Trade Documents, UN Electronic Data Interchange for Administration, Commerce and Transport Standard (UN/EDIFACT), Single Window, Data Harmonization and Code Lists); and standards (e.g. United Nations Trade Data Elements Directory (UNTDED), Core Component Library (CCL), UN/EDIFACT syntax rules, and XML schemas) have been discussed earlier and their importance for paperless transit was stressed in previous chapters of this Study.

With the development of trade and transport facilitation models, publishing various publications and studies related to transit and paperless trade and transport environment[134] and with the support of numerous activities and programs UNECE and UN ESCAP are actively involved in promotion and support of paperless transit. Harmonization of legal framework and interoperability is among the topics covered by the activities of UNECE and UN ESCAP. For example UN ESCAP has published Guidelines on Harmonized Legal Regime on Transport Facilitation[135] and UN ESCAP Study on Regional Arrangements for Facilitation of Cross-Border Paperless Trade in the Asia and the Pacific offers a draft text of Regional Arrangement/Agreement, which will ensure interoperability among National Single Windows and other paperless trade systems.[136]

United Nations Commission on International Trade Law (UNCITRAL) is the core legal body of the United Nations system, which also contributes to modernization and harmonization of the international business environment. For example UNCITRAL Model Law on Electronic Signatures is relevant for paperless transit because establishes criteria of technical reliability for the equivalence between electronic and hand-written signatures based on non-discrimination, technological neutrality and functional equivalence.[137]

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[134] References to several UNECE and UN ESCAP publications have been given in text of this Study and listed at the end of this document.

[135] UN ESCAP, 2007, Towards a Harmonized Legal Regime on Transport Facilitation in the ESCAP Region – Guidelines. Accessible at: http://www.unescap.org/resources/towards-harmonized-legal-regime-transport-facilitation-escap-region-guidelines

[136] UN ESCAP, 2013, 'Study on Regional Arrangements for Facilitation of Cross-Border Paperless Trade in the Asia and the Pacific' (p.6). Accessible at: http://www.unescap.org/tid/projects/bpatf-report.pdf

[137] UNCITRAL, 2001, Model Law on Electronic Signatures, Accessible at: http://www.uncitral.org/pdf/english/texts/electcom/ml-elecsig-e.pdf

The work of international organizations is often supported by various development partners such as ADB and World Bank, which provide valuable financial and technical support to specific projects related to trade and transport facilitation. In the case of budgetary constrains, financial and technical support from regional or sub-regional bodies may be necessary, and such assistance could provide important impulse for successful introduction of international paperless transit systems. For example, EU experience with NCTS shows that even though each Member State has to implement its own national NCTS application, the European Commission and DG TAXUD also have important and active role. This includes developing common rules and user requirements, functional and technical specifications for the common domain and preparation of conformance tests of the systems, maintaining common network and offering some specific applications (e.g. Minimum Common Core transit application). Allocation of human resources for development of NCTS on the Commission level has enabled introduction of NCTS with less staff from national administrations. Specific EU action programs have contributed to further development and harmonization of national customs information systems of the Member States.

Promotion activities supported by regional or sub-regional bodies, international organizations and development partners include various publications, studies, presentations and seminars, and training activities. Technical assistance for specific studies to ensure the feasibility of future paperless transit systems, for development of legal framework or technical interoperability may also be offered from regional or sub-regional bodies, international organizations and development partners to the individual governments. Such support and assistance could raise the awareness for the role of international paperless transit systems, its advantages, challenges and requirements, and will help the governments in decision making process and in the design process of paperless transit systems, which will also support capacity building for development and implementation of new paperless transit system.

IX. The Way Ahead

The introduction of paperless transit system can address some of the major challenges of current transit regimes: the weak information system to reconcile transit declarations, delays at port where transit is initiated and Guarantee management. A normal transit operation involves information exchange among place of initiation, termination and the guarantor for discharge of guarantee. After the goods exit the transit country, transit operation is formally complete and there is need for proper reconciliation of transit declaration between origin and destination.

Due to improper management and lack of system to trace transit declarations and transit manifests, often they are not reconciled. This leads to long delays in discharge of bonds and guarantees, which increases the transit transport costs. As per International Road Union (IRU) estimates, 95 per cent of reported TIR related customs claims arise from non-reporting of carnet pages in customs system and not from frauds. Electronic declarations and messages can make this system automated and as soon as transit is terminated the guarantee can be discharged. The paperless transit can also make guarantee management more efficient by linking all the three places the transit origin, and destination and guarantor.

Another reason for delay in transit process is the initiation of transit. Though there are many reasons for it, but the most apparent is that the Custom authorities follow the same procedure for transit goods as they do for normal imports. The risk parameters, classification and valuation of goods need not be as rigorous as they are for normal imports. For reducing delays, transit can be initiated based on the information in the shipping manifest. This is easy if the transit module has interconnections with the national electronic custom system. Transit module is already built in UNCTAD developed ASYCUDA world. The interface between e-customs and transit system is desirable and practically essential for efficient transit operations and experience of NCTS discussed earlier clearly indicates that paperless transit makes the linkage easier.

Taking into account the best practices in paperless transit systems, lessons learned from regional and national paperless transit related case studies, and taking into consideration advantages and challenges related to international paperless transit systems, this Study suggests that introduction of international paperless transit systems can provide seamless cross border transit movements and support regional integration efforts. While nurturing such vision the governments and the regional bodies could work on specific actions related to paperless transit and create positive environment for paperless transit systems.

Such systems based on harmonized transit procedures and cross-border electronic exchange of information can deal with the challenges due to existence of different practices for international customs transit. Multiple arrangements for international customs transit cause operational challenges due to different rules and implementation practices and multiple actions from the participants. These difficulties

reduce efficiency of customs authorities and raise the transportation cost. International paperless transit system will improve management of transit systems; streamline transit formalities and increase security and quality of customs control.

Systematic exchanges of information, among enforcement and regulatory agencies are becoming easier with automation and it could be expected that such exchanges will increase in the future, due to increased cross border movements and the need for higher security of supply chains. Exchanges of information may take place on national level (e.g. under framework of national single window environment) or international level (e.g. under bilateral or multilateral agreements between customs administrations or regional and sub-regional single window initiatives). Supporting arrangements for cross-border exchanges of information, building an atmosphere of collaboration and trust among enforcement and regulatory agencies leaves the door open for further cross-border cooperation which may include introduction of international paperless transit systems in the future.

On national level, automation of customs procedures and enabling paperless solutions needs to be encouraged due to continuous development and increased availability of ICT and apparent benefits that computerization and paperless systems offer. Lodging electronic customs declarations and exchanges of electronic messages will become standard way of communication between traders and customs authorities. The countries where the national transit procedures are still not handled electronically or where the conditions for electronic customs in general are not sufficiently developed, may make increased efforts to join global trends for replacement of paper documents by electronic data in order to provide reduced costs and decreased delays from customs formalities; enable effective and efficient deployment of resources; and enhance security of customs procedures.

Use of the latest ICT and electronic data processing is one of the solutions in order to overcome issues with scarce resources while providing trade and transport facilitation for increased international trade flows and responding to sophisticated methods for smuggling and fraudulent activities at the same time. Support in computerization efforts for all cross-border agencies will ensure that the benefits of paperless transit are not diminished by cumbersome procedures of some of the agencies, which may lag behind in this area.

Differences of transit procedures and formalities from various transit arrangements (e.g. national transit arrangements for inward, outward and through transit, bilateral or multilateral transit arrangements for inter-state transit and through transit) could result with implementation difficulties and complexity, as well as with security threats. Along with computerization of transit movements, the countries should consider national transit reform, which will provide consistent and harmonized requirements in the transit arrangements with possibility for integration and management of various types of transit movements under single national customs information transit system.

Even when the countries have not decided yet to introduce international paperless transit systems, harmonization of customs transit rules and ICT requirements is one of the important issues that have to be addressed in order to streamline international transit. It is essential that national initiatives for computerization and introduction of paperless transit, national transit reform processes, and arrangements for exchanges of information, take into account related international standards and recommendations.

Standardization will not only support and facilitate those initiatives, processes and arrangements, but will also provide certain level of harmonization which may be very important precondition for any arrangement on international paperless transit system. Regional and sub-regional bodies and international organizations should continue to promote and support standardization and harmonization of transit and ICT requirements and offer support to the countries in this direction

If the paperless transit is extended from national to international transit system the benefits in relation to reduction of costs and higher security could be greatly enhanced. Electronic exchanges of harmonized data on international transit movements among customs administrations will allow principals and declarants to avoid submission of several customs transit declarations with often similar or same data, to different customs authorities at the border crossings.

United Nations ESCAP has developed Secure Cross-Border Transport Model (see Box 11 for more details) that provides for a concept for electronic vehicle tracking system and modern ICT tools.[138] The Model provides an option for systematic exchange of cargo and transport information between customs administrations, which may represent one of the stepping-stones for further cooperation in development of paperless transit system in the region.

Due to complexity of negotiations between many countries where there is a substantial variation in transit priorities and differences in ICT infrastructure, it is advisable to introduce paperless transit on specific bilateral transit corridors to begin with involving few countries only. As an illustration India-Bhutan, India-Nepal can be two such transit corridors. These transit systems can be developed and implemented in a relatively short period of time and if they prove their advantages, as expected, the paperless transit could be further extended and eventually transformed into subregional paperless transit system. In this regard successful introduction of ASEAN Customs Transit System in near future may give strong impulse for development of multilateral transit agreements in the region.

[138] UN ESCAP, 2012, 'Secure Cross-Border Transport Model'. Accessible at: http://www.unescap.org/ttdw/Publications/TFS_pubs/SCBM/SCBM-fulltext.pdf

Box 11: UN ESCAP's Secure Cross Border Transport Model

The Secure Cross Border Transport Model is a transport facilitation model, which defines a concept and foundations for designing a system for cross border transport monitoring. The model suggest innovative integration of information and communication technologies based on Radio Frequency Identification (RFID), satellite positioning systems (SPS), and cellular communication systems (CCS), such as GPRS/GSM for electronic vehicle tracking.

Standard components of the system based on Secure Cross Border Transport Model include:

- Tracking unit – that contains RFID, SPS and CCS module and it is located in the vehicle concerned. This unit determines the location of the vehicle using SPS, records the e-Seal status using RFID, and communicates with monitoring platform via CCS;
- Electronic Seal (e-Seal) – that combine physical seal to secure the cargo, mechatronic component to identify the e-Seal status and RFID component to enable joint functioning with the tracking unit;
- Monitoring Platform – supported by a central server and the electronic tracking application software and used to track the transit movements and;
- Mobile Device – used to initiate and discharge the transit movement at departure and destination point respectively.

The Model offers options for:

- vehicle tracking of entire cross-border transport from departure to destination country; or
- independent vehicle tracking only in own country.

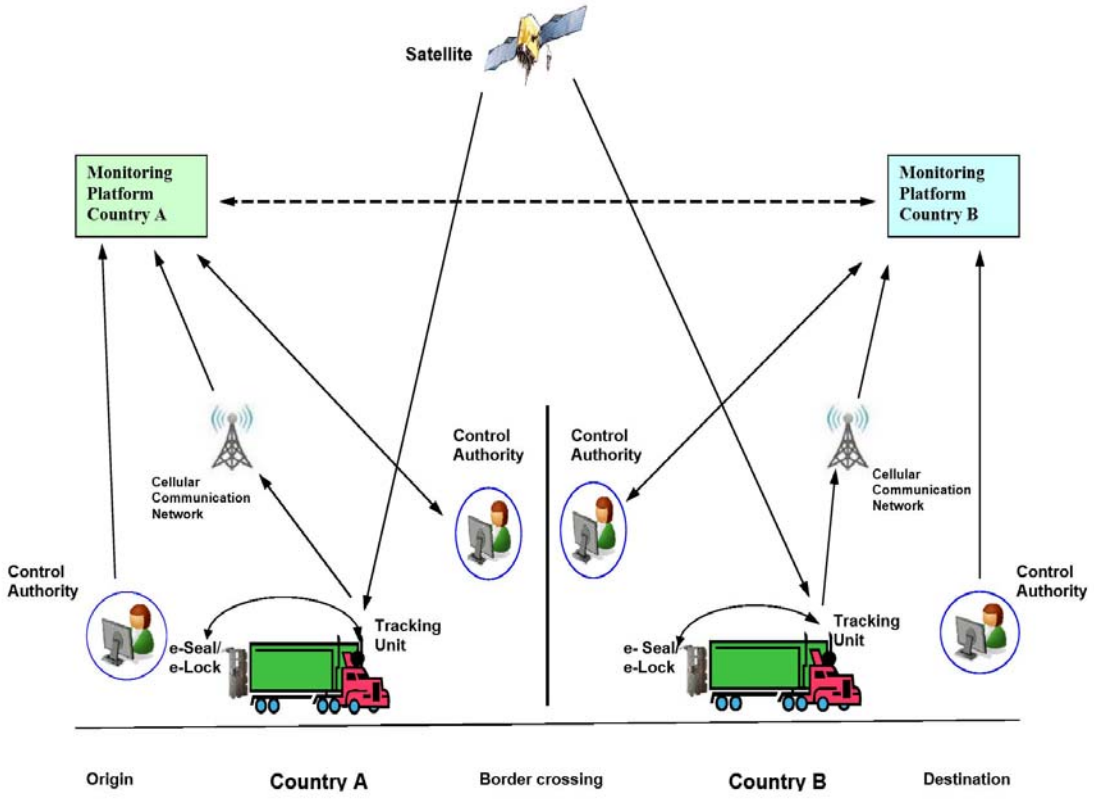
Implementation of this Model may require institutional arrangement that will cover:

- Information exchange, including electronic exchange of Cargo and Transport Information;
- Similar or compatible electronic tracking application software;
- Jointly accredited electronic tracking equipment (e.g. e-Seal and tracking unit);
- Mutual recognition of registration/authorization for use of the system;
- Mutual assistance.

The systems based on this Model will not only address security and safety concerns, but it will increase confidence, mutual understanding, and trust and it could support introduction of facilitation and simplification measures, such as mutual recognition of inspections; exemption from examination of goods and inspections of vehicles at the offices of transit; exemption from customs escort requirements; simplified procedure for temporary admission of vehicles; simplification of document requirements; facilitation of guarantee requirements.

Source: UN ESCAP, 2012, 'Secure Cross-Border Transport Model'. Accessible at: http://www.unescap.org/ttdw/Publications/TFS_pubs/SCBM/SCBM-fulltext.pdf

Figure 19: ESCAP Secure Cross-Border Transport Model



Source: UN ESCAP, 2012, 'Secure Cross-Border Transport Model'. Accessible at: http://www.unescap.org/ttdw/Publications/TFS_pubs/SCBM/SCBM-fulltext.pdf

Subregional, regional and international organizations should promote, facilitate and support development of joint vision for liberalization of transport environment and regional paperless transit. ESCAP Regional Strategic Framework for Facilitation of international transport a document that provides long-term vision for the international road transport is a step in that direction. Promotion of international conventions, international standards, recommendations and best practices can lower level of diversity among various bilateral, multilateral and sub-regional agreements and pave the way for harmonization of the legal framework.

These organisations can further work to develop a harmonised/standardised international transit procedure including electronic transit declaration, exchange of manifest and carnet information, guarantee management system and message structures. Differences regarding ICT infrastructure, information exchange protocols and the level of centralization of transit applications could be expected, however they should not hamper possibility for future interoperability. In this regard minimal or baseline requirements in order to ensure interoperability and appropriate interface solutions can be suggested.

Based on national priorities and understanding reached in bilateral, multilateral or sub-regional arrangements the paperless transit systems may be introduced in a phased manner, given the differences in transport and transit environment in the countries. (e.g. differently regulated transport and traffic rights). Convergence in previously mentioned areas should be recommended for the ultimate integration of various bilateral, multilateral or sub-regional agreements. Integration of paperless transit systems in national or regional Single Window environment, even though may be preferred for facilitation reasons, should not be set as a condition for development of new transit systems in order to avoid unnecessary delays due to the differences among the countries in this regard.

Development of paperless transit is a continuing process, with multiple stages that should enable gradual improvements in transit connectivity. Widening the awareness for the role of paperless transit, and continuing capacity building for introduction of modern ICT solutions in cross border regulatory requirements will support this process and the work on national, sub-regional and regional level for facilitation of international transit movements.

Annex I

Electronic data processing options in TIR System and eTIR Project

The Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention, 1975)[139] puts together the only global customs transit system. TIR transit system covers whole Europe and it is spread to North Africa, Middle East and Central Asia. It has partial presence but is not operational in other parts of Asia and Africa, and North and South America. Currently the TIR system has 68 contracting parties, including the European Union and it is operational in 58 countries.[140] TIR system is still functioning in a paper based environment, however several options for electronic support have being introduced and there is an on-going initiative to fully computerize the TIR system.

The TIR System proved to be efficient tool for facilitation of international transport for many years, however with the technological advancement, the use of paper TIR Carnet is becoming more and more out of date. There are many initiatives related to computerization of TIR System. Presently some solutions offer limited advantages of electronic data processing at national level and other solutions, mainly developed by IRU, are focused on international electronic support for the TIR System. The Contracting Parties to the TIR Convention are actively working on eTIR project developing the ground, which should ultimately provide paperless TIR procedure in the future.

TIR carnets are processed in the national customs information systems. On national level, customs information systems could usually offer exchange of information on TIR operations between networked customs offices or gather such information at central offices. Exchange of electronic information between national customs offices involved in TIR operation increases the security of TIR operation, facilitates the termination of TIR operation and could also enable electronic reconciliation and automatic discharge of TIR Carnets. In that case, after termination of TIR operation, instead of sending by mail paper document for reconciliation to the customs office of departure or entry (en route), the customs information system should create special electronic message for communication between the customs offices for the purposes of electronic reconciliation.[141]

The IRU in partnership with customs administrations and national issuing/guarantee associations is intensively working on electronic support for TIR

[139] TIR Convention 1975, as amended http://www.unece.org/fileadmin/DAM/tir/handbook/english/newtirhand/TIR-6Rev10EN_Convention.pdf

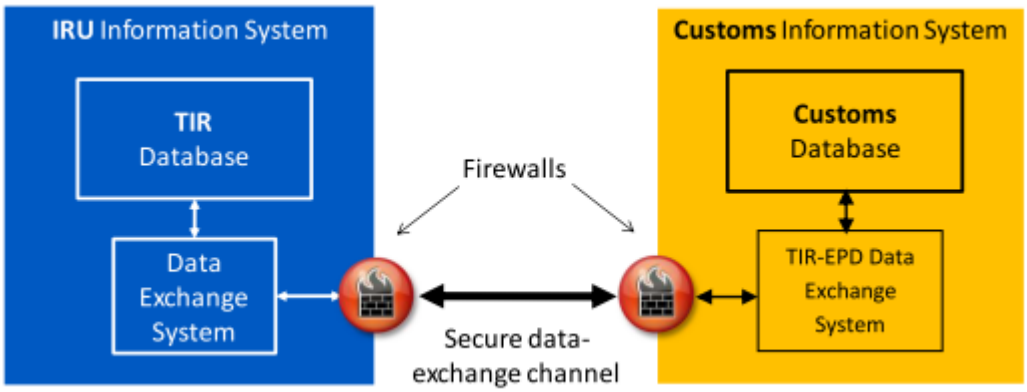
[140] Data from UNECE website: http://www.unece.org/tir/welcome.html last accessed on 15.04.2014

[141] Best Practices for procedures for the discharge of TIR Operation - UNECE, 2013, TIR Handbook - Customs Convention on the International Transport of Goods under TIR Carnets (TIR Convention, 1975), Tenth Revised Edition (p269). Accessible at: http://www.unece.org/fileadmin/DAM/tir/handbook/english/newtirhand/TIR-6Rev10_En.pdf

system and developing electronic databases and different software applications such as: TIR Electronic Pre-Declaration (TIR-EPD), TIR Customs Utility for TIR Transaction Entry (TIR Cute Web), TIR Customs Utility for TIR Transaction Entry – Worldwide Information System for Enquiry (TIR Cute-Wise), Safe TIR System and Real Time Safe TIR (RTS TIR). Information on all transport operators authorized to use TIR Carnets, codified with a unique identification (ID) code system, is provided by national issuing/guarantee associations, centrally consolidated and stored in the International TIR Data Bank (ITDB). Previously mentioned electronic systems are using this database to identify TIR Carnet holders and provide better security of the TIR System.

TIR Electronic Pre-Declaration (TIR-EPD)[142] is a web-based software application for supplying advance electronic cargo information about TIR transport to the relevant customs offices in different countries. TIR Carnet holders could use TIR-EPD to send the information in advance before arrival of the goods at the customs offices and to comply with regulatory requirements for advance information that might be imposed by national legislation.[143] TIR-EPD could be integrated with the customs information system with creation of TIR-EPD Data Exchange System. That will enable exchange of advance TIR information between TIR carnet holders and customs offices, and access for the customs authorities to the TIR-EPD on safe and secure manner.

Figure 1: TIR-EPD Integration with Customs Information System



Source: IRU Web site: http://www.iru.org/cms-filesystem-action/tir/en_TIR-EPD-Leaflet.pdf

Advance information received by the TIR-EPD enables pre-arrival risk analysis and secures TIR operations. Consistency of the data is ensured by simultaneous submission of advance information to all customs offices in the different countries along the route. TIR-EPD provides automatic controls on identity of holders and validity of TIR

[142] Further information on TIR-EPD are available on IRU website http://www.iru.org/en_iru_tir_epd

[143] European Union legislation requires electronic TIR information in advance from 2009, the Customs Union of Belarus, Kazakhstan and the Russian Federation is asking for mandatory submission of advanced information from 2012, and similar provisions have been adopted by other TIR countries as well. Source: http://www.iru.org/cms-filesystem-action/tir/en_TIR-EPD-Leaflet.pdf

carnets. Advance information enables risk assessment to makes decision about possible customs control before the arrival of the goods and contributes to simplification of TIR operations; and reduce the time needed for customs formalities. Presently 27 countries are using the TIR-EPD, which is available on 17 languages.[144]

TIR Customs Utility for TIR Transaction Entry (TIR Cute Web) is a web based application which facilitates the manual entry and transmission of TIR termination data by customs administrations and/or national issuing/guarantee associations. Access to TIR Cute Web is restricted to authorized and registered users only and it could be used only for the TIR termination data that they have entered into the application.

TIR Customs Utility for TIR Transaction Entry – Worldwide Information System for Enquiry (TIR Cute-Wise)[145] is an application that provides access to the databases of the TIR carnets issued by national issuing/guarantee associations as well as access to the IRU's databases of the TIR carnets. This application is intended for customs administrations and national issuing/guarantee associations in order to provide information on the different status of the TIR carnets (e.g. in circulation, returned to IRU, terminated and recorded as invalid).

Safe TIR System[146] is a control system established by IRU, which holds data transmitted by customs authorities about the termination of the TIR transport at offices of destination. The system enables interested parties (e.g. customs administrations, issuing and guaranteeing associations, insurers, transport operators, IRU) to verify the status and validity of TIR carnets. This system confirms the termination of the TIR transport and manages risk in the TIR system by electronic tracking of TIR carnets and detection of potential irregularities. Safe TIR facilitates internal inquiry procedure and provides alternative proof for the termination of the TIR operations for the customs authorities. National issuing/guarantee associations use Safe TIR to verify continuously that transport operators authorized to utilize TIR carnets are fulfilling the conditions and requirements imposed in accordance with TIR procedure. They could use Safe TIR as a tool for comparison of available data from the system and TIR carnets returned from the holder to the association. In a case of discrepancy they could start reconciliation procedure and take immediate action to prevent misuse of TIR Carnets. The use of Safe TIR is obligatory from 2006. The statistics are showing increased volume of data transmissions and decreased average time for transmissions from 26 days in 2000 to 1.5 days in 2012 as a result of increased number of countries that transmit data about termination of TIR transit in real time.[147]

[144] IRU TIR-EPD Leaflet http://www.iru.org/cms-filesystem-action/tir/en_TIR-EPD-Leaflet.pdf

[145] Further information are available on: http://www.cutewise.org

[146] Further information are available on: http://www.iru.org/en_iru_tir_safetir

[147] Data from IRU website http://www.iru.org/en_iru_tir_safetir; last accessed on 15.03.2014

Real Time Safe TIR (RTS TIR) System [148] enables real time data exchange with the customs authorities. The system enables: a) automatic and secure Safe TIR data transmission by customs authorities once the TIR operation is terminated; b) validity verification of TIR carnets in real time and c) handling of electronic requests for reconciliation. RTS TIR enables real time verification and prompt detection of possible irregularities. Automation of Safe TIR message transmission eliminates time consuming manual routine of operations, which is prone to errors. Integration of RTS TIR with the customs information systems could provide continuously updated TIR carnet status and improve security of the TIR system. Current statistics show that almost 85per cent of TIR operation terminations are transmitted through RTS TIR.[149]

Ask TIR[150] is a software application, which facilitates management of entire life cycle of the TIR Carnets for the national associations from the time of order and delivery from IRU, until they are returned to the IRU and the subsequent administrative procedures such as claims and Safe TIR inquiries.

eTIR project[151] was initiated in 2000 and continued in 2003 with final objective to computerize the whole TIR Carnet life and ultimately to replace the current paper based TIR Carnet with paperless electronic TIR document. Despite all improvements with the application for electronic support of the TIR system, customs officers still need to key in large number of data elements, into their national customs information systems to process the paper based TIR carnet.[152] Effectiveness of the risk management could be also improved with submission of electronic TIR document. Introduction of eTIR system will enable implementation of international paperless transit and in such case the management of TIR transit will be improved and security of transit operation will be strengthened.

The future of eTIR system depends on joint efforts of the TIR Convention Contracting Parties and the TIR guarantee chain partners to update and interconnect their national and private systems. Objectives of eTIR project are challenging, because comprehensive harmonization of complex requirements on national and international level is needed. Therefore the project adopted a step-by-step approach and presently eTIR Project is still in elaboration phase when the ideas are further refined. Outcomes in a form of eTIR Reference Model are being produced and they are showing progress in advanced stage.[153]

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[148] Further information are available on: http://www.iru.org/en_rts

[149] Data from IRU website: http://www.iru.org/en_rts; last accessed on 15.03.2014

[150] Further information are available on: http://www.iru.org/en_iru_tir_asktir

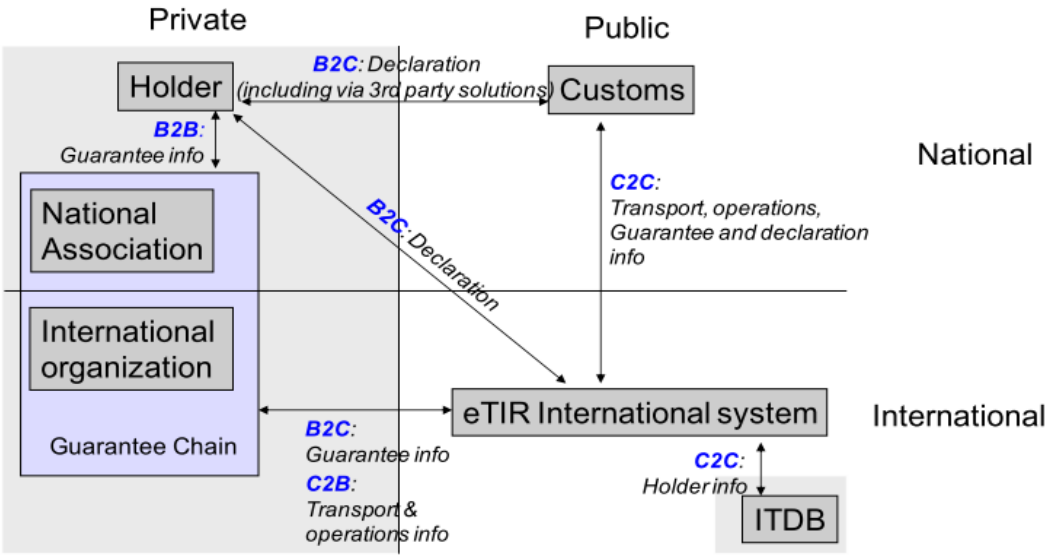
[151] Further information, full description and progress on eTIR project could be found at UNECE website: http://www.unece.org/trans/bcf/etir/welcome.html and last version of eTIR Reference model (Version 4.0) http://www.unece.org/fileadmin/DAM/trans/bcf/adhoc/conc_tech/documents/id13-04e.pdf

[152] Data from UNECE website: http://www.unece.org/trans/bcf/etir/background.html

[153] Last version of eTIR Reference Model is Version 4 available on UNECE website: http://www.unece.org/fileadmin/DAM/trans/bcf/adhoc/conc_tech/documents/id13-04e.pdf (15.04.2014)

The eTIR could be divided in two major modules: management of data on guarantees and transit data exchange. Two modules should be developed simultaneously in order to achieve full computerization of the TIR procedure, and to be fully implemented by all parties involved. Options for information exchange between the actors in the eTIR system presently developed by eTIR model are represented in Figure 2 of this Annex shown below. The TIR carnet holder will have various alternatives for submission of electronic TIR document. A first option would be direct web based submission provided by the eTIR international system; a second option will be submission through the private sector which could involve national associations and international organization (e.g. with systems such as IRU's TIR-EPD), and a last option could be submission through the national customs information systems which support electronic transit declarations in the country of residence of the transport operator.

Figure 2: Information Flow between the Actors of the eTIR System



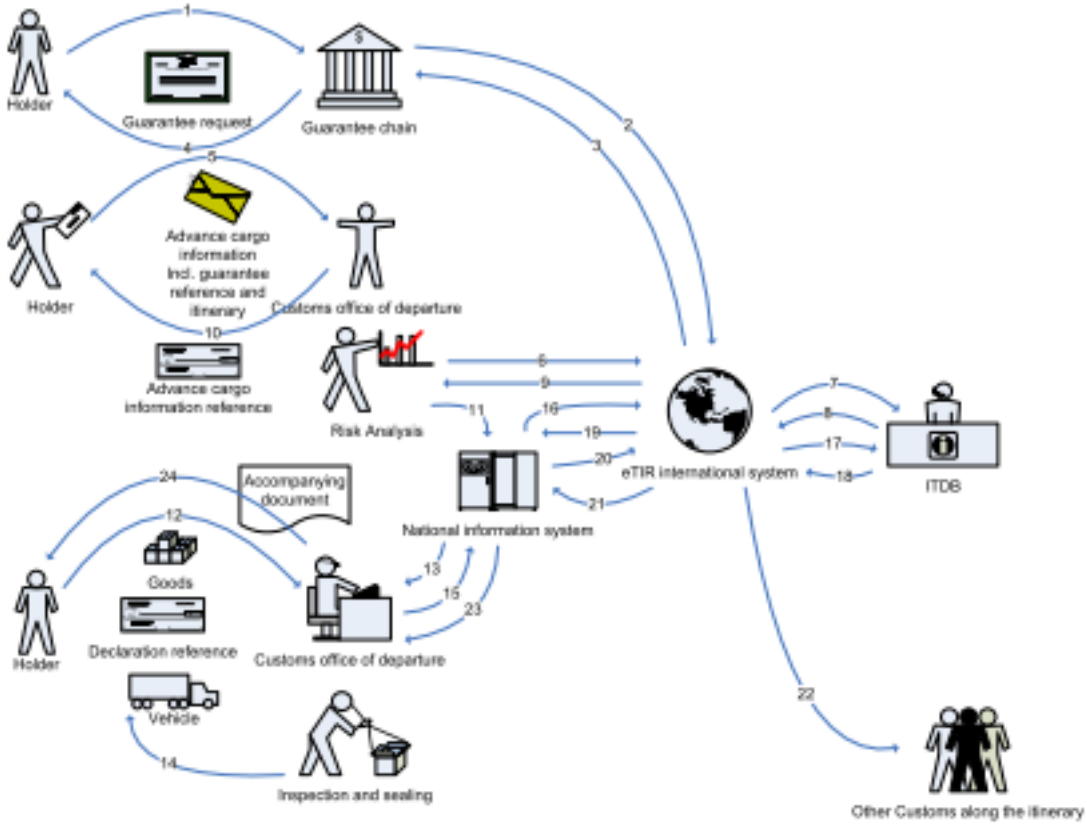
Source: UNECE, 2013, eTIR Reference Model - Version 4.0a. Accessible at: http://www.unece.org/fileadmin/DAM/trans/bcf/adhoc/conc_tech/documents/id13-04e.pdf

An example of possible future eTIR transport with submission of electronic TIR document through national customs information systems is shown in Figure 3 of this Annex. A holder first requests a guarantee from a guarantee chain (1) and when the request is granted, the guarantee chain returns to the holder guarantee reference number (4). The issued guarantee is registered with the eTIR international system (2,3). Then, the holder sends an advance cargo information message to the customs office of departure (5), using a national customs declaration information system and receives declaration reference number (10). Customs authorities could carry on with risk analysis.

Next, the holder could present the goods, associated guarantee/declaration reference and the vehicle at the customs office of departure (12) to initiate TIR

procedure. Then the customs authorities could register the cargo information message already available, as an electronic transit declaration (13); examine the goods and inspect the vehicle where necessary; and seal the vehicle if all checks are in order (14). In the next step the results of the checks and the seals will be stored, information about acceptance of the guarantee will be exchanged, and status of the holder will be verified (15, 16, 17, 18, 19).

Figure 3: Example of eTIR Formalities (at the customs office of departure)



Source: UNECE, 2013, eTIR Reference Model - Version 4.0a. Accessible at: http://www.unece.org/fileadmin/DAM/trans/bcf/adhoc/conc_tech/documents/id13-04e.pdf

After acceptance of the electronic TIR document, national customs information system will communicate to the eTIR international system relevant TIR data (including declaration number, declaration data, results of the checks and seal number) (20). TIR accompanying document will be printed and handed over to the holder (23, 24) and then the TIR operation could start. eTIR international system will provide all customs administrations involved in TIR transport with relevant TIR data (22) which will serve as advance cargo information for all subsequent customs offices. Upon arrival at a consecutive customs office of entry (en route), the procedure will be repeated, based on the advance cargo information.

At the customs offices of exit (en route), the customs information system will communicate message to the eTIR international system to inform about termination and discharge of that part of a TIR operation. When the TIR transport reaches a customs office of destination the TIR transport will be terminated and communication about termination and discharge will take a place again.

Annex II

Categorization of Single Window Models

In accordance with **UN/CEFACT Recommendation Number 33** different models for the Single Window could be categorized as:

- a single authority that receives paper based or electronic information and disseminates them to the relevant authorities;
- a single automated system:
  - integrated – where data are collected, processed and then distributed to interested cross border regulatory agencies;
  - interfaced – where data are collected and sent to the interested agencies for processing; or
  - hybrid which is combination of previous two options; and
- an automated Information transaction system which offers a possibility of submitting necessary information and single application for approvals to the various cross border regulatory agencies that subsequently electronically transmit approvals back to the traders.

The **WCO** is also expanding approaches to understand Single Window environment including:

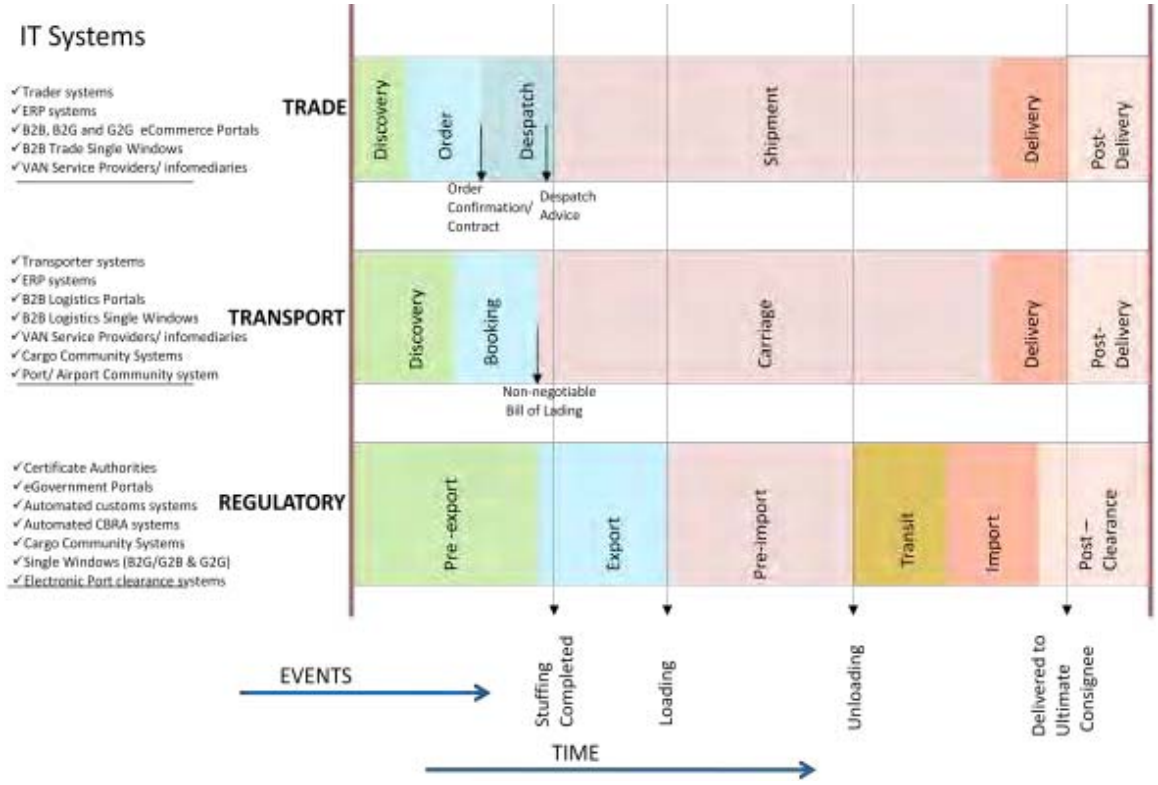
- a Single Window as a part of Coordinated Border Management;
- a Single Widow as the virtual enterprise which may be a legal entity, a web-portal or orchestrated network of collaborating facilities and organizations; and
- a Single Window as collection of trade, transport and regulatory processes.[154]

With the overview of regulatory processes shown in Figure 1 of this Annex, transit could be identified as the link, which connects export and import process. Transit in our case covers the international land transport. Other options for various types of international transport (e.g. maritime transport) and other business processes that may occur in pre-import processes in this case are not specifically presented. The overview presents three distinct views of trade, transport and regulatory processes that take place simultaneously. Relevant IT systems associated with various business processes should be interlinked when developing Single Window environment which again confirms complexity of this undertaking.[155]

[154] WCO Compendium, 2011, How to Build Single Window Environment – Volume 1: The Executive Guide, (p.17). Accessible at: http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/single-window/~/media/252D1BF37A814526BF5BFFEAB7F13692.ashx

[155] WCO Compendium, 2011, How to Build Single Window Environment – Volume 2: The Professional Practice Guide (p.83-86), Accessible at: http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/single-window/~/media/861FFA93206B41D8BE754371ADA7A112.ashx

Figure 1: Overview of Trade, Transport and Regulatory Processes



Source: WCO Compendium, 2011, How to Build Single Window Environment – Volume 2: The Professional Practice Guide (Diagram 5 - p.86), Accessible at: http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/single-window/~/media/861FFA93206B41D8BE754371ADA7A112.ashx

Other classifications of Single Window initiatives recognize limited Single Window forms such as:

- Customs Single Window, which includes customs authorities and trading community, and do not fully cover the permits and licensing of all other cross border regulatory agencies;
- Port Single Window and port community systems; and
- Sub-national Single Window at city or provincial level.[156]

A variety of different Single Window initiatives have emerged around the world as result of different priorities and facilitation needs, and long evolution period of Single Window environment. It is also common that multiple Single Window models exist in a same country. One of the important challenges in future will be linking different platforms into integrated national or regional Single Window environment.

[156] Jonathan Koh Tat Tsen, 2011, Ten Years of Single Window Implementation: Lessons Learned for the Future (p.10-12). Accessible at: http://www.unece.org/fileadmin/DAM/trade/Trade_Facilitation_Forum/BkgrdDocs/TenYearsSingleWindow.pdf

Recommendations on key initiatives for future development of globally networked Single Window include:

- Creating a common, global framework for Single Window planning and development, that incorporates and interconnects different forms of Single Window models;
- Prioritizing regional Single Window collaboration which could include: exchange of best practice, the development of sustainable business models and pilot projects for data exchange among national Single Window models and development of technical and legal frameworks for information exchange;
- Developing a vision at global level for how to achieve electronic information exchange in global supply chains using the capabilities of Single Window implementations;
- Taking into consideration the potential of Single Window environment when developing bilateral or multilateral trade agreements, which should include provisions to enable information sharing in cross-border trade and movement of goods.[157]

[157] Jonathan Koh Tat Tsen, 2011, Ten Years of Single Window Implementation: Lessons Learned for the Future (p.25); Accessible at: http://www.unece.org/fileadmin/DAM/trade/Trade_Facilitation_Forum/BkgrdDocs/TenYearsSingleWindow.pdf

Annex III

Regional Integration Initiatives as a Background for Regional Transit Systems

ASEAN Customs Transit System (ACTS)

The Association of Southeast Asian Nations (ASEAN) was established in 1967 by Indonesia, Malaysia, Philippines, Singapore and Thailand; and later Viet Nam, Lao PDR, Myanmar and Cambodia become members as well. The main aims of ASEAN as political and economic organization among other include accelerated economic growth, through joint endeavours, collaboration in the economic and administrative fields; expansion of trade; and improvement of transportation. ASEAN leaders have set a goal to establish an ASEAN Community by 2015 comprised of three pillars:

a) ASEAN Political-Security Community,
b) ASEAN Economic Community and
c) ASEAN Socio-Cultural Community.[158]

Development of efficient transit system is one of the necessities for ASEAN integration and building ASEAN Economic Community. The ACTS should be based on Protocol 7 from ASEAN Framework Agreement on the Facilitation of Goods in Transit.

International Transit of Goods (TIM)

In 1951 the governments of Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua created the Organization of Central American States (ODECA)[159] to promote regional cooperation and unity. ODECA was succeeded with the Central American Integration System (SICA)[160] in 1991 established by Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama; and Belize and Dominican Republic joining later.[161] Integration processes have intensified under SICA, based on broad range of goals, which include achieving economic union and strengthening the region as an economic bloc.[162]

Regional integration and development has been also addressed with the Mesoamerica Project (Proyecto Mesoamérica – PM), which started in 2008, and originally initiated in 2001 as the Plan Puebla-Panama among Mexico and SICA countries. Mesoamerica Project is supported by Inter-American Development Bank (IDB)

[158] ASEAN web site: http://www.aseansec.org/overview/

[159] Abbreviation “ODECA” comes from Spanish: “Organización de Estados Centroamericanos”

[160] Abbreviation “SICA” comes from Spanish: “Sistema de la Integración Centroamericana”

[161] SICA in Brief, SICA web site: http://www.sica.int/sica/sica_breve_en.aspx, last accessed on 15.04.2014

[162] Purposes of SICA, SICA web site: http://www.sica.int/sica/propositos_en.aspx?IdEnt=401&Idm=2&IdmStyle=2, last accessed on 15.04.2014

and comprises various projects in the areas of regional integration, infrastructure, energy, and trade and transport facilitation.[163]

TIM is one of the projects under framework of Mesoamerica Project. The project has background from 2004 under the Plan Puebla-Panama. The project design and implementation was administrated by Central American Secretariat for Economic Integration (SIECA) of SICA countries and financially and technically supported by IDB.

Sub-Regional Customs Transit Systems in East and Southern Africa

Among numerous regional and sub-regional integration initiatives in Africa for this study we are keeping our attention to Eastern and Southern Africa where the main integration initiatives are the Common Market for Eastern and Southern Africa (COMESA), the East Africa Community (EAC) and the Southern African Development Community (SADC). In 2005 a tripartite umbrella organization, which includes sub-regional economic communities of COMESA, EAC and SADC was established and in 2008 negotiation for tripartite free trade agreement among them was initiated. The Tripartite covers 26 member countries with more than 527 million people. The tripartite free trade agreement should address the various complementary areas such as promotion of customs cooperation and trade facilitation and it is also affecting the efforts of COMESA, EAC and SADC to harmonize their international transit regimes and to develop information and communication solutions for effective exchange of information and support of transit movements.[164]

COMESA was formed in 1994 to replace the former preferential trade in the region, with intention to form a large single economic unit overcoming the barriers to trade.[165] Among the instruments, which could closely link the national economies of the 19 Member States and increase the regional economic integration, COMESA implemented the Protocol on Transit Trade and Transit Facilities, which enables harmonization of the policies for regional trade and transport facilitation.[166] Various instruments have been introduced including: the COMESA Yellow Card Insurance Scheme, the COMESA Carrier License for road freight operators, the COMESA Harmonized Axle Load, and Gross Vehicle Mass Limits, the COMESA Customs Document. Various measures to integrate those instruments and to increase their

[163] Inter-American Development Bank, 2011, Aid for Trade Case Story: The Mesoamerica Project (MP) (p.2), Accessible at: http://www.oecd.org/aidfortrade/47750990.pdf

[164] COMESA-EAC-SADC Tripartite overview on EAC web site: http://www.eac.int/index.php?option=com_content&view=article&id=1496&Itemid=201

[165] More information on COMESA are available or their website: http://about.comesa.int/

[166] Text of the Protocol for Transit Trade and Transit Facilities (COMESA) available at: http://wits.worldbank.org/GPTAD/PDF/annexes/COMESAper cent20protocol.pdf

accessibility have been initiated.[167] Transit system in COMESA countries is based on Regional Customs Bond Guarantee System.

SADC was established in 1992 as a regional economic community committed to regional integration and poverty eradication through economic development, peace and security.[168] Acknowledging that international trade depends heavily on cross border transport of goods the difficulties at borders are identified as a major impediment, where inefficient customs procedures are causing long delays at border crossings. Protocol on Trade is the instrument for 15 SADC Member States for harmonization and simplification of customs procedures, which include transit transport and other cross border formalities.[169] Transit system in SADC countries is based on SADC Customs Bond Chain Agreement.

EAC is the regional intergovernmental organization created in 2000 with aims of widen and deepen cooperation among its Member States which already have established customs union in 2005 and a common market in 2010. Presently EAC has five Member States and some of them are participating in COMESA and SADC as well.[170]

[167] For example the pilot project of Virtual Trade Facilitation System (CVTFS), which started in 2013 in the Northern Corridor consisting Kenya, Uganda, Rwanda and DR Congo. Information on COMESA web site: http://www.comesa.int/index.php?option=com_content&view=article&id=839:new-system-to-smoothen-regional-trade&catid=5:latest-news&Itemid=41

[168] More information on SADC are available or their website: http://www.sadc.int/about-sadc/

[169] Text of the Protocol on Trade (SADC) available at http://www.sadc.int/files/4613/5292/8370/Protocol_on_Trade1996.pdf

[170] More information on SADC are available or their website:http://www.eac.int/index.php?option=com_content&view=article&id=1&Itemid=53

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