

# Rwanda Electronic Single Window supports trade facilitation

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## Abstract

This paper provides an overview of the implementation of the Rwanda Electronic Single Window (ReSW) and its impact on trade facilitation since its introduction in 2012. In an effort to improve trading across borders, Rwanda's Doing Business Committee planned to implement the ReSW in the shortest possible time and appointed the Rwanda Revenue Authority (RRA) as the lead agency. An ReSW Steering Committee and project implementation team were established which included all stakeholders to ensure that the project addressed the broadest needs to achieve its goals. The use of the ReSW has resulted in reduced clearance times, and direct and indirect costs associated with international trade. Suggestions are offered in this paper about ways to further reduce time delays, for example, by critically reviewing the need to physically inspect a large part of cargo presently being inspected.

## 1. Introduction

The Rwanda Electronic Single Window (ReSW), since its introduction in 2012 has been a major force leading to facilitating international trade. Clearance times have been reduced, and both direct and indirect costs connected with international trade have been reduced as processes were re-engineered and simplified. Officials and private sector stakeholders are pleased with the outcomes. The ReSW provides a system that allows for the submission of a single declaration containing all information required by the various agencies responsible for controlling trade into and out of Rwanda and enables these agencies to inform traders and their representatives of the progress of the release process. The ReSW underwent a systematic evaluation in early 2015 as to its relevancy, efficiency, effectiveness and sustainability. This paper draws on this evaluation and provides insights that may be useful to other administrations as they evaluate the costs and benefits of introducing a Single Window as recommended by both the World Customs Organization (WCO) and the World Trade Organization (WTO).<sup>1</sup>

## 2. Why a Single Window?

For some time traders, government officials and international observers have become increasingly worried that high trade costs are hindering the expansion of exports, increasing the cost of trading and generally undermining the external competitiveness of the country. The growth ambitions of Rwanda, its objective for greater integration with the East Africa Community (EAC) as well as its objective to reduce poverty were increasingly viewed as being undermined by high trade costs. The high trade costs were clearly documented by the World Bank's 'Trading Across Borders' indices which are part of the widely circulated 'Cost of Doing Business' and in the World Bank's bi-annual publication 'Logistics Performance Indicators'.<sup>2</sup> For 2008, the 'Trading Across Borders' ranked Rwanda 166th out of 178 countries in the study. In the same year, its ranking on the Logistics Performance Index was 143rd out of 150. Establishing a Single Window was expected to reduce the cost of trade, hence improve these

rankings, and was consistent with the government's objective of making more government services available on line.<sup>3</sup> A feasibility study undertaken in 2008 suggested that the introduction of a Single Window with the adherence of the various border control agencies and the trader community combined with efforts to simplify operational procedures would achieve this objective.

### **3. What business model?**

Rwanda had to make several decisions with respect to the managerial and operational details of the ReSW. Which agency would be in charge, would the Private Public Partnership (PPP) model be appropriate and cost effective, and which information technology platform would be adopted? The Rwanda Revenue Authority (RRA) was responsible for guiding the ReSW implementation. A team established for that purpose examined the various Single Windows that were operational at the time. When donor funding became available the advantages of the PPP model, which would have required compensation for capital invested by the private partner, became less attractive than a model under which the ReSW would be operated as a fully publicly owned entity.<sup>4</sup> Also the RRA, with donor backing, was believed to be fully capable of managing the implementation process. Five service providers were identified by RRA as potential vendors of a Customs Management System and a Single Window System with functionalities that would meet the primary requirements of the ReSW. Following an intensive due diligence exercise, UNCTAD's ASYCUDA World was selected and provided with a contract to replace/upgrade RRA's ASYCUDA ++ and to install it as the ReSW platform. ASYCUDA World is based on modern ICT technology (web, Java, etc.) that allows the implementation of e-Government and e-Business by interfacing the management information systems of the different agencies and stakeholders concerned.

### **4. Implementation process of the ReSW**

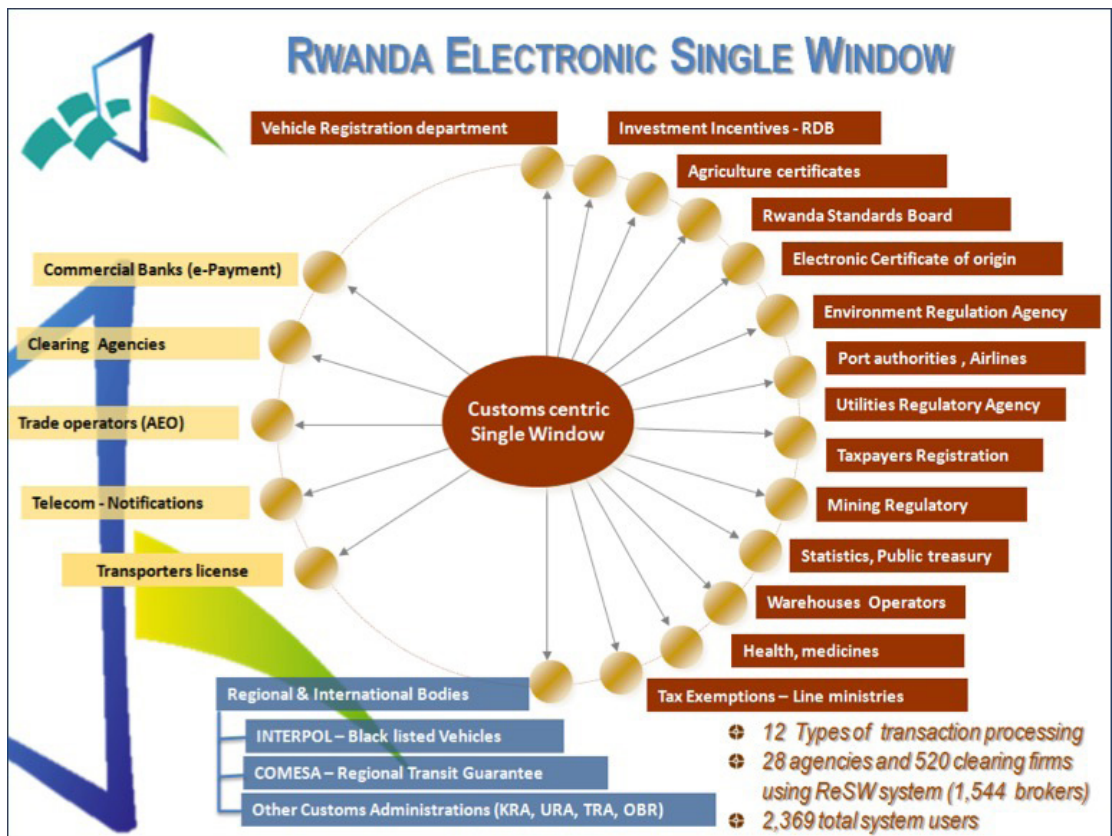
Rwanda's Doing Business Committee examined different ways of improving cross-border trade and decided to implement the ReSW within the shortest possible time and to appoint the RRA to spearhead its implementation as lead agency. An ReSW Steering Committee and project implementation team were established to guide the implementation process of the ReSW with all stakeholders obtaining representation on the Steering Committee.

A hybrid approach was applied to implement the ReSW. For all stakeholders an interface with ReSW was to be made available. However, in 2012, those ReSW stakeholders that did not yet have a computerised environment were provided with direct access to the ReSW using an integrated approach that was to be upgraded to an interfaced approach once agencies acquired adequate computerised systems.

The legal framework for the operation of the ReSW is based on the legislation pertaining to electronic messages, electronic signatures and electronic transactions. In order to establish administrative agreement on implementing the ReSW, Memoranda of Understanding between the RRA and the various stakeholders were signed. Internet connectivity at times caused access delays, a factor that gradually receded with the build out of stronger internet connections. During the piloting stage of the ReSW that started in February 2012 the following agencies were selected as official stakeholders in addition to the RRA: (i) Rwanda Development Board (RDB) which regulates investment incentives, (ii) Rwanda Standard Board (RSB), (iii) Ministry of Health (MOH) – and one private company that manages a public bonded warehouse. The piloting started with the Gikondo office, which is the Customs office handling the majority of cargo destined for Rwanda, with all clearing agencies operating at this office. The MOH however, was unable to participate in this startup of the ReSW and it is still lagging behind. Mid-2012 saw the launch of the notification system and registration process, whereby traders could receive notification of the progress of the clearance of their consignment by the ReSW. Comprehensive

training of all clearing agents, customs staff and other involved stakeholders, as well as an awareness campaign for the trading community, preceded the roll out. A communications expert assisted the RRA in developing the communication strategy. By the end of 2012, the roll out to all Customs offices was completed and the development of electronic payment arrangements with the main commercial banks operating in Rwanda had also been implemented. The number of agencies implementing the ReSW has been gradually expanded. Figure 1 provides a systematic overview of the ReSW structure as envisaged at the outset. Currently, the ReSW has 12 types of transaction processes, which have been implemented by 28 agencies and 520 clearing firms operating in Rwanda and the EAC in general. System users now total 2,369. Table 1 provides details of existing arrangements while Table 2 indicates the operations that are to be incorporated in the near future.

Figure 1: Rwanda Electronic Single Window design when fully rolled out



Source: Nizeyimana 2015.

*Table 1: Rwanda Electronic Single Window stakeholders operational in early 2015 and pending*

<b>ReSW Process</b>	<b>Agencies/Department</b>	<b>Key features</b>
Investment incentives management	<ul style="list-style-type: none"> <li>• RWANDA DEVELOPMENT BOARD</li> </ul>	<p>Online application and approval of investment registration according to investment sector</p> <p>Online application and approval of exemption on importation</p>
Bonded Warehouse Operator	<ul style="list-style-type: none"> <li>• MAGERWA</li> </ul>	<p>Transmission of manifest information into MAGERWA system</p> <p>Receiving tally report on warehouse goods</p> <p>Automatic generation of Arrival notice</p>
e-Payment	<ul style="list-style-type: none"> <li>• BANK OF KIGALI</li> <li>• I&amp;M BANK</li> <li>• ACCESS BANK</li> <li>• ECOBANK</li> <li>• MOBICASH</li> <li>• MOBILE MONEY (MTN)</li> <li>• TIGO CASH (TIGO)</li> </ul>	<p>Sharing of payment details with commercial bank;</p> <p>Use of internet or mobile banking to pay customs declaration</p> <p>Receiving payment notification from commercial bank</p> <p>Automatic payment of customs declaration</p>
e-Exemption	<ul style="list-style-type: none"> <li>• MINAFFET</li> <li>• MINAGRI</li> <li>• MINALOC</li> <li>• MINEDUC</li> <li>• MININFRA</li> <li>• RWANDA GOVERNANCE BOARD</li> <li>• SPECIAL ECONOMIC ZONE AUTHORITY</li> </ul>	<p>Online application and approval of tax exemption on importation</p> <p>Management of different work flow depending on different structure of involved ministries or agencies</p> <p>Linked exemption approval or rejection with customs declaration</p>
Integrated Risk Management	<ul style="list-style-type: none"> <li>• RWANDA STANDARDS BOARD</li> <li>• RWANDA AGRICULTURE BOARD</li> </ul>	<p>Integrated risk management for all government agencies carrying out any sort of inspection</p> <p>Simultaneous risk selectivity triggering that allows joint inspection</p> <p>Enforce the control so that no release of goods can be done unless all involved agencies finalise inspection</p>
Agriculture (e-Phytosanitary and Import permit)	<ul style="list-style-type: none"> <li>• RWANDA AGRICULTURE AND LIVESTOCK INSPECTION AND CERTIFICATION SERVICES (RALIS)</li> </ul>	<p>Exporter/Importer applies for phytosanitary certificate using RALIS e-portal</p> <p>After approval, ReSW receives electronic phytosanitary certificates</p> <p>Write-off approved quantity as customs declaration is processed</p>

e-Cargo manifest	<ul style="list-style-type: none"> <li>• KENYA REVENUE AUTHORITY</li> <li>• TANZANIA REVENUE AUTHORITY</li> </ul>	ReSW receives electronic information of cargo manifest destined for Rwanda from shipping via coast countries (KRA or TRA) Clearing agent accesses manifest information into ReSW
Taxpayer Registration	<ul style="list-style-type: none"> <li>• RWANDA DEVELOPMENT BOARD</li> <li>• TAXPAYERS REGISTRATION DEPARTMENT</li> </ul>	Automatically receives Taxpayers' Identification details for companies registered by Rwanda Development Board (for companies) or Domestic Tax department (for individuals)
Black listed Motor vehicles	<ul style="list-style-type: none"> <li>• INTERPOL</li> </ul>	Back end process that allows ReSW to transmit declared motor vehicle to Interpol for check if it is not black listed If any motor vehicle is found, notification is sent to Interpol
Motor vehicle Registration	<ul style="list-style-type: none"> <li>• MOTOR VEHICLE DEPARTMENT</li> </ul>	Transmit electronic information from customs declaration to motor vehicle department; After assignment of vehicle number plate and log book, information is shared with Customs for release of vehicle
Notifications	<ul style="list-style-type: none"> <li>• MTN (Tel Com)</li> <li>• Mail (RRA Mail server)</li> </ul>	Empower both SMS and e-mail notification for all ReSW transactions (Application, approval, rejection, etc.)
Transit Guarantee Management	<ul style="list-style-type: none"> <li>• COMESA</li> </ul>	Transmission of information on every transit transaction to COMESA Regional Customs Transit Guarantee system Electronic issuance of carnet

Table 2: Rwanda Electronic Single Window, pending operation

ReSW Process	Agencies/Department	Key features
Pharmacy regulatory	• MINISTRY OF HEALTH	Online request and approval of operational licence Online request and approval of visa Online request and approval of import licence Integrated import licence with customs declaration
e-Certificate of origin (e-CoO)	• RULES OF ORIGIN SECTION	Online request and approval of e-CoO Information transmission to importing country
Other export certificates	• NAEB	Online application and approval of permit to export Tea and Coffee from Rwanda
Mining Certificate	• OGMR	Online application and approval of permit to export mineral from Rwanda
Utilities Regulatory	• RURA	Online application and approval of type approval Automatic checking of type approval <i>vis a vis</i> declared goods in Customs
Mobile Customs Declaration	• Small Cross-border traders	Pre-lodgment and payment of customs declaration for small cross-border traders before arrival at the border

Source: Nizeyimana 2015, prepared for this report.

## 5. Operation of ReSW drastically reduced release times

The 2012 project documents identified a lack of proper communication between importers and the various border control agencies as the major reason for the lengthy release times observed. The ReSW's first objective was therefore to improve communications amongst all key players in the clearance process. The aim of the project was to reduce the overall clearance times – defined as the time elapsed between arrival of the import cargo at the border to removal from customs control (excluding transit time) – from 2 days 10 hours to 1 day 9 hours, that is, by 1 day and 1 hour or 42%. Time between lodgment and release was to fall by 6 hours, or 48%, from 12 hours 33 minutes to 6 hours 33 minutes.

The RRA valuation of the ReSW undertaken in early 2015 drew on the ASYCUDA data and calculated the time taken between the customs registration and the actual release from customs control.<sup>5</sup> At the end of 2014 the release time for imports had been reduced drastically from 2 days 18 hours to 1 day 15 hours or by 40%, and from 2 days 16 hours to 1 day 4 hours or 55% for exports (see Figures 1 and 2 and Tables 3 and 4). These Figures and Tables provide detailed data on the time taken in the various stages of release, that is, between registration and payment, between payment and acceptance, between acceptance and release and between release and exit. In addition to the introduction of the ReSW some other minor changes were introduced to the import and export process, yet it is clear that most of the reductions in release time were due to the various process improvements made possible by the introduction of the ReSW.

Table 3: Import release times 2010-2014 (in minutes)

Import	2010	2011	2012	2013	2014	Per cent change 2014 over 2010
Registration to Payment (Average)	826	857	787	752	604	-27
<i>Registration to Payment (Std Dev)</i>	<i>1,219</i>	<i>1,221</i>	<i>1,330</i>	<i>1,279</i>	<i>1,163</i>	-5
Payment to Acceptance (Average)	467	387	456	600	597	28
<i>Payment to Acceptance (Std Dev)</i>	<i>955</i>	<i>847</i>	<i>1,012</i>	<i>1,387</i>	<i>1,400</i>	47
Acceptance to Release (Average)	1,808	2,278	912	921	620	-76
<i>Acceptance to Release (Std Dev)</i>	<i>1,930</i>	<i>2,220</i>	<i>1,601</i>	<i>1,607</i>	<i>1,343</i>	-30
Release to Exit (Average)	838	789	845	659	544	-35
<i>Release to Exit (Std Dev)</i>	<i>1,188</i>	<i>1,166</i>	<i>1,461</i>	<i>1,384</i>	<i>1,300</i>	9
<b>Registration to Exit (Total Time)</b>	<b>3,939</b>	<b>4,310</b>	<b>3,001</b>	<b>2,931</b>	<b>2,365</b>	<b>40</b>

Source: Data extracted from the ASYCUDA database by the authors.

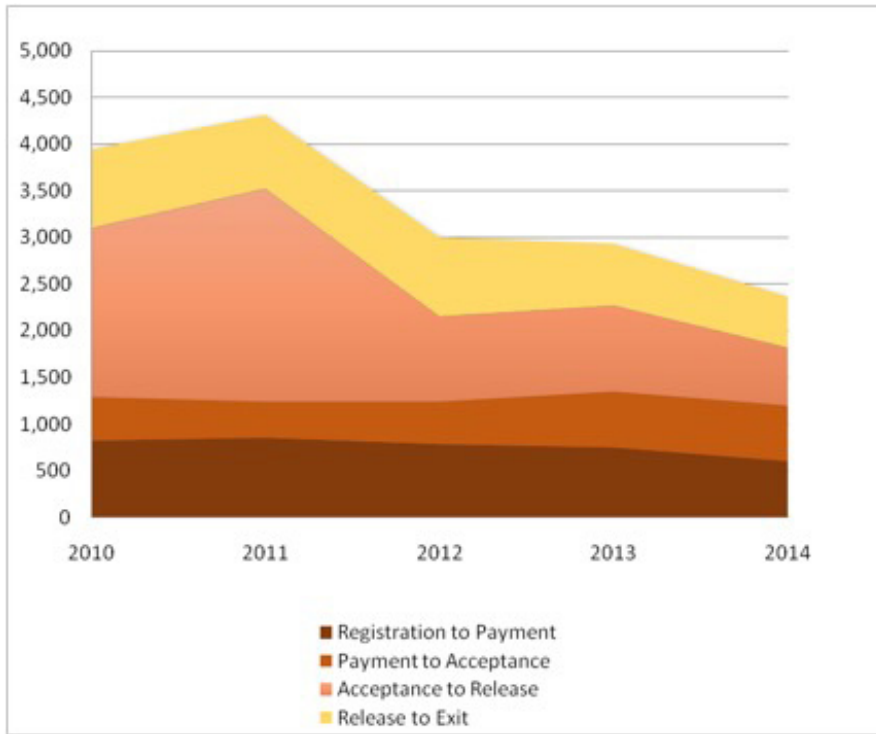
The time between registration and payment was reduced by 27% as use of the e-payment facility enables the importer to effect payment **directly** using internet or mobile banking as opposed to the previous method of requesting information from a clearing agent, filling bank cheques, requesting cheque certification and queuing at the bank counter for payment processing.

Time between payment and acceptance rose by 28% due to the centralised validation process undertaken by the RRA. The RRA is considering reviewing this process to provide a greater level of facilitation.

The time between acceptance and release fell by 65% as a result of the implementation of integrated risk management strategies by the various government agencies. Previously, each control agency carried out its inspection independently but now inspections are undertaken jointly as the system assigns risk selectivity ratings for all involved agencies, thereby greatly enhancing communication between Customs officers, clearing agents and importers. The RRA also automated the work flow between verification officers, valuation and tariff sections.

Release to exit experienced a reduction of 35% due to the real time notification to importers, thereby enabling importers to remove their cargo much faster than before.

Figure 2: Import release times, 2010-2014 (in minutes)



Source: Data extracted from the ASYCUDA database by the authors.

The overall time to process export from lodging an export declaration to exit of cargo at the border has been improved by 55% due to simplification of export document processing, fee payment and export permit arrangements. We expect this time will be further reduced with the implementation of initiatives such as the electronic certificate of origin and mineral export permit. Since most exports from Rwanda are coffee and tea, the integration of the National Agricultural Export Development Board (NAEB) into Single Window processing should reduce this time even further.

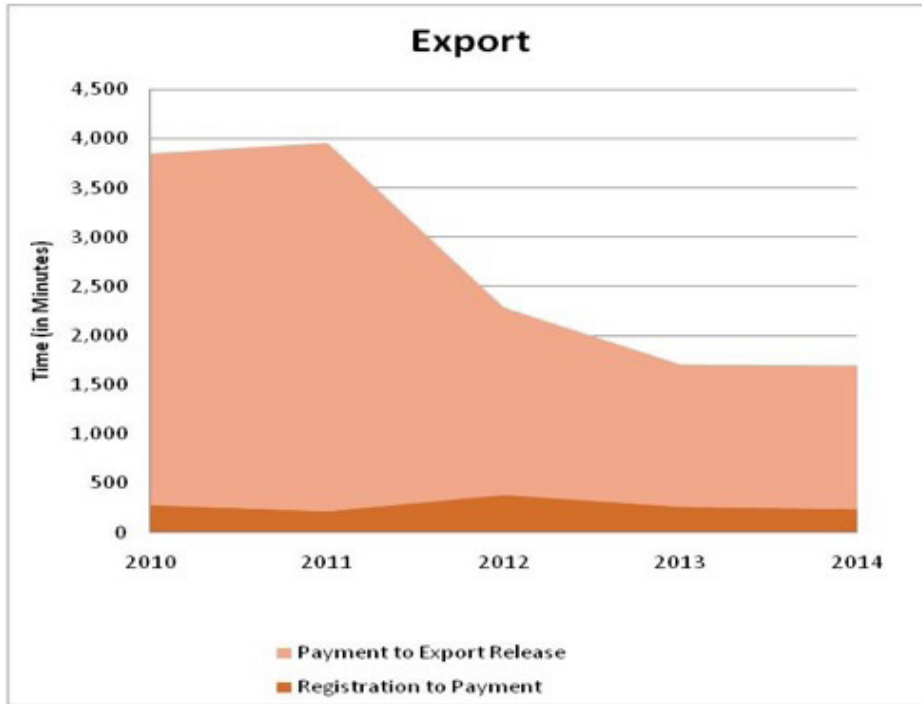
Table 4: Export time release, 2010-14 (in minutes)

Export	2010	2011	2012	2013	2014	Per cent change 2014 over 2010
Registration to Payment (Average)	283	221	387	266	243	-14%
Registration to Payment (Std Dev)	525	483	1,029	666	660	26
Payment to Export Release (Average)	3,564	3,735	1,899	1,443	1,456	-59
Payment to Export Release (Std Dev)	2,378	2,696	1,984	2,038	2,051	-14
<b>Registration to Exit Release (Total Time)</b>	<b>3,847</b>	<b>3,956</b>	<b>2,286</b>	<b>1,709</b>	<b>1,699</b>	<b>-55</b>

Source: Data extracted from the ASYCUDA database by the authors.



Figure 3: Export time release, 2010-2014 (in minutes)



Source: Data extracted from the ASYCUDA database by the authors.

A major saving in the implementation of the ReSW is due to the removal and/or reduction in the physical movement of documentation between the different stakeholders. Such time consuming movements included the filling of application forms, dealing with traffic congestion to deliver the forms to different agencies, security checks and communication difficulties between applicants and the approving authority. For instance, to obtain tax exemptions granted by the Rwanda Development Board (RDB) a clearing agent was required to fill an application form manually and submit it to the RDB for approval after endorsement by the investor. Due to the distance between the Customs office, clearing agency, importer premises and the RDB, this could take a full day to complete. With the introduction of the ReSW, an online application can be made at the time the clearing agent processes the customs declaration. Half the applications submitted to the RDB presently take only one hour, with some taking less than 15 minutes.

## 6. Standard deviations of release time suggest a problem!

Tables 2 and 3 also provide the standard deviations for the release times per release stage. This is valuable information that is rarely presented in reports on the ReSW performance. When the standard deviations are very large, as is the case in Rwanda, the release time an importer or exporter can expect depends less on the average itself than on the type of goods traded. This is because some goods experience much longer release times than the average. Traders are interested not only in the average time taken to release the goods but also an assurance that the time taken to clear goods is predictable. With very large standard deviations this predictability is undermined and traders need to adjust for this uncertainty by building up larger inventory levels, which is costly.

The significant standard deviations are caused by a number of factors. Traders may delay payments for a variety of reasons, and operational issues on the RRA side may result in delays. On the RRA side, one of the major causes of the large standard deviations results from the inspection process and risk assessment system. Goods which must go through the red channel (high risk) require significantly more time than goods through the green channel, which tend to be released very quickly (Table 5).

*Table 5: Rwanda Revenue Authority: risk management by channel 2010-2014*

Selectivity Channel (%)	2010				2011				2012				2013				2014			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
GREEN	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	4%	5%	6%	7%	8%
BLUE	54%	35%	57%	62%	59%	59%	58%	55%	50%	50%	53%	47%	60%	54%	58%	57%	61%	56%	53%	49%
YELLOW	8%	6%	10%	8%	7%	7%	7%	7%	12%	9%	12%	9%	6%	6%	8%	8%	8%	9%	11%	11%
RED	26%	19%	19%	18%	29%	28%	28%	29%	27%	26%	27%	25%	25%	32%	23%	24%	20%	27%	23%	27%
NON CHANNEL	13%	40%	15%	12%	5%	6%	7%	9%	11%	14%	8%	19%	9%	9%	8%	7%	6%	2%	6%	6%
<b>TOTAL</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

*Source:* Data extracted from the ASYCUDA data base by the authors

The percentage of cargo inspected by the RRA using the red channel (requiring physical inspection) has remained largely constant since 2010, at about one quarter of total imports. In early 2014, the inspection of these goods took 29% longer than for cargo inspected through the yellow channel and 275% longer than for cargo classified as blue. Green channelled cargo is released even faster than the blue as it undergoes no document or physical inspection. One method to reduce the release time (as well as the standard deviation for release time) for the RRA and the relevant OGAs is to critically review the need for physical inspections.

The RSB inspected 14% of total cargo in 2010, of which 74% was channelled through the red channel (Table 6). By 2014, the RSB tightened its inspection procedures and inspected a total of 42% of all cargo, with about 70% being channelled through the red channel. This intensification of the RSB’s inspections clearly increased overall release times.

*Table 6: Rwanda Standards Board: risk management data 2012-2014*

YEAR	RED		YELLOW		BLUE		Total RSB targeted	Total Commodities	Percentage of RSB targeted to total imported commodities
	Number	Percentage	Number	Percentage	Number	Percentage			
2012	32,575	74.14%	1,226	2.80%	9,963	22.76%	43,764	307,694	14.22%
2013	69,459	65.20%	17,039	15.99%	2,002	18.79%	106,518	312,400	34.10%
2014	99,700	70.30%	29,415	20.74%	12,696	8.95%	141,811	332,561	42.64%

*Source:* Data extracted from the ASYCUDA database by the authors

## 7. Conclusions and the way forward

Data suggest that the ReSW has made a major contribution to the trade facilitation agenda of Rwanda. Time needed to import and export has been substantially reduced, thus increasing the external competitiveness of the country. More progress could be made if special attention were to be given to the following issues:

- Continue to expand the list of stakeholders of the ReSW and the operations covered (certificates of origin and mobile payment, Ministry of Agriculture and related agencies regulating tea and coffee exports).
- The RRA to continually review its risk management practices to reduce the number of imports that are earmarked for physical inspection. The outcomes of the various inspections undertaken could be analysed to modify the risk profiling embedded in the ASYCUDA program.
- The RSB, which greatly increased its intensity of physical inspection in recent years, could similarly review how to implement its mandate without slowing trade flows. As suggested for the RRA, the RSB could analyse the productivity of its interventions with an eye to reducing them. The Authorised Economic Operator concept that was recently initiated by the RRA would assist.
- Address the poor trade logistics and in particular high transport costs which hinder external competitiveness as they represent a higher impediment to Rwanda's external competitiveness than slow release time at the border.

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## Notes

- 1 World Customs Organization 2008; World Trade Organization 2013, Article 8, section 4 notes: 'Members shall endeavor to establish or maintain a single window, enabling traders to submit documentation and/or data requirements for importation, exportation, or transit of goods through a single entry point to the participating authorities and agencies' (December).
- 2 Various issues of the World Bank's *Doing Business* and 'Connecting to compete: trade logistics in the global economy'.
- 3 For a systematic overview of the process of introducing an electronic single window, see Siva 2011, pp. 125-45.
- 4 USD3.3 million donor funding was mobilised and channelled through TradeMark East Africa, an East African not-for-profit company limited by guarantee, established in 2010 to support the growth of trade – both regional and international – in East Africa. TradeMark East Africa is focused on ensuring gains from trade result in tangible gains for East Africans.
- 5 To eliminate extreme time release data which do not reflect normal business practices of the border control agencies, the exercise eliminated all time release data that exceeded 7-day events which in all likelihood refer to extremely slow release due to bankruptcy or death of the importer or the clearing agent or other exceptional circumstances.

### Christian Nizeyimana



Christian Nizeyimana is head of Customs operational policy and business development in the Rwanda Revenue Authority. He is responsible for the successful implementation of the Rwanda electronic Single Window and in that capacity coordinated the project implementation team and other agencies implementing the Single Window system. Christian is a member of the Technical Working Group tasked with the implementation of the Single Customs Territory for the East Africa Community. He also led the introduction of the risk management function in Rwanda Customs.

### Luc De Wulf



Dr Luc De Wulf obtained a Licentiaat-doktorandus degree in economics from the Katholieke Universiteit Leuven, Belgium (Lic.Doc) and a PhD from Clark University, Worcester, MA, USA. He taught economics at the American University of Beirut, Lebanon, before joining the International Monetary Fund in 1972. In 1984 he moved to the World Bank where he worked on Africa and the Middle East. After his retirement in 2000, Luc worked as a consultant in the areas of trade facilitation and customs modernisation. He was the main editor of *Customs Modernization Initiatives: Case studies* (2004) and *Customs Modernization Handbook* (2005), both published by the World Bank, Washington, DC.