
Deliverable 4A: Trade and Growth Impact Study

Final Report

Authors: Paul R Baker, David Vanzetti, Mohammad Razzaque, Neetish Hurry

28 January 2020



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International Economics
Strategic Analysis For Growth & Development

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List of abbreviations

A4T	Aid for Trade
AVE	Ad valorem equivalent
ASEAN	Association of Southeast Asian Nations
CCTO	Central Corridor Transport Observatory
CEPII	Centre d'Études Prospectives et d'Informations Internationales
CFTA	Continental Free Trade Area
CGE	Computable General Equilibrium – economic model
CMS	Customs Management Systems
COMESA	Common Market for Eastern and Southern Africa
CRS	Creditor Reporting System
DAC	Development Assistance Committee
DBI	Doing Business Indicators
DEQ	Detailed Evaluation Question
DFID	(UK) Department for International Development
DFIs	Development Finance Institutions
EAC	East African Community
EQUALS	Evaluation Quality Assurance and Learning System
EPA	Economic Partnership Agreement
EU	European Union
FDI	Foreign Direct Investment
GATF-WEF	Global Alliance for Trade Facilitation-World Economic Forum
GBP	Great Britain Pound
GDP	Gross Domestic Product
GTAP	Global Trade Analysis Project
GVC	Global Value Chain
HEQ	High-level Evaluation Question
HS	Harmonized System
ICT	Internet and Communications Technology
ICT4T	ICT for Trade
IFC	International Finance Corporation
ILO	International Labour Organisation
IMF	International Monetary Fund
ITC	International Trade Centre
JICA	Japan International Cooperation Agency
KNCCI	Kenya National Chamber of Commerce & Industry
KPA	Kenya Port Authority
LPI	Logistics Performance Index
MFN	Most Favoured Nation
NCTTCA	Northern Corridor Transit and Transport Coordination Authority
NDA	National Drug Authority
NGOs	Non-governmental Organisations
NOC	National Oversight Committee
NTBs	Non-tariff barriers
NTMs	Non-tariff measures
ODA	Overseas Development Assistance
OECD	Organisation for Economic Cooperation and Development
OPM	Oxford Policy Management
OSBP	One-Stop Border Post
PE	Performance Evaluation
PGIS	Poverty and gender impact study
PHS	Port Health Services
PIOs	Programme Intermediate Outcomes
PPP	Purchasing Power Parity
RALIS	Rwanda Agriculture and Livestock Inspection and Certification Services

RDB	Rwanda Development Board
RECTS	Regional Electronic Cargo Tracking System
ReSW	Rwanda's Electronic Single Window
RI	Regional Integration
RSB	Rwanda Standards Board
RWF	Rwandan Franc
S1	Strategy 1
S2	Strategy 2
SADC	Southern African Development Community
SCT	Single Customs Territory
SGR	Standard-Gauge Railway
SMEs	Small and Medium-sized Enterprises
SMS	Short Message Service
SOs	Strategic Objectives
SPS	Sanitary and Phytosanitary
SWIFT	Single Window Interface for Facilitating Trade
TBT	Technical Barrier to Trade
TEU	Twenty Foot Equivalent (containers)
TF	Trade Facilitation
TFDA	Tanzania Food and Drug Authority
TFTA	Tripartite Free Trade Agreement
TGIS	Trade and Growth Impact Study
TMEA	TradeMark East Africa
TOC	Theory of Change
TPA	Tanzania Ports Authority
TTFA	Trade and Transport Facilitation Assessment
UNBS	Uganda National Bureau of Standards
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNSD	United Nations Statistics Division
USAID	United States Agency for International Development
US\$	United States Dollar
WITS	World Bank World Integrated Trade Solution
WITS	World Integrated Trade Solution
WB	World Bank
WTO	World Trade Organization

Executive summary

TradeMark East Africa (TMEA) is a high-profile, multi-donor project that seeks to remove existing barriers to trade to bring about positive and sustainable change via regional and national investments. TMEA was officially launched in 2011 as a not-for-profit company limited by guarantee, funded by the UK's Department for International Development (DFID), and by cooperation agencies in Belgium, Canada, Denmark, Canada, Finland, Netherlands, Sweden and the US.

DFID commissioned OPM to undertake an independent evaluation of TMEA. The main objective of this evaluation is to assess TMEA processes, results and overall value in an independent and impartial manner consistent with generally accepted principles and standards for professional evaluation, and to identify lessons that can inform the ongoing management and redesign of the TMEA programme, as well as future regional trade integration programmes. The independent evaluation is made up of several, interrelated evaluative studies.

This report comprises the Trade and Growth Impact Study (TGIS), which uses a range of modelling techniques and qualitative data obtained through field missions and desk research to determine the extent to which TMEA contributed to the reduction in trade costs, and whether such reduction led to increased trade flows and economic growth. The study places particular emphasis on the work conducted by TMEA on the ports, Northern and Central corridors, ICT for Trade, and the efforts around trade policy reforms.

The study draws on findings and insights from the first phase of evaluation work, and on the document review, site visits and interviews from 2018-2019 fieldwork.

To analyse cost savings, a transport cost modelling framework was employed, covering interventions relating to the ports of Mombasa and Dar es Salaam, the Northern and Central corridor, and the national single windows. This framework allowed the team to identify which cost changes occurred over the Strategy 1 (S1) timeframe and then attribute how much of that change is estimated to have originated from TMEA. The team controlled for changes in costs outside the area of influence of TMEA – such as changes in petrol prices. Time saved was subsequently converted into *ad valorem equivalents* (AVE) in order to model transport saving times effectively. The study team used a variety of secondary data to analyse the impact of reduced trade costs due to the increased efficiency of transport infrastructure and the increased capacity of transport infrastructure, including one-stop border posts (OSBPs) and ports. Other external data was collected to quantify the economic value of the outcome indicators, and to delve further into the influencing factors within, or outside, the scope of TMEA.

A computable general equilibrium (CGE) model, which considers distributional effects on different sectors, was used to predict ex-ante gains from changes in trade costs. The CGE model was also used to measure the impact of trade facilitation efforts on the countries' gross domestic product (GDP) and welfare. The direction and magnitude of these impacts have been assessed using the Global Trade Analysis Project (GTAP), which has built the world's leading CGE model.¹ While GTAP is a well-documented, multi-regional, multi-sector model, such models are sensitive to assumptions about the responsiveness of these linkages to each other.

The team employed a gravity model to measure the improvements achieved through trade policy interventions. Gravity models, mostly employed for ex-post analysis, were used here to estimate

¹ See Hertel, T.W. (1997) (Ed.), "Global Trade Analysis: Modeling and Applications", *Cambridge University Press*; and Burfisher, M. E. 2011, "Introduction to General Equilibrium Models", *Cambridge University Press*.

the expected elasticities or responsiveness of exports and imports to changes in policies. A gravity model was used to determine the impact of trade policy reforms on trade flows.

The team undertook sensitivity analysis with two variables, namely the capital cost of trucks and the value of the container, to demonstrate that the overall results are robust. The shocks applied to the CGE model, namely changes in cost variables, are based on the empirical cost estimates generated by the transport model.

The data collection methods used were well-tested, and include in-depth interviews and site visits across TMEA projects conducted by sectoral and evaluation experts; and several enterprise surveys that expanded on that data in the three selected value chains, across three countries (Kenya, Rwanda and Uganda). A total of 121 enterprise survey responses were collected, enabling the team to better understand the environment in which TMEA operated. The team also made use of extensive TMEA data and reports from regional and country levels, along with data and publications they were able to source from government, private sector, civil society partners and different international organisations (see Annex A). However, it was not possible to rely on the results of the questionnaires, due to the low response rate and the challenges faced by stakeholders in remembering conditions in 2010. Earlier evaluation reports from OPM's independent evaluation of TMEA – including the performance evaluation – have also been sources for the study.

A pro-rata approach was used to estimate the share of results that can be attributed to TMEA. The share is calculated based on what percentage TMEA's financial contribution represents, compared to the total investment. For example, if TMEA's investment in the Port of Mombasa represents 10% of the total investment received by the port, it is assumed that TMEA's investment contributed to 10% of the total time and cost reduction at the port. If TMEA's investment in OSBPs represents 50% of the total investment received by the OSBP, it is assumed that TMEA's investment contributed to 50% of the impacts in this area.

Nevertheless, such attribution rates might be underestimated, as the pro-rata approach cannot record TMEA's direct and constant involvement with the beneficiaries. Similarly, it does not account for the relative role of TMEA in achieving change.

In terms of limitations, the main limitations experienced over the implementation of the project are related to the fact that the scope of TMEA's interventions is broad and has changed over time, and stakeholders experienced clear evaluation fatigue. The data accessible was not always ideal, and compromises had to be made – such as measuring the impact of TMEA in 2017 only, and not for the whole duration of Strategy 1, using the pro-rata of received Overseas Development Assistance (ODA) funds, etc. Similarly, elasticities, particularly those relating to variety preferences (Armington), demand and supply, and the structural make-up of the economies had to be estimated based on the most recent databases. Tanzania was not covered by the field missions.

Results

TMEA's interventions across Kenya, Uganda, Rwanda and Tanzania have been diverse, although all were clearly aimed at contributing to the reduction in average transport times, average trade costs, and uncertainty or risks, which are defined as variance of results around averages. Particularly, TMEA's direct efforts in strengthening the efficiency, predictability and transparency of port and OSBP operations; introducing or improving ICT for Trade; and harmonising standards and supporting East African Community (EAC) integration efforts, were all aimed at reducing the cost for businesses of engaging in regional trade, through infrastructural work at the ports, capacity-building, integration of customs management systems (CMS), etc.

To analyse the impact of TMEA's interventions across target countries, the analysis focussed on three main areas:

- **Interventions at the Ports of Mombasa and Dar es Salaam, as these are key enablers for trade in the region, being the gateway between the region and the rest of the world.** The total possible savings made at the ports are calculated as a sum of ship turnaround times, tariffs faced at the port for any delays, the single window efficiency gains for customs declarations, and other border agency declarations. For example, at the Port of Mombasa, ship turnaround time and dwell time decreased by 13% and 20% respectively. However, ship waiting to berth time increased by 90%, due to the increase in boat traffic between 2010 and 2017, which led to an increase in cost. Nevertheless, the overall reduction in waiting times has led to discernible improvements.
- **Interventions across the Northern and Central corridors, as these are the main arteries for trade linking the four countries.** The total savings arising from the corridors correspond to the reduction in time spent on the road, arising from a variety of measures, such as removal of non-tariff barriers (NTBs), the introduction of customs management systems and a regional electronic cargo tracking system (RECTS) to facilitate faster, less costly, less uncertain trade processes. We estimated that every day saved on the road represented total savings of US\$210 per 40-foot container. We also calculated the impact on businesses and transporters arising from the reduction in uncertainty, which is measured as the variance around the average time a truck takes to reach its destination.
- **Establishment of National Single Windows (SWIFTS) to remove burdensome administrative bottlenecks, thereby increasing trade times and reducing costs for businesses.** TMEA's work on SWIFTS aimed to increase the ease of trading across borders through effective trade systems, agencies and procedures. The integration of customs systems allows customs agents at ports and OSBPs to jointly process cargo, and with integrated SWIFT, the systems include the necessary permits for each consignment.

Main Findings

Based on the analysis of the areas discussed above, it has been possible to answer the different evaluation questions. It is to be noted that all results and reductions in times, costs and risk have been calculated only for the year 2017, as compared to the situation in 2010. The contribution of TMEA to improvements in trading conditions is an estimation based on a pro-rata approach (i.e. the share of TMEA investments as a proportion of all Aid for Trade investments within the relevant categories). While there is a sound objective basis for doing this, it may underestimate the leverage that TMEA has in terms of crowding in other players, as well as influencing policy makers, owing to the size of TMEA in Aid for Trade projects.

Evaluation Questions	Main Findings
<p>HEQ3. What is the likely impact of TMEA on trade outcomes and growth, and what factors are critical to ensure the sustainability of positive impacts?</p>	
<p>DEQ3.1 To what extent have TMEA interventions, including those of a policy nature, led to a reduction in trade times, trade costs and trade risks?</p>	<p>The TGIS monetises reductions in trade times, trade costs and trade uncertainty arising from variance in trade times, to calculate savings arising from changes in conditions for trade. Savings were calculated by comparing the situation in 2010, at the start of TMEA activities, with 2017, at the end of the S1 phase of TMEA. Overall, savings arising from port interventions totalled US\$484 million in 2017, as compared to the baseline situation in 2010. Of this, US\$26 million is attributed to TMEA’s interventions. The attribution to TMEA is based on the share of TMEA investments in total Aid for Trade investments in the ports.</p> <p>Interventions across the corridors, in terms of both hard and soft infrastructure, are estimated to have led to savings equivalent to US\$849 million in 2017, of which US\$55.2 million correspond to savings arising from TMEA interventions aiming to make the corridors faster, less costly and less risky trade processes for the private sector. These savings are not for the entire Strategy 1 period of TMEA but instead refer to a single year for which data was available.</p> <p>TMEA also devoted particular attention to establishing SWIFTS across the four countries. These interventions led to savings in 2017 alone of US\$4.5 million in Kenya, US\$9.5 million in Rwanda, US\$10.3 million in Tanzania, and US\$10.3 million in Uganda. Total savings across all four countries in 2017 reached US\$34.6 million.</p>
<p>DEQ3.2 What has been the impact of any achieved trade cost reductions from TMEA on trade (both intra- and extra-regional)?</p>	<p>All these savings have had an impact on how the target countries trade. The overall port interventions show modest impacts on both imports and exports for all countries. In the case of Tanzania, exports in 2017 rose by US\$69 million and imports rose by US\$41 million, of which US\$1.2 million and US\$0.7 million respectively is attributed to TMEA. Exports from Kenya fell slightly, and Rwanda and Uganda only benefitted marginally from the improvements made at the ports, as there were no clear cost savings, due to more generous grace periods on charges for transit trade in those ports.</p> <p>The interventions on corridors had larger impacts. Kenya and Uganda are the main beneficiaries, with exports increasing in 2017 by US\$27.8 million and US\$35.7 million respectively, of which US\$0.9 million and US\$2.2 million is attributed to TMEA. With regards to imports, in 2017 Kenya’s imports increased by US\$108.7 million, of which US\$3.7 million is attributed to TMEA. Uganda’s imports rose by US\$32.6 million in 2017, of which US\$2 million is attributed to TMEA. This is mainly due to the large reduction in transport costs between the two countries.</p> <p>The benefits arising from improvements at the ports led to a reduction in intra-regional trade, with an increase in imports from other regions. For Tanzania, there was an increase in exports of manufactures to India, the Middle East and North Africa. There was also a switch in crop exports from Kenya to China.</p> <p>Improvements along the transport corridor had a more limited impact on extra-regional trade. For Kenya, there was an increase in exports of chemical, rubber and plastics, mineral products and manufactures. For Tanzania and Rwanda, there were no notable changes in exports of any commodity. For Uganda, the major increases in exports came from other crops and manufactured goods.</p>

Evaluation Questions	Main Findings
<p>DEQ3.3 How has any improved trade policy environment led to increased trade?</p>	<p>Based on a comparison of the trading environment at the start of TMEA activities and the end of S1, there were substantial improvements in the trade policy environment, as measured by key indicators such as the time and cost to export and import. The estimated attribution to TMEA of the improved trade policy environment is based on its share of the region’s Aid for Trade investments in this area. Using this information, TMEA interventions are estimated to have increased overall exports by US\$176 million and imports by US\$145 million, thanks to cost savings. Time savings led to an additional US\$102 million in exports and US\$32 million in imports, compared to the 2010 baseline.</p>
<p>DEQ3.4 To what extent has any changes in trade resulting from TMEA interventions contributed to economic growth?</p>	<p>TMEA’s contributions to the economy of each of the target countries has been significant. Overall, improvements at the ports and corridors increased the annual national income in the four countries by a combined US\$582 million in 2017 compared to 2010, of which US\$16.8 million is attributed to TMEA. All four countries benefit overall in welfare terms from improved ports and cross-border trade. Nevertheless, improved trade facilitation can lead to increased competition from the rest of the world, leading to a deflection of imports from regional markets in favour of the rest of the world, and reduced output in some sectors, resulting in overall negative national output (GDP), as in the case of Rwanda and Uganda. Similarly, Tanzanian exports, particularly crops, substituted Kenyan exports because of relative changes in export prices, driven by changes in transport costs. As expected, the larger countries tended to gain the most, in absolute terms at least, because of greater trade flows and reduced transport costs.</p> <p>A sensitivity analysis was conducted to assess the importance of the key assumptions (i.e. that the capital cost of a truck is calculated at US\$128 per day and that the value of a container is US\$40,000), varying such assumptions by 25% up and 25% down. For example, the analysis indicates that an increase by 25% of the container value leads to an increase of US\$6 million of welfare for Kenya, 0.02% fewer imports, and 0.04% fewer exports. A decrease of 25% of the capital cost of a truck reduces welfare by an estimated US\$14 million, imports by 0.07% and exports by 0.09%.</p>
<p>DEQ3.5 What factors are critical to ensure the sustainability of positive impacts?</p>	<p>Several elements remain critical for sustained performance of results, as well as to ensure that results are sustainable. A first condition is a need for firms to innovate, as competition from the rest of the world will increase with improvements in trade facilitation. There is strong evidence that performance in this area between 2010 and 2017 has been poor. Another aspect relates to the reversal of reforms and the sustainability of achievements through ownership and commitment. There is evidence that ownership amongst the different TMEA interventions exists by the national governments, and while TMEA is viewed as a flagship program in supporting reforms. Finally, firms will need to improve best practices, adopt stronger standards, and adapt to climate change and other external risks. This is something that appears to have been seized upon, although additional efforts to increase uptake are needed.</p>

Recommendations

Based on this analysis, there are a number of recommendations for Strategy 2, as follows:

- 1. TMEA should provide policy support and capacity-building that would promote a balanced redistribution of the impacts arising from interventions.** As trade is made

easier and countries of the EAC are better integrated with the world through the ports of Mombasa and Dar es Salaam, companies that are engaged in regional or global value chains are likely to benefit from the lower trade costs. Some companies, on the other hand, can suffer from competition linked with increased imports. Switching import sources appeared to take place as efforts at the ports made it easier to import from the rest of the world, rather than from landlocked countries in the region, potentially displacing exports from landlocked countries to sea-bordered countries. Thus, it is necessary for the East-African countries to take a two pronged approach to the situation: i) prepare companies for competition, and ii) monitor imports carefully and, where appropriate, apply trade defence mechanisms to avoid the harmful effects of an unforeseen surge in imports or to protect an infant industry. TMEA could implement capacity-building activities in these two areas. Additionally, countries should also ensure that labour forced out of their jobs can re-join the labour market by putting aside budgetary support for training and labour adjustment mechanisms. TMEA is well-placed to offer advisory support to governments in putting together the flanking policies that may be needed to mitigate any negative outcomes for some population groups and sectors.

2. **TMEA should play a more active role to improve information and enterprise support,** by ensuring that governments, associations and partners have the appropriate communication strategies to promote the results from TMEA's interventions, particularly with regards to NTBs, standards and ICT for Trade. While S1 emphasised the need for TMEA to remain at the meso and macro level, the evidence from surveys reinforces the need to engage with businesses to provide market intelligence, export strategies and supply chain-level expertise. While it is a crowded field in which a number of donors are very active, TMEA is well-placed to play an active role in coordinating or collaborating with other players to improve enterprise information access, in order to generate greater impacts from the investments made by TMEA.
3. **TMEA needs to improve their monitoring and evaluation system.** TMEA's results management framework should be updated to better capture the impact and outcome indicators of the ToC. As highlighted in the performance evaluation, TMEA's portfolio approach is flexible, and the results framework should reflect that, while finding ways to generate and capture the necessary data on trade outcomes that national and other actors do not. The most challenging situation is the one faced in the Northern Corridor observatory project, which does not collect data relating to exports and the ICD (Inland Container Depot). Collecting this data is a national and regional priority.
4. **TMEA should direct its focus on reducing business uncertainty.** More improvement in this area can have a bigger impact on trade. While time reductions are welcome, the degree of uncertainty regarding how much time shipments will take is at least as important. Reducing the amount of variability in time that a truck spends on the road or crossing the border will reduce not only transport costs but also the uncertainty for businesses, and thereby reduce inventory, insurance and other costs. This could be achieved by expanding efforts under the ICT for Trade programme, re-implementing the risk management framework in Kenya, introducing measures to reduce interactions with officers, and improving the inter-institutional connection to single windows.
5. **TMEA's strategic direction should be guided by careful analysis of the political economy of the recipient country.** Political commitment to actual implementation has not always been strong in Tanzania, and recent events in Tanzania appear to have moved the economy towards less openness. Such reversals of commitments to regional integration lead to lower trade flows and economic growth. While TMEA appears to be very aware of

these risks such as low levels of ownership and weak adoption of recommendations, the resources required to invest in such countries are substantial and the results are inadequate. A more systematic political economy assessment of countries may, therefore, be helpful before committing to projects – or for adjusting and adapting over time as the political economy changes.

6. **TMEA should examine the current state of the transport network and intervene where they can best strengthen it.** One of the major contributors to cost savings was the improvement in transit times and the reduction of uncertainties along the corridors. Improvements in transit time and better coordination will also benefit the shippers in reducing their turnaround times. Better management of the truckers' network, and the alignment of progress made with inland depots through progress with the SGR network, will further enhance savings of time, cost and risk. TMEA's past focus on these areas should be updated for S2 to maximise the benefits of the interventions on trade and growth.

1 Introduction

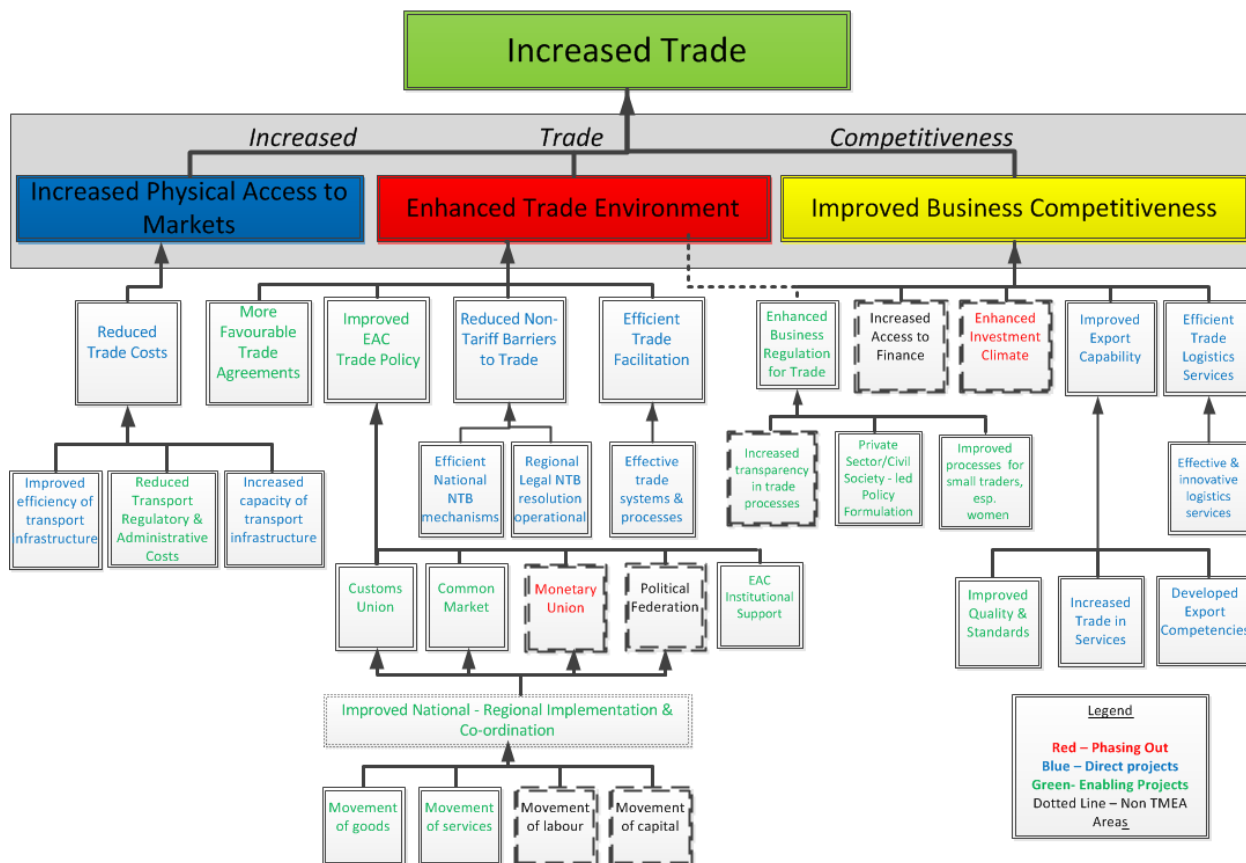
1.1 TradeMark East Africa: Project's Overview

TradeMark East Africa (TMEA) is a high-profile, multi-donor project that seeks to tackle the existing barriers to trade in East Africa, aiming to achieve a positive and sustainable change in the region through a combination of regional and national initiatives and an investment of over US\$500 million. TMEA is a large and complex programme, with national and regional dimensions and many sub-projects implemented across a number of countries. TMEA was launched in 2011 as a not-for-profit company limited by guarantee and funded by the UK's Department for International Development (DFID), which has commissioned the evaluation, and by cooperation agencies in Belgium, Canada, Denmark, Canada, Finland, The Netherlands, Sweden and the US.

During Strategy 1 (S1), from 2010 to 2017, TMEA aimed to increase trade in East Africa through targeted infrastructure and trade facilitation investments to reduce transport times and costs. The programme also worked to enhance the business environment, to enable greater use of the improved system. This aim is reflected in the programme's Theory of Change (ToC):

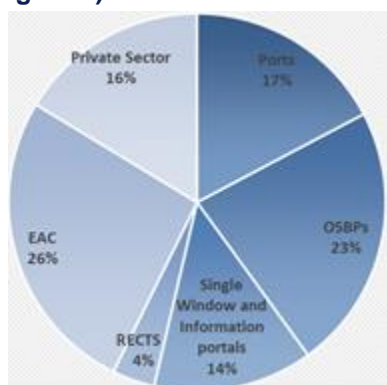
The TMEA ToC was first discussed in 2011, and substantially updated in 2014. It is this 2014 version of the ToC that this evaluation used as a basis for following the programme logic, at the highest levels (see Figure 1). The ToC comprises three Strategic Objectives (SOs): Increased Physical Access to Markets; Enhanced Trade Environment; and Improved Business Competitiveness. These SOs consist of ten programmatic components, also called Programme Intermediate Outcomes (PIOs).

Figure 1 TMEA's Theory of Change



Source: TMEA

Figure 2: Distribution of spending of TMEA (broad categories)



The Trade and Growth Impact Study (TGIS) places particular emphasis on the work conducted by TMEA on ports, customs, and the efforts to tackle Non-Tariff Measures (NTMs). (See **Figure 2** for the distribution of spending of TMEA by broad category). For example, in the Port of Mombasa, TMEA invested in hard and soft infrastructure by building container stacking areas and wider roads to the ports, carrying out detailed feasibility studies to encourage other donors to fund major berth upgrades, and providing a strategy document to plan standard-gauge rail logistics in Kenya, among other things. TMEA also set up a one-stop centre to speed up customs clearance, particularly of imported cargo. In the area of NTMs, TMEA efforts focussed on identifying and analysing the nature and

scope of Non-Tariff Barriers (NTBs) that constrain intra-regional trade, assisting national governments to develop strategies eliminate them, and assisting with the establishment of National Monitoring Committees. TMEA also coordinated with logistics service providers to identify and address existing logistic and transport bottlenecks. During S1 (2010-17), around 26% of spending was on support to regional integration (EAC standards, NTMs and regional negotiations), 23% was on the one-stop border posts (OSBPs), and a further 17% was on ports. Single window investments and investments into trade portals amounted to 14% of total spending. **Figure 3** shows the values of spending by area from 2010 to 2017.

Figure 3 TMEA Disbursement by area, 2010-17 (US\$ '000s)

1.1 Mombasa Port	39,683
1.1 Dar port	3,692
1.2 Busia OSBP	11,624
1.2 Malaba OSBP	844
1.2 Mirama Hills OSBP	20,775
1.2 Mutukula OSBP	12,764
1.2 Taveta/Holili OSBP	11,036
2.1 Strengthen EAC regional trade integration	46,804
2.2.1 Single windows	30,974
2.2.2 Electronic cargo tracking	9,176
2.2.3 E-portals of information for..	3,406
2.3 Effective NTB mechanisms	6,625
2.4 Effective EAC trading standards	12,735
3.1.1 Private sector/ civil society-led policy..	17,110
3.1.2 Improved processes for traders, esp. women	5,097
3.2 Improved export capability	14,509
3.3.1 Effective & innovative logistics services	4,298

Source: TMEA

This selection represents around US\$251 million of TMEA disbursements made between 2010 and June 2017, of the US\$520 million spent in total by TMEA, or 48% of its total disbursements in this period.

The size of the portfolio covered by this study reflects both the scope of the evaluation design, and the availability of data. It nevertheless leads to the important implication that just over half of all TMEA interventions are not covered by the study, which therefore underestimates the potential contribution TMEA has made to East Africa's economies under Strategy 1.

1.2 Programme context and development issues

The East African Community (EAC) is the second largest market in Africa, with a growing middle class whose demand for products and services has driven growth on the demand side.² In Rwanda and Kenya, the World Bank's Ease of Doing Business Index ranking has improved steadily.³

Despite its major achievements, the EAC still has further to go. A TMEA strategy document⁴ suggested that issues lie with the competitiveness of the EAC, a problem which has persisted since TMEA drafted that document near the beginning of S1. The World Bank continues to score sub-Saharan Africa as the least competitive region in trading across borders; the score for the EAC sub-region across the twelve pillars of the World Bank rating places it near the bottom of sub-Saharan African subregions.⁵ Though there have been improvements since the start of TMEA S1, there are still significant delays in the transport of goods. In a 2017 study, truckers on the Northern Corridor estimated that 64% of their time from Mombasa to Kampala was idle time – either resting (30%) or waiting to cross borders, be weighed at weighbridges, or other obstacles (34%).⁶ This figure is corroborated by 2017 USAID Transport Hub satellite data on the Northern Corridor, which places average idle time at 60% or greater for various segments and both directions on the corridor.⁷ These times translate into high transport costs for shippers, particularly those in land-locked countries – though Northern Corridor costs, too, have improved by about a third since 2011, as shown in the Shippers' Council of East Africa's 2016 Logistics Performance Survey.⁸ TMEA's corridor observatory data shows these reductions in cost and time to the end of S1, but since the end of S1, new costs in terms of time and money have arisen.

TMEA's ToC, based on the current literature on trade and economic growth, suggests that the different activities carried out by TMEA will bring about a reduction in trade costs, and these, in turn, will have a positive impact on the region's total trade. The task of improving the competitiveness of the EAC is a generational enterprise. TMEA has sought to choose its focus areas in line with their comparative advantages and those of other relevant actors – national and regional government bodies, development partners and the private sector – with a particular focus on trade facilitation.

What is trade facilitation and why does it matter?

The concept of trade facilitation lacks a unified definition. According to UNECA (2013):

[A] broad definition of trade facilitation encompasses policies to reduce trade transaction costs, including 'behind-the-border' policy reforms and the reduction of transaction costs resulting from cumbersome administrative customs, documentary requirements and border procedures that affect the cross-border movement of goods and services. The term also covers simplification of the logistics, documentation and customs procedures involved in transiting goods through ports and land borders. It refers, too, to 'domestic' policies and institutional

² African Development Bank. 2019. East Africa Economic Outlook 2019: Macroeconomic Development and Prospects. Political Economy of Regional Integration. African Development Bank Group. Available at: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/2019AEO/REO_2019_-_East_Africa_.pdf

³ Source: TradingEconomics.com.

⁴ TMEA n.d. Transport & Economic Corridor Draft Strategy

⁵ World Bank. 2018. The Global Competitiveness Report 2018. Available at: <http://reports.weforum.org/global-competitiveness-report-2018/sub-saharan-africa/>

⁶ Eberhard-Ruiz, Andreas, and Linda Calabrese. 2017. Trade facilitation, transport costs and the price of trucking in East Africa, at Overseas Development Institute. Available at: <https://www.odi.org/publications/10868-trade-facilitation-transport-costs-and-price-trucking-services-east-africa>

⁷ <https://www.cpms.logisticsinformationplatform.com/ui/ReportViewer.html>. This site is password-protected but reports have been made into PDFs for consultation.

⁸ African Economic and Social Development Consultants. 2017. Validated Abridged Final Report, Logistics Performance Survey 2016, Shippers' Council of East Africa.

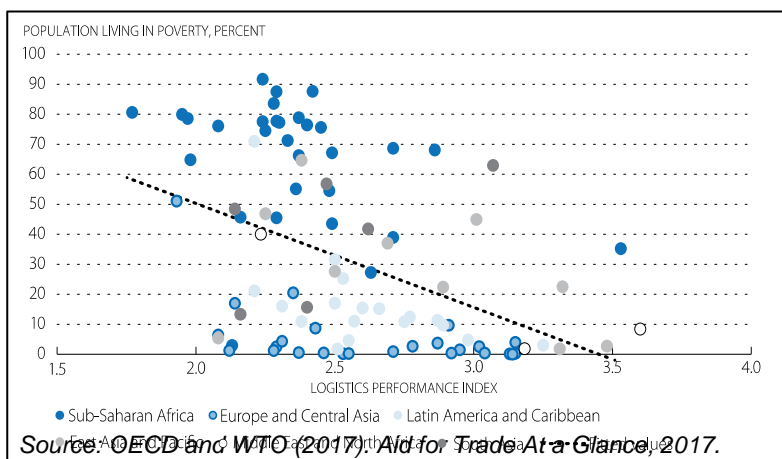
structures that create an enabling environment for trade. Finally, it can take in the harmonisation of national and regional standards with international standards.⁹

Similarly, UNCTAD (2006) stated that “[trade] facilitation seeks to establish a transparent and predictable environment for cross-border trade transactions based on simple, standardised customs procedures and practices, documentation requirements, cargo and transit operations, and trade and transport arrangements.”¹⁰

The approach used in the TGIS is underpinned by a rich body of research which has analysed the impact of Aid for Trade programmes. The 2017 Aid for Trade Review found that ‘poor [physical] connectivity is one of the factors keeping people in poverty.’¹¹ It suggests that lack of connectivity limits the ability to move out of poverty, and that improving the trade facilitation status (by addressing soft and hard infrastructure challenges) removes a binding constraint for poverty reduction. This is supported by observations that regions with lower logistics performance index (LPI) scores have a higher incidence of poverty than those with higher LPI scores, as shown in **Figure 4**.¹²

Similarly, the World Economic Forum’s Enabling Trade Index also seems to suggest that an improved trade environment is associated with higher per capita incomes, though the direction of causality is unclear (see **Figure 5**).

Figure 4 Population living in poverty, compared to LPI



The impact of easing trade facilitation processes on trade flows has been well documented in the literature (see Annex B for a literature review). For example, Eberhard-Ruiz and Calabrese (2017) illustrate how tackling the existing trade facilitation barriers to intra-regional trade in the EAC present in the different corridors could result in additional cost savings of up to 23% per transported tonne.¹³ In Rwanda, Nizeyimana and De Wulf (2016), show how the introduction of the

electronic single window reduced release times by 50%, from over two days to one day, over a span of two years.¹⁴ Similarly, Teravaninthorn and Raballand (2008) demonstrate the role of legislation in trade facilitation, by illustrating that the liberalisation of the transport services in Rwanda led to a drop of 75% in transport prices almost immediately.¹⁵

⁹ UNECA (2013). *Assessing Regional Integration in Africa IV: Harmonising Policies to Transform the Trading Environment*. United Nations, Geneva

¹⁰ UNCTAD (2006). *Trade Facilitation Handbook Part I. National Facilitation Bodies: Lessons from Experience*. United Nations, Geneva.

¹¹ OECD-WTO (2017) *Aid for Trade Review 2017*. OECD-WTO

¹² *Ibid*, p. 328

¹³ Eberhard-Ruiz, A. and Calabrese, L. (2017). *Would more trade facilitation lead to lower transport costs in the East African Community?* ODI Policy Briefing, ODI, May.

¹⁴ Nizeyimana, C. and De Wulf, L. (2016). *Rwanda Electronic Single Window Supports Trade Facilitation*. *World Customs Journal* 9 (2): 73–84.

¹⁵ Teravaninthorn, S. and Raballand, G. (2008). *Transport Prices and Costs in Africa: A Review of the Main International Corridors*. The World Bank.

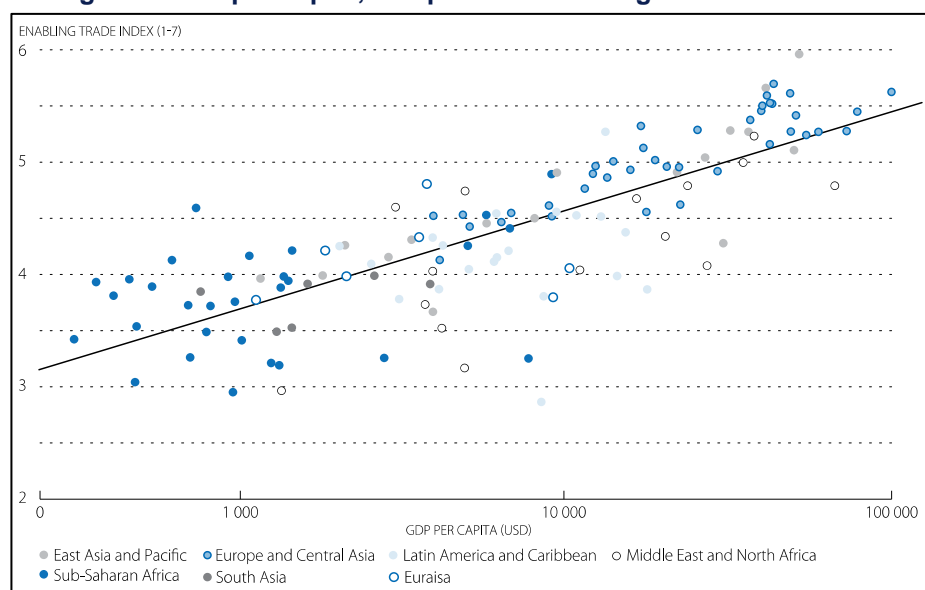
Streamlining customs processes is also believed to have contributed to reducing trade costs and increasing revenues in developing countries. As the Aid for Trade Review 2017 indicates:

Enabling automation and reducing the friction in cross-border trade is essential to lower costs and connect producers to markets and value chains. [...] A case story submitted by TradeMark East Africa describes how the establishment of a one-stop border post (OSBP) connecting Kenya and Uganda led to an increase in revenue collected of around US\$5.5 million, reduced the average time it takes to cross the border by 80%, boosted cross-border trade for small traders and improved the working conditions for staff and transporters. The Busia OSBP warehousing facilities, for instance, have lowered storage costs for small traders as they wait to clear taxes. Transport costs have also been reduced, allowing several small traders whose goods are being transported to a particular destination to consolidate goods and hire one truck driver [...]

Finally, the importance of tackling Non-Tariff Barriers (NTBs) through trade facilitation efforts is clear. NTBs can restrict or distort international trade flow between countries, for example, by restricting the quantity of goods traded, or increasing prices. According to the World Bank World Development Indicators, simple averages of applied most-favoured-nation (MFN) tariffs in the world are around 8.9%, while, according to

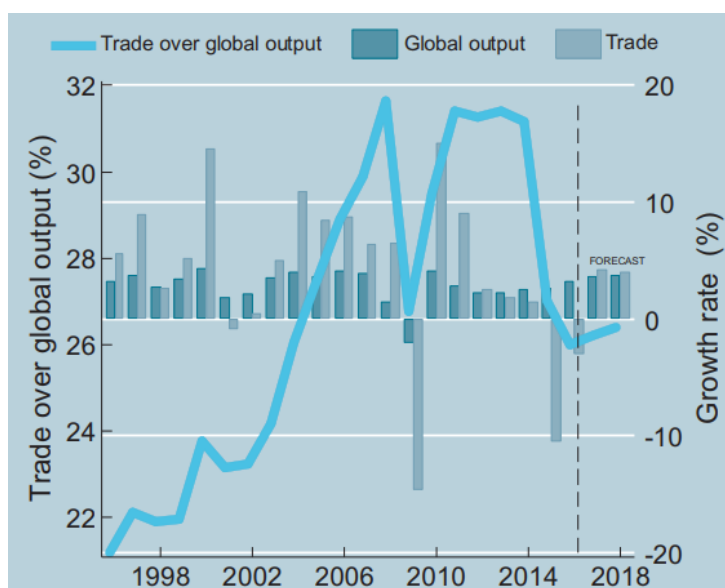
Arvis *et al* (2016), the *ad valorem* equivalents (AVEs) of trade costs are significantly higher in magnitude.¹⁶ Trade costs are broadly defined, covering aspects such as cost of transport, storage, insurance, complying with border procedures, number of days or the waiting time for the release of a shipment, etc.

Figure 5 GDP per capita, compared to Enabling Trade Index



Source: GATF-WEF (2016), *The Global Enabling Trade Report*

¹⁶ Arvis, J-F, Duval, Y., Shepherd, B, Utoktham, C. and Raj, A. (2016). Trade Costs in the Developing World: 1996 –2010. World Trade Review 15 (3).

Figure 6 Trade to GDP Ratio


Source: UNCTAD (2017)

What has been the evolution of trade during the evaluation period?

The evaluation covers the period from 2010 to 2017, the whole duration of TMEA's S1. During that period, world trade experienced turbulent trends (**Figure 6**). After a strong recovery from the 2009 financial crisis, international trade experienced sluggish growth between 2011 and 2014, growth that turned negative in 2015 and 2016. Such a decline was a reflection of the existing low commodity prices and a change in the dynamics behind the process of international integration. Two notable factors contributing to a decline in demand was a weaker demand in developed countries and the transition experienced in

East Asian economies – particularly China – from trade-oriented economies towards a more domestically-focused development path.¹⁷ The intensity growth of global value chains declined and global value chain participation has plateaued for over a decade¹⁸, a result that is to some extent explained by the fact that many EAC members are land-locked countries.

At the East African level, it is worth noting that the region's exports have expanded considerably over time, becoming a pillar of the region's economy, as demonstrated by the increasing weight that exports hold as a percentage of GDP: the share of EAC exports of goods and services in total GDP increased from 13% in 2000 to 18% in 2015. Despite this, the overall export capacity of the EAC lags behind that of sub-Saharan Africa as a whole, where total exports amounted to 22.5% of the continent's GDP in 2015.

With regard to trade performance, the four target countries of this evaluation – Kenya, Tanzania, Uganda and Rwanda – experienced a slight growth in trade, with total combined exports going from US\$11.1 billion in 2010 to US\$13.9 billion in 2018.¹⁹ Regional growth was outpaced by the average growth rate globally, and in Africa in particular. As shown in **Figure 7**, between 2016 and 2018, Kenya, the region's biggest exporter, saw its weight reduced in world and African markets. Tanzania and Rwanda experienced similar trends. This was mainly due to the decrease in monetary values of mineral exports and coffee and tea.²⁰ In the case of Tanzania, the reduction was mainly due to the reduction in exports of ores, fruits and oilseeds.²¹

¹⁷ UNCTAD (2017). Key Statistics and Trends in International Trade 2017: The Status of World Trade. UNCTAD.

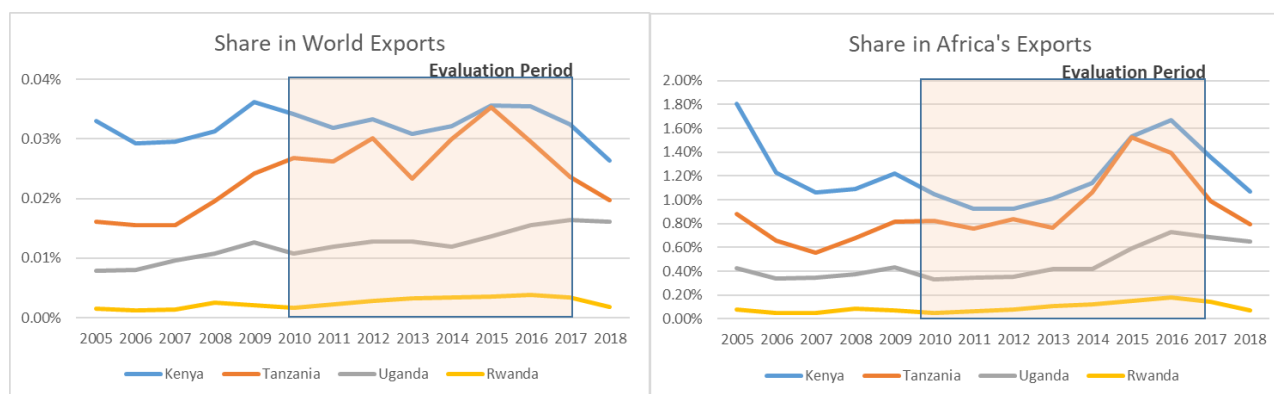
¹⁸ World Bank (2019) World Development Report 2020: Trading for Development in the Age of Global Value Chains, The World Bank: forthcoming

¹⁹ ITC Trademap. 2018 data includes mirror data.

²⁰ ITC Trademap data.

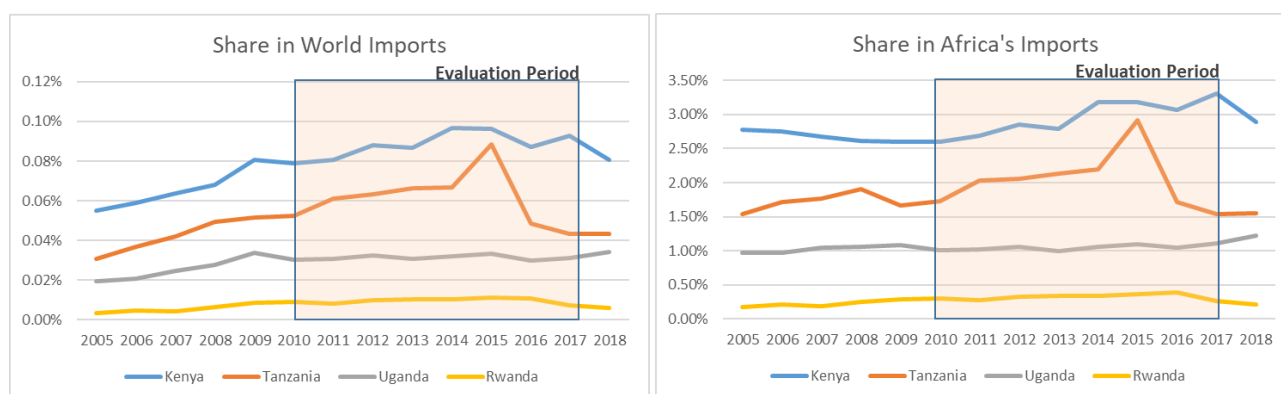
²¹ *Ibid.*

Figure 7 Share in World's Exports (left) and in Africa's Exports (right)



Source: Author's calculations based on ITC Trademap.

Figure 8 Share in World's Imports (left) and in Africa's Imports (right)



Source: Author's calculations based on ITC Trademap.

From the import side, the East Africa-4, i.e. Kenya, Rwanda, Tanzania, and Uganda, have remained, overall, relatively stable in their import patterns. The exception appears to be Tanzania, which experienced a significant decrease in its weight as global and regional importer, mainly due to the fall in the dollar value of fuel imports, cereals, pharmaceutical products and vehicles. As a percentage of GDP, the share of imports for the East Africa-4 fell from 27% in 2010 to 20% in 2017, as economic growth significantly outstripped imports.²²

In terms of regional integration efforts, the EAC Secretariat has been very active in improving market access to its partner states and has made great strides in reducing existing barriers to intra-regional trade. The clearest action to expand intra-regional trade was the operationalisation in 2014 of the EAC Single Customs Territory, which aimed to become a common market, with further integration to be achieved according to an ambitious calendar. The EAC aims at widening cooperation among partner states in economic, social and political arenas for their mutual benefit. The ultimate aim of EAC is to establish a Political Federation of the East African States.

Other initiatives in this area include the signing of the Tripartite and subsequent Continental Free Trade Areas. Signed in 2015, the Tripartite Free Trade Agreement (TFTA) is a trade agreement encompassing the member states of COMESA, EAC and SADC. With a total of 27 countries, the TFTA represents almost half of the African Union Membership, 51% of the continent's GDP, and has a combined population of over 632 million. Building on the TFTA, the Continental Free Trade Area (CFTA) is Africa's most ambitious regional integration initiative. With 54 expected Contracting Parties, the CFTA is expected to bring together a combined population of more than one billion

²² GDP growth reached 8% per annum on average for the 4 countries between 2010-17, while import growth reached 3.4%. Data from ITC TradeMap and IMF WEO.

people, and a combined GDP of over US\$3.4 trillion.²³ The East African Community (Burundi, Kenya, Rwanda, South Sudan,²⁴ Tanzania, and Uganda) finalised negotiations for an Economic Partnership Agreement (EPA) with the EU on 16 October 2014, which was subsequently signed by Kenya and Rwanda in September 2016.²⁵ The agreement is still not in force.

Kenya, Rwanda, and Tanzania are expected to drive the region's growth further in 2019 and beyond. Uganda is also expected to continue with the internal reforms in order to continue growing and reach the objective of creating 600,000 jobs annually.²⁶ Enhanced regional integration through EAC and COMESA, as well as potential exploitation of the oil and gas discoveries in Uganda, Kenya, Tanzania, and Ethiopia, offer further growth opportunities. In addition, urbanisation and information and communications technology (ICT) development will support industrialisation²⁷ and structural transformation, given an appropriate economic policy environment. In Rwanda, projected improvements in global demand and ongoing efforts to promote and diversify exports provide opportunities for growth.²⁸

1.3 The independent evaluation

DFID contracted OPM to undertake an independent evaluation comprising a set of studies. Several of these are completed and available from DFID; earlier deliverables mapped TMEA's 200+ projects;²⁹ examined project-level outputs and outcomes for 60 sampled projects;³⁰ and conducted a number of studies: a formative evaluation of the ports and border posts;³¹ an institutional and organisational assessment;³² a preliminary poverty assessment;³³ a draft poverty and gender impact study;³⁴ and a performance evaluation.³⁵ Finally, DFID has commissioned a number of annual and project reviews which have been consulted.³⁶ These inform the present evaluation deliverables and are cited throughout this report.

1.3.1 Purpose of the evaluation

The overall evaluation has two specific purposes:

- **Accountability:** Assessing TMEA processes, results and overall value in an independent and impartial manner consistent with generally accepted principles and standards for a professional evaluation; and

²³ African Union: CFTA – Continental Free Trade Area. Available at: <http://www.au.int/en/ti/cfta/about>

²⁴ South Sudan was not a member at the time of the EPA negotiations, and so was not party to the negotiations.

²⁵ European Commission – East African Community (EAC). Available at: <http://ec.europa.eu/trade/policy/countries-and-regions/regions/eac/>

²⁶ See IMF (2019) 2019 Article IV Consultation—Press Release; Staff Report; And Statement by the Executive Director For Uganda. International Monetary Fund.

²⁷ World Bank & SDM East Africa (2018). A Single Digital Market for East Africa. World Bank: Washington DC

²⁸ AfDB (2018) East Africa Economic Outlook 2018: Macroeconomic Developments. African Development Bank, Abidjan.

²⁹ Otter, Thomas and Rasulovala, Saltanat (2017). Workstream 2; Deliverable 2A. Preliminary Output Assessment. OPM: October

³⁰ Smith, D. G. V., Moktar, J., Hobden, T., Sands, T. Wahome, A. and Raes C. (2018). Workstream 2: Deliverable 2D/2E: Effectiveness and Outcome-level Evaluation SO2 and SO3 Revised Draft. OPM: March

³¹ Scott, I., Lacey, P., Omondi, P., Shuma, G., Otter, T., Smith, D., Hurrell, A. and S. Rasulovala. (2018) Strategic Objective 1. Deliverable 2C: Effectiveness and outcome-level evaluation and Deliverable 3A: Consolidated Formative Evaluation of Ports and OSBP projects. OPM March

³² OPM (2019). Workstream 2 – Deliverable 2B: Institutional and Organisational Assessment. OPM: *forthcoming*

³³ McCulloch, N., Silva-Leander, S., Hearle, C., Haynes, A. (2017). Preliminary Poverty Assessment. OPM: June

³⁴ Allison, C. Culver, K. and Silva-Leander, S. (2019). Deliverable 5B: Poverty and Gender Impact Study, Draft Report. OPM: May

³⁵ Keri Culver, Andy Cook, Keri Culver, John Spilsbury, and Ozlem Akkurt and Saltanat Rasulovala (2019). Independent Evaluation of TradeMark East Africa Deliverable 3B: Performance Evaluation. OPM: October

³⁶ DFID: Regional East Africa Integration Programme Phase II – IATI Identifier: GB-1-203307. Available at: <https://devtracker.dfid.gov.uk/projects/GB-1-203307/documents>

- **Learning:** Identifying and feeding lessons learnt into the management of the remainder of the current programme and the design of any potential continuation of the TMEA programme, as well as future regional trade integration programmes.

As part of this analysis, and in line with its terms of reference, the TGIS has analysed the regional integration programmes and, to the extent possible, estimated their impact on regional trade, growth and sustainability.

DFID and other donors made the decision to continue funding TMEA for an additional six years, from 2017 to 2023. As a result, the accountability purpose of the evaluation took on a new meaning, as a backwards-looking exercise designed to capture the extent of TMEA processes, results and value relative to the scope and potential of its original design and funding.

Where possible, the evaluation products provide lessons to inform TMEA’s ongoing work, and for efforts beyond TMEA in trade and regional integration. At the same time, the evaluation team acknowledged the significant and important learning that TMEA has already undertaken and put into action for their current Strategy 2 (S2) activities.

Given these circumstances, and the focus on accountability, the chief audiences for the evaluation are DFID, including the Africa Regional Department, DFID’s Country Offices in East Africa and DFID’s trade team, and parallel audiences from among TMEA donors. TMEA is also an important audience, to the extent that the evaluation team can offer useful insights from S1 for implementing S2. Secondary audiences include other trade programmes for which TMEA’s experience could be instructive.

1.3.2 Evaluation Questions

The Organisation for Economic Co-operation and Development’s Development Assistance Committee (OECD/DAC) developed a set of evaluation criteria that are widely used in development evaluations. These criteria comprise relevance, efficiency, effectiveness, impact, and sustainability. The TGIS examines whether outcomes have led to trade impacts, through a range of economic data and econometric and modelled analyses (Impact, Sustainability). The TGIS report addresses the following evaluation questions:

Table 1 HEQ and DEQs to be answered in the Trade Growth Impact Study




HEQ3: What is the likely impact of TMEA on trade outcomes and growth, and what factors are critical to ensure the sustainability of positive impacts
DEQ3.1 To what extent have TMEA interventions, including those of a policy nature, led to a reduction in trade times, trade costs and trade risks?
DEQ3.2 What has been the impact of any achieved trade cost reductions from TMEA on trade (both intra- and extra-regional)?
DEQ3.3 How has any improved trade policy environment led to increased trade?
DEQ3.4 To what extent has any changes in trade resulting from TMEA interventions contributed to economic growth?
DEQ3.5 What factors are critical to ensure the sustainability of positive impacts?

1.4 Timing

The timeline for the evaluation studies is detailed in Annex M: Design and Work Plan. The team began fieldwork in Kenya and Uganda in March 2019, continuing to mid-March, in Rwanda in April 2019, and again in Kenya mid-May to end May. A summary timeline is shown below:

Table 2 Summary schedule – 2018 to 2019

	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Trade and growth study									V					

 EQUALS review	 Fieldwork, analysis, reporting	 DFID and TMEA review
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In development evaluations of complex programming, and those looking to measure impacts through non-experimental designs, the analytical process relies on source triangulation, respondents' validation, consideration of alternative explanations, making explicit connections between findings and conclusions, and auditable documentation of the process.³⁷ Each draft report is reviewed by DFID and TMEA, and then by DFID's quality control function, EQUALS. The team will share lessons learnt in face-to-face workshops or through a verification exercise. Where possible, events will be combined to conserve resources, but, in principle, they follow the successful delivery of each evaluation product.

Additional fieldwork by skype or telephone may be necessary following review and verification exercises, and the team has built in a 'cushion' before the end of the no-cost extension through the end of December 2019.

³⁷ Stern, Elliot, *et al.* (2012). Broadening the Range of Designs and Methods for Impact Evaluations. Report of a Study Commissioned by the Department for International Development. DFID.

2 Trade and Growth Impact Study design and methods

2.1 Background

The TMEA ToC, based on the current literature on trade and economic growth, posits that the different activities carried out by TMEA will bring about a reduction in trade costs, and these, in turn, will have a positive impact on the region's total trade. The performance evaluation considered whether there was evidence of a causal relationship between TMEA's activities and key outcomes. TGIS examines whether outcomes contributed to by TMEA have led to trade impacts, through a range of economic data and econometric and modelled equilibrium analyses.

Overall, TMEA interventions for S1 were divided into three overarching Strategic Objectives (SOs):

- **SO1, on Increased physical access to markets**, comprised hard infrastructure at two ports and 15 border posts, and soft infrastructure support to improve procedures and processes.
- **SO2, on Enhanced ease of trading across borders**, included interventions at government levels, including working with the EAC and with country-level systems, to facilitate trade processes such as permits and setting standards, and strengthening national and regional systems to eliminate Non-Tariff Barriers (NTBs).
- **SO3, on Improved business competitiveness**, worked with the private sector and civil society actors to strengthen their trade advocacy, with women and grassroots-level traders and businesspeople, and with the logistics industry.³⁸

The interventions from TMEA have been targeted at trade facilitation measures around geographical points along the Northern Corridor, the Central Corridor and, more generally, around the trade- and business-enabling environment. The trade- and business-enabling environment efforts include a range of areas, including supporting harmonisation of standards, elimination of barriers to trade, facilitating a trade-enabling environment by offering policy advice, encouraging public advocacy and training of businesses and women entrepreneurs.

The impact of easing trade facilitation processes on trade flows has been well documented in the literature, which is reviewed in subsequent methodology literature reviews (see Annex B for a literature review). An important link appears between improving the business and trade-enabling environment and the ability of businesses to engage and become more competitive in global trade. The pathway for achieving competitiveness is through reduced trade costs.

The objective of the TGIS is to analyse and to measure, as comprehensively as possible, the *impact* and *sustainability* effects that a regional integration programme, and TMEA specifically, has had on regional trade, international trade and economic growth for its beneficiary countries.³⁹ Analyses of poverty across various stakeholders, in particular on men and women separately, and on poor and other vulnerable groups, are covered by the Poverty and Gender Impact Study (PGIS).

³⁸ Keri Culver, Andy Cook, John Spilsbury, Ozlem Akkurt and Saltanat Rasulova (2019) Independent Evaluation of TradeMark East Africa Deliverable 3B: Performance Evaluation. OPM: October

³⁹ This design was approved in November, 2018 in the Independent Evaluation Design and Work Plan, building on the ToR and Inception Report (2016) but also superseding these in light of the evolution of TMEA and DFID's requirements for the evaluation

2.2 Evaluation Framework

Where TMEA outcomes are traceable and could lead to changes in trade overall, these have been used as particular areas of analysis for the TGIS. The performance evaluation (PE) revealed the following main findings that are relevant for the TGIS:

- In all countries, TMEA, partner and external respondents reported **time reductions in trade transport and processes**. Port efforts **reduced dwell time and truck turnaround time**, and **OSBPs and the regional electronic cargo tracking system (RECTS) kept cargo moving along the corridors**.
- **Time for permit processes** at supported agencies **was reduced** and **customs management systems (CMS) decreased the turnaround time** of paperwork.
- **Conformity assessment times decreased**, with faster processing and harmonised standards; and reporting and a monitoring and resolution mechanism helped eliminate NTBs, such as highly visible and tedious weighbridges and checkpoints.
- TMEA supported EAC through outcomes in **ICT for Trade** investments in national customs management systems, which contributed to reduced clearance times at borders; **ICT for Trade’s RECTS**, which has eliminated the need for costly and time-consuming physical escort for risky cargo consignments; **Elimination of NTBs** such as weighbridges and checkpoints, which has added to time reductions; and **increased harmonisation of Standards**, reducing costs and times for testing.

The TGIS focused primarily on considering the following issues, from the evaluation questions:

Table 3 Issues addressed by TGIS

Issue/ Question	Approach
<p>The extent to which TMEA interventions led to a reduction in trade times, trade costs and trade risks. (DEQ3.1)</p>	<p>The team measured the drivers and magnitude of effects to reduce these three variables, using secondary research to investigate the performance of trade corridors, ports, border posts and other policy variables. A transport model was used to estimate the trade costs and risks, while trade times were obtained from the source agencies in charge of collecting performance indicators.</p>
<p>The impact of achieved reductions in trade frictions on trade flows (DEQ3.2 and 3.3)</p>	<p>The team used econometric and CGE models to measure the impact of improvements made in trading across border indicators, trade facilitation measures and port efficiency improvements. The choice of models reflected the desire to measure wider and narrower interventions on the trade-enabling environment. Both the CGE and econometric models are based on best practice models employed by international organisations and the academic community for measuring impacts.</p>
<p>The linkages between trade and economic growth (DEQ3.4)</p>	<p>The effects of interventions on economic growth and welfare have been examined by incorporating the trade time and costs savings on the CGE model. The distributional effects of growth were estimated using the results of the CGE, by exploring the way different sectors expand and contract as a result of TMEA intervention.</p>

Issue/ Question	Approach
<p>The degree of innovation, improvement in quality, and transfer of technology that can take place through the changes in the trade environment and the factors which are critical in order to ensure the sustainability of positive impacts (DEQ3.5)</p>	<p>The team has considered how interventions expand existing trade (intensive growth), as well as diversify into new products and markets (extensive growth), analysed the extent to which there is innovation in the trade portfolio of countries, and the extent to which new products have emerged (or become extinct) between 2010 and 2017. Survey results were used to analyse the extent to which innovation of firms is taking place, and considers how innovation and technology can sustain the results.</p> <p>The team also considered the sustainability of the intervention on economic growth, particularly regarding short-term competitive effects and the sustainability of outcomes given the macroeconomic and policy environment in East Africa.</p>

As agreed in the design document, this review is not intended to cover the whole spectrum of TMEA’s interventions, but rather it focuses on TMEA’s interventions in the ports of Mombasa and Dar es Salaam, the different projects across the Northern and Central Corridors, and TMEA’s efforts in implementing Single Windows.

This Final Report has benefited from multiple comments and revisions made by the different stakeholders involved in the evaluation, therefore ensuring that all available data was considered and ensuring that the report is of use for its end-users.

The evaluation has focused on analysing three of the five OECD-DAC Criteria: Relevance, Impact, and Sustainability. Efficiency is addressed by the Value for Money (VfM) Evaluation. Effectiveness is addressed by the PE.

2.2.1 Stakeholder engagement and transparency

The delay in the evaluation process had an alienating effect on TMEA stakeholders, and OPM’s initial task in re-starting the evaluation included presenting the design transparently, listening closely to concerns, and working to address these in the design and the day-to-day conduct of the evaluation. The performance evaluation team laid the groundwork for this, and the TGIS team continued the same practice by leveraging the interviews that the performance evaluation team had carried out, and focusing additional data collection on the gaps in information needed to answer the questions for this study. The consortium maintained close contact throughout fieldwork, allowing for informal ‘check-ins’ with TMEA. When difficulties arose in scheduling interviews with some respondents (for example, government staff), TMEA was supportive with additional letters to those offices as requested.

Many of the data collection instruments used in the TGIS, although not designed in a participatory fashion, were semi-structured, which provided latitude for respondents to highlight the issues most crucial to them. Complemented by several participatory methods, the overall TGIS design encouraged high-levels of stakeholder involvement.

The evaluation design relied on team experience and expertise, and their scrutiny of the evidence, to quality-assure our conclusions. These were validated through the review process with DFID and TMEA, and quality-assured by the consortium’s specialists.

2.2.2 Quantitative Analysis Methodology

Economic Models

To measure the impact of trade facilitation efforts, empirical research on the relationship between trade facilitation and outcomes (time and cost savings) is undertaken using a transport model,

while the relationship of outcomes on impact (trade flow and economic growth) is undertaken by using CGE and gravity models.

To address the analysis on cost savings, a transport cost modelling framework was employed. Annex C provides details of the transport model calculations.

Time was converted into ad valorem equivalents (AVEs) to effectively model transport saving times in a CGE Model. The CGE analysis has been instrumental in observing the expected change on trade and economic growth arising from savings along the transport corridors (Northern and Central). CGE models predict ex-ante gains to alterations in types of trade costs, enabling the researchers to consider economic linkages across sectors. The direction and magnitude of these impacts have been assessed using the Global Trade Analysis Project (GTAP), which has built the world's leading CGE model.⁴⁰ GTAP database records the annual flows of goods and services for the entire global economy, including bilateral trade, transport and protection matrices that link individual country/regional economic databases. The result is a fully documented, publicly available, and regularly updated global database, utilised in a suite of CGE models, which underlies the most contemporary economic analysis of global policy issues related to trade, energy and the environment.⁴¹ Using a general equilibrium model, it has been possible to capture the interactions in the whole economy by linking all the sectors through input-output tables and by linking all countries through trade flows. GTAP is a well-documented, multi-regional, multi-sector model that assumes perfect competition, constant returns to scale and imperfect substitution between foreign and domestic goods, and between imports from different sources.^{42,43} However, such models are sensitive to assumptions about the responsiveness of these linkages to each other.

The purpose of the model is to show the potential effects of a change in trade costs on trade, production and consumption, assuming other variables remain unchanged. Of course, these other variables, such as policies and demand for exports, do not remain unchanged, so the modelling cannot be interpreted as a forecast. It is an analysis of two alternative states, with and without the changes in trade costs. We do not attempt to show how we move from one state to another.

One important assumption is that real wages for unskilled workers are constant, and any increase in demand for unskilled labour will be accommodated by adjustment in the quantity of labour. This gives these countries a competitive edge, because an increase in exports does not lead to an increase in wage costs. This assumption seems reasonable. ILO (2019) reports that over the ten years to 2017 real wages in Kenya and Uganda did not rise.⁴⁴ Real wages fell 9 per cent in Tanzania but rose 7 per cent in Rwanda. A more detailed model description is provided in Annex D.

A gravity model was employed for the analysis of expected changes arising from trade policy environment changes, as measured by the doing business sub-indicators. The gravity model is considered the most successful model to explain bilateral trade at the aggregate level, because it captures two important regularities in trade data: (i) the elasticity of imports and exports to GDP is

⁴⁰ See Hertel, T.W. (1997) (Ed.), "Global Trade Analysis: Modeling and Applications", *Cambridge University Press*; and Burfisher, M. E. 2011, "Introduction to General Equilibrium Models", *Cambridge University Press*.

⁴¹ Walmsley, Terrie and Angel Aguiar and Badri Narayanan, 2012. "Introduction to the Global Trade Analysis Project and the GTAP Data Base," GTAP Working Papers 3965, Center for Global Trade Analysis, Department of Agricultural Economics, Purdue University.

⁴² For more information on GTAP, see: <https://www.gtap.agecon.purdue.edu/>

⁴³ Aguiar, A., Narayanan, B., and McDougall R. (2016). An Overview of the GTAP 9 Data Base, *Journal of Global Economic Analysis* vol. 1, no. 1, June, pp. 181-208. Available from:

<https://igea.org/resources/igea/ojs/index.php/igea/article/view/23>

⁴⁴ ILO (2019) Global Wage Report 2018/19, Geneva. (https://www.ilo.org/global/publications/books/WCMS_650553/lang-en/index.htm)

close to unity; and (ii) bilateral trade is inversely related to distance between the partners. The traditional gravity models of international trade emerged from an analogy to Newton's Law of Universal Gravitation following which bilateral trade flows would be explained by economic mass of the two countries, represented by their GDPs, and the distance between them. A gravity model was used to analyse the expected change on export flows resulting from changes in the trade-enabling environment, while controlling for indicators such as distance, economic growth, etc. The model's description is provided in Annex E.

Box 1 Simple guide to the modelling frameworks used for the TGIS

The models employed in this evaluation were used to estimate the economic impacts resulting from Aid-for-Trade interventions carried out by TMEA over the period 2010 to 2017. Three kinds of models were used: a transport model, a CGE model and an econometric model.

The team collected several indicators related to time and cost to transport, which were compared for the baseline year (2010) and the endline year (2017). A transport model was used to estimate the impact that TMEA interventions had on trade times and trade costs. The team also analysed the impact of improved transport times on reduced business uncertainties.

The results of the transport model results were used as direct inputs into the CGE model. The CGE model calculated what would have been the trade flows and economic size of East African countries, had TMEA not intervened, by using 2010 baseline conditions and inputs from the transport model. A comparison was then made between actual 2017 economic indicators, which then allowed the team to compare and quantify the impact of TMEA in 2017. The CGE model provides several helpful indicators on the benefits of interventions from TMEA, such as GDP, exports and imports, and welfare measurements.

The CGE model, as it only focused on the impacts arising from TMEA's transport-related interventions, was not intended to cover the totality of TMEA's portfolio, which includes a much wider range of interventions that impact directly or indirectly on the business, investment and trade enabling environment.

To indirectly capture these broader effects from TMEA interventions, an econometric model was used. The model computes the parameters that explain the trade flows between countries, using what is known as a 'gravity' equation. Using different explanatory variables, such as distance, GDP, belonging to an FTA, common languages, etc., the model can estimate the contribution of each of these parameters to trade flows. The cost of exporting and port quality were introduced into the model as the explanatory variable and regressed for African countries. Results were robust and could be used to estimate the incremental change in trade flows arising from any changes in the cost of exporting or in port quality. The effects of the gravity capture the broader policy environment impacts associated with TMEA, and as such result in much larger quantities of trade resulting from the effects of TMEA interventions, in comparison to the CGE model.

Across all models, the proportion of TMEA aid for trade investments in these countries out of total aid for trade investments was used as a proxy of the attribution of results to TMEA.

Data sources

The TGIS team used a variety of secondary data to inform the impact of reduced trade costs through increased efficiency of transport infrastructure, and increased capacity of transport infrastructure, including OSBPs and ports. This included intervention details from the performance evaluation and TMEA Results Meter on budget spent, geographic locations of impacts uncovered, indicators on the TMEA outcomes, and other potential influencing factors within the EAC context.

In addition to this information, the TGIS team collected other external data from TMEA to quantify the economic value of the outcome indicators, and to delve further into the influencing factors within or outside the scope of TMEA.

In addition to those above, **Table 4** presents the main international datasets that have been consulted. A number of critical papers from the literature on trade impacts of Aid for Trade were consulted and accessed for their data findings, which were subsequently employed in the modelling work.

Table 4 Major sources of data used in the study

Data	Sources
Aid for Trade	<ul style="list-style-type: none"> OECD Aid for Trade Query https://www.oecd.org/dac/aft/Aid for Tradestatisticalqueries.htm International Aid Transparency Initiative https://iatistandard.org/
Distances	<ul style="list-style-type: none"> Centre d'Études Prospectives d'Informations internationales (CEPII) GeoDist http://www.cepii.fr/CEPII/fr/bdd_modele/presentation.asp?id=6
GDP per capita	<ul style="list-style-type: none"> International Monetary Fund (IMF) World Economic Outlook: https://www.imf.org/external/pubs/ft/weo/2018/01/weodata/index.aspx World Bank World Development Indicators: databank.worldbank.org/data/reports.aspx?source=World-Development-Indicators
Import Elasticities	<ul style="list-style-type: none"> Kee, H.L., A. Nicita and Olarreaga, M. (2009). <i>Estimating Trade Restrictiveness Indices</i>. <i>The Economic Journal</i>, 119 Ghodsii, M., Grubler, J. and Stehrer, R. (2016). <i>Import Demand Elasticities Revisited</i>. <i>The Vienna Institute for International Economic Studies</i>, 132. November Tokarick, S. (2010). <i>A Method for Calculating Export Supply and Import Demand Elasticities</i>. <i>IMF Staff Working Papers</i>. WP/10/180 July GTAP (Hertel et al., 2004): https://www.gtap.agecon.purdue.edu/resources/download/2931.pdf
Non-tariff Measures	<ul style="list-style-type: none"> United Nations Conference on Trade and Development (UNCTAD) Trade Analysis Information System http://trains.unctad.org/ UNCTAD Non-Tariff Measures (NTM) hub http://unctad.org/en/Pages/DITC/Trade-Analysis/Non-Tariff-Measures.aspx Cadot, O. and Gourdon, J. (2015) NTMs, Preferential Trade Agreements, and Prices: New evidence. <i>CEPII Working Paper</i>. 2015-01. CEPII: February http://www.cepii.fr/PDF_PUB/wp/2015/wp2015-01.pdf
Population	<ul style="list-style-type: none"> World Bank World Development Indicators: databank.worldbank.org/data/reports.aspx?source=World-Development-Indicators
Port Indicators	<ul style="list-style-type: none"> UNCTAD Liner Shipping Connectivity Index and Port Throughput statistics: http://unctadstat.unctad.org/wds/TableView/tableView.aspx?ReportId=13321 WEF Port Infrastructure https://data.worldbank.org/indicator/IQ.WEF.PORT.XQ Kenya Port Authority, various reports https://www.kpa.co.ke/ Northern Corridor Transport Observatory http://top.ttcanc.org/ Central Corridor Transport Observatory http://observatory.centralcorridor-ttfa.org/
Tariffs	<ul style="list-style-type: none"> ITC Market Access Map: www.macmap.org World Bank World Integrated Trade Solution (WITS) wits.worldbank.org

Data	Sources
	<ul style="list-style-type: none"> WTO Tariff Analysis Online https://tao.wto.org/
Trade Costs	<ul style="list-style-type: none"> World Bank-United Nations Economic and Social Commission for Asia and the Pacific Trade Cost Database https://www.unescap.org/resources/escap-world-bank-trade-cost-database GTAP Database https://www.gtap.agecon.purdue.edu/ Northern Corridor Transport Observatory http://top.ttcanc.org/ Central Corridor Transport Observatory http://observatory.centralcorridor-ttfa.org/
Trade Facilitation Indicators	<ul style="list-style-type: none"> World Bank Logistics Performance Index lpi.worldbank.org/ World Bank Doing Business Indicators www.doingbusiness.org World Bank Governance Indicators https://datacatalog.worldbank.org/dataset/worldwide-governance-indicators
Trade values	<ul style="list-style-type: none"> United Nations Statistics Division COMTRADE ITC Trade Map www.trademap.org CEPII Trade Unit Values: www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=2
Enterprise Surveys	<ul style="list-style-type: none"> World Bank Enterprise Surveys http://www.enterprisesurveys.org
Fuel Prices	<ul style="list-style-type: none"> Petrol Prices https://www.globalpetrolprices.com/data_download.php
Political Activities	<ul style="list-style-type: none"> Global Database of Society www.gdeltproject.org
Weather	<ul style="list-style-type: none"> Calamities and weather data www.geographic.org

2.2.3 Qualitative Analysis

The data collection methods include sectoral and evaluation experts conducting in-depth interviews and site visits across TMEA projects. Qualitative analysis was sought to cross-check the data obtained, gain a deeper understanding of the status of trade facilitation, particularly at the corridors and the ports, and validate the results. The team also made use of extensive TMEA data and reports from regional and country levels, along with data able to be sourced from government, private sector, and civil society partners. Care was taken to ensure systematic and rigorous triangulation across data sources. The team also made use of existing enterprise surveys, including those collected by Enterprise Surveys in Kenya, Rwanda, and Uganda. The Tanzania Enterprise Surveys were outdated for this exercise.

The team also undertook several enterprise surveys that expanded on that data in the three selected value chains, across three countries (Kenya, Rwanda, and Uganda). A total of 93 enterprise survey responses were collected, plus 28 institutional responses. They were designed to be responsive to the needs of the TGIS, for the three sectors under study. This allowed the team to better understand the environment in which TMEA operated, the structure of their production and sourcing requirements, destination markets, and prices, among others. These involved anonymous responses to questionnaires covering key issues on time and cost, productivity, labour, inventory and turnover, and other themes, concordant with the lines of inquiry presented in the introductory section of this chapter.

The sampling strategy used was purposive sampling, as there was an interest in understanding the specific characteristics and experiences of the actors that rely exclusively on the Northern Corridor for the transport of their commodity out of the region via the Port of Mombasa, or within the region via the various East African borders around Kenya.

The surveyors identified the players through its position in the value chain map, in collaboration with local consultants, associations and local authorities. In terms of size, only large firms and

exporting SMEs were identified and contacted. They were informed of the use of the survey data and its confidential treatment and asked for their consent to continue. Additionally, snowball sampling was also applied, with the respondents providing contacts of possible players to be interviewed.

Given that in East Africa there is some secrecy around some of these issues (primarily because of non-payment of taxes), it can be difficult to ensure that business respondents will be candid about their experiences. However, the evaluation team brought strong real-world experience to this undertaking on how to recruit respondents, gain rapport professionally including through industry associations and other gatekeepers, sequence questions in a way that motivates further confidence, and ensure confidentiality in all dealings with respondents. These steps were helpful in ensuring the team was able to gather the needed information while protecting our sources.

Stakeholders Consulted

Sources included documents and several visits and stakeholder consultations, such as with associations, production sites, transporters, freight forwarders, different ministries, think tanks, TMEA offices, etc. A survey was also administered to enterprises in three sectors of focus (coffee, tea and leather) across the Northern Corridor.

Table 5 Qualitative data sources: TGIS respondents and Meetings by type and location

Stakeholders	Kenya	Rwanda	Uganda	Total
Tea Sector*	9	5	14	28
Coffee Sector*	13	7	17	37
Leather Sector*	8	4	5	17
Logistics/Forwarders/Transporters*	7	2	2	11
Government	5	-	1	6
Association, Donors and NGOs	5	-	1	6
TMEA	14	-	2	16
Total	61	18	42	121

**These figures represent the number of individual firms for which a representative was interviewed for the Enterprise Survey. One representative per company/organisation was interviewed.*

To collect this information, the consortium partnered with a number of local senior researchers in each country. Each researcher had prior experience with survey collection and trade data.

Challenges with results

Reluctance to answer some of the questions was observed from interviewees, leading to a relatively high percentage of 'no answers' in the questionnaire: in Kenya and Rwanda, approximately 40% of the questions were left unanswered, while in Uganda 25% of the questions were left unanswered. As a result of these high-levels of uncertainty and low response rates, the team was unable to rely on the questionnaire results. The team has not been able to analyse the influence that reductions in trade frictions might have had on allocative efficiency, terms of trade, use of capital and labour, competition, and effects of trade on productivity, as these were dependent on the enterprise surveys. Further, it has not been possible for the team to analyse the impact of trade facilitation interventions across sectors through a partial equilibrium model. Instead, the team has modelled the impacts through a CGE model, GTAP. Whenever possible, results from the World Bank Enterprise Surveys were used to strengthen the results obtained.

Imbalances and Bias

The team did not record any bias during the implementation of the evaluation. International data was used to triangulate and minimise any possible bias that might have arisen.

The team relied on data from the Northern and Central Observatories to conduct part of the analysis. Such observatories are partially funded by TMEA. However, other independent data was used whenever possible (see section 2.7).

2.3 Addressing Attribution to TMEA

In simple terms, Aid for Trade investments are intended to produce certain outcomes, with possible lags: economic growth, value addition, job creation, sustainable development, better living conditions, etc. In this context, effective programmes are those that are effective in meeting these kinds of objectives, by contributing to the intended outcomes. TMEA's expected outcomes are reflected in its ToC. With 200 TMEA project activities, it is almost certain that some will correlate with improvements in macroeconomic outcomes, but correlation does not prove causation. Evaluators face challenges in trying to determine what contribution a specific programme made to the observed outcome. How much of the success (or failure) can we attribute to the programme? What influence has it had?⁴⁵

The concept of attribution of results is a significant challenge. As highlighted by Lemma (2015), while development finance institutions can attribute a proportion of changes in employment to their investment, based on the proportion of their investment within the total investments carried out by an entity, these may not accurately reflect their contribution. This is due to the fact that, in most cases, it is very difficult to account for and isolate all the factors that may have contributed to the impact or understand their relative contribution. For example, investments may have occurred at the same time as changes in factor prices, removal of restrictive policies and changes in regulations, each of which may have amplified or attenuated impacts. Similarly, these impacts may have occurred regardless of the investment.⁴⁶

Analysing attribution requires a comparison between a situation in which an intervention has taken place and one in which the intervention did not take place. This is known as estimating the counterfactual. Unfortunately, counterfactual designs are not available for us to use for this evaluation as there are no 'alternative East Africa' to act as a control or comparison has to be constructed by the practitioner.⁴⁷ This challenge is particularly acute when considering changes at the macro-level.

Following multiple discussions with DFID and TMEA, the team has adopted a pro-rata approach to estimate the share of results that can be attributed to TMEA. The share is calculated based on what percentage TMEA's financial contribution represents compared to the total investment. For example, if TMEA's investment in the Port of Mombasa represents 10% of the total investment received by the port, it is assumed that TMEA's investment contributed to 10% of the total time and cost reduction at the port. If TMEA's investment in OSBPs represents 50% of the total investment received by the OSBP, it is assumed that TMEA's investment contributed to 50% of the impacts in this area. The pro-rata approach is the only method, to the team's knowledge, which can give an understanding of TMEA's impact on trade facilitation in a transparent and rigorous manner. Nevertheless, the team recognised that the attribution rates might be underestimated, as the pro-

⁴⁵ Mayne, J. (2001). Addressing Attribution Through Contribution Analysis: Using Performance Measures Sensibly. The Canadian Journal of Programme Evaluation, Vol. 16, No. 1.

⁴⁶ Lemma, A. F. (2015). Development Impact of DFIs: What are their impacts and how are they measured? EPS PEAKS, February. Available from: <https://assets.publishing.service.gov.uk/media/57a08992e5274a27b200014f/Development-Impact-of-DFIs.pdf>

⁴⁷ See Leeuw, F. and Vaessen, J. (2009). Impact Evaluations and Development: NONIE Guidance on Impact Evaluation. Network of Networks on Impact Evaluation (NoNIE), The World Bank Group, Washington, D.C.

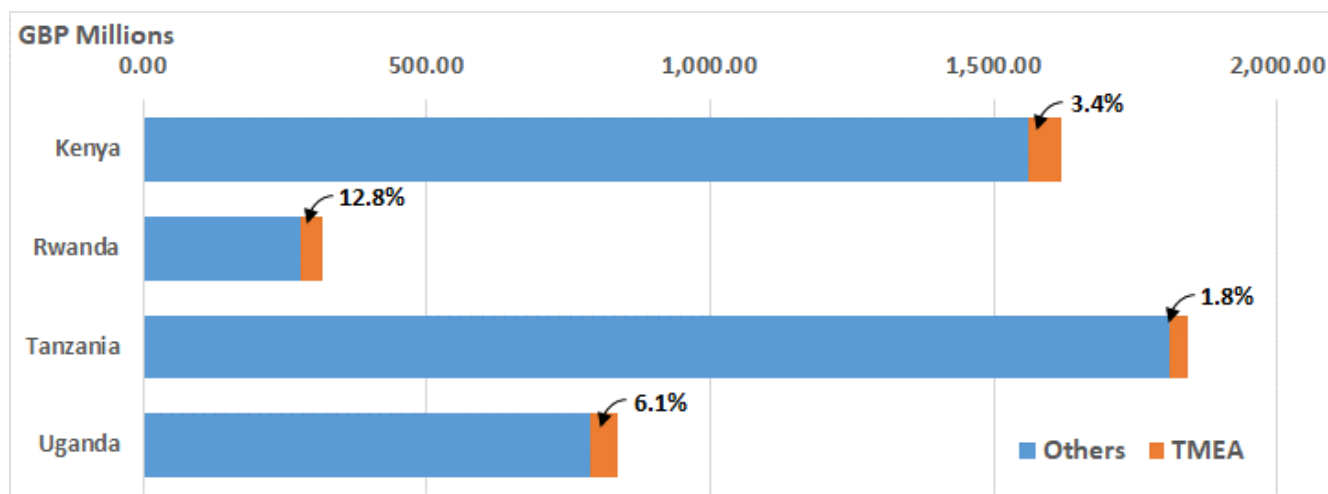
rata approach cannot record TMEA’s direct and constant involvement with the beneficiaries. Similarly, it does not account for the relative role of TMEA in achieving change. For example, where small investments made by TMEA may have made a proportionally larger contribution to results, or where large investments may have had a proportionally smaller contribution.

The team relied on the contribution analysis undertaken in the performance evaluation to confirm that TMEA’s interventions contributed to the observed impact, and therefore that attributing a share of results was appropriate. The performance evaluation found ‘significant time reductions in trade transport and processes and that TMEA’s contribution to these was central.’⁴⁸

The adopted approach requires a comprehensive mapping of Aid for Trade (A4T) interventions across the whole trade facilitation. Sources of Aid for Trade are from the OECD CRS system and specifically, components compiled are for actual disbursements on transport and storage, and trade policy and regulations, which match closely the categories in which TMEA was present. This does not take into account the government investment and efforts made in a particular area, including contributions from other donors that do not report via OECD-CRS, as no data has been obtained, and therefore it is possible that the value of Aid for Trade investments is overestimated. Owing to the scope of the design framework of the TGIS, as well as severe data limitations, only 48% of the portfolio of activities undertaken by TMEA have been considered for the modelling work. This therefore is a significant limitation in understanding the full attribution of TMEA across all areas of intervention in which it was engaged during Strategy 1. It instead offers a partial view of its impact in some important intervention areas.

The figures below indicate the attribution rates used in each of the different areas.

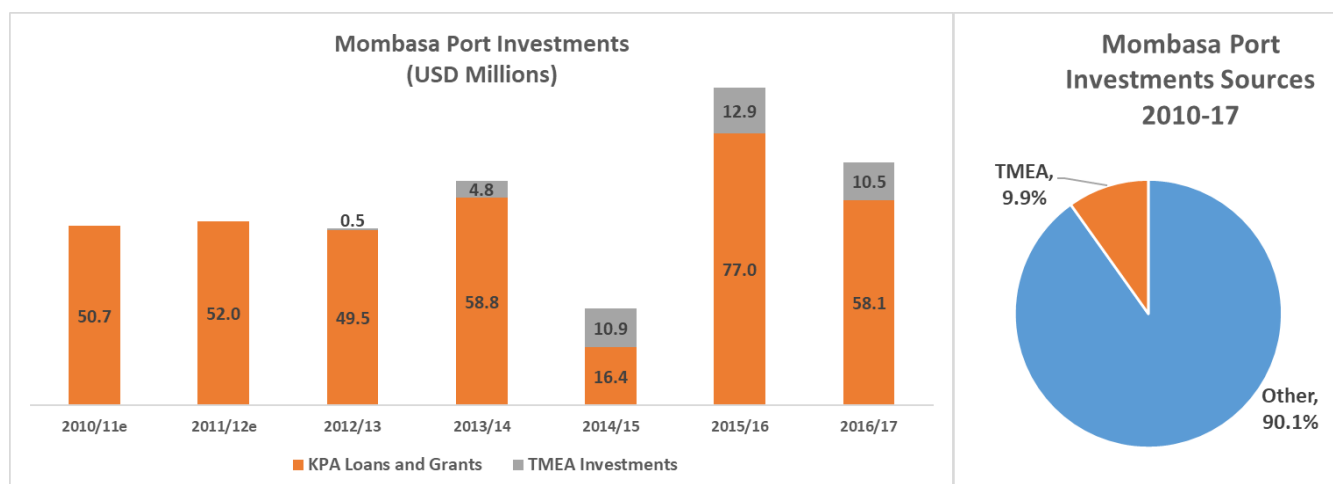
Figure 9 Aid for Trade in transport, storage and trade policy categories between 2010-2017



Source: OECD QWETS, TMEA Results Framework

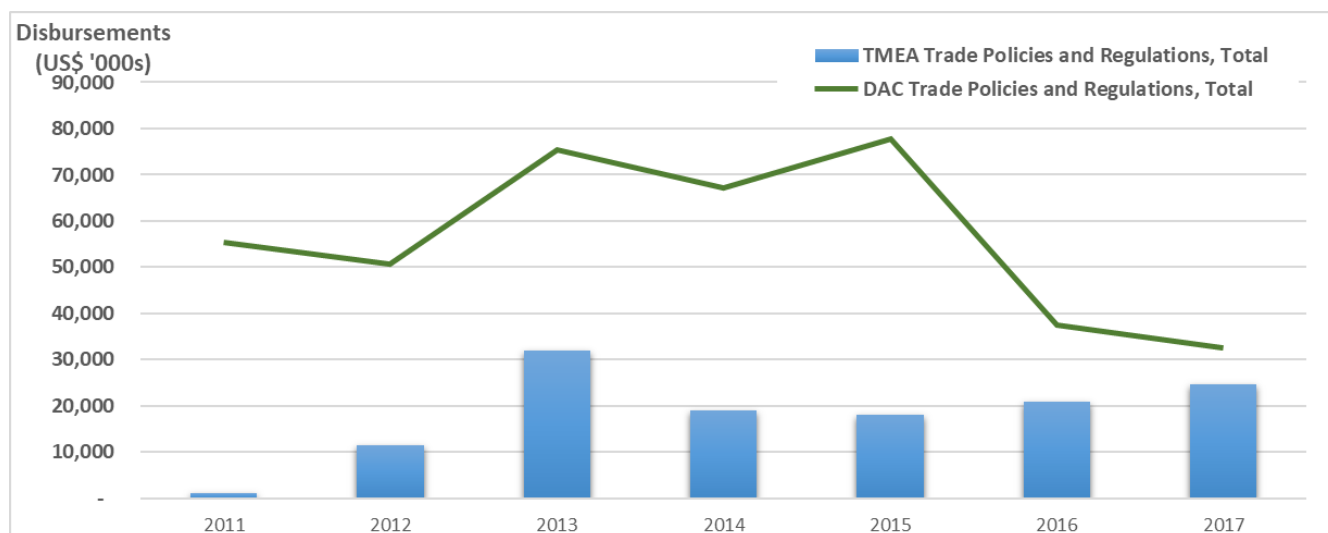
⁴⁸ Keri Culver, Andy Cook, John Spilsbury, Ozlem Akkurt and Saltanat Rasulova (2019) Independent Evaluation of TradeMark East Africa Deliverable 3B: Performance Evaluation. OPM: October

Figure 10 Mombasa Port Investments 2010-17



Note: Estimates by authors for 2010-11
 Source: KPA Financial Statements; TMEA Results Framework

Figure 11 Aid for trade investments in trade policies and regulations



Source: OECD QWETS, TMEA Results Framework

In the analysis of SWIFT projects, a 100% attribution is used, as these projects were fully implemented by TMEA.

2.4 Changes to the initial approach

A number of deviations from the original design are important to note. Due to the challenges experienced during implementation of the enterprise survey, as highlighted below, it was not possible for the team to analyse the impact of trade facilitation interventions across sectors through a partial equilibrium model. Instead, the team has modelled the impacts through a CGE model, GTAP.

Similarly, the team was not able to analyse the influence that reductions in trade frictions might have had on allocative efficiency, terms of trade, use of capital and labour, competition, and effects of trade on productivity, as these were dependent on the enterprise surveys.

This report does not elaborate on the costs of interventions against the impact nor on what interventions have the greatest impact on trade flows relative to trade costs, as this will be analysed in depth in the VfM Evaluation Report. Additionally, this report does not analyse the distributional effects of economic growth on poverty and gender, as this area was addressed in the PGIS.

As stated above, it has not been possible to rely on the results of the questionnaires due to the low response rate and the challenges faced by stakeholders in remembering the 2010 conditions. Therefore, the expected Value Chain approach could not be used. Similarly, the quantitative data obtained through the consultations is not complete enough to validate the modelling results.

Finally, this evaluation measures the impact that TMEA had in 2017 by analysing the changes in trade environment, infrastructure, etc. that occurred between 2010 and 2017. Due to lack of data, it was not feasible to analyse the annual or total impact of TMEA during the whole evaluation period. Instead, an approach comparing 2017 results with the situation in 2010 was adopted, which gave estimates for impact in 2017.

2.5 Data Collection

Interviewee selection. All categories of interviewee were outlined and agreed in the inception report and design document. Selection was based on advice of the implementing partners. This was agreed to ensure selection of respondents as fully informed of project activities as possible, and an evaluation process that was fully transparent to implementing partners.

Interview guides were drafted for various categories of interviewee, including TMEA and DFID staff, government agency staff, think tanks and private sector stakeholders. In practice, these guidelines proved useful in reminding interviewers of issues to be covered, but were used with flexibility, given the diverse range of respondents covered and the different content focus, particularly between the four case studies.

Ethics. OPM regularly conducts research studies in various parts of the world that collect primary data from human subjects. As a value-driven organisation, OPM is always respectful of the rights of the participants in its research projects, and has a policy to ensure complete adherence to research ethics. In 2013, OPM established an independent Ethical Review Committee with the aim of ensuring that all OPM research activities are conducted to the highest ethical standard. Given that interviews were only carried out with representatives of TMEA, donor agencies, government agencies, think tanks, and private sector representatives, and no interviews were carried out with vulnerable populations, the team did not believe it necessary to submit the interview guides and tools to the Ethical Review Committee for their approval. The team ensured that the views of respondents articulated during the field work would only be included in any publicly available report or research product with their full consent and, where applicable, maintaining confidentiality.

Confidentiality. Due to confidentiality, the list of consultees is not provided in this evaluation, to avoid any negative repercussion that the views contained in this report might cause.

2.6 Independence

The evaluation was conducted, to the extent of the team members' knowledge, without any conflict of interest arising. Neither the team members nor the firms/organisations had been involved in any project/activity implemented or contracted by TMEA during the evaluation period. The evaluation was conducted in an independent manner, with TMEA facilitating the meetings requested by the team, but without any clear interference. TMEA was also instrumental in securing data from third parties (i.e. the Corridor Observatories). The rest of the data was obtained from internationally recognised independent sources (UN COMTRADE, ITC Trademap, etc.), without TMEA's help.

Differences of opinion among the stakeholders and/or with regard to the data are recorded and shared as part of the analysis whenever these appeared.

2.7 Limitations

Several limitations are common to studies of this type, and the team worked proactively to mitigate them:

1. The scope of TMEA's interventions is broad and has changed over time. Asking stakeholders to recount events in 2010 is difficult, and baseline studies have reported radically different results of the situation in 2010, particularly with respect to transport. Therefore, the team made use of progress reports and previous evaluations.
2. Tanzania was not covered by the field missions, due to the late arrival of the mission approval. As a result, the enterprise survey was not carried out in Tanzania. However, survey results were primarily used to confirm issues. Surveys were not used for collecting data that could be inputted into the modelling work, and did not inform the modelling work in any of the countries in any meaningful way. It was therefore considered that the information gathered through desk research and through the results from other workstreams of the overall evaluation of TMEA was sufficient for this purpose. Data for the northern and central corridor (Tanzania) was used for all the modelling work, and the team did a thorough and comprehensive job of including Tanzania based on all available data provided by corridor observatory. As such, Tanzania was covered comprehensively in answers to all of the evaluation DEQs.
3. The data collected by the Northern Corridor and Central Corridor Transport Observatories was instrumental in understanding the changes in times and in calculating variances. The data is not uniform across all points along the corridor for all years. As also highlighted in the PE, there is no data for exports, and therefore the analysis assumes that the changes in conditions to imports are also expanded to exports.
4. Standard deviations were provided by the Northern Corridor Transit and Transport Coordination Authority (NCTTCA) in a normal distribution, not lognormal distribution, as would have been desirable, and the raw data was never provided. Enormous effort and time went into getting more granular and reliable data by the Evaluation Team, TMEA Results Team and DFID country offices. However, the data remains variable and a number of assumptions were made, as well as some estimations used when data was missing. Such assumptions, whenever used, are stated in the relevant sections.
5. A major difficulty has been to estimate the value of time savings, as well as to evaluate the business and transporter implications of facing great variance in transit, customs clearance and port turnaround times. The academic literature was consulted, and estimations were made by the team, but these are underpinned by many assumptions (from the cost of capital to the time preference utility curves), which influence the results. The assumptions are addressed in the relevant section.
6. It is challenging to measure the attribution arising from TMEA's interventions, as there are no direct measures available to record and value the importance that the constant communication and in-country presence can have. Therefore, the pro-rata of received ODA funds methodology has been used, as the only method, to the team's knowledge, which can give an understanding of TMEA's impact on trade facilitation in a transparent and rigorous manner. However, it is recognised that it might underestimate the real attribution of TMEA. Moreover, the approach requires a comprehensive mapping of Aid for Trade interventions across the whole trade facilitation. Sources of Aid for Trade are from the OECD CRS system, and specifically, components compiled are for actual disbursements on transport and storage, and trade policy and regulations, which match closely the categories in which TMEA was present. However, this does not take into account the government investment and efforts made in a particular area, including contributions from other donors that do not report via OECD-CRS, as no data has

been obtained. Therefore it is possible that the value of Aid for Trade investments are overestimated, thereby overestimating the pro-rata contribution of TMEA interventions.

7. Elasticities, particularly those relating to variety preferences (Armington), demand and supply, and the structural make-up of the economies have been estimated based on the most recent databases. However, while the assumptions and data underpinning the models are the latest and most relevant available, they are, at the end, simplifications of reality and have standard model limitations that should be taken into consideration when analysing the results. Such limitations are further explained, together with the functioning of the different models employed, in Annexes C, D and E. The qualitative information obtained during the field mission was instrumental to provide a basis on which to support the findings from modelling results. Moreover, sensitivity analysis of some of the assumptions has been conducted and presented in Annex J of the report.
8. There was evident evaluation fatigue expressed by TMEA, stakeholders and other donor programmes. It was therefore often impossible to get the necessary time to cover the scope of the evaluation questions. While respondents were gracious, the additional demands of such a broad evaluation, and in particular of the extensive data and additional interview requests, were not so welcome. Some TMEA partners and partners in development were contacted, but with little response. Many external stakeholders could not understand the difference between all the TMEA evaluation teams (project level, annual reviews and the independent evaluations, with its four components). The TMEA Senior Management and Results Team were extremely helpful and worked closely with the TGIS team to ensure that the team could interview all relevant stakeholders.
9. Efforts to obtain data were made by the TMEA team. The data sources are often obtained from third parties but under contract from TMEA (such as the observatory data, the evaluation reports, etc.). Some of the data came from TMEA sources, in which case the independence of data used may be compromised, something which is explored quite thoroughly in the PE. The team triangulated the data obtained with third party data obtained from international databases (such as UN COMTRADE, ITC Trademap, etc.). Overall, the team acted independently, though with guidance from DFID staff and TMEA staff, in conducting the report.
10. Risks of bias are always present, including social desirability bias in which respondents wish to please the interviewers; sponsor bias in which responses are conditioned by interviewees' independent perceptions of donors, donor countries, or of TMEA; and on the part of researchers, confirmation bias, in which prejudgements about research findings cause the team or a team member to overlook contrary or unexpected findings. For the former two possibilities, the team attempted to build rapport to gain genuine and thoughtful responses; in the case of confirmation bias, the team agreed to challenge one another's ideas using the evidence gathered, as well as their sectoral and regional experience.
11. The evolving political economy in each country undermines simple responses to outcome questions, particularly since S1 ended almost two years ago. While that affords time to be able to evaluate sustainability, it also introduces countless new variables as politics, bureaucracies, economies, and societies undergo change. In practice, during the interviews, the diagnostic of the situation in the region was often made in 2019 instead of 2017, and due to a surge in trade frictions during 2018-19, this clouded the more positive optimism that likely would have reigned in 2017.

3 Answering the evaluation questions

Trade conditions across the region have changed during the implementation of TMEA's Strategy 1. As mentioned above, efforts have been made to improve market access across the EAC member states and to reduce barriers to intra-regional trade. Other initiatives aiming to improve trade in the region are the Tripartite Free Trade Agreement, the Continental Free Trade Area, and signature of the EPA with the EU by Kenya and Rwanda.

From a worldwide perspective, global trade recovered strongly in 2017 after two years of slowdown, experiencing a real growth rate of 4.9 percent. This recovery was strongly felt in emerging markets and developing economies, reflecting improved investment growth rates and the recovery of investment and domestic demand in developed countries.⁴⁹ Nevertheless, despite an improvement in trade growth, some structural factors that weighed on trade were still present, such as the rebalancing of the Chinese economy away from investment and towards consumption (which has a lower import content compared with investment) and the reduced pace of global trade opening. Additionally, the increased use of restrictive trade policy measures by players around the world, and the uncertainty they brought to businesses and consumers, also affected trade patterns.⁵⁰

This chapter presents the evaluation findings with respect to the high-level evaluation question (HEQ3) regarding the likely impact of TMEA on trade outcomes and growth, and what factors are critical to ensure the sustainability of positive impacts. A series of more precise refined questions are answered to reach a judgment on the higher-level question posed. These questions represent the interests of DFID and the other TMEA donors with respect to the ways in which TMEA inputs, outputs and outcomes have impacted the trade flows and economic growth of the beneficiary countries as a result of S1. Qualitative and quantitative data are triangulated in this chapter to provide comprehensive responses to the questions. All data around outcomes and impact refers to impacts experienced in 2017 only, in comparison to 2010 conditions.

HEQ3: What is the likely impact of TMEA on trade outcomes and growth, and what factors are critical to ensure the sustainability of positive impacts?

3.1 Reduced trade times, trade costs and trade risks

DEQ3.1: To what extent have TMEA interventions, including those of a policy nature, led to a reduction in trade times, trade costs and trade risks?

TMEA's interventions across the four countries that are the focus of this study have been diverse. However, they have all had the aim of improving trade facilitation and alleviating existing bottlenecks to trade, particularly along the Northern Corridor, the Central Corridor, and, more generally, across the trade- and business-enabling environment. There is an extensive wealth of literature exploring the impacts that trade facilitation interventions can have on trade times, costs and risks (see Annex B on literature review for further information). This chapter analyses the changes that have taken place in terms of trade cost reductions, increased trade and economic growth as a result of TMEA interventions in the following areas:

- (1) **Interventions at the Ports of Mombasa and Dar es Salaam**, as these are key enablers for trade in the region, being the gateway between the region and the rest of the world (sections 3.1.1, 3.2.1 & 3.4);

⁴⁹ IMF (2018). World Economic Outlook April 2018: Cyclical Upswing, Structural Change. International Monetary Fund.

⁵⁰ WTO (2018) World Trade Statistical Review 2018. World Trade Organisation.

- (2) **Interventions across the Northern and Central Corridors**, as these are the main arteries for trade linking the four countries.
- (3) **ICT for Trade investments, particularly the establishment of National Single Windows (SWIFTS)**, as these remove burdensome administrative bottlenecks, thereby increasing trade times and reducing costs for businesses (sections 3.1.3, 3.2.2 & 3.4); and
- (4) **Policy support in national and regional matters**, as a key enabler to improve the trading environment (section 3.3)

With this selection, this study's calculations cover around US\$251 million of TMEA disbursements made between 2010 and June 2017, out of the US\$520 million spent by TMEA. This represents 48% of TMEA's total disbursement made during this period.

3.1.1 Results of TMEA intervention at East Africa's ports on trade times, trade costs and trade risks

TMEA's interventions across the four focus countries (Kenya, Rwanda, Tanzania, and Uganda) aimed to contribute to the reduction in transport times, costs, and risks. Particularly, TMEA's direct efforts to strengthen the efficiency, predictability and transparency of port and OSBP operations, introduce or improve ICT for Trade, harmonise standards, and support EAC integration efforts, were all aimed at reducing the cost of engaging in regional trade for businesses.⁵¹ A reduction in transport times, costs, and risks were expected to be achieved through:

- Infrastructure projects that increased capacity at the ports.
- Capacity and institutional work at the ports to increase efficiency.
- Implementation of the single customs territory and other regulatory structures that would enable trade.
- Integrating customs management systems; establishing single windows; and installing a RECTS to facilitate faster, less costly, less risky trade processes for the private sector.
- Eliminating excess weighbridges and other NTBs, through consultative processes involving transporters, traders, industry and policymakers.
- Harmonising standards to minimise time and costs for inspections; improving quality infrastructure.⁵²

TMEA's investments at the ports of Mombasa and Dar Es Salaam have been substantial, having invested over US\$35.4 million in Mombasa and over US\$6.2 million in Dar es Salaam.⁵³ TMEA's investments were mainly focused on infrastructural improvements, aiming to improve the capacity and efficiency of the port, improve handling capacity, asset utilisation and productivity of ship, truck and rail handling, etc.

The total possible benefits at the ports that might accrue are calculated here as a sum of time reductions in ship turnaround times, in the single window efficiency gains for customs declarations and other border agency declarations, and reductions in tariffs faced at the ports for any delays (see Annex C). According to the Northern Corridor and Central Corridor Observatories, transit times related to the ports experienced the changes presented in **Table 6** and **Table 7**.

⁵¹ Keri Culver, Andy Cook, John Spilsbury, Ozlem Akkurt and Saltanat Rasulova (2019) Independent Evaluation of TradeMark East Africa Deliverable 3B: Performance Evaluation. OPM: October

⁵² *Ibid.*

⁵³ Programme expenditure grossed up with programme management & central overheads obtained from TMEA.

Table 6 Port of Mombasa: Time measured performance

Port of Mombasa	Time 2010 (Hours)	Time 2017 (Hours)	% Change	TMEA % of Total Investment	% Change attributed to TMEA
Ship Waiting to Berth (Time waiting out at sea)	12.0	22.9	+90%	9.9%	+8.9%
Ship Turn Around Time (Time between entering and leaving the port)	96.0	83.7	-13%	9.9%	-1.3%
Cargo Dwell Time in Port (Exit date/time from the port minus arrival date/time at the port)	117.6	94.3	-20%	9.9%	-2%

Note: Time refers to the Year-Month Average (Hours). The attribution to TMEA is calculated on a pro-rata basis, whether positive or negative results transpired, even if some external factors not considered may have affected the times in both cases (positive and negative results). Source: NCTTCA

Table 7 Port of Dar es Salaam: Time measured performance

Port of Dar es Salaam	Time 2010 (Hours)	Time 2017 (Hours)	% Change	TMEA % of Total Investment	% Change attributed to TMEA
Ship Turn Around Time (Time between entering and leaving the port)	192.0	58.3	-66%	1.8%	-1.2%
Cargo Dwell Time in Port – Tanzania Imports (Exit date/time from the port minus arrival date/time at the port)	294.0	129.8	-55%	1.8%	-1.0%
Cargo Dwell Time in Port – Transit (Exit date/time from the port minus arrival date/time at the port)	391.2	332.6	-15%	1.8%	-0.3%

Note: Time refers to the Year-Month Average (Hours). Source: Central Corridor Transport Observatory (CCTO)

An acceleration in ship turnaround time can lead to the possibility that the same ship is used to carry out additional circular journeys (return journeys from A to B) within a shorter time, and thus save millions of dollars by releasing the rental value of the capital in the ship. Once the turnaround time is reduced by a minimum of four to five days, the ships speed at deep-sea can be accelerated and an additional return journey can be included in the schedule. However, the ship turnaround time at the Port of Mombasa was already low, at an average of four days in 2010, and the difference with the 2017 conditions barely exceeded 24 hours. As no major milestone improvements could be reached, no major cost changes to transporters have been noted from the reduction of ship turnaround times.⁵⁴

In terms of the tariffs applied by the Kenyan Port Authority (KPA) and the Tanzania Ports Authority (TPA), these remained unchanged over the period analysed, and are presented in Annex C.

However, the overall reduction in waiting times has led to discernible improvements. The reduction in waiting times provides an opportunity for a reduction in anchoring, wharfage, stevedoring, shore handling and all associated warehousing charges. The costs move in incremental steps, rather than continuously decreasing over time. The reason for this is that the tariff applied by the port authority provides for an initial grace period, followed by a fixed cost per container per day for a number of days, followed by a further higher cost for another number of days, and so on until the costs are quite high for anything above 30 days.

⁵⁴ Information obtained through stakeholder interviews.

Table 8 Time Savings at the Ports

Port Time Savings				Mean Time 2010 (days)	Mean Time 2017 (days)	Mean Time Savings (days)	SD 2010 (days)	SD 2017 (days)	SD Savings (days)	TMEA % of total investment	Mean Time Savings (days / hours) attributed to TMEA	Standard Deviations Savings(days) attributed to TMEA
Kenya	Northern Corridor	Waiting to berth + Turnaround + Cargo Dwell Time	Imports	9.4	8.4	1.00	5.20	3.87	1.33	9.9%	0.1 / 2.38	0.13
			Exports	9.4	8.4	1.00	5.20	3.87	1.33	9.9%	0.1 / 2.38	0.13
Tanzania	Central Corridor	Turnaround + Cargo Dwell Time	Imports	20.25	8.14	12.11	4.23	3.12	1.11	1.8%	0.22 / 5.23	0.02
			Exports	20.25	8.14	12.11	4.23	3.12	1.11	1.8%	0.22 / 5.23	0.02
Rwanda	Northern Corridor	Waiting to berth + Turnaround + Cargo Dwell Time	Imports	9.4	8.4	1.00	5.20	3.87	1.33	9.9%	0.1 / 2.38	0.13
			Exports	9.4	8.4	1.00	5.20	3.87	1.33	9.9%	0.1 / 2.38	0.13
Rwanda	Central Corridor	Turnaround + Cargo Dwell Time	Imports	24.3	16.59	7.71	6.09	1.94	4.15	1.8%	0.14 / 3.33	0.07
			Exports	24.3	16.59	7.71	6.09	1.94	4.15	1.8%	0.14 / 3.33	0.07
Uganda	Northern Corridor	Waiting to berth + Turnaround + Cargo Dwell Time	Imports	9.4	8.4	1.00	5.20	3.87	1.33	9.9%	0.1 / 2.38	0.13
			Exports	9.4	8.4	1.00	5.20	3.87	1.33	9.9%	0.1 / 2.38	0.13
Uganda	Central Corridor	Turnaround + Cargo Dwell Time	Imports	24.3	16.59	7.71	6.09	1.94	4.15	1.8%	0.14 / 3.33	0.07
			Exports	24.3	16.59	7.71	6.09	1.94	4.15	1.8%	0.14 / 3.33	0.07

Source: Authors' calculations. Note: "SD" refers to Standard Deviation.

Also, it should be noted that transit containers destined to Uganda and Rwanda face much more generous grace periods than those destined for the domestic market (four days against nine days in Mombasa and 15 days in Dar es Salaam), and also face fewer charges on the export side than on the import side. The time changes ended up not impacting transit trade in any significant way because the grace periods were, on average, not exceeded.

Time-variable costs linked to the ports were calculated by shipment. Based on these calculations, the team estimated that the reduction in trade times at the Port of Mombasa achieved between 2010 and 2017 equates to US\$22.4 million in savings on the import side, of which US\$2.2 million is attributable to TMEA for Kenya in 2017. Rwanda and Uganda experienced negligible benefits, owing to the flow of traffic across Mombasa to these countries and the more generous rates applied to transit trade. On the export side, the reduction in trade times at the Port of Mombasa, achieved between 2010 and 2017 was minimal, since the trade time was already below the export storage grace period in 2010. The annual savings on export costs for Kenya were US\$9,300 for 2017, with only US\$918 attributed to TMEA. Rwanda and Uganda also experienced negligible benefits, again owing to the flow of traffic from these countries across Mombasa and the more generous rates applied to transit trade.

A similar analysis was conducted for efficiencies made at the Port of Dar es Salaam. The team estimates that the reduction in costs at the Port of Dar es Salaam between 2010 and 2017 resulted in an annual savings on imports of US\$49.2 million for Tanzania, with US\$0.9 million attributable to TMEA in 2017, while Rwanda and Uganda experienced a more limited, although still significant reduction: for Rwanda annual savings of US\$2.7 million, with US\$49,000 attributable to TMEA, and for Uganda, US\$0.7 million annual savings, with US\$12,000 attributable to TMEA. On the export side, Tanzania has made an estimated saving of US\$6.5 million, with US\$0.1 million attributable to TMEA. Rwanda and Uganda savings were negligible in 2017. (Please see **Table 9** and **Table 10**.)

Table 9 Import Cost savings for an average ship at the Port of Mombasa and Dar es Salaam (US\$ 2017 relative to 2010 Baseline)

Category	Mombasa			Dar es Salaam		
	Kenya	Rwanda	Uganda	Tanzania	Rwanda	Uganda
Savings in cost, per 40' container	- 60	- 0.03	- 0.03	- 250	- 90	- 90
Savings in cost for 2017 trade	- 22,426,140	- 119	- 3,915	- 49,195,474	- 2,738,595	- 711,780
TMEA % of Total Investment	9.9%	9.9%	9.9%	1.8%	1.8%	1.8%
Savings in cost for 2017 trade attributable to TMEA	-2,220,188	-12	-388	-886,519	-49,295	-12,812

Note: Average ship size assumed to be 190m long with capacity for 1,208 containers. Figures refer to US\$. Data for 2017. See Annex C for details on methodology. Source: Authors calculations

Table 10 Export Cost savings for an average ship at the Port of Mombasa and Dar es Salaam (US\$ 2017 relative to 2010 Baseline)

Category	Mombasa			Dar es Salaam		
	Kenya	Rwanda	Uganda	Tanzania	Rwanda	Uganda
Savings in cost, per 40' container	- 0.25	- 0.25	- 0.25	- 202	- 10	- 10
Savings in cost for 2017 trade	- 9,275	- 99	- 3,325	- 6,539,736	- 5,835	- 442
TMEA % of Total Investment	9.9%	9.9%	9.9%	1.8%	1.8%	1.8%
Savings in cost for 2017 trade attributable to TMEA	-918	-10	-329	-117,715	-105.3	-8

Note: Average ship size assumed to be 190m long with capacity for 1,208 containers. Figures refer to US\$. Data for 2017. See Annex C for details on methodology. Source: Authors calculations

In addition to average changes in cost, it is important to calculate the value of time savings on inventory costs. Such savings arise from the reduction of time at the ports, taking into consideration that the inventory holding cost, according to Arvis (2007), is US\$50 per each 40' container per day.

The time savings arising from the reduction in the time spent at the Port of Mombasa results in an average US\$51.6 reduction in inventory costs per container imported, of which US\$5.1 is attributable to TMEA. It has not been possible to distinguish between those containers destined for imports and those transiting, due to the nature of the data provided. Overall, Kenya benefitted the

most from reduced inventory costs at the Port of Mombasa, estimated to reach a total savings of US\$19.3 million in 2017 (against baseline 2010 performances), with US\$1.9 million attributable to TMEA, followed by Uganda at US\$6.9 million with US\$0.7 million attributable to TMEA. Rwanda only benefits marginally from the time savings, US\$0.2 million with US\$21,000 attributable to TMEA, mainly due to the limited traffic at the Port of Mombasa destined to Rwanda, and the low levels of tariffs for transit trade.

The results from the transport model show that the time reductions achieved at the Port of Dar es Salaam are much more significant: 12 days for containers destined for Tanzania, and seven days for containers destined for transit to Rwanda, Uganda and further afield. Tanzania's inventory savings nearly reach US\$119.4 million, with US\$2.1 million attributable to TMEA. Rwanda and Uganda also benefit significantly due to the noticeable time reduction, with US\$11.8 million in savings for Rwanda, of which US\$212,000 is attributable to TMEA, and US\$3.1 million in savings for Uganda, with US\$55K attributable to TMEA. See **Table 11** for data.

Table 11 Import Time savings on inventory at the Port of Mombasa and Dar es Salaam, (US\$ 2017 relative to 2010 Baseline)

Category	Mombasa			Dar es Salaam		
	Kenya	Rwanda	Uganda	Tanzania	Rwanda	Uganda
Savings in cost, per 40' container	- 51.59	- 51.59	- 51.59	- 605.50	- 385.50	- 385.50
Value of Time savings on inventory	- 19,270,863	- 210,862	- 6,907,850	- 119,387,949	- 11,795,336	- 3,065,689
TMEA % of Total Investment	9.9%	9.9%	9.9%	1.8%	1.8%	1.8%
Savings in cost, per 40' container attributable to TMEA	-5.1	-5.1	-5.1	-10.9	-6.9	-6.9
Value of Time savings on inventory attributable to TMEA	-1,907,815	-20,875	-683,877	-2,148,983	-212,316	-55,182

Note: Average ship size assumed to be 190m long with capacity for 1,208 containers. Figures refer to US\$. Data for 2017. See Annex C for details on methodology. Source: Authors calculations

On the export side, for Mombasa, time savings on inventory was US\$1.9 million for Kenya, of which US\$0.2 million is attributable to TMEA, US\$21,000 for Rwanda, of which US\$2,000 is attributable to TMEA, and US\$0.7 million for Uganda, of which US\$68,000 is attributable to TMEA.

For Dar Es Salaam time savings on inventory was US\$19 million for Tanzania of which US\$350,000 are attributable to TMEA, US\$0.2 million for Rwanda of which US\$4,000 is attributable to TMEA and a mere US\$18,000 for Uganda of which US\$323 is attributable to TMEA. See **Table 12** for data.

Table 12 Export time savings on inventory at the Port of Mombasa and Dar es Salaam (US\$ 2017 relative to 2010 Baseline)

Category	Mombasa			Dar Es Salaam		
	Kenya	Rwanda	Uganda	Tanzania	Rwanda	Uganda
Difference in cost, per 40' container	- 51.59	- 51.59	- 51.59	- 605.5	- 385.5	- 385.5
Value of Time savings on inventory	- 1,905,910	- 20,855	- 683,194	- 19,651,200	- 236,697	- 17,926
TMEA % of Total Investment	9.9%	9.9%	9.9%	1.8%	1.8%	1.8%
Savings in cost, per 40' container attributable to TMEA	-5.1	-5.1	-5.1	-10.9	-6.9	-6.9
Value of Time savings on inventory attributable to TMEA	-188,685	-2,065	-67,636	-353,721	-4,261	-323

Note: Average ship size assumed to be 190m long with capacity for 1,208 containers. Figures refer to US\$. Data for 2017. See Annex C for details on methodology. Source: Authors calculations

To calculate the value of uncertainty changes for businesses, we assume that the value of a container decreases over time. Each day of unexpected delay creates a decreasing marginal return on the goods themselves, which after a period of 60 days is assumed to reach zero.⁵⁵ The uncertainty of delays arising for businesses is higher than any other costs,⁵⁶ as shown in the tables above, owing to the potential contract penalties for delays in delivery, as well as the perishable nature of goods (whether changes in physical characteristics, safety or seasonal trends, or other demand characteristics).

The total value of a decrease in the uncertainty of port times in 2017 compared with baseline conditions in 2010 is estimated to have saved the following:

- Businesses in Kenya saved US\$118.5 million in 2017, with US\$11.7 million attributable to TMEA;
- Businesses in Tanzania saved US\$45.7 million, with US\$0.8 million attributable to TMEA;
- Businesses in Rwanda saved US\$9.9 million (US\$1.3 million through Mombasa and US\$8.6 million through Dar Es Salaam), with US\$0.3 million attributable to TMEA (US\$0.1 million through Mombasa and US\$0.2 million through Dar Es Salaam);
- Businesses in Uganda saved US\$45.3 million (US\$42.5 million through Mombasa and US\$2.8 million through Dar Es Salaam), with US\$4.3 million attributable to TMEA (US\$4.2 million through Mombasa and only US\$50,000 through Dar Es Salaam)

⁵⁵ With most marine insurance, the insurance only covers a period of 60 days from the time that a good arrives to the warehouse. After that, the insurance expires. See: <https://www.tradefinanceglobal.com/freight-forwarding/marine-insurance/>

⁵⁶ As cited by Arvis *et al* (2007), Teravaninthorn and Raballand (2008) and others

Table 13 Value of decrease in import uncertainty at the Ports of Mombasa and Dar es Salaam ((US\$ 2017 relative to 2010 Baseline))

Category	Mombasa			Dar es Salaam		
	Kenya	Rwanda	Uganda	Tanzania	Rwanda	Uganda
Value of Uncertainty Decrease for Businesses, per 40' container	- 317.22	- 317.45	- 317.45	- 232	- 347	- 347
Value of Uncertainty Decrease for Businesses	- 118,509,203	- 1,297,684	- 42,512,130	- 45,719,845	- 8,606,306	- 2,759,943
TMEA % of Total Investment	9.9%	9.9%	9.9%	1.8%	1.8%	1.8%
Value of Uncertainty Decrease for Businesses, per 40' container attributable to TMEA	-31.4	-31.4	-31.4	-4.2	-6.2	-6.2
Value of Uncertainty Decrease for Businesses attributable to TMEA	-11,732,411	-128,471	-4,208,701	-822,957	-154,913	-49,679

Note: Average ship size assumed to be 190m long, with capacity for 1,208 containers. Figures refer to US\$. Data for 2017. See Annex C for details on methodology. Source: Authors calculations

Estimating the risks savings on the export side has been difficult, mainly due to the unavailability of uncertainty data around exports. There is also a lack of clarity on the impact of the delays on the export side, since there is a rotation of ships at the ports. Containers wait for days at the ports waiting for ships to have enough containers before departing.

Overall, port interventions have led to significant savings, estimated at US\$484 million in total savings in 2017 (US\$455 million in imports and US\$29 million in exports), although savings vary significantly by corridor and country, with Tanzania and Kenya being the main beneficiaries. Rwanda benefits significantly more from interventions at the Port of Dar es Salaam than at the Port of Mombasa. The opposite is true of Uganda. This is mainly since each country depends more on a given port.

The performance evaluation found strong evidence that TMEA's interventions contributed to reduced time to import. However, due to limited evidence, TMEA's contribution to a reduction in export times could not be confirmed or disproved (it is 'as likely as it is not')⁵⁷. Using the pro-rata approach, we calculate that TMEA's investments resulted in a US\$25.3 million share of total savings on the import side and US\$0.7 million savings on the export side in 2017, although it is possible that TMEA's contribution is overstated in this last area, given the lack of evidence confirming TMEA's contribution to reduction in export times.

⁵⁷ Keri Culver, Andy Cook, John Spilsbury, Ozlem Akkurt and Saltanat Rasulova. Independent Evaluation of TradeMark East Africa Deliverable 3B: Performance Evaluation. (forthcoming), section 3.4.2.1

Table 14 Summary of savings arising from port interventions in 2017

Port Cost Savings			Port Charges Savings	Inventory Transport Savings	Risks	Savings	TMEA % of total investment	TMEA Attribution
Kenya	Northern Corridor	Imports	-22,426,140	-19,270,863	-118,509,203	-160,206,206	9.9%	-15,860,414
		Exports	-9,275	-1,905,910	-	-1,915,184	9.9%	-189,603
Tanzania	Central Corridor	Imports	-49,195,474	-119,387,949	-45,719,845	-214,303,268	1.8%	-3,857,459
		Exports	-6,539,736	-19,651,200	-	-26,190,935	1.8%	-471,437
Rwanda	Northern Corridor	Imports	-119	-210,862	-1,297,684	-1,508,666	9.9%	-149,358
		Exports	-99	-20,855	-	-20,954	9.9%	-2,074
Rwanda	Central Corridor	Imports	-2,738,595	-11,795,336	-8,606,306	-23,140,237	1.8%	-416,524
		Exports	-1,301	-236,697	-	-237,998	1.8%	-4,284
Rwanda	Central and Northern Corridor	Imports	-2,738,714	-12,006,199	-9,903,990	-24,648,903	-	-565,882
		Exports	-1,400	-257,552	-	-258,951	-	-6,358
Uganda	Northern Corridor	Imports	-3,915	-6,907,850	-42,512,130	-49,423,895	9.9%	-4,892,966
		Exports	-3,325	-683,194	-	-686,519	9.9%	-67,965
Uganda	Central Corridor	Imports	-711,780	-3,065,689	-2,759,943	-6,537,411	1.8%	-117,673
		Exports	-442	-17,926	-	-18,368	1.8%	-331
Uganda	Central and Northern Corridor	Imports	-715,694	-9,973,539	-45,272,073	-55,961,306	-	-5,010,639
		Exports	-3,767	-701,120	-	-704,886	-	-68,296
Total		Imports	-75,076,023	-160,638,549	-219,405,111	-455,119,683		-25,294,394
		Exports	-6,554,177	-22,515,780	-	-29,069,957		-735,694
		Import & Exports	-81,630,200	-183,154,330	-219,405,111	-484,189,640		-26,030,089

Source: Authors' calculations. Note: Port interventions across the northern corridor referred to the Port of Mombasa. Port interventions across the central corridor referred to the Port of Dar es Salaam. Data shows the comparison to baseline conditions in 2010

3.1.2 Results of TMEA interventions along the inland road corridors on trade times, trade costs and trade risks

The second stage of our analysis investigates TMEA's interventions across the corridor itself. These include integrating customs management systems and installing a RECTS to facilitate faster, less costly, less risky trade processes for the private sector, eliminating excess weighbridges, among others. As mentioned in the limitations section, there is no data available for exports, and therefore the analysis assumes that the changes in conditions to imports are also expanded to exports.

Table 15 Time Savings at the Corridor

Roads and OSBPs Time Savings			Mean Time 2010 (days)	Mean Time 2017 (days)	Mean Time Savings (days)	SD 2010 (days)	SD 2017 (days)	SD Savings (days)	TMEA % of total investment	Mean Time Savings (days / hours) attributed to TMEA	SD Savings (days) attributed to TMEA	
Kenya	Northern Corridor	Mombasa - Nairobi	Imports	1.2	1.1	0.10	N/A	N/A	N/A	3.4%	N/A	N/A
			Exports	1.2	1.1	0.10	N/A	N/A	N/A	3.4%	N/A	N/A
Tanzania	Central Corridor	Dar Es Salaam - Dodoma	Imports	N/A	N/A	N/A	N/A	N/A	N/A	3.4%	N/A	N/A
			Exports	N/A	N/A	N/A	N/A	N/A	N/A	3.4%	N/A	N/A
Rwanda	Northern Corridor	Mombasa - Akanyaru	Imports	18.33	8.7	9.63	13.65	6.56	7.09	12.8%	1.23 / 29.6	0.91
			Exports	18.33	8.7	9.63	13.65	6.56	7.09	12.8%	1.23 / 29.6	0.91
Rwanda	Central Corridor	Dar Es Salaam - Kigali	Imports	5.9	3.8	2.10	0.27	0.06	0.21	12.8%	0.27 / 6.5	0.03
			Exports	5.9	3.8	2.10	0.27	0.06	0.21	12.8%	0.27 / 6.5	0.03
Uganda	Northern Corridor	Mombasa - Malaba	Imports	10.9	4.3	6.60	6.40	3.50	2.90	6.1%	0.4 / 9.7	0.18
			Exports	10.9	4.3	6.60	6.40	3.50	2.90	6.1%	0.4 / 9.7	0.18
Uganda	Central Corridor	Dar Es Salaam - Kampala	Imports	7	4.7	2.30	0.43	0.12	0.31	6.1%	0.14 / 3.4	0.02
			Exports	7	4.7	2.30	0.43	0.12	0.31	6.1%	0.14 / 3.4	0.02

Source: Authors' calculations. Note: "SD" refers to Standard Deviation.

Taking the above into consideration, and using the transport times for each route, it is possible to analyse and determine the cost and time saving experienced in 2017 relative to 2010. This is calculated per truck, which, as in the analysis of the ports, is assumed to have a 40-foot container carrying US\$40,000 worth of goods. Using our Transport Model Methodology, it has been possible to map and transform the variable times into costs, using parameters such as truck capital, inventory transport costs, driver fees, accommodation per day, among others. The explanations for the Transport Model methodology used to derive the savings are explained in Annex C, with detailed results in Annex F.

Table 16 Evolution of time and cost savings across the Corridors per truck

	Northern Corridor								Central Corridor			
	Mombasa-Malaba (Uganda)		Malaba-Katuna* (Uganda)		Gatuna-Akanyaru (Rwanda)		Mombasa-Nairobi (Kenya)		Uganda		Rwanda	
	2010	2017	2015	2017	2010	2017	2010	2017	2010	2017	2010	2017
Time (days)	10.9	4.3	4	2.8	3.4	1.6	1.2	1.1	7	4.7	5.9	3.8
Cost (US\$)	3,044	1,614	1,128	700	1,096	668	676	668	3,749	2,638	2,119	1,474
Total Savings per truck (time reductions)	- US\$1,260		- US\$420		- US\$420		US\$0		- US\$420		- US\$420	
TMEA % of total investments	6.1%		6.1%		12.8%		3.4%		6.1%		12.8%	
Total Savings per truck(time reductions) attributable to TMEA	-US\$76.9		-US\$25.62		-US\$53.76		US\$0		-US\$25.62		-US\$53.76	

Source: NCTTCA and authors' calculations. *: Reflects 2015-2017 data. Note: Savings only appear whenever a full day has been saved. The difference between the 2010-2017 costs not attributable to time reductions indicate changes in fuel prices. No data was available for Uganda from the Central Corridor.

The reduction in times also has a positive measurable impact on businesses and transporters, due to the reduction in uncertainty. There are three levels of uncertainty taken into consideration to associate to the risks.

- **Business Uncertainty** - This is linked to the value of the truck decreasing as trucks deviate from their expected mean this time of arrival. It is similar to the calculations for the business uncertainty for the ports.
- **Transporter Uncertainty** - For transporters too, deviating from expected arrival time is costly. Each day's truck delay is equivalent to US\$210, as per the cost of truck calculations above.
- **Extra Inventory Uncertainty** - For businesses again, being out of stock can have very negative consequences. The uncertainty of trucks' trip times pushes businesses to keep extra inventory.

The results are summarised in **Table 17**.

Table 17 Evolution of risk savings across the Corridors, per truck

Route	Uncertainty Impact	Uncertainty Cost		Total Savings		TMEA % of total Investment	Total Savings attributable to TMEA	
		2010 (US\$)	2017 (US\$)	US\$	%		US\$	%
Mombasa via Malaba (Kenya)	To Businesses	509	374	-135	-27%	6.1%	8	-2%
	To Transporters	916	508	-408	-45%	6.1%	25	-3%
	Extra Inventory	259	65	-194	-75%	6.1%	12	-5%
Malaba-Katuna* (Uganda)	To Businesses	374	330	-44	-12%	6.1%	3	-1%
	To Transporters	2,446	1,799	-647	-26%	6.1%	39	-2%
	Extra Inventory	65	26	-39	-60%	6.1%	3	-4%

Route	Uncertainty Impact	Uncertainty Cost		Total Savings		TMEA % of total Investment	Total Savings attributable to TMEA	
		2010 (US\$)	2017 (US\$)	US\$	%		US\$	%
Gatuna-Akanyaru (Rwanda)	To Businesses	378	279	-99	-26%	12.8%	13	-3%
	To Transporters	524	100	-424	-81%	12.8%	54	-10%
	Extra Inventory	55	5	-50	-91%	12.8%	6	-12%
Kampala via Dar Es Salaam (Uganda)	To Businesses	271	263	-8	-3%	6.1%	0	0%
	To Transporters	61	17	-44	-72%	6.1%	3	-4%
	Extra Inventory	22	5	-17	-77%	6.1%	1	-5%
Kigali via Dar Es Salaam (Rwanda)	To Businesses	267	262	-5	-2%	12.8%	1	0%
	To Transporters	38	9	-29	-76%	12.8%	4	-10%
	Extra Inventory	12	2	-10	-83%	12.8%	1	-11%
Dodoma via Dar Es Salaam (Tanzania)	No data available							
Mombasa-Nairobi (Kenya)	No data available							

Note: Standard deviations for times on these routes is not available: Dodoma via Dar es Salaam, Mombasa via Malaba
 Source: NCTTCA and authors' calculations. *: Reflects 2015-2017 data. Note: Savings only appear whenever a full day has been saved.

The significant reductions in time, costs and risk across the corridors led to US\$809 million in total savings for imports in 2017, and US\$40 million in savings for exports, as compared to 2010.⁵⁸ As in the case of the ports interventions, savings vary significantly per corridor and country. Uganda is the country which benefited the most, and benefits equally from the time and cost savings, as well as from the risk savings, mainly due to the fact that the biggest improvements in the transit times along the Northern Corridor are experienced on the Mombasa – Malaba route. As highlighted in the performance evaluation, TMEA's interventions have contributed significantly to these savings, leading to total savings of US\$52.7 million on the import side and US\$2.5 million on the export side in 2017, as compared to 2010.

⁵⁸ As stated in the limitations, there is no data on the export side, therefore the analysis assumes that the changes in conditions to imports are also expanded to exports.

Table 18 Summary of savings arising from inland road corridor interventions in 2017

Roads and OSBPs Cost		Corridor			TMEA % of total investment	Total Savings	
		Cost Savings	Risk Savings	Corridor Savings			
Kenya	Northern Corridor	Imports	-5,977,392	-	-5,977,392	3.4%	-203,231
		Exports	-591,168	-	-591,168	3.4%	-20,100
Tanzania	Central Corridor	Imports	-	-	-	-	-
		Exports	-	-	-	-	-
Rwanda	Northern Corridor	Imports	-268,736	-10,653,328	-10,922,064	12.8%	-1,398,024
		Exports	-222,971	-	-222,971	12.8%	-28,540
Rwanda	Central Corridor	Imports	-39,496,477	-2,256,260	-41,752,737	12.8%	-5,344,350
		Exports	-792,576	-	-792,576	12.8%	-101,450
Rwanda	Central and Northern Corridor	Imports	-39,765,213	-12,909,588	-52,674,800	12.8%	-6,742,374
		Exports	-1,015,547	-	-1,015,547	12.8%	-129,990
Uganda	Northern Corridor	Imports	-383,001,190	-348,986,399	-731,987,589	6.1%	-44,651,243
		Exports	-37,879,270	-	-37,879,270	6.1%	-2,310,635
Uganda	Central Corridor	Imports	-17,662,503	-867,459	-18,529,962	6.1%	-1,130,328
		Exports	-103,277	-	-103,277	6.1%	-6,300
Uganda	Central and Northern Corridor	Imports	-400,663,693	-349,853,858	-750,517,551	6.1%	-45,781,571
		Exports	-37,982,547	-	-37,982,547	6.1%	-2,316,935
Total	Imports	-446,406,298	-362,763,446	-809,169,743		-52,727,176	
	Exports	-39,589,262	-	-39,589,262		-2,467,025	
	Import & Exports	-485,995,560	-362,763,446	-848,759,005		-55,194,201	

Note: Tanzania has no corridor data, as data from Dar to major cities was not available to calculate costs of inland road transportation. Data shows the comparison to baseline conditions in 2010. Source: Authors' calculations.

3.1.3 Results of TMEA interventions on trade times, trade costs and trade risks

Overall, TMEA's interventions on the ports and trade corridors have led to substantial savings. The pro-rata shares of total savings resulting from TMEA's interventions along the trade corridors are presented in **Table 19** and **Table 20**. On the import side, TMEA's pro-rata share of the total savings in 2017, as compared to 2010, is equivalent to US\$78 million in 2017, while on the export side US\$3.2 million were saved. The greatest beneficiaries are Uganda (US\$50.8 million for imports and US\$2.4 million for exports), and Kenya (US\$16 million for imports and US\$0.2 million for exports).

Those costs and risks savings are reflected in the time savings, with Rwanda and Uganda being the main beneficiaries, experiencing major time reductions across both the Northern and Central Corridor.

Table 19 Total savings (costs and risk) along the trade corridors attributed to TMEA in 2017

In comparison to baseline conditions in 2010

Cost Savings					
			Ports	Roads and OSBPs	Total Savings
Kenya	Northern Corridor	Imports	-15,860,414	-203,231	-16,063,645
		Exports	-189,603	-20,100	-209,703
Tanzania	Central Corridor	Imports	-3,857,459	0	-3,857,459
		Exports	-471,437	0	-471,437
Rwanda	Northern Corridor	Imports	-149,358	-1,398,024	-1,547,382
		Exports	-2,074	-28,540	-30,614
Rwanda	Central Corridor	Imports	-416,524	-5,344,350	-5,760,874
		Exports	-4,284	-101,450	-105,734
Rwanda	Central and Northern Corridor	Imports	-565,882	-6,742,374	-7,308,256
		Exports	-6,358	-129,990	-136,348
Uganda	Northern Corridor	Imports	-4,892,966	-44,651,243	-49,544,209
		Exports	-67,965	-2,310,635	-2,378,600
Uganda	Central Corridor	Imports	-117,673	-1,130,328	-1,248,001
		Exports	-331	-6,300	-6,631
Uganda	Central and Northern Corridor	Imports	-5,010,639	-45,781,571	-50,792,210
		Exports	-68,296	-2,316,935	-2,385,231
Total	Imports	-25,294,394	-52,727,176	-78,021,570	
	Exports	-735,694	-2,467,025	-3,202,719	
	Imports & Exports	-26,030,088	-55,194,201	-81,224,289	

Note: Tanzania has no corridor data, as data from Dar es Salaam to major cities was not available to calculate costs of inland road transportation. Source: Authors' calculations

Table 20 Total time savings along the trade corridors attributed to TMEA in 2017

Time Savings			Port		Roads and OSBPs		Total Savings	
			Mean Time Savings (days)	SD Savings (days)	Mean Time Savings (days)	SD Savings (days)	Mean Time Savings (days)	SD Savings (days)
Kenya	Northern Corridor	Imports	0.1 / 2.38	0.13	N/A	N/A	N/A	N/A
		Exports	0.1 / 2.38	0.13	N/A	N/A	N/A	N/A
Tanzania	Central Corridor	Imports	0.22 / 5.23	0.02	N/A	N/A	N/A	N/A
		Exports	0.22 / 5.23	0.02	N/A	N/A	N/A	N/A
Rwanda	Northern Corridor	Imports	0.1 / 2.38	0.13	1.23 / 29.6	0.91	1.33 / 32	1.04
		Exports	0.1 / 2.38	0.13	1.23 / 29.6	0.91	1.33 / 32	1.04
Rwanda	Central Corridor	Imports	0.14 / 3.33	0.07	0.27 / 6.5	0.03	0.41 / 9.8	0.10
		Exports	0.14 / 3.33	0.07	0.27 / 6.5	0.03	0.41 / 9.8	0.10
Uganda	Northern Corridor	Imports	0.1 / 2.38	0.13	0.4 / 9.7	0.18	0.5 / 12.1	0.31
		Exports	0.1 / 2.38	0.13	0.4 / 9.7	0.18	0.5 / 12.1	0.31
Uganda	Central Corridor	Imports	0.14 / 3.33	0.07	0.14 / 3.4	0.02	0.28 / 6.7	0.09
		Exports	0.14 / 3.33	0.07	0.14 / 3.4	0.02	0.28 / 6.7	0.09

Note: Kenya and Tanzania have no corridor data, as data from Nairobi and Dar es Salaam to major cities was not available to calculate costs of inland road transportation. Source: Authors' calculations

3.1.4 National Single Window Interventions on trade times, costs, and risks

The third stage of our analysis involved TMEA's work on the single window interface (SWIFT), part of TMEA's interventions under "ICT for Trade" (ICT4T), which aimed to increase the ease of trading across borders through effective trade systems, agencies and procedures.

As highlighted in the performance evaluation, ICT for Trade activities linked together the customs management systems of EAC countries for the Northern Corridor and within countries, to speed up the processing of cargo in the single customs territory. The integration of customs systems allows customs agents at ports and OSBPs to jointly process cargo, and with SWIFT functionality, the systems include the necessary permits for each consignment, as with Rwanda's electronic single window (ReSW). SWIFTs also allow private sector users to apply for permits prior to transport, often from multiple agencies, through portals with consolidated and streamlined trade information.

Particularly, the implementation of national single windows had a significant impact in Kenya. As the World Bank highlighted (2019): '[the] automation of processes and procedures has resulted in reduction of delays, improved convenience and substantial cost savings estimated at US\$25.36

million, as traders' compliance costs associated with transportation/travel, time, administration (e.g. document preparation, photocopying) and telecommunication have been reduced or eliminated.⁵⁹

The reform led to the removal of the import declaration fee, reducing the cost to traders for travel, time and administrative costs by US\$9.14 million between 2017 and the 30 June 2018, when the single window was implemented. Overall, most traders and clearing agents have reported a reduction of over 50% in the cost to import (estimated at a total of US\$25.36 million).⁶⁰

TMEA has already conducted a number of evaluations that have been useful in informing the TGIS. For example, according to the formative evaluation of the Single Window for the Rwanda Revenue Authority Project (2015),⁶¹ prior to the launch of the ReSW in 2012, the time required to clear goods through Rwanda's customs was over 11 days, compared to just over one day in 2014. Similarly, the time taken to obtain an exemption from the Rwanda Development Board (RDB) reduced from four days in 2012, to half an hour in 2014. In terms of costs, the cost of clearance and obtaining exemptions fell from RWF 30,000 and RWF 4,000 respectively in 2012, to close to zero in 2014. Similarly, the US\$45 of fees paid to the Rwanda Development Board per consignment, in addition to those paid to the other Ministries that provide exemptions online, have been eliminated since the launch of the ReSW.

Table 21 List of TMEA-implemented SWIFTS across East Africa

Kenya	Rwanda	Tanzania	Uganda
<ul style="list-style-type: none"> - Kenya National Chamber of Commerce & Industry (KNCCI) e-portal - Tea Directorate e-portal - Kenya Port Health Services (PHS) e-portal - Kenya Pharmacy and Poisons Board e-portal 	<ul style="list-style-type: none"> - Rwanda Development Board (RDB) e-portal - Ministry of Agriculture Rwanda (RALIS) e-portal - Rwanda Standards Board (RSB) e-portal - Rwanda Ministry of Health e-portal - Rwanda National Agricultural Export Development Board e-portal. 	<ul style="list-style-type: none"> - Tanzania Food and Drug Authority (TFDA) e-portal 	<ul style="list-style-type: none"> - Uganda National Bureau of Standards (UNBS) e-portal - Uganda National Drug Authority (NDA) e-portal

The costs saving arising from the implementation of such e-portals, as presented in the formative evaluations of SWIFTS projects^{62, 63}, are highlighted below:

⁵⁹ Gikonyo, A., Kariuki, F., Okwenda, V. and Makokha, P. W. (2019). Impact Evaluation of the Kenya National Electronic Single Window. The World Bank, Kenya Investment Climate Program-II Trade Logistics, Washington. Available at: <https://www.kentrade.go.ke/wp-content/uploads/2019/05/Impact-of-Kenya-TradeNet-System-2018.pdf>

⁶⁰ *Ibid.*

⁶¹ Saana Consulting (2015). Formative Evaluation of the Single Window for the Rwanda Revenue Authority Project

⁶² Ayaah Enterprises Ltd. (2018). Final Draft Report for the Formative Evaluation on Single Window Information for Trade (SWIFTS) Projects. TMEA. Contract Reference: PO2016051616, June 26.

⁶³ These are assumed to include all SWIFTS carried out by TMEA.

Table 22 Summary of results of TMEA-implemented SWIFTS

	Project Title & Coverage	Results	Impact
Kenya	KNCCI e-portal: Implementation of Electronic Certificate of Origin & automation of membership profile management.	Processing time: - Before: 48h (1-day indirect time; 1-day direct time). - After: <1h Processing cost: - Before: US\$88 - After: US\$10 Number of transactions: 22,374	The reduction in cost led to US\$1,745,172 in savings, while the reduction in time led to US\$3,319,331 in savings. Period: April 2016 – September 2017.
	Tea Directorate e-portal: Digitalisation of application for operational licenses, renew existing operational licenses, make monthly and annual statistical returns, and register tea exports and imports.	It has not been possible for the team to calculate the impact of this initiative as no disaggregated data was available.	
	PHS e-portal: Provide an online electronic document processing of applications for export and import health certificates.	Processing time: - Before: 76h (16h indirect time; 60h direct time) - After: 1h Processing cost: - Before: US\$60 - After: US\$10 Number of transactions: 4,229	The reduction in cost led to US\$211,450 in savings, while the reduction in time led to US\$1,609,346 in savings. Period: October 2015 – September 2017.
Rwanda	RDB e-portal: Provision of online services that included: Investment Certificate Registration, Environmental Compliance application and processing	It has not been possible for the team to calculate the impact of this initiative as no disaggregated data was available	
	RALIS e-portal: Empowering importers and exporters to initiate and make their phytosanitary certificates and import permits applications online	Processing time: - Before: 24h - After: 2h Processing cost: - Before: US\$60 - After: US\$10 Number of transactions: 3,720	The reduction in cost led to US\$186,000 in savings, while the reduction in time led to US\$364,188 in savings. Period: August 2016 – March 2017.
	RSB e-portal: Establishment of an internal Management Information System for internal processes and an external system that importers and exporters were interacting with.	Processing time: - Before: 32h (16h indirect time; 16h direct time) - After: 2h Processing cost: - Before: US\$40 - After: US\$ Number of transactions: 145,130	The reduction in cost led to US\$5,660,070 in savings, while the reduction in time led to US\$9,041,599 in savings. Period: July 2015 – September 2017.
	Ministry of Health e-portal: Automate a system that was deployed and being used by both internal and external users (importers and exporters) of drugs in Rwanda.	Processing time: - Before: 184h (16h indirect time; 168h direct time) - After: 16h Processing cost: - Before: US\$20 - After: US\$1 Number of transactions: 1,062	The reduction in cost led to US\$20,178 in savings, while the reduction in time led to US\$737,240 in savings. Period: March-September 2017.

	Project Title & Coverage	Results	Impact
	National Agricultural Export Development Board e-portal: Implementation of Electronic Certificate of Origin & Certificate of Quality	Processing time: <ul style="list-style-type: none"> - Before: 12h (6h indirect time; 6h direct time) - After: 2h Processing cost: <ul style="list-style-type: none"> - Before: US\$30 - After: US\$6 Number of transactions: 3,906	The reduction in cost led to US\$93,744 in savings, while the reduction in time led to US\$69,526 in savings. Period: September 2015 – September 2017.
Tanzania	TFDA e-portal: System targeted importers and exporters of drugs, foods, medical devices and cosmetics in Tanzania. The system aimed at providing a one-stop location for all information required by traders to do their business	Processing time: <ul style="list-style-type: none"> - Before: 120h (60h indirect time; 60h direct time) - After: 2h Processing cost: <ul style="list-style-type: none"> - Before: US\$80 - After: US\$10 Number of transactions: 89,123	The reduction in cost led to US\$6,238,610 in savings, while the reduction in time led to US\$13,439,748 in savings. Period: October 2015 – September 2017.
	UNBS e-portal: Development of an online database on existing rules, procedures, legislation and regulations governing the import/export business in Uganda and a workflow system to facilitate the application and management of import/export licenses and permits	Processing time: <ul style="list-style-type: none"> - Before: 48h (1-day indirect time; 1-day direct time). - After: 2h Processing cost: <ul style="list-style-type: none"> - Before: US\$80 - After: US\$10 Number of transactions: 70,565	The reduction in cost led to US\$4,939,550 in savings, while the reduction in time led to US\$7,296,421 in savings. Period: May 2015 – September 2017.
Uganda	Uganda NDA e-portal: Supported NDA to automate six business processing modules: premise module, import /export module, product module, GMP module, inspection module and finance module.	Processing time: <ul style="list-style-type: none"> - Before: 184h (16h indirect time; 168h direct time) - After: 60h Processing cost: <ul style="list-style-type: none"> - Before: US\$60 - After: US\$10 Number of transactions: 4,607	The reduction in cost led to US\$230,350 in savings, while the reduction in time led to US\$1,039,339 in savings. Period September – November 2017.

Source: *Formative Evaluations of SWIFTS projects*⁶⁴

All savings arising from these projects are attributed to TMEA, as it was the only agency implementing them. However, it is worth noting that the implementing agencies also have an important role in ensuring the success of the single windows, and therefore there might be an over attribution of the results. Overall, TMEA's interventions through the implementation of SWIFTS led to significant savings in 2017 as compared to the situation in 2010. In 2017, savings arising from time and cost efficiencies from documentation requirements becoming easier through the TMEA-implemented portals reached US\$4.5 million in Kenya, US\$9.5 million in Rwanda, US\$10.3 million in Tanzania and US\$5.1 million in Uganda. Total savings across all four countries reached US\$29.4 million for 2017 alone.⁶⁵

3.1.5 Conclusion

Owing to data limitations, these savings have not been estimated on a cumulative basis, and instead apply for just one year, 2017. As such, it does not represent the full extent of savings over

⁶⁴ Ayaah Enterprises Ltd. (2018). Final Draft Report for the Formative Evaluation on Single Window Information for Trade (SWIFTS) Projects. TMEA. Contract Reference: PO2016051616, June 26.

⁶⁵ As there is no data recording the actual savings arising from the SWIFTS from the implementation to 2017, it is assumed that the average monthly saving achieved during the recorded period is maintained in 2017.

Strategy 1 of TMEA. Similarly, the analysis covers 48% of the total of TMEA's interventions in the region, and therefore these results might be underestimating TMEA's total contribution to the reduction of time, cost and risk.

In summary, overall savings arising from port interventions totalled US\$484 million in 2017 as compared to 2010, of which US\$26 million is attributed to TMEA's interventions.

For the corridors, TMEA's interventions focused on installing a RECTS to facilitate faster, less costly, less risky trade processes for the private sector, eliminating excess weighbridges and other non-tariff barriers (NTBs). Such interventions led to US\$849 million in savings in 2017, of which US\$55.2 million is attributed to TMEA.

Finally, TMEA has also devoted particular attention to establishing single windows across the four countries – see **Table 23** for data. Such interventions led to savings in 2017 equivalent to a total of US\$ 34.6 million. While here 100% of the impact is attributed to TMEA, it is worth highlighting that the implementing agencies also have an important role in ensuring the success of the single windows.

Table 23 Savings from SWIFTS interventions attributed to TMEA.

		Cost savings (USD)	Time savings (USD)	Period (months)	Savings per month (USD)	Savings 2017 (USD)
Kenya	Total (USD)					4,524,924
of which	KNCCI	1,745,172	3,319,331	17	297,912	3,574,943
	Tea					
	PHS	211,450	1,609,346	23	79,165	949,981
Rwanda	Total (USD)					9,482,233
of which	RDB					
	RALI	186,000	364,188	6	91,698	1,100,376
	RSB	5,660,070	9,041,599	26	565,449	6,785,386
	Health	20,178	737,240	6	126,236	1,514,836
	Export	93,744	69,526	24	6,803	81,635
Tanzania	Total (USD)					10,266,969
of which	TFDA	6,238,610	13,439,748	23	855,581	10,266,969
Uganda	Total (USD)					10,322,744
of which	UNBS	4,939,550	7,296,421	28	436,999	5,243,988
	NDA	230,350	1,039,339	3	423,230	5,078,756

Note: Blank spaces indicate no data available, not necessarily that no savings were not made. As the period varies, savings in 2017 have been calculated by extrapolating the average saving per month achieved during the evaluation period and transforming it into annual savings.

Source: Formative Evaluations of SWIFTS projects.

3.2 Impact of trade cost reductions on trade

DEQ3.2: What has been the impact of any achieved trade cost reductions from TMEA on trade (both intra- and extra-regional)?

There are several channels through which TMEA-type interventions can play a role in reducing trade costs. Members of the EAC operate within a customs union, implying there are no tariffs or formal barriers to trade within the region. However, border posts are necessary, and formal and informal barriers to trade do exist, which generate trade transaction costs. There are numerous reasons why trade transaction costs can arise at border crossings. These include procedural delays at the border, with inevitable queues. As Moïse and Bris (2013) show, factors such as costs associated with documentation and customs compliance requirements, lengthy administrative

procedures, and other delays can significantly affect bilateral trade flows. Time delays represent a cost not only because shippers must pay wages for drivers to wait around, but capital is lying idle, and traders may need to hold additional stocks to cater for demand. This is particularly the case if the arrival of supplies is uncertain. This is an obvious barrier to a modern, just-in-time supply chain, where parts and components are ordered only when necessary. A more pressing problem arises with fresh, chilled, or frozen products, or perishable products that cannot be stored for any length of time.

Therefore, addressing any of these issues can greatly help trigger and/or strengthen trade responses. Strengthening trade-related infrastructure has been identified as a cost-effective means for lowering trade costs and promoting regional integration (Brooks and Hummels, 2009). Improvements in transport infrastructures (such as railways, ports and logistics) have been shown to have significant impacts on trade flows and economic growth (Ismail and Mohyideen, 2015).

Although the potential positive impact of TMEA interventions on trade has long been discussed and recognised, providing empirical evidence is far from straightforward. There are many factors that affect trade performance and that fall outside the areas of TMEA interventions. The objective of the present exercise is to assess, quantitatively, if the impact of any achieved reductions in trade cost, times and risk analysed in the previous section has led to increased trade.

According to the analysis above, TMEA has had a significant impact in terms of trade cost reductions across the four analysed countries. Such trade cost reductions represent savings, enabling companies (both importers and exporters) to be more competitive. To consider whether this has led to increased trade, the team has used economic modelling to estimate the extra trade created due to the reduction in trade times, costs, and risk.

A CGE model is used to report on two focus areas of TMEA, to estimate the impact of each country's trade costs on the domestic economy and on landlocked countries which use the facilities of that country for transit purposes. The purpose of these simulations is to estimate the expected impact of observed reductions in trade costs on trade (DEQ3.2) and growth (DEQ3.4) (see Annex D, on CGE modelling). Once the trade and growth impacts arising from improvements in the trade corridors have been estimated, a portion of these impacts are attributed to TMEA on a pro-rata basis.

Table 24 Focus Areas

No	Label	Description
1	Ports	Reduction of port costs
2	Corridors	Reduction of inland transport costs

Focus areas 1 and 2 aim to estimate the impact that the reduction in transport costs discussed in the previous section have had on trade (imports and exports) along internal EAC routes. These costs are broken down into time saved and reduction in risk to businesses and shippers.

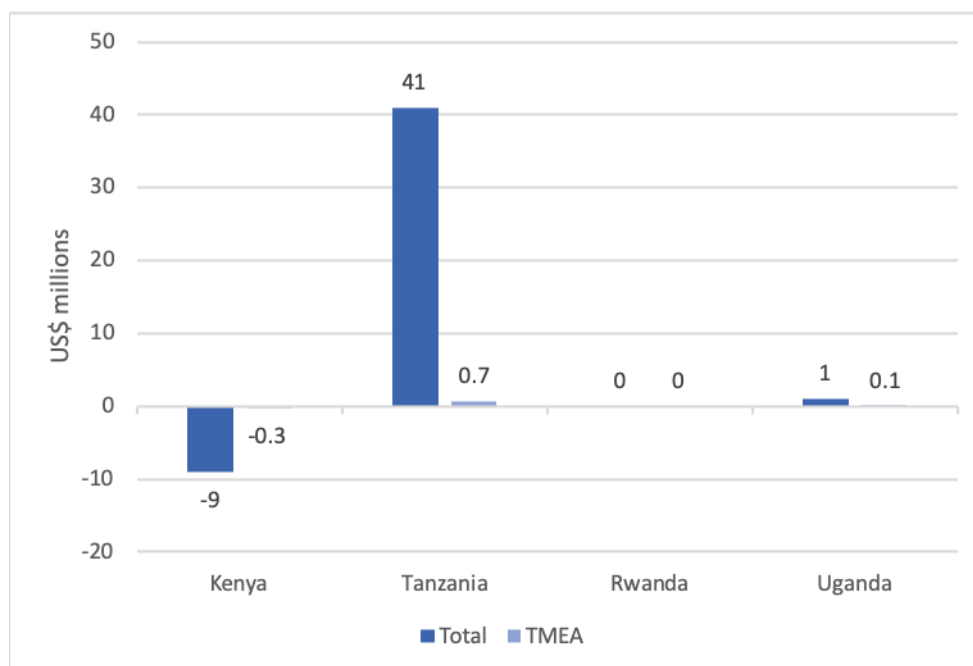
3.2.1 Port Interventions

Transport costs represent less than 5% of the value of the landed product in all four countries, and therefore a reduction even as high as 50% in transport costs would be expected to have relatively little impact on imports. Similarly, it is worth highlighting that 91% of the total throughput of containers in the Port of Mombasa corresponds to imported containers, while exports only account for 9% of the total volumes.

Our results bear this out. Our simulation for ports shows only modest impacts (less than 1%) on both imports and exports for all countries. Indeed, Kenya shows a fall in trade. Exports fell by US\$23 million, or 0.1% of total exports, compared to the baseline conditions. In the case of

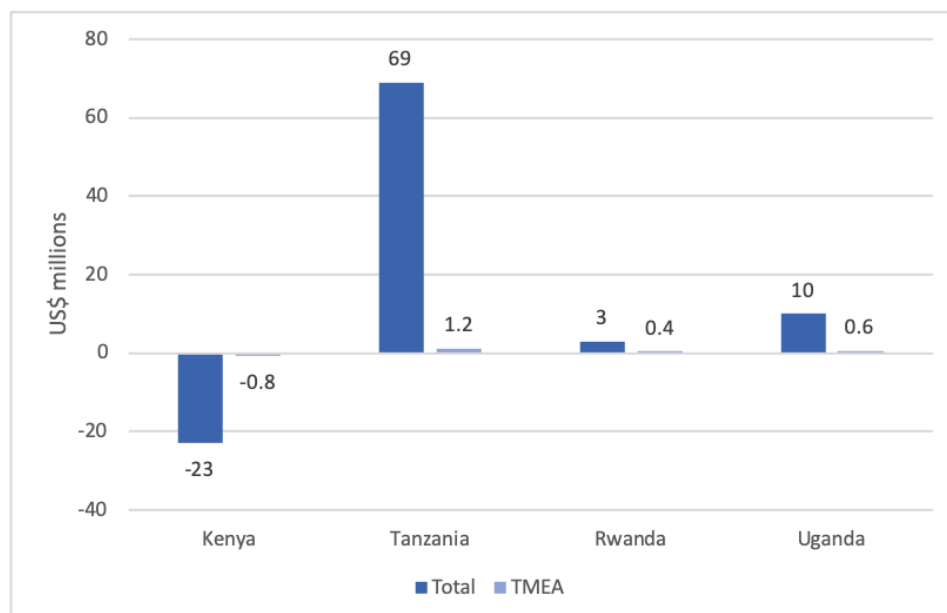
Tanzania, exports rose by US\$69 million and imports rose by US\$41 million due to port improvements, of which US\$1.2 million and US\$700,000 respectively are attributable to TMEA. Rwanda and Uganda only marginally benefit from the improvements made at the ports, as there were no clear cost savings (see section 3.1). The results are presented in the figures below.

Figure 12 Impacts on imports arising from port improvements in 2017



Source: Author calculations based on GTAP simulations. Note: In comparison to the baseline conditions in 2010

Figure 13 Impacts on exports arising from port improvements in 2017

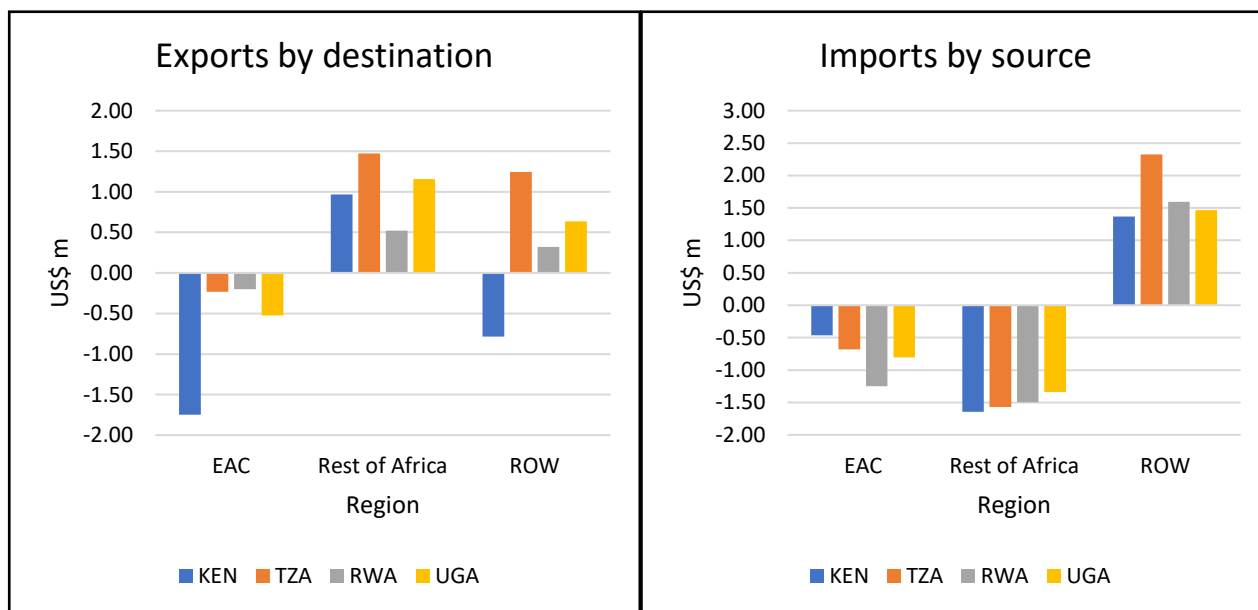


Source: Author calculations based on GTAP simulations. Note: In comparison to the baseline conditions in 2010

The reason we find a reduction in Kenya’s trade is due to the minimal improvements in time to export, as indicated by the small change experienced in time and cost to exports in section 3.1.1 (see **Table 10**). By contrast, Tanzania shows significant improvement in time to export, and, in fact, outcompetes Kenya in this regard. Tanzanian exports, particularly crops, substitute Kenyan exports because of relative changes in export prices, driven by changes in transport costs.

On the import side, Tanzania also shows a significant reduction in costs, much greater than Kenya (see section 3.1 on costs), which translates into higher trade. In the landlocked countries, Uganda and Rwanda, the effects are barely noticeable. The situation for these countries is that trade with Kenya and Tanzania respectively is likely to fall when imports can more readily be sourced from overseas with improved ports. Rwanda's exports to Tanzania and Uganda's exports to Kenya fall rather than increase (see **Figure 14**). Tanzania's exports to Kenya fall by US\$11 million. Kenya's imports increase, primarily from non-African countries such as China, India and the European Union, while trade decreases with African countries that do not ship through Mombasa.

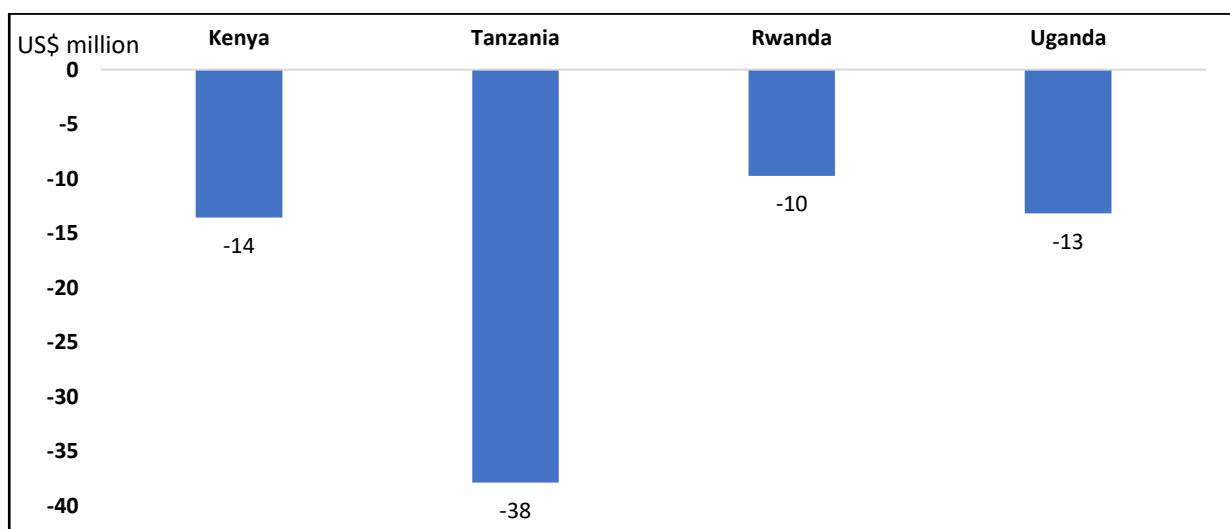
Figure 14 Change in trade by destination and source due to Port Interventions in 2017 attributed to TMEA



Source: Author calculations based on GTAP simulations. Note: In comparison to the baseline conditions in 2010.

Improved access through the ports does not appear to enhance regional trade. When the ports are opened, countries export more but tend to switch away from intra-regional trade to international trade. The same occurs on the import side. Thus, we observe a fall in intra-regional trade in the ports scenario as shown in **Figure 15**.

Figure 15 Regional changes in exports arising from Port Interventions in 2017

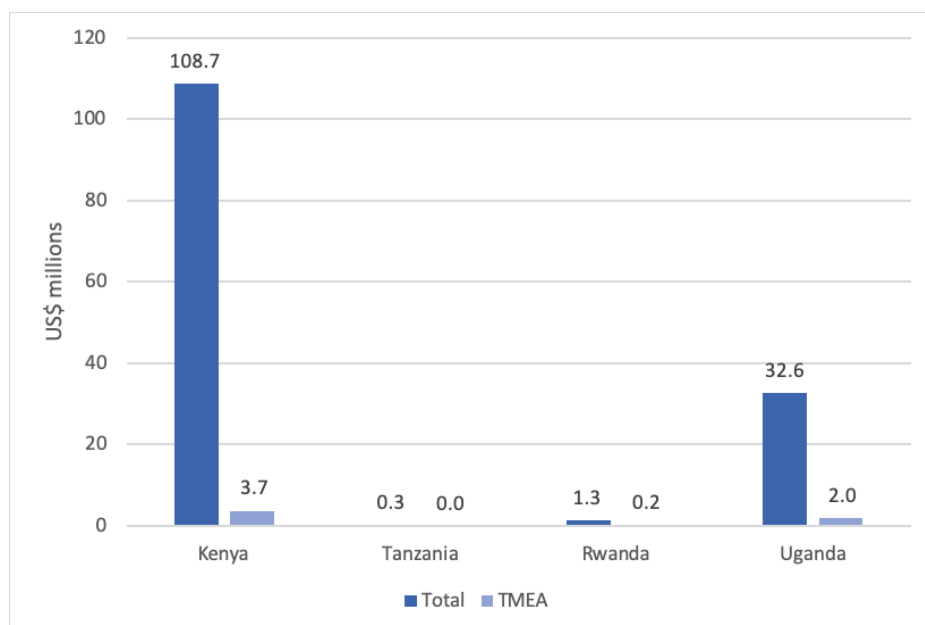


Source: Author calculations based on GTAP simulations. Note: In comparison to the baseline conditions in 2010

3.2.2 Corridors Interventions

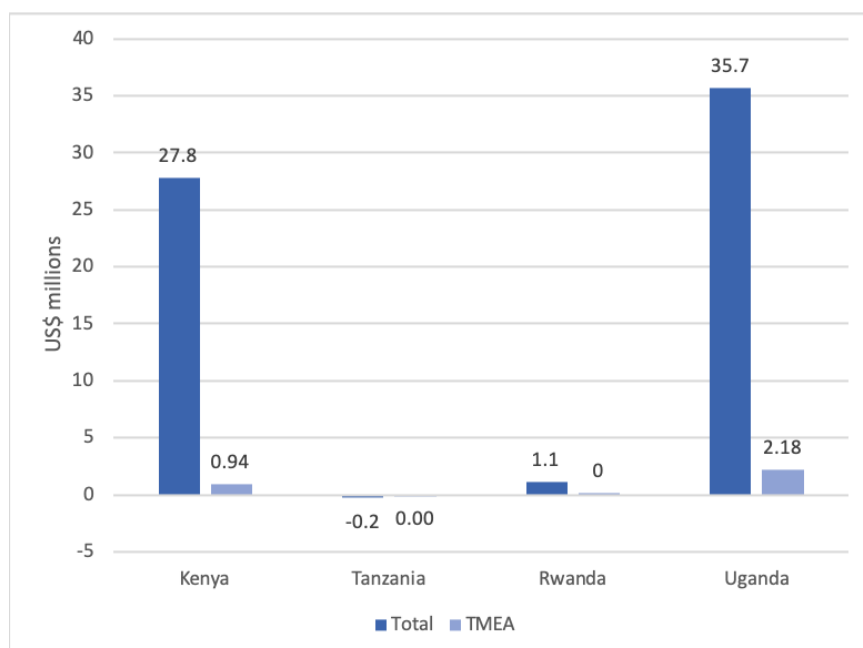
In the analysis on corridors, which focused on the reduction of inland transport costs, the major impact is an increase in exports from Kenya to Uganda (US\$168 million) because of the large reduction in transport costs between Nairobi and Uganda. However, Kenya switches exports away from other destinations, thereby increasing its national exports by only US\$28 million. This is essentially a switching of import sources, driven by changes in transport costs and reduction in uncertainty. Likewise, Uganda’s national imports increased by only US\$36 million, despite the large increase from Kenya. This indicates that imports from Kenya replace imports from overseas. This is despite the requirement that almost all of Uganda’s trade with overseas markets is shipped through Kenya. Tanzania and Rwanda are barely affected. In the case of Tanzania, no data was available for the corridor, as stated in the section above.

Figure 16 Impacts on imports arising from road and border improvements in 2017



Source: Author calculations based on GTAP simulations. Note: In comparison to the baseline conditions in 2010

Figure 17 Impacts on exports arising from road and border improvements in 2017

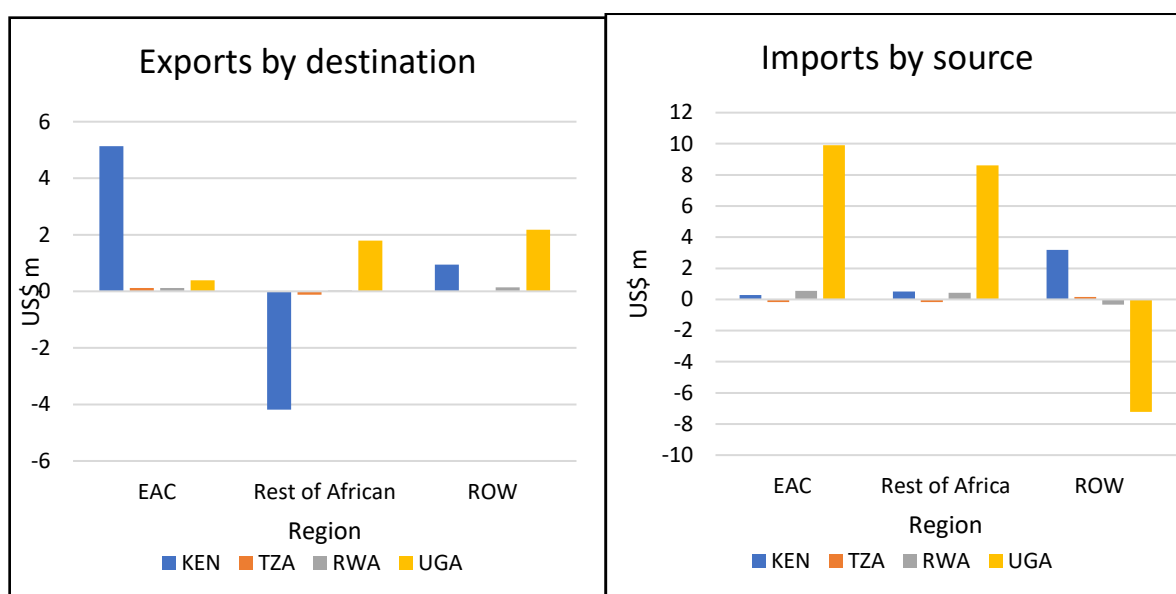


Source: Author calculations based on GTAP simulations. Note: In comparison to the baseline conditions in 2010

In the corridor scenario, the influence of the great reduction in transport cost between Kenya and Uganda is evident. For other countries, the trade-enhancing effects are relatively modest. To some extent, this reflects the absence of data on variability on these trade routes. Thus, the trade effects may be understated.

As shown in **Figure 18**, the improvement in infrastructure across the corridor, as a result of TMEA, leads to trade being sourced from lower cost producers, with Kenya switching its imports from the rest of Africa to the EAC. Similarly, Uganda benefits from much better connectivity and switches exports from the rest of the world to the EAC and Africa.

Figure 18 Change in trade by destination and source due to Corridor Interventions in 2017 attributed to TMEA



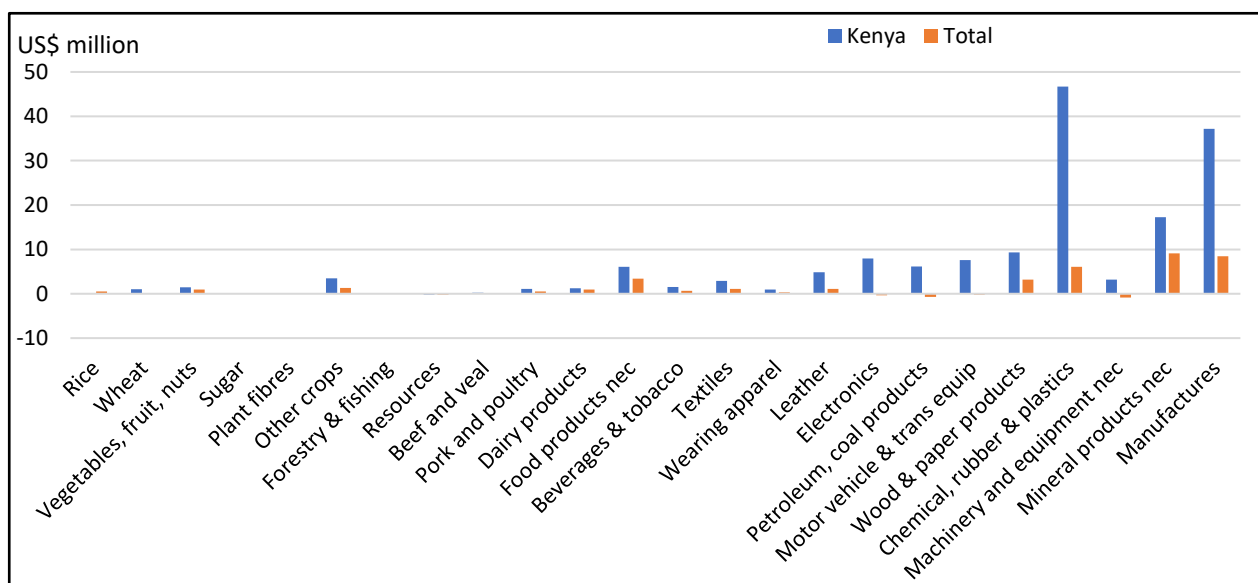
Source: Author calculations based on GTAP simulations. Note: In comparison to the baseline conditions in 2010

3.2.3 Sectoral effects

Not all sectors respond in the same way when considering the impact of a change in trade costs or transit times. Some products have relatively high transport costs, and some products are perishable, making the factor of time more important, and therefore more subject to risk factors. Kenya’s major exports are tea and coffee, vegetables, fruit and nuts, processed foods, wearing apparel, chemicals, rubber and plastics, and other manufactured products. Tanzania’s main exports are similar, with the addition of gold, but with a greater share of manufactured goods. Rwanda and Uganda’s exports also show a lack of such diversity, being focused mainly on mineral resources and crops.

In response to a reduction in transport costs along the land corridors, the most notable result occurs in Uganda, which increases intra-regional imports by US\$160 million (mainly from Kenya), and reduces its import dependency from the Rest of the World by US\$130 million (of which US\$8.84 million is attributed to TMEA) as a result of reduced transport costs. The sectors most affected are chemical, rubber and plastics, mineral products and manufactures, as shown in **Figure 19**.

Figure 19 Uganda's total imports by sector, Land corridor

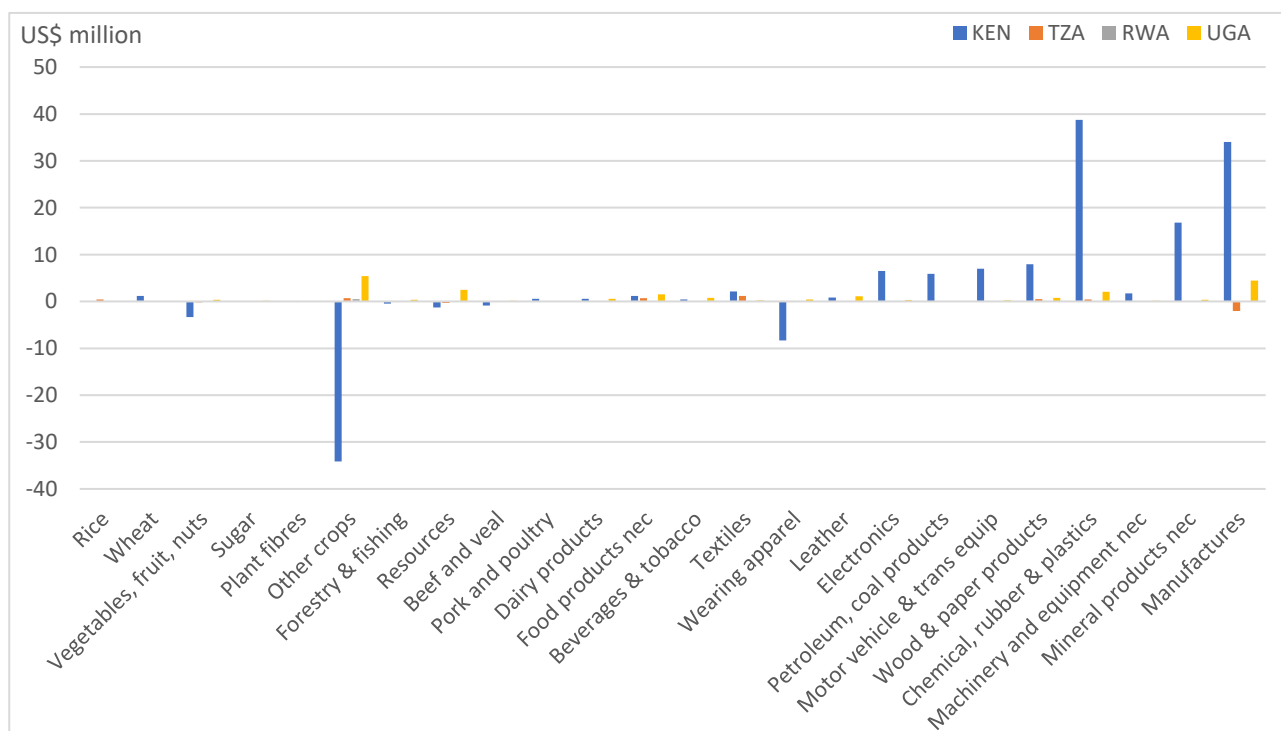


Source: Author calculations based on GTAP simulations. Note: Data shows the comparison to baseline conditions in 2010

Kenya also imports more industrial products than it exports to Uganda (**Figure 20**). The increase in agricultural crops is limited, apart from maize (“other crops”), which experiences a significant decrease, even though agricultural commodities tend to have a high weight-to-value ratio, and are therefore more sensitive to transport costs, which have a relatively high share of the landed value.

There are only minimal impacts on imports by sector for Tanzania and Rwanda under the corridor scenario, reflecting the limited size of the reduction in trade costs.

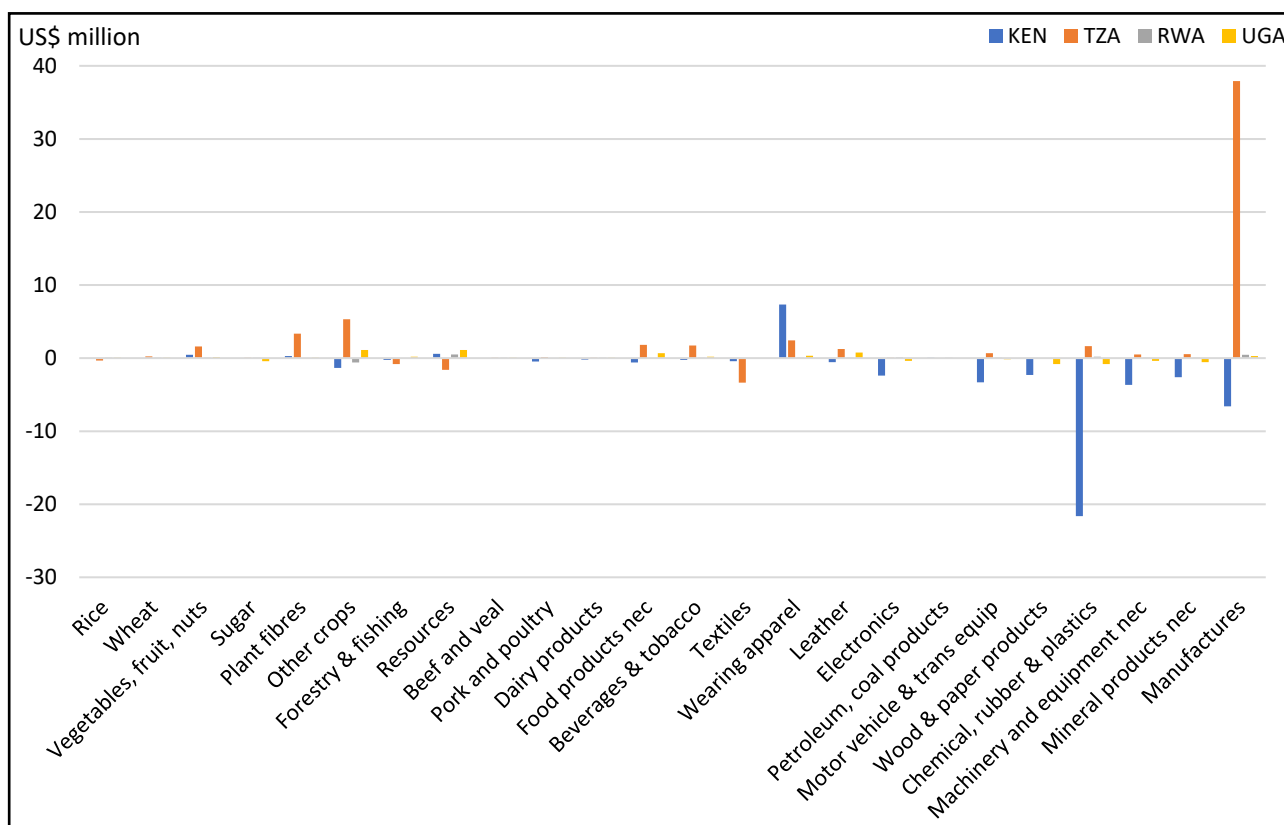
Figure 20 Imports by sector, Land corridor



Source: Author calculations based on GTAP simulations. Note: Data shows the comparison to baseline conditions in 2010.

On the other hand, the simulation highlights that the benefits arising from improvements at the ports led to a reduction in intra-regional trade, with an increase in imports from other regions such as China, India, ASEAN and the EU. While some imports into Kenya decrease (particularly chemicals, rubber and plastics), Kenya experiences an increase in imports of some products (apparel, plant fibres and machinery) which come mainly from China. Tanzania imports additional chemical, rubber and plastics and manufactures, and electronic products from China, and crops from the ASEAN region. Rwanda’s additional imports are electronics and manufactured goods from China. Finally, Uganda imports additional chemical, rubber and plastics from India.

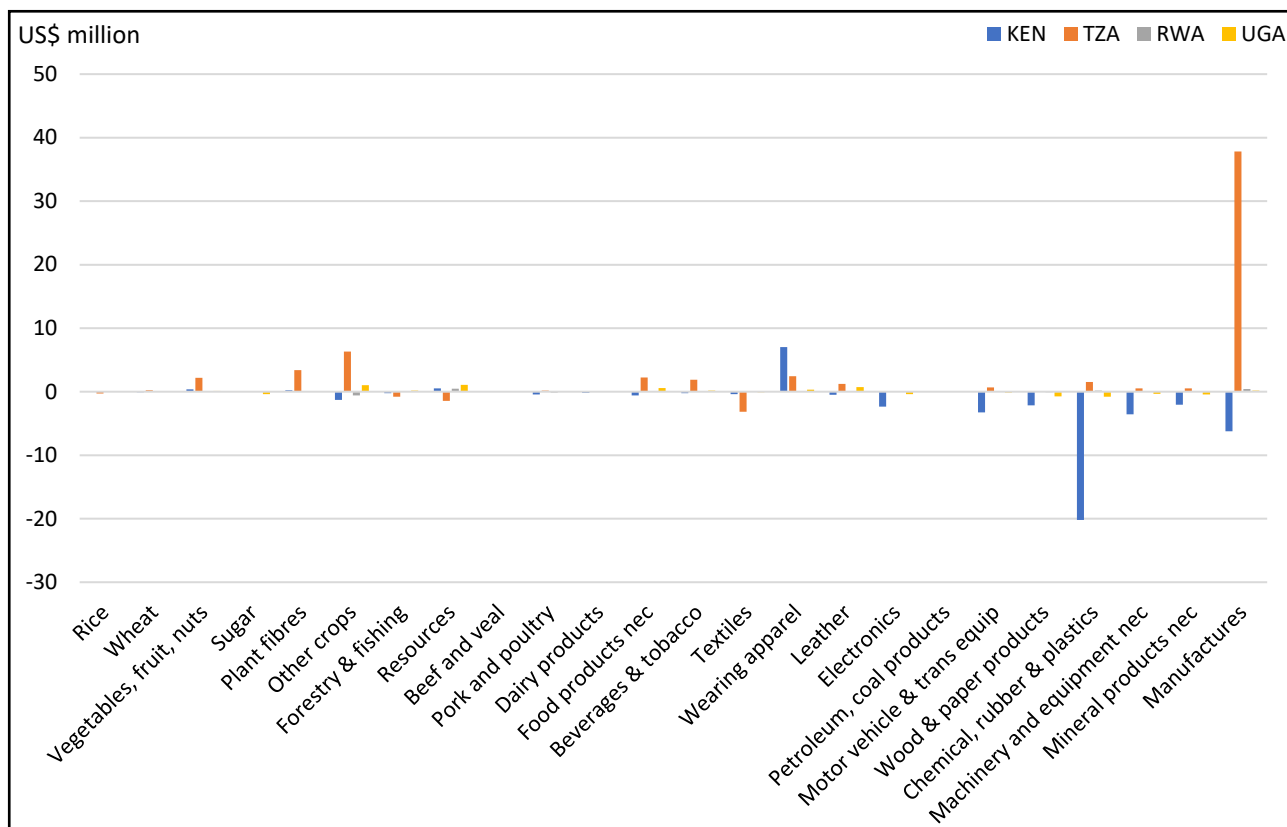
Figure 21 Imports by sector, Ports scenario



Source: Author calculations based on GTAP simulations. Note: Data shows the comparison to baseline conditions in 2010.

The effect of reductions in transport costs on exports is similar to those on imports. In the ports scenario, Tanzania experiences a major increase in exports on manufactures (US\$38 million, of which US\$648,000 is attributed to TMEA) to India, the Middle East, and North Africa. Kenya experiences a fall in exports of chemical, rubber and plastics to Tanzania and Uganda. There is also a switch in crop exports from Kenya to China. For Rwanda and Uganda, the effects are minimal.

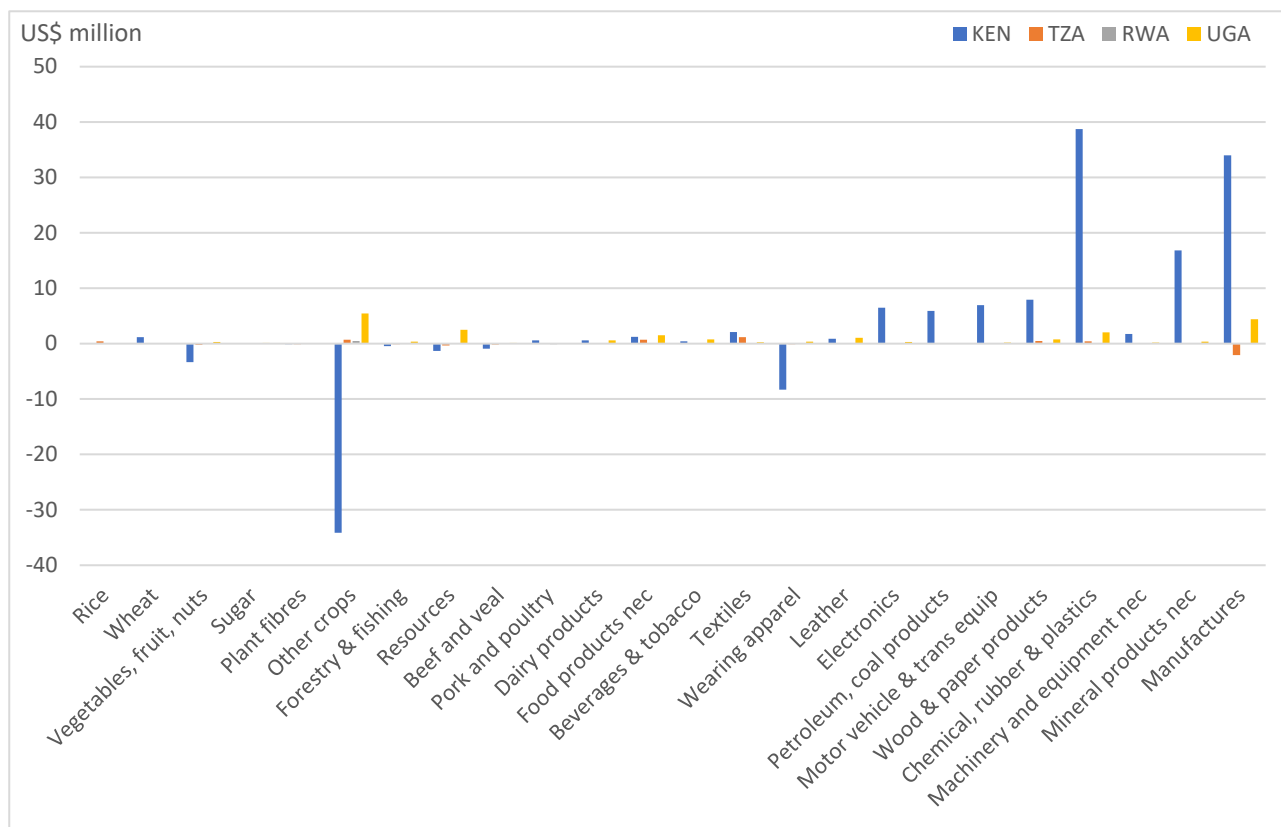
Figure 22 Exports by sector, Ports scenario



Source: Author calculations based on GTAP simulations. Note: Data shows the comparison to baseline conditions in 2010.

In the corridors scenario, for Kenya, there is an increase in exports of chemical, rubber and plastics, mineral products and manufactures. These are the same products in which imports have increased. There is a decrease in crop exports. For Tanzania and Rwanda, there are no notable changes in exports of any commodity. For Uganda, the major increases in exports come from other crops and manufactured goods.

Figure 23 Exports by sector, Land corridor



Source: Author calculations based on GTAP simulations. Note: Data shows the comparison to baseline conditions in 2010.

3.2.4 Conclusions

Reductions in time, costs and risk have had an impact on how the target countries traded in 2017. These results are the result of economic models, meaning that the team has been able to isolate the specific impact that interventions across the ports and corridors have had on trade flows, as distinct from other events such as trade wars, natural disasters, political events, etc.

TMEA’s port interventions show modest impacts on both imports and exports for Tanzania, very little change for Uganda and Rwanda, and a modest reduction in exports for Kenya. In the case of Tanzania, in 2017, exports rose by US\$69 million and imports rose by US\$41 million due to overall improvements, of which US\$1.2 million of exports and US\$700,000 of imports can be directly attributed to TMEA. Rwanda and Uganda only marginally benefit from the improvements made at the ports, as there were no clear cost savings. The corridors interventions have larger impacts. Kenya and Uganda are the main beneficiaries, with exports increasing by US\$27.8 million and US\$35.7 million respectively in 2017, of which US\$1 million and US\$2.2 million is attributable to TMEA, and imports increasing in 2017 by US\$108.7 and US\$32.6 million, of which US\$3.7 million and US\$2 million is attributable to TMEA.⁶⁶

3.3 Trade policy environment

DEQ3.3: How has any improved trade policy environment led to increased trade?

TMEA has focused a significant amount of time and resources to improve the trade policy environment of the EAC. Some of the relevant TMEA projects include NTB workarounds and

⁶⁶ Estimations based on 2017 flows. See Annex D for more details.

elimination, funding of the ReSW, Electronic Cargo Tracing Systems (ECTS), and strengthening the technical capacity of National Standards Bureaus (NSBs) in the EAC. In terms of improving the trade- and business-enabling environment, TMEA's efforts have consisted in supporting the harmonisation of standards, the elimination of barriers to trade, providing public advocacy, and training of businesses and women entrepreneurs, etc.

3.3.1 Non-tariff barriers and trade

As highlighted in the formative evaluation of TMEA projects on non-tariff barriers to trade and TMEA's ToC, the NTB projects represent a key contribution to TMEA's Strategic Objective 2: 'Enhancing the Trade Environment.'⁶⁷ For example, work under trade policy includes supporting the EAC Secretariat and implementation of the customs union, which is inherently related to the NTB agenda – with the regional project directly supporting the EAC Secretariat and focusing on any barriers restricting goods, labour and capital from moving within the common market.

Box 2 Defining non-tariff barriers (NTBs)

NTBs arise when rules or regulations (i.e. non-tariff measures) are poorly designed, thereby becoming unduly restrictive, and/or are poorly implemented and therefore overly burdensome. NTBs can be intentional, for example, protectionist measures, or unintentional, for example, well-intended but poorly-applied food safety regulations.⁶⁸

Moise and Sorescu (2013) highlight that the combined effects of the simplification and harmonisation of trade documents, the streamlining of procedures and the use of automated processes are found to be equivalent to an almost 14.5% reduction of total trade costs for low-income countries, 15.5% for lower-middle-income countries and 13.2% for upper-middle-income countries.

Overall, TMEA identified 47 NTBs in 2010 and a total of 112 by 2015. While the formative evaluation showed that of the 112 identified, 87 had been resolved by 2016, the data provided by TMEA only identifies 78 resolved. The evaluation team was not provided with more primary up-to-date data to be able to report on any additional NTBs that may have been resolved by 2017. The list of NTBs, both resolved and unresolved, is presented in Annex G.

The team has therefore been unable to measure the overall impact on the economy of removing all 112 NTBs on the economy.

However, in evaluating the scope and impact of the 78 NTBs confirmed as resolved, the team found that only three are estimated to have any significance on trade volumes in the region. These are port delays in Kenya and Tanzania, which affect all countries; clearing processes at the border, which affect all countries, and a problem related to EAC documents for customs formalities which affect all EAC member states. The two first issues were captured in the modelling work, which estimates that TMEA's interventions in this area led to US\$25.3 million in savings on the import side in 2017, and US\$0.7 million on the export side. The last issue could not be considered in the modelling, as there was no data on the cost that it represents, and therefore was not analysed.

For the remaining 75 NTBs, the formative evaluation experienced the same issue of quantification of costs, and therefore these have not been analysed. Despite this, as indicated in Annex G, it is the opinion of the evaluators that the majority of the NTBs identified and resolved (1) cannot be measured, due to the nature of the NTB, and (2) have limited impact, due to limited firm, sector or

⁶⁷ LDP (2016). Formative Evaluation of TMEA Projects on Non-Tariff Barriers to Trade. TMEA Ref. No. PO/20131293

⁶⁸ *Ibid*

single country coverage. The only exception is for port delays and land corridor NTB removals, which are the subject of this study.

It can nevertheless be concluded that TMEA has successfully contributed to reducing the number of identified NTBs in the EAC. And, although more analysis is needed on the strategic importance of those NTBs, as highlighted in the formative evaluation of NTBs and the performance evaluation, the reduction in police roadblocks and weighbridges is perceived to be a significant contribution to reducing the time taken in transporting goods.⁶⁹

The formative evaluation also provides a limited sense of the impact achieved through TMEA's efforts in this area:

'...consider the case of Tanzania, where interviews suggest that cargo transiting through checkpoints and weighbridges is frequently charged informal fees of 1000-5000 Tanzania shillings. Assuming that 70% of the checkpoints are active during the year, and that approximately half of the transporters are charged, a reduction in the number of checkpoints from 58 to 8 [...] implies a saving on illicit fees of approximately US\$0.5 million on the Dar es Salaam to Kigali and Bujumbura cargo at constant trade volumes.'⁷⁰

Finally, it is worth mentioning that there is conflicting evidence of overall improvements in NTBs. While some have been removed, others have taken their place. The World Bank and EAC Secretariat⁷¹ report that since the elimination of tariffs with the customs union, NTBs have increased. Between 2014 and 2016 alone Kenya's use of NTBs doubled, while Tanzania's tripled. No country improved in its use of NTB and SPS/TBT measures.

'The poverty and growth impact study⁷² also recognises this aspect, by highlighting that many traders and truckers noted [that NTBs] were still there, but not at the same magnitude as in the past. The truckers in Kenya, Uganda and Rwanda noted that they had little difficulty with NTBs. Most knew of the SMS phone number to which they could report NTBs, but none had had occasion to use it. But it may also depend on the routes they take, as one trucker from Mombasa noted that, 'It's there, you just have 50 shillings for all the roadblocks on the way, it is still there.' The Kenyan government, however, seems to have proactive measures in place to reduce it [...].'⁷³

3.3.2 Trade Policy Environment and Trade Flows

To consider this question, the evaluation team calculated the broad overall impact of TMEA's interventions through the changes of the four countries' ranking in the World Bank Doing Business Indicators (DBIs), particularly its Trading Across Borders indicators. This indicator is particularly relevant, as it measures the time and cost associated with three sets of procedures within the overall process of exporting or importing a shipment of goods: documentary compliance, border compliance and domestic transport. These procedures are directly influenced by the trade policies and reforms of the countries concerned, and would therefore reflect any intervention from TMEA on this area.

Box 3 DBI Trading Across Borders Methodology

Although Doing Business collects and publishes data on the time and cost for domestic transport, it does not use this data in calculating the score for trading across borders or the ranking on the ease of trading across borders. The main reason is that the time and cost for

⁶⁹ It should be noted that time taken, but not informal payments, are also captured by the data obtained on the corridor routes.

⁷⁰ LDP (2016), *ibid*.

⁷¹ World Bank and EAC (2016) EAC Balanced Scorecard, Washington and Arusha.

⁷² Christine Allison, Keri Culver and Sebastian Silva Leander (2019). Deliverable 5B: Poverty and Gender Impact Study. Oxford, UK: OPM.

⁷³ *Ibid*.

domestic transport are affected by many external factors—such as the geography and topography of the transit territory, road capacity and general infrastructure, proximity to the nearest port or border, and the location of warehouses where the traded goods are stored—and so are not directly influenced by an economy’s trade policies and reforms.

For example, when measuring the time and cost for documentary compliance, these include the time and cost for obtaining documents (such as time spent to get the document issued and stamped); preparing documents (such as time spent gathering information to complete the customs declaration or certificate of origin); processing documents (such as time spent waiting for the relevant authority to issue a phytosanitary certificate); presenting documents (such as time spent showing a port terminal receipt to port authorities); and submitting documents (such as time spent submitting a customs declaration to the customs agency in person or electronically).

The data on trading across borders is gathered through a questionnaire administered to local freight forwarders, customs brokers, port authorities and traders.

Also, in 2015, the World Bank changed the methodology it uses to compile the Trading Across Borders Indicators. As a result, some of the variables (such as the cost of exports) cannot be compared between pre-2015 and post-2015. Under the ideal scenario, a combined score could have been prepared from these two variables, by applying appropriate scale factors. However, one practical challenge is to identify such an ‘appropriate’ adjustment scale.

Noting the challenge, the team estimated the gravity model for Doing Business variables for the years 2007, 2010, 2012, 2014, and 2015. In fact, since the gravity dataset already contains large data points (up to 2015), the addition of another round of the year (such as 2017) would not have made much difference in the final estimation result (even if there was a continued Doing Business dataset).

Source: World Bank

Applying the estimated gravity model methodology (see Annex E for details), the team found that improvements in the cost and time to export resulted in overall combined benefits for TMEA countries in terms of enhanced exports estimated to be worth US\$549 million and US\$318 million respectively in 2017.⁷⁴

Box 4 The Gravity Model

The gravity model is a widely used empirical workhorse for explaining trade flows between countries and for assessing impacts of such factors as changes in policy scenarios, regional integration and Aid for Trade. The gravity model of international trade predicts trade flows between countries, controlling for economy sizes, trade costs and trade facilitation variables. The model is particularly favoured because it enables policy researchers to estimate the impacts of various trade-related policies on bilateral exports/imports. The gravity model has been widely applied for analysing impacts of tariff and non-tariff barriers, regulatory policies, as well as political and institutional characteristics of countries.

The results obtained from this assignment strongly suggest that improved trade facilitation measures have positive impacts on the trade performance of TMEA countries.

⁷⁴ The trade facilitation variables are highly collinear (such as the cost to export and time to export, etc.) and therefore they have been added in the model separately. If all other factors remain constant, a reduction of one day in the time to export day will increase overall exports from the TMEA countries by 4% (which is equivalent to US\$318 million).

Table 25 Impact of improvements in the trade-enabling environment for East Africa

TF variable	TF Impact: the global economy (coefficient)	TF Impact: TMEA countries (coefficient)	Interpretation	The estimated average annual impact (US\$ million)
(Log of) Cost to export	-0.79	-0.77	A 1% reduction in cost to export will increase overall exports from TMEA countries by 0.77%	549
Time to export (in days)	-0.03	-0.04	A one-day reduction in time-to-export will increase the overall exports from TMEA countries by 4%	318
(Log of) Cost to Import	-0.49	-0.49	A 1% reduction in cost-to-import will increase the overall imports to TMEA countries by 0.49%	454
Time to Import (in days)	-0.02	-0.02	A one-day reduction in time-to-import will increase the overall TMEA imports by 2%.	100

Note: Covers Kenya, Rwanda, Tanzania, and Uganda

Source: Authors' estimates.

These results suggest that the impact of improvements in the Doing Business Indicators in TMEA countries exert greater influence on export supply than on import demand. This is despite the fact that overall imports into these countries have grown at a rate faster than exports. It is quite plausible that imports are relatively more price-inelastic and income-elastic in low-income developing countries, and thus the impact of improved trade facilitation could be relatively subdued. On the other hand, any trade policy-driven cost-savings associated with export activities can directly help with the countries' external competitiveness. In the case of imports, gains from competitiveness margins might not be as great, given the relative weakness of the import-competing sectors in these economies.

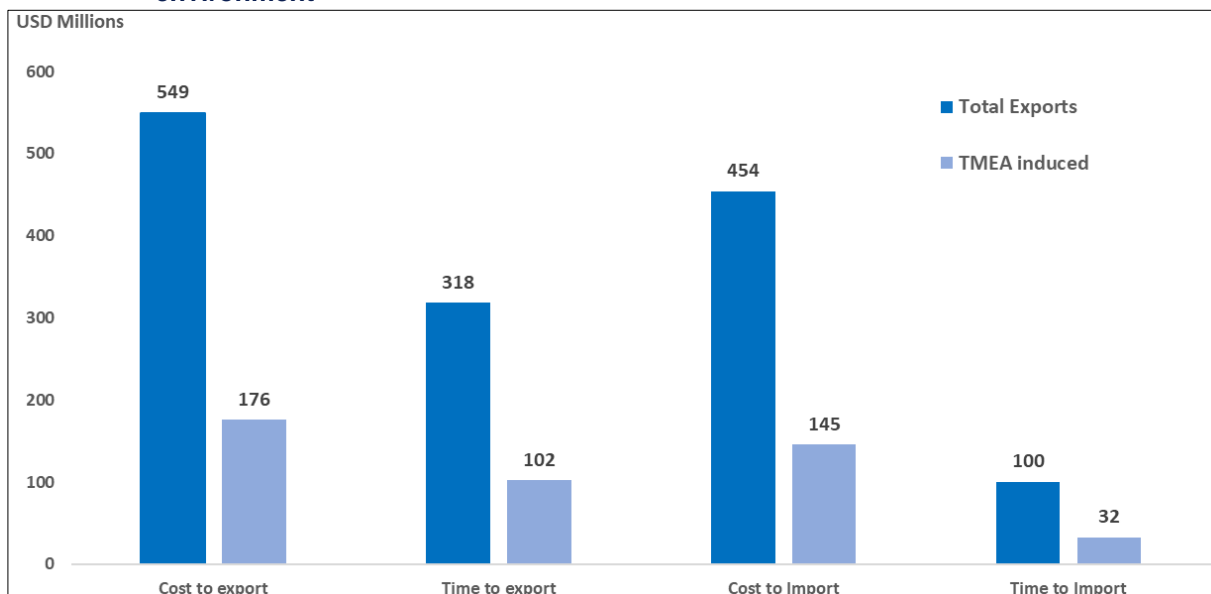
In terms of attribution, TMEA's investments represent 32% of the total Aid for Trade contributions in the field of trade policy. Using this proportion to inform the pro-rata methodology, the reduction of cost to export and time to export attributable to TMEA's improvements in the trade policy environment have led to additional US\$178 million and US\$102 million respectively.⁷⁵ On the other hand, TMEA interventions in trade policy can also be estimated to have led to US\$145 million in additional imports in 2017, thanks to cost savings.⁷⁶ Finally, time savings on importing led to an additional US\$32 million in 2017 compared to 2010 (see **Figure 24**).⁷⁷ It is important to note that these trade effects are not additive, as there are overlaps between time and cost savings, such that adding the effects would be exaggerating the impacts. Additionally, it is worth highlighting that the attribution does not consider the important role that the implementing agencies play in the efforts to remove and prevent the appearance of NTBs.

⁷⁵ compared to the 2010 baseline condition

⁷⁶ compared to the 2010 baseline condition

⁷⁷ compared to the 2010 baseline condition

Figure 24 Additional exports in 2017 for East Africa-4 owing to improvements in the trade-enabling environment



Source: Author calculations based on the gravity model. Note: Comparison against 2010 baseline conditions

3.3.3 Conclusions

TMEA’s interventions in trade policy have had a significant impact, particularly arising from the reduction of times for transport and the improvement in the overall trading environment. In 2017, TMEA interventions are estimated to have increased overall exports by US\$176 million, and imports by US\$145 million, thanks to cost savings, while time savings on exporting led to an additional US\$102 million in exports and US\$32 million in imports, compared to 2010 baseline conditions.

3.4 Economic growth

DEQ3.4: To what extent has any changes in trade resulting from TMEA interventions contributed to economic growth?

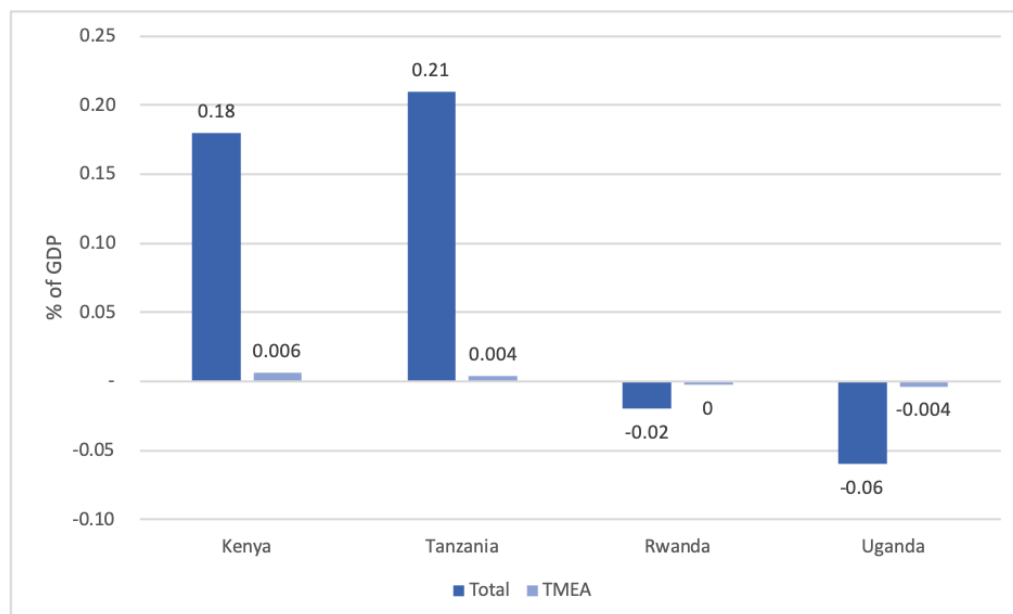
Overall, the CGE results for the improvements at the ports and corridors indicate that the estimated reductions in trade costs at ports and for inland transport would increase GDP by around a third of one per cent. Kenya is the major beneficiary, with GDP gains of about 0.7% annually in total. Tanzania benefits from improvements through the ports. As shown in the sections below, imports replace domestic production in Rwanda and Uganda, although consumers benefit from lower import prices. In absolute value, the annual increase in GDP is estimated at US\$503 million, although Uganda experiences a negative impact of US\$60 million.

As in the previous section, all results presented refer to impact achieved in 2017 only in comparison to the 2010 baseline conditions.

3.4.1 GDP

The economic output gains arising from overall improvements at the ports in 2017 amount to 0.18% of GDP for Kenya, and 0.2% of GDP for Tanzania. Rwanda and Uganda experience a contraction in output of 0.02% and 0.06% of GDP, respectively.

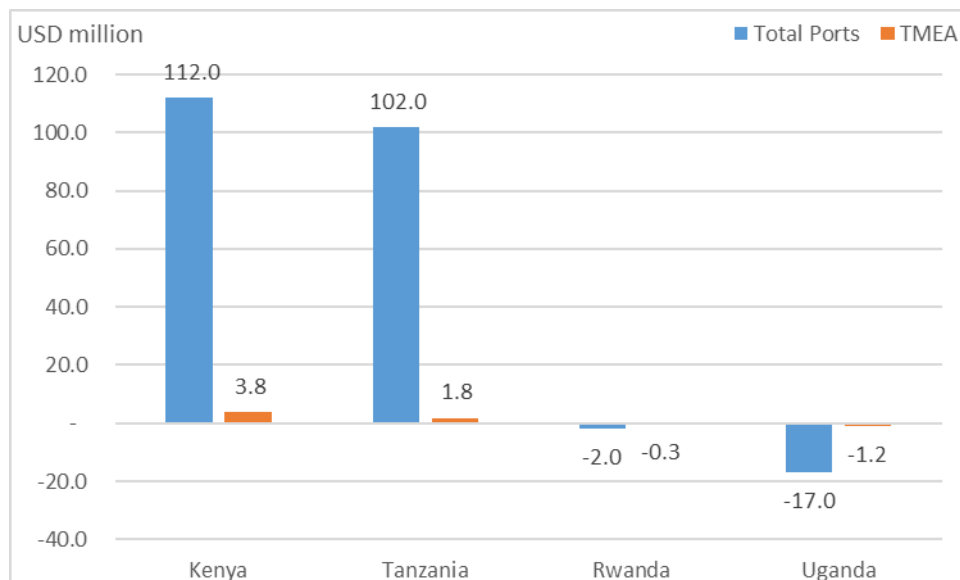
Figure 25 GDP Impacts caused by Ports interventions in 2017, percentage change



Source: Author calculations based on GTAP simulations. Note: Data shows the comparison to baseline conditions in 2010

In nominal terms, Kenya’s GDP increases by US\$112 million in 2017, of which US\$3.8 million is attributed to TMEA. Tanzania also benefits from significant improvement, with a GDP increase of US\$102 million, with US\$1.8 million attributed to TMEA. As mentioned above, Rwanda and Uganda experience minor output reductions, equivalent to –US\$2 million in the case of Rwanda and –US\$17 million for Uganda (see **Figure 26**).

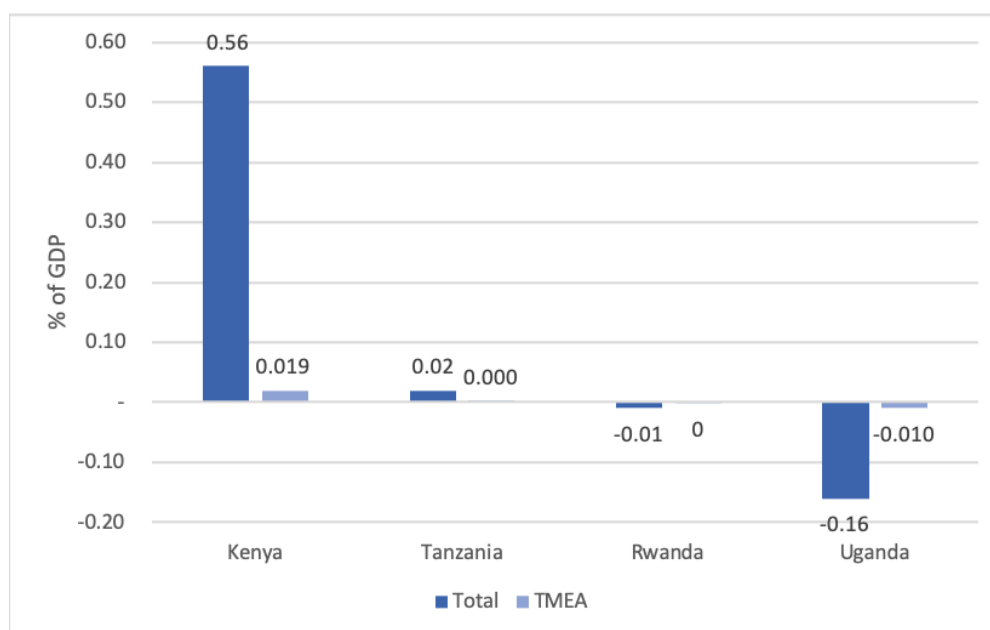
Figure 26 GDP Impacts caused by Ports interventions in 2017, in US\$ million



Source: Author calculations based on GTAP simulations. Note: Data shows the comparison to baseline conditions in 2010

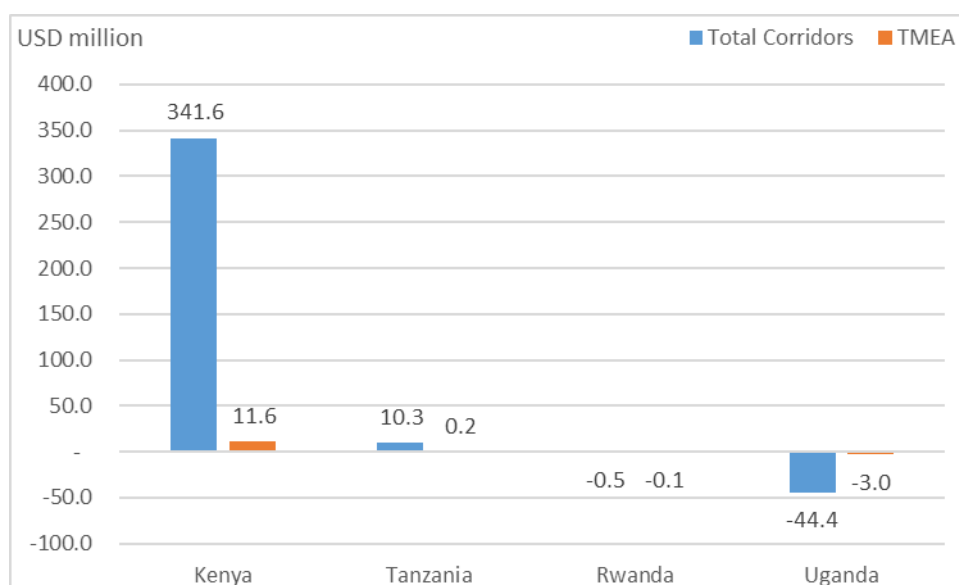
The economic output gains arising in 2017 from improvements in corridor transit amount to 0.56% of GDP for Kenya, or US\$341.5 million, of which US\$11.7 is attributed to TMEA, and 0.02% of GDP for Tanzania, or US\$10 million, of which US\$185,000 correspond to TMEA. Rwanda and Uganda experience a contraction in output of 0.01% (–US\$450,000) and 0.16% (–US\$44.4 million) of GDP, respectively (see **Figure 27** and **Figure 28**).

Figure 27 GDP Impacts caused by Corridor interventions in 2017, percentage change



Source: Author calculations based on GTAP simulations. Note: Data shows the comparison to baseline conditions in 2010

Figure 28 GDP Impacts caused by Corridor interventions in 2017, in US\$ million



Source: Author calculations based on GTAP simulations. Note: Data shows the comparison to baseline conditions in 2010

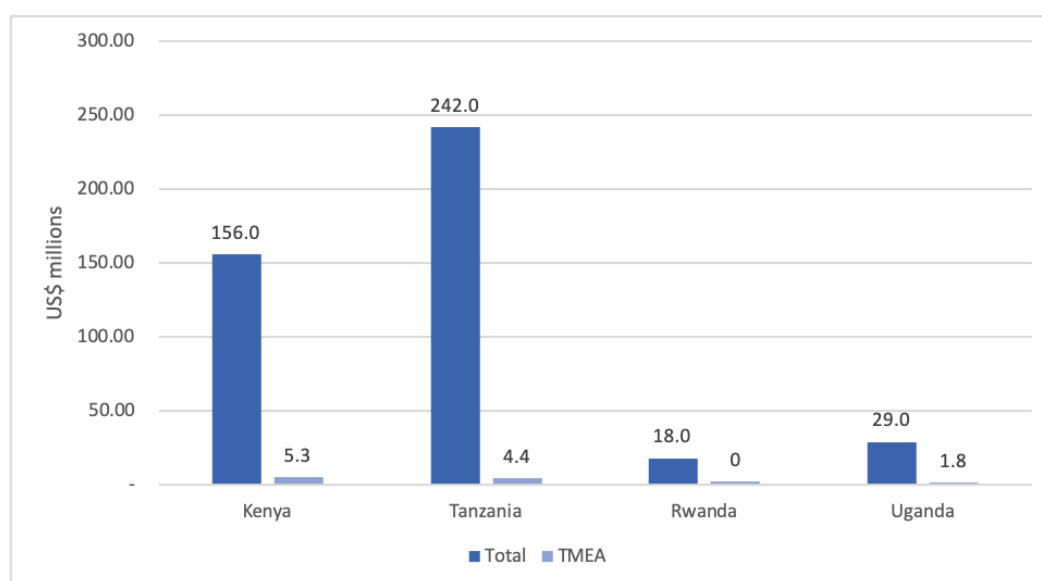
GDP is a measure of national production. The lower transport costs effectively bring in more imports, which displace domestic production. This is a common concern with trade liberalisation and facilitation. However, consumers are better off, as shown in the discussion on welfare in section 3.4.2 below.

3.4.2 Welfare

It is useful to make a distinction between growth in output and growth in income. While GDP measures national output, perhaps a better measure of national income is 'welfare'. In simple terms, welfare is the level of well-being of a group. It is sometimes thought of as the aggregate of utility (individual well-being), where 'utility' refers to the perceived value associated with a particular

good or service. Whenever there is an economic change in society, there is usually an associated change in welfare. The change in welfare is measured by the difference in utility. However, utility is an unobservable number; therefore, economists convert the change into an index that can be observed, such as money. Here we use 'equivalent variation' or EV as a measure of welfare, which is a measure of how much [money](#) a [consumer](#) would pay *before* a [price increase](#), to avoid the price increase⁷⁸. For example, if prices fall, consumers are better off, because they can purchase more goods and services (enjoying a higher utility) with the same income. Welfare is a measure of consumption, whereas GDP is a measure of national output.⁷⁹ The two measures, although related, can move in opposite directions due to changes in terms of trade, foreign investment and other factors. This can be seen with Uganda and Rwanda, for which GDP falls (**Figure 25 & Figure 27**) but welfare increases (**Figure 29**). In the four EAC countries, annual welfare increases in 2017 compared to 2010, by a combined US\$582 million, somewhat more than GDP.

Figure 29 Welfare impacts arising from improvements in trade costs and times at the Ports in 2017

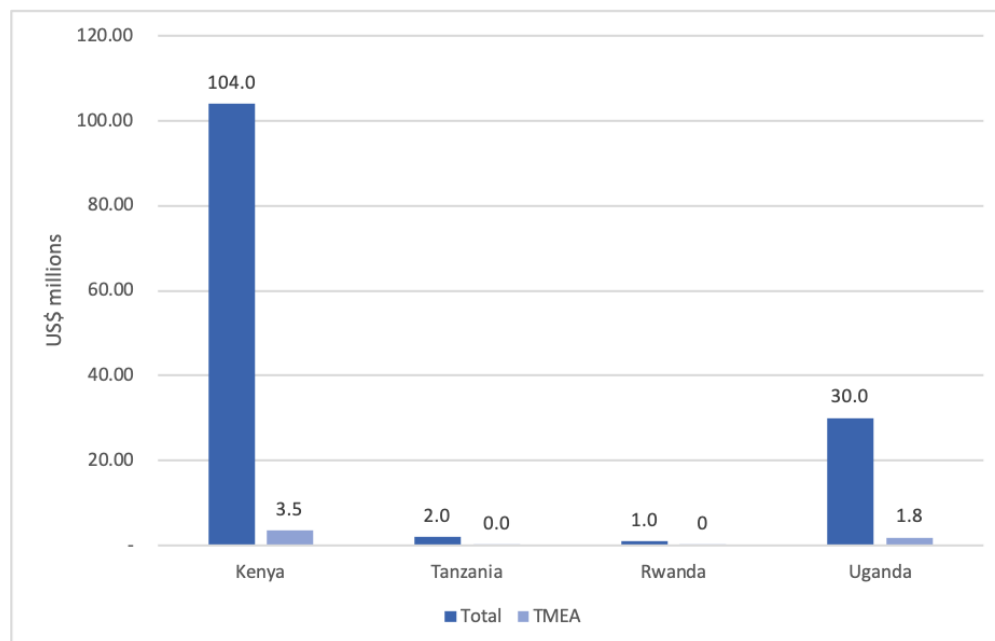


Source: Author calculations based on GTAP simulations. Note: Data shows the comparison to baseline conditions in 2010. Ports refer only to the ports of Mombasa and Dar es Salaam.

⁷⁸ Wainwright, Kevin, "CV and EV, Measuring Welfare Effects on Economic Change", Simon Fraser University <https://www.sfu.ca/~wainwrig/Econ200/documents/cv-ev-notes.pdf>

⁷⁹ The welfare measure used here is equivalent variation, an indicator of consumption, as opposed to GDP, which reflects production.

Figure 30 Welfare impacts arising from improvements in trade costs and times at the Corridors in 2017



Source: Author calculations based on GTAP simulations. Note: Data shows the comparison to baseline conditions in 2010

Total welfare gains for the region in 2017, compared to 2010 baseline conditions, amount to US\$445 million from improving the ports, of which US\$11.5 million is attributed to TMEA, and US\$136 million for improving the corridors, of which US\$5.3 million is attributed to TMEA.

In terms of improvements to the ports, in 2017 the reduced uncertainty shown in Section 3.1.1 provides the major benefit. This is mainly captured by Tanzania (US\$242 million) and Kenya (US\$156 million). Rwanda (US\$18 million) and Uganda (US\$29 million) also benefit to some extent. Shipping times to Mombasa have not shown sufficient improvement between 2010 and 2017 to reduce costs in any noticeable way, but the reduced risk has had a significant impact. Dar es Salaam showed improvements in both time and reliability.

Improvements at the ports represent both an opportunity and a challenge to landlocked countries. There are negative outputs (i.e. GDP) impacts on Uganda and Rwanda, as competition with imports from the rest of the world entering through Mombasa and Dar es Salaam affects the demand for importing from these countries. As a result of more reliable transit times through the ports, Kenya imports more from overseas countries, and because of the flow of trade through the ports, this effect is more significant than the improvements to internal trade.

Specifically, much of the region’s trade is through Mombasa to Nairobi. There are no observed gains along this route once the cargo has cleared the ports. The major gains are from Nairobi going inland to Uganda. Both countries gain from reductions in transit times and reductions in uncertainty. Uncertainty is important, particularly for those elements involved in transportation and business that are dependent on the timely arrival of goods. However, in Tanzania and Rwanda, the estimated gains are from faster transit times, since the existing data provided little information on variability and uncertainty. Therefore, the gains to Uganda and Rwanda are likely to be understated, as it has not been possible to calculate risk-related savings, which, as stated before, are usually higher than time and cost savings.

Several factors contribute to welfare gains. The major benefits are from cost reductions, shown as productivity gains in Table 26. There are also allocative efficiency gains, which occur when resources are used better. This means imports substitute for subsidised domestic production. In

Tanzania's case, this is rice, sugar and some manufactured goods. Endowments refer to better use of unskilled labour that was previously unemployed. For productivity, there are two types of effect. For Kenya, US\$19 million comes from benefits to truckers and transporters through lower costs, while US\$123 million comes from the reduction in uncertainty, meaning the business can plan better and hold less inventory. For Tanzania, the respective contributions are US\$41 million and US\$158 million. Terms of trade reflect changes in the prices of imports and exports. An increase in demand leads to an increase in import prices, with a negative impact of terms of trade. Finally, there are international flows of capital (investment in **Table 26**), reflecting the demand for capital intensive production. This effect is negative because cheaper imports replace some domestic production. Similar effects are obtained from the corridors scenarios, but on a lesser scale (see Table 27).

Table 26 Welfare breakdown, ports scenario, US\$ million, in 2017.

	Allocative efficiency	Endowments	Productivity		Terms of trade	Investment	Total
			Transport	Uncertainty			
Kenya	10	20	19	123	-7	-10	156
Tanzania	41	36	41	158	-8	-26	242
Rwanda	4	1	2	13	0	-2	18
Uganda	2	2	0	28	-4	0	29
Total for the Ports							445

Source: GTAP simulation. Note: Data refers to US\$ million.

Table 27 Welfare breakdown, corridors scenario, US\$ million.

	Allocative efficiency	Endowments	Productivity		Terms of trade	Investment	Total
			Transport	Uncertainty			
Kenya	12	10	0	0	33	48	103
Tanzania	1	-0	0.1	0	-0	1	2
Rwanda	-0	0	0.9	0.6	-0	-0	1
Uganda	-11	4	15	31	-9	1	31
Total for the Corridors							137

Source: GTAP simulation. Note: Data refers to US\$ million.

Total welfare gains, including ports and corridors interventions, are estimated at US\$582 million in 2017, with the gains attributable to TMEA amounting to US\$16.8 million. These gains made in 2017 can be expected to continue accruing for 10, 20 or perhaps 30 years, and to expand as the economy grows by 4 to 5% per year. Valuing these benefits depends on assumptions about the

growth rate, the time horizon and the discount rates. These calculations are presented in the VfM evaluation report.

The welfare analysis is based on many parameters and variables. The most important variables are the changes in transit times through the ports and OSBPs. These can be measured reasonably objectively. More difficult is putting a value on the time saved, which can be subjective. Annex J contains the sensitivity analysis, including changes to two variables that influence the value of time saved: the value of the trucks that are hauling the cargo, and the value of the cargo itself. In the standard analysis, the capital cost of trucks is valued at US\$128 per day, using an estimate obtained by an ODI study.⁸⁰ The contents of a container are assumed to be worth US\$40,000. To assess the importance of these variables, we vary the standard values by 25% either way. **Table 27** provides an overview of the full results presented in Annex J. For example, the sensitivity analysis indicates that an increase by 25% of the container value leads to an increase of US\$26 million of welfare for Kenya, 0.02% fewer imports, and 0.04% fewer exports. A decrease of 25% of the truck capital value reduces welfare by an estimated US\$14 million, imports by 0.07% and exports by 0.09%.

Table 28 Summary of Sensitivity Analysis

	Container value			Truck capital value		
	\$40K	\$30K	\$50K	\$128	\$96	\$160
Welfare (USD m)						
Kenya	156	125	182	104	90	117
Tanzania	242	225	249	2	1	2
Rwanda	18	16	19	1	1	1
Uganda	29	26	39	30	26	34
Imports (% change)						
Kenya	-0.13	-0.12	-0.15	0.53	0.46	0.6
Tanzania	0.02	0.03	0.01	0.01	0.01	0.01
Rwanda	-0.14	-0.13	-0.16	0.03	0.03	0.03
Uganda	0	0	0.02	0.49	0.42	0.55
Exports (% change)						
Kenya	-0.33	-0.29	-0.37	0.66	0.57	0.74
Tanzania	0.79	0.75	0.81	0.01	0.01	0.01
Rwanda	0.11	0.11	0.12	0.07	0.07	0.07
Uganda	0.12	0.1	0.17	0.55	0.47	0.62

Source: Authors calculations

3.4.3 Conclusions

TMEA's contributions to the economy of each of the target countries have been significant. Overall, the improvements at the ports and corridors have increased annual national income in the four EAC countries by a combined US\$582 million in 2017, of which US\$16.8 million is directly attributable to TMEA. All four countries benefit overall in welfare terms from improved ports and cross-border trade, but the overall GDP effects of port and inland road improvements are negative in Rwanda (-0.03%) and Uganda (-0.22%). Improved trade facilitation can bring in competition and lead to reduced output in some sectors. As expected, the larger countries tend to gain the most, in absolute terms at least, because of greater trade flows and transport costs.

⁸⁰ Eberhard-Ruiz, A. and Calabrese, L. (2017).

3.5 Sustainability

DEQ3.5: What factors are critical to ensure the sustainability of positive impacts?

Generally, sustainability is assessed on the basis of the likelihood that the trade and growth results and benefits arising from interventions will be sustained and perpetuated into the future, a reflection of the adequacy of the economic, social and environmental dimensions, all of which tend to be supported by strong institutions.⁸¹

To answer this question, we analysed the sustainability of results through three lenses. The first considered evidence of the ability of firms to innovate and thereby 'survive' and be sustainable, as competition and openness increase through the trade facilitation reforms adopted by the region, and which have been an emphasis of TMEA interventions. The second concerns observations arising from the modelling exercises, and its implications for achieving a balanced outcome for different sectors and countries. The third lens, which draws heavily on the performance evaluation, considers TMEA's programming, and whether it responds to DAC sustainability criteria. All three dimensions shed light on the critical factors required for sustainability.

Innovation in export-oriented firms is shown to be weak, with a regression towards less innovation, leading to potentially less sustainable results for growth in exports (in value terms and diversified structure over time) and GDP over time. TMEA interventions may want to tackle this issue directly or indirectly in order to ensure that the opportunities from interventions are seized. The outcomes from interventions also benefit sectors differently, and in some cases, certain sectors even contract. TMEA should influence other partners to tackle the different impacts arising from interventions, preferably before they occur and damage may become irreversible (such as company closures). Finally, the programme's risk anticipation and management system could be improved, especially as relates to broader risks to trade flows and growth, and their sustainability over time.

3.5.1 Sustainability through the lens of innovation

Recent contributions in the trade and growth literature have emphasised that engagement with the international economy can promote innovation at the firm level.⁸² Goldberg et al. (2010) and Seeker and Rodriguez-Delgado (2012) used Indian data to show that access to imported intermediate goods is associated with increased product scope for domestic firms. More recently, using firm-level panel data for Malawi, Rwanda, Senegal and South Africa, Te Velde (2015) found that engaging in exports leads to higher levels of growth and productivity over firms that do not engage in such activities. Shepherd *et al* (2018) used firm-level data from Bangladesh, India and Nepal to show that trade times affect innovative behaviour. Reducing export times as a proxy for improved trade facilitation brings added competitive pressure from world markets, which induces firms to innovate. Improving import times allows firms to access imported intermediates, which are equally associated with increased innovation. Innovation, within a competitive market, is what creates sustainability and survival of firms.

One of the measures of innovation in the economy is to observe the degree of export diversification taking place. Export diversification is not only a major contributor to economic growth but also fosters the ability to move into higher-value production (IMF, 2014), and reduce vulnerabilities to exogenous shocks. Positive spill-overs to other sectors of the economy can also

⁸¹ World Commission on Environment and Development (WCED) (1987) *Our Common Future*. Oxford University Press.

⁸² The relationship between trade and innovation has been well explored. Schumpeter (1934) famously articulated the pathways through which innovation leads to growth but also destruction. More recently, much research has been invested in understanding the key sources of long-term economic growth, most of which consider investment and innovation as critical drivers. Endogenous growth theories (see Romer, 1990) emphasised the continuation of domestic R&D and innovation in growth, while Grossmann and Helpman (1991) carried out some seminal work on the relationship between trade, innovation and endogenous growth in open economies.

arise from trade in higher-skilled, high technology goods (Naudé, Bosker and Matthee, 2010; Reis and Farole, 2012).

The emergence of new products in the export portfolio of the East African-4 is observed between 2010 and 2017, as well as the extinction of some products in these countries. Export change between the two periods along with export relationships reveal whether the relationship has increased, intensified or deepened; decreased or weakened; or become extinct. Export births refer to new products that have appeared in the export basket since 2010. Export deaths refer to products which were exported in 2010 but are no longer being exported in 2017. The extensive margin involves the formation of new export relationships (export discoveries). The graphical plots of such relationships are presented in Annex K.

In the case of Kenya, the country has shown a significant amount of new product births around primary products.⁸³ A total of 453 new products were exported from Kenya between 2010 and 2017. Such a pattern is repeated in Tanzania, although at a much larger scale, experiencing ten times more value in births from primary products than other types. Tanzania experienced 602 births.

The number of new products being exported has not been matched in number by those products that have become extinct in Kenya and Tanzania, and to a lesser extent Rwanda. Kenya has experienced a net reduction in export lines, having experienced 541 product deaths during the evaluation period. This situation was also experienced by Tanzania, with a total of 736 deaths. Rwanda experienced 644 product deaths and 623 births. Uganda, on the other hand, produced a completely different picture: 319 products became extinct, and 683 new products emerged.

In Rwanda and Uganda, there has been a lot of focus on the opening of new markets and factories mainly in the agricultural sector (coffee followed by tea). However, in recent years, there appears to have been a profound effect on agricultural yields as a result of climatic changes. Prices have also impacted the agricultural sector quite significantly.

Box 5 The survey

The team undertook several enterprise surveys that expanded on that data in the three selected value chains, across three countries (Kenya, Rwanda, and Uganda). A total of 121 responses were collected. They were designed to be responsive to the needs of the TGIS, for the three sectors under study. This allowed the team to better understand the environment in which TMEA operated, the structure of their production and sourcing requirements, destination markets and prices, among others. These involved anonymous responses to questionnaires covering key issues on time and cost, productivity, labour, inventory and turnover, and other themes, concordant with the lines of inquiry presented in the introductory section of this chapter.

The sampling strategy used was purposive sampling, as there was an interest in understanding the specific characteristics and experiences of the actors that rely exclusively on the Northern Corridor for the transport of their commodity out of the region via the Port of Mombasa, or within the region via the various East African borders around Kenya.

Our survey of 121 stakeholders in Kenya, Rwanda and Uganda suggested that some innovation has taken place. 64% of the consulted firms stated that they have improved their manufacturing process with investments in new factories, machinery and new processes (see Section 2.2.3 on Qualitative Analysis). This suggests that the firms are making efforts to improve the processes and

⁸³ The analysis, presented in Annex K, is conducted at HS6 level, and identifies with a country's export portfolio those products which were exported at the start of the period (2010) against those that are exported at the end of the period (2017). Products that were not exported in 2010 and are exported in 2017 are considered births, while those that are exported in 2010 but no longer exporters in 2017 are considered to be extinct.

their value chain across the three sectors of the survey (tea, coffee and leather). A detailed presentation of survey results is presented in Annex L.⁸⁴

Survey respondents identified the major contributors to export growth as (quality of) roads, (trade, tax and government) policies, international market access, improvements in production (processes), (gaining) certifications, and (improvements in) quality, among others. Many of these areas have been supported by TMEA, but the contribution of other players in the region, particularly on roads, are also significant. The major obstacles to trade highlighted by interviewees are similar in nature and would indicate that further improvements are necessary as these areas are still holding companies back. Obstacles include government policies, roads, quality management, power and utility costs and availability, production costs, railway efficiency, among others. Addressing these obstacles will be important to sustaining results and ensuring overall sustainability on the impact.

Survey respondents' views on how the trade- and business-enabling environment has changed between 2010 and 2017 reveal a number of perceived challenges for maintaining and creating sustainable impacts over time. Respondents from Rwandan firms identified very few obstacles as compared to other countries, especially with respect to licensing, permits and customs practices. It should be noted that the investments made into the single-window initiative in Rwanda preceded the same efforts in Kenya and Uganda.

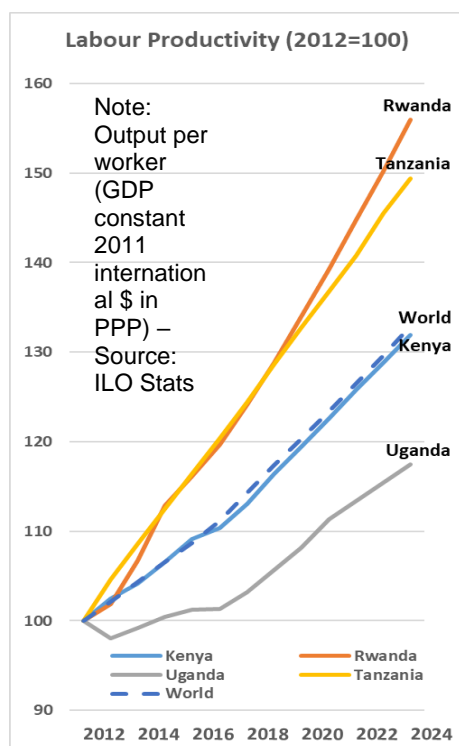
Over this period, labour productivity rates increased significantly (see **Figure 24**). Benchmarking against the world performance of labour productivity growth, Rwanda and Tanzania significantly outperformed, while Kenya matched world performance and Uganda performed less well. Projections from the ILO estimate that Rwanda and Tanzania will continue to outperform the world, although productivity levels, it must be remembered, remain very low.⁸⁵ Tanzania's performance (and to a lesser extent Rwanda's) is also affected by mining extractions, which tend to be capital-intensive industries. Another sign of innovation is the degree to which the export portfolio is sophisticated in nature. We can estimate the evolution in the sophistication of exports experienced by the East African-4 through the countries' economic complexity, defined as 'the composition of a country's productive output and reflects the structures that emerge to hold and combine knowledge.'⁸⁶

⁸⁴ The firms were identified in collaboration with local authorities, associations and chambers of commerce. Only companies using the corridors and/or exporters were selected, as highlighted in Section 2.2.3.

⁸⁵ Shepherd, B. and Twum, A. (2018). Review of Industrial Policy in Rwanda: Data Review, Comparative Assessment, and Discussion Points. IGC; ODI & ECDPM (2015). Productive Employment and Transformation in Uganda. Case Study Summary. ODI.

⁸⁶ Hausmann, R., Hidalgo, C. H., Bustos, S., Coscia, M., Chung, S., Jimenez, J., Simoes, A. and Yildirim, M. A. The Atlas of Economic Complexity: Mapping Paths to Prosperity. Center for International Development, Harvard University, Harvard Kennedy School, MIT.

Figure 31 Labour Productivity across EAC-4 countries



Based on the product space analysis results (see Annex K for product space diagrams), Kenya’s exports show a relatively weak complexity, with few chains of connectivity to more complex exports. In terms of export deaths, the comparison between 2010 and 2017 shows the disappearance of exports on certain aircraft parts, chassis, batteries and certain chemicals and minerals. On the other hand, 2017 saw the emergence of new products which were not exported by Kenya in 2010, such as fresh vegetables, mainly potatoes, cabbage and onions, and ceramic products.

The evolution of Tanzania is similar to that of Kenya. 2017 shows the appearance of a multitude of agricultural products, such as tomatoes, potatoes, cabbage, dates, etc. In terms of the disappearance of products, the most notable product deaths related to construction materials, floating and boring machinery, and electricity generating sets.

Rwanda shows few changes in terms of its universe of products, with these being focused around the disappearance of few products around the chemical sector and, notably, of the exports of salted fish. In 2017, the country opened markets for cut flowers and for copper and aluminium scrap.

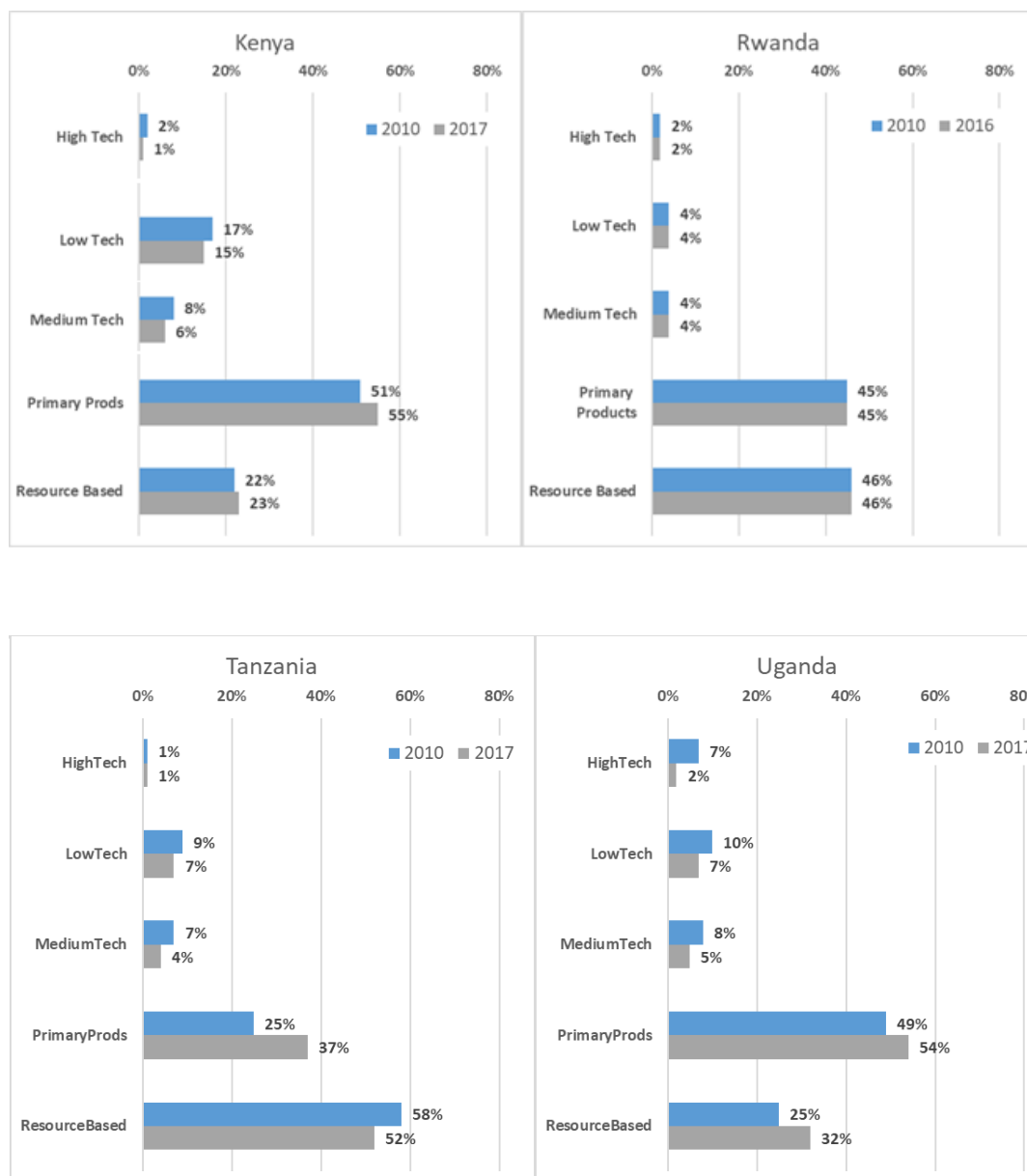
In the case of Uganda, the country has followed the path of the other EAC countries and has experienced a surge in the agricultural sector, with the appearance in 2017 of products such as flour, soya bean oil, tomatoes and potatoes, that were not present in 2010. In terms of deaths, the majority comprise the disappearance of construction materials, telephone sets, and cobalt and ore products.

Overall, the analysis of the evolution of economic complexity across the EAC-4 countries indicates a regression in the type of products being exported, moving towards less complex products, which imply lower levels of value addition.

Finally, it is possible to classify the export portfolio based on its technological content.⁸⁷ The analysis above is corroborated by the technological composition of exports from the East African-4 countries. While Kenya, Tanzania and Uganda have reduced the degree of technology embodied in their exports during the period 2010-2017, Rwanda maintained the status quo.

⁸⁷ Exports can be categorised into technological classifications of: low, medium-low, medium-high, and high, based on research conducted by Sanjaya Lall (2000). *The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-1998. QEH Working Paper Series WPS44.* Oxford University. See: <https://unstats.un.org/unsd/tradekb/Knowledgebase/50658/Technological-classification-of-exports-by-SITC>

Figure 32 Technological composition of exports



Note: Shares calculated based on values of trade. Some of the change in shares can be driven by price changes. As primary resources lost value over this period, it would show that the movement away from technology-embodied products in volume terms would be quite significant.

Source: World Bank WITS Database, based on UNSD COMTRADE Data.

While TMEA has worked on export capacity development, it could align and work with other project partners to ensure that innovation uptake, R&D, technology, and value addition, as well as labour productivity constraints, are addressed. This would ensure that the opportunities arising from improved trade facilitation measures can be seized.

3.5.2 Sustainability through balanced rewards for different parties

Any kind of investments and reforms may affect parties differently. The results show, for example, that some of the trade ended up being switched away from landlocked countries, as port efficiency grew. Also, the impact analysis showed that while exports have expanded as a result of the trade facilitation interventions, so have imports. These results suggest increased competition for local producers, who might feel a strong competitive squeeze from the market, as they cannot compete

with cheaper/better-quality imported goods.⁸⁸ Therefore, to ensure the sustainability of the results achieved, and that the interventions do not create sectors to become unable to compete with imports from the rest of the world, it is necessary to put in place mechanisms to ensure that the impact benefits, and is distributed across, all levels of society, and those negatively impacted are able to re-join the market place. Skills training, domestic infrastructure investments, incentives schemes and improved predictability for businesses are important steppingstones to reaching this objective. While TMEA cannot work in all these areas, it could use its position to leverage support from other partners, when it anticipates that such impacts might arise. The impact model being developed by TMEA, once operational, is a good example of the ex-ante simulation work that could be used to prioritise support.

One of the concerns arising from investment-attracting projects relates to the need to ensure that the incoming foreign direct investment (FDI) is channelled towards those areas where a bigger impact can be harnessed, i.e. those sectors where more value addition can be achieved and/or higher degrees of value chain integration can be attained. While well-managed inflows of foreign direct investment, with proper regulatory oversight, can have a positive effect on economic development, it is essential for countries to have such checks and balances in place to create a sustainable production base.

It is also important to note that in recent years, all the EAC-4 countries have experienced growing significant budget deficits, external debt and, in the case of Kenya, current account deficits. External financing demands have been increasing, which have partially been attributed to foreign direct investment, mainly being met through publicly guaranteed debt. The debt for Kenya has in fact risen from US\$7 billion in 2010 to US\$22 billion in 2017.⁸⁹ This situation may be creating a strain on some of the countries in terms of macro-economic sustainability. While TMEA does not work specifically on macroeconomic policy issues, the outcomes of its intervention may exacerbate fragile situations at a macro level, and should therefore be anticipated and prioritised as areas for flanking policies, either directly or indirectly supported by TMEA.

3.5.3 Leveraging sustainability through programme activities

The performance evaluation identified a number of key findings with respect to sustainability, and several of these were particularly pertinent for trade and economic growth:

- Hard infrastructure, harmonised standards and ICT for Trade were evaluated as likelier to be sustained because of their particular characteristics; this bodes well for the near term sustainability of gains. However, political economy issues can and already have eroded gains in soft infrastructure, regional integration and NTB mechanisms; trade gains at the grassroots level are also particularly susceptible to eroding gains, as their markets, improved standards and other improvements are no longer monitored. The installed capacity among informal women traders is likely to last for many participants: their learning came with empowerment, as detailed in the PGIS. However, since there has been no baseline on their trade habits, there will be little way to tell if they backslide.
- Capacity-building is sustainable only as far as it is embedded in institutions, rather than limited to training individuals. The scope of TMEA's S1 programming made this challenging, considering the vast number of involved agencies, and the susceptibility to political economy spoilers evident in the changes that took place after the end of S1.

⁸⁸ The data for this modelling was received late in the process, and the team were unable to validate the findings or suggestions with the firms.

⁸⁹ World Bank World Development Indicators Database, accessed June 2019

- The list of political economy issues with the most salience for sustainability is long but is topped by the SGR – whose impacts on trade costs have made a tremendous negative impact since the end of S1. Other political economy challenges that will affect sustainability of trade and economic growth include exogenous changes in world markets for East Africa's commodities, but also the ability of East African businesses to innovate. TMEA can make a difference there by supporting better information dissemination and enterprise support, as discussed in the recommendations, below.
- Political economy and capacity development challenges meant that projects needed significantly longer time horizons for productivity and reform efforts. Changes in the political economy (including disagreements between countries, fragile and conflict-affected states, and changes in government through elections or ministry reshufflings) affected TMEA in reaching impact goals in terms of governance and timeline, as well as in lowered regional integration. In terms of sustainability, the still-weak capacity among many partners could drag down gains.
- Each intervention must be customised to reflect the situation and political economy situation of the beneficiary country. As highlighted by Aggarwal (2017), '[there] are no one-size-fits-all solutions, nor any guarantees that interventions that worked in one country will work in another.'⁹⁰ Thus, continuous engagement with national and regional institutions, such as government departments, business associations, academia and other stakeholders in beneficiary countries, will be crucial to ensure the continued success of the outcomes of TMEA, ensuring ownership of the project and therefore ensuring its long-term sustainability. In terms of trade and growth, this condition is particularly important in the areas of key value chains and potential growth sectors, which need to be prioritised and supported not only to produce but to innovate, as noted above.
- The success of TMEA's demand-driven model will help in terms of sustainability, because the S1 and now S2 goals come from the partners, who will have more ownership. These actors reiterated in the performance evaluation interviews that they are pressured to reduce the export deficits in their countries, providing an organic impetus for sustainability to remain high on the list of government priorities. This has also been true with TMEA's work with the EAC.
- Also in terms of sustainability, political tensions are on the rise in the EAC, with Uganda and Rwanda having experienced new tensions when Rwanda closed down the main border post with Uganda in March 2019, and the disruptions to cross-border trade that this entails.⁹¹ Kenya and Tanzania frequently ban imports from each other, and often appear to be at odds with respect to the vision of regional integration. Such disputes and tensions potentially jeopardise TMEA's achievements, increasing instability in the region and, particularly, leading to uncertainty for businesses.
- Also from the performance evaluation, TMEA's consistency with other development programmes could also help in terms of sustainability. Success breeds success, and the greater the combined efforts of development partners in the region, the greater the likelihood that benefits accruing to governments and societies will be valued and protected.

⁹⁰ Aggarwal, R. (2017). Lessons from Aid for Trade. International Trade Forum, International Trade Centre, Geneva. Available from: <http://www.tradeforum.org/article/Lessons-learned-from-Aid-for-Trade/>

⁹¹ See African Arguments (2019). Closed borders and fighting words: Rwanda and Uganda's deepening rift. African Arguments, March 12. Available from: <https://africanarguments.org/2019/03/12/closed-border-fighting-words-rwanda-uganda-rift/>

- Finally, several survey respondents were of the opinion that key elements of TMEA's interventions would be sustainable: the effective cargo tracking systems, the investment in ICT for Trade, and the ability to report NTBs, in particular, were identified as important factors for many respondents in the sustainability of TMEA's programme. The underlying, although unarticulated, factors that are arguably more critical are the continued reliability of the system's various elements, and confidence that enforcement will be effective. As one respondent for the PGIS said, '[the] use of unofficial routes has been reduced to a minimum. Most people are using the official border when crossing'. This anecdotal statement reflects a change towards using formal channels, provided that the systems in place remain effective. In this respect, in order for TMEA's investments in upgrading the port infrastructure in Mombasa and Dar es Salaam to be sustainable, it is necessary for the infrastructure to be adequately maintained, ensuring that such infrastructure remains effective and is able to support the escalating amount of goods traffic arising from the increasing demand for foreign products. This factor also applies to the maintenance of roads and other infrastructure. As highlighted by stakeholders, the quality of the roads is one of the elements determining overall transport costs. Budget deficits are already large in East Africa, and setting aside a budget for infrastructure is going to be challenging, yet necessary, for governments.

3.5.4 Conclusions

A number of elements remain critical for sustained performance of results, as well as to ensure that results are sustainable. A first condition is a need for firms to innovate, as competition from the rest of the world will rise with improvements in trade facilitation. There is strong evidence that performance in this area between 2010 and 2017 has been poor. Another aspect relates to the reversal of reforms and the sustainability of achievements through ownership and commitment. There is moderate evidence that ownership exists, and TMEA is viewed as a flagship in supporting reforms, but strong evidence also points to major risks (see section 3.5.3). Finally, firms will need to improve best practices, adopt stronger standards, and adapt to climate change and other external risks. This is something that appears to have been seized upon, although additional efforts to increase uptake are needed.

4 Conclusions and lessons learned

1. TMEA's interventions have had an overall positive impact on the EAC trade-enabling environment by facilitating a reduction in trade costs and enabling the expansion of trade. According to the transport modelling techniques used in the study, which are aligned to the findings of other studies, most metrics have improved. The reduction in trade cost has been achieved through important investment on infrastructure across the different trade corridors, and through a wide range of enterprise support and advocacy work, which has been particularly relevant in reducing the impact of NTMs and NTBs on trade. TMEA interventions led to changes in trade times and to an improvement in the trade-enabling environment
2. Translating those time savings into monetary savings, we find that TMEA's interventions led to a reduction in the average cost of transporting a container. They had no impact on maritime (sea) transport costs, but affect port charges and port costs, customs clearance costs and road transit costs. Both the cost savings and the reduction in uncertainty around trade times have a large significance for business risks – for transporters and those firms which import and export. The largest cost savings come from reducing those risks for the Northern Corridor and time savings for the Central Corridor. The Kenya results are less positive, as time savings were not observed for Kenya between 2010 and 2017.
3. In the East African context, results show that it is importers who have benefited most from the different investments made by TMEA. This is quite intuitive, given that imports represent the majority of throughput in the ports and the corridors – for example, 91% of the total throughput of containers in the Port of Mombasa corresponds to imported containers, while exports only account for 9% of total volumes. Hence, the results are linked to the fact that import propensity is very high in the region, while the ability to export is limited.
4. The simulation results highlight that the benefits arising from improvements at the ports led to a reduction in intra-regional trade, with an increase in imports from other regions, such as China, India, ASEAN and the EU. While some imports into Kenya decrease (particularly chemicals, rubber and plastics), Kenya experiences an increase in imports of some products (apparel, plant fibres and machinery) which come mainly from China. Tanzania imports additional chemical, rubber and plastics, manufactures and electronic products from China, and crops from the ASEAN region. Rwanda's additional imports are electronics and manufactured goods from China. Finally, Uganda imports additional chemical, rubber and plastics from India.
5. The evaluation results estimate that the improvements in the overall trade facilitation infrastructure have led to significant improvement in trade. From the port's interventions, Tanzania benefits the most, with exports rising by US\$69 million and imports by US\$41 million. Kenya's exports fell by US\$23 million. Rwanda and Uganda trade improved marginally due to minimal changes in transport. Corridor interventions had a bigger impact, with Kenya and Uganda benefitting the most – exports increased by US\$27.8 million and US\$35.7 million respectively, while imports increased by US\$108.7 and 32.6 million.
6. Additionally, the results also estimate that improvements to ports, road transit times, national single window investments, OSBPs, and reductions in barriers to trade have led to reductions in trade costs, with the greatest gains arising from reducing the risk associated with trading activity. From a business perspective, the concern is that the value of the truck decreases as trucks deviate from their expected mean time of arrival. Often businesses are compelled to keep extra inventory to meet demand. For transporters, deviating from expected arrival time is costly in terms of charges to truckers and in terms of uncertainty.

7. However, challenges remain. Respondents to the surveys identified trade policies, standards, roads, power issues, remaining trade costs and railway connectivity, among others, as being major impediments to business competitiveness. Government policies and standards appear to have the greatest impact on their businesses, according to the surveys.
8. Analysis of the trade patterns and universe of products in the export portfolio of East Africa reveals the limited level of sophistication and integration in global value chains around intermediary and final products. Performance regressed in terms of segments of Kenya export value chains. The market reach of products, while extensive for some products, remains limited for most. The number of new products being exported has not been matched in number by those products that have become extinct in Kenya and Tanzania. Finally, between 2010 and 2017, the degree of technology embodied in exports fell in Kenya, Tanzania, and Uganda, while remaining stable in Rwanda. To secure pro-development growth, it is important that the entire innovative ecosystem is supported, and inclusive development efforts are made in parallel to those made by TMEA under S1.
9. Despite TMEA's efforts to promote dialogue, cooperation and coordination across the EAC countries to ease the existing barriers and customs procedures, recent years have seen a rise in political disputes, particularly between Kenya and Tanzania, and recently between Uganda and Rwanda, which might threaten the impact of existing and future interventions in the area of trade facilitation. TMEA needs to closely monitor the political economy conditions to assess risks and take remedial actions, whether it is in re-orienting the pipeline of interventions or working with other partners to soften any fall-out from systemic issues.

5 Recommendations for TMEA

- 1. TMEA should provide policy support and capacity-building that would promote a balanced redistribution of the impacts arising from interventions.** As trade is made easier and countries of the EAC are better integrated with the world through the ports of Mombasa and Dar es Salaam, companies that are engaged in regional or global value chains are likely to benefit from the lower trade costs. Some companies, on the other hand, can suffer from competition linked with increased imports. Switching import sources appeared to take place as efforts at the ports made it easier to import from the rest of the world, rather than from landlocked countries in the region, potentially displacing exports from landlocked countries to sea-bordered countries. Thus, it is necessary for the East-African countries to take a two pronged approach to the situation: i) prepare companies for competition, and ii) monitor imports carefully and, where appropriate, apply trade defence mechanisms to avoid the harmful effects of an unforeseen surge in imports or to protect an infant industry. TMEA could implement capacity-building activities in these two areas. Additionally, countries should also ensure that labour forced out of their jobs can re-join the labour market by putting aside budgetary support for training and labour adjustment mechanisms. TMEA is well-placed to offer advisory support to governments in putting together the flanking policies that may be needed to mitigate any negative outcomes for some population groups and sectors.
- 2. TMEA should play a more active role to improve information and enterprise support,** by ensuring that governments, associations and partners have the appropriate communication strategies to promote the results from TMEA's interventions, particularly with regards to NTBs, standards and ICT for Trade. While S1 emphasised the need for TMEA to remain at the meso and macro level, the evidence from surveys reinforces the need to engage with businesses to provide market intelligence, export strategies and supply chain-level expertise. While it is a crowded field in which a number of donors are very active, TMEA is well-placed to play an active role in coordinating or collaborating with other players to improve enterprise information access, in order to generate greater impacts from the investments made by TMEA.
- 3. TMEA needs to improve their monitoring and evaluation system.** TMEA's results management framework should be updated to better capture the impact and outcome indicators of the ToC. As highlighted in the performance evaluation, TMEA's portfolio approach is flexible, and the results framework should reflect that, while finding ways to generate and capture the necessary data on trade outcomes that national and other actors do not. The most challenging situation is the one faced in the Northern Corridor observatory project, which does not collect data relating to exports and the ICD (Inland Container Depot). Collecting this data is a national and regional priority.
- 4. TMEA should direct its focus on reducing business uncertainty.** More improvement in this area can have a bigger impact on trade. While time reductions are welcome, the degree of uncertainty regarding how much time shipments will take is at least as important. Reducing the amount of variability in time that a truck spends on the road or crossing the border will reduce not only transport costs but also the uncertainty for businesses, and thereby reduce inventory, insurance and other costs. This could be achieved by expanding efforts under the ICT for Trade programme, re-implementing the risk management framework in Kenya, introducing measures to reduce interactions with officers, and improving the inter-institutional connection to single windows.
- 5. TMEA's strategic direction should be guided by careful analysis of the political economy of the recipient country.** Political commitment to actual implementation has not always been strong in Tanzania, and recent events in Tanzania appear to have moved the economy

towards less openness. Such reversals of commitments to regional integration lead to lower trade flows and economic growth. While TMEA appears to be very aware of these risks such as low levels of ownership and weak adoption of recommendations, the resources required to invest in such countries are substantial and the results are inadequate. A more systematic political economy assessment of countries may, therefore, be helpful before committing to projects – or for adjusting and adapting over time as the political economy changes.

6. **TMEA should examine the current state of the transport network and intervene where they can best strengthen it.** One of the major contributors to cost savings was the improvement in transit times and the reduction of uncertainties along the corridors. Improvements in transit time and better coordination will also benefit the shippers in reducing their turnaround times. Better management of the truckers' network, and the alignment of progress made with inland depots through progress with the SGR network, will further enhance savings of time, cost and risk. TMEA's past focus on these areas should be updated for S2 to maximise the benefits of the interventions on trade and growth.

6 Communication Plan

The target audiences for the lessons learned and recommendations that come out of the evaluation have been identified as follows:

The primary audience is **DFID, including the Africa Regional Department, DFID's Country Offices in East Africa, and DFID's trade team.**

Other key audiences include:

TMEA Managers, to the extent that the evaluation team can offer useful insights from S1 for implementing S2.

HMG stakeholders, including those involved in economic and trade relations with sub-Saharan Africa's partner countries and those with a broader interest in trade development such as the DFID/BIS Trade Policy Unit.

The UK Taxpayer. In line with DFID's commitment to evaluation and transparency, the final evaluation report will be made public.

Regional stakeholders. While the primary audiences for this evaluation are internal to the programme itself and to DFID, DFID may choose also to disseminate findings to regional stakeholders and organisations, such as other donors engaged in the same sectors, namely USAID, EU, World Bank, and beneficiary country governments that may learn from the programme.

It is notable that the main audiences for the report are primarily internal to the programme itself. While the evaluation report will be made public by DFID as part of its accountability to the UK taxpayer, it is unlikely that the report will be used as part of a wider communications and influencing agenda.

TMEA will be responsible for sharing the reports and other outcomes of the evaluation with stakeholders of the project, including those who may have taken part in the evaluation process itself, to ensure full transparency and accountability of the evaluation process.

Ownership and copyright of the evaluation report and related knowledge products will lie with DFID. With permission of DFID, the materials will also be stored, shared, and disseminated as appropriate and agreed by OPM.