



**DRIVING ECONOMIC GROWTH IN MOZAMBIQUE:
RECOMMENDATION FOR STRATEGIC TAXATION FOR
TELECOMMUNICATIONS**

**PREPARED BY THE
ALLIANCE FOR AFFORDABLE INTERNET – MOZAMBIQUE
COALITION**

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MEMBERS OF THE ALLIANCE FOR AFFORDABLE INTERNET – MOZAMBIQUE COALITION

- Associação da Mulher na Comunicação Social (AMCS)
- Association for Progressive Communications (APC)
- Centro de Apoio à Informação e Comunicação Comunitária (CAICC)
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1. SUMMARY

This report recommends that Mozambique reduce the custom duty imposed on telecommunications equipment and devices¹ from 7.5% to 2.5%, in order to lower the cost of devices and services. Reducing this cost will stimulate investment in telecommunications infrastructure and purchase of Internet-accessible devices and Internet access by individual, business and government users. Increased investment and availability of smart devices will increase penetration of broadband Internet access, thereby reducing costs and promoting efficiency and productivity throughout our economy, resulting in significant increases in tax revenue and an estimated cumulative positive impact on GDP of US\$443 million by 2019. Therefore, we recommend reducing the customs duty on:

- Equipment for construction and expansion of the network, which will reduce the cost of investment in telecommunications infrastructure and service; and
- Terminal equipment, handsets and other devices, which will increase citizen access to data and voice communications services at an affordable cost.

The following table provides a list of the specific network and terminal equipment recommended to benefit from the proposed reduction in custom duties.

¹Identified in Annex A.



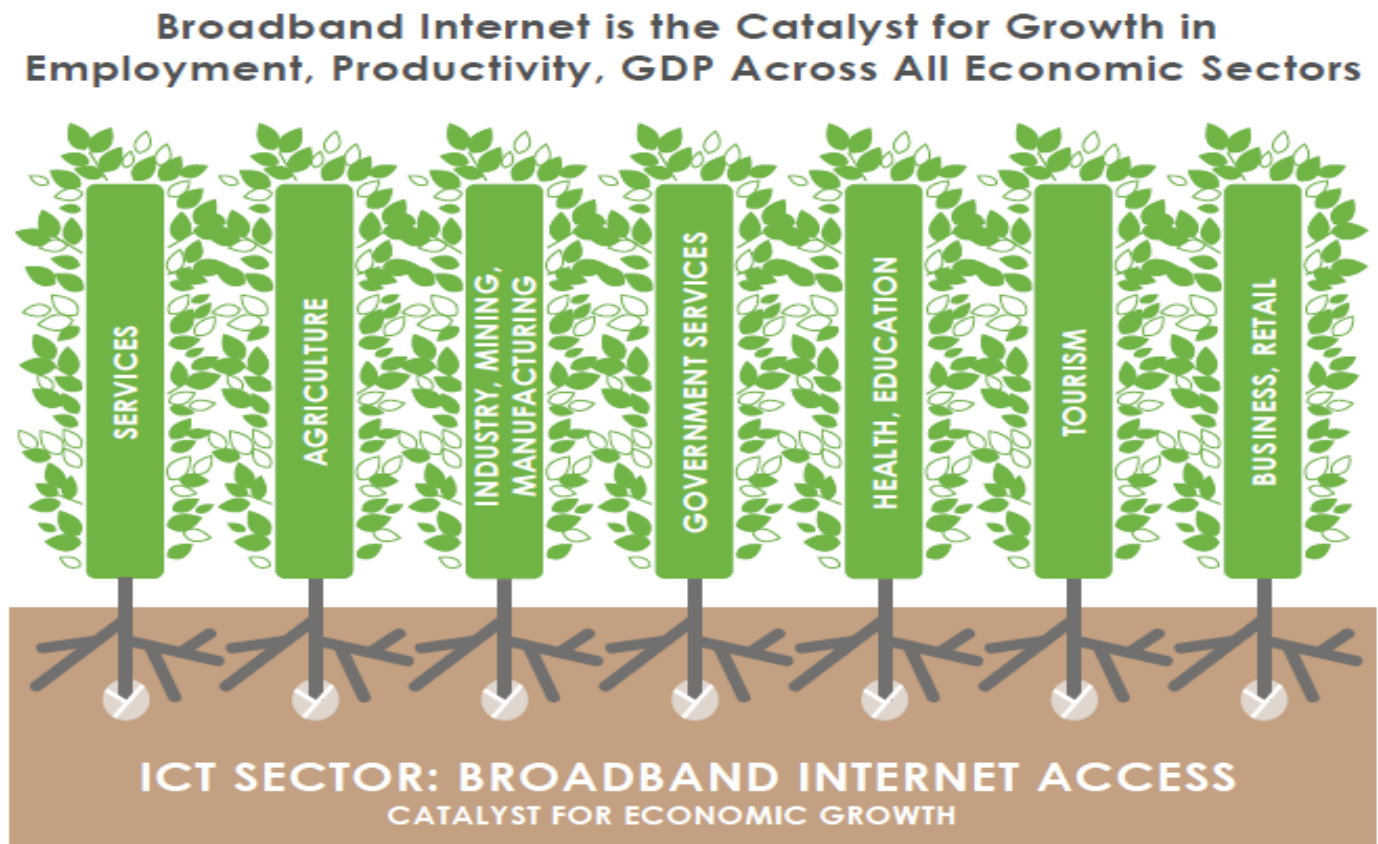
Table 1: Critical Equipment and Terminals to be Considered Under this Request

Critical Equipment and Terminals to be Considered Under this Request	
<u>Network Equipment</u>	<u>Brief Description</u>
Towers & Masts	All structures to support antennas that are built on green fields and on roof tops (e.g., steel lattice towers, monopole steel towers, monopole concrete towers, camouflage tree tower, street poles, roof top solutions).
Enclosures, Containers, Shelter	A shelter is a module that provides covering and protection for the passive and technical equipment of a base station from external influences (e.g., weather, unauthorized access, vandalism, etc.). The shelter is accessible physically by an entrance door. An Outdoor-Cabinet is an integrated module for outdoor use which contains all necessary passive and BTS equipment.
BTS	A BTS, often called a mobile phone tower, is a set of transceiver equipment used for communicating with mobile devices in a mobile network. A BTS is connected to a base station controller (BSC). Includes antennas for different technology families.
BSC	BSC-Base Station Controller. Each base transceiver station (BRS) is connected to a base station controller. The BSC is the brains behind a group of BTS units. It controls the power levels each BTS should use, the handoffs from one BTS to another, the frequency hopping, and keeps the phone connections to the right BTS for the mobile phones using them. Each BSC is controlled by a mobile services switching center (MSC).
Microwave Equipment	Microwave transmission equipment for backhauling traffic.
Dark Fiber	Optical fiber purchased in order to build an optical network, when equipped with optical nodes.
Radio Software	All software for 2G, 3G and 4G radio communications.
Backbone Transmission Equipment	All backbone transmission equipment.
<u>Terminal Equipment</u>	<u>Brief Description</u>
Mobile Broadband	Datacards
Gateway	Gateway box-connected device
Notebooks	PCs for broadband use (notebooks, laptops)
Computer Peripherals	E.g., monitors, printers, projectors, etc.
All Handsets	Handsets enabled for 2.5G, 3G, etc.



The proposed reduction in customs duty should not be assessed merely as a reduction in taxes for telecommunications operators. Rather, **the change must be recognized as a strategic policy initiative that not only optimizes the tax regime to support broad economic growth across all sectors, but also increases job creation, tax revenues and social development in the country.** Although customs duty revenues may decrease in the short term, this decline is likely to be offset by an increase in legal imports of telecom equipment and devices. Overall tax revenues are expected to rise in the medium- and long-term through increased purchases of telecommunications equipment, devices, and services, expansion of employment, and growth in business and personal income – all supported by higher demand, productivity and efficiency across all economic sectors. This broad economic impact will increase revenues from Value Added Tax (VAT), customs duties, and business and personal income tax.

Figure 1: Broadband Internet is an Important Catalyst for Broad Economic Growth²



² William Burnfield, Great Village International Consultants Inc. 2015.



Forward-thinking governments in emerging markets are strategically reducing taxation rates to stimulate the adoption of high-speed, broadband-enabled business infrastructure, practices and services, with positive overall effects for the broader economy. For example, Ghana announced in December 2014 that it was eliminating the 20% customs duty on handsets. Kenya eliminated the VAT on mobile handset sales in 2009, which resulted in a rapid rise in mobile penetration from 50% to 70%. Uruguay abolished its tax on mobile airtime in 2007, contributing to a decline of over 66% in price per minute, and more than doubling the mobile penetration rate to 141% by 2011.

Figure 2: Impact on Tax Revenues of Reduction in Customs Duties on Telecom Equipment and Services³



In this report, we outline the taxes that currently apply to the telecommunications sector here in Mozambique and the mechanisms by which the recommended reduction in customs duty will impact the broader economy, including through stimulation of demand, investment,

³ William Burnfield, Great Village International Consultants Inc. 2015.



employment, and business and individual incomes. In the short term, the reduction of the customs duty rate on telecommunications categories is expected to be tax revenue neutral to somewhat positive – as noted earlier, the lower duty rate is offset by the additional VAT and duty collected from increased legal (non-smuggled) imports of telecommunications equipment and devices, resulting in the potential for an immediate payback to the Government. In the long term, the duty reduction would be substantially positive for tax revenues, based on an extrapolation of this report’s example tax impact analysis for handsets, and a separate analysis of the potential impact of the duty reduction on the broadband penetration rate in our country – summarized in the tables below.⁴

Table 2: Potential Impact of Reduction in Customs Duties on Handsets (including impact on Government Revenues from Customs Duties and VAT)

	Existing Duty	Potential Impact on Tax Revenues	
		Low	High
	7.5% Duty	2.5% Duty	2.5% Duty
Estimated handsets sold in Mozambique 2013 (total legal and smuggled)	2,000,000	2,000,000	2,000,000
Estimated Handsets entering Mozambique legally (customs duty collected)	10%	30%	75%
Estimated total customs duty collectible by Government	\$750,000	\$750,000	\$1,875,000
Estimated % of additional "legal" handsets on which VAT is paid		20%	20%
Est. additional VAT revenue paid due to additional legally imported phones		\$1,020,000	\$2,550,000
Estimated potential total customs duty and Additional VAT collectible by Government	\$750,000	\$1,770,000	\$4,425,000
Increase in user value due to higher quality handsets and service⁵	+ Additional unquantifiable economic value		

⁴ See assumptions underlying this analysis later in this report.

⁵For illustrative purposes, analysis assumes cost of handset equals retail price for VAT purposes. Financial analysis ignores increase in quality of service and value to user resulting from higher quality handsets, as smuggled handsets are eliminated. This further increases the benefits associated with reduction in the customs duty.



Table 3: Potential Increase in Mozambique GDP from Reduction in Customs Duty⁶

	2015	2016	2017	2018	2019
Estimated telecom sector revenues (15% CAGR) (USD millions)	\$846m	\$973m	\$1,118m	\$1,286m	\$1,480m
Potential increase in broadband penetration rate		+0.7%	+1.5%	+2.4%	+3.4%
Potential GDP increase from decrease in Customs Duty from 7.5% to 2.5% * (USD millions)		\$85m	\$105m	\$129m	\$160m
Cumulative additional GDP		\$85m	\$189m	\$318m	\$478m

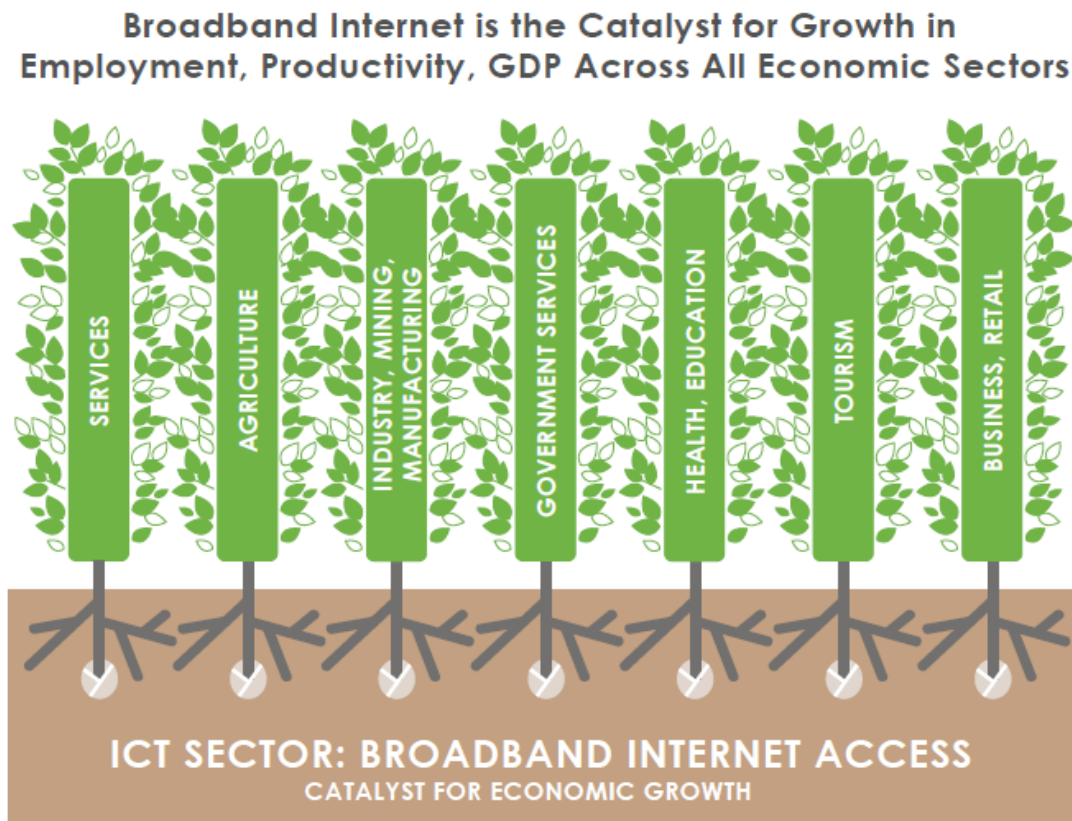
⁶ Table Assumptions: Based on World Bank research finding that GDP increases an average of 1.38% for every 10% increase in broadband penetration rate in low and middle income countries, Assumes total 2014 telecommunications sector revenues of US\$736 million (equal to four times third quarter 2014 Mozambique telecommunications sector revenues of \$ 183.9 million), increasing annually at compound annual growth rate of 15% (Source for 2014 sector revenues: GSMA intelligence database). Assumes customs duty on telecommunications equipment and revenues is reduced from 7.5% to 2.5%, resulting in assumed reductions to total sector costs of 2% of annual sector revenues. Assumes that sector cost savings from reduction in customs duty increases broadband penetration rate (through lower prices, investment in larger 3G/4G coverage, outreach programmes, etc.) and that \$20 million of savings is required to achieve each 1% increase in broadband penetration, achieved in the year the savings are obtained. Assumes Mozambique GDP of \$15.6 billion in 2014 growing at 8% in 2015 and 7.5% each year thereafter.



3. RATIONALE FOR REDUCTION IN DUTIES ON TELECOM EQUIPMENT AND DEVICES

In the past decade, progressive governments have come to understand that the telecommunications sector has economic significance beyond its immediate contribution in trade. Until recently, the telecommunications sector was often viewed as just another sector within the economy – in a class with manufacturing, agriculture, electricity generation and distribution, and tourism and sectors. Now governments recognize that telecommunications services, particularly high-speed broadband Internet access, are critical underlying catalysts for growth in employment, GDP and tax revenues across all sectors of the economy, due to the increased productivity, efficiency, innovation, and access to new markets, information and clients that they enable. Telecommunications is now the one sector of the economy where all other sectors intersect – all sectors require low-cost, high-quality telecom services, especially high-speed broadband, to grow and expand their markets, revenues and jobs. In short, broadband Internet access has become an enabling input to virtually all sectors of the economy.

Figure 4: Broadband Internet is an Important Catalyst for Broad Economic Growth⁸



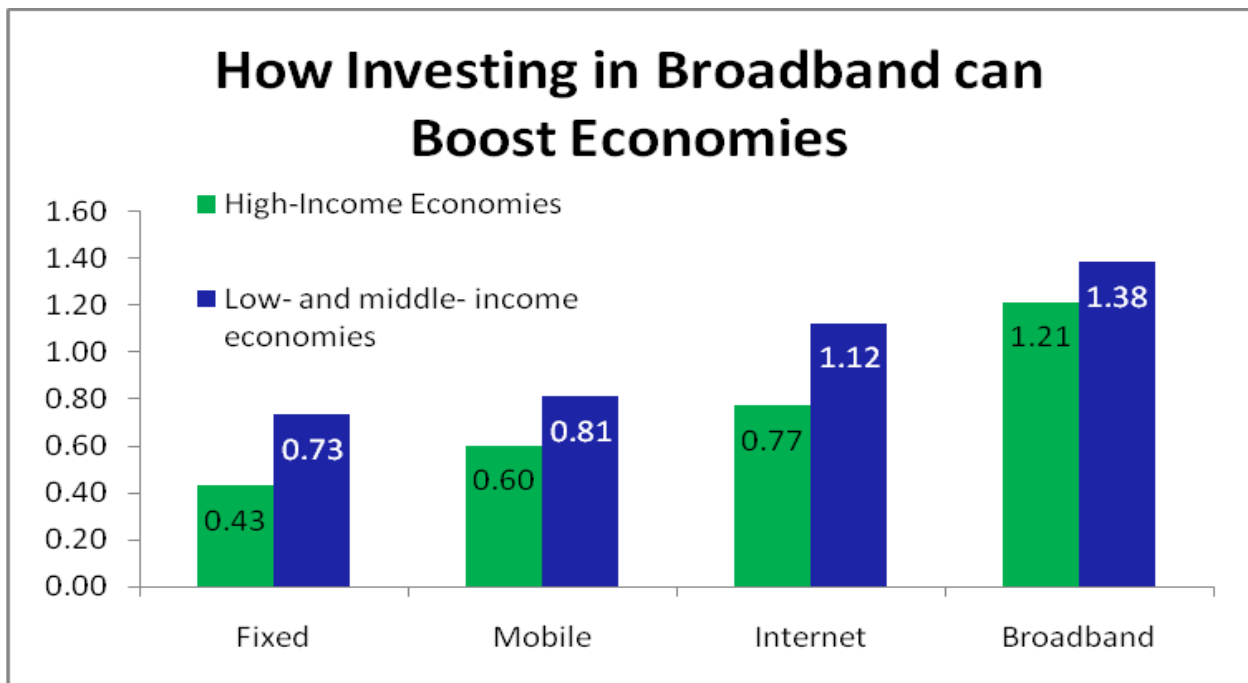
⁸ William Burnfield, Great Village International Consultants Inc. 2015.



This catalytic role of telecommunications services now influences the development of national tax policy. Instead of viewing the telecommunications sector as a “cash cow” or “ready source of tax revenues” (in effect, taxing telecommunications investment and services as an “economic bad” similar to alcohol or tobacco), governments increasingly recognize that tax strategies which reduce the cost of telecommunications services can increase tax revenues collected from the broader economy by encouraging growth in investment, productivity, innovation, employment, and GDP.

Recent research has confirmed that increasing broadband penetration rates – particularly in lower and middle income economies, like ours – has a very positive impact on GDP growth. As the next chart illustrates, a 10% increase in broadband penetration correlates with a 1.4% increase in GDP growth in low- and middle-income economies.⁹ The industries that are currently driving growth in Mozambique (e.g., mining) require high-speed broadband access in rural areas and, as a result, telecommunications operators have made substantial infrastructure investments in newly constructed cities in northern Mozambique, whose residents and businesses will require high-speed broadband access.

Figure 5: Multiplier Effect of Increased Telecom Services Penetration¹⁰



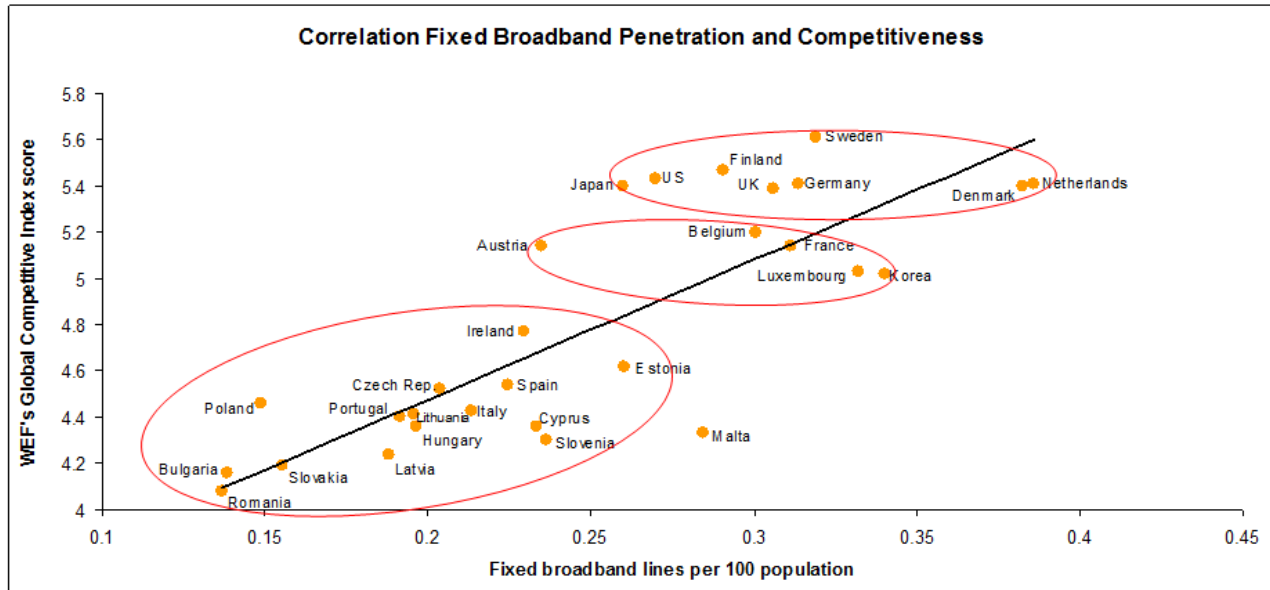
⁹ World Bank

¹⁰ Qiang, C. Z., and Rossotto, C. M. (2009). Economic Impacts of Broadband. In Information and Communications for Development 2009: Extending Reach and Increasing Impact, 35–50. Washington, DC: World Bank.



High broadband penetration rates also correlate closely with national economic competitiveness, as the following chart illustrates for EU countries.¹¹

Figure 6: Correlation between Fixed Broadband Penetration and Economic Competitiveness



Higher broadband Internet speeds do not simply *correlate* with higher economic growth – they *cause* this growth. A 2011 study of 33 OECD countries confirmed that doubling the broadband speed within an economy increases GDP by 0.3% annually.¹² The study further confirmed that additional doublings of broadband speed can stimulate further growth of more than 0.3% (i.e., quadrupling of broadband speed equals 0.6% GDP growth stimulus). This study highlighted the role of broadband speed as the cause of growth, noting that the GDP increase resulted from a combination of direct, indirect and induced effects by “creating efficiency for society, businesses and consumers”.¹³ Research further confirms that our country and other developing countries are expected to experience even greater gains than developed countries from broadband penetration increases.¹⁴

¹¹ The Connecting Europe Facility: European Commission’s Priorities. European Parliament ITRE Workshop 20 June 2012, Anna Krzyzanowska.

¹² Study conducted jointly by Ericsson (NASDAQ:ERIC), Arthur D. Little and Chalmers University of Technology <http://www.tmcnet.com/topics/articles/223043-ericsson-arthur-d-little-chalmers-university-study-quantifies.htm>

¹³ Johan Wibergh, Head of Business Unit Networks, Ericsson. <http://www.tmcnet.com/topics/articles/223043-ericsson-arthur-d-little-chalmers-university-study-quantifies.htm>

¹⁴ Qiang, C. Z., and Rossotto, C. M. (2009). Economic Impacts of Broadband. In Information and Communications for Development 2009: Extending Reach and Increasing Impact, 35–50. Washington, DC: World Bank.



Extensive research on the contribution of broadband Internet access to economic growth concludes that it increases GDP growth through multiple effects, summarized below:¹⁵

- 1. Increased productivity and efficiency across the economy.** Access to broadband Internet increases business productivity and efficiency through the adoption of more efficient business processes (e.g., marketing, inventory optimization, streamlining of supply chains) and improved business culture. Broadband access accelerates innovation by introducing: new consumer applications and services such as telemedicine, Internet search, e-commerce, online education and social networking;¹⁶ new forms of commerce and financial intermediation (e.g. online banking and credit card authorizations);¹⁷ tourism support (e.g. online booking and advice for hotels, flights, restaurants); increased access to agriculture information (e.g. accurate market, pricing, and weather information for agricultural products); access to government services (e.g. online property registry and business tax filings); mass customization of products;¹⁸ reduction of excess inventories; and optimization of supply chains¹⁹. It also improves business access to labor pools, raw materials, and consumers, (e.g., outsourcing of services, virtual call centers). All of these developments increase business revenue growth²⁰, growth in service industries²¹, employment, and personal incomes. Research has further confirmed that manufacturing sector firms with broadband access generated 6% more foreign sales than other firms,²² while broadband-enabled firms in the service sector generated 7.5% to 10% more sales.²³

¹⁵ The Impact of Broadband on the Economy: Research to Date and Policy Issues April 2012. Dr. Raul Katz, Director, Business Strategy Research, at the Columbia Institute for Tele-Information (CITI) at Columbia University, under the direction of the BDT Regulatory and Market Environment Division (RME).

¹⁶ Atkinson, R., Castro, D. & Ezell, S.J. (2009). The digital road to recovery: a stimulus plan to create jobs, boost productivity and revitalize America. The Information Technology and Innovation Foundation, Washington, DC.

¹⁷ Op. cit.

¹⁸ Op. cit.

¹⁹ Op. cit.

²⁰ Varian, H., Litan, R., Elder, A. & Shutter, J. (2002). The net impact study: the projected economic benefits of the Internet in the United States, United Kingdom, France and Germany, Available from: www.cisco.com, also available at www.itu.int/wsis/stocktaking/docs/activities/1288617396/NetImpact_Study_Report_Brookings.pdf See also Gillett, S., Lehr, W., and Osorio, C., & Sirbu, M. A. (2006). Measuring Broadband's Economic Impact. Technical Report 99-07-13829, National Technical Assistance, Training, Research, and Evaluation Project.

²¹ Crandall, R., Lehr, W., & Litan, R. (2007). The Effects of Broadband Deployment on Output and Employment: A Cross-sectional Analysis of U.S. Data. Issues in Economic Policy, 6.

²² Clarke, G. (2008). Has the Internet Increased Exports for Firms from Low and Middle-Income Countries? Information Economics and Policy 20.

²³ Crandall, R., Lehr, W., & Litan, R. (2007). The Effects of Broadband Deployment on Output and Employment: A Cross-sectional Analysis of U.S. Data. Issues in Economic Policy, 6.



Figure 7: Broadband-Induced Productivity Improvement²⁴

Industrial Sector	Study	E Business Impact on Firm Productivity	Share of Informational activities that involve external parties
Manufacturing	Atrostic and Nguyen (2006)	~5%	~25%
Services	Rincón-Aznar <i>et al.</i> (2006)	~10%	~50%
Information	Fornefeld <i>et al.</i> (2008)	~20%	100%

2. **Job creation.** Increased broadband penetration creates employment due to telecommunications network construction and spillover impacts on other parts of the economy. Research data indicates that the impact on employment growth varies from 0.2% to 5.32% for every 1% increase in broadband penetration. While employment in the construction and telecommunications sectors clearly increases, other sectors (particularly financial services, education, and healthcare) also benefit from the improved networks and services. Network construction creates direct jobs, such as telecommunications technicians, construction workers, and telecommunications equipment manufacturers. The direct creation of jobs also has an indirect impact on employment (e.g. increasing jobs through upstream buying and selling between metal and electrical equipment manufacturing sectors). Moreover, increase in household incomes supports increased spending, further stimulating the economy.²⁵ The introduction of new applications and services accelerates innovation, creating additional jobs. The use of more efficient business processes due to broadband improves productivity, while the ability to process information and provide services remotely makes it possible to extend employment to other regions via outsourcing.²⁶

The following chart summarizes the impact of investment in construction of telecommunications infrastructure on job creation in several countries, indicating multiplier effects in the range of 2-3 times the initial investment.²⁷

²⁴ Fornefeld, M., Delaunay, G. & Elixmann, D. (2008). The Impact of Broadband on Growth and Productivity. A study on behalf of the European Commission (DG Information Society and Media), MICUS.

²⁵ The Impact of Broadband on the Economy: Research to Date and Policy Issues April 2012. Dr. Raul Katz, Director, Business Strategy Research, at the Columbia Institute for Tele-Information (CITI) at Columbia University, under the direction of the BDT Regulatory and Market Environment Division (RME). Page 10.

²⁶ Fornefeld, M., Delaunay, G. & Elixmann, D. (2008). The Impact of Broadband on Growth and Productivity. A study on behalf of the European Commission (DG Information Society and Media), MICUS.

²⁷ Source: The Impact of Broadband on the Economy: Research to Date and Policy Issues Dr. Raúl L. Katz, Adjunct Professor, Division of Finance and Economics, and Director, Business Strategy Research, Columbia Institute of Tele-information 10th Global Symposium for Regulators “Enabling Tomorrow’s Digital World” Dakar, Senegal, 10 November 2010.



Table 5: Impact on Employment of Broadband Network Construction²⁸

Country	Investment (US\$)	Jobs Created (Direct, Indirect and Induced)
United States	\$6.4 billion	127,800 jobs
United States	\$10 billion	229,475 jobs
Switzerland	\$10 billion (approx.)	110,000 approx. jobs
Germany	\$47.7 billion	542,000 jobs
United Kingdom	\$7.5 billion	211,000 jobs
Australia	\$31.3 billion	200,000 approx. jobs

- 3. Increase in Personal Incomes.** Residential adoption of broadband Internet drives an increase in household real income. In addition, household incomes benefit from the increased job creation described above.
- 4. Additional User Benefits not Captured in GDP Statistics.²⁹** Typically referred to as “consumer surplus”,³⁰ users of telecommunications services benefit in many less quantifiable ways, such as lower prices and better quality of telecom and other services as a result of greater competition, productivity and efficiency in the economy resulting from broadband access. Users also benefit from more efficient access to information, such as faster and more thorough job searches, savings in transportation, and better quality healthcare and education.
- 5. Achievement of Government Socio-Economic Objectives.** The mechanisms described above also support the achievement of various government objectives, including higher tax revenues, better health and education, and greater digital inclusion of residents.

²⁸ Op. cit.

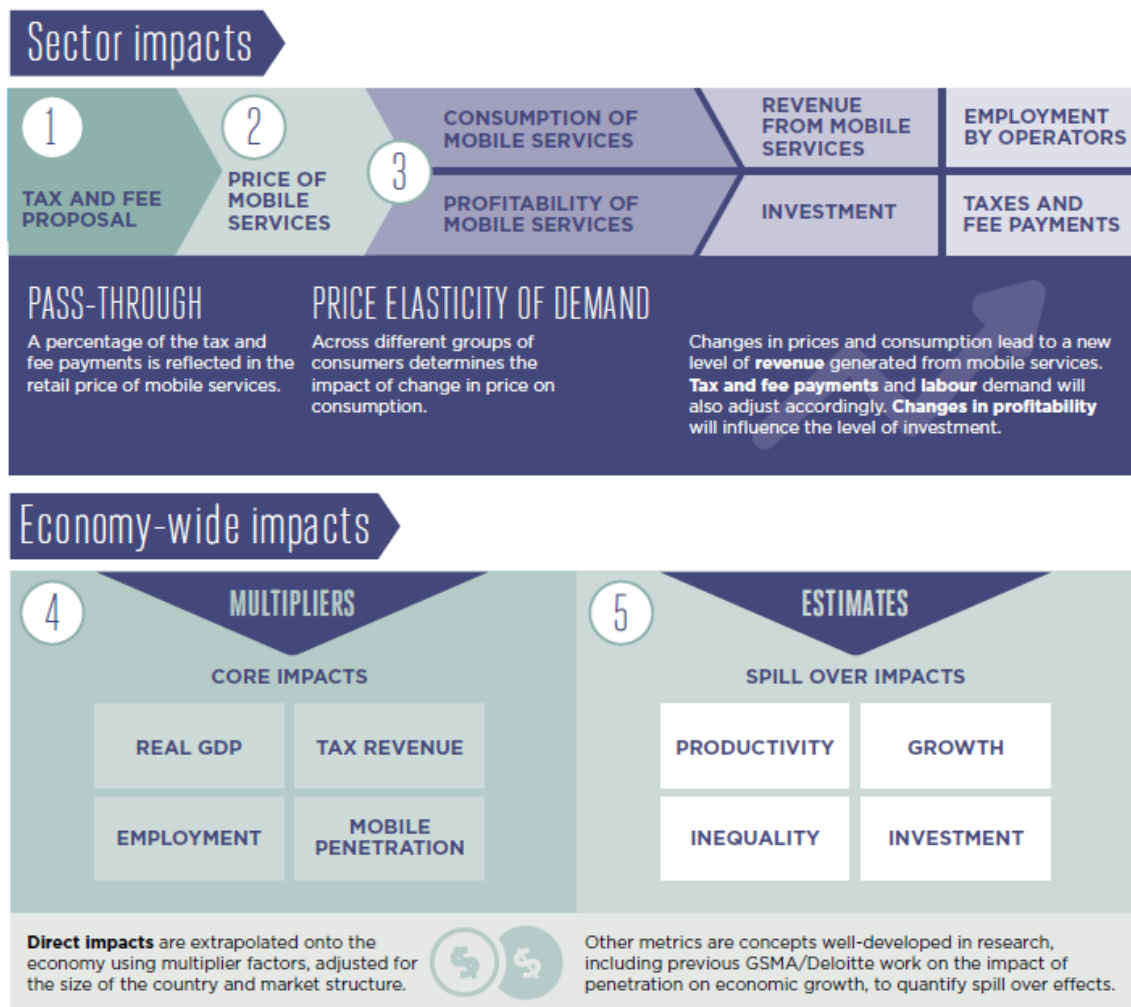
²⁹ Op. cit. Pages 14-15. See also Gillett, S., Lehr, W., and Osorio, C., & Sirbu, M. A. (2006). Measuring Broadband's Economic Impact. Technical Report 99-07-13829, National Technical Assistance, Training, Research, and Evaluation Project.

³⁰ Consumer Surplus can be defined as the amount that consumers benefit from purchasing a product for a price that is less than what they would be willing to pay.



The following graphic illustrates the multiple ways in which a reduction in taxes is amplified by the above factors and filters through the economy, increasing investment, GDP growth and tax revenues.

Figure 8: Flowchart of Economic Impact of Taxes on Telecom Services⁵¹



⁵¹ Mobile taxes and fees - A toolkit of principles and evidence. February 2014. Deloitte. <https://www.google.ca/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=mobile%20taxes%20and%20fees%20-%20a%20toolkit%20of%20principles%20and%20evidence%20deloitte%202014>



4. POTENTIAL IMPACT OF REDUCTION IN CUSTOMS DUTY

As indicated earlier in this report, the proposed reduction in the existing customs duty imposed on telecommunications equipment and devices is forecast to have a positive impact on our economy – both directly and indirectly, via multipliers for demand, employment and income. The following bar chart illustrates how the reduction in customs duty will drive higher tax revenues for the Government of Mozambique in the long term, while having a relatively neutral impact in the short term.

Figure 9: Impact on Tax Revenues of Reduction in Customs Duties on Telecom Equipment and Services³²



One of the most direct impacts of the reduction in duty on tax revenues is calculated in the table below. This table estimates the direct effect of a reduction in customs duties on handsets on tax revenues from customs duty and VAT. This analysis ignores additional

³² William Burnfield, Great Village International Consultants Inc. 2015.



indirect, induced, multiplier effects (discussed above), and the impact from the reduction in the customs duty on other telecommunications equipment and devices.

Table 6: Potential Impact of Reduction in Customs Duties on Handsets (including impact on Government Revenues from Customs Duties and VAT)³⁵

	Existing Duty	Potential Impact on Tax Revenues	
	7.5% Duty	Low	High
		2.5% Duty	2.5% Duty
Estimated handsets sold in Mozambique 2013 (total legal and smuggled)	2,000,000	2,000,000	2,000,000
Handsets entering Mozambique legally (customs duty collected)	10%	30%	75%
Estimated total handsets legally entering Mozambique (customs duty paid)	200,000	600,000	1,500,000
Estimated handsets smuggled into Mozambique (no customs duty paid)	1,800,000	1,400,000	500,000
Assumed Average cost per handset ³⁴	50	50	50
Total revenue - legal handsets	\$10,000,000	\$30,000,000	\$75,000,000
Customs duty (% of cost)	0.075	0.025	0.025
Estimated total customs duty collectible by Government	\$750,000	\$750,000	\$1,875,000
Estimated % of additional "legal" handsets on which VAT is paid		20%	20%
VAT rate applicable to handsets	17%	17%	17%
Est. additional VAT revenue paid due to additional legally imported phones		\$1,020,000	\$2,550,000
Potential total customs duty and additional VAT collectible by Government	\$750,000	\$1,770,000	\$4,425,000
Increase in user value due to higher quality handsets and service ³⁵	+ Additional unquantifiable economic value		

The above analysis may understate the positive impact of the recommended reduction in custom duty, because an estimated 18% of mobile phones in use in our country are broadband-enabled smartphones (equivalent to almost 1.4 million subscribers).³⁶ By encouraging faster growth in mobile broadband and increased import of legal (non-smuggled) handsets, the duty reduction will encourage greater import of smartphones, which cost approximately \$300-400 – far higher than the \$50 handset cost assumed in the above analysis.

³⁵ Analysis is based on information provided by participants at a A4AI workshop in Maputo in March 2015 to discuss the impact of taxation on the use of telecommunications services. The analysis is highly sensitive to assumptions used.

³⁴ For illustrative purposes, analysis assumes cost of handset equals retail price for VAT purposes

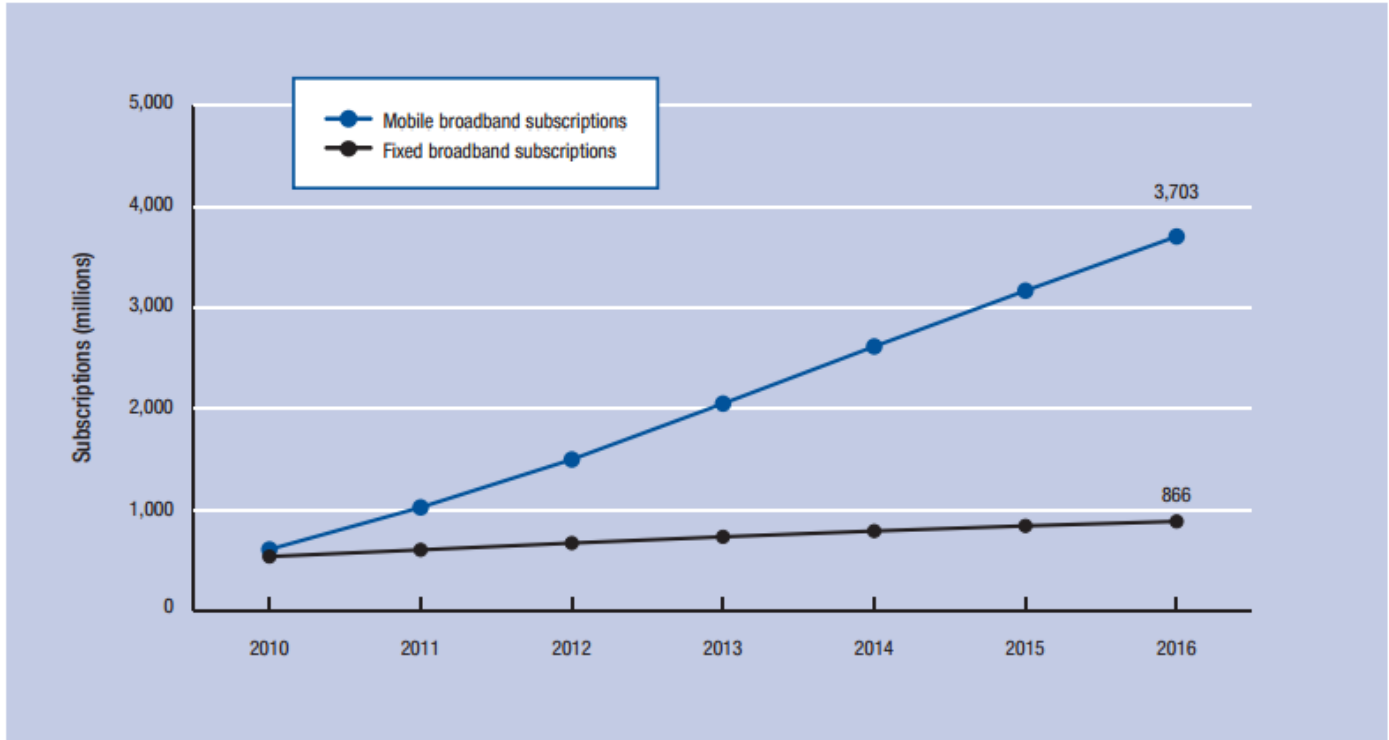
³⁵ Financial analysis ignores increase in quality of service and value to user resulting from higher quality handsets, as smuggled handsets are eliminated.

³⁶ GSMA Intelligence data.



Mobile networks are the primary source of broadband Internet access in Africa; in 2015, an estimated 80% of broadband connections are already via smartphones. Reducing the cost of handsets and mobile broadband services is therefore an important pathway to increase broadband penetration rates in our country. Reducing tariffs on the devices and services used to access the Internet will make the Internet more accessible to all Mozambicans.

Figure 10: Global Broadband Subscriptions (mobile at 80 percent by 2016)³⁷

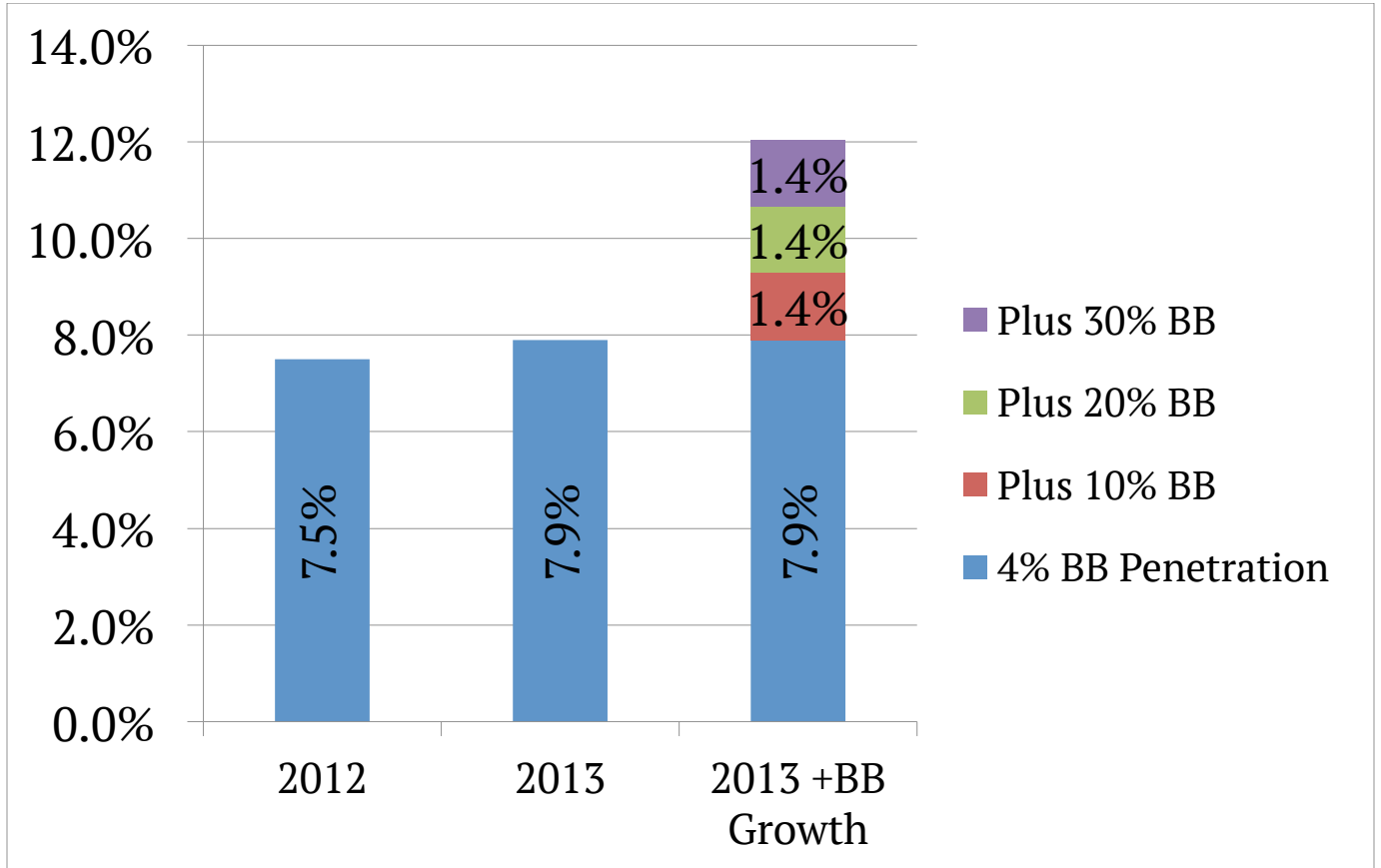


³⁷ The Global Information Technology Report 2012. CHAPTER 1.5 Mobile Broadband: Redefining Internet Access and Empowering Individuals WILLIAM BOLD WILLIAM DAVIDSON Qualcomm. Page 67. 2012 World Economic Forum. Based on data from industry analyst firm forecasts. For mobile broadband subscriptions: HSPA, EV-DO, TD-SCDMA, and LTE subscribers: Wireless Intelligence Database, February 2012; for WiMax: ABI Database, February 2012; for fixed broadband subscriptions: Informa Telecoms & Media (WBIS) Database, February 2012. Note: Mobile broadband technologies include EV-DO, HSPA, TD-SCDMA, LTE, WiMax, and their respective evolutions.



The World Bank research discussed earlier in this report determined that increasing the broadband penetration rate in a lower income country, such as our own, correlates with an increase in GDP growth of 1.38% annually. Based on this research, the following chart illustrates the potential impact of increases in broadband penetration on GDP growth.

Figure 11: Estimated Increase in Annual GDP Growth Rate in Mozambique from 10% Increase in Broadband Penetration Rate



The following table provides a more detailed analysis of the impact on GDP in Mozambique, using conservative assumptions to forecast the potential impact that a reduction in customs duties here could have on broadband penetration rates and total GDP of the economy, again relying on the World Bank findings noted above.



Table 7: Estimated Increase in Mozambique GDP from of Reduction in Customs Duty³⁸

	2015	2016	2017	2018	2019
Estimated telecom sector revenues (15% CAGR) (USD millions)	\$846m	\$973m	\$1,118m	\$1,286m	\$1,480m
5% decrease in customs duties causes annual savings of 2% of sector revenues (USD millions)	\$16.9m	\$19.5m	\$22.4m	\$25.7m	\$29.6m
Cumulative funding (USD millions)	\$16.9m	\$36.4m	\$58.8m	\$84.5m	\$114.1m
Increase in broadband penetration rate (%)	+0.8%	+1.0%	+1.1%	+1.3%	+1.5%
Cumulative potential increase in broadband penetration rate (%)	+0.8%	+1.8%	+2.9%	+4.2%	+5.7%
GDP without broadband increase (USD billions)	\$16.8b	\$18.1b	\$19.5b	\$20.9b	\$22.5b
GDP with broadband penetration increase (USD billions)		\$18.1b	\$19.5b	\$20.91b	\$22,7b
GDP increase* (USD millions)	+\$20m	+\$45m	+\$79m	+\$122m	+\$177m
Cumulative additional potential GDP (USD millions)		+\$65m	+\$144m	+\$266m	+\$443m

Based on the above analysis, we conclude that increased investment and availability of smart devices will increase penetration of broadband Internet access, thereby reducing costs and promoting efficiency and productivity throughout our economy, resulting in significant increases in tax revenue and an estimated cumulative positive impact on GDP of US\$443 million by 2019. Therefore, we recommend reducing the customs duty on:

- Equipment for construction and expansion of the network, which will reduce the cost of investment in telecommunications infrastructure and service; and
- Terminal equipment, handsets and other devices, which will increase citizen access to data and voice communications services at an affordable cost.

³⁸ Table Assumptions: Based on World Bank research finding that GDP increases an average of 1.38% for every 10% increase in broadband penetration rate in low and middle income countries,. Assumes total 2014 telecommunications sector revenues of US\$736 million (equal to four times third quarter 2014 Mozambique telecommunications sector revenues of \$ 183.9 million), increasing annually at compound annual growth rate of 15% (Source for 2014 sector revenues: GSMA intelligence database). Assumes customs duty on telecommunications equipment and revenues is reduced from 7.5% to 2.5%, resulting in assumed reductions to total sector costs of 2% of annual sector revenues. Assumes that sector cost savings from reduction in customs duty increases broadband penetration rate (through lower prices, investment in larger 3G/4G coverage, outreach programmes, etc.) and that \$20 million of savings is required to achieve each 1% increase in broadband penetration, achieved in the year the savings are obtained. Assumes Mozambique GDP of \$15.6 billion in 2014 growing at 8% in 2015 and 7.5% each year thereafter.



The following table provides a list of the specific network and terminal equipment recommended to benefit from the proposed reduction in custom duties.

Table 8: Critical Equipment & Terminals to be Considered Under this Request

Critical Equipment and Terminals to be Considered Under this Request	
<u>Network Equipment</u>	<u>Brief Description</u>
Towers & Masts	All structures to support antennas that are built on green fields and on roof tops (e.g., steel lattice towers, monopole steel towers, monopole concrete towers, camouflage tree tower, street poles, roof top solutions).
Enclosures, Containers, Shelter	A shelter is a module that provides covering and protection for the passive and technical equipment of a base station from external influences (e.g., weather, unauthorized access, vandalism, etc.). The shelter is accessible physically by an entrance door. An Outdoor-Cabinet is an integrated module for outdoor use which contains all necessary passive and BTS equipment.
BTS	A BTS, often called a mobile phone tower, is a set of transceiver equipment used for communicating with mobile devices in a mobile network. A BTS is connected to a base station controller (BSC). Includes antennas for different technology families.
BSC	BSC-Base Station Controller. Each base transceiver station (BRS) is connected to a base station controller. The BSC is the brains behind a group of BTS units. It controls the power levels each BTS should use, the handoffs from one BTS to another, the frequency hopping, and keeps the phone connections to the right BTS for the mobile phones using them. Each BSC is controlled by a mobile services switching center (MSC).
Microwave Equipment	Microwave transmission equipment for backhauling traffic.
Dark Fiber	Optical fiber purchased in order to build an optical network, when equipped with optical nodes.
Radio Software	All software for 2G, 3G and 4G radio communications.
Backbone Transmission Equipment	All backbone transmission equipment.
<u>Terminal Equipment</u>	<u>Brief Descriptions</u>
Mobile Broadband	Datacards
Gateway	Gateway box-connected device
Notebooks	PCs for broadband use (notebooks, laptops)
Computer Peripherals	E.g., monitors, printers, projectors, etc.
All Handsets	Handsets enabled for 2.5G, 3G, etc.



ANNEX: CASE STUDIES IN SUCCESSFUL TAX STRATEGIES IN THE TELECOMMUNICATIONS SECTOR

A. GHANA – REDUCTION IN CUSTOM DUTY ON SMARTPHONES

The Government of Ghana announced in 2015 that it would eliminate the 20% customs duty on smartphones.³⁹ The removal of this import duty will reduce the cost of handsets in Ghana, where taxes comprise approximately 35% of the cost of a smartphone. Efforts to eliminate the duty were driven by the A4AI Ghana Coalition Working Group on Taxation, and led the Government to conclude that the rise in smartphone penetration and associated increased collection of Communication Service Tax, VAT and corporate taxes would ultimately boost their revenue. An analysis conducted to assess the potential impact estimated that by 2020, the economy would benefit in the following ways from eliminating the duty on all handsets:⁴⁰

- Increased market penetration of 1.5 million connections;
- Additional 460,000 3G (broadband) connections;
- Increased economic productivity of 0.3%;
- Additional investment of \$120 million;
- Additional GDP of \$370 million;
- Additional employment of 11,000; and
- Additional tax revenues of \$38 million.

It is important to reiterate that reducing the customs duty will have a far wider impact on the economy and tax revenues if it is combined with increased investment in telecommunications infrastructure, and lower prices and better quality of broadband-enabled smartphones for individuals and businesses.

³⁹ Alliance for Affordable Internet

⁴⁰ *Mobile taxation as a barrier to digital inclusion in Ghana*. Powerpoint presentation by Jessica Bruce, Business Manager – Government & Regulatory Affairs, GSMA. A4AI-Ghana Expert Workshops. 11 February 2015. Accra, Ghana.

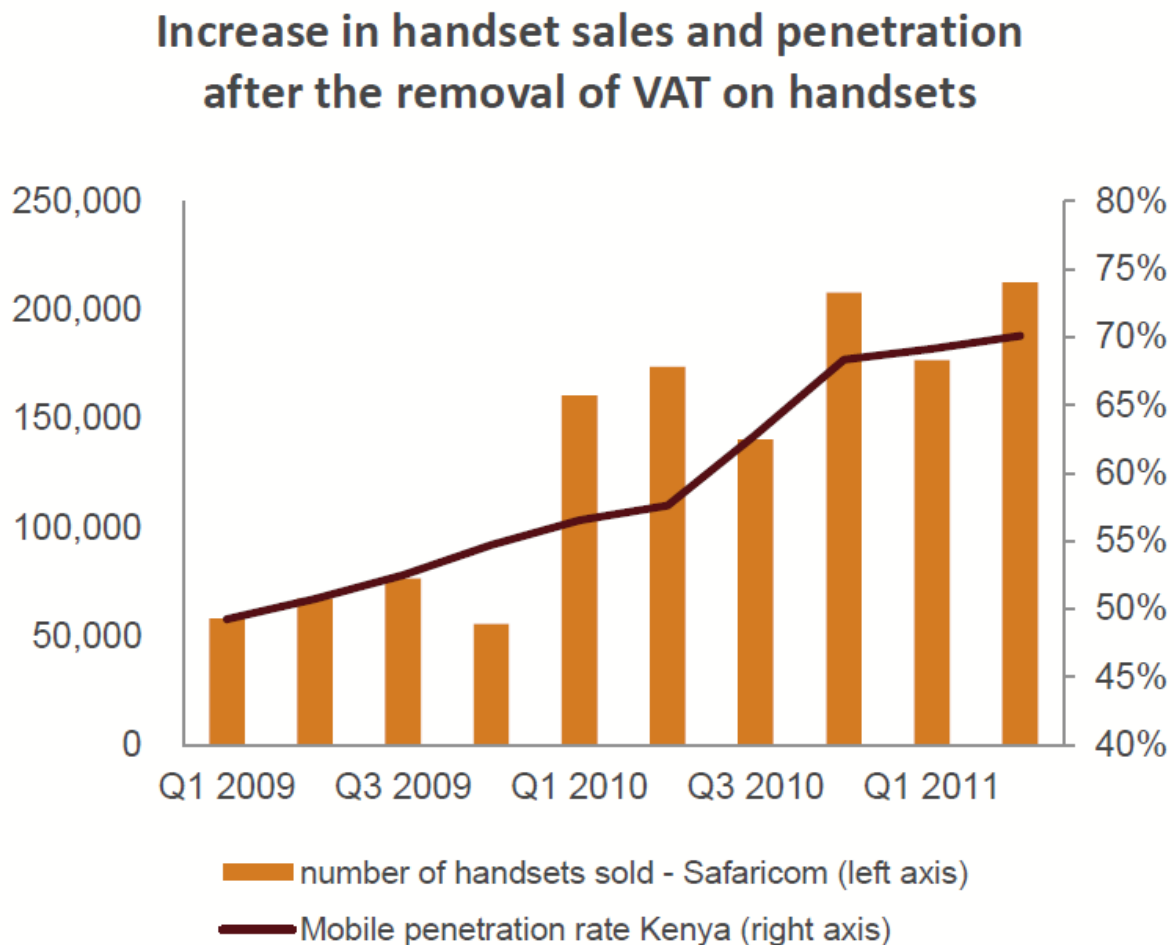


B. KENYA – ELIMINATION OF VAT ON HANDSETS

In June 2009, the Kenyan government exempted mobile handsets from VAT, in order to promote mobile phone usage and allow increasing numbers of Kenyans access to the benefits associated with mobile phone use and Internet access.

Penetration rates increased from 50% to 70% of the population in Kenya – above the average penetration rate in Africa in 2011 (63%) – and the number of devices in circulation quadrupled.⁴¹

Figure 12: Increase in Handset Sales & Penetration After Removal of VAT on Handsets, Kenya



⁴¹ Deloitte/GSMA Mobile telephony and taxation in Kenya 2011



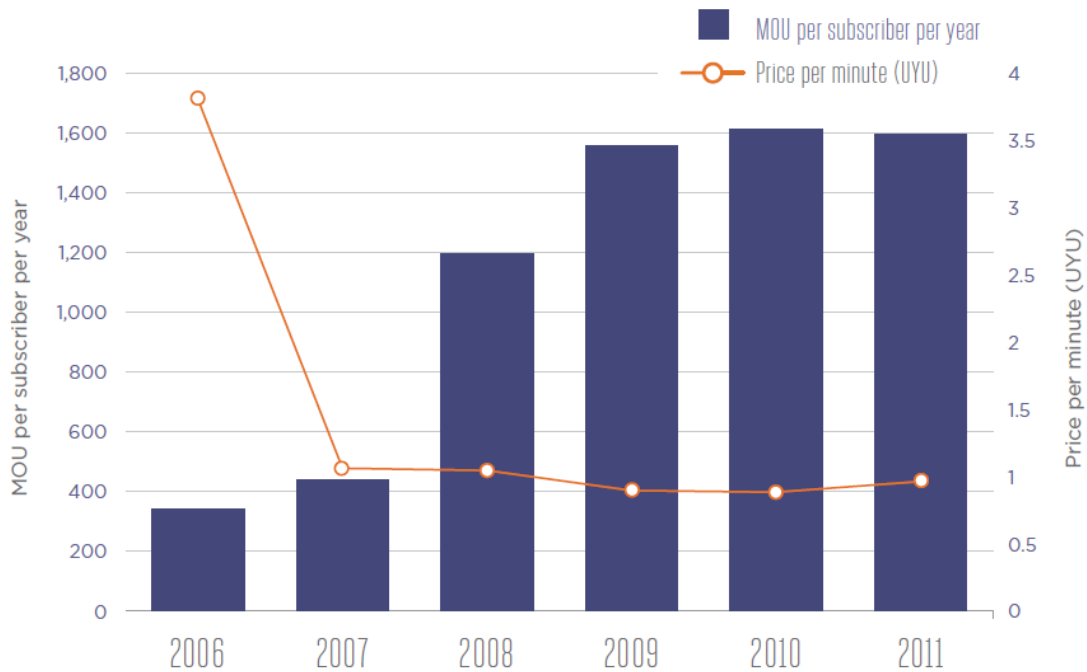
C. URUGUAY – ABOLITION OF MOBILE AIRTIME TAX

In 2007, the Uruguay government abolished an airtime tax that had accounted for 30-50% of calling costs.

In 2008, prices fell by over two-thirds, from UYU 3.75 per minute to around UYU 1.00 per minute.⁴²

Penetration has since more than doubled from 65% in 2006 to 141% in 2011. Network traffic increased from under 400 annual minutes per subscriber in 2006 to 1,600 minutes in 2011.

Figure 13: Price Reductions & Usage Increases Following Abolition of ITEL Tax



⁴² GSMA (2012), 'Mobile telephony and taxation in Latin America'



D. BRAZIL – SIMULATION OF IMPACT OF 1% TAX REDUCTION ON MOBILE BROADBAND

It is estimated that taxes increase the cost of mobile broadband use by 40% and the cost of an average handset by 57%.

A 2012 study simulated the effect of a 1% reduction in the tax burden on mobile broadband by assessing the impact on mobile penetration and subsequently on GDP growth.

The study considered two different penetration responses to the tax change, as well as three different GDP responses to the increased penetration.

The study found that over five years, a 1% reduction in the tax burden would generate 520,000–1,000,000 new subscribers, representing a 2-4% increase in the tax base. In addition, the tax reduction on mobile broadband would be more than offset by the additional tax generated from increased consumption of the service and wider economic growth.⁴⁵

⁴⁵ GSMA (2012), 'The Impact of Taxation on the Development of the Mobile Broadband Sector'.