

THE UNITED REPUBLIC OF TANZANIA

**TANZANIA COMMUNICATIONS REGULATORY AUTHORITY**



**COMPARATIVE STUDY ON TARIFFS FOR VOICE  
TELEPHONE IN EAST AFRICAN COUNTRIES**

**August, 2009**

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**(iii) ACRONYMS AND ABBREVIATIONS**

<b>ANOVA</b>	-	Analysis of Variance
<b>CBS</b>	-	Central Bureau of Statistics - Kenya
<b>CCK</b>	-	Communication Commission of Kenya
<b>CLF</b>	-	Converged Licensing Framework
<b>EA</b>	-	East Africa
<b>ED</b>	-	Excise Duty
<b>GDP</b>	-	Growth Domestic Product
<b>NBS</b>	-	National Bureau of Statistics - Tanzania
<b>Off Net</b>	-	Other (Different) Network
<b>On Net</b>	-	The Same Network
<b>TCC</b>	-	Tanzania Communication Commission
<b>TCRA</b>	-	Tanzania Communication Regulations
<b>TSHS</b>	-	Tanzanian Shilling
<b>TTCL</b>	-	Tanzania Telecommunication Company Ltd
<b>T-TEST</b>	-	Student T-Test; a Paired Test
<b>UBOS</b>	-	Uganda Bureau of Statistics
<b>UCC</b>	-	Uganda Communication Commission
<b>VAT</b>	-	Value Added Tax

#### **(iv) EXECUTIVE SUMMARY**

This comparative study was carried in three countries; Tanzania, Kenya and Uganda in January 2008 with the main aim of creating understanding to stakeholders and/or consumers of Voice telephone services in Tanzania particularly on tariffs of voice telephone. The understanding is expected to first give an evident answer to which country among the three is more expensive and second; consumers to know the money-value of voice telephone calls they make.

To accomplish the task, a descriptive comparative analysis on tariff trend and their composition of the three countries from 2000 to 2008 was conducted. The analysis through T-Test and ANOVA Test, also examined the effect/burden of taxes to consumers and the existing tariffs differences between these countries respectively.

The results of comparative analysis have shown that, in 2008 it was relatively more expensive to make voice telephone calls on On Net, Off Net Mobile and Off Fixed in Tanzania than in Kenya and Uganda. On the same year, Tanzania was cheaper for East Africa Calls than Kenya and Uganda. However, for the time period of 2000-2007 it was relatively more expensive to make all call types in Kenya than any other country in East Africa. On the same time period Uganda was comparatively cheaper than any other country followed by Tanzania.

It is further found that, Tax rates for voice telephone in all three countries had been increasing while the Tariffs had been decreasing. Tanzania had higher tax rate on average for the voice telephone services over the period than Kenya and Uganda. On the other hand, the tests have shown that taxes have significant effect/burden to consumers and that the existing difference of tariffs on the same call type between countries is significant.

Due to these findings, it is recommended to the governments to revise the formula for the calculation of Effective Tariffs and to lower the taxes especially Excise Duty. Lastly it is recommended for Regulators to conduct a cost study in order to determine methodology used by operators to calculate their tariffs. The study will help the Regulators to regulate price for the interest of protecting consumers.

## **1.0 INTRODUCTION**

### **1.1 Background**

This study was initiated and carried out in response to concerns, queries and complaints raised by users of voice telecommunication services in Tanzania that it is more expensive to make voice telephony call in Tanzania than it is in the neighboring East African Countries (Kenya, Uganda, Burundi and Rwanda). This belief is everywhere even within the government circles, business and even among members of the Parliament as evidenced by a number of parliamentary questions on telephone tariffs asked during the various parliament sessions in 1997 (Hansad: 1997).

The root of their argument is based on the fact of the similarities of these countries. Since the countries have similar political and socio-economic situations, and good enough some of service providers operate in all countries, there is no way for one country to be more expensive significantly than the other, unless there are justifiable reasons. Though the difference in the tariffs, especially the nominal ones can be expected, but the difference should not reach the level of being significant.

In this regard, there is a general concern from stakeholders that TCRA is not performing well its major role of regulating the communications sector, including bringing down tariffs for voice telephone services, which is the most widely used communication services.

This study sought to establish and confirm whether the concerns raised by users of telecommunications services in Tanzania; that voice telephone services in Tanzania were more expensive than in the neighboring East African countries were genuine or mere speculations. It is against this background that the Tanzania Communication Regulatory Authority (the Authority) commissioned the study in view to properly establish and document the truth of the matter based on evidence.

The study was carried out in only three countries of East Africa due to a number of similarities; the three East African countries liberalized their telecom sector in early 1990's allowing new entrants/mobile operators to compete along with incumbent fixed

line operators; the voice telephone service providers from the three EAC countries, particularly mobile telephone companies, operate in close collaboration to the extent that they have linked their networks (e.g. Vodacom/Safaricom/MTN of Tanzania, Kenya and Uganda respectively); one operator, Celtel trading under the name of Zain is licensed and is providing voice telephone services across the three countries; the three countries share common historical background in that they were colonies of the British government, which established and operated a single postal and telecommunication network, that was managed under the former defunct East African Community (EAC), However, the study is only limited to establish whether is true that Tanzania is the most expensive or not. To determine why Tanzania or anyone country is most expensive than the other, despite of the similarities as aforementioned and further described below, will call for another study.

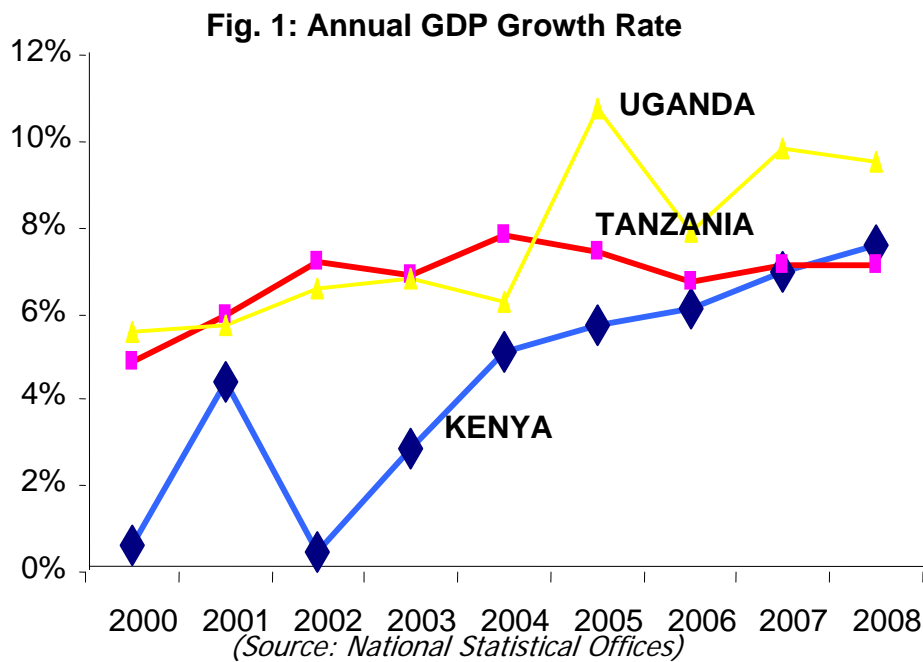
## **1.2 Land Area and Population**

Kenya, Tanzania and Uganda together have a total land mass area of 1,853,686 square Kilometers (km<sup>2</sup>) and a total population of 104.6m people. In terms of geographical coverage, Tanzania is the largest country with 945,000 km<sup>2</sup> followed by Kenya, which has 582,646 km<sup>2</sup> and Uganda occupies a land area of 326,040 km<sup>2</sup>.

Likewise, Tanzania has the largest population, with an estimated population of 41.1m people by end of 2008 (NBS, 2008); the estimated population for Kenya by end of 2008 was 38m people (CBS, 2008), while the estimated population size for Uganda for 2008 was about 29.5m people (UBOS, 2008). Table 1 below shows in summary the population figures and land mass area in square kilometers.

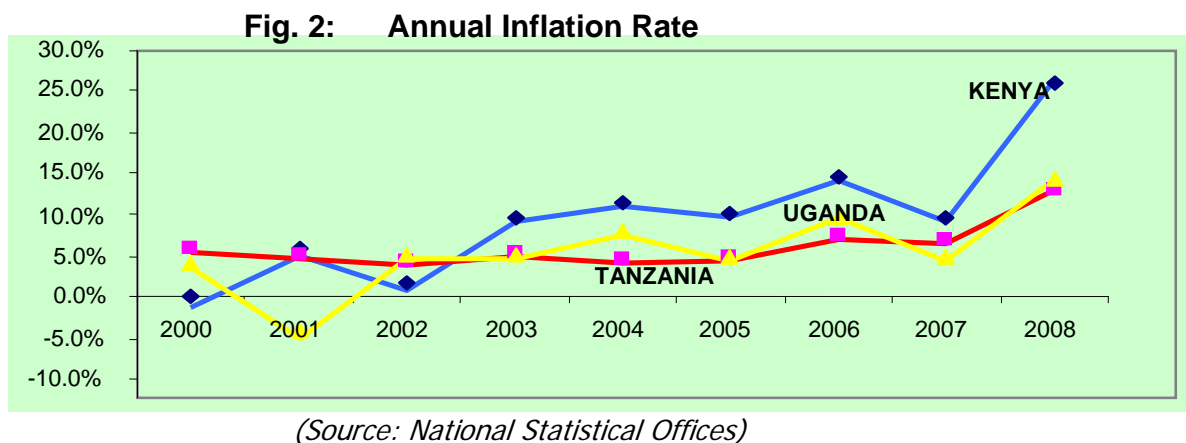
## **1.3 Macroeconomic Performance**

All three countries have achieved remarkable improvements in macroeconomic performance in terms of economic growth and infrastructure development during the period under review (2000 -2008). During this period the countries experience stead growth of their national incomes as illustrated in figure 1 below which shows the GDP growth rate at current prices.



Uganda experienced the highest economic growth rate with an average GDP growth rate of about 8% per year. Uganda was closely followed by Tanzania, which achieved an annual average GDP growth rate of 7%. Kenya achieved an average growth rate of 4% per annum.

All the three countries experienced increase in general price overtime as reflected by annual inflation rates in figure 2 below. Tanzania had stable prices between 2000 and 2005 during which inflation rate was within a range of 4% and 5%. However, beginning 2006 prices started to increase and reached the double digit in 2008. Kenya has experience the highest inflation rates as beginning 2003, when it recorded an annual inflation rate of 9.8%. Inflation increased further in subsequent years to double digit hitting the highest level of 26% in 2008.



On the other hand Uganda experienced an inflationary pattern similar to that of Tanzania. The highest inflation rate was 14% in 2008.



## **2.0 OVERVIEW OF TELECOM SECTOR**

To have a sound comparison, there is a need to explore what was happening in the telecommunication sector of the three countries for the time period. Under this chapter therefore, two major issues namely; Legal and Regulatory Frame, plus Sector Liberation and Growth are considered.

### **2.1 Legal and Regulatory Framework.**

Tanzania passed the Tanzania Communications Act of 1993, which led to the opening of the communications market and the establishment of the Tanzania Communications Commission (TCC), which in 2003 an independent Regulatory Body, Tanzania Communication Regulatory Authority (TCRA) was established under the TCRA Act No.12 of 2003.

Similarly, in Uganda the parliament passed the Uganda Communication Act Chapter 106 of September, 2000, that led to the restructuring of the communications industry and establishment of the Uganda Communications Commission (UCC), the regulator. The act also provided for incorporation of Uganda Telecom Limited and Uganda Post Limited, liberalization and introduction of competition in the communication industry.

Kenya liberalized the communications sector and introduced competition after the enactment of the Kenya Communications Act, 1998, which led to the establishment of the Communications Commission of Kenya (CCK) in 1999.

Regulatory Authorities in the respective countries have developed various communications regulations including telecommunications tariff regulations which provide operating guidelines to players/operators on how to price voice telecommunication services. In retail tariffs for voice telephone are not regulated, however, the Tanzania Communication (tariff) Regulation, 2005, requires among other things that:

- The approval of tariff, rates and charges of dominant service provider
- The setting of tariffs for services shall be cost oriented and made on the objective criteria.

- Tariff shall be sufficiently clear as to allow the end-user to determine the description of the service and the details of the nature of the service as well as the amounts and charges payable for such service.
- Tariffs shall be non-discriminatory and shall guarantee equality of treatment.
- The communications service provider may offer discounts schemes on tariffs and shall inform the Authority of any such scheme available to customers.

In Kenya, the Kenya Communications Act (No. 2 of 1998) provides the framework for regulating the communications sector in Kenya. Tariff regulation entails the prescription of guidelines on how to determine fees to ensure competitive and affordable pricing structures for postal and telecommunications operations (CCK, 2007). The regulation prescribes a price cap method for arriving at charges for fixed services. Retail tariffs for Mobile telephones are not regulated, it is expected that competitive forces will align prices accordingly (CCK, 2007). However, mobile operators are required to present their prices to the Commission before they can use them.

The Telecommunications (Tariffs and Accounting) Regulations, 2005 for Uganda provides a framework for efficient and reasonable cost-based pricing of telecommunications services with an aim to ensure among other things that;

- Tariffs charged to consumers are reasonable and efficient, cost-oriented and reflect optimum consumer satisfaction;
- Tariffs charged are cost-oriented, transparent and non-discriminatory;
- The public is involved in determining and assessing reasonableness of tariffs charged for telecommunications services;
- Operators keep separate accounts of specified telecommunication activities in order to prevent anti-competitive acts of among others, cross-subsidization and under pricing by operators;
- Operators implement transparent cost accounting systems, reflecting the costs of efficient service provision.

As it is seen, the legal and regulatory framework for provision of telecommunications services for Tanzania, Kenya and Uganda are similar. All three countries have liberalized

their telecom sector, allowing new entrants, mobile network operators and service providers in competition with the once monopolistic fixed line operators (Doleitte, 2006). The Liberalization process and procedure in the three countries followed a similar pattern, which involved the enactment of the communication Act paving way for competition.

## **2.1 Sector Liberation and growth**

In Tanzania, the full liberalization of the communication sector coupled with the introduction of a converged licensing framework (CLF), which came into force in 2005, has resulted into changes in the structure of the market, new entrants commenced operations, while existing operators are expanding their service sets to include data and international voice services. Incumbent fixed-line operators TTCL and Zantel are rapidly evolving into a predominantly cellular operator for voice services (Analysys, 2007).

Consequently, the number of licensed providers of telecommunication services has increased from one (1) fixed line operator prior liberalization in 1990's to ten (10) operators in 2007. However, only six (6) mobile network service providers are operational at the moment; Tanzania Telecommunications Company Limited (TTCL), Zanzibar Telecom Limited, Vodacom Tanzania Limited, Celtel Tanzania Limited, Benson Informatics Limited and MIC Tanzania Limited. The remaining four licensed network services providers are at various stages of network construction; these are the ExcellentCom Tanzania Limited, Dovetel (T) Ltd, Epoque & Golden Ocean (T) Ltd (EGOTEL) and My Cell Company Ltd.

Mobile cellular networks have revolutionized the communication sector to the extent that mobile phones has become the most preferred method of communication to the majority of Tanzanian population (Doloitte, 2006). Availability and accessibility of telephone service has improved significantly in both urban and rural areas resulting into increase of penetration from less than 1% in 1990's to over 30% by December, 2008 (TCRA, 2008).

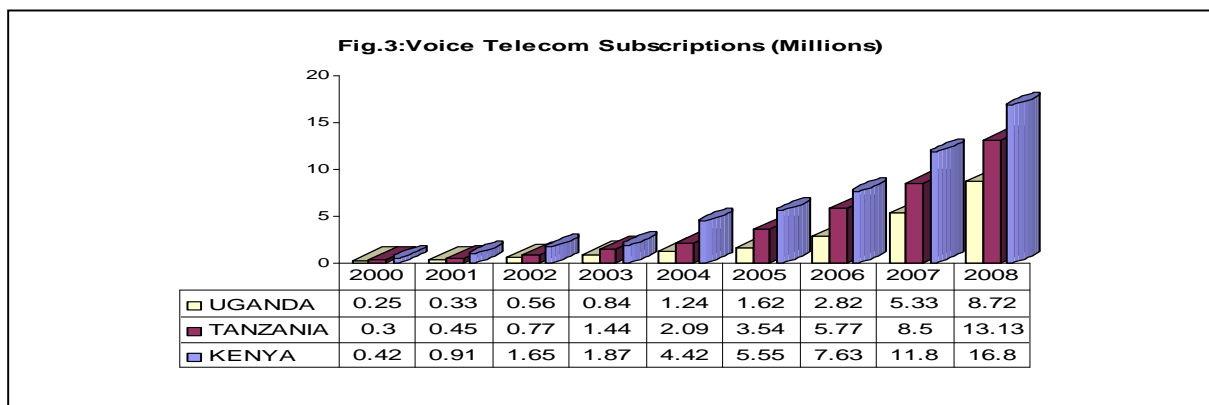
Similar growth and development pattern in the telecommunications sector has been experienced in Kenya after liberalization. Provision of mobile telephone services in

Kenya started in 1992. However, the growth of subscription for mobile telephone service was marginal due to high costs of owning a mobile handset. Kenya registered less than 20,000 mobile handsets in a period of seven years (from 1993 - 1999) (CCK, 2008).

The enactment of the Kenya Communications Act, 1998 led to the introduction of competition in the cellular mobile industry. The Communications Commission of Kenya licensed two more mobile operators; Safaricom Limited and KenCell Communications, which changed its brand name to Celtel Kenya and to Zain. Currently, the number of licensed mobile operators has reached four namely Safaricom, Celtel, Telkom Kenya (trading as Orange Mobile) and Econect Wireless Kenya. However, only two have rolled out their networks, that is, Safaricom and Celtel (CCK, 2008).

Uganda on the other Hand has seen a proliferation of voice telephone service providers. The number has increased from fixed network operator in 1990'2 to 16 service providers by March, 2008, of which 10 are Public Infrastructure Providers and 6 are public Service providers (UCC, 2008). Connections of voice telephone lines grew from 332,181 connections in 2001 to 5,871,058 connection by March 2008 presenting an average growth rate of 208% per annum. By March, 2008 combined teledensity for fixed and mobile had reached 20.6% (UCC, 2008).

In summary, the rapid growth of sector can vividly be seen by looking at subscriptions in the voice telecommunication as it is depicted in figure 3 below



*(Source: Communication Reaulator)*

As it is seen from the figure, while the subscriptions for Tanzania shot from 0.3M in 2000 to 13.13M by December, in Kenya and Uganda on the same period skyrocketed from 0.42M to 16.8 and from 0.25 to 8.72 respectively.

In general, all three East African countries successfully have liberalized their communications sector and new entrants, particularly mobile cellular network operators and service providers have been licensed to provide telecommunication services in competition with incumbent fixed line operators since 1990's.

As a result, the Countries have experienced rapid growth in sector in terms of increase in the number of providers of telecommunication services, innovation and expansion of baskets of products and services delivered to consumers, and subsequent growth in telephone penetration, coverage and usage of telephone services. This has brought in price competition which has contributed to the affordable nature of mobile services in each of the countries.

## **3.0 STUDY OBJECTIVES AND METHODOLOGY**

### **3.1 Objectives**

The main objective of this study was to make stakeholders and/or users of Voice telephone services in Tanzania understand facts on tariffs charges and their composition in EA countries.

Specifically, the study was aimed at

3.1.1 Carrying out a comparative analysis on tariffs trends and tariff composition of voice telephone calls in EA region.

3.1.2 Establishing baseline data of voice telephone tariff charges by providers of voice telephone services in the EA region.

### **3.2 Methodology**

#### **3.2.1 Scope of the Study**

Only three countries in the EA region were involved in the study, that is, Kenya, Tanzania and Uganda as per reason aforesaid. It was proposed to involve both mobile and fixed operators in the study; however fixed operators were finally dropped due to insignificant subscriptions that would make invalid comparison with mobile operators if were included. Only Mobile operators providing voice telephone services in each country were therefore involved in this study.

Four call types; On Net Calls, Off Net Calls, East Africa Calls and International Calls for prepaid tariffs were considered. Post paid, Promotional tariffs like midnight calls and special events were not considered in the study because they are inconsistent across the operators.

The time series data covering a period of eight (8) years from 2000 to 2008 were collected. This period was selected because it is the period when all the three countries had reformed and liberalized their telecommunication sectors.

### 3.2.2 Data Collection

Most of data were secondary and were either collected by physically visiting operators and regulators or through documentary review. Table 1 below gives details of the data, sources and collection methods.

**Table 1: Data Sources and Collection Methods**

TYPE OF DATA	SOURCE	METHOD
Macro-economic Indicators	Websites/Physical Reports	Documentary Review
Legal and policy Information	Regulators' Websites	Documentary Review
Subscriptions	Regulator	Interview through a Questionnaire
Taxes included in tariff	Regulator & Operators	Interview through a Questionnaire
Tariff for Prepaid calls	Regulator & Operators	Tariff database extract from regulators

### 3.2.3. Data Processing and Analysis

#### 3.2.3.1 Conversion of Currency

In order to have comparable tariffs across the three countries, the first analysis process was to convert tariffs in Kenyan and Ugandan Shillings to Tanzanian shillings. All tariffs were converted to Tanzanian shillings (Tshs) using exchange rates as provided in **Annex 3**

All data were processed and analyzed in spread sheet and SPSS. Among all, Tariffs were the key data that needed much processing. They were collected from operators in per minute plan on on-net, off-net, East Africa and international calls, thus needed to be aggregated in country average and other comparable formats. This sub-section gives highlights on analysis process for easier cross-checking and validating of the findings.

### 3.2.3.2 Calculation of Weighted Averages of Tariffs per Country

In order to get country tariffs per call types, weighted averages per country per call types were aggregated from individual operator's tariffs. The subscriptions per operators were used as weights. Below is the equation used to get the weighted averages.

$$AvTariff = \frac{\sum_i^n SO_i T_i}{\sum_i^n SO_i} \dots\dots\dots (1)$$

Where *AvTariff* is a country weighted average tariff for each call type, *SO* is Subscriptions per Operator, *T* is the Nominal tariff per call type per operator and *i = 1,2,3...n* is the number of Operators.

Further more; to make an overall summary, overall country weighted averages were calculated using estimated weights on the merit of call type.

### 3.2.3.3 Testing of Significant Difference of Tariffs

It is obvious that tariffs differ from one call type to another within the same country. Also, differences of the same call type between one country and another are expected. To measure whether these differences are significant, a T-Test and ANOVA Test were used to respectively test differences within the county and between countries. A confidence level of 95% was used and assumption of normality was checked for both tests.

### 3.2.3.4 Calculation of Effective Tax and Effective Tariffs

Effective or Payable Tax is tax paid by a consumer when making a call. The tax is composed of Value Added Tax (VAT) and Excise Duty and is paid by the consumer through a prepaid recharge voucher of any denominations.

The following mathematical equation as used by Revenue Authorities to calculate effective taxes paid by consumers was used. The derivation is built from nominal tax set by government of the respective countries.



$$ET = ED + ED \times VAT + VAT \dots\dots\dots (2)$$

Where **ET** is Effective tax, **ED** is Excise Duty and **VAT** is Added Tax,

Effective Tariff is a price of one unit of air time including taxes. Since the tariffs collected were nominal ones, that is, tariffs without taxes, it was necessary to convert them to Effective tariffs in order to show the burden borne by consumers. Below is a mathematical equation used by Revenue Authorities to calculate effective tariffs.

$$T_2 = T_1 \beta \dots\dots\dots (3)$$

Where  $T_1$  is Nominal Tariff and  $T_2$  is an Effective tariff and  $\beta$  is a **Tax Factor** and is given by  $(1 + ED)(1 + VAT)$ . This 3 is used to calculate the Effective Tariffs shown in

**Annex 2**

**3.2.3.5 Calculation of Actual Air Time-Value and Minutes**

The Actual Air Time-Value is an amount of money left for a consumer after tax. The Actual Air Time-Value shown in figure12 were calculated by taking a difference between face value of recharge voucher of 5,000/= TShs and Effective Tax of that recharge voucher using equation below;

$$ATValue = 5,000 - 5,000ET \dots\dots\dots (4)$$

Where **ATValue** is Actual Air Time Value

On the other hand, Actual Air Time-Minutes are the actual minutes used by a consumer when making a call and were calculated by dividing Actual Air Time Values by nominal Tariffs, that is;

$$ATMinutes = \frac{ATValue}{T_1} \dots\dots\dots (5)$$

Where **ATMinutes** is Actual Air Time Minutes

The equations 1 to 5 were therefore used as processing and analysis tools to arrive into different findings as reported in chapter 4 of this report.

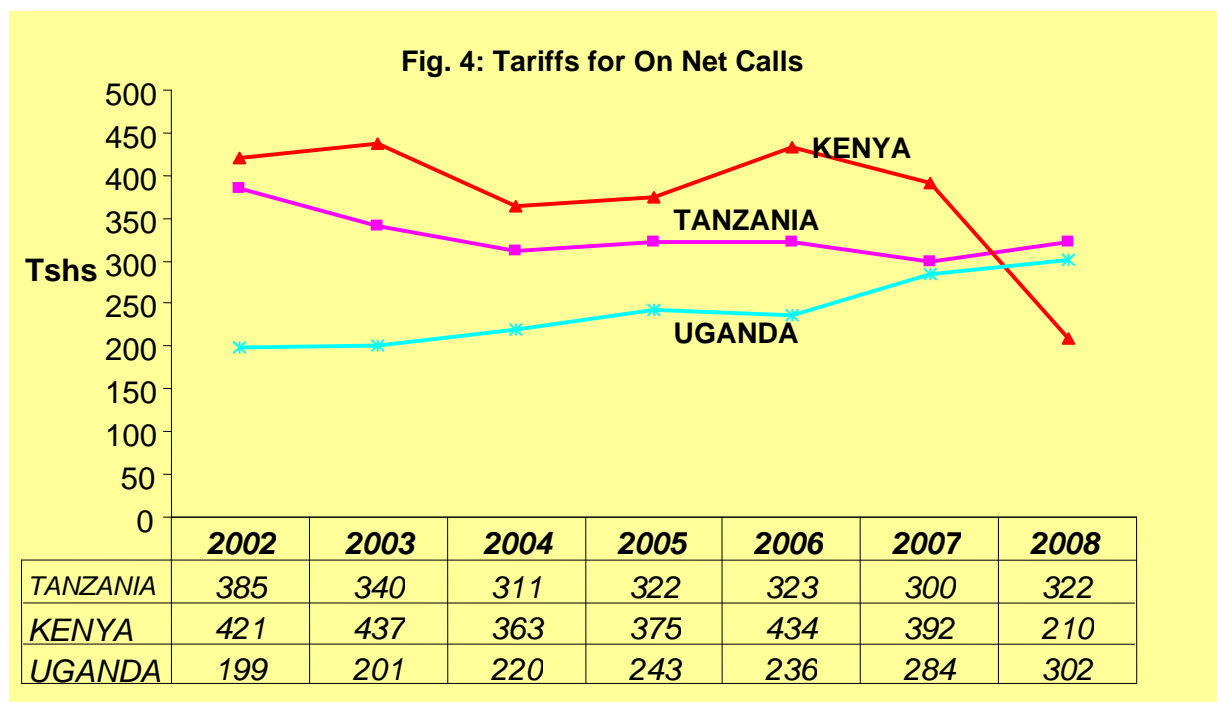
## 4.0 COMPARATIVE ANALYSIS

### 4.1 Tariff Trend

To give the real picture of what the consumers of the three countries actually pay for voice telephone calls, the nominal tariffs as shown in annex 1 were converted to effective tariffs (Tariffs with taxes) using equation 3 and the results are shown in annex 2. These are real costs borne by consumers when making calls. Below are detailed comparative descriptions of the trend of effective tariffs for different call types from 2002 to 2008.

#### 4.1.1 Tariffs for On Net Calls

The trends of the Tariffs for On Net Calls from 2002 to 2008 are as depicted in figure 4 below. These are costs incurred by the consumer when making calls within the same network. As shown in the figure, the pattern of trend for Tanzania and Uganda is somehow steady but different. While the trend for Tanzania show a gradual dropping and rising pattern from time to time, Uganda show a steadily and gradual rising pattern.

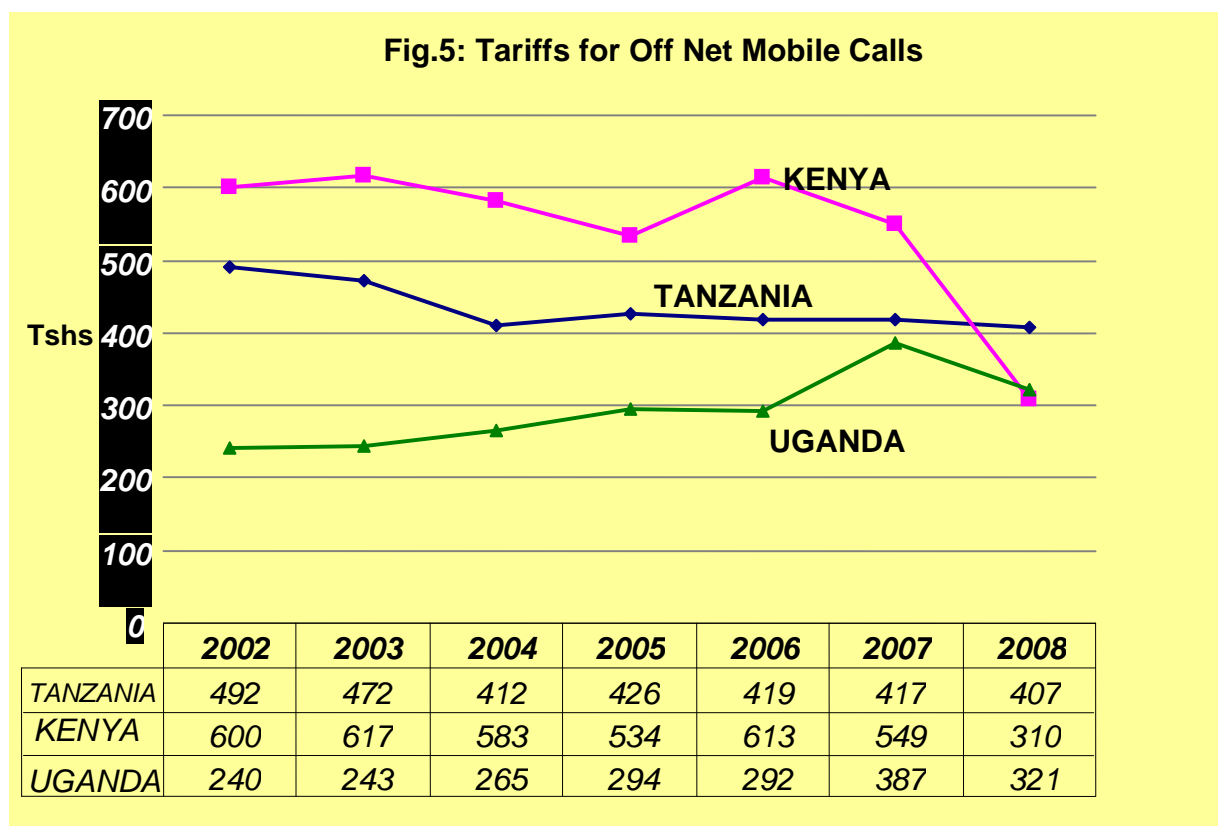


On the other hand, Kenya show a different trend pattern whereby there is unsteady sharp rise and fall through out. There is unusual fall pattern in the year 2008 where the tariff fall from 392/= Tshs to 210 Tshs.

In general, over time except in 2008, Kenya had been very expensive for On Net Calls as compared to Tanzania and Uganda. However, a sharp drop to 210/= Tshs in 2008 makes Kenya the cheapest and Tanzania the most expensive (322/= Tshs) followed by Uganda (302/= Tshs).

#### 4.1.2 Tariffs for Off Net Mobile Calls

Tariffs for calls to other mobiles networks are higher than for On Net Calls in all three countries as shown in figure5. This fact is expected due to interconnection costs adding up to total costs which directly affect the tariffs.



Unlike Uganda and Tanzania, the pattern of the trend for Kenya tariff is fuzzy, moving up and down over time but finally show a sharp fall in 2008. There is somewhat similar pattern for Tanzania and Uganda, except in 2007 and 2008 where Tariff in Uganda moved up and down sharply respectively.

During the period between 2002 and 2006 the tariffs for Kenya showed a cyclical trend, which was followed by a sharp fall of about 50% from Tshs 613 in 2006 to 310/= Tshs

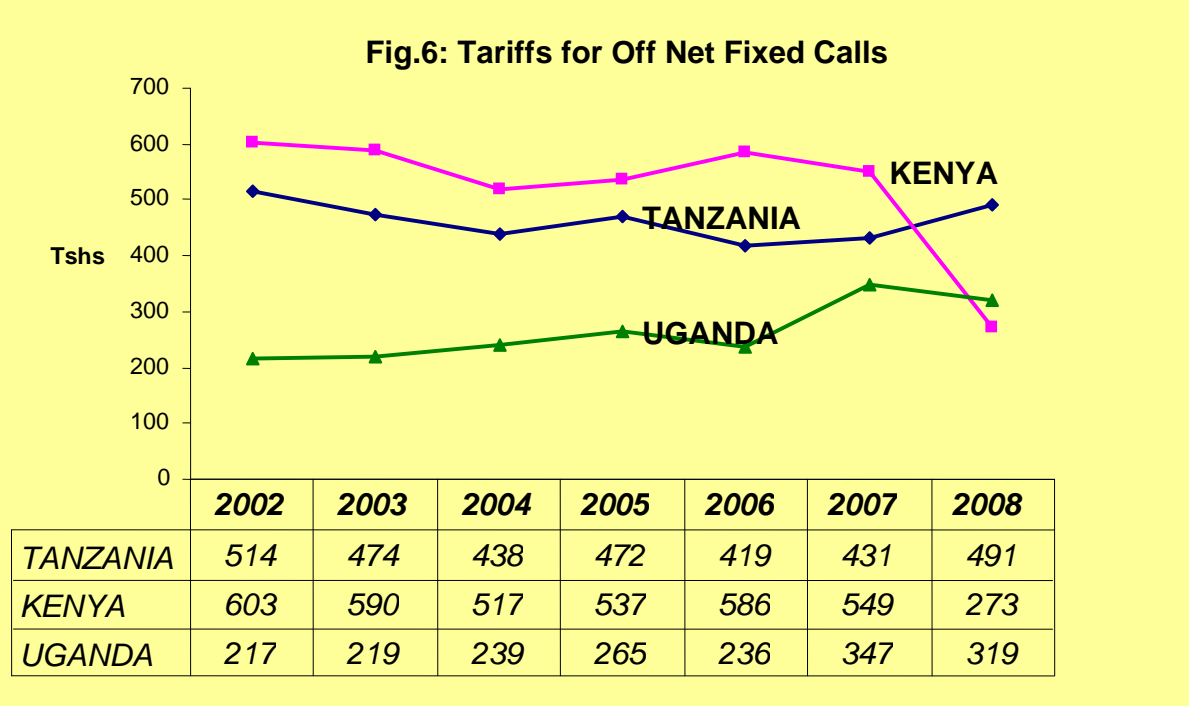
in 2008. Tanzania also exhibits a declining trend with a drop in the first two years from 492/= TShs. in 2002 to 412/= TShs in 2004; there after maintained stable tariff as a result of TCRA intervention through Interconnection determination No.1 of 30<sup>th</sup> September, 2004 and Interconnection Determination No.2 issued 2007 interconnection rates. As usually, Uganda exhibited a gradual increase in tariffs except for 2007 when tariff increased to 387/= TShs followed a fall to 321/= TShs in 2008.

As from the figure above, Kenya again was most expensive all over from 2002 to 2007 where a sharp drop from 549/= Tshs to 310/= Tshs made it cheapest than Tanzania (407/=Tshs) and Uganda (321/=Tshs). Tanzania again led by being most expensive in 2008.

#### **4.1.3 Tariffs for Off Net Fixed Calls**

These are costs for making calls from mobile network to fixed network and they are depicted in figure6 below. The figure shows almost similar pattern as the other two, On Net and Off Net Mobile Calls, showing that there is a similarity in tariff composition within the countries.

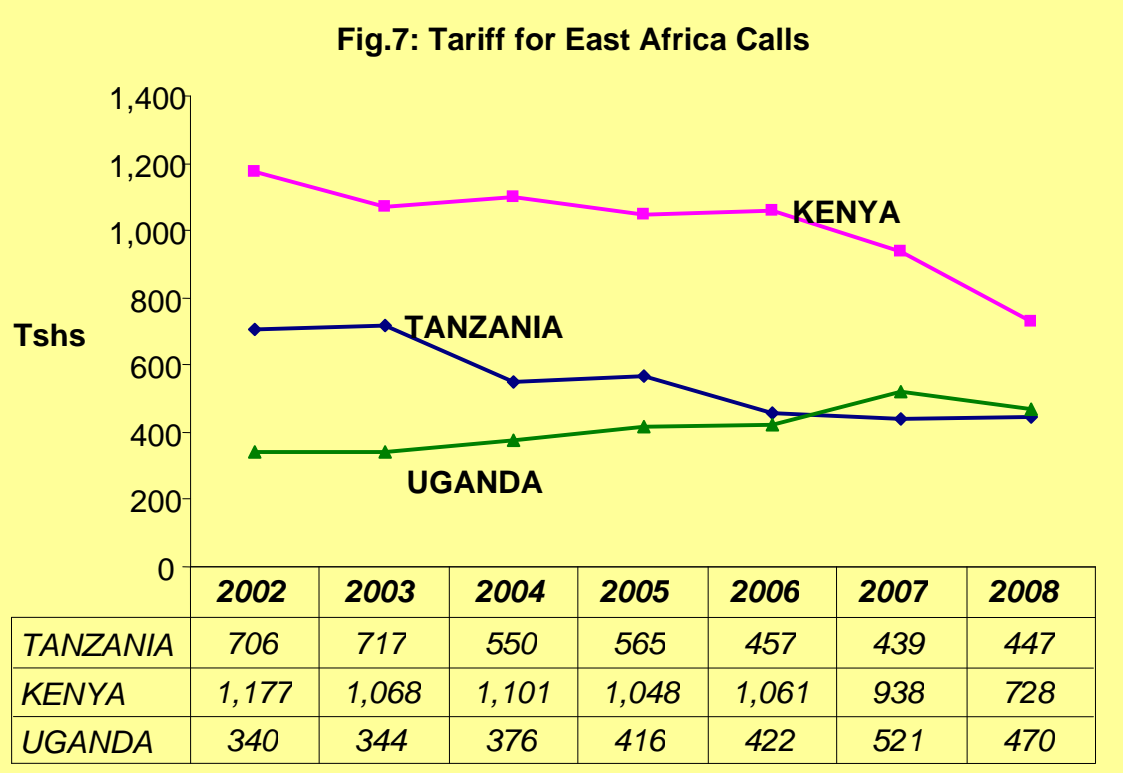
However, a close examination of the relationship between the tariffs for Off Net Mobile and Off Net Fixed calls reveals abnormal phenomena for Tanzania. While in Kenya and Uganda Off Net Fixed Calls are cheaper than Off Net Mobile calls, in Tanzania it is opposite. Off Net Fixed calls are more expensive than Off Net Mobile calls.



The figure further shows that Kenya had been very expensive compared to Tanzania and Uganda for the period from 2002 to 2007 when it dropped sharply from 549/=Tshs in 2007 to 273/=Tshs in 2008. While Uganda remained cheaper than the counterparts for the whole period, Tanzania changed to be most expensive in 2008 when it raised to 491/= Tshs from 431/=Tshs of 2007.

**4.1.4 Tariffs for East Africa Calls**

Tariffs for making calls across the border in East Africa have different trend pattern as compared to within the countries. The trends as shown in figure7 show a down fall for Kenya and a gradual raise for Uganda. The pattern for Tanzania is indistinct; showing a raise and a fall from time to time.



Looking at the amount of the tariffs, Kenya remained most expensive throughout the time period followed by Tanzania up to 2006 after which it become cheaper than Uganda which was cheapest from 2002 to 2006.

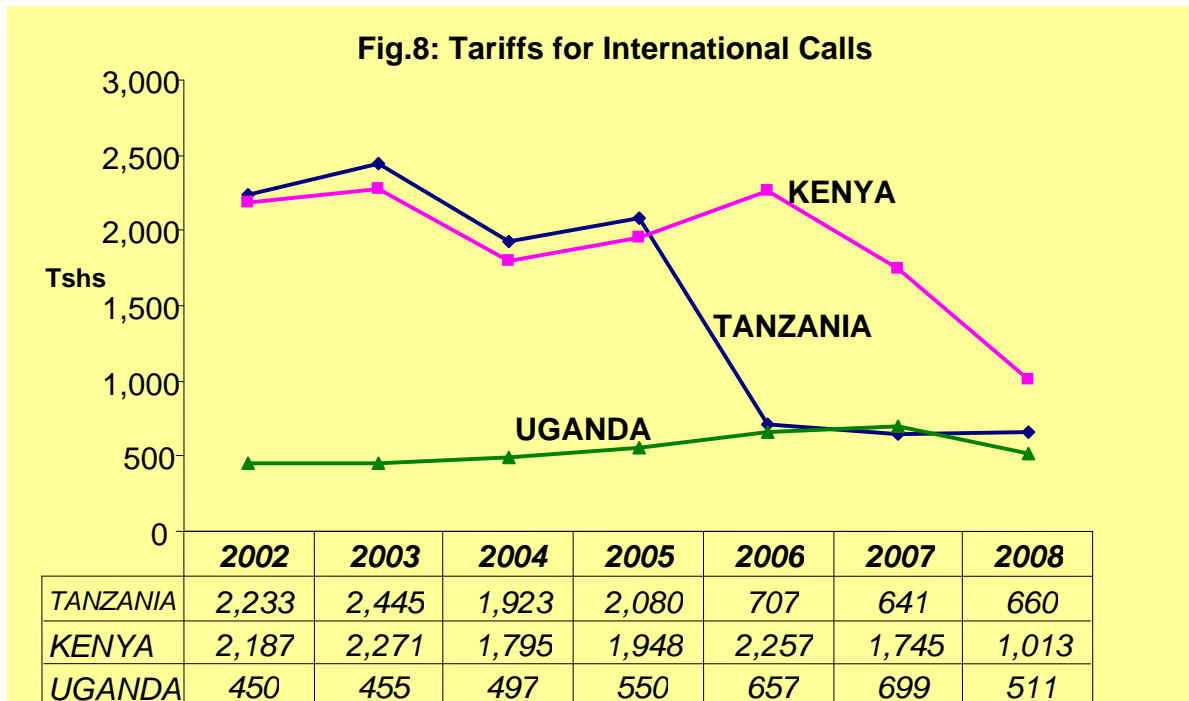
However, It is imperative to note the tariff in Kenya continued to fall drastically from TShs. 1177 in 2002 to TShs.728 per minute in 2008, presenting a dropped of 38%. Tanzania tariffs declined steadily from TShs. 704 in 2002 to TShs. 447 per minute in 2008.

Uganda was the cheapest from 2002 to 2006, albeit of the gradual increase from 340/=Tshs in 2002 to 470/= Tshs in 2008. By end of 2008 Kenya was still far expensive compared to Tanzania and Uganda by 251/= Tshs and 258/= Tshs per minute respectively

**4.1.5 Tariffs for International calls**

The trend for International Tariffs is shown in figure8. There is a raise and fall in the first three years for Kenya and Tanzania after when a sudden decrease of tariff was experienced. In Tanzania there was sudden decrease in 2005 from 2,080/=Tshs to

707/=Tshs in 2006 which gradually decreased further to 660/=Tshs in 2008. In Kenya the drop started in 2006 from 2,257/=Tshs to 1,013/=Tshs in 2008. Uganda gradually moved up 450/=Tshs in 2002 to 699/=Tshs in 2007 after which it went down to 511/=Tshs in 2008.



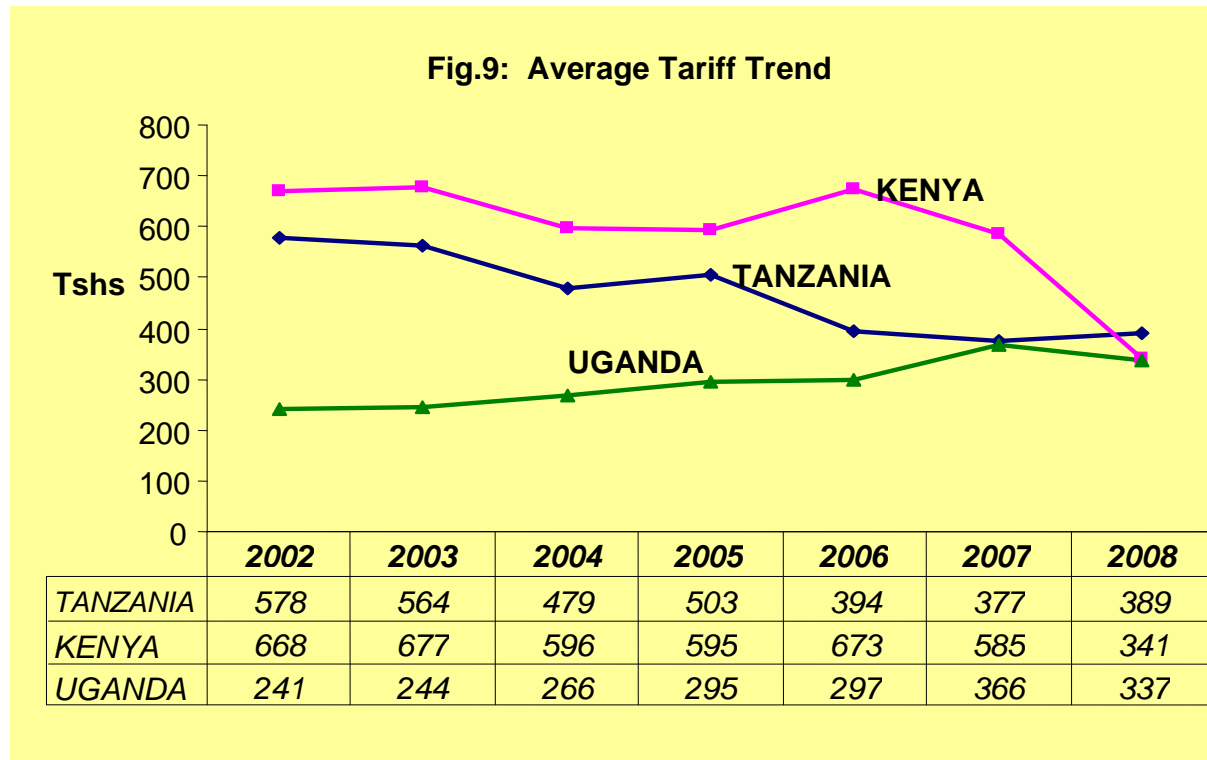
Unlike other call types, International Calls were expensive in Tanzania up to 2005 when there was unusual sudden fall from 2,080/=Tshs to 707/=Tshs in 2006. After this year, Kenya became the most expensive as compared to counterparts. Uganda maintained being the cheapest except in 2007 (699/=Tshs) when it was overtaken by Tanzania (641/=Tshs).

#### 4.1.6 Average Tariffs Trend

The overall average tariff trend, which combines all the five call types for the three countries is shown in figure9 below. The figure shows clearly that average tariff for voice telecommunication services for Kenya and Tanzania have continued to decrease over time throughout the entire period under review. On the other hand the pattern of tariff trend for Uganda has been increasing gradually over time.

Looking at the figur, it is obvious that Kenya was the most expensive country since 2002 to 2007 as compared to counterparts. While Tanzania was second expensive

country from 2002 to 2007, in 2008 become expensive than Kenya, Uganda remained cheapest throughout the time period.



In view of the findings from the trend analysis it is confirmed that the concerns, queries and complaints raised by users of voice telecommunication services in Tanzania that it is more expensive to make voice telephone call in Tanzania than it is in the neighboring East African Countries (Kenya, Uganda,) are true for the year 2008 only. Before this year, from 2002 to 2007 on average, Tanzania was cheaper than Kenya but more expensive than Uganda.

#### 4.2 Tariff Composition

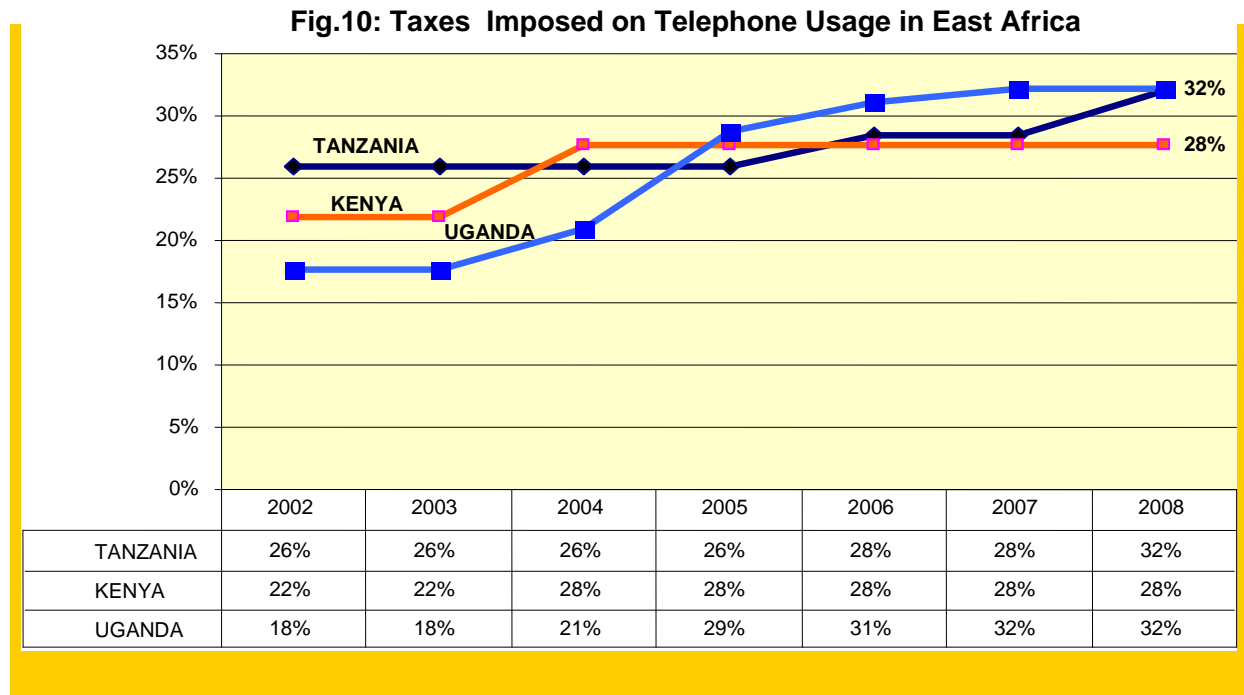
There is a clear difference on how Operators of Mobile networks and Consumers of telecommunication services view the tariff for voice telephone services. From the perspective of operators, tariff is the amount of money charged per minute to consumers for making telephone call. The amount is composed of production cost plus profit margin. Taxes imposed on airtime are not considered directly in their tariffs because they belong to the Government. However, from consumer's perspective tariffs is the amount of money they pay for making telephone calls. The amount paid includes taxes levied on airtime.



There are a number of taxes imposed in the communication sector; however, the interest of this study was on taxes that have effect in the cost of making telephone calls because are imposed on the usage of voice telephone services directly. In addition to Value Added Tax (VAT), all the three East Africa states also impose sector specific tax, Excise Duty on mobile usage. Operators of mobile networks consider themselves as tax collecting agents for Government and hence the entire tax burden (VAT and Excise Duty) are passed on to the consumers thus making voice telephone services more expensive.

It should be noted that only 16 countries world wide impose Excise Duty on usage of telecommunication services and only seven countries in Africa including Kenya, Tanzania and Uganda (Doloitte, 2006).

Figure10 below shows the evolution of direct taxes on voice telecommunication services.

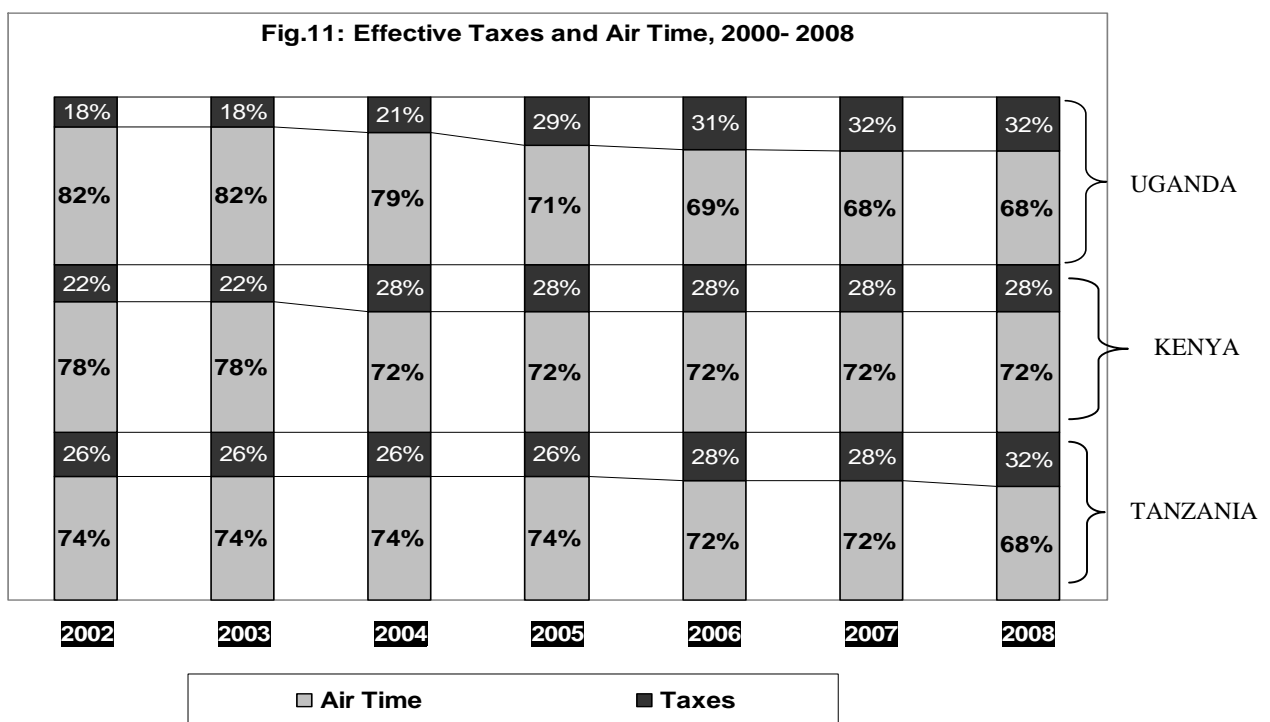


It is also important to distinguish between Nominal Tax and Effective Tax. Nominal Tax is the rate of tax announced by the Government, while Effective Tax is the actual amount of money that consumers of telecommunication services pay. The difference is

due to the way the Tax Authorities calculate the tax payable. For example, the VAT and Excise duty for Tanzania is 20% and 10% respectively; therefore, the total nominal tax is 30%. However, the Tax Authorities calculate the payable tax differently. First Excise Duty is calculate as a percentage on airtime, and then VAT is determined as a percent of the sum of airtime and excise duty. In other words VAT is imposed on both airtime and the Excise Duty using Equation 2.

Therefore, tariff for telephone services vary from time to time either by operators increasing their costs and profit margin or by government raising taxes or both. It is however also true that; the amount of Taxes can increase in magnitude automatically (without increasing them) when amount of costs and profit margin are increased.

As it shown in Fig 11 below while the composition of tariff for Kenya has been steady for 5 years from 2004 to 2008 at the rate of 26% for taxes and 74% for air time, after it was increased from 21% taxes and 79% air time, in Uganda and Tanzania tariffs had varying composition from time to time. Uganda’s and Tanzania’s tariff composition had been varying by increasing taxes in different rate until they come to 32% in 2008.



The level of air time received by consumers of Uganda has been decreasing overtime from 82% in 2002 to 68% in 2008 due to increase in tax rates. Similarly in Kenya the

airtime declined from 78% in 2002 to 72% in 2008, while in Tanzania the level of airtime decreased from 74% to 68% in 2008.

In overall, Tanzania had been imposing higher rates of tax at an average of 28% over the time period, while Uganda and Kenya imposed an average of 26% tax rate for the period. This signifies that Consumers in Tanzania had less air time (72%) on average as compared to consumers in Kenya (78%) and Uganda (78%).

From the above fact, one would expect higher tariffs along with higher taxes. However, since the tariffs have been going down for the time period, it is obvious that the operators have been reducing their nominal tariffs from time to time. It is therefore the time for the governments to play their role, to listen to the consumer's outcry requesting the tax decrease as the voice telephone services become a daily necessity and not a luxury.

### **4.3 Tariff Analysis**

This section gives highlights on analysis of tariff differences within a country and between countries. Tariff differences within the country compare the differences of, for each call type and per country, tariffs before taxes and after taxes. On the other hand, the tariff differences between countries compare the differences of tariffs of the same call type between countries.

#### **4.3.1 Tariff Differences Within Country**

It is obvious that VAT and Excise Duty affect Consumers. The question whether these taxes have any significant effect/burden to consumers is therefore very pertinent. To answer the question a T-Test was carried to test whether there is any significant difference between Nominal Tariffs and Effective Tariffs of the three countries. The significance between the two implies that taxes have significant effect/burden on consumers.

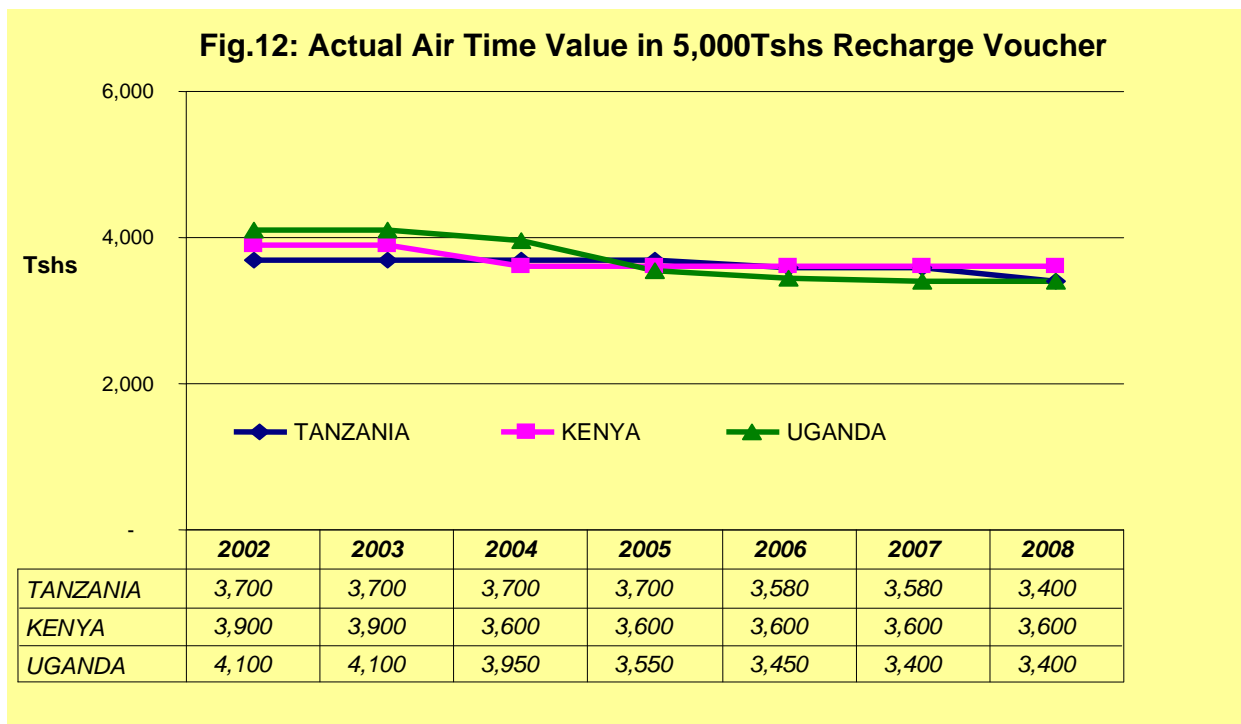
The results of T- tests in all three countries for all call types showed that there is a significant difference between Nominal Tariffs and Effective tariffs within the country,

implying that the respective governments' are inflicting heavy financial burden to consumers by imposing such amount of taxes on airtime. The effects of taxes on air time is illustrated in detail on the following sub-sections

#### 4.3.1.1 Effect of Taxes on Air Time-Value

To see what happen when a consumer puts a recharge voucher and starts making a call, an example of recharge voucher of 5,000/= Tshs denomination is used. Equation 4 is applied and the results are displayed in figure12 below.

The results reveal that consumers use only a part of 5,000/= Tshs when making a call, of which some other amounts are paid to government as taxes (VAT and Excise Duty). The percentages of what goes to government as taxes and what is left for consumer buy air time are shown in figure10.



As it is shown in the figure, the trend of actual amount of money left for a consumer to buy air time from 2002 to 2008 varies between countries. The trends for the countries are of almost similar pattern showing a steady movement from 2002 to 2004 and then a gradual downfall from 2005 to 2008.

Looking at the trend, it obvious that Uganda was leading by having more amounts of Tshs for air time from 2002 to 2004 afterward Tanzania took over for just only one year (2005). Kenya had more amounts of Tshs for air time from 2006 to 2008. In the year 2008, Tanzania and Uganda had the same amounts of 3400/=Tshs for air time, this is due to the fact that they both had the same amount of tax at that particular year.

It is therefore obvious from the figure, that due to taxes, the face value of recharge voucher is reduced to 3,400/=, 3,600/= and 3,400= Tshs for Tanzania, Kenya and Uganda respectively, the actual values used by a consumer to buy air time.

Overtime consumers have been getting less and less airtime for the same amount of money spent to purchase a prepaid recharge voucher of 5000/= Tshs. resulting into consumer complaints on tariffs for mobile telephone services. The differences between 5,000/= Tshs recharge voucher with these amounts gives 1,600/=Tshs, 1,400/= Tshs and 1,600/= Tshs. These are taxes burden shouldered to a consumer in Tanzania, Kenya and Uganda respectively.

#### 4.3.1.2 Effect of Taxes on Air Time-Minutes/Second

As it has been pointed out, the amount of money left for the consumer after taxes is actually used to buy air time in minute or seconds. The amount of minutes varies according to call types are shown in table2 for 5,000/=Tshs recharge voucher.

**Table2: Actual Minutes for a 5,000 TSHs Recharge Voucher**

	2002	2003	2004	2005	2006	2007	2008
<b>(a) On Net Calls</b>							
TANZANIA	12	14	15	14	14	15	14
KENYA	11	11	13	12	11	12	22
UGANDA	24	24	22	19	19	16	15
<b>(b) Off Net Mobile Calls</b>							
TANZANIA	9	10	11	11	11	11	11
KENYA	8	8	8	9	8	8	15
UGANDA	20	20	18	16	15	12	14
<b>(c) Off Net Fixed Calls</b>							
TANZANIA	9	10	11	10	11	11	9
KENYA	8	8	9	9	8	8	17
UGANDA	22	22	20	17	19	13	14
<b>(d) East Africa Calls</b>							

TANZANIA	7	7	8	8	10	10	10
KENYA	4	4	4	4	4	5	6
UGANDA	14	14	13	11	11	9	10

**(e) International Calls**

TANZANIA	2	2	2	2	6	7	7
KENYA	2	2	3	2	2	3	5
UGANDA	11	11	10	8	7	6	9

**(f) AVERAGE**

<b>TANZANIA</b>	<b>8</b>	<b>8</b>	<b>10</b>	<b>9</b>	<b>12</b>	<b>12</b>	<b>12</b>
<b>KENYA</b>	<b>7</b>	<b>7</b>	<b>8</b>	<b>8</b>	<b>7</b>	<b>8</b>	<b>13</b>
<b>UGANDA</b>	<b>20</b>	<b>20</b>	<b>18</b>	<b>15</b>	<b>15</b>	<b>12</b>	<b>13</b>

Uganda had many minutes for consumer to make calls in all call types from 2002 to 2006 (See table2) above. In 2007 Tanzania had more minutes for East Africa Calls than counterparts. Kenya throughout had fewer minutes than Uganda and Tanzania except in 2008 for On Net calls, Off Net Mobile calls and Off Net Fixed calls where there was an abrupt change as shown in the table above .

To reveal allegorically the significant burden added to consumers, a recharge voucher of 5,000/=Tshs is considered using On Net calls of 2008. The results of analysis are depicted in table3 below.

**Table3: Tax Effect on Air time**

	<b>WITH TAXES</b>	<b>WITH VAT ONLY</b>	<b>WITHOUT TAXES</b>
TANZANIA	14	16	21
KENYA	22	26	30
UGANDA	15	18	22

Looking at the above results, it is obvious that if there is no tax a consumer would use 5,000/= Tshs to buy 21, 30 and 22 minutes in Tanzania, Kenya and Uganda respectively. However with taxes, He/She uses the same amount to buy minutes as shown in column 2 of the table, which in fact would be bought by only 3,400/= Tshs, 3,600/=Tshs and 3,400/= Tshs respectively if there were no taxes. If there were no Excise Duty 5,000/= Tshs would be able to buy 16 minutes, 26 minutes and 18 minutes for Tanzania, Kenya and Uganda respectively. The introduction of Excise Duty on airtime further reduces the amount of minutes to 14, 22 and 15 minutes for Tanzania, Kenya and Uganda respectively. This means that, imposing Excise Duty (luxury tax) on airtime adds more burden to consumers of voice telecommunication services.

### **4.3.2 Tariff Differences Between Countries**

It has been seen in section 4.1 that Effective Tariffs for different call types differ from one country to another. Looking at annex 2, it is also obvious that the Nominal Tariffs are different between countries for all call types. In order to see if these differences are significant, ANOVA test is carried out on Nominal Tariffs and Effective Tariffs.

The results of the ANOVA tests have shown that there are significant differences in both Nominal and Effective Tariffs between countries for each call type. There are many factors that may be attributed to for Nominal Tariffs to differ significantly across the countries; but the major one is investment in infrastructure building which due to different country land terrain/topography and area the costs differ from one country to another. However, the truth on this argument needs an evidence backed by a cost study on mobile services.

Since the taxes rates for the three countries are almost similar, the significant difference of the Effective Tariffs is expected. Note that the Effective Tariffs is calculated by imposing taxes on Nominal Tariffs.

These results confirm further that, for the year 2008, Tanzania have significant different and higher tariffs than those of Kenya and Uganda. On the other hand, for the rest of years Kenya had significant higher tariffs than the rest of the two countries.

## 5.0 KEY FINDINGS AND RECOMMENDATIONS

The main objective of the study was to make consumers and stakeholders of the voice telephone services particularly in Tanzania understand the facts behind tariffs and their compositions. The understanding will prove or disprove what was believed before; that it is very expensive to make telephone call in Tanzania than in any other country in East Africa.

To fulfill the main objective, the study here below summarizes the key findings and recommendations to be shared by various stakeholders including the government(s).

### 5.1 Key Findings

As a result of comparative analysis on tariff trends and their composition in Tanzania, Kenya and Uganda, the study has come up with the following key findings

- In 2008 it was relatively more expensive to make voice telephone calls on On- Net, Off- Net Mobile and Off-Net Fixed in Tanzania than in Kenya and Uganda. On the same year, Tanzania was cheaper for East Africa Calls than Kenya and Uganda
- For the time period of 2000-2007, it was relatively more expensive to make all call types in Kenya than any other country. On the same time period Uganda was comparatively cheaper than any other country.
- Tanzania had higher tax rate on average for the voice telephone services over the period than Kenya and Uganda
- Tax rates for voice telephone in all three countries had been increasing while the Tariffs had been decreasing.
- The difference of tariffs on the same call type between countries is **significant** at 95% confidence level.
- The difference of Nominal Tariffs (tariffs before tax) and Effective Tariffs (tariffs after tax) is also **significant** at 95% confidence level implying that taxes have significant effect/burden to consumers



## **5.2 Recommendations**

### **5.2.1 Government should revise the formula for calculation of Effective Taxes;**

The Authorities should consider using Nominal Tax rates in calculating the amount of taxes to be paid by consumers. That is both the Excise Duty and VAT should be calculated as a percentage of the Nominal Tariff. Compounding of taxes, that is, imposing VAT on the sum of Nominal Tariff and Excise Duty adds more burden to consumers.

For that sake, it is strongly recommended for the government to calculate the Effective Tax as follows:

$$\text{Effective Tax} = \text{Price} \times \text{Excise Duty Rate} + \text{Price} \times \text{VAT}$$

**and NOT**

$$\text{Effective Tax} = \text{Price} \times \text{Excise Duty Rate} + (\text{Price} \times \text{Excise Duty Rate}) \times \text{VAT}$$

Using the recommended formula will reduce the tax in Tanzania for example, as it is now, from 32% to 30%.

### **5.2.2 As Operators are lowering Nominal Tariffs, government should also lower the taxes especially Excise Duty.**

The decision of Government to impose Mobile specific taxes, excise duty (luxury tax) in addition to VAT, may counteract the efforts of mobile network operators who have been reducing their tariffs. This discourages the take up and usage of mobile Communications services. The government should consider reducing or scrapping out Excise Duty on airtime because telecommunication is not a luxurious good/service

This recommendation is based on the key finding of this study and study done by Deloitte commissioned by GSM Association in 2006. In page 4 of the Deloitte report one of the key finding is: "In Kenya and Tanzania, lowering Excise Duty will be revenue positive for governments. This is due to the fact that tax reduction increases consumer spending and hence more government revenue.

Higher consumer spending will act as an incentive for operators to invest more and more leading to market expansion and hence more subscriptions which in turn will further reduce tariffs.

### 5.2.3 A Cost study should be conducted to determine methodology used by operators to calculate their tariffs

The Cost study will help the Regulators to regulate price for the interest of protecting consumers.

## 6.0 ANNEXES

### 6.1 Annex 1: Tariffs Trends without Taxes in TShs from 2000-2008

Years	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>On Net Calls</b>									
TANZANIA	251	278	305	270	247	256	251	233	244
KENYA	351	334	346	359	285	294	340	307	164
UGANDA	147	152	169	171	181	189	180	215	229
<b>Off Net Mobile Calls</b>									
TANZANIA	289	321	390	375	327	338	326	325	308
KENYA	513	536	492	507	457	419	480	430	243
UGANDA	178	184	204	206	219	228	223	293	243
<b>Off Net Fixed Calls</b>									
TANZANIA	447	499	408	376	348	374	326	335	372
KENYA	485	476	495	484	406	421	459	430	214
UGANDA	160	166	184	186	198	206	180	263	241
<b>East Africa Calls</b>									
TANZANIA	600	671	560	569	437	449	356	342	338
KENYA	988	1,013	966	877	863	822	832	735	571
UGANDA	252	261	289	292	311	323	322	394	356
<b>International Calls</b>									
TANZANIA	2,113	2,337	1,772	1,940	1,526	1,651	551	499	500
KENYA	1,727	1,651	1,796	1,865	1,407	1,527	1,769	1,367	794
UGANDA	333	344	382	386	410	427	501	529	387
<b>Average</b>									
TANZANIA	<b>430</b>	<b>478</b>	<b>459</b>	<b>448</b>	<b>381</b>	<b>399</b>	<b>307</b>	<b>293</b>	<b>295</b>
KENYA	<b>554</b>	<b>548</b>	<b>548</b>	<b>556</b>	<b>467</b>	<b>466</b>	<b>527</b>	<b>459</b>	<b>267</b>
UGANDA	<b>178</b>	<b>185</b>	<b>205</b>	<b>207</b>	<b>220</b>	<b>229</b>	<b>227</b>	<b>277</b>	<b>255</b>

**6.2 Annex 2: Trend of Tariffs with Taxes in TShs from 2000-2008**

Year	2002	2003	2004	2005	2006	2007	2008
<b>On Net Calls</b>							
TANZANIA	385	340	311	322	323	300	322
KENYA	421	437	363	375	434	392	210
UGANDA	199	201	220	243	236	284	302
<b>Off Net Mobile Calls</b>							
TANZANIA	492	472	412	426	419	417	407
KENYA	600	617	583	534	613	549	310
UGANDA	240	243	265	294	292	387	321
<b>Off Net Fixed Calls</b>							
TANZANIA	514	474	438	472	419	431	491
KENYA	603	590	517	537	586	549	273
UGANDA	217	219	239	265	236	347	319
<b>East Africa Calls</b>							
TANZANIA	706	717	550	565	457	439	447
KENYA	1,177	1,068	1,101	1,048	1,061	938	728
UGANDA	340	344	376	416	422	521	470
<b>International Calls</b>							
TANZANIA	2,233	2,445	1,923	2,080	707	641	660
KENYA	2,187	2,271	1,795	1,948	2,257	1,745	1,013
UGANDA	450	455	497	550	657	699	511
<b>Average</b>							
TANZANIA	578	564	479	503	394	377	389
KENYA	668	677	596	595	673	585	341
UGANDA	241	244	266	295	297	366	337

**6.3 Annex 3: Exchange Rate**

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
US\$ Exchange rate	800.4	876.4	966.6	1,038.6	1,053.3	1,129.6	1,272.7		

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