

# CHALLENGES OF THE SWITCHOVER FROM ANALOGUE TO DIGITAL BROADCASTING

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## ABSTRACT

The digital migration process began in early 2000 when a number of countries from the International Telecommunication Union (ITU) Regions 1 and 3 including Europe, Africa, Middle East expressed interest to introduce digital broadcasting<sup>i</sup>, but because of different challenges some of the developed and developing countries failed to meet the ITU deadline of 17<sup>th</sup> June, 2015 and taking advantages of extension time of 17<sup>th</sup> June, 2020. The developed countries failed to fulfill the European Union recommendations of switching off analogue signals on 1<sup>st</sup> January, 2012<sup>ii</sup> although it published a Communication on accelerating the transition from analogue to digital broadcasting, which urged member states to bring forward the likely date of analogue switch-off and called for a coordination builds on the 2003 Communication on the transition from analogue to digital broadcasting<sup>iii</sup>. The United Nations agreed with ITU the deadline for digital switch over to all member states to be on 17<sup>th</sup> June, 2018. While in the developing countries the East African Community Countries (EAC) did not abide with the discussing deadline even though on 4<sup>th</sup> September 2014 the EAC countries met at Arusha discussing the issue of the deadline of digital switch-off and decided that all EAC member states should complete their process of digital switchover before 17<sup>th</sup> June, 2015. And SADC members did not meet the deadline even though they met and decided that on 31<sup>st</sup> December, 2013 all member states should switch off analogue system and switchover digital system.

## INTRODUCTION

The process of digitalization of broadcasting is ongoing through the world<sup>iv</sup>. The International Telecommunications Union (ITU) has set 2015 as the year for switch-off of analogue television broadcasting in the region in which Europe is included<sup>v</sup>. Many countries proudly announce the launching of their digital TV services but they frequently have very vague plans about analogue switch off (ASO)<sup>vi</sup>. In 2001, the International Telecommunication Union, the UN body concerned with information and communication matters through its regional organizations for Europe and Africa sought to come up with more efficient usage of analogue TV signals<sup>vii</sup>. That is both the very-high and the ultra-high frequencies, VHF and UHF respectively. Countries opted to use digital transmission in place of the analogue signals for TV broadcasting<sup>viii</sup>. In 2004, the ITU regional conference met to establish the technical standards for digital broadcasting and set a second meeting for 2006 with countries being given homework to implement in the period in between the two meetings<sup>ix</sup>.

## **CHALLENGES OF THE SWITCHOVER FROM ANALOGUE TO DIGITAL**

The switchover from analogue to digital for individual countries varies because of different challenges that the developing and developed countries encounter, example in Burundi the reasons of the cross- border signal interference, restrictive media regulations, lack of internet and related connectivity infrastructure to support multimedia services and lack of production facilities made this county to fail to fulfill the ITU commitments on 17<sup>th</sup> June, 2015. The challenges of digital switchover is explained by the Generic Group in 2004 when they did a research and found that for some people DTV is too confusing or just too difficult to use, for others, converting their television sets seems to incur a significant financial investment that they are not prepared to take<sup>x</sup>, also the writer Mr. Nathan Lwehabura<sup>xi</sup> explained the challenges that are facing digital switchover as follows:

*“The challenges faced in the digital migration such as lack of legal instruments for digital migration, high cost of migration roll out, affordability of set top boxes, insufficient local content and poor quality of service and consumer experience”<sup>xii</sup>.*

There are different challenges that existed and continuing to exist in different countries and made that countries not be committed with the ITU digital switchover deadline of 17<sup>th</sup> June, 2015, the writer of this paper explains different challenges that are facing digital switchover like failure to abide with the analogue switch-off (ASO) agreement is among of the challenge that faced and still facing the countries worldwide, most of the European member states agreed the recommendations which were made by the European Commission that the digital switchover should be completed by 1<sup>st</sup> January 2012 and the United Nations agreed on 17<sup>th</sup> June, 2015. At the same time the African countries agreements of switching off analogue signals before 17<sup>th</sup> June, 2015 example SADC and EAC countries agreed before 17<sup>th</sup> June 2015 every member states should complete to switch off analogue signals but all of them failed to fulfill the analogue switch-off agreement. Also the Association of Southern Asian Nations (ASEAN) encouraged member states to adopt the second generation of terrestrial standard (DVB-T2) and complete the digital switchover by 2020 contrary to the ITU recommendations.

Moreover, various countries failed to abide with ITU agreements, they switched off their analogue signals after ITU deadline of 17<sup>th</sup> June, 2015, some of them are Malaysia switched over digital signals on 31<sup>st</sup> December, 2018, Brazil switched over on the year of 2018, Netherlands completed its analogue switched off on 2017, Indonesia completed the switchover digital signals on 24<sup>th</sup> August, 2018, Colombia switched over end of the year of 2018 and Mozambique switched on digital signals on December, 2016.

Time bars is also a challenge of digital switchover from analogue to digital, many developing countries governments and private Medias noticed that the time of transferring its broadcasting system from analogue to digital is very small that is the reason there was a misunderstanding between either one company to another or between government and private media organization. The realities is that, the digital technology started long time ago in the developed countries since 2000 but in the developing countries things are different, the moment developed countries prepared to switchover from analogue to digital, developing countries were in the stage of knowing the knowledge of digital switchover and found an experts of helping them with digital technology.

Time also help the Government and its people to be ready for any change if the responsible government organs educate people about anything new successfully. Before the analogue

switch off and remaining the short period for ITU deadline of 17<sup>th</sup> June, 2015, many countries did not prepare themselves in accordance with time limit. Example in South Africa the meeting of consultations with stakeholders was started on 28<sup>th</sup> October, 2016 behind the ITU deadline of 17<sup>th</sup> June, 2015. Not only the delaying of stakeholders consultations meeting but also in South Africa time was a big challenge because it could not manage to meet the agreements. The South Africa's Department of Communications has said that the country will not meet an agreed June deadline for the switch-off of analogue TV signals<sup>xiii</sup>, in a statement issued yesterday, the communications department said the issue of whether to include an encryption system into set-top boxes (STBs) as part of the switchover has "impacted negatively" on the country's ability to meet the deadline set by the International Telecommunications Union (ITU)<sup>xiv</sup>. "The ITU's agreed deadline for the switch-off of analogue television signals is the 17<sup>th</sup> June 2015 and South Africa will not meet this date," said the Department of Communications<sup>xv</sup>.

In the Country of Kenya time affected this country because it planned to switch off analogue broadcasting one year after the ITU deadline but because of the challenges which faced and needed sufficient time to handle those challenges it failed to change to digital system as it was expected in 2013 but it managed to switchover its digital system on March, 2015. The writer of Migration from Analogue to Digital Television Broadcasting<sup>xvi</sup> says that analogue switch off had been planned to take place earlier, preferably one year, in advance of the international deadline to give sufficient time to handle challenges that may arise, in this regard this process was structured to take place systematically in three phases<sup>xvii</sup>.

Not only the challenges of the time agreed by the ITU that Kenya faced and became failure to switch off its analogue broadcasting on time but also the time of changing its systems of broadcasting from analogue to digital was very controversial between private company and Government. The Royal Media Services, the Standard Media Services and the Nation Media Services are private companies wanted to have extension of time in order to change their systems from analogue to digital. The switch off was not realized after the Consumer Federation of Kenya (COFEK) went to court on December 2012, to restrain the Government and CCK from implementing the plan to switch off on 31<sup>st</sup> December date claiming that it was ill timed<sup>xviii</sup>. COFEK alleged the consumer will be disadvantaged given the unavailability and unaffordable costs of the STBs, it also contented the switch off has been planned at the wrong

time when the country is facing a general election and consumers would be denied the opportunity follow the political campaigns by their leaders<sup>xix</sup>. The three companies by using their lawyer Senior counsel Paul Muite said that we are not going to let this go down and we will be going back to the court. And if we do not get redress in the country we will go all the way to the International Intellectual Property Court in Paris to protect our rights.

After recognizing that the Communication Authority of Kenya required them to switch off their analogue system they decided to file a legal suit to the Supreme Court of Kenya but unfortunately they failed their case and forcefully the Supreme Court of Kenya ordered the continuation of digital switchover as it was earlier planned by the Communication Authority of Kenya (CA). Director General of CA, Francis Wangusi said that they will not come back on the digital platform until they have met certain conditions that the regulator is going to give them<sup>xx</sup>. They switched themselves off, let them remain off but we are going to slap some penalties to them given that, they have done a very serious violation even including withdrawing of their licenses<sup>xxi</sup>.

In Rwanda, the challenges of time also affected that country because set top boxes were not procured on time. Rwanda is the second country in Sub-Saharan Africa after Tanzania to complete the switchover from analogue terrestrial broadcasting and entered into final stage of switchover from analogue to digital terrestrial television since May 2013 following the East African Community commitment. Rwanda struggled to meet its own deadline on 31<sup>st</sup> December, 2012 and 1<sup>st</sup> July, 2014 but because of the challenge which was caused by procurement of set top boxes impediment, in that time the country needed 80,000 set-top-boxes to make the switch off analogue system to digital but suppliers had shipped only 21,000 into the country.

The challenge of time also come upon the country of Chile, although the President submitted the bill of the legal framework for DTTV in October 2008 and announced the deadline of completing the switchover in 2017, the Digital switchover from analogue to digital broadcasting in Chile will be expected to be completed in 2020 because the transition to digital terrestrial television was very slow and it could not manage to switch off analogue signals on 2017.

The challenge of time also faced Uganda because it missed the ITU deadline, because a month left to the deadline of 17<sup>th</sup> June, 2015 the UCC started to fight for the deadline and some major digital TV channels were off on this very late stage and only few areas have received the access of over the air digital television signals and Mozambique failed to switched off analogue signals as it was arranged, even though it started the transition of the switchover from analogue to digital in 2013 and the country of Angola totally failed to meet the ITU deadline of 17<sup>th</sup> June, 2015 because its transition period of switching off analogue signals and switching on digital signals started on 2016, in that time the Angola government created inter-ministerial work group for preparation of setting up an initial pilot project of digital terrestrial television (DTT).

Poverty also was a challenge that faced people of different countries during the transition period of switching off analogue signals, and still facing people from different countries of the world. Many people did not manage to go with change of digital switchover on time, either they managed to have digital television services long time after the switchover from analogue to digital or they totally failed to have those digital broadcasting services.

Some of the countries helped their people to get access of communication by means of free to air or provided to them set top boxes with the aim of having digital broadcasting services examples in Germany all the main German TV channels are free to air, Netherlands offered free of charge in return for access to the rest of spectrum for public service broadcast channels which was being used to offer pay – TV and in South Africa during the transition period the Government provided free set top boxes to more than five million poor television households owners who have valid television license and South African ID and after proving their income. As well as Kenya reduced the price of set top boxes for the purpose of encouraging buy in from all stakeholders.

The challenge of poverty faced the people of Uganda even though it succeeded to switchover its system from analogue to digital in 2015. The challenge of poverty raised disputes between the state and lawyer who filed a suit against government because of the government decision of switching off analogue broadcasting system. On 17<sup>th</sup> June Enoth Mugabi a city lawyer filed an application objecting the hastened switchover<sup>xxii</sup>. The lawyer said that I have decided to go to court after I was aggrieved by UCC's move to migrate from the old analogue way of

signal transmission to digital which demanded me to part with money for subscription in order to watch TV channels<sup>xxiii</sup>.

Commitment of the ITU digital switchover deadline is another challenge that developing and developed countries have before, during and after the digital switchover. The International Telecommunication Union's goal is to fulfill its dream of using digital system to all member states that is the reason of requiring its member states to switchover from analogue to digital broadcasting technology by 17<sup>th</sup> June, 2015. This deadline was set by the Regional Conference of the International Telecommunications Union (ITU) in 2006 Geneva Agreement (GE-06).

The writer of the paper of digital migration<sup>xxiv</sup> says that:

*'..... driving digital migration is the agenda of the developed world and how this impacts on globalization and international regulation. The pressure on African countries to undergo and conclude TV digital migration is linked to a decision made at the United Nations agency, the International Telecommunication Union (ITU). ..... but it is that all African countries have to meet the deadline for finishing the process by 2015.....'*

Lack of digital knowledge and awareness is also a challenge in digital process in many countries, the workers from the offices which have introduced the new system of digital switchover should have effective training in order to cope with the change and develop their capacity building but in many Countries the training programs is ignored and the officers use their experiences of using analogue knowledge. Many countries forgot to save budget for their officers for the purpose of having training of digital change. Carpathia on 10<sup>th</sup> September, 2013 writes about common Migration Challenges Faced by Digital Media Providers by saying that<sup>xxv</sup>:

*"..... IT leaders may want to focus on large-scale migrations with high visibility. However, organizations without prior migration experience should actually start with small migrations, like relatively simple and non-critical functions, to build the experience and process needed to tackle key organizational functions".*

In the side of awareness almost some of the Countries did not take special effort to introduce this digital system to their people on time with the aim of being aware with the introduction and total change from analogue to digital, till the moment of switching off analogue signals of 17<sup>th</sup> June, 2015, some of the citizens did not know even what is digital, and did not know the advantages of using this new system, that is the cause, they did not want to buy new equipment like digital receiver even though they could manage to buy it. The writer of <sup>xxvi</sup> explains about the importance of producing knowledge and awareness that:

*..... awareness, preparation and perspectives in Africa in general. Southern Africa is mainly cited by way of examples. It has been difficult to track information about many other regions. For example, for West Africa information could only source about aspects of digital migration in Ghana, Nigeria, Senegal and Benin. South Africa is a frontrunner in terms of policy and practice for digital migration.....*

Some of the country gave knowledge and awareness to their people by selecting some of regions and forget other regions, example in Kenya the knowledge and awareness were done in Nairobi although there are other urban areas whereby knowledge and awareness of digital broadcasting were no longer existed or even noticed. The writer of <sup>xxvii</sup> says that:

*“The preparations for phased analogue switch – off starting with Nairobi were in place preceded by consumer awareness and publicly across different platforms. With duty waiver in place and increased number of approved STBs, retail prices had drastically come down”.*

In Malawi the challenge of lack of digital knowledge and awareness was very high because although on 17<sup>th</sup> June, 2015, Malawi and other countries were obliged to switchover their broadcasting system from analogue to digital, unfortunately when you were moving around the green city of Mzuzu you could see the electronic traders still selling analogue television antennas. Samuel Nyirendi operates an electronic shop in the heart of city where he was still selling television sets and analogue television antennas among other items<sup>xxviii</sup>. This shows that there was an information gap on digital switchover. Nyirenda says he only heard about digital switchover last month on a radio program<sup>xxix</sup>, he said that:



*“I import analogue antennas from South Africa and sell them in Mzuzu, and he sells about seven or more antenna a day at a price of K2 500: he continued to say though I know that they will phase out in a month’s time, I let my customers buy them, I cannot stop them. I know most of them are ignorant about digital migration that is why they are still buying them .... I still have them in stock, and if I tell people that they will soon phase out, then they won’t buy and I will lose out”.*

This challenges of lack of digital knowledge also faced in the country of Uganda when the UCC ordered the broadcaster to switch off analogue system without conserving that the people of Uganda did not have information about the digital changes. In News@zikusooka which is written in 4<sup>th</sup> January, 2015<sup>xxx</sup> explains this challenges that:

*“..... there is practically no information on how far the roll out of digital TV is going. Instead Ugandan consumers are being urged to buy analogue-to-digital TV converter boxes that are certified by UCC. But what are consumers finding out after they purchase these boxes?”.*

Besides the media Ads from Uganda communications Commission (UCC) and jamboree marketing by pay –TV subscription providers, there is practically no information on how far the roll out of digital TV is going, instead Ugandan consumers are being urged to buy analogue to digital TV converter boxes that are certified by UCC. On 14<sup>th</sup> February, 2014 News@jzikusooka writes that:

*As for consumer awareness, there are very few Ugandans who are aware of the migration process. Uganda Communications Commission (UCC) the body in charge of steering the digital TV migration, has in the past few months been running Ads on local TV, but it looks like even those Ads, have not had a charge in the awareness and preparedness of the masses.*

Lack of digital knowledge also was a challenge in Swaziland, this is shown when the Acting Director of Information and Media Development Annelisa Stoffels said that, they have decided to inform public about the digital switchover through road shows because the concept of Digital switchover is still new to Swaziland and the citizen were affected by that situation. She

continued to say that also the Ministry was running a competition to get the public taking about digital switchover from analogue to digital on national newspapers, the Times of Swaziland and the Swazi Observer.

Absence of effective policies, rules and regulations is the challenge of the switchover from analogue to digital. The country should focus on either to establish or to improve policy, rules and regulations of broadcasting the moment when the countries decided to follow the International Telecommunication Union agreement of changing their broadcasting system from analogue to digital. They should establish or improve their policy, rules and regulations for the purpose of safeguarding people of their country. This Digital Switchover Policy, rules and regulations therefore, sets the guidelines of the switchover from analogue to digital to any country's broadcasting sector from analogue to digital terrestrial broadcasting. If there were policy, rules and regulations during the transition period the country could switch off analogue broadcasting television transmission on time and met the International Telecommunications Union's (ITU) deadline of 17<sup>th</sup> June, 2015.

The write of <sup>xxx</sup><sup>xi</sup> said that when all countries in Africa and Europe (Region 1) are expected to have migrated to digital terrestrial broadcasting, the time to migrate to digital broadcasting technologies is here with us and hence we have to embrace it as a major step in improving our people's lives. This policy is a bold step in our quest to achieve that goal. I, therefore, appeal to members of the public to support the implementation of this policy to enable a smooth transition to meet our analogue switch off date.

It seems that many countries did not have digital broadcasting rules and regulations, that rationale make people of the country could not claim before the law for the infringement either of their rights of access of local and universal information or other rights. Example in the country of Kenya the three private companies when they had dispute about the switchover from analogue to digital with the government they couldn't either look after the rules and regulations or the policy of the digital switchover system but the Supreme Court when providing its ruling it was relied only on the ITU agreements. The three companies are The Royal Media Services, The Standard Group and Nation Media Group filed a Petition in the High Court (HC Petition 557 of 2013) seeking to stop the analogue switch off on 11<sup>th</sup> December 2013, after the CCK sent the requisite statutory notices to affected analogue TV broadcasters requiring them to

switch off analogue signals on 13<sup>th</sup> December, 2013. The High Court Judge issued interim orders restraining CCK and the Ministry from effecting ASO to give time for the ruling to be made on 23<sup>rd</sup> December 2013. In complying with the court orders, the Commission sent notices to broadcasters requesting them not to switch off.

If there is effective rules and regulations The Supreme Court could not rule against the three media groups and ordered that the general switch off dates from analogue to digital platform shall remain as scheduled by the government because Kenya had made a commitment to adhere by the ITU deadline and did not seek an extension of time so that they should switch off their analogue system to digital.

This challenge raised in the country of Tanzania whereby the TCRA did not have force to direct radio and television station to broadcast and make awareness to listener about the issue of digital switchover. The National Information and Communication Technologies Policy of 2003 (NICT) recognizes the development of convergence of technologies in its broad objectives and the need to ‘encourage regulatory organs to jointly investigate and respond to the challenge of convergence and newly emerging technologies while drawing inputs from the general public and key stakeholders’<sup>xxxii</sup>. The broadcasting services policy of 2003 does not provide for policy guidelines on how digital broadcasting should be adopted and developed<sup>xxxiii</sup>.

Also the challenges of the absence of effective policies, rules and regulations in Tanzania is raised through the digital broadcasting switchover. It encounters difficulties when it wants to consider the policy – led approach taken by the regulator and the government to achieve a transition to digital television and the timelines for viewers. The non-governmental organizations and the Media Owners Association of Tanzania (MOAT) complained to the government because there is no small part due to the government and regulator’s steadfast refusal to consider postponing ASO and the appeal from those and other parties to restore the analogue signal that the process was not halted or revised<sup>xxxiv</sup>.

The situation of the absence of digital policies, laws and regulations was in Japan during the transition period from analogue to digital. All Japanese households having at least one television set are mandated to pay an annual subscription fee used to fund NHK, the Japanese public service broadcaster. The fee varies from ¥14,910 to ¥28,080 depending on the method and timing of payment and on whether one receives only terrestrial television or also satellite

broadcasts. Households on welfare may be excused from the subscription payments. In any case, there is no authority to impose sanctions or fines in the event of non-payment; people may (and many do) throw away the bills and turn away the occasional bill collector, without consequence, because of the absence of effective policies, rules and regulations made the government not to have power to punish households who were rejected to pay annual subscription fee even though they were mandated to do so.

In South Africa absence of effective policy, rules and regulations marked a positive step in a process that has been fraught since South Africa missed the ITU's deadline of June 2015. The Department of Communications involved in a legal battle with free-to-air broadcaster e.tv over the technical specifications of the STBs to be used to receive digital TV signals. E.tv applied to the court for a provision in the country's digital switchover policy for Government-subsidized set top boxes to encrypt broadcast signals. The new policy position does not in any way prohibit any broadcaster who wants to include conditional access in the provision of broadcasting services to its customers. It is the firm view of the department that broadcasters who want to do that should make their own investment in the acquisition of a conditional access system.

As a result, the Universal Service and Access Agency of South Africa, which has been charged with the responsibility of managing the production and installation of set top boxes, have been ordered to stop manufacturing the decoders until further notice. The Department of Communications and pay-TV platform MultiChoice oppose the adoption of encryption and have launched a Constitutional Court appeal against the Supreme Court of Appeals' (SCA) ruling on encryption for STBs.

This challenge of policy also faced the country of Malawi whereby the moment that Malawi prepared to switch off analogue signals people still sell analogue television and antenna and when the National Digital Broadcasting coordinator Denis Chirwa said that his office is aware of electronic shops selling the analogue television antennas although they have had meetings requesting shop owners to stop selling them. This situation shows that Malawi does not have digital policy and laws that can be used to regulate people of the country and to prosecute those people who are violating those rules.

In Mexico the challenge of the absence of digital policies, rules and regulations existed because delays continued due to legal concerns and the telecommunications reform of 2013–14 promulgated by President Enrique Peña Nieto, which required entirely new legislation in the sector and created the new Federal Telecommunications Institute. However, digital switchover got back on track in 2015, first decided to complete switch off on 2021.

Another challenges of digital switchover is budget priority, the introduction of new item in the country needs higher budget, the establishment of digital system needs a lot of money compare with analogue system because the equipment of digital is very high than analogue equipment also the digital transmission requires a substantial investment in SMS services and support infrastructures. In order to upgrade the digital transmission with the aim of reducing multiple content conversions the increase of the actual cost of content production will arise.

Almost all Communities countries have the challenge of financial budget because the higher budget priorities are focused on improvements of government politics especially when the ruling government wants to fulfill the promise which they made during election campaign and forget that there is important thing of switchover from analogue to digital broadcasting in their countries and this system needs its budget in order to work properly with prescribed time as the ITU agreement ordered.

The writer of <sup>xxxv</sup> raise the challenges of budget priorities by saying that:

*“African counties are committed to migrating to digital broadcasting by June 2015 this will be a costly process (both for government and citizens) and it is currently unclear who will benefit from it or where the resources needed to make the transition will come from. arguably it is one of the most fundamental changes in African broadcasting for over a decade and raises wider questions about how the ‘public interest’ is expressed in broadcasting and its relationship with interactive, converged media”.*

Tanzania like other countries faced a lot of challenges during the time of preparation of changing its analogue system to digital, among of the challenges are big investment in terms of infrastructure and license fees, because of the budget priority the countries also face the problem of big investment in terms of infrastructure and license fees, example country may need the USD 400,000 license fees for infrastructure as well as 20,000 per frequency are on

the high side and will increase operational costs, which will impact negatively on multiplex operators, content providers and users of broadcasting services.

Also because of budget priority, the increase of tax on construction material and equipment are practiced during the transition of digital period, because many operators expressed their concern about the expensive materials that are imported for the building infrastructure and equipment required to facilitate digital broadcasting will increase costs, some of which are likely to be passed to the consumer.

Absence of effective Universal service and access is also a challenge of digital switchover; Universal services and access are used to ensure the availability of connection by every person to public communication networks and to ensure the connection to a communication network through communication services. Because of the necessity of having universal service and access especially in digital switchover, the country should assure the accessibility of effective universal service and access.

The value of Set – Top- Box is another challenge of digital switchover in different countries, Set top boxes is a device or service that is used to connect an analogue and convert the digital signals to be received by the analogue television sets and makes digital signals and services to be accessed easily. This is an external source of signal through antenna, changed the signal into content which can be then displayed on the television screen digitally but the cost of set top boxes from that time was about USD 60. Set –Top-Box become very fundamental for the move to digital switchover because many country need for the development of communication during switchover from analogue to digital but the problem arise when these Set – Top – Box are still costly for average of many residents in the country.

Because of that cost and because of most of citizens in the countries and their government especially African countries economically are not well, this reasons makes some of the participants felt the additional cost and excluded from using digital broadcasting services. The challenges that the Countries faced due to Set- Top-Box there was no uniqueness of selling this device, providers of the countries differ in their business, some of the providers gave the luggage to consumer because of the cost of the Set-Top-Box.

Example in the Country of Kenya the cost of set top boxes was a challenge that is the reasons Dr. Ndemo who is a Permanent Secretary in the Ministry of Information and Communication said:

*The main challenges is the pricing of the set top boxes, unlike the US where the government paid for them, it could be a bit challenging in Kenya, Government in countries like New Zealand, Austria and the European Union has subsidized top set boxes<sup>xxxvi</sup>*

On 29<sup>th</sup> July 2013 the writer of the Research program which is known as Tanzania's experience will give policymakers across Africa insight into the practical challenges involved in DSO says that:

*The initial price of an STB in 2010 was TSH95 000 (USD60). By early 2012, STBs were priced at between TZS70 000 and TZS100 000 (USD40 to USD60); 3 this high price, in a country with annual GDP per capita of around USD500, was cited as a cause for concern by various parties. The lowest headline price for an STB in Tanzania is currently TSH39 000 (USD25), although this is a security deposit rather than the purchase price: the viewer is required to 'rent' the decoder by subscribing to Star Times's Basic package. TCRA indicated that it would develop a scheme to help low-income users, but this had not happened by the time the analogue signal was switched off<sup>xxxvii</sup>.*

And in the side of Uganda the cost of set top boxes also was the challenge to this country because on 14<sup>th</sup> February 2014, News@jzikusooka says that:

*Compounding the problem is the lack of Analogue-to Digital TV converter boxes (or decoders) on the market, as of today, the only providers of these boxes have been the pay TV providers such as Star Times and Go TV. Yet, these providers require you to subscribe to their services on a monthly basis. It seems the providers, have ignored the call by UCC, that they de-scramble the Free-to-Air channels on their boxes<sup>xxxviii</sup>.*

Seizure to stop using analogue Television is also a challenge of digital switchover, most of the countries accept the European Commission agreement of switching off their analogue system to digital on 1<sup>st</sup> January, 2012 but they confiscate to abide themselves with the agreement because of different reasons like the cost of set-top-box because of the budget of their country, capital and technological intensity.

Example Netherlands intended to switch-off its analogue signals on Monday 11<sup>th</sup> December, 2006 but because of the Dutch households subscribe to cable systems which continued to use analogue distributions and thus their old tuners continue to be useful failed to use digital signals on that date, and in Europe the analogue satellite transmissions were switched off on Monday 30<sup>th</sup> April, 2012 being the last in Europe, however analogue cable is still used by about 30% of the population and 55% of all cable broadcasts, so therefore a cable switchover is unlikely to happen in the near future.

Also tax on construction material and equipment is the challenge of the switchover from analogue to digital, many operators expressed their concern about the expensive materials that are imported for the building infrastructure and equipment required to facilitate digital broadcasting will increase costs, some of which are likely to be passed to the consumer, and uninformed stakeholders is a challenge arises when the country did not inform the stakeholders about the ITU recommendation earlier as possible as a result the government inform the stakeholders the time when they were given the dead line of using analogue system.

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