

## **GLOSSARY**

### **Broadcasting**

A term referring to the distribution of information using radio, television, internet and intranet or webcasting.

### **Digital Broadcasting**

An alternative method of broadcasting the images and sound that appears on television screen. Rather than being broadcast as a continuous analogue wave, the signals are sent as discrete bits of information. Digital television improves picture quality and reduces problems of ghosting and interference.

### **Integrated Digital Television**

This is a television set with built-in digital capabilities to receive and display digital TV signals.

### **Set-Top-Box**

A set-top-box for digital television receives and decodes digital television signals in a form suitable for display on analogue television set or other display devices, e.g. computer monitors or projection screens.

### **Standard Definition Television**

One category of display format for digital TV transmission providing picture quality similar to off-air analogue TV with good reception quality.

### **Electronic Programme Guide**

Is the electronic version of a printed programme guide.

### **High Definition TV**

One category of display format for digital TV transmission providing a higher quality display.

### **Simulcast Period**

This is a period whereby the existing free to air broadcasters will simulcast i.e. broadcast operators both analogue and digital will have to co-exist before the switch-off of analogue broadcasting. Viewers will therefore continue to be able to use their current analogue TV sets to receive analogue TV signals during the simulcast period.

## **Digital Television Set**

This is a television set with built in digital capabilities to receive and display digital television signals. Integrated digital television sets are generally distinguished by wide screens, high level audio capability and high quality displays. They do not require a set-top-box to receive digital television signals.

## **LIST OF ACRONYMS**

<b>AM</b>	Amplitude Modulation
<b>CD</b>	Compact Disc
<b>DAB</b>	Digital Audio Broadcasting
<b>DSTV</b>	Digital Satellite Television
<b>DTT</b>	Digital Terrestrial Television
<b>DTV</b>	Digital Television
<b>DVB</b>	Digital Video Broadcasting
<b>DVB-T</b>	Digital Video Broadcasting Terrestrial
<b>DVB-S</b>	Digital Video Broadcasting Satellite
<b>EPG</b>	Electronic Programme Guide
<b>FM</b>	Frequency Modulation
<b>HDTV</b>	High Definition Television
<b>ITU</b>	International Telecommunication Union
<b>MF</b>	Medium Frequency
<b>MHz</b>	Megahertz
<b>MoCT</b>	Ministry of Communications and Transport
<b>NICT</b>	National Information and Communications Technologies Policy
<b>NTSC</b>	National Television Systems Committee
<b>PAL</b>	Phase Alternation Line
<b>PMO</b>	Prime Minister's Office
<b>SDTV</b>	Standard Definition Television
<b>TCRA</b>	Tanzania Communications Regulatory Authority
<b>T-DAB</b>	Terrestrial Digital Audio Broadcasting
<b>TV</b>	Television
<b>TVT</b>	Televisheni ya Taifa
<b>UK</b>	United Kingdom
<b>USA</b>	United States of America
<b>VHF</b>	Very High Frequency
<b>ZBC</b>	Zanzibar Broadcasting Commission

**TANZANIA COMMUNICATIONS REGULATORY AUTHORITY  
(TCRA)**



**CONSULTATION DOCUMENT ON SWITCHOVER FROM ANALOGUE TO  
DIGITAL BROADCASTING IN TANZANIA**

**PRESENTED BY:  
DIRECTOR GENERAL  
TCRA**

**August 8, 2005**

## **1.0. INTRODUCTION**

- 1.1 The ITU Member States at its Session 2001 and 2002 agreed to start planning of terrestrial digital broadcast for the combined planning area covering the European Broadcast Area, the African Broadcasting area, and the countries outside the African Broadcasting area which are parties to the Regional Broadcasting Agreement Geneva 1989 planning process is expected to be ready by July 2006.
- 1.2 Digital broadcasting which is in various stages of development and implementation throughout the world has the capacity to allow substantial expansion of broadcasting services in Tanzania, bring greater choice both to free-to-air and subscription or pay per view channels.
- 1.3 The National Information and Communication Technologies Policy of 2003 (NICT) recognizes the development of convergence of technologies in its broad objectives and expresses 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” (NICT Policy 2003 pg.17). The Broadcasting Services Policy of 2003 does not provide for policy guidelines on how digital broadcasting should be adopted and developed.
- 1.4 Given the above policy deficiencies and in recognition of the benefits ensuing from the application of digital technology in broadcasting, the Tanzania Communications Regulatory Authority (TCRA) has initiated a process of public consultation to consider a policy framework for adoption of digital broadcasting in Tanzania. The current technological advancements in broadcasting necessitate the use of digital systems in the studio and transmission for both radio and television in place of analogue system.

## **2.0. OBJECTIVE OF THE CONSULTATION DOCUMENT**

- 2.1 The objective of this Consultation Document is threefold:
  - 2.1.1 to provide recommendations for a framework for policy formulation on digital broadcasting in Tanzania.

- 2.1.2 to provide recommendations for review of legislation with a view to incorporate legal framework for digital broadcasting.
  - 2.1.3 to provide recommendations for licensing framework that accommodates digital broadcasting.
- 2.2 In view of the foregoing, recommendations have been put forward at the end of this document. TCRA welcomes comments on the recommendations and the Consultation Document as a whole. Comments should be sent to the Director General before 30th November 2005 using the following contacts:

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- 2.3 The TCRA reserves the right to make public, all or parts, of any submissions made in response to this Consultation Document and reveal the identity of source. Any material claimed to be commercially confidential would need to be clearly marked. The TCRA would take such marking into account in making its decision on whether to publish the material or not.

### **3.0. THE BROADCASTING LANDSCAPE IN TANZANIA**

#### **3.1. The Role of Broadcasting**

- 3.1.1 The broadcasting sector is not comparable to any other sector as it plays a central role in modern democratic societies notably in the development and dissemination of social values.

- 3.1.2 Broadcasting offers a unique combination of features. Its efficient and effective widespread penetration provides almost complete coverage of the population across different broadcasting networks; provision of substantial quantities of news and current affairs together with cultural programming mean that it both influences and reflects public opinion and social cultural values.
- 3.1.3 Switchover to digital broadcasting may affect this general interests. It will be important to ensure the continuing of availability of a variety of television services without discrimination and on the basis of equal opportunities to the whole population. In particular this is a precondition for public service broadcasters to fulfil their public mandates.
- 3.1.4 Broadcasting has a strong tradition of policy intervention than other information and communication sectors like telecommunications where the impact of liberalization has been greater. This is justified by the political and social relevance of broadcasting content which cause for the enforcement of minimum quality and pluralism requirement.
- 3.1.5 Policy intervention is even greater in the case of terrestrial broadcasting because of its heavy use of spectrum, a scarce public resource, and the perception associating terrestrial broadcasting with universal free to air TV services.

## **3.2 Major Players and Their Role**

- 3.2.1 The present broadcasting landscape in Tanzania is dominated by the public service broadcaster, Radio Tanzania, especially on sound broadcasting.
- 3.2.2 The television sub-sector is dominated by commercial Broadcasters who started commercial broadcasting in 1994, while the public service broadcaster, Television ya Taifa (TVT) started on 15<sup>th</sup> March 2000 with one channel.

The details of the broadcasting stations are provided in the **Annex** to this document.

- 3.2.3 Terrestrial broadcast is the only means which is accessible to a large population across the country. Satellites broadcast and pay TV accessed by high class people.

### **3.3 The Analogue System of Broadcasting**

3.3.1 Analogue format means sound and pictures are converted into continuously varying electric signals which after transmission, are back to sound and pictures by radio and television receivers.

3.3.2 The analogue television adopted by Tanzania is the 625 lines/ 50 fields per second colour television system known as Phase Alternation Line (PAL).

3.3.3 In countries like USA and Japan, the 525line /60 fields per second colour television system, i.e National Television Systems Committee (NTSC) was adopted. These systems were developed in the 1950s/60s.

### **3.4 Shortcomings of the Analogue System**

3.4.1 The sound broadcasting used by incumbents at present are the Very High Frequency (VHF) and Frequency Modulation (FM) and Medium Frequency and Amplitude Modulation (MF/AM) that use analogue transmission technology. This technology has its own technical limitations as follows:-

- (i) Inefficient use of radio spectrum.
- (ii) Unreliable system performance under mobile reception conditions.
- (iii) Susceptibility to interference
- (iv) Inefficient system of editing broadcasting content

### **3.5 The Adoption Of Digital System**

- 3.5.1 In Tanzania, operators of broadcasting services have been slowly but steadily adopting digital system of broadcasting especially for studio equipment.
- 3.5.2 Production and on Air studios have been and are being upgraded, stage by stage, with digital facilities phasing out analogue equipment.
- 3.5.3 Transmission has remained largely analogue due to the fact that operators cannot go full digital because digital penetration in terms of digital receivers is non existent.
- 3.5.4 Some operators have installed analogue transmitters that are up gradable to digital output.
- 3.5.5 Despite these developments the government has not adopted a policy framework to guide development of digital broadcasting in the country.

## **4.0. DIGITAL BROADCASTING**

Digital broadcasting comprises Digital Audio Broadcasting (DAB) and Digital Television (DTV).

### **4.1 Digital Audio Broadcasting (DAB)**

- 4.1.1 Digital Audio Broadcasting (DAB), or Digital Radio Broadcasting refers to the over-the – air transmission and reception of radio signals using digital technology. This technology makes possible the reproduction of sound that rivals the quality of compact discs with the combined potential of providing new kinds of broadcasting services to the public as well as non-programming services such as paging and datacasting.
- 4.1.2 For the listener, digital radio offers interference free reception and the ability to receive data, graphics and text. For instance, in addition to playing music, a DAB

receiver could display the name of the artist and the lyrics of the song or even traffic and news briefs. As the system matures, listeners will be able to receive more sophisticated services such as maps, directions, visual traffic reports and other types of graphics.

- 4.1.3 For the Broadcaster, DAB provides a means of reaching listeners with sound quality on an equal footing with a CD player and the ability to offer additional revenue-creating services. It is expected that the transmission of digital radio will be cheaper than present cost of transmitting radio signals in either AM or FM mode.

## **4.2 Digital Television (DTV)**

- 4.2.1 Digital Television (DTV) is an alternative method of broadcasting the images and sound that appear on television screen. Despite of being broadcast as a continuous analogue wave, the signals are sent as discrete bits of information. Digital Television improves picture quality and reduces problems such as ghosting and interference
- 4.2.2 Digital television is also capable of providing new features and services such as high definition television (HDTV) programmes, interactive services and mobile reception, wide- screen pictures, surround sound audios, multiple viewing angles, multi-channelling, closed-captioning and electronic programme guides (EPG). Digital television may be transmitted via radio-communications i.e terrestrial, satellite, cable and broadband telecommunications network.

## **4.3 Standards for Digital Receivers**

- 4.3.1 Digital Video Broadcasting – Terrestrial (DVB-T) has been adopted to be used in the planning areas of region one

which includes Europe, Africa, Middle East and the Islamic Republic of Iran.

4.3.2 There are three reception modes applicable to DVB-T:-

- (i) Portable reception (indoor/outdoor);
- (ii) Fixed reception (roof top)
- (iii) Mobile reception

4.3.3 DVB-T can operate in frequency ranges:

Band III 174-230 Mhz

Band IV 470 – 582 Mhz

Band V 582 – 862 MHz

4.3.4 Terrestrial Digital Audio Broadcasting (T-DAB) has also been adopted to be implemented in planning area of Region one. T-DAB will share operating frequency range in Band III with DVB-T.

4.3.5 T-DAB standards enable easier frequency planning and transition from analogue to digital broadcast environment. Therefore, DVB-T and T-DAB standards are most suitable for the Tanzania environment and should be implemented.

#### **4.4 Advantages of Digital Broadcasting**

4.4.1 The digital broadcasting has advantages over the conventional VHF/FM and MF/AM services which suffer from technical drawbacks such as signal interference. Unlike analogue systems, digital technology is resistant to noise and interference.

4.4.2 Digital technology supports single frequency network operation. This permits substantial frequency economy and allows more radio services to be transmitted. The same bandwidth for transmitting one analogue programme channels can accommodate at least four

digital standard definition television (SDTV) programme channels.

- 4.4.3 Furthermore, digital television broadcasting will bring benefits to viewers, including the possible increase in the number of television programme channels, introduction of define HDTV programmes, television reception on the move and new interactive multimedia applications.

## **4.5 World Experience**

4.5.1 Digital TV was introduced in 1994 in the US and in 1996 in Europe, first on satellite and soon after on cable and terrestrial networks based on Digital Video Broadcasting (DVB) specifications.

4.5.2 Digital terrestrial radio broadcast started in 1995 based on the Eureka-147 that uses Digital Audio Broadcasting (DAB) standards. But there are few and expensive digital receivers on the market.

4.5.3 Proposed digital switchover dates in other countries:

- EU 2012
- Italy 2006
- Finland 2006
- Japan 2011
- Germany 2010
- US 2007
- Sweden 2008
- Australia 2009

## **4.6 Driving Forces for adoption of Digital Broadcasting in Tanzania**

4.6.1 The world is moving from analogue to digital broadcasting and Tanzania is part of that process, it has also to change and accommodate new technologies.

- 4.6.2 The local market has already attracted co-existence of analogue and digital technologies in studio and satellite uplinks. Cases in point include, Radio Tanzania, Television ya Taifa, Star Television, Radio Free Africa, Radio One and Independent Television..
- 4.6.3 There exists a political will for adoption of digital broadcasting in the country. This has been demonstrated by government endorsement of TCRA's converged licensing framework, which is technological neutral.

## **5.0. SWITCHOVER TO DIGITAL BROADCASTING**

### **5.1 Switchover**

- 5.1.1 Switchover refers to migration process from analogue to digital broadcasting starting with the introduction of digital and ending with the switch off of analogue broadcasting system.
- 5.1.2 Many routes are possible in terms of the speed and length of the process, the parties involved and the degree of government intervention.
- 5.1.3 Each country follows its own path often influenced by the market and broadcasting operators. Ideally the final analogue switch off should take place when digital broadcasting has achieved wide spread penetration and very few analogue homes remain.

### **5.2 Benefits of Switchover**

- 5.2.1 The benefits of digital broadcasting some are associated with the switchover process itself, others are achieved at the end, by stopping analogue broadcasts.
- 5.2.2 All benefits derive from the possibility of processing and compressing digital data, making much more efficient use of network capacity than is the case with analogue signals.

5.2.3 The Tanzania society can exploit the benefits in several ways:

**(i) Introduction of new enhanced services**

It will enable licensees to offer new or improved broadcasting services, i.e additional programming, programme related enhancement, better picture and audio quality, data and interactive services, including information society and internet like services.

**(ii) Efficient spectrum usage**

Switch off of analogue terrestrial TV permit the release of several hundreds megahertz (MHz) in the VHF and UHF frequency bands which could be reallocated to various uses for convergence services for instance mobile telephone, terrestrial broadcasting and such as mobile datacasting.

**(iii) Enhanced competition**

Increasing market competition and innovation because it attracts potential new entrants at different levels in the value-chain, for instance, new broadcasters or developers of interactive applications.

**(iv) Increased transmission possibilities**

Switchover implies specific benefits for some categories of markets players by reduction of transmission costs, opportunity for increased sales of digital receivers, easier storage and processing of content.

**(v) Wide consumer choice**

Digital transmission delivers discrete signals resulting in better visual and sound quality. The

consumer will have much wider choice of enhanced  
– TV applications and multimedia data and  
entertainment services.

### **5.3 Obstacles to Switchover**

- 5.3.1 The main problem is to replace millions of analogue receivers often very cheap by more expensive digital receivers.
- 5.3.2 Most consumers are not aware of digital radio and find analogue radio is good value for money.
- 5.3.3 The added value from digital radio or at least the information available to consumers does not yet seem sufficient to justify the additional cost for the average consumer, although prices are falling.
- 5.3.4 Subsidization of receivers is difficult in Tanzania as the scope for pay radio does not exist.
- 5.3.5 Both digital TV and radio markets in Tanzania are still non-existent or are at a very nascent stage whose current difficulties are more commercial than technological.
- 5.3.6 There are no policy and regulatory frameworks for digital broadcasting in Tanzania.

### **5.4 Implications of Switchover**

- 5.4.1 Switchover implies much more than a technical migration. Considering the role of TV and radio in modern societies, that impact is not only economic but also social and political.
- 5.4.2 Switchover affects all segments in the broadcasting value chain namely content production, transmission and reception.

- 5.4.3 Operators will require technical upgrading to support digital broadcasting. The main challenge is on the reception side:
- (i) To replace or upgrade the huge installed base of analogue receivers. This can be done with integrated digital television or radio receivers or set-top-boxes connected to analogue TV set.
  - (ii) Connection point that is antennas, dishes, cabling, must more often than not also be adapted.
- 5.4.4 The switchover cases for TV and radio are quite different. Digital TV market penetration is much greater. Analogue and digital TV are provided on various networks, mainly cable, satellite and terrestrial over VHF and UHF frequency bands.
- 5.4.5 Digital audio visual content can be also supported by the internet and marginally by digital subscriber lines networks. So television switchover is a multi network or multi platform process and digital TV is not synonymous with digital terrestrial TV.
- 5.4.6 A shorter run switchover involves significant costs and difficulties associated with the need to:
- (i) Introduce technical upgrades in all segments of a value-chain and review spectrum mechanisms and approaches.
  - (ii) Develop attractive service to derive demand without which the overall process could be financially and politically unsustainable.
  - (iii) Overcome scepticism and even resistance from industrial players and citizens who may see risks in changing the status quo in the broadcasting sector.

- 5.4.7 Switchover is a complex and long process involving many valuables and affecting more or less directly many parties, namely users, consumers, industry and government.
- 5.4.8 Switchover also concerns many industry players, such as content creators, service providers, network operators or equipment manufacturers.

## **5.5 Managing the Process of Switchover**

### **5.5.1 Policy Framework**

- (i) Tanzania has no formal policy governing the introduction of digital broadcasting. The existing Broadcasting Policy 2003 does not specifically address digital broadcasting. Digital broadcasting has its own peculiarity and requires a specific policy to govern it after a public consultation process is undertaken. Alternatively the current broadcasting policy be reviewed to accommodate digital broadcasting.
- (ii) A policy addressing digital broadcasting is required to encourage digital switchover at some point in the future. When the current analogue licensees come up for renewal, a new applicant not committed to digital could have a competitive advantage over broadcasters who are committed to digital. Therefore it is proposed that a requirement that an applicant for a new analogue licence has to include in its application a proposal for providing simulcast service. It is believed that this will help build momentum behind the introduction of digital broadcasting.

### **5.5.2 Legal Framework**

The regulatory framework for broadcasting in Tanzania is set out in two legislations.

- (i) The Tanzania Communications Regulatory Act No.12 of 2003. This Act establishes the Tanzania Communications Regulatory Authority (TCRA) for

purposes inter alia to regulate broadcasting by issuing licences subject to the Broadcasting Services Act No.6 of 1993.

- (ii) The Broadcasting Services Act regulates radio (i.e sound broadcasting) and television (video broadcasting) whether by analogue or digital means but does not specifically address digital broadcasting.
- (iii) TCRA is currently only issuing broadcasting licences to broadcasters using analogue. Although the law regulating broadcasting in Tanzania is silent on technology used for broadcasting development of new technologies has brought new demand that require legislation change. Such demands include but not limited to spectrum use, licensing, switching from analogue to digital, replacing analogue receivers, transmitters or upgrading the analogue infrastructure. To address all these issues there is a great need of reviewing the law and amend or enact new one.

### 5.5.3 **Licensing Framework**

- (i) With the advent of Digital Terrestrial Television (DTT), three distinct kinds of service will come into play, namely, multiplex service, television programme service and additional services.

#### **Multiplex operator**

- (ii) A multiplex operator is responsible for rolling-out the DTT transmission network; managing the allocation of channel capacity of a multiplex to television programme services and/or additional services; and transmitting those services. Although imperceptible to viewers, the multiplex operator will be an intermediary between viewers and the television programme service providers and/or additional service providers.

### **Television programme service provider**

- (iii) A DTT programme service provider provides television service, including programme associated data. It would assume editorial responsibility for the content of the programme service.

### **Additional service provider**

- (iv) Through the application of digital technology, a considerable amount of non-programme associated data can be transmitted and received by TV sets, without affecting television picture quality on the same frequency channels. Additional services might include home banking, home shopping, multi-media and interactive services. These additional services could increase the appeal of digital receivers to consumers.

## **Licensing Approach**

### **Combined licensing**

- (v) There are two main options to license these three kinds of services. The first option is combined licensing, which means broadcasters are licensed to provide television programme services and to establish and operate multiplexes for the transmission of their own programme services. The spare transmission capacity of the multiplex could be leased to other programme service providers or additional service providers. This approach is similar to the way in which analogue television programme services are currently provided, except that existing licensees are not endowed with the right to lease their transmission capacity to others.

### **Separate licensing**

- (vi) Another option is that companies are licensed to establish and operate multiplexes for the provision of transmission capacity, on a contractual basis, to television programme service providers and additional service providers. This approach separates the licensing of multiplex operation, programme service provision and additional service provision. Under this option, frequency channels will not be allocated to broadcasters but will be allocated to the providers of multiplex service which bring together, through commercial arrangement, a package of television programme services and additional services on each frequency channel. This approach recognizes that some programme service providers may not wish to be involved, or have the relevant expertise, in multiplex operation. Nevertheless, companies interested in the provision of programme service as well as the operation of multiplex may apply for both types of licences.
  
- (vii) These two options are proposed for consultation with stakeholders.

## **6.0 ROAD MAP FOR MIGRATION**

- 6.1 In designing the implementation plan for DTT, the conversion from analogue to digital broadcasts should cause as minimal disruption to viewers as possible.
  
- 6.2 The transition plan should also facilitate the roll-out of DTT in Tanzania and provide a conducive environment for broadcasters to invest for the development of DTT in Tanzania. Accordingly, the migration of the existing analogue television programme services to DTT would need to be carried out cautiously in steps.

6.3 In view of the above this document proposes the following timetable for implementation of digital switchover:-

<b>S/NO</b>	<b>ACTIVITY</b>	<b>RESPONSIBLE</b>	<b>DATE</b>
1	Consultation with Stakeholders	TCRA, MOCT CHIEF MINISTER'S OFFICE, PMO, ZBC, FINANCE, Operators	9.8.05 - 30.11.2005
2	Adoption of Policy on Digital Broadcasting	MOCT and PMO	16.1.2006
3	Amendment of Legislation	MOCT, PMO, Attorney General Chambers	18.4.2006
4	Modification of Converged Licensing Framework	TCRA	24.4.2006
5	Switchover to Digital Broadcasting	TCRA/ZBC Operators	15.6.2006
6	Simulcast Period	TCRA/ZBC Operators	15.6.2006 14.6.2012
7	Switch off date of Analogue Broadcasting	TCRA/ZBC Operators	December 31, 2012
8	Digital Broadcasting Only	TCRA/ZBC Operators	January 1,2013

## **7.0 RECOMMENDATIONS**

The proposed recommendations are categorised as follows:

### **7.1 Policy Formulation**

To invite views from all stakeholders through this consultation document for formulating policy on Digital Broadcasting.

### **7.2 Legal Framework**

The existing legal framework be reviewed to accommodate digital broadcasting.

## **7.3 Licensing Framework**

- 7.3.1 There should be a separate licensing approach specifically for digital broadcasting namely multiplex operators, programme service provider, and additional service provider.
- 7.3.2 Set-top-boxes and integrated TVs', and conditional access systems be regulated and licensed.
- 7.3.3 High-definition television and mobile reception should not be made mandatory at the initial stage of implementation so as to allow more operational flexibility for multiplex operators.
- 7.3.4 The existing terrestrial television programme service channels in analogue and digital formats be allowed to simulcast. The concerned multiplex operators should be obliged to promote the take-up rate of digital terrestrial television so that the frequency spectrum currently used for analogue broadcast could be released as soon as possible.
- 7.3.5 A set of extensive criteria to assess applications for multiplex licences be adopted.
- 7.3.6 A company should not be allowed to submit applications for more than two multiplex licences.
- 7.3.7 The number of licences to be issued for television programme services carried on DTT multiplexes should be limited by spectrum availability.
- 7.3.8 A domestic free/pay television programme service licensee should not be allowed to take up the bit-rate capacity of more than one multiplex (excluding the guaranteed slots allocated for simulcast services)

- 7.3.9 A multiplex licensee should be allowed to reserve a maximum of 25% of the multiplex capacity exclusively for the provision of additional services
- 7.3.10 To regulate the provision of electronic programme guide service.

#### **7.4 Transition from Analogue to Digital**

- 7.4.1 To reserve "guaranteed slots" on Multiple Frequency Network multiplexes for the simulcast of the existing free-to-air analogue television channels.
- 7.4.2 To require the multiplex licensees to carry the existing free-to-air analogue television channels free of charge until the analogue services are switched off.
- 7.4.3 To require that all the programme hours provided on the existing analogue channels should be simulcast on the guaranteed digital channels.
- 7.4.4 To invite applications for multiplex licences as soon as possible with a view to commencing simulcast of analogue and digital terrestrial television services June 2006.

#### **7.5 Digital Audio Broadcasting (DAB)**

- 7.5.1 To consider inviting licence applications for DAB services when the following market situations materialise
  - (a) the market potential of DAB and the associated non-broadcasting applications becomes clearer;
  - (b) the price of digital broadcasting receivers comes down to an affordable level for consumers; and
  - (c) the worldwide penetration of DAB services picks up momentum.

- 7.5.2 The incumbent sound broadcasters should be allowed, under their respective licence conditions, to continue to make use of the AM/FM frequencies for analogue broadcast, pending a firm decision on the introduction of DAB services.

## **7.7 Regulatory Regime for Sound Broadcasting**

- 7.7.1 To define sound programme service as the provision of a service that includes sound programmes for transmission by telecommunications that are readily accessible to, or made available to, the general public.
- 7.7.2 To maintain the existing licence conditions relating to investment restrictions, i.e. the 51% shareholding for Tanzanians and 49% for foreigners.
- 7.7.3 Cross-Media ownership principles be introduced and adopted to avoid unfair competition and media concentration.