



**MINISTRY OF INFORMATION, COMMUNICATIONS
AND TECHNOLOGY**

***SWAZILAND DIGITAL TERRESTRIAL
TELEVISION MIGRATION POLICY***

**Developed by Dept. of Communications
MICT
UP-DATED: 13/07/2012**

TABLE OF CONTENTS

Acronyms.....	
Foreword by the Minister.....	
Acknowledgements.....	
Executive Summary.....	
1. Context.....	
2. Policy Objectives.....	
3. Summary of key Policy decisions.....	
1.0 INTRODUCTION.....	
1.1 Background to the Policy Formulation Process.....	
1.2 Benefits of Digital Migration.....	
1.3 Vision of the Policy.....	
2.0 STAKEHOLDER CONSULTATIONS.....	
2.1 Consensus building Consultation.....	
3.0 RATIONALE FOR DIGITAL MIGRATION.....	
3.1 Digital Migration and The National Development Strategy.....	
3.2 Bridging the Digital Divide.....	
3.3 Increasing Access to Information and Services.....	
3.4 Development of the local content industries.....	
3.5 Effecting an efficient use of the radio frequency spectrum.....	
3.6 Providing free primary through high school education together with Tertiary education.....	
4.0 SITUATIONAL ANALYSIS.....	
4.1 Introduction of Broadcasting in Swaziland.....	
4.2 Current Broadcasting Infrastructure & Technology in use.....	
4.3 Policy and Legislative framework.....	
5.0 POLICY OBJECTIVES.....	
6.0 KEY POLICY DECISIONS/STATEMENTS.....	
7.0 THE TELEVISION SET-TOP-BOX (STB).....	
7.1 Set Top Boxes.....	
8.0 ADOPTING APPROPRIATE TECHNICAL STANDARDS.....	
8.1 Specifications for STBs in Swaziland.....	
9.0 THE DIGITAL TERESTRIAL TELEVISION ROADMAP TEAM.....	
9.1. The Establishment of the Digital Terrestrial Television Roadmap Team.....	
10.0 IMPLEMENTATION.....	
10.1 Implementation time frame-Digital switch-on and analogue switch-off.....	
10.2 The Rollout of Digital Television infrastructure and Set Top Boxes (STBs).....	
10.3 Communication and Dissemination of the Policy.....	
11.0 ROLES OF DIFFERENT SKAKEHOLDERS.....	
11.2 Role of Government.....	

11.3 Roles of Broadcasters.....

11.4 Role of the Regulator.....

11.5 Role of the Public.....

11.6 National Broadcasting Infrastructure Agency (NBIA).....

12.0 Monitoring and Evaluation.....

13.0 **COPYRIGHT**.....

14.0 **FINANCES**.....

14.1. Financing of the Policy.....

15.0 ENVISAGED CONSTRAINTS ON IMPLEMENTATION

15.1 Financial constraints

15.2 Electricity and other sources of energy

15.3 Change Management Constrains.....

ACRONYMS

DCGHs	Digital Content Generation Hubs
DVB	Digital Video Broadcasting
DVB – H	Digital Video Broadcasting – Handheld (Mobile)
DVB – S	Digital Video broadcasting – Satellite
DTH	Direct To Home
DTT	Digital Terrestrial Television
DTTRT	Digital Terrestrial Television Roadmap team
GE-06	Geneva Agreement of 2006
ITU	International Telecommunications Union
RRC	Regional Radiocommunications Conference
ICT	Information and Communication Technology
MICT	Ministry of Information, Communications and technology.
MDGs	Millenium Development Goals
MPEG	Moving Picture Experts Group
NABIA	National Broadcasting Infrastructure Agency
NICI	National information and Communication Infrastructure
SADC	Southern African Development Community
SEC	Swaziland Electricity Company
SMMEs	Small Medium and Micro Enterprises
STBs	Set Top Boxes
STBC	Swaziland Television broadcasting Corporation
STVA	Swaziland television Authority
STTMP	Swaziland Terrestrial Television Migration Policy
TV-S	Television – Satellite
UHF	Ultra High Frequency
VHF	Very High Frequency

EXECUTIVE SUMMARY

1. CONTEXT

In 2006 the Regional Radiocommunication Conference (RRC-06) under the International Telecommunications Union in Geneva, Switzerland, resolved to switch from analogue terrestrial television broadcasts to digital terrestrial television broadcasting services by 2015. Swaziland being a signatory to the International Telecommunications Union (ITU) an organisation that is responsible for standardization and regulation of radio and Telecommunications Worldwide is bound by the agreements made by such a body. In addition to the requirement for an analogue switch off, Swaziland as member of the SADC regional body is expected to switch over by end of 2013. This policy document focuses on the migration from analogue terrestrial television broadcasts to digital terrestrial television broadcasts.

Television plays a vital role in education, information dissemination, cultural development, national identity, and the free flow of information to enhance open government. Unlike analogue television, which is able to carry a single television programme per transmitter, digital terrestrial television can carry multiple programmes on a single transmitter depending on quality and the specific technology and other factors. Alternatively, it can carry a mix of high definition and standard definition services in a flexible configuration. The digital terrestrial television system also allows additional information to be carried with the programmes in the form of data services but this capability has not yet been fully exploited by receiver manufacturers or broadcasters.

The migration of the national broadcasting system from analogue to digital promises not only a variety of opportunities, but it also places a number of challenges which require robust policy approaches if national development outcomes are to be achieved. This process is critical not only for the future of the local broadcasting industry but also has significant implications for Swaziland and her economy.

The society in Swaziland is confronted by a wide range of developmental challenges such as building up the economy, reducing the digital divide and the information gaps, as well as building social cohesion and a common national identity, poverty eradication, building a knowledge society through education and employment creation. Digital broadcasting has the potential to contribute significantly to addressing these challenges. Accordingly, the Government of Swaziland has identified broadcasting digital migration as a national priority.

The key benefit of digital broadcast technologies is that they use scarce national radio frequency spectrum far more efficiently than analogue technologies. This means that existing broadcasting services can be provided using less of the radio frequency spectrum they currently occupy hence the additional and dedicated delivery of government information, health, education and SMME programmes. Digital broadcasting facilitates the delivery of e-government services, the opportunity for developing new skills and the creation of new jobs, and new investment opportunities. Digital broadcasting facilitates also the delivery of education programmes enhancing Government's desire to provide free education to all primary school going persons in

line with the constitution of the country. It also will directly contribute to the Economic Recovery Strategy of Swaziland.

The radio frequency spectrum freed-up through the digital migration process, often referred to as 'digital dividend', has the potential not only to provide new and improved broadcasting services, but also to enable additional ICT services which traditionally are not provided for in the broadcasting radio frequency Band, such as mobile telephony and wireless broadband. The digital dividend, however, can only be realized after the migration process is completed.

For the digital migration process in Swaziland to be successful within the stipulated two-year dual illumination, it is necessary to have a clear terrestrial television migration roadmap spelling out the requirements for a clear government policy and Implementation Plan. Also critical is the co-operation of all the relevant stakeholders working together with government. Given the country's socio-economic status, it may also be necessary to consider incentive schemes to support a significant number of households to enable them adapt the current analogue television sets to digital by means of Set-Top-Boxes (STB).

This policy was developed through a consultative process. The policy draws on outputs generated and key recommendations made by the Digital Terrestrial Television Roadmap Team (DTTRT) established by the Minister of Information, Communications and Technology in 2011 through a Cabinet resolution of 2011. Inputs were obtained from both public and private broadcasters as well as from the general public through stakeholder consultations held from the 3rd of November 2011.

2. POLICY OBJECTIVES

This policy provides a roadmap and framework whose objectives are to:

- establish a policy environment within which terrestrial digital television broadcasting is to be implemented in Swaziland;
- create an environment for the uptake of digital terrestrial television by all households especially the poor;
- ensure a defined future and cut off date for existing analogue broadcasting services and also ensure the introduction of new digital television services, taking into account the advantages of digital television technology and gaps related to programming content especially in regard to various Tinkhundla constituency content as well as parliamentary and government information.
- provide for the delivery of formal educational programmes, through television, from primary school education through tertiary education, in the process enabling government to provide free education to all persons in the country, especially the poor, in line with the country's constitutional provisions.
- give effect to the decision to implement digital migration within a two-year dual illumination period;

- provide a framework for the provision of community television and mobile broadcasting services;
- provide a framework for the establishment of a National Broadcasting Infrastructure Agency (NBIA) which will be responsible for providing the national broadcasting infrastructure and also manage the digital broadcasting multiplexing requirement.
- provide for the creation of the National Broadcasting Infrastructure Agency (NBIA).
- provide for television services in both Siswati and English languages;
- provide for access to broadcasting service to people with disabilities;
- provide for the development of a Swaziland world-class electronic manufacturing industry
- provide for the development of creative industries including the creation of local content; and
- provide for the establishment of a body referred to as the Digital Terrestrial Television Roadmap Team to guide and lead the development of national analogue to digital terrestrial TV roadmap and to monitor the implementation of and raise public awareness about digital migration in Swaziland.

3. SUMMARY OF KEY POLICY DECISIONS

The switch-on date of the broadcasting digital terrestrial television signal is 01 January 2014 and the switch-off date of the analogue terrestrial television signal is 01 December 2015. This shorter 2-year dual illumination period will reduce the costs of digital migration.

Achieved in a phased manner, the national digital broadcasting signal coverage shall be covering 50% of population by 01 January 2014, 80% of population by end of 2014 and close to 100% by June 2015 enabling analogue switch-off.

There shall be established, a National Broadcasting Infrastructure Agency (NBIA) whose responsibility shall be to manage and develop the national broadcasting infrastructure in the country. The NBIA shall be established by law before end of 2013 as the common carrier on a non-preferential and non-discriminatory basis.

To enable the digital television transmissions to begin in an environment where the NBIA has not as yet been set up as a fully fledged organisation, the Swaziland Television Authority (STVA) shall manage the multiplexers.

The network of radio frequencies dedicated for public broadcasting shall be co-assigned to and managed by the National Broadcasting Infrastructure Agency (NBIA).

The NBIA shall provide broadcasting signal distribution to public, commercial and community broadcasters. Such services shall be provided on non-preferential and non-discriminatory basis.

There shall be a dual illumination period during the transition from analogue television to full digital television. During the dual illumination period, four (4) national multiplexers will be reserved, the management of which shall be in the hands of the National Broadcasting Infrastructure Agency (NBIA). Two of the multiplexes shall be reserved for general broadcasting serving for: (1) informal education with programmes covering such areas as health, agriculture, business and others, (2) providing general news and information, (3) serving to provide for entertainment content. The two other multiplexers will be reserved for formal education covering primary through high school free education and also through tertiary education.

The Swaziland Communications Commission (when in place) will provide the regulatory function through necessary regulations and guidelines established by the Minister for ICT for implementing this policy provision.

The public broadcaster (STVA) shall cater for national television channels as well as channels prioritising informal education, health, youth, sports, SMME, Parliamentary and government and interactive services needs.

The public broadcaster (STVA) shall also be responsible for all signal origination and quality from any designated location or school and ensuring that such video signal is available at the location of origination for onward transmission to the multiplexers.

The NBIA shall be responsible for the routing all video signals from signal origination points to the multiplexers and for national television signal distribution or transmissions.

The following Technical Standards are approved:

- DVB-T2 is adopted as the national standard for broadcasting digital terrestrial television in Swaziland.
- DVB-S is adopted as the national standard for broadcasting digital satellite television in Swaziland.
- DVB-H is adopted as the national standard for mobile terrestrial Television broadcasting in Swaziland.
- MPEG-4 is adopted as the compression standard for Swaziland Digital Terrestrial Television (DTT) rollout.

To ensure reception of the television digital signals by ordinary viewers using ordinary television sets, Set Top Boxes (STBs) shall be made available to viewers at cost effective and affordable pricing.

As a matter of policy, government shall consider finding means of making the Set Top Boxes (STBs) affordable and available to the poorest TV-owning households. This support by Government is in line with its commitment to bridging the digital divide in Swaziland and to effectively provide free primary school education together with an accelerated programme of providing free secondary and high school

education. To this end, the STBs shall be sourced primarily from manufacturers providing competitive pricing whilst ensuring quality of performance.

The policy supports the exploration of other funding models involving among others the public and private partnerships that could be used in rolling out DTT.

The STBs shall be enabled to receive services from different platforms and operators. STBs will have standardised operating systems prioritising security features, interoperability and inter-connectivity.

As a matter of Policy, free education through digital television shall be available by 01 January 2015, with test broadcasts beginning before this date.

Digital broadcasting must contribute significantly to accelerating the building of social cohesion and achieving national identity in Swaziland through the dissemination of appropriate content that adequately reflect the country's culture.

Noting the challenges relating to infrastructure, Digital Content Generation Hubs (DCGHs) aimed at generating content for the digital broadcasting shall be established. The DCGHs will also contribute to the development of the Creative Industries as well as job creation.

A special skills development programme through digital content generation hubs will be established to support the growth of the Creative Industries.

The Swaziland Communications Commission (when in place), shall ensure that access to public broadcasting services by all Swazis, regardless of their economic status, remains a fundamental principle that should continue to be upheld in the digital broadcasting era.

To support this policy, a strategic implementation plan shall be developed shortly after the policy's adoption by Government.

This Policy provides that the "must carry" arrangements, which require broadcasting services to carry public broadcasting services, continue in the new digital environment, fulfilling the important aspect of providing public broadcasting services to all citizens.

1.0 INTRODUCTION

1.1 Background to the Policy Formulation Process

- 1.1.1.** The provision of television and radio services to the general public of any nation is an essential component in the process of education, information dissemination, the creation of openness and transparency, and the general entertainment of the nation.
- 1.1.2.** Broadcasting technologies currently take either of the two forms, either Analogue or Digital. Digital broadcasting technology is superior to the Analogue broadcasting technology with the latter slowly being phased out worldwide. The advent in digital technologies is facilitating increased convergence between the traditionally separate businesses of broadcasting, telecommunications and the internet. In contrast to analogue, digitalization has made it possible for different types of content (audio, video, text) to be stored in the same format and delivered through a wide variety of technologies (computers, mobile phones, televisions, etc). The global trend of migrating from analogue broadcasting technologies to digital broadcasting technologies will mean that both broadcasting and telecommunications infrastructures will be used to achieve country wide coverage for broadcasting services. The main purpose of the migration process is to ensure that all broadcasting services that are delivered through analogue network/technologies are fully replicated on the digital broadcasting network/technologies with the aim of switching off the analogue broadcasting services at a specific point in time.
- 1.1.3.** Digital migration arises out of the Regional Radiocommunication Conference of 2006 (RRC06) and the subsequent Geneva 2006 Agreement (GE06) of the International Telecommunication Union (ITU) 'Recommendations' which resolved that all countries signatory to the agreement must migrate from analogue terrestrial television to digital terrestrial television broadcasting services by June 2015.
- 1.1.4.** Digital migration begins with the 'switch-on' and transmission of broadcasting digital signals and ends with the 'switch-off' of analogue ones. Until analogue switch-off occurs, there is a period of 'dual illumination' during which both analogue and digital signals are simultaneously transmitted.
- 1.1.5.** In order to continue viewing television using the current analogue TV sets, the public will be required to use Set-Top Boxes (STBs) which convert the transmitted digital signal to analogue. Otherwise, it will be necessary to acquire digital-enabled TV sets.
- 1.1.6.** For the digital migration process in Swaziland to be successful within the two year dual illumination or transitional period decided by Government, it is necessary to have a clear government policy and Implementation Plan. Also critical is the co-operation of all the relevant stakeholders working together with the public.

- 1.1.7.** A Digital Terrestrial Television Migration Roadmap Team (DTTRT) was established by the Cabinet in 2011 to develop key practical recommendations and to contribute to the development of a national policy for Swaziland.
- 1.1.8.** In order to implement the Digital Migration in conformity to the ITU ‘Recommendations’ of which Swaziland is a party, the Swaziland Terrestrial Television Migration Policy (STTMP) (herein referred to as the Policy) has been formulated. This policy will provide a framework that will ensure a smooth transition from analogue terrestrial television to digital terrestrial television broadcasting in Swaziland. This Policy draws on the inputs generated by the DTTRT as well as inputs received from the public and other stakeholders through public participation process and special meetings held.

1.2 Benefits of Digital Migration

1.2.1. Digital Terrestrial Television Migration presents the country with a unique opportunity to positively shape the future dynamics of the Information and Communications Technology (ICT) sector. The migration from analogue broadcasting to digital broadcasting will bring with it many benefits including and not limited to:

- 1.2.1.1.** An efficient use of the frequency spectrum, a public and scarce resource;
- 1.2.1.2.** More channels and, therefore, more diverse content delivered to the public;
- 1.2.1.3.** Superior quality of video and audio;
- 1.2.1.4.** A potential for the provision of special interactive services to cater for people with visual and hearing impairments such as audio description and subtitling, and e-government delivery.
- 1.2.1.5.** Increased efficiency use of the spectrum due to less bandwidth being taken up leading to less storage and transmission space.
- 1.2.1.6.** Less signal deterioration on duplication;
- 1.2.1.7.** The provision of a signal strength that is constant irrespective of distance from the transmitter within the coverage area;
- 1.2.1.8.** Provision of lower transmission costs due to the fact that less transmitter power is required for the same area of coverage under analogue;
- 1.2.1.9.** An optimal utilisation of the transmission infrastructure since broadcasters would be concentrating on content production, leaving the development of digital infrastructure to the signal distributor;
- 1.2.1.10.** A reduction of the negative impact to the environment that would be caused by the broadcasting infrastructure;

- 1.2.1.11. A video coding which allows for the provision of different channels in the same vicinity of a transmitter at the same frequency without interference;
- 1.2.1.12. The availability of choice or the provision of more programme channels;
- 1.2.1.13. An introduction of new and enhanced services such as Electronic Programme Broadcasting; and,.
- 1.2.1.14. A direct contribution to the socio-economic development and the improvement of the quality of life of all the people of the country.

1.3 Vision of the Swaziland Digital Terrestrial Migration Policy

- 1.3.1. To build a truly Twenty- First Century information and knowledge society in the Kingdom of Swaziland, participative to the socio-economic development of the country, poverty reduction and human resource capacity development obtained through migrating from analogue terrestrial television to digital terrestrial television

2.0 STAKEHOLDER CONSULTATIONS

2.1 Consensus building, Consultation

- 2.1.1. This policy was developed through a consultative process. The Ministry of Information, Communications and Technology (MICT), constituted a Digital Terrestrial Television Roadmap Team (DTTRT) through a Cabinet decision with membership drawn from Regulators, Government Ministries and Agencies, Telecommunications Operators, Consumer Representatives, and Broadcasters. The constitution of the group was in accordance with the implementation of the international decision to move from analogue to digital terrestrial broadcasting.
- 2.1.2. The Ministry mandated the group to initiate the migration process from analogue to digital terrestrial broadcasting in Swaziland with overall task of coming up with policy recommendations for migration to digital terrestrial broadcasting in Swaziland including the coordination, development of a strategic implementation plan together with the monitoring and evaluation of the whole digital migration programme.
- 2.1.3. Two stakeholders' consultative workshop were held in November 2011 and in May 2012 and was attended by Broadcasters, Content providers, Consumer Organizations, Telecom Operators; and also by colleagues from South Africa who made presentations during the workshop November 2012 workshop. Present also were other entities that had an interest in the digital Migration strategy. All issues raised, discussed and agreed upon were incorporated into this final document (ready for consideration by Cabinet).

3.0 RATIONALE FOR DIGITAL MIGRATION

3.1 Digital Migration and the National Development Strategy

- 3.1.1.** Swaziland is confronted with a wide and diverse range of development challenges such as the digital divide, building social cohesion, building the economy of the country, poverty eradication, and employment creation. Digital broadcasting has the potential to contribute significantly to addressing these challenges and accordingly the Government has identified Migration to digital broadcasting as a national priority.
- 3.1.2.** Additionally, the international obligation of switch over from analogue to digital broadcasting by June 2015, requires pronouncement of the necessary framework that would ensure that all services currently being delivered through analogue networks are fully replicated onto the digital networks before the analogue networks are discontinued.
- 3.1.3.** Swaziland has a responsibility to meet her National Development Strategy and also as a member of regional and international organisations, is expected to meet the requirements and agreements made at such organisations. At the international level, Swaziland is expected to meet the requirements of the MDGs. To that end, the digital migration programme offers Swaziland an opportunity to accelerate the processes required to meeting her various requirements be they local, regional or International.

3.2 Bridging the Digital Divide

- 3.2.1.** Digital broadcasting has a key role to play in the social-economic and cultural development of Swaziland. Digital broadcasting is of fundamental importance in the emerging Information Society and knowledge based economy, in which access to information and knowledge is regarded as a prerequisite to economic and societal development
- 3.2.2.** Universal Service and Access or the availability and accessibility of broadcasting services to all citizens are a key component of successful digital migration. In order for households to continue to receive television services on their current analogue TV sets after the analogue signal is switched off in December 2015, Set-Top-Boxes (STBs), which convert the digital signals into analogue signals, are required.
- 3.2.3.** Government has decided, as a matter of policy, to consider finding means of making the STBs affordable and available to the very poor TV-owning and non-owning households. This support by Government is in line with its commitment to bridging the digital divide in Swaziland.

3.3 Increasing Access to Information and Services

- 3.3.1.** The ICT sector is one of the sectors identified as having the potential to contribute to Increasing Access to Information and Services through

infrastructure roll-out, reducing cost of doing business, small business development and contributing to creating a macro-economic climate conducive for economic growth. Globally poverty is associated with low access to information and knowledge.

3.3.2. Government therefore regards greater information and communication flows within and between communities and regions as an important tool in the war against poverty. The digital divide is to some extent a cause as well as a consequence of poverty.

3.3.3. Access to government information and services, in particular, is fundamentally important in poverty eradication efforts. Through the effective application and use of ICTs (e-government), opportunities are created for the efficient management of information to the citizen, better service delivery, the empowerment of people through access to information and participation in public policy decision-making. The STB can be a tool for access to information and services for all.

3.4. *Development of the local content industries*

3.4.1. Digital broadcasting will require a concerted effort to increase the pace of generating digital content. Digital Content Generation Hubs (DCGHs) aimed at generating content for digital broadcasting may be established. The DCGHs will also contribute to the development of the Creative Industries as well as job creation. In addition, the development of Creative Industries will provide an opportunity for the provision of local and indigenous Swazi content material, entertainment and cultures in multichannel digital broadcasting, thus contributing towards building national identity and social cohesion

3.5. *Effecting an efficient use of the Radio Frequency Spectrum*

3.5.1. This Policy recognizes that the Radio frequency spectrum is a national resource and that Government has a responsibility to use such a resource in the public interest, prioritizing it for developmental objectives.

3.5.2. Digital broadcasting enables utilization of the scarce frequency spectrum far more efficiently than analogue technologies. Research indicates that the largest single benefit of digital migration is the freeing up of valuable radio frequency spectrum that is currently used for analogue television transmission. In broadcasting digital migration processes, the freed up spectrum is generally used for the provision of other services in addition to television such as broadband wireless services and mobile television.

3.5.3. Digital migration is occurring at a time when technological advances in mobile telephony and wireless broadband are making these services increasingly attractive to consumers. This Policy envisages the licensing of such services to the benefit of the majority of people.

3.5.4. Radio frequency spectrum propagation does not respect international country borders. These factors, together with the fact that radio waves are capable of

causing harmful interference over very long distances, make it essential for radio frequency usage to be internationally coordinated with Swaziland's neighbours in the Southern African Development Community (SADC).

- 3.5.5.** Critical in obtaining adequate spectrum for digital television broadcasting, is that it is expected that Swaziland will convene with other members states in Africa to review the GE-06 current spectrum allocation for the country to ensure that the plans that the country has as outlined by this policy shall be met. Discussions were held at the recent World Radio Conference of 2012 (WRC-12) in Geneva for the need to come up with a review of the GE-06 TV channel allocations. It is also envisaged that the new plan will provide more spectrum for mobile communications for broadcasting use such as in electronic news gathering (ENG).
- 3.5.6.** Competition should be promoted within the limits of available spectrum in order to ensure a smooth migration to digital broadcasting in the country and to provide a multiplicity of sustainable services to benefit both the public and the broadcasters.

3.6. *Providing free primary, high school and Tertiary education*

- 3.6.1.** This Policy recognises that education is a key and fundamental base for the development of the human resources of the country. It recognises the provisions of the national Constitution on the provision of free primary education, recognises the aspirations of the nation articulated in the National Development Strategy, and recognises the requirements for the country to meet the provisions of MDGs especially in regard to the provision of education. To this end, Government is desirous to use the migration of television from analogue to digital as a foundational cornerstone to leapfrog the formal educational sector aspirations.
- 3.6.2.** This Policy promotes investigations to be undertaken to seek ways of making free education a reality through the use of digital television. It recognises that efforts will be made by Government to discuss with external development partners to establish funding mechanism for the provision and access to formal education by children especially the orphaned and vulnerable.
- 3.6.3.** This policy recognises the need for the development of curricular that will enhance learning skills and efficient absorption of materials well adapted for television broadcasting, it being recognised that the signal origination of content can also be direct from an actual class operating in a selected school.
- 3.6.4.** The Ministry of Education whose portfolio responsibility is in providing formal education particularly in all areas of primary school, secondary through high school and tertiary education, will be the responsible Ministry for the overall development of the curriculum where necessary and assisting in the actual implementation of the requirements for the national rollout out of digital television for formal education. To this end, the Ministry of Education shall play a critical role in ensuring the sourcing of funds for the purchase of

receiving equipment to be used in the digital rollout for formal education purposes.

3.6.5. The Ministry of Information, Communications and technology, will be responsible for the overall technical planning to ensure that the provisions of this Policy are met.

3.6.6. It is expected that the rollout of free education through digital television will not only have an impact on improving the universal access to education to everyone and every child in country, but that it will be of most profound benefit to the poor and the very poor especially the orphaned and vulnerable children.

3.6.7. The office of the Deputy Prime Minister will further take centre stage in ensuring that the poor and the very poor, especially the orphaned and vulnerable children, are provided with facilities appropriate to receive digital TV transmissions as a universal service obligation.

4.0. SITUATIONAL ANALYSIS

4.1. Introduction of Broadcasting in Swaziland

4.1.1. The introduction of broadcasting services in Swaziland dates as far back as 1964 when the government first started radio broadcasting services. Swaziland has one TV national broadcaster and one private TV broadcaster known as Channel Swazi. The national broadcaster known as Swaziland Television Authority (STVA) has existed for 29 years. The STVA is a broadcaster established in 1983 through an Act of Parliament. Before the Act of Parliament established it, it was known as the Swaziland Television broadcasting Corporation (STBC). His majesty King Sobhuza II officially opened STBC in February 1978. This marked the coming of Television in Swaziland. The private TV broadcaster known as Channel Swazi was established in 2001

4.2. Current Broadcasting Infrastructure & Technology in use

4.2.1. The prevailing television broadcasting technology in use is Analogue technology. Analogue television broadcasting services in Swaziland are offered in VHF and UHF frequency bands (174-230 MHz and 470-862 MHz) respectively in accordance to Geneva 1989 (GE-89) Agreement. This agreement provides for international protection to broadcasters against any interference from other users of the radio spectrum in contracting member countries of these treaties.

4.3. Policy and Legislative framework

4.3.1. The country has a well compiled ICT policy in place. The Policy is called the National Communications and Information Infrastructure (NICI) Policy. It was developed and approved by Government in 2006.

- 4.3.2.** The policy represents Government's commitment to the implementation of a number of key policy items and initiatives aimed at facilitating and accelerating development, deployment and exploitation of ICT within the economy and the society.
- 4.3.3.** The country has also an Information and Media Policy of 2005 in place. The goal of the Information and Mass Media Policy is to develop this sector in the Kingdom of Swaziland through a template that provides for common principle over regulation, self-regulation, the public's access to information, operating standards, rules of entry, ownership, indigenous participation and human skills development, especially in light of the new of opportunities brought about by the Information and Communications Technologies.
- 4.3.4.** In regard to the legislative framework for telecommunications and postal services, there is in place, the Swaziland Posts and Telecommunications (SPTC) Act of 1983. The SPTC Act of 1983 establishes the SPTC as a service provider for telecommunications, postal and telegraph services and it further provides that the SPTC is the regulator for telecommunications, telegraph and postal services.
- 4.3.5.** In regard to the legislative framework for television broadcasting services, there is the Swaziland Television Authority (STVA) Act of 1983. The STVA Act of 1983 establishes the STVA as a service provider for television services in the country and it further provides that the STVA is the regulator for television broadcasting.
- 4.3.6.** Currently in Parliament, there are two Bills whose intent is to change the current provisions of both the SPTC and STVA particularly in matters of regulating the industry. There is the Swaziland Communications Commission Bill whose objects are to provide for the establishment of an Independent regulatory authority. There is also the Electronic Communications Bill that provides for further development of electronic communications which also repeals the regulatory powers of both the SPTC and STVA. Both Bills provide Swaziland with a very sound platform for launching a Digital Terrestrial Television initiative. Most of the critical policy foundations that will be required for Digital Terrestrial Television are already outlined in the Electronic Communications Bill (e.g. open access, infrastructure sharing, technology neutrality, and separation of content and carriage).
- 4.3.7.** When the Electronic Communication Bill is an Act of Parliament it will be supported by appropriate regulations made under the Act where such regulations are to provide for Digital Migration regulation.
- 4.3.8.** In addition to the Electronic Communications Bill, two pieces of draft legislations one being the Swaziland Broadcasting Bill and another, the Swaziland Public Corporation Broadcasting Bill are currently at Cabinet awaiting Cabinet's decision before moving over to Parliament.
- 4.3.9.** There is also a Copyright Bill in Parliament

5.0. POLICY OBJECTIVES

- 5.1.** This policy provides a roadmap and framework whose objectives are to:
- 5.1.1.** establish a policy environment within which terrestrial digital television broadcasting is to be implemented in Swaziland;
 - 5.1.2.** create an environment for the uptake of digital terrestrial television services by all households, including the poor;
 - 5.1.3.** ensure a defined future and cut off date for existing analogue broadcasting services and also ensure the introduction of new digital television services, taking into account the advantages of digital television technology and gaps related to programming content especially in regard to various Tinkhundla constituency content as well as parliament and government information.
 - 5.1.4.** provide for the delivery of formal educational programmes, through television, from primary school education through tertiary education. In particular, provide free formal education for school going pupils from primary school through secondary school.
 - 5.1.5.** give effect to the decision to implement digital migration within a two-year dual illumination period.
 - 5.1.6.** provide a framework for the provision of community television and mobile broadcasting services;
 - 5.1.7.** provide a framework for the establishment of a National Broadcasting Infrastructure Agency which will be responsible for providing the national broadcasting infrastructure and also manage the digital broadcasting multiplexing requirement.
 - 5.1.8.** provide for television services in both Siswati and English languages;
 - 5.1.9.** provide for access to broadcasting service to people with special needs;
 - 5.1.10.** provide for the development of a Swaziland electronic manufacturing industry
 - 5.1.11.** provide for the development of content creative industries including the creation of local content; and
 - 5.1.12.** provide for the establishment of a body referred to as Digital Terrestrial Television Roadmap Team (DTTRT) to guide and lead the development of a national analogue to digital terrestrial TV roadmap and to monitor the implementation of and raise public awareness about digital migration in Swaziland.

6.0. KEY POLICY DECISIONS/STATEMENTS

- 6.1.1.** The switch-on date of the broadcasting digital terrestrial television signal is 01 January 2014 and the switch-off date of the analogue terrestrial television signal is 01 December 2015. This shorter 2-year dual illumination period will reduce the costs of digital migration.
- 6.1.2.** Achieved in a phased manner, the national digital broadcasting signal coverage shall be covering 50% of population or geography by January 2014, 80% of population or geography by end of 2014 and close to 100% by June 2015 enabling analogue switch-off.
- 6.1.3.** There shall be established, a National Broadcasting Infrastructure Agency (NBIA) whose responsibility shall be to manage and develop the national broadcasting infrastructure in the country. The NBIA shall be established by law before end of 2013 as the common carrier on a non-preferential and non-discriminatory basis.
- 6.1.4.** To enable the digital television transmissions to begin in an environment where the NBIA has not as yet been set up as a fully fledged organisation, the Swaziland Television Authority (STVA) or the public service television broadcasting entity shall manage the multiplexers including broadcast signal distribution for television.
- 6.1.5.** The network of radio frequencies dedicated for public broadcasting shall be co-assigned by the regulatory authority to and managed by the National Broadcasting Infrastructure Agency (NBIA).
- 6.1.6.** The NBIA shall provide broadcasting signal distribution to public, commercial and community broadcasters. Such services shall be provided on a non-preferential and non-discriminatory basis.
- 6.1.7.** There shall be a dual illumination period of two years during the transition from analogue television to full digital television. During the dual illumination period, a number of multiplexers will be reserved, the management of which shall be in the hands of the National Broadcasting Infrastructure Agency (NBIA). A set of multiplexes shall be reserved for general broadcasting serving for: (1) informal education with programmes covering such areas as health, agriculture, business and others, (2) providing general news and information, (3) serving to provide for entertainment content. Another set of multiplexers will be reserved for formal education offering free primary and high school education. Tertiary education shall also use the channels reserved for formal education.

- 6.1.8.** The regulatory authority shall provide the regulatory function through necessary regulations and guidelines established by the Minister for Information, Communications and Technology for implementing this policy.
- 6.1.9.** The regulatory authority shall from time to time recommend to the Minister, regulations and guidelines applicable to the digital television programme including issues related to the digital dividend.
- 6.1.10.** The public service broadcaster shall cater for national television channels as well as channels prioritising education, health, youth, sports, SMME, arts and culture, Parliamentary and Government needs.
- 6.1.11.** The public service broadcaster shall be responsible for all public service broadcaster signal origination and quality from any designated location or school and ensuring that such video signal is available at the location of origination for onward transmission to the multiplexers.
- 6.1.12.** The NBIA shall be responsible for the routing of all video signals to the multiplexers and for national television signal distribution or transmissions.
- 6.1.13.** The following Technical Standards are approved:
- 6.1.13.1.** DVB-T2 is adopted as the national standard for broadcasting digital terrestrial television in Swaziland.
 - 6.1.13.2.** DVB-S is adopted as the national standard for broadcasting digital satellite television in Swaziland.
 - 6.1.13.3.** DVB-H is adopted as the national standard for mobile terrestrial Television broadcasting in Swaziland.
 - 6.1.13.4.** MPEG-4 is adopted as the compression standard for Swaziland Digital Terrestrial Television (DTT) rollout.
- 6.1.14.** To ensure reception of the television digital signals by ordinary viewers using analogue television sets, Government will consider finding means of making the set top boxes affordable and available to the poor households. To this end, the STB's shall be sourced primarily from

manufacturers providing affordable competitive pricing whilst ensuring the quality of the performance of the units.

- 6.1.15.** The policy supports the exploration of other funding models involving among others the public, private partnerships together with development (donor) partners for rolling out DTT.
- 6.1.16.** The STBs shall be enabled to receive services from different platforms and operators. STBs will have standardised operating systems prioritising security features, interoperability and inter-connectivity.
- 6.1.17.** Free education, beginning with primary education, through digital television shall be available by 01 January 2015, with test broadcasts beginning before this date.
- 6.1.18.** Digital broadcasting must contribute significantly to accelerating the building of social cohesion and achieving national identity in Swaziland through the dissemination of appropriate content that adequately reflect the country's culture.
- 6.1.19.** Noting the challenges relating to infrastructure, Digital Content Generation Hubs (DCGHs) aimed at generating content for the digital broadcasting shall be established. The DCGHs will also contribute to the development of the Creative Industries as well as job creation.
- 6.1.20.** A special skills development programme through digital content generation hubs shall be established to support the growth of the Creative Industries.
- 6.1.21.** The regulatory authority shall ensure that access to public broadcasting services by all Swazis, regardless of their economic status, remains a fundamental principle that should continue to be upheld in the digital broadcasting era.
- 6.1.22.** To support this policy, a strategic implementation plan shall be developed shortly after the policy's adoption by Government.
- 6.1.23.** The "must carry" arrangements, which require broadcasting services to carry public broadcasting services, shall continue in the new digital environment, fulfilling the important aspect of providing public broadcasting services to all citizens.

7.0 THE TELEVISION SET-TOP-BOX (STB)

7.1. Set Top Boxes

- 7.1.1.** The STB is the piece of equipment that allows users to view digital transmissions on their current analogue TV sets. It decodes the broadcast digital video stream and converts it into a signal that can be displayed on an analogue TV set. The timing of the availability of STBs in Swaziland will have a significant impact on terrestrial digital broadcasting rollout decisions.
- 7.1.2.** In the digital broadcasting era, STBs shall be enabled to receive services from different platforms and operators. This will allow different service providers to gain access to the same consumers and vice-versa for the consumers to have inter-changeability between service providers

8.0. ADOPTING APPROPRIATE TECHNICAL STANDARDS FOR THE STBs

8.1. Specifications for STBs in Swaziland

- 8.1.1** In arriving to the appropriate specifications for the STBs in Swaziland, a technical committee of experts which shall include the technical group in the Digital Terrestrial Television Roadmap Team and the Swaziland Standards Authority (SWASA) shall develop the appropriate standards. The specifications so developed shall ensure that households especially the poor and the very poor continue to have access to television services using their current analogue television set.

9.0. THE DIGITAL TERRESTRIAL TELEVISION ROADMAP TEAM

9.1. The Establishment of the Digital Terrestrial Television Roadmap Team

- 9.1.1.** The Policy provides for the establishment of a body to be known as the Digital Terrestrial Television Roadmap Team (DTTRT). It will comprise representatives from the public, government, industry, and consumer groups. Key among its functions include: consumer education and awareness, liaison with relevant stakeholders, and STBs manufacturers, monitoring the implementation and providing regular reports to the Minister of Information and Communications Technology.

10.0 IMPLEMENTATION

10.1. Implementation time frame-Digital switch-on and analogue switch-off

- 10.1.1.** Digital migration begins with the 'switch-on' and transmission of broadcasting digital signals and ends with the 'switch-off' of analogue ones. Until analogue switch-off occurs, there is a period of 'dual illumination' commonly referred to as simulcast during which both analogue and digital signals are simultaneously transmitted.

10.1.2. In order to continue viewing television using the current analogue TV sets, the public will be required to use Set-Top Boxes (STBs) which convert the transmitted digital signal to analogue. Otherwise, it will be necessary to acquire digital-enabled TV sets.

10.1.3. Taking into account the resolution of the ITU that the transition from analogue to digital terrestrial television broadcasting should end on 17 June 2015, the DTTRT recommends that in Swaziland, the preparatory stage start immediately and is planned to end in March 2013. During this period digital broadcasting services may be delivered **on pilot** basis up to 31st December 2013, after which digital broadcasting will be officially launched in Swaziland.

10.1.4. The Government recognizes that the aggressive two (2) year dual illumination period in Swaziland will be a significant challenge: However, this shorter period provides a range of national benefits, including the following:

10.1.4.1. The best economic outcome through bringing forward the digital dividend and reducing cost of duplication during the transitional period;

10.1.4.2. Room to manoeuvre in relation to the global ITU-RRC agenda for digital migration;

10.1.4.3. Bridging the ‘digital divide’ between technology have and have-nots; and;

10.1.4.4. Support for the emerging digital broadcasting industry in terms of the deployment of services, content and equipment.

10.1.5 For the successful implementation of digital migration policy, it is desirable that both the Swaziland Communications Commission and the Electronic Communications Bills currently in Parliament are passed into Law.

10.2. The Rollout of Digital Television infrastructure and Set Top Boxes (STBs)

10.2.1. The rollout of the digital terrestrial transmission infrastructure shall aim at achieving the national coverage of the digital broadcasting signal in a phased manner; 50% of population or geography is to be covered by end of 2013, 80% of population or geography by end of 2014 and close to 100% by end of 2015, thus enabling analogue switch-off as planned. Satellite and other innovative means will be open to be used, as may be appropriate, to reach underserved areas.

10.3. Communication and Dissemination of the Policy

10.3.1 In order to ensure that this policy is widely known, accepted and adhered to by all stakeholders, government shall print and disseminate the policy at all levels. The Ministry of Information, Communications and Technology

(MICT) and other stakeholders shall develop and implement a communication and information dissemination strategy of the policy among all stakeholders.

11.0 THE ROLES OF DIFFERENT STAKEHOLDERS

11.1.1. It is recognized that different stakeholders will be involved in the implementation of Digital Broadcasting especially during the transition period and beyond.

11.2. Role of Government

11.2.1. In order to ensure that the migration process is executed smoothly and completed within the agreed timeframe, Government shall carry out the following activities among others:

11.2.2. Put in place appropriate policy, legislative and regulatory frameworks to enable smooth execution of the migration process within the set time lines;

11.2.3. Undertake fiscal measures to enable consumers procure set top boxes and digital TV receivers at affordable prices, for example, through tax waivers and subsidies;

11.2.4. Provide appropriate incentives and support for the signal distributor and broadcasters to put in place necessary digital infrastructure and systems;

11.2.5. Promote the uptake of Digital broadcasting technologies and services through consumer awareness and education, and appropriate pilot projects.

11.2.6. Support the development of local content industry; and

11.2.7. Invest in appropriate Communications Infrastructure to enhance digital broadcasting signal distribution and related value added services such as Internet and Data-casting.

11.3. Roles of Broadcasters

11.3.1. With the introduction of the NBIA as the sole signal distributor, the broadcasters will concentrate on content development and leave the responsibility of signal distribution and operation to the signal distributor.

11.3.2. The broadcasters will, therefore, handle the following tasks in the implementation of the new digital broadcasting services during the transition period:

11.3.2.1. Invest in appropriate infrastructure for content development;

11.3.2.2. Put in place appropriate human resources to address content development; and

- 11.3.2.3.** Undertake extensive consumer awareness, public relations and marketing campaigns in collaboration with government to ensure smooth transition to digital broadcasting.

11.4. Role of the Regulator

- 11.4.1.** The Regulator will deal with the issues outlined below during the transition period:

- 11.4.1.1.** The regulator shall enforce licence conditions to the signal distributor (NBIA), which signal distributor, will be required to ensure compliance to parameters in the licenses as well as declare what has been installed on sites. This will facilitate the use of authorized transmitter powers and location of transmitters in designated broadcast sites hence minimizing incidences of interference.
- 11.4.1.2.** Aware that there are few suitable transmission sites in urban areas, there could be co-location of transmitters used for analogue and digital transmission during the simulcast period. This is an impact that the regulator is expected to address to mitigate any cases of signal interference between the analogue and digital networks.
- 11.4.1.3.** To make sure that there is adequate information available to consumers on digital issues so as to ensure that disruption of services to consumers is minimised, the regulator will develop a communication strategy to manage various issues that arise from analogue-digital conversion process.
- 11.4.1.4.** The regulator needs to make sure that, where possible and necessary, the broadcasters and distributor have to meet their responsibility to provide accurate and consistent information to the consumers and the public at large.
- 11.4.1.5.** The regulator should regularly examine digital implementation issues with concerned parties and stakeholders and explore possibilities with Government on possible assistance to broadcasters, distributor and consumers as the case may be. In the absence of a regulator, the DTTT will undertake the monitoring and implementation.

11.5. Role of the Public

- 11.5.1.** The public is expected to adhere to guiding advices and instructions that will be issued by the signal distributor on the best direction to orient their antennas for good quality reception of the digital signals. Similarly, the consumer will be required to purchase Set top Boxes or integrated digital TV receivers in order to receive digital terrestrial transmissions.

11.6. Role of the National Broadcasting Infrastructure Agency (NBIA)

11.6.1. The NBIA as the signal distributor will provide:

- 11.6.1.1.** Carriage of the signals from the studio to distribution sites;
- 11.6.1.2.** Distribution of the signal to designated transmission sites;
- 11.6.1.3.** Broadcast the signal within the service area.

12.0 MONITORING AND EVALUATION

12.1. A monitoring framework will be developed to monitor the attainment of migration from analogue to digital broadcasting.

12.2. The regulator working with the DTTRT will be responsible for monitoring and evaluation.

13.0 COPYRIGHT

13.1. The digital platform notably enables a significant improvement in the quality, quantity and accessibility of content. New mechanisms are required to compensate content creators and distributors in an environment where it is easy to replicate perfect copies.

13.2 Digital simulcast of a copyright protected may result in a right to additional copyright payments even though few or no additional viewers are involved. Such demands may be perceived as a disincentive to provide or extend digital services.

13.3. Developments in digital broadcasting may therefore be constrained by right holders, given the territorial nature of copyright. Legal issues on protection of electronic pay services often encrypted to ensure remuneration and/or to limit viewing to a specific territory need to be resolved.

13.4. In a bid to address copy right issues the following areas need to be clearly addressed:

13.5. Establishment of appropriate policies and regulations on the access, use and distribution of content in the diverse digital service environment;

13.6. Establishment of a body entrusted with the responsibility of promoting diverse content creation that supports among others, local content development industry, and;

13.7. The streamlining of the development and supervision of curriculum used in the media training institutions in regard to the utilisation of digital systems.

14.0. FINANCES

14.1. Financing of the Policy

- 14.1.1.** The different components of the Policy will be financed by the various stakeholders. Government and its Regulatory arms will focus on consumer education and creation of awareness, costs associated with upgrade of the public signal distribution infrastructure, content development, quality assurance and promotion of new innovative digital based programs that will enhance the broadcasting industry.
- 14.1.2.** Further, Government will consider mechanisms for financing the STBs to enable the universal access to the digital television broadcasts by all citizens especially the poor, orphaned and all vulnerable persons.
- 14.1.3.** Government will further consider mechanisms for financing various equipment for use in the provision of free education to primary through high school, including for tertiary education.
- 14.1.4. The Broadcasters will meet the costs associated with content development and content development facilities among others.
- 14.1.4.** Other funding models to finance the rollout of digital terrestrial TV will be investigated which will include public and private and development partners (donors) partnerships.

15.0. ENVISAGED CONSTRAINTS ON IMPLEMENTATION

15.1 Financial constraints

- 15.1.1** Probably the key most serious constraint for the implementation of the digital TV migration project is in obtaining finances. The currently obtaining financial position of the country does not augur well for the introduction of many new national services including digital TV. Government will need to come up with strategies and consider ways to finance, where ever possible, the digital migration programme.

15.2 Electricity and other sources of Energy

- 15.2.1.** The availability of sources of energy threatens to be a serious challenge to the effective rollout of Terrestrial Digital Television or rather the implementation of digital migration programme. For electricity, the penetration of the Swaziland Electricity Company's (SEC) power grid is not to every homestead. Secondly, the cost of electrification of homesteads, continues to be a serious handicap as the majority of people in Swaziland live below the poverty datum line. Statistics indicate that 63% of Swazis live below the poverty datum line and this says a lot about those still within the bracket of extreme poverty or the

very poor. This challenge is one that Government will need consider when trying to ensure the universal access to Digital Television by all the citizenry.

15.3 Change Management Constraints

It is recognised generally that there are opposing attitudes in varying degrees to any change that are normally exhibited by those to whom change is required. To this end, there will be a lot of public awareness requirements that have to be put in place if such resistance to the adoption of digital terrestrial Television is to be minimised.