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| **The South Asian Telecommunication Regulator’s Council (SATRC)**  |  |
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**SATRC REPORT ON**

**DIGITAL SWITCHOVER PLAN IN SATRC COUNTRIES**

**Prepared by**

**SATRC Working Group on Spectrum**

Adopted by

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**INTRODUCTION:**

ITU has published guidelines for the transition from analogue to digital broadcasting. Such transition can create great opportunities for the provision of ICT applications and multimedia services including the higher quality of video and interactivity. It will also contribute to the efficient use of spectrum and pave the way for “digital dividend”, where by the released spectrum can be used for promoting wireless broadband communications. These guidelines provide assistance to member countries to smoothly migrate from analogue to digital broadcasting. In a further effort to help countries to switch over to digital broadcasting ITU has selected countries to help them drafting a national Roadmap for this Digital Switch-Over (DSO) process.

**BACKGROUND:**

Giving people access to broadband and the internet is a high priority for governments, particularly at times when the global economy is underperforming. The economic benefits of broadband combined with a range of opportunities to enhance social well-being in healthcare, education and the environment mean that affordable, equitable access to broadband is a political imperative. Achieving this goal breaks down the ‘digital divide’ that has long been associated with the distribution of information and communication technology (ICT) and the necessary skills to use it.

The Digital Dividend is the spectrum that is freed up after analogue television broadcasting switches to a digital transmission. Digital television uses spectrum far more efficiently than analogue television and allows excess spectrum to be released for other services. Governments around the world have benefitted from releasing part of this spectrum to mobile broadband.

Since the Digital Dividend spectrum was first identified at the World Radiocommunication Conference 2007 (WRC-07), ITU regions have been engaged in meetings to agree on common regional band plans to enable low-cost consumer devices and services.

According to the GE06 agreement(final acts of the regional radiocommunication conference for planning of the digital terrestrial broadcasting service in parts of regions 1 and 3, in the frequency bands 174-230 MHz and 470-862 MHz), The *Transition period* shall end on 17 June 2015 at 0001 hours UTC. However, for the countries listed in footnote 1 of provision 12.6 of Article 12 of the agreement, for the band 174-230 MHz8, the *Transition period* shall end on 17 June 2020 at 0001 hours UTC. This agreement applies in all Region 1 countries except Mongolia and in Iran (Islamic Republic of) in the frequency bands 174-230/470-862MHz. It contains provisions for the terrestrial broadcasting service and other primary terrestrial services, a plan for digital television, and a list of stations of other primary terrestrial services.

GE06 Agreement contains provisions for the terrestrial broadcasting service and other primary terrestrial services, a Plan for digital television, and a list of stations of other primary terrestrial services. The considerable frequency bands are: Band III 174-230 MHz

 Band IV: 470-582 MHz

 Band V: 582-862

**GLOBAL TREND AND INITIATIVE:**

Most of the countries in Region 1 and Region 2 have been migrated to digital broadcasting or in the process of migration. In Region 3, some of the countries are in process of digital switchover.



**LESSON LEARNT FROM GLOBAL INITIATIVES:**

It is important because harmonization of frequency assignments maximize value of digital dividend globally and supply of equipment will become a problem in near future as the analogue transmitter manufacturer is already being stopped their production.

It is necessary to consider the co-operation among the countries in this region in terms of selecting the standard, frequency co-ordination etc to expedite the digital switchover process. All countries except Maldives and Sri Lanka have the land borders. So co-ordination is required for smooth transition that tends to provide interference free services.

**CURRENT CONDITION IN SATRC COUNTRIES:**

The adaptation or deployment map of DVB-T/T2 standard is similar in SATRC countries like other parts of world as majority of countries have coped with this standard. There are 4 out of 9 countries namely Iran, India, Nepal, Bangladesh and Afghanistan have adopted DVB-T/T2 standard. Sri Lanka have considered for ISDB standard while Bhutan and Maldives yet to decide the standard. Pakistan has not decided the standard as well as not to take any decision to move forward into the switchover process.

In South-Asian region, Sri Lanka, Nepal, Maldives, Bhutan and Bangladesh have acquired the assistance from International Telecommunication Union (ITU) to prepare the ‘’Roadmap for the Transition from Analogue to Digital Terrestrial Television Broadcasting’’.

India is cleanly ahead in this region to mark the television broadcasting system from analogue to digital. The Ministry of Information and Broadcasting issued a notification on 11 November 2011, setting 31 March 2015 as the deadline for digital switchover. In December 2011, Parliament passed The Cable Television Networks (Regulation) Amendment Act to digitize the cable television sector by 2014. Digitization, on cable and terrestrial, will have four phases, in a 3-year transition starting from 31 October 2012, and finishing on 31 March 2015. The four metros of Delhi, Mumbai, Kolkata and Chennai have shifted to digital addressability by 31 October 2012. The second phase includes 35 cities with a population of more than one million, such as Patna, Chandigarh, Pune and Bangalore by 31 March 2013. All urban areas are expected to digitize by 30 November 2014 and the remaining areas by 31 March 2015. They have executed these phases in almost given time line as per the plan.

In Nepal, the ASO committee was formed by the official from different organizations. The regulations for subsidy policy on setup Box & TV Rx, network deployment plan for NTV-a National Government Broadcaster and common DTTB Platform for broadcasting operators in private sector have already been prepared by the committee. The committee has set the complete digitization date that can be achieved by Dec 2017. The standard is DVB-T2.

Maldives Broadcasting Commission has started to formulate a road map for the migration of terrestrial broadcasting services from analogue to digital technology.  A consultant had visited from 26 November-06 December 2012 for providing technical assistance with the aid of International Telecommunication Union. Moreover, a “national roadmap team” has been formed with participants from Maldives Broadcasting Commission, Communication Authority of Maldives, terrestrial broadcasters in Maldives and also representation from local NGO, Transparency Maldives. The aim of formulating such a road map to determine a date of switch over and to determine a broadcasting technology to be used nationwide and understand the steps required for successful migration through discussions with the concerned broadcasters. The standard is not fixed yet.

Afghanistan has selected DVB-T2 standard for implementing the analogue to digital transformation in the country. The digital transformation implementation will commence in Kabul on 01 March, 2015 and Ministry of Communications and Information Technology plans to make the entire country digital within next 3 years.

Pakistan has not acquired technical standards such as DVB, ATSC, DTMB or ISDB. According to one survey, 88 percent of low-income homes and 70 percent of high-income homes are unaware about the forthcoming digital switchover and the advantages of digital television. The country is still undecided about the entire switchover process though Pakistan Electronic Media Regulatory Authority (PEMRA) stated in its 2010 annual report it would be completed by 2015.

Bhutan plans for mobilizing resources and a trial run as per their road map on DTTB migration. This is to be completed by 2014. They will select the simulcast in selected service areas in phase manner. This process is to be completed by December 2016. They have also taken initiative to educate and create awareness among its viewers and to conduct the road-show and awareness programmes. This process will be carried out till and beyond 2017. Bhutan has marked its ASO date on 2017 (tentatively). Still the standard is not decided by the respective authority.

In Iran, already DTTB is introduced to almost all the cities in DVB-T standard. Islamic Republic of Iran Broadcasting is responsible to implement DTTB throughout the country. Communications Regulatory Authority of Iran has fixed the date of ASO (Analogue Switch Off) on 17 June, 2015 in 790-862 MHz and two years later in 694-790 MHz Only the Government owned television channel can broadcast the terrestrial and it would be switchover to digital terrestrial broadcasting only. All spectrums will be used by it so there is no question of awarding spectrum or license for DTTB.

SriLanka has taken decision on the introduction of digital television transmission on ISDB-T standard. A subcommittee was appointed by the Ministry of Mass Media and Information. In December 2010, subcommittee submitted report on Policy framework for the digitalization of terrestrial television broadcasting. A Roadmap was prepared by the ITU, KCC Expert and the NRT during August to October 2011. They have set their plan for implementing the ISDB-T as follows:

1. Deployment of ISDB-T pilot transmission services in Northern Province and Western Province by mid 2012.
2. Deployment of ISDB-T services from eight principal stations by mid 2014.
3. Analogue TV shut off in Western Province by end 2015.

And

1. Complete ASO by end 2018 (tentatively).
2. Deployment of One Seg. for Digital Mobile Television Broadcasting has been planned.

Bangladesh has adopted DVB-T2 standard for DTTB. In the National Frequency Allocation Plan (NFAP), the band 522-698 MHz is reserved for digital DTTB. At present, Bangladesh Television (BTV), a government owned organization has the sole right by Act to broadcast terrestrial transmission in VHF Band-III in 174-230 MHz band. It is already broadcasting digital terrestrial system in VHF Band III through three stations on test basis. The UHF band is still empty which is reserved for this purpose. A feasibility study was conducted by ITU in mid 2013 to implement the DTTB system in Bangladesh. The official from BTV, BTRC, Ministry of Post, Telecom and Information, Communication, Technology and Ministry of Information were also engaged in this study. The study suggested that the formation of roadmap is required for migrating from analogue to digital broadcasting within 2020 in DVB-T2 standard in 522-698 MHz.

**REGULATORY ISSUES THAT NEEDED TO BE ADDRESSED:**

Regarding Switchover to Digital Broadcasting System, there is a common issue among the SATRC countries i.e. the implementing body is not the Telecommunication Regulatory Authority but the broadcasting authority or ministry of that respective country. For this, it is difficult to ensure the date of ASO and sometime to fix the standard even. As spectrum is the key issue for the telecommunication regulators, the planning of the frequency bands in National Frequency Allocation Table as per the Radio Regulation is necessary. Furthermore, to meet the timeline declared by ITU is also an issue. Some of the SATRC countries need to amend the law of restricting terrestrial broadcasting from private broadcasters in order to minimize the cost of the switchover and to make it successful to the viewers. Buying set top box is a challenge for the viewers of this region as it adds extra cost. Developed country like Japan, set top box is provided by the government. In many other countries, set top box is marketed by all the television operators of that country. Again, for this reason terrestrial broadcasting need to be open for both government and private sector. The regulators need to identify procedure of spectrum assignment or awarding license. The operating system of spectrum muxing needs to be addressed.

**RECOMMENDATIONS AND GUIDELINES FOR SATRC COUNTRIES:**

To harmonize the digital broadcasting switchover among the SATRC countries, the respective authorities need to take decision regarding the standard and the frequency band. To avoid unwanted interference from neighboring countries and the availability of equipments at lower cost, the standard and the frequency band need to be similar in this region. In order to minimize the cost and to ensure the efficient use of spectrum, digital terrestrial broadcasting should not be restricted to private broadcasting operators. If the government is concerned about the control over the broadcaster, then by controlling the muxing it can meet the requirement. By sharing the infrastructure and the cost of set top box during the switchover period, the cost could be minimized. Similarly spectrum demand will be also reduced in this system.

**ANNEXURE:**

**Questionnaire on digital switchover plan in SATRC countries:**

To complete the SATRC agenda item on “Digital Switchover Plan in SATRC Countries” a questionnaire has been prepared and circulated among the SATRC countries. On the basis of that answer, the recommendation of this report has been prepared.

Following questionnaire has been sent to SATRC countries to understand the status of digital switchover in those countries.

1. Has a formal National Roadmap Team (or similar body) been already established?
2. Which organizations are (or will be) represented in the National Roadmap Team?

## Please provide following Country Information

### Demographics and Geography

|  |  |
| --- | --- |
| What is the Total area of your country (in sq km): |  |
| What is the Total population size (in millions) |  |
| **Distribution of Population within the country** | **Show as % of Total Population** |
| - City dwellers |  |
| - Rural location, town dwellers |  |
| - Remote village/country dwellers: |  |

1. What is the current DTTB situation in your country? Please explain in brief.
2. When do you plan to switch-off? (Year)
3. What technology do you plan to adopt?
4. How many broadcasters are currently providing digital terrestrial broadcasting services?
5. Does the Government or the Regulator have any plans to introduce digital terrestrial broadcasting services**? (Indicate ONE of the following)**

|  |  |  |
| --- | --- | --- |
|  | 1. No plans at this moment
 | [ ]  |
|  | 1. Currently developing a plan for the introduction of digital broadcasting services
 |  [ ]  |
|  | 1. Finalising a plan for the introduction of digital broadcasting services
 | [ ]  |
|  | 1. Installation stage
 | [ ]  |
|  | 1. Trial service stage
 | [ ]  |
|  | 1. Simulcasting
 | [ ]  |
|  | 1. Other (Please describe)
 | [ ]  |

1. Current Broadcasting Services and System

#### What broadcasting services are currently provided in your country? (Select ALL relevant service)

|  |  |  |
| --- | --- | --- |
|  | 1. Analogue Terrestrial Television
 | [ ]  |
|  | 1. Analogue Terrestrial Radio
 | [ ]  |
|  | 1. Satellite Television
 | [ ]  |
|  | 1. Cable Television (Analogue)
 | [ ]  |
|  | 1. Cable Television (Digital)
 | [ ]  |
|  | 1. Digital Terrestrial Television
 | [ ]  |
|  | 1. Digital Terrestrial Radio
 | [ ]  |
|  | 1. Shortwave (High Frequency) Radio
 | [ ]  |
|  | 1. Long Wave Radio
 | [ ]  |

### 9.2 What types of Licence Holders provide these services? (Select ALL relevant licence holder type)

|  |  |  |
| --- | --- | --- |
|  | 1. National Public (Govt Funded) Television
 | [ ]  |
|  | 1. Commercial Television
 | [ ]  |
|  | 1. Community and or Educational Television
 | [ ]  |
|  | 1. National Public (Govt Funded) Radio
 | [ ]  |
|  | 1. Commercial Radio
 | [ ]  |
|  | 1. Community Radio
 | [ ]  |
|  | 1. Other
 | [ ]  |

#### 9.3 Are any DTTB Services received from neighboring countries?

|  |  |  |  |
| --- | --- | --- | --- |
| NO  | [ ]  |  |  |
| YES |  [ ]  | Which DTTB Standard is used for the broadcasts being received? |  |

#### If the answer to question 9.3 is yes, please indicate the following:

|  |
| --- |
| Coverage from other countries DTTB Services |
| % of population | % of territory |
|  |  |

### Which organisation(s) provide terrestrial broadcasting in your country, how are they funded and what type of broadcast service do they provide?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Organisation Name | Public Broadcaster (Yes/No) | FundingMechanism | %of income | Terrestrial |
| Radio  | TV |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

### Please list each ministry and/or agency in your country with specific responsibilities for broadcasting policy, regulation, licensing, spectrum management and planning:

|  |  |
| --- | --- |
| **Function** | **Name of Agency/Department** |
| Media/Broadcasting Policy |  |
| Communications/Telecommunications Policy |  |
| Media/Telecommunications Legislation Development |  |
| Media/Broadcasting Telecommunications Regulations (made under provisions of legislation) |  |
| International Coordination of RadioFrequency Spectrum |  |
| National Spectrum Allocation  |  |
| Terrestrial Broadcasting Service Planning  |  |
| Licensing of Transmitters |  |
| Decisions on the issue of Broadcasting Service Licences |  |
| National policy on the archiving and preservation of media and broadcasting content such as still and moving images, sound etc archives preservation  |  |
| National Technology Standards (eg Television Receivers, Transmission Standards, Safety Standards etc) |  |

### Which of the Above Ministries/Agencies would take overall responsibility for the introduction of digital television broadcasting in your country?

### Are the existing broadcasting laws and regulations technologically neutral? (Eg, will they need extensive amendment to allow the introduction of digital broadcasting services?)

|  |  |
| --- | --- |
| Yes | [ ]  |
| No | [ ]  |

### Has the Government or the Regulator indicated any preference for a particular form of digital broadcast licensing and regulation? (Please indicate ALL relevant cases as follows :) Yes (Y), No (N), Under Study (S)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Digital TV | Digital Radio | Mobile Digital TV |
|  | Only existing analogue services will be allowed to convert to digital broadcasting.  | [ ]  | [ ]  | N/A |
|  | New entrants and existing analogue services will be licensed for digital broadcasting. | [ ]  | [ ]  | [ ]  |
|  | During the transition period only new entrants will be licensed for digital broadcasting. | [ ]  | [ ]  | [ ]  |
|  | During the transition period only existing broadcasters will be licensed for digital broadcasting. | [ ]  | [ ]  | [ ]  |
|  | Has the Government or the the Regulator identified how many digital broadcasters it is prepared to grant access? | [ ]  | [ ]  | [ ]  |

#### If answered Yes to Item v. above what Number Digital Terrestrial Television Broadcasting (DTTB) Licences are being considered and how will they be awarded?

|  |  |  |  |
| --- | --- | --- | --- |
| Broadcaster Type | Transition of Existing Analogue Services | New Services | No of Broadcasters who have expressed interest in migration |
|  | Number of Licences | Method of Award  | Number of Licences | Method of Award  |  |
| Public Service Broadcasters |  |  |  |  |  |
| Independent Broadcasters |  |  |  |  |  |
| Community Broadcasters |  |  |  |  |  |

### Has the Government or Regulatory Authority expressed any preference towards a particular digital broadcasting system standard? If so which standard? (Please provide a short commentary on the considerations that have led to this preference).

|  |  |  |
| --- | --- | --- |
| Service | Technology Standard | Not Decided |
| Digital Terrestrial Television |  | [ ]  |
| Mobile Digital Television |  | [ ]  |
| Broadcast Satellite |  | [ ]  |
| Digital Radio |  | [ ]  |
| Mobile Telephony |  | [ ]  |

### What is the highest frequency used in your country for provision of terrestrial analogue broadcasting at:

|  |  |  |
| --- | --- | --- |
|  | MHz | Channel Spacing MHz |
| VHF |  |  |
| UHF |  |  |

### Please indicate the primary allocation in the Band 610-960 MHz in your country for fixed service operation?

### 14.2 In your country, are any existing analogue broadcasting assignments in the band 610-960 MHz?

|  |  |
| --- | --- |
| Yes | [ ]  |
| No | [ ]  |

### 14.3 Is your Government or the Regulator considering, or has it already decided, to use the digital dividend arising from the transition to digital broadcasting?

|  |  |
| --- | --- |
| Yes | [ ]  |
| No | [ ]  |

##### Program Input Source in large Analogue Transmitter System (eg Off-air, microwave, satellite....)

|  |  |
| --- | --- |
| Off-Air | [ ]  |
| Cable/Optical Fibre | [ ]  |
| Microwave | [ ]  |
| Satellite (Not DTH) | [ ]  |
| DTH Satellite  | [ ]  |

### Which frequency bands are currently used in your country for analogue terrestrial broadcasting? (Indicate ALL bands used)

|  |  |  |
| --- | --- | --- |
| VHF |  | [ ]  |
|  | [ ]  |
|  | [ ]  |
| Other | [ ]  |
| UHF |  | [ ]  |
|  | [ ]  |
|  | [ ]  |
| Other | [ ]  |

### What is the bandwidth required for each channel in DTTB?

### Through which method spectrum will be assigned to the broadcaster (e.g. auction, beauty contest, etc.)? What is the terrestrial digital terrestrial television standard in your country?

|  |  |
| --- | --- |
| DVB-T | [ ]  |
| DVB-T2 | [ ]  |
| ATSC | [ ]  |
| ISDB | [ ]  |
| CMDB | [ ]  |
| Other | [ ]  |

### Which of the following frequency bands are currently used in your country for digital terrestrial Television broadcasting?

|  |  |  |
| --- | --- | --- |
| VHF |  | [ ]  |
|  | [ ]  |
| Other  | [ ]  |
| UHF |  | [ ]  |
|  | [ ]  |
| Other | [ ]  |

### Is your country providing a digital terrestrial mobile television broadcasting services?

|  |  |
| --- | --- |
| No  | [ ]  |
| Yes  | [ ]  |

### 20.2 Has the Government or the Regulator given any consideration to the introduction of Digital Mobile Television?

|  |  |
| --- | --- |
| No  | [ ]  |
| Yes  | [ ]  |

### 20.3 Please indicate the standard adopted for digital terrestrial television mobile broadcasting

|  |  |  |
| --- | --- | --- |
|  | Mobile broadcast standard | Yes/No |
| a | DVB-H | [ ]  |
| b | MediaFLO  | [ ]  |
| c | OneSeg | [ ]  |
| d | T-DMB | [ ]  |
|  | Other (please specify) | [ ]  |

### 20.4 Which of the following digital terrestrial mobile broadcasting services are currently available in your country?

|  |  |  |
| --- | --- | --- |
| 1 | Video | [ ]  |
| 2 | Radio | [ ]  |
| 3 | Data | [ ]  |
| 4 | Interactive | [ ]  |

### 20.5 How many programme or data channels are provided in each multiplex?

|  |  |  |
| --- | --- | --- |
|  |  | Number of Channels |
| 1 | Video |  |
| 2 | Radio |  |
| 3 | Data |  |

### 20.6 Within the bands indicated in question 6.4.9, please list the channels Which of the following frequency bands are currently used in your country for digital terrestrial mobile broadcasting?

|  |  |  |
| --- | --- | --- |
| VHF |  | [ ]  |
|  | [ ]  |
| Other  | [ ]  |
| UHF |  | [ ]  |
|  | [ ]  |
| Other | [ ]  |

### 20.7 bandwidth used for digital terrestrial mobile broadcasting services.

|  |  |  |
| --- | --- | --- |
| Frequency Band | Channel No(s) |  Channel Bandwidth(MHz) |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |