Introduction to ITU and its Role in Digital Broadcasting

AIBD/ITU/ABU Regional Training Workshop on DTTB and Radio
5 June 2017, Qingdao, China

193 Member States
567 Sector Members
159 *Associates*
60+ Academia

Headquartered in Geneva,
4 Regional Offices
7 Area Offices.

ITU-R: ITU's Radio-communication Sector globally manages radio-frequency spectrum and satellite orbits that ensure safety of life on land, at sea and in the skies.

ITU-T: ITU's Telecommunication Standardization Sector enables global communications by ensuring that countries' ICT networks and devices are speaking the same language.

ITU-D: ITU's Development Sector fosters international cooperation and solidarity in the delivery of technical assistance and in the creation, development and improvement of telecommunication/ICT equipment and networks in developing countries.

ITU WTDC BUENOS AIRES 2017 9-20 October

CELEBRATING 25 YEARS OF ACHIEVEMENTS

ITU: Reaching out to the World

Regional Offices worldwide

ITU Regional Office for Asia and the Pacific

ITUWTDC BUENOS AIRES 2017 9-20 October

38 Member States
134 Sector and Associate Members
17 Academia Members

Land Locked Developing Countries (5)

Least Developed Countries (12)

- Afghanistan
- Bangladesh
- Bhutan
- Cambodia
- Lao, PDR
- Nepal
- Myanmar
- Timor Leste

Small Islands Developing States (12)

- Kiribati
- Solomon Is.
- Tuvalu
- Vanuatu
- Fiji
- Maldives
- Marshall Islands
- Micronesia
- Nauru
- Tonga
- PNG
- Samoa

Low-Income States (10)

- D.P.R. Korea
- India
- Indonesia
- Mongolia
- Pakistan
- Philippines
- Sri Lanka
- Vietnam

The Rest (10)

- Australia
- Brunei
- China/Hong Kong
- Iran
- Japan
- Malaysia
- New Zealand
- R.O. Korea
- Singapore
- Thailand

ITU-D 1992 2017 CELEBRATING 25 YEARS OF ACHIEVEMENTS

ITU Asia-Pacific Centres of Excellence (2015-2018)

Up to 32 ITU Centres of Excellence

Up to 6 Centres each in
Africa, Americas, Arab, Asia-Pacific, CIS and Europe Region

Asia-Pacific
Centres of Excellence

- **TOT Academy – Ministry of Digital Economy and Services (Thailand)**
  Policy & Regulation & Broadband Access
- **State Radio Monitoring Centre (China)**
  Spectrum Management
- **China Academy of Telecommunications Research (MIIT, China)**
  Conformance and Interoperability
- **Advanced Level Telecom Training Centre (India)**
  Broadband Access

Digital Terrestrial Television Broadcasting (DTTB)

Introduction

DTT Standards

Standard	Modulation	Description in Report ITU-R BT.2140[6]	Recommendation ITU-R BT.1306[7]	Applicable standards
ATSC	Single carrier 8-VSB	Brief: part 1 section 2.6.2.1 Detailed: part 2, section 1.5	System A; annex 1 table 1a	A/52,A/53, A/65, A/153
DTMB (also referred to as ChinaDTV)	Multi carrier OFDM	Brief: part 1, section 2.6.2.2 Detailed: -	-	GB 20600-2006
DVB-T	Multi carrier OFDM	Brief: part 1, section 2.6.2.4 Detailed: part 2, section 1.6	System B; annex 1 table 1b	EN 300 744
ISDB-T	Multi carrier Segmented OFDM	Brief: part 1, section 2.6.2.5 Detailed: part 2, section 1.8	System C; annex 1 table 1c	ARIB STD-B31 ABNT NBR 15601

Source: Guidelines for the Transition from Analogue to Digital Broadcasting", ITU, page.186, 2010.
ITU website - http://www.itu.int/publ/D-HDB-GUIDELINES.01-2010/en

ASO Deadlines (Asian Countries)

Country	Deadline ASO	Year Launch	DTTB	Revised or Year of possibility
Cambodia	2020		DVB-T, DVB-T2, DTMB	Ongoing
Indonesia	2018		DVB-T2	Ongoing
Lao P.D.R.	2020		DVB-T, DTMB	
Maldives	2020		DVB-T2, ISDB-T	
Mongolia	2015-10-05	2014	DVB-T2	Completed
Myanmar	2020	2013	DVB-T2	Ongoing
Nepal	2017		DVB-T2	
Philippines	2018		ISDB-T	
Sri Lanka	2017		DVB-T2, ISDB-T	
Thailand	2020	2014	DVB-T2	Ongoing
Timor-Leste	2024		ND	

ASO Deadlines (Pacific Countries)

Country	Deadline ASO	Year Launch	DTTB	Revised or Year of possibility
Fiji	2018	2015	DVB-T2	Ongoing
Kiribati	2017		ND	
Micronesia			ND	
Nauru			ND	
Papua New Guinea	2017	2014	DVB-T2	Ongoing
Samoa	2018	2014	DVB-T2	Ongoing
Tonga	2015		DVB-T2	
Vanuatu	2017	2016	DVB-T2	Ongoing

Objectives of ASO & DSO

- Some of the common objectives among beneficiary countries are:
  - An increase in the capacity of broadcast transmission networks by improving spectrum efficiency (i.e. more data can be transmitted per unit bandwidth).
  - Provision of better signal quality which increases robustness to interference and picture degradation.
  - The ability to support HD services and interactivity.
  - A potential reduction in transmission network energy usage.
  - The implementation of single frequency networks (SFNs) instead of the independent parallel networks which are common in analogue broadcasting.
- In addition there are other factors that drive DSO
  - The take-up of digital TV is likely to boost sales of TV sets and digital video recorders.
  - Digital TV could lead to positive upstream benefits in terms of increased time spent watching TV and greater demand for digital content.
  - In a competitive multi-channel, multi-platform environment, DTT provides opportunities for terrestrial broadcasters to address the challenges posed by pay TV operators and the Internet.

Challenges in Digital Migration

1. The costs involved and the enormity of task

For certain countries with larger geographies and wide spread population, the deployment of the transmission networks are capital intensive. Having a large transmission network, from hundreds to, in some cases, over a thousand of analogue transmitter sites, converting these to digital and in a reasonable time period is seen as a challenging task. Not only does the setup of infrastructure for digital but also carrying out a simulcast service for a given period involve a lot of money and resources. On top of these the need to subsidise set- top-boxes to masses is an additional burden.

2. Not seen as a national priority

Many governments still do not see the move to digital as a priority hence the move is not fully endorsed or supported by the necessary authorities and the necessary initiative and push is not available.

Challenges in Digital Migration

3. Lack of cooperation among stakeholders

In many countries the move to digital is not initiated as a collective effort by all the stakeholders involved. This includes public as well as private broadcasters, regulators and others. This is also partly connected to the previous point on government priority areas.

4. Technology standards and ever evolving technologies

The technologies are evolving at a rapid pace. However, digital terrestrial transmission technologies are matured with a number of providers and supporters readily available. However, there are still cases where some still feel it may be better to wait for the next technology or next standard. But many of the experts have already shared their views that a major change or upgrade is not possible as current standards are providing performances close to the theoretical limits in current form. In some countries there is still the debate on which Digital Terrestrial Television Broadcasting (DTTB) standard to choose from DVB-T2, ISDB-T, ATSC or DTMB.

Challenges in Digital Migration

5. Spectrum is not an issue for certain countries

This means that the benefits of digital dividend can immediately be initiated. It is not necessary for broadcasters to vacate the spectrum for government to explore these benefits. This leads to no drive or initiative from policy makers and authorities.

6. Availability of alternate options other than terrestrial TV

In certain countries, Direct to Home (DTH) services from the satellite and cable services have gone digital and are readily available especially in main cities and population centres at reasonable costs. These options provide many of the benefits of that digital could offer to viewers. Hence, there is little demand for digital terrestrial from the public which makes digital terrestrial propositions being delayed.

Some Practical and Essential Guidelines in Planning the Digital Migration

Some of the lessons learnt from the experience of those who have completed the digital migration and possible approaches that will help broadcasters to make a successful transition are;

1. Digital switchover works well when Governments are committed to the digital migration.

2. It is important to have legislations, regulatory framework and a coordination body setup to drive and monitor the process and its progress.

3. Close coordination and cooperation with receiver manufacturers/providers is necessary for a smooth ASO process. Without such cooperation it is not possible to ensure that consumers have access to new receiver equipment with necessary compliance at the right time.

4. Digital broadcasting enables more programme channels and content but this is only of use if there appealing content that audiences demand.

Some Practical and Essential Guidelines in Planning the Digital Migration

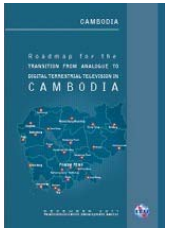
5. The right content to attract viewers and for them to experience the benefit of digital is necessary for quick transition.

6. Adequate funding across the industry is an essential requirement.

7. This includes capital and operational expenses on the broadcasters' part as well as government subsidies for viewers to help them get receive devices such as set- top-boxes.

ITU Assistance

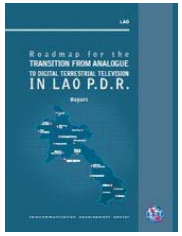
National Roadmaps for Transition from Analogue to Digital Terrestrial Television Broadcasting
(24 countries in the APAC region, **10 in Pacific**)



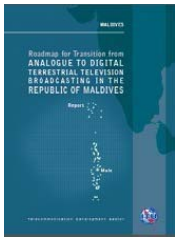
Cambodia

Fiji

Indonesia

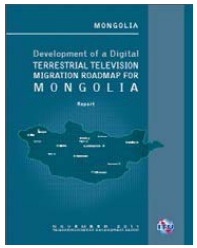


Lao PDR

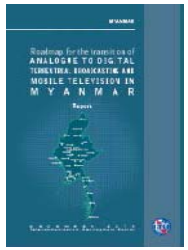


Maldives

Micronesia



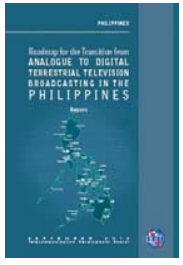
Mongolia



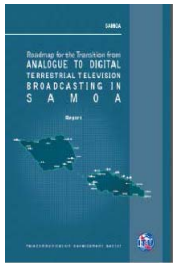
Myanmar

Nepal

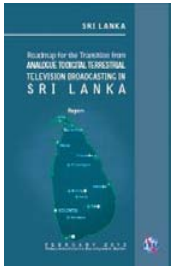
Papua New Guinea



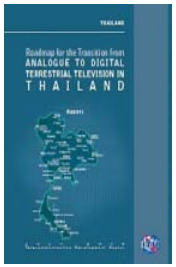
Philippines



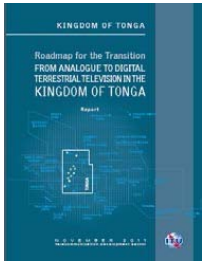
Samoa



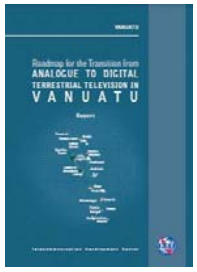
Sri Lanka



Thailand



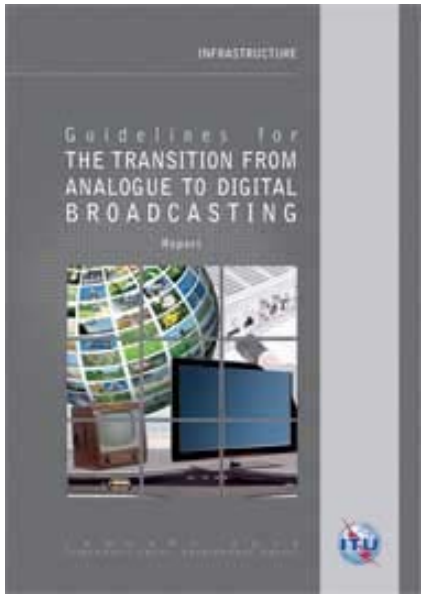
Tonga



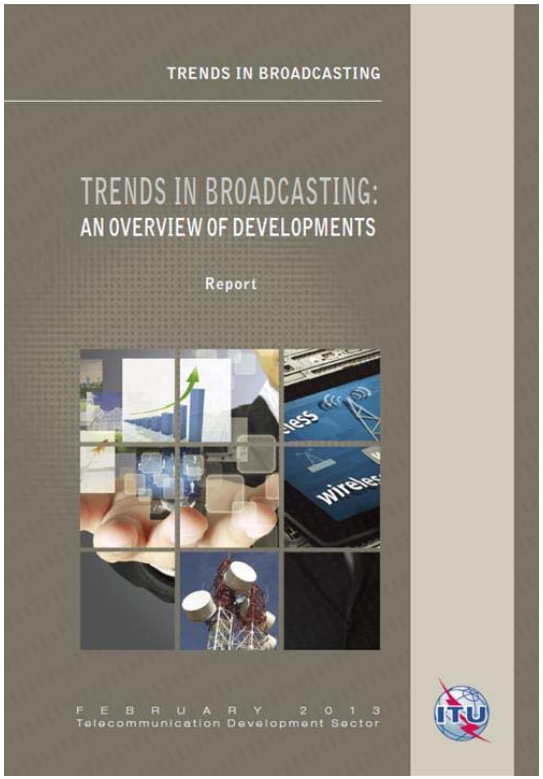
Vanuatu

Afghanistan | Bangladesh | Bhutan | Kiribati | Nauru | Solomon Islands | Timor Leste | Vietnam

The Guidelines for Transition to Digital Broadcasting



- Intended to provide information and recommendation
  - On policy, technologies, network planning, customer awareness and business planning
  - for the smooth transition to Digital Terrestrial Television Broadcasting (DTTB) and introduction of Mobile Television Broadcasting
- Prepared in 2010 for Africa
  - 1st Revision (2012) for ASP adding a section on archives migration
  - 2nd revision (2014) for global including Satellite TV, Cable TV, IPTV

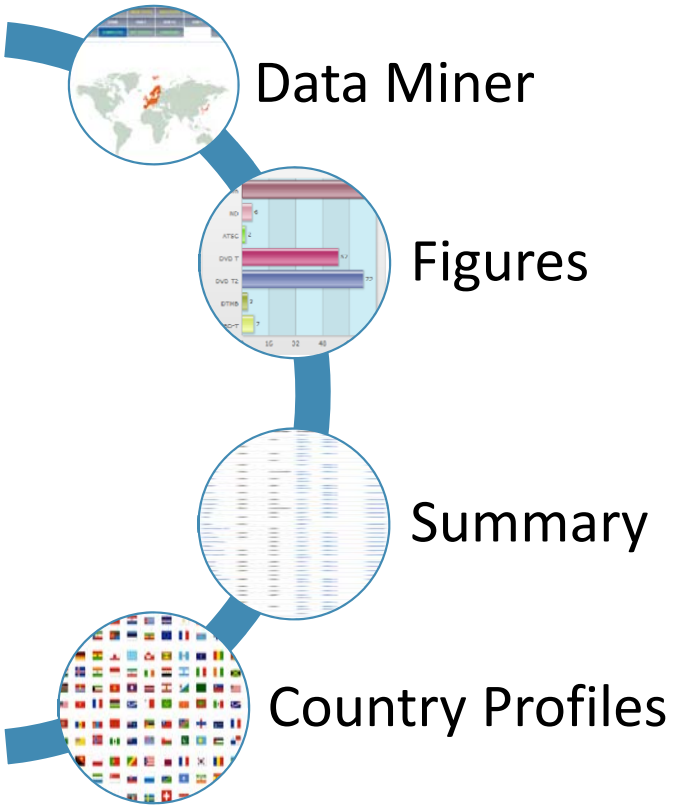


Section 1 Introduction	• Increasing Internet access • Evolution of broadcast technology
Section 2 Broadcasting into the next decade	• Trends in TV viewing • Growth of broadband Internet • DSO milestones and timeframes
Section 3 Service concepts	• Linear and on-demand services, anywhere and at anytime
Section 4 TV broadcasting technology	• HDTV and UHDTV • More efficient compression and transmission systems
Section 5 Audio broadcasting technology	• Several transmission systems • More efficient compression
Section 6 Conclusions	• Summary of conclusions and main trends

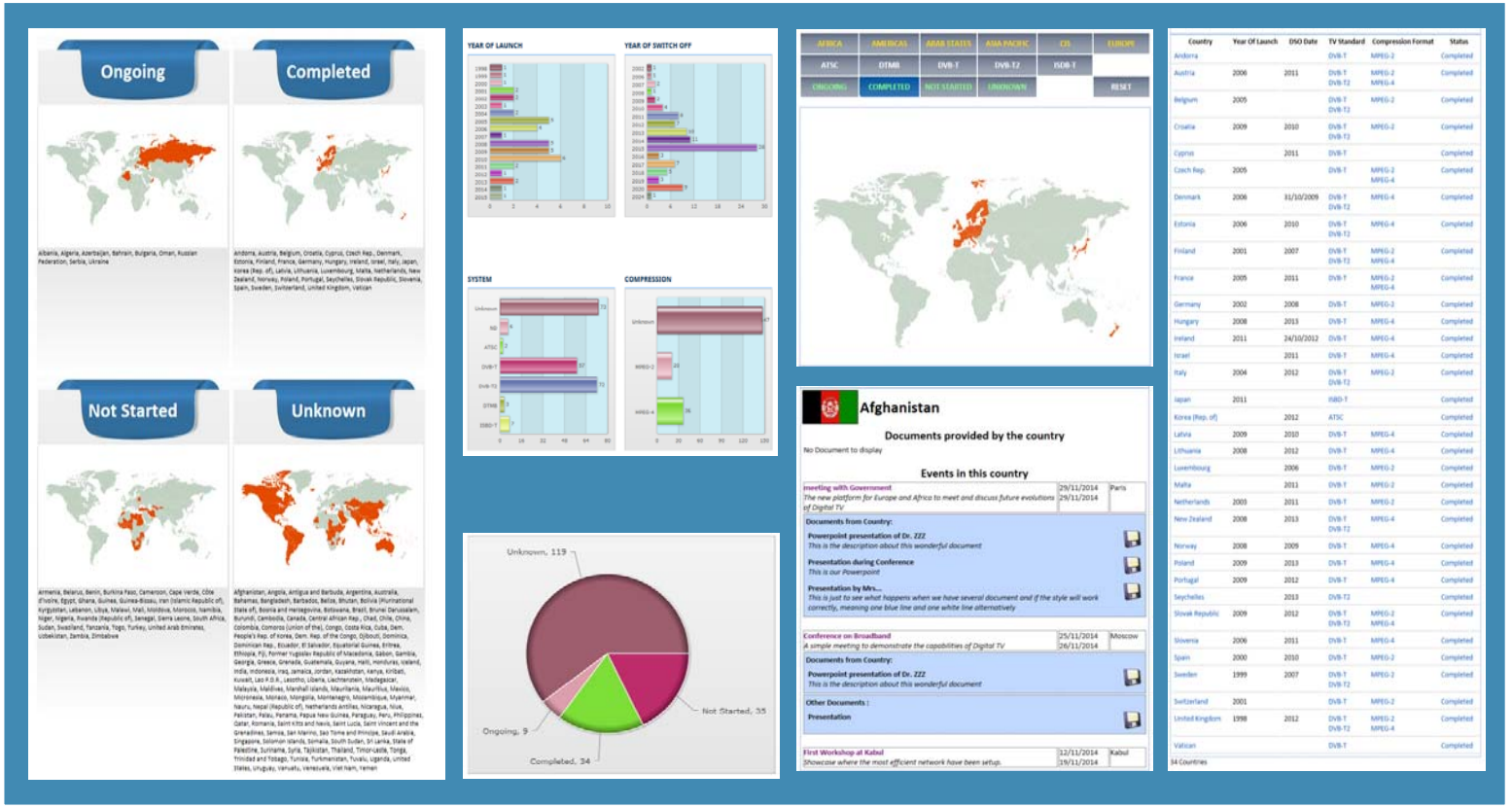
Digital Terrestrial Television Broadcasting (DTTB)

DSO Database

Public Website



Website Features



Website Demonstration:

http://www.itu.int/en/ITU-D/Spectrum-Broadcasting/Pages/DSO/Default.aspx

More information about ITU Digital Broadcasting
http://www.itu.int/en/ITU-D/Spectrum-Broadcasting/Pages/Broadcasting.aspx

THANK YOU

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