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**TRANSITION
FROM ANALOGUE TO
DIGITAL
BROADCASTING**


**Policy and regulatory
aspects**

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1



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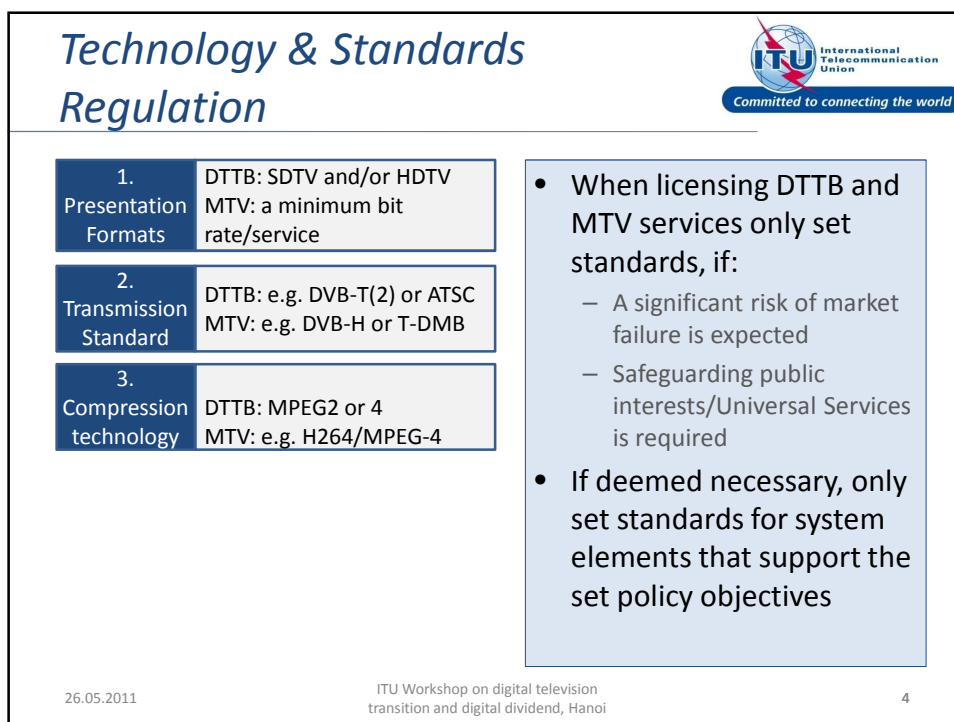
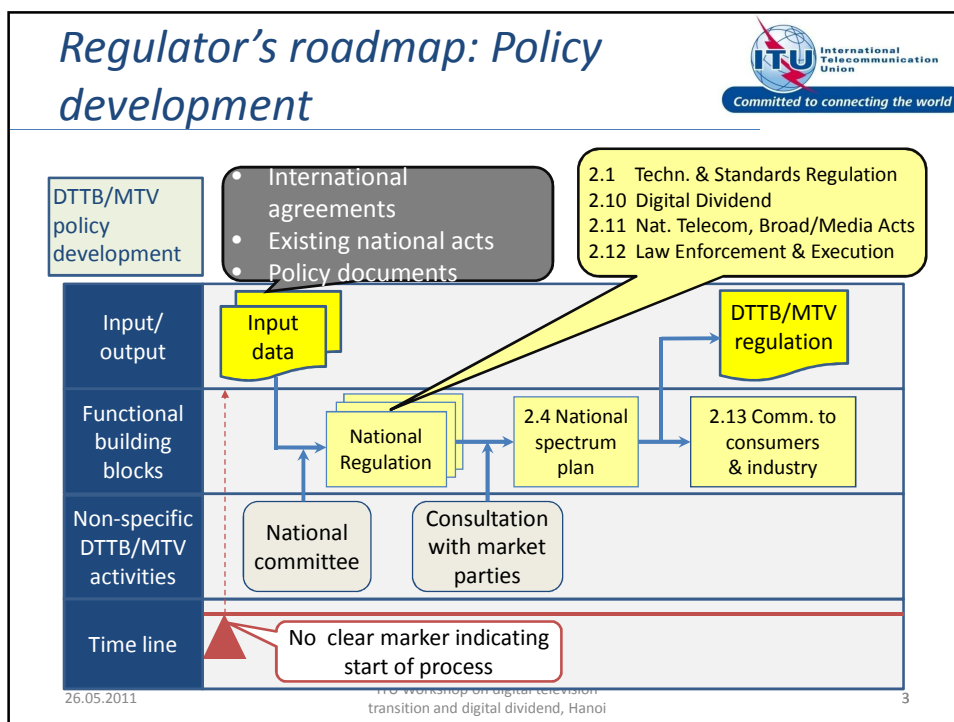
Content


Policy & Regulation	<ul style="list-style-type: none"> Key issues and choices faced by the Regulator when formulating DTTB, MTV or ASO policy objectives Implementation of policies <ul style="list-style-type: none"> – By issuing information, funds, rights, licenses and permits to (qualified) market parties – In compliance with the relevant legislation
Main items	<ul style="list-style-type: none"> Functional building blocks related to Policy & Regulation Conclusions

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2



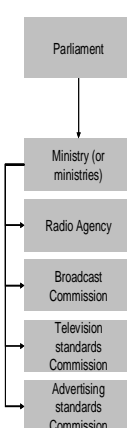


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Law Enforcement & Execution

- Check task assignment of
 - Nat. Spectrum Plan, Standards, Terms
 - Assign & monitor spectrum
 - Assign & monitor Broadcast licenses & advertising
- Restructuring towards converged model
 - DTTB/MTV might drive introduction

Segmented Model




Centralized Model



Key tasks & duties

Ministry (or ministries)	Policy development
Radio Agency	Assigning spectrum licenses & monitoring
Broadcast Commission	Assigning broadcast licenses
Television standards Commission	Monitoring broadcast content compliancy (code of conducts)
Advertising standards Commission	Monitoring Advertising compliancy (code of conducts)

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National Spectrum Plan (NSP)

- NSP covers all spectrum use:
 - Govern.: Military, Emergency, PSB
 - Comm.: Mobile, DTTB/MTV
 - Other (Radio Astronomy)
- NSP is a key management tool:
 - Objectives, instruments & regimes
 - Current & planned use
- NSP planning = strategic planning
 - Market consultation & analysis
 - Ref. ITU-R report SM2015 for factors

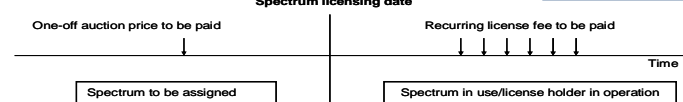
In Spectrum Register per range:

- Radio Service
- Prescribed System (e.g. DVB-T)
- License regime (e.g. Free)
- License holder & duration
- Radio interfaces
- User rights (exclusive/shared)

NSP may include pricing (per range)


- One-off/Recurring
- Management costs/Market value

Spectrum licensing date



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Communication to Consumers & Industry



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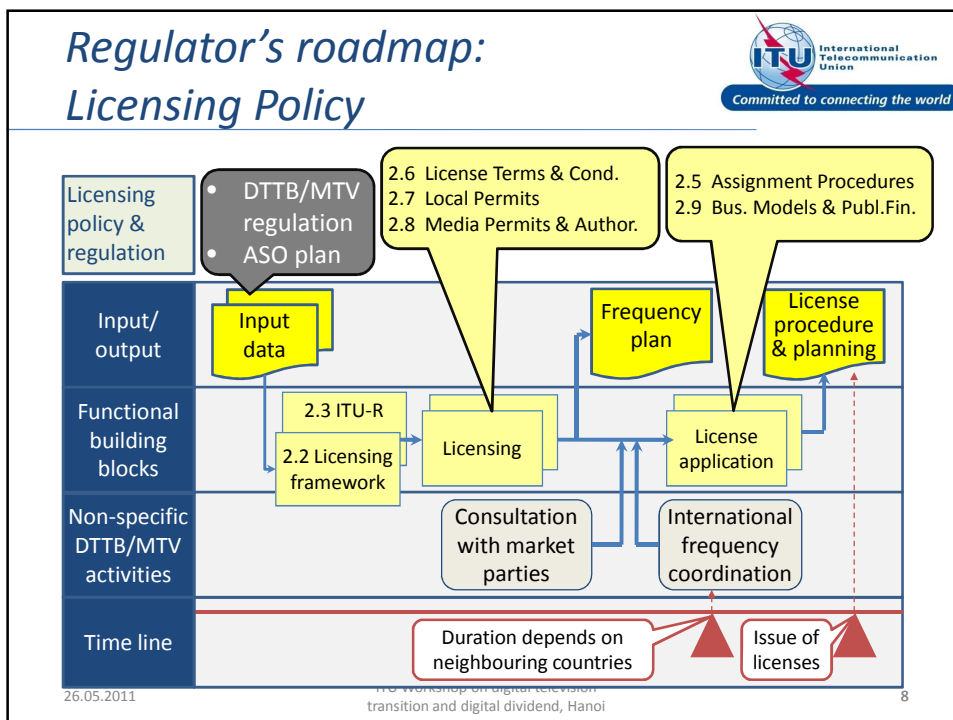
- Communication if:
 - Intervention restricts/changes free market
 - Defined Universal Services & Access
 - Health & safety hazards
- ASO communication is different

DTTB/MTV specific Communication

- Spectrum – NSP
- PSB – FTA / Coverage / Must Carry
- Field Strength/EMC

When	Category	Topic
Recurring	Spectrum Planning	<ul style="list-style-type: none"> • Market consultations & Decisions and Appeal procedures • National Spectrum Plan (NSP) & Re-farming & revoking spectrum • International planning conferences
	DTTB/MTV	<ul style="list-style-type: none"> • Market consultations & Decisions • Framework, Standards, Procedures, Terms & Cond., local permits
Case by Case	Digital Dividend	<ul style="list-style-type: none"> • Market consultations & Decisions • International decisions
	ASO	<ul style="list-style-type: none"> • Models, Services, Procedures, Roll-out, Aid, etc

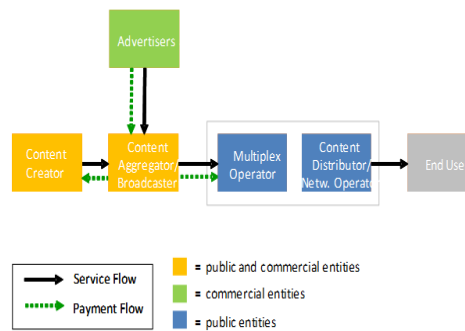
26.05.2011 7
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Licensing framework



- Assigning 3 types of rights
 - Spectrum
 - Broadcast
 - Operating
- Extra = MUX function
- 2 models for spectrum rights
 - Assigned to MUX operator (integrated with Service Provider/Network Operator) = functional bandwidth manager
 - Assigned to Network Operator + Regulator = functional bandwidth manager



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ITU-R Regulations



- GE06 plan entry types
 - Assignments
 - Allotments (layers)
- 3 Steps to determine DTTB/MTV spectrum
 1. Assess usability of rights
 2. Determine applications:
 - Number & service type
 - Combinations
 - Timing
 3. Assessing service coverage

Assignments:

- For each TX site station characteristics (XY, ERP, Height)

Allotments:

- Specified area
- Reference Network – 4 types
- Ref. Planning Configuration – 3 types

- Step 3 is optional for the Regulator to carry out
- Requires planning software, databases and accurate current use (abroad)

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License Terms & Conditions



- **T&C dependent on local situation:**

- Existing (int.) legal framework
- Assignment procedure
- Market structure

- **Assign transparent**

- Publishing 'essential' & other criteria upfront
- Grounds for exclusion

- **Open Network Provisioning (ONP) when 1 MUX operator**

- Grounds for refusing
- Max capacity/broadcaster
- (Fair) Pricing & Reservations

1. Granting	Legal basis & definitions
2. Rights	Frequencies, Interference, Health, equipment
3. Obligations	TV package, roll-out, service levels, site sharing
4. Exercise	Transferring spectrum rights to subsidiaries or third parties
5. Trading	Trading & sharing (parts of) spectrum rights
6. Standards	Interoperability & standards
7. Fees	Fees for spectrum management or market value
8. Duration	Duration, renewal & extensions
9. Changes	Modifications, revocation & termination
10. Complaints	Public complaints & resolving (programming & interference)

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Local Permits



- **Local authorizations required to assure:**

- Market access: site sharing & fair pricing
- 'Horizon pollution' control
- Health hazards control

- **Instruments:**

- Building permits
- Site sharing & pricing rules

- **Regulatory level vary:**

- National or local level
- Spectrum licence or building permit

Compliance check for:

- Field strength
- EMC
- Mechanical strength
- Noise limits
- Dangerous goods
- Horizon pollution

Default = access + grounds for refusal:

- Request not reasonable
- Requested capacity not available
- Owner reserved capacity

For Fair pricing to regimes (applies to reservation too)

- Price cap
- Cost Plus

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12

Media Permits & Authorizations



- **Keep separate broadcast rights for:**
 - PSB: separate section or Act (Universal Service)
 - Commercial Broadcasters: Media/Broadcast Act
- **Broadcast rights organized at:**
 - Program level/linear broadcast stream
 - Platform level/multiplex level
- **Different requirements for granting:**
 - Applicant (legal status, ownership)
 - Program Services (editorial & ads)
 - Additional Services (EPG, subtitling)

Content Service criteria:

- Local news coverage
- Arts, religious programs
- Number of repeats
- % local production
- Max hours of advertising

Service obligations:

- Portfolio/bouquet
- Must carry & Pricing
- PSB carry
- Population coverage
- Bandwidth per service
- Network availability

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Assignment Procedures



- **Three key instruments:**
 - First Come First Service (FCFS)
 - Public Tender (PT)
 - Auction (don't mix with PT or market priced license fees)
- **Combine MTV & DTTB assignments:**
 - One bidding round
 - One license type
- **Existing license holders:**
 - PSB: by priority
 - Others: renewal

Instrument	Pro	Con
FCFS	<ul style="list-style-type: none"> • Fast • Simple 	<ul style="list-style-type: none"> • No spectrum efficiency
Public Tender	<ul style="list-style-type: none"> • Focus on quality • Thorough procedure • Regulatory control 	<ul style="list-style-type: none"> • Time consuming • Not transparent
Auction	<ul style="list-style-type: none"> • Allocation efficiency • Simple • Transparent • Returns economic value 	<ul style="list-style-type: none"> • Less control over end result • Investment slow down • Winners Curse

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14

Conclusions Policy & Regulation



- Policy & Regulation for ASO and DTTB/MTV assignment can differ and coexist
 - ASO: services (& levels) are Government led
 - DTTB/MTV assignments: services (& levels) are market led
- Roadmap of the functional building blocks can vary from country to country
 - Local situation
 - Institutional/legal framework
- Functional building blocks are closely related
 - Roadmap execution is an iterative process

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15



Thank you !

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16