





**TRANSITION
FROM ANALOGUE TO
DIGITAL
BROADCASTING**

**Policy and regulatory
aspects**

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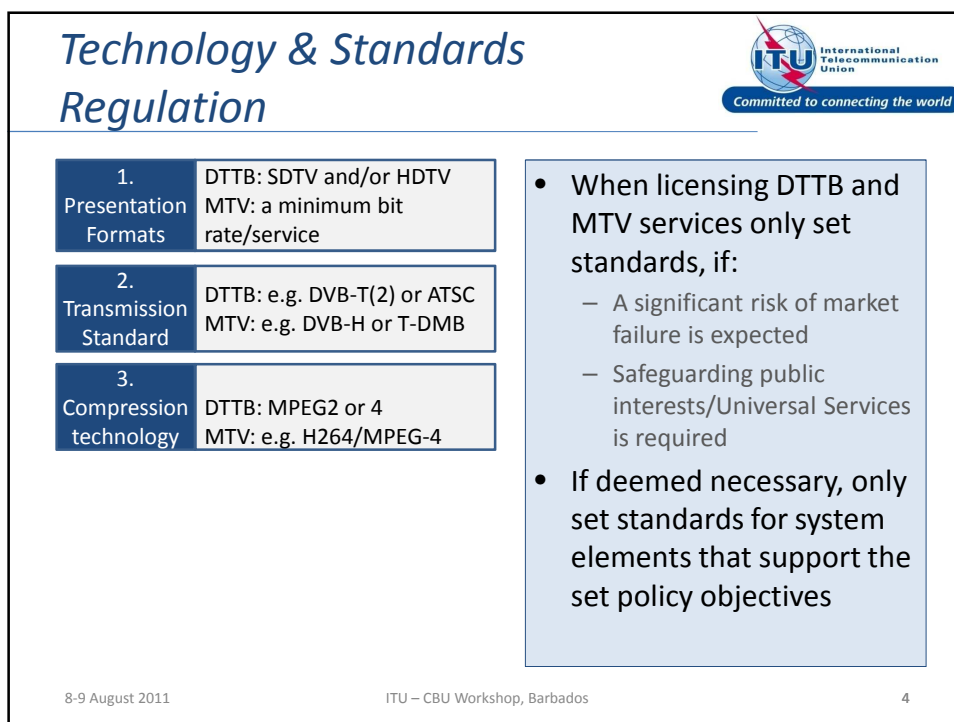
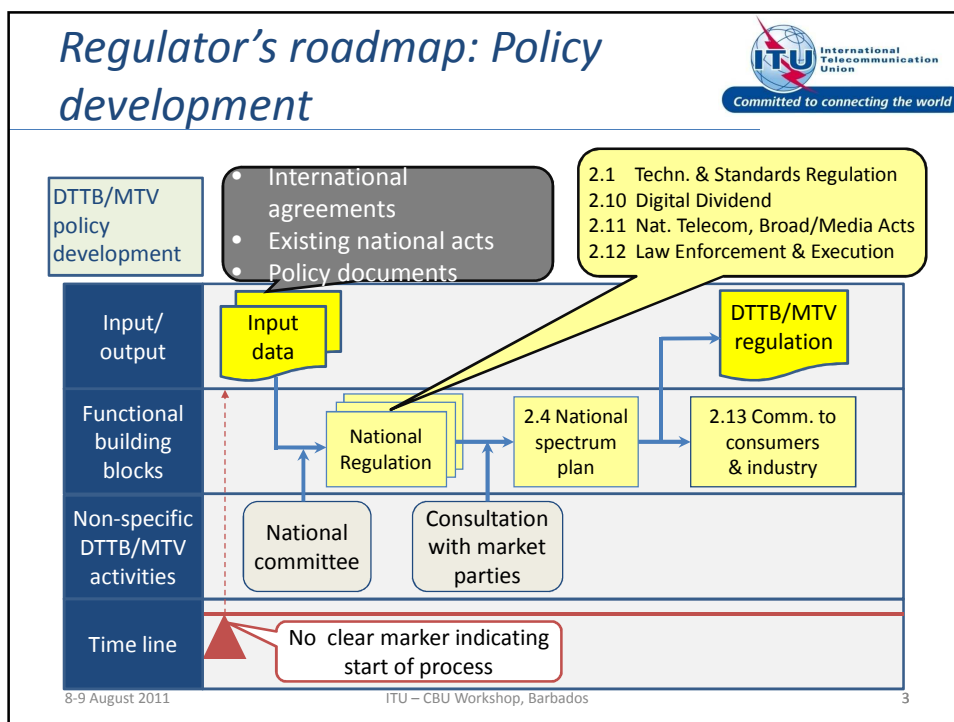
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Content

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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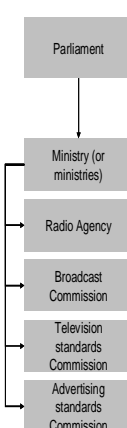


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Law Enforcement & Execution

- 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

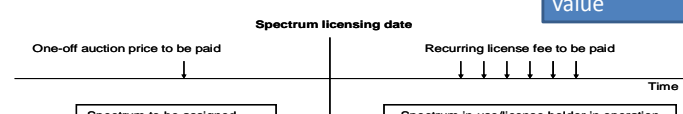
In Spectrum Register per range:

- 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

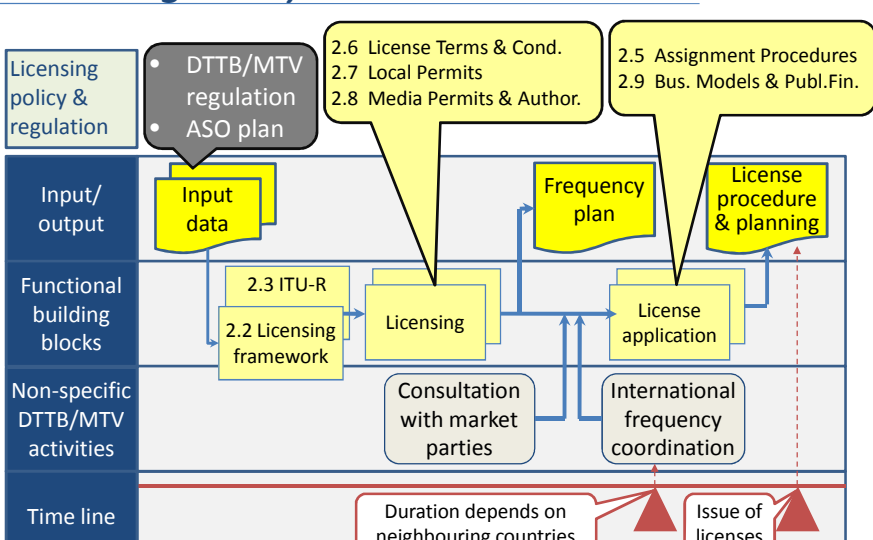
When	Category	Topic
Recurring	Spectrum Planning	• Market consultations & Decisions and Appeal procedures
		• National Spectrum Plan (NSP) & Re-farming & revoking spectrum
Case by Case	DTTB/MTV	• Market consultations & Decisions
	Digital Dividend	• Framework, Standards, Procedures, Terms & Cond., local permits
	ASO	• Market consultations & Decisions
		• International decisions
		• Models, Services, Procedures, Roll-out, Aid, etc

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Regulator's roadmap: Licensing Policy



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The diagram illustrates the 'Regulator's roadmap: Licensing Policy' through four horizontal layers:

- Licensing policy & regulation:** Includes 'DTTB/MTV regulation' and 'ASO plan'.
- Input/output:** Shows 'Input data' leading to 'Licensing' and 'License application'.
- Functional building blocks:** Shows '2.3 ITU-R' and '2.2 Licensing framework' leading to 'Licensing', which then leads to 'License application'.
- Non-specific DTTB/MTV activities:** Shows 'Consultation with market parties' and 'International frequency coordination'.
- Time line:** Shows 'Duration depends on neighbouring countries' and 'Issue of licenses'.

Additional callouts include: '2.6 License Terms & Cond.', '2.7 Local Permits', '2.8 Media Permits & Author.', '2.5 Assignment Procedures', and '2.9 Bus. Models & Publ.Fin.'.

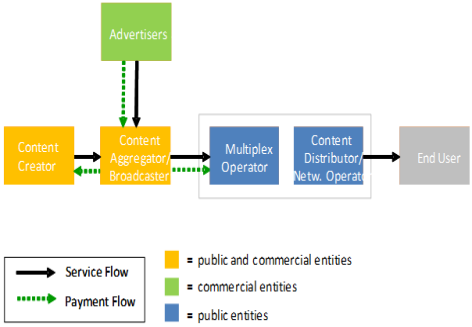
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Licensing framework



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- 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



The diagram illustrates the flow of content and payments. It shows a Content Creator (yellow) sending service to a Content Aggregator/Broadcaster (yellow), which then sends to a Multiplex Operator (blue) and a Content Distributor/Netw. Operat. (blue). Advertisers (green) send payments to the Content Aggregator/Broadcaster. The Content Distributor/Netw. Operat. sends service to the End User (grey). A legend indicates: yellow boxes for public and commercial entities, green boxes for commercial entities, and blue boxes for public entities. Solid arrows represent Service Flow, and dashed arrows represent Payment Flow.

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ITU-R Regulations



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- 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




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<ul style="list-style-type: none"> • T&C dependent on local situation: <ul style="list-style-type: none"> – Existing (int.) legal framework – Assignment procedure – Market structure • Assign transparent <ul style="list-style-type: none"> – Publishing ‘essential’ & other criteria upfront – Grounds for exclusion • Open Network Provisioning (ONP) when 1 MUX operator <ul style="list-style-type: none"> – Grounds for refusing – Max capacity/broadcaster – (Fair) Pricing & Reservations 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #003366; color: white;">1. Granting</td><td>Legal basis & definitions</td></tr> <tr><td style="background-color: #003366; color: white;">2. Rights</td><td>Frequencies, Interference, Health, equipment</td></tr> <tr><td style="background-color: #003366; color: white;">3. Obligations</td><td>TV package, roll-out, service levels, site sharing</td></tr> <tr><td style="background-color: #003366; color: white;">4. Exercise</td><td>Transferring spectrum rights to subsidiaries or third parties</td></tr> <tr><td style="background-color: #003366; color: white;">5. Trading</td><td>Trading & sharing (parts of) spectrum rights</td></tr> <tr><td style="background-color: #003366; color: white;">6. Standards</td><td>Interoperability & standards</td></tr> <tr><td style="background-color: #003366; color: white;">7. Fees</td><td>Fees for spectrum management or market value</td></tr> <tr><td style="background-color: #003366; color: white;">8. Duration</td><td>Duration, renewal & extensions</td></tr> <tr><td style="background-color: #003366; color: white;">9. Changes</td><td>Modifications, revocation & termination</td></tr> <tr><td style="background-color: #003366; color: white;">10. Complaints</td><td>Public complaints & resolving (programming & interference)</td></tr> </table>	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




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<ul style="list-style-type: none"> • Local authorizations required to assure: <ul style="list-style-type: none"> – Market access: site sharing & fair pricing – ‘Horizon pollution’ control – Health hazards control • Instruments: <ul style="list-style-type: none"> – Building permits – Site sharing & pricing rules • Regulatory level vary: <ul style="list-style-type: none"> – National or local level – Spectrum licence or building permit 	<div style="background-color: #003366; color: white; padding: 5px; margin-bottom: 10px;"> Compliance check for: <ul style="list-style-type: none"> • Field strength • EMC • Mechanical strength • Noise limits • Dangerous goods • Horizon pollution </div> <div style="background-color: #003366; color: white; padding: 5px;"> Default = access + grounds for refusal: <ul style="list-style-type: none"> • Request not reasonable • Requested capacity not available • Owner reserved capacity For Fair pricing to regimes (applies to reservation too) <ul style="list-style-type: none"> • Price cap • Cost Plus </div>
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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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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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Thank you !

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