

# **ITU Regional Workshop on IMT**

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## **Migration Issues: Developing Countries- the Regulatory Aspects**

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# Issues

- Identification and harmonisation of frequency bands at International and Regional level;
- large chunk of contiguous spectrum bandwidths;
- Refarming of spectrum for the newer technologies in the identified spectrum bands;

- Extending the broadband access to the rural areas;
- Candidate technologies; and
- Backward compatibility aspects.

# Internationally identified Bands\*

- 450-470 MHz
- 698-960 MHz
- 1 710-2 025 MHz
- 2 110-2 200 MHz
- 2 300-2 400 MHz
- 2 500-2 690 MHz
- 3 400-3 600 MHz

\* For IMT and/or IMT-2000 by WARC-92, WRC-2000 and WRC-07

# Harmonisation

- Is necessary for:
  - economies of scale;
  - reduce complexity of regulation & technology;
  - facilitate interoperability and roaming.
- Result in lowering cost to deploy services, equipment, greater service choice, and affordability for consumers with the possibility for earlier deployment

# Identified IMT Bands in India\*

- 450.5-457.5 MHz /460.5-467.5 MHz;
- 698-806 MHz;
- 1920-1980 MHz /2110-2170 MHz & 2010-2025 MHz;
- 2300-2400 MHz & 2535-2655 MHz
- 3300-3400 MHz & 3400-3600 MHz

\* As per NFAP-2008, may be considered on case to case basis subject to availability & Co-ordination with existing usages

# TRAI's Reco. On 3G and BWA

- TRAI, had given its recommendations “Allocation and pricing of spectrum for 3G and BWA services” on September 27, 2006:
  - Band identification for 3G services;
  - Allocation methodology and pricing for 3G spectrum;
  - Band identification, allocation and pricing of BWA spectrum;

# 3G Bands Reco..

- Allocation of 2 x 25 MHz of spectrum in blocks of 2 x 5 MHz in 2.1 GHz band for 3G services;
- 2 x 2.5 MHz, for EV-DO services in the 800 MHz band
- 2 x 5 MHz spectrum in the 450 MHz band for EV-DO operations with rural roll out commitment.

# 3G Bands Reco..

- 450 MHz & 800 MHz to existing CDMA based UASL and 2.1 GHz band to existing UASL/ CMTS;
- 2.1 GHz band should be auctioned by simultaneous ascending auction system;
- 450 MHz or 800 MHz bands: If more operators, than the number of available blocks, a one-stage bidding process;

# Auction: 3G Spectrum in 2.1 GHz Band

(1920-1980MHz /2110-2170MHz)

- Out of 22 Service Areas(SAs) the Govt has auctioned 3 blocks (2X5MHz) in each of 17 SAs and 4 blocks in 5 SAs;
- One block have been allocated to public Sector operator BSNL/ MTNL in all SAs
- All India total price per block works out to be **Rs. 167.5 B (US\$ 3.58 B)**

# BWA Bands Reco..

- A maximum of 15 MHz of spectrum should be allowed to each service provider in the bands of 2.3-2.4 GHz and 2.5-2.69 GHz (combined).
- The bands 2.3-2.4 GHz, 2.5-2.69 GHz and 3.3-3.4 GHz, be auction,
- CMSPs and Category 'A' & 'B' ISPs should be eligible for participating in the auction for BWA spectrum.

# Auction: BWA in 2.3 & 2.5 GHz

- The Govt shall auction 2 blocks of 20MHz (TDD) BWA spectrum in each of the 22 SAs
- Commenced on 24 May, 2010
- One block of 20MHz 2.635-2.655GHz have been allocated to public Sector operator BSNL/ MTNL
- No specific technology has been indicated for 3G & BWA, the operators are free to choose technology/ standards approved by ITU/ TEC etc.

# Spectrum Demand

The demand of spectrum for public telecom service is increasing and to meet the same the spectrum allocated historically for other services / activities be got vacated. The requirements of spectrum for public telecom services would be:

<b>Demand Scenario</b>	<b>Spectrum Requirement (MHz)</b>		
	<b>2010</b>	<b>2015</b>	<b>2020</b>
High Demand	840	1300	1720
Low Demand	760	1300	1280

# Spectrum Vacation/ Refarming

- The frequency bands were allocated in the government domain due to historic reasons;
- At a time of rapid technological evolution and globalization, the identified bands be reframed/ vacated for the new usages / applications/ services maximise the welfare (community wealth);

# TRAI's Reco. On Refarming

- TRAI's policy is *the maximization of consumer interest*: by encouraging the diffusion of new and advanced technologies, universal access to the new communications technologies and Spectrum should be available for use by those who value it the most, and use it in the most efficiently.

In its recent recommendations “*Spectrum Management and Licensing Framework*” to the Govt, TRAI has stated:

- Assignments to Govt/ public sector entities be reviewed and replaced with spectrum efficient technologies; to introduce high speed wireless services, essential for the economic and social development, it is necessary to take quick and firm decisions to vacate the spectrum useful for the commercial services and relocate some of the existing non-commercial services in other bands.

# Vacation of bands

- **450-470 MHz:** 2x7 MHz of spectrum in this band needs to be refarmed from the existing users;
- **700 MHz (Digital Dividend): 585-698 MHz** may be earmarked for digital broadcasting services including Mobile TV & **698-806 MHz** be earmarked only for IMT applications;
- **1800 MHz, 1900MHz:** the schedule of refarming be hastened;

- **2300-2400 MHz & 2500-2690 MHz :** remaining spectrum in these bands need to be refarmed;
- “Most of this refarming, will have to be done from the Govt agencies.., .....either an alternate media like OFC or alternate spectrum band will have to be provided and the incumbents will have to replace/upgrade their equipment .....”

# Requirements of Rural Areas

- The telecom connectivity in rural areas is one of the basic requirement to give impetus to their development;
- In India 91% of the total 5,93,731 villages have been covered by at least one operator,
- 51.3% and 31% villages are covered by at least 3 or 4 operators.

# Rural connectivity

- TRAI has underlined that the sub 1GHz frequency bands have better propagation characteristics & useful to provide wireless broadband services particularly in rural & far flung areas and recommended 450MHz and 700Mhz for the very purpose.
- Recommended that the licensees who have cover 50% of the habitations with a population of 500-2000 be given a reduction of 0.5%, and those who cover 90% & above of the habitations be given a 2% discount in the licence fee.

# Technology NEUTRAL Approach

TRAI has propagated the all along:

- Unified Access Licensing was first recommended in Oct 27, 2003 and the licensees were allowed to offer telecom services using any technology
- Deploy or any other advanced and efficient technology were recommended for in August 28, 2007

TRAI's has further broadened the approach on :

- With the view of technological developments due to which the distinction between voice, data, video/picture carrying networks has blurred, recommend the immediate introduction of a new licensing regime characterised essentially by the "unified licence".

The framework under the new licensing regime should be as follows:

- Unified licence covering UASL/CMTS, NLD, ILD, Internet, IP-I and GMPCS;
- Class licence covering VSAT services;
- Licensing through Authorisation covering PMRTS, Radio Paging and Voice Mail/Audio Tex/Unified Messaging Service



**Thanks**