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Mr SK Gupta
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Dear Mr Gupta,

Thanks for providing this opportunity to share views on the Pre Consultation Paper on IMT
Advanced (4G) Mobile wireless broadband services. Enclosed are my views.

Thanks

Rekha Jain
14/04/2010

Comments on the Pre Consultation Paper on IMT Advanced (4G) Mobile wireless broadband services dated February 10, 2010

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I would like to reiterate some of the points made in response to the Issues related to Overall Spectrum Management and Review of License Conditions" dated October 16, 2009.

Introduction

In light of the significant value of spectrum to economic growth, it is time that TRAI undertakes a comprehensive spectrum policy and framework review within which the parameters of future governance such as organizational structure, relationship of spectrum managers to other institution, instruments etc should be worked out.

A strategic review should lay down the policies for allocation, management, refarming etc and be based on principles of fair allocation, parity in pricing across different technologies/ standards, service/technology neutrality, user pays (including government) and be forward looking.

*For example, service/technology neutrality could include **not** allocating spectrum based on types of services (broadcast/ telecom), technology (GSM/ CDMA) and generation of service (2G/2.5G/3G/4G). This would also enhance property rights and let the market decide the most efficient use of the spectrum.*

The key elements of such a policy review should cover the following:

- *A framework for managing the entire range of spectrum bands (not only for the spectrum for cellular operators). Development of a comprehensive blueprint that should provide a strategic perspective on new services such as digital TV, the time frame for their introduction, the standards to be adopted. It should also include the spectrum likely to be available due to technological developments and from other government sources). This should include a Framework for compensation for refarming spectrum.*

- *The Strategic Review should also provide for the creation of a separate fund for spectrum management. The operators have been giving an entry fee and a percentage of their revenues as an annual charge. A part of the annual charges should constitute the Spectrum Management Fund. The amounts so collected should be used to provide for refarming. The committee should work out a mechanism by which there is an incentive for the incumbent operator to make available the spectrum it is not using*

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1 Views are personal

or shift to alternate bands. On the other hand, if the incumbent does not relieve the spectrum within the specified time frame for commercial purposes, it will have to pay compensation. The amount of compensation should be a deterrent for the incumbent.

- *It should suggest the instruments that are to be used for managing this critical resource across all bands (such as auctions etc), otherwise, there will be problems when the same services could be provided in different bands or the services or devices become indifferent to the specific band. TRAI should adopt forward looking instruments and start to provide guidelines for operating and managing the new instruments. This should also include the scope for experimenting with newer mechanisms such as entitlements. This would be a move towards operator flexibility.*

- *The Strategic Review should formulate an approach suggesting the time frames over which the policy will progressively move from a predominantly command and control to greater focus on license exempt and market mechanisms.*

- *A review of the governance structures and processes. It should review the role, responsibilities and functioning of the existing bodies in spectrum management and suggest how to change it, to enable new services and applications. Specifically an organizational review of the structures and processes of WPC, any possible restructuring, short and longer term training requirements for WPC need to be worked out. A review of SACFA processes is also required.*

- *A framework for enhancing R & D and manufacturing.*

  *A policy agenda that focuses on spectrum as a scarce resource and one that has increasing has potential for commercial services needs to be established. A number of instruments may be used for re-farming from government agencies. These include a **systematic audit** of spectrum usage, creation of **compensation funds**, **pricing incentives**, and **secondary trading**.*

  *The framework must emphasize the commercial aspects of usage. Agencies involved in specific public goods provision such as disaster management, public safety, police etc need to be incentives to shift to more **efficient bands and technology**. Those that are using analog (Public broadcasting) must have a clear cut **time frame** for shifting. The released spectrum may be auctioned to commercial users. The funds generated from this exercise may be used to allow the public agency to make the transfer. In any case, such agencies should have **monetary and efficiency considerations** to utilize improved technologies. Where reframed spectrum auctions do not meet the costs of shifting, such costs should be met through a spectrum refarming fund. There should be a review mechanism to ensure that such agencies continue to upgrade their networks and use technology most efficiently.*

There is a need to do spectrum audit, as large parts of spectrum are unutilized (due to variable demand from subscribers). The objective of spectrum audit should be to understand better methods of spectrum allocation. For example, the deployment of new services in the TV white spaces in the US recently ([http://www.cellular-news.com/story/40193.php accessed on November 10](http://www.cellular-news.com/story/40193.php_accessed_on_November_10), 2009). In UK, an independent audit of spectrum was undertaken in December 2005(http://www.ofcom.org.uk/consult/condocs/sfrps/statement)

Points Specific to 4G

- *As per the ITU, 4G specifications are designed to work in a variety of frequency bands including 450 MHz (with extremely good propagation characteristics), and over time the specified bands are likely to increase as new developments in technology evolve. This has happened in the past both for 2G and 3G. Therefore, specifying generation of technology and associating it with particular bands is going to be constraining for future growth.*

The TRAI consultation papers in the past have examined the issue of spectrum requirements only in the context of 800/900/1800, 3G, BWA and LTE. The availability for future wireless services is assessed based on the present spectrum allocations and availability. There is no scope provided to consider additional spectrum that may be made available based on refarming. The TRAI consultation paper should examine alternative sources of spectrum for commercial purposes, including refarming from broadcasting and public agencies.

Therefore, the questions that TRAI consultation process should address are:

1. *What steps are required to harmonize the spectrum bands available in India with the ITU recommended bands?*
2. *What framework is required to be in place for a strategic review of spectrum (that should include but not limited to)(Response to this would also incorporate the response to question 1):*
   a. *Composition of the body/committee to undertake such a review*
   b. *Terms and conditions for such a body*
   c. *Time frame for the outcomes*
3. *What mechanisms should be used for making more and more spectrum available under license free bands?*
4. *What should be the technical characteristics of services so as to make the spectrum shareable?*
5. *What is the nature of interconnection requirements when new services are permitted?*
6. *Should there be roll out obligations associated with new service roll out? What should be the rural obligations, if any?*

References

1. *A Framework for Review of Indian Spectrum management policies – Rekha Jain*

2. Spectrum Framework Review, Ofcom, June 28,2005

3. Spectrum Policy Task Force: Finding and Recommendations, Paul K. Kolodzy, Presentation to the international Symposium on Advanced Radio Technologies, March 2003

4. Standing Committee on Information Technology (2005-06), Ministry of Communications and Information Technology (Department of Telecommunications), Spectrum Management , 28th Report, Lok Sabha Secretariat, New Delhi.

5. Telecom Regulatory Authority of India, Recommendation on Spectrum Related Issues, May 13, 2005, New Delhi.

6. Telecom Regulatory Authority of India, Report of the committee for "Allocation of Access (GSM/CDMA) Spectrum and Pricing", May 2009

7. Telecom Regulatory Authority of India, Recommendation on Review of license terms and conditions and capping of number of access providers, August 28, 2007

8. Spectrum Relocation Report: Compensation Options for Relocation Costs of Federal Entities, September 2006; http://www.ntia.doc.gov/osmhome/reports/2006/specrels_HR5419.doc .

9. Spectrum Framework Review-the Public Sector-statement; http://www.ofcom.org.uk/consult/condocs/sfrps/responses/

10. www.broadband.gov