

**Consultation Paper on Issues related to Digital Terrestrial Transmission (DTT)
Broadcasting in India**

Dear Sir,

We welcome the opportunity to submit our views on the Consultation Paper on Issues related to Digital Terrestrial Broadcasting in India, dated 24th June 2016, by the Telecom Regulatory Authority of India (TRAI). We are providing a detailed response to each of the questions raised in the -Consultation paper.

Regards,

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Dear Sir,

We welcome the Consultation on Issues related to Digital Terrestrial Transmission (DTT) Broadcasting in India initiated by TRAI to explore the participation of private players in the growth and expansion of the sector. With analog technology being phased out worldwide, digitization of terrestrial networks has become a compulsion. DTT is an efficient way of utilization of spectrum and it can provide multiple services such as TV channels, mobile TV, radio and other value-added services.

Our response is divided in two sections. Section 1 gives an overview of the sector and issues. Based on this, it provides the contours of the regulatory framework for TRAI. Section 2 gives specific responses to the issues raised in the consultation paper.

Section 1: Overview

Unlike in other countries, the terrestrial band in India is accessible to only one player and moreover deployment has been limited to a few number of channels. Normally digital transmissions require larger bandwidth, however, with modern compression techniques; it is possible to accommodate multiple channels in the RF bandwidth of a single existing (analog) channel. The transition to digital systems in broadcasting would make it possible to transmit larger number of channels in the bandwidth occupied by existing channels. This would provide ample space for using other frequencies in this band - be it for television or for non-television media, by both private and public entities. Thus, digitization reduces the spectrum requirements and also allows for more effective utilization of spectrum by making it possible to include data within broadcasting channels.¹ However, information to assess the viability of such utilization of spectrum is limited.

The unresolved question on the future of the DTT is a reflection of long standing tensions in the highly commercialized TV ecosystem spread over Direct-to-Home (DTH), Cable, DTT, Headend-in-the-Sky (HITS) and Internet Protocol Television (IPTV). Doordarshan's (DD) monopoly on terrestrial transmission and the absence of a legal framework for the sector has created barriers to private participation and investments in the sector. The process of digital migration is further complicated given the resources and time required for digitizing India's spread-out terrestrial network. Moreover, digitizing the network terrestrial TV transmission for delivering traditional TV channels may not be relevant given the existence of multiple platforms which are adequate to serve the broadcasting needs of the people including DD's Free-to-Air (FTA) DTH channels.

¹ Report of the Sub Group on Going Digital under the Chairmanship of Member Secretary Planning Commission, Planning Commission, New Delhi, October 2006

The last external review of Prasar Bharti, completed in January 2014, recommended that any existing plans on the further expansion of and investment in DTT must be assessed afresh, based on feedback from field reviews.² The review, while keen to explore the viability of DTT for mobile users, argued for prioritizing DTH over DTT for digitization. Therefore, there are two main issues that need to be considered with regards to the expansion of the DTT sector:

- Is there a need for DD to expand its services in DTT mode given its presence in DTH?
- If private players are to be introduced in the DTT sector how can we develop a regulatory framework and ecosystem that is in line with emerging trends in other parts of the world such as the management of the ‘digital dividend’ brought about as a consequence of digitization?

Any regulatory framework for the introduction of private players in DTT needs to be guided by a clear and consistent public service vision, including on access, affordability, content and convergence. In introducing private players in the DTT band, TRAI should keep a long term objective of migrating to a market oriented regime for converged networks. Towards this end, a Unified License for Broadcasting (ULB) should be introduced that encompasses both DTT, and Cable & Satellite (C&S) TV. It is important that a ULB be delinked from spectrum. Further, if spectrum in the DTT bands (470-698 MHz) is made available to private players, it should be delinked from the ULB and liberalized (service/technology neutral). Importantly, we suggest that the sale of spectrum should be conducted only through auctions and trading in secondary markets should be permitted. Sharing of both active and passive infrastructure between public and private entities and among various private entities, in the manner currently allowed for the telecom sector, should be permitted for the DTT sector.

TRAI needs to synchronize its regulatory approach for DTT broadcasting with improvements in technology and the evolving market ecosystem of devices. Further, participation of the private sector in DTT markets must be done in a manner that introduces competition in (i) consumer devices (including STB), (ii) infrastructure (as implemented in the telecom sector), and (iii) content. The introduction of private DTT operators is an opportunity to move forward on reforms for the sector and towards creating an inclusive and competition-promoting regulatory framework.

² V. Parthasarathi & S. Chotani (2015) ‘The Digital Switchover of Doordarshan: Intriguing Dynamics of Policy Options’, *Medijske studije/Media Studies Journal* (Special Issue: New Perspectives on Public Service Media) Vol.6/12, December. <http://hrcak.srce.hr/file/223878>

Section 2: Response to Issues in the Consultation Paper

Our response to the specific questions asked by TRAI is as follows.

1. **Do you perceive the need for introduction of Digital terrestrial transmission in multiple broadcasting distribution platforms? Please provide your comments with justification.**
2. **If yes, what should be the appropriate strategy for DTT implementation across the country? Please provide your comments with justification.**
3. **Should digital terrestrial television broadcasting be opened for participation by the private players? Please provide your comments with justification.**

We have interpreted the first question to read that “*given the availability of multiple broadcasting distribution platforms is there a need for the introduction of digital terrestrial transmission?*”

Convergence: The broadcasting landscape all over the world has been undergoing significant technological and structural changes. These transformations have given consumers access to a greater variety of communications and media services than ever before.³ However, convergence is changing the way in which consumers use communications services and consume content as broadcasting content is increasingly available over the Internet and on various wireless portable devices. On the other hand, it is possible for cable TV networks to provide voice telephony and broadband. Similarly, the modern telecommunications networks are capable of triple play, i.e. offering voice, video and data services. For example, the terms and conditions of the Unified Access Service License (UASL) as well as those of the Cellular Mobile Telephone Service (CMTS) license permit the provision of such services.

Prevalence and selection of DTT: The global uptake of DTT services despite the presence of other digital platforms is evident by the fact that it has emerged as one of the most economical and preferred broadcast transmission systems in many countries like Australia, Denmark, France, Germany, Netherland, Hong Kong, and USA.⁴ As reported by TRAI currently, the subscriber base of cable TV in India is more than that of DTH.⁵

³ Carter Eltzroth, “Broadcasting in Developing Countries: Elements of a conceptual Framework for Reform, The Massachusetts Institute of Technology Information Technologies and International Development Volume 3, Number 1, Fall 2006, 19-37 <http://itidjournal.org/itid/article/view/216>

⁴ Please refer to Annex for details of DTT across Jurisdictions

⁵ ‘Growth of Cable and DTH subscriber base in India (2009-2015)’, TRAI Annual Report 2014-15 http://www.traai.gov.in/WriteReadData/UserFiles/Documents/AnnualReports/TRAI_Annual_Report_English_16052016.pdf

This must be seen in the context that cable TV started in 1992 while DTH was introduced in 2003. Compared to DTH, cable TV growth is very low, and with digitization of cable, the gap between digital cable TV and DTH has further reduced.

Planning Commission's 11th Five-Year Plan had emphasized DTT & DTH as the two avenues for digitizing DD - while suggesting to hold back any further expansion of the terrestrial network (Planning Commission, 2008: 44) "*No further expansion of DD terrestrial network. However, emphasis should be on digitization.*" Government commitment to digitization is evident in the allocation of terrestrial spectrum on a privileged, non-commercial basis, akin to that allocated for other national priority areas like defense and space.⁶ However, the experience of the Public Broadcaster to migrate from analog TV to DTT has fallen short of many an expectation, as an academic study has detailed.⁷

Given the global prevalence and selection of DTT, and considering the benefits of convergence our response to the first question is Yes, there is a need for DTT in the country.

With regards to the appropriate strategy for DTT implementation across the country our recommendations on the structure of the sector are below:

The Supreme Court judgment held that a diversity of opinions, views and ideas cannot be provided by a medium controlled by a monopoly -- whether owned by the state or any other individual, group or organization. "The broadcasting media should be under the control of the public as distinct from Government. This is the command implicit in Article 19(1)(a)." Urban TV audiences turn more to private news channels because DD is perceived to air government perspectives especially during conflict scenarios and elections. Further, DD has fixed news cycles as it does not tamper with its news cycles to provide constant updates and unscheduled bulletins. Free speech rights in India recognize that citizens have the benefit of receiving a plurality of views and a range of opinions on all public issues. This cannot be provided in a platform with a single player. The move to de-monopolize DTT secures greater plurality in the playing field of terrestrial TV platform ownership, ensuring that no single broadcaster can exert undue influence on public opinion or political agendas.

The licensing of private terrestrial broadcasters would complement the services of DD and also lead to more choice for consumers as these terrestrial channels will produce their own programmes. Currently, the Satellite/Cable TV Channels have programmes directed at the national audience. It is expected, that private terrestrial television broadcasting will

⁶ V. Parthasarathi & S. Chotani (2015) 'The Digital Switchover of Doordarshan: Intriguing Dynamics of Policy Options', *Medijske studije/Media Studies Journal* (Special Issue: New Perspectives on Public Service Media) Vol.6/12, December. <http://hrcak.srce.hr/file/223878>

⁷ Planning Commission (2008) 11th Five Year Plan, Volume II, Social Sector (2007-2012)

lead to enhanced coverage of local issues, events, music and culture as DTT is commercially more feasible in a limited geographic footprint.

With regards to the appropriate strategy and regulatory framework for DTT implementation our recommendations are provided below:

Separation of Policy, Regulation and Operations: The opening up of DTT to private players essentially amounts to competition in the terrestrial broadcasting sector in India. Obtaining fair play in the working of the market economy, a basic concept is the distinction between players and playing fields. A precondition for this would be to separate the policy, regulatory and operations role of DD. Permitting the private sector in DTT would involve a liberal reading of the Airwaves Judgment of 1995⁸, mandating the opening up of terrestrial frequencies (and not just of satellite frequencies as hitherto) to non-state players.

'Must-Carry' Obligations: Any regulatory framework for the entrance of private players in DTT should provide clarity on the provisions for carriage of mandatory DD Free-to-Air (FTA) channels on DTT. Importantly, FTA private channels are currently available to subscribers only through a cable operator who charges a monthly fee. Therefore, even though a broadcaster may be offering a channel as FTA, the viewer can get it only after payment of minimal subscription fee for all such FTA channels. If currently mandatory DD channels and/or other DD channels are made mandatory in the future, the FTA channels would consume a large extent of the available bandwidth. The commercial viability of private players entering the DTT sector would be impacted.

Mix of FTA and Paid Channels: DD Direct service is free for subscribers across the country and currently carries 56 FTA private channels and 24 FTA DD channels.⁹ If service over DTT becomes chargeable or DTT viewers get such FTA channels without having to pay any subscription fee to any sort of intermediary/distributor (as DD would pay for it) the service would be in direct competition with DD free DTH service. Moreover, the commercial sustainability of private players in DTT would require that they charge for services in order to recover spectrum, equipment and content costs. However, such a move would be unviable given the competition with DD free DTH service. Therefore, any regulatory approach should explore both FTA and paid channels under the DTT regime. Such an approach would call for different licensing terms, and other regulatory compliances similar to those that partially exist in the current C&S regime.

⁸ The Secretary, Ministry of Information and Broadcasting Vs. Cricket Association of Bengal and ANR, February 1995 AIR 1236, 1995 SCC (2) 161

⁹ DD India website , DD Free Dish Channel List <http://ddindia.gov.in/Technical/Pages/DD-Free-Dish-%28DTH%29.aspx>, accessed on 8th August,2016

Unified Licensing: The opening of DTT to private players could be an opportunity to move to a ULB. Unified license system would allow broadcast networks to use any kind of technology (terrestrial or satellite) to provide TV content. Nevertheless, it is must be emphasized that broadcasting in the DTT mode is challenging to sustain in the private sector since it draws on advertising/subscription from a limited geographical market. It must also be emphasized that even after 20 years of broadcasting in C&S mode, broadcasters have often sought the help of the government to bail them out of there, often self-created, financial situations.¹⁰ On the other hand, allowing the private sector in terrestrial TV broadcasting would result in inflow of private capital in the sector and growth and expansion of the bouquet of terrestrial TV channels. The Planning Commission 11th Five-year plan included, private players entry in the DD transmission network for providing mobile solutions and terrestrial transmission should be preferably through PPP route.¹¹ Further spectrum made available from conversion to digital broadcasting could be used for wireless services and rural broadband.

Summary:

There is a need to de-monopolize the DTT sector. However, DTT as a platform is an expensive proposition as it allows broadcasters to provide content to an unlimited number of viewers only in a limited area. With a few channels occupying the terrestrial space, a key question is the need for DD to undergo the switch to DTT. The doubts on the potentials and viability of this expensive switch-over is evident in DD's slow roll-out of its DTT services. Given the evolution of the larger broadcast landscape it is cheaper for DD viewers, if DD focuses on DTH mode and continues to provide its free service. Since both DD and private players insist on some presence in terrestrial transmission space a viable policy option may be to co-create and/or share DTT infrastructure. Infrastructure sharing is a better option given the consequences of wasteful and hyper-competition in the telecom sector in India. Infrastructure sharing reforms have been implemented in telecom sector and more recently in relation to Cable/HITS.¹²

TRAI should take into consideration the regulatory concerns and modifications proposed by this submission towards developing a framework for infrastructure sharing and/or PPP model in the DTT space. Specifically, efforts should be made to move towards a UBL.

¹⁰ "Kolkata cable ops to meet FM", Indian Television, 26 November, 2013

<http://www.indiantelevision.com/digital/y2k13/nov/novdig65.php>

Also see Special Correspondent, "Government bailout for Prasar Bharati", The Hindu, 17 September 2012, <http://www.thehindu.com/todays-paper/tp-national/tp-newdelhi/government-bailout-for-prasar-bharati/article3905586.ece>

¹¹ Planning Commission (2008) 11th Five Year Plan (2007-2012)

¹² TRAI Consultation Paper on Headend-In-The-Sky (HITS) New Delhi: July 24, 2007 and accessed on 8th August, 2016 <http://www.trai.gov.in/WriteReaddata/ConsultationPaper/Document/cpaper24july07.pdf>

TRAI Pre-consultation Paper on Infrastructure sharing in Broadcasting TV distribution sector 23rd May, 2016 and accessed on 8th August http://www.trai.gov.in/WriteReaddata/ConsultationPaper/Document/Pre_consultation_paper_23_May_2016.pdf

TRAI should also clarify the framework for Universal Service Obligations, mergers and acquisitions and FDI.

Alternatively, with the limited market share of terrestrial broadcasting and ascending market share of alternative technologies TRAI should also pay attention to the unique characteristics of the bands in which DTT is currently deployed. In India, 85-95% of the TV spectrum, in 470-582 MHz band, is unused. This could be auctioned for 3G and 4G wireless network. But in Indian economic context and to boost Digital India, access to this band needs to be bundled with the National Optic Fiber Network / BharatNet, and other shared backbone networks like ERNET for long distance rural broadband.¹³ In addition to the bands providing cost-effective coverage in rural and remote areas, both UHF Band IV and UHF Band V have excellent signal propagation characteristics which make the bands ideal for dense urban areas that require in-building penetration. Also the band characteristics lend itself to providing ubiquitous and cost effective mobile broadband and has been marked for IMT applications in future.¹⁴ TVWS can be used to provide local DTT TV service in certain area, can be used for area specific wireless services or for providing rural internet, as practiced across Europe¹⁵. Therefore, there is a need to re-think limiting the use of the band for DTT services only. We suggest that some frequencies in this band should be left for non-TV use that is to provide 4G and/or mobile broadband.

- 4. Which model or a combination thereof for Digital terrestrial transmission will be most suitable in Indian context? Please furnish your comments with justification.**
- 5. What should be the approach for implementing DTT network (MFN/SFN/Hybrid)? Please furnish your comments with justification**

If and when private players are permitted in DTT sector:

1. The financial terms for a license for admitting private players in DTT could involve either a fixed annual fee, or a revenue share, like in FM Radio and mobile

¹³ “Shyam Ponappa: The buzz around TV white space”, Business Standards magazine, By Shyam Ponappa dated 4th November, 2015 and accessed on 8th August, 2016. (http://www.business-standard.com/article/opinion/shyam-ponappa-the-buzz-around-tv-white-space-115110401618_1.html)

¹⁴ “Ericsson Proposal on allocation of spectrum in UHF band in India ” dated 17th August, 2009 and accessed on 9th August, 2016.

http://www.wpc.gov.in/WriteReadData/userfiles/file/Ericsson_Proposal_for_UHF_band%20in_India3.pdf

¹⁵ “TV White Spaces: Managing Spaces or Better Managing Inefficiencies?”, International Telecommunication Union, GSR Discussion Paper, (2013) http://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR_paper_WhiteSpaces_Gomez.pdf

“Implementing TV Whitespaces”, published on 12th February, 2015, on Ofcom website accessed on 10th August, 2016 <http://stakeholders.ofcom.org.uk/consultations/white-space-coexistence/statement>

services. In either case, a proportion of the license fee should be channelized to fund in part DD's efforts to enhance or sustain its own programming and in part overall DTT infrastructure expansion and maintenance. The license fees could also be used to subsidize or fund community TV in DTT mode.¹⁶

2. We also recommend that part of the revenue should be directed to a USOF type of fund created to ensure the sustainable funding for the sector.¹⁷ The funds should be deployed either for quality programming for the public service broadcaster, capitalizing on the enhanced viewer/ listener experience DTT promises, or to cushion subsidies for the interoperable STBs required for audience that cannot invest in the upgradation.
3. Further, DoT and MIB need to work together to prepare a roadmap for auctions of frequencies. To incentivize MIB to vacate the spectrum a part of the revenue from the auction could be given to the I&B Ministry.
4. As demonstrated in other jurisdictions the use of Single Frequency Networks (SFN) networks with multiple transmitters operating on the same frequency in the same region is a way of improving spectrum efficiency in terrestrial broadcast.¹⁸
5. An even regulatory framework especially for permissible content, advertising time and licensing is required for DTT and for 4G/5G, since both platforms are effectively able to provide TV programming on mobile phones.
6. If and when private players are permitted in DTT, the FDI norms applicable for the sector will have to be brought to par with the FDI norms applicable in the C&S TV sectors. As per the most recent FDI rules announced in June 2016, the broadcasting carriage services (including cable networks, DTH and mobile TV) have been allowed 100% (or near 100%) FDI with government approval or through the automatic approval route.¹⁹

¹⁶“Innovations, Policy Transfer and Governance in the Telecom and Broadcast Sector in India”, by Prof. Rekha Jain, Indian Institute of Management - Ahmedabad, India

¹⁷ Models of community TV being explored in Switzerland and Netherlands; for details see respective reports in the MDM series by the Open Society Foundation Report, accessed on 10 August, 2016 [https://www.opensocietyfoundations.org/termsearch/9222?sort=title&order=asc&f0=field_taxonomy_free_tags%3A4386&f3\]=type%3Awork_product&ct=work_product%2Cevent%2Cblog_entry&at=work_product&processed=1](https://www.opensocietyfoundations.org/termsearch/9222?sort=title&order=asc&f0=field_taxonomy_free_tags%3A4386&f3]=type%3Awork_product&ct=work_product%2Cevent%2Cblog_entry&at=work_product&processed=1)

V. Parthasarathi & A. Srinivas Ed. (2013) Mapping Digital Media – India; The Open Society Foundation, London accessed on 8th August 2016 <https://www.opensocietyfoundations.org/sites/default/files/mapping-digital-media-india-20130326.pdf>

¹⁸ Australian Broadcasting Authority, Digital Terrestrial Television Broadcasting Planning Handbook including Technical and General Assumptions, Canberra, March 2005, <http://www.acma.gov.au/~media/Licence%20Issue%20and%20Allocation/Publication/pdf/Digital%20Terrestrial%20Television%20Broadcasting%20Planning%20Handbook%20including%20technical%20and%20general%20assumptions.pdf> (Pg 9)

¹⁹ Under the FDI norms applicable to broadcasting and C&S, any existing company that is not seeking any license from the sector's administrative ministry will require the approval from the Foreign Investment Promotion Board

7. Market power stipulations including concentration ratios need to be emphasized if moving to ULB regimes for broadcasting. For uniformity in regulatory design we propose a sharper version of market power stipulations than those prevailing in FM Radio where a licensee cannot hold more than 15% of stations or frequencies in a service/territory, and not more than 40% of stations across the country.²⁰ This is especially important as ULB becomes a means to accumulate interests within TV sector and across TV and telecom sectors. Since DTT is most efficiently said to operate in limited geographies, any possible risks to concentration of media ownership in the relevant geographical market must be taken cognizance of while formulating licensing criteria for private players in DTT.
8. DTT must ensure uniform and continuous audio and video quality of service for all viewers. There must be no effect on the quality of service due to the number of users on the network.

6. **What should be the criteria for arriving at optimum size of DTT multiplex at any location? Please furnish your comments with justification.**
7. **How many digital multiplex per DTT operator should be planned for metro, major cities, urban and rural areas and why? Please furnish your comments with justification. [NC]**

Technologically, there is a trade off between capacity of DTT and its signal robustness/coverage area. Higher data rate can be achieved but with reduced coverage area and vice versa. For optimum coverage 10-12 Standard Definition (SD) TV Channels or 3-4 High Definition (HD) TV can be relayed. It is also possible to relay Radio Channels and TV on mobile. To keep parity of regulatory approach towards content availability across the various distribution platforms, only FTA channels could be made available on DTT by private operators. This is even more necessary since there is no subscription fees being charged from the user. However mandating only FTA channels will probably lead to a scenario where not much will be realized from the auction of

(FIPB) for infusion of fresh foreign investment beyond 49%. But, the existing cable and DTH players, who already have license to operate, will also fall under this category, and thus, will have to get an approval from FIPB to raise funds from overseas.

Gaurav Laghate, "FDI in broadcasting: Cable and DTH companies say new rules maintain status quo, want removal of cross-holding cap", Economic Times, accessed on 8th August, 2016 <http://economictimes.indiatimes.com/fdi-in-broadcasting-cable-and-dth-companies-say-new-rules-maintain-status-quo-want-removal-of-cross-holding-cap/articleshow/52843058.cms>

²⁰ Government of India Ministry of Information and Broadcasting, Private FM Radio-Frequently Asked Questions, Accessed 12 August, 2016 http://www.mib.nic.in/writereaddata/documents/faq_15052013.pdf

spectrums as private operators in DTT will have to be charge subscription fees for commercial sustainability. In India, there are currently 80 FTA C&S channels including 24 of DD. Further, as explained above, the choice of HD channels are data intensive and would reduce signal robustness and coverage area. TRAI should consider the limitations and challenges of deploying HD channels or on the other hand restricting the availability of channels to FTA SD channels. Therefore, a bouquet of private paid channels and FTA (HD+SD) channels should be explored by TRAI under the DTT regime.

Subscribers of C&S are used to multiple TV channels. In such situations optimum bouquet of DTT services may be required for which more number of transmitters are required. For example UK has eight national terrestrial multiplexes. There are three public service broadcaster (PSB) multiplexes - BBC A, BBC B and D34 - and five commercial multiplexes - SDN, ARQA, ARQB, COM7 and COM8. Public service multiplexes provide coverage to 98.5% of households, while the commercial multiplexes reach 90%. COM7 and COM8 reach around 76% of homes.²¹

Similarly the Polish Office for Electronic Communications announced a contest for frequency reservations in the 174 - 230 MHz band, dedicated for its eighth multiplex (MUX-8) of Digital Terrestrial TV (DTT). The winner of the contest became the operator of MUX-8 and offer channels of the state-funded broadcaster (TVP) and commercial broadcasters. Namely, the audiovisual content of the MUX-8 consists of 3 HD programs or 1 HD and 1 SD program broadcast by TVP and 4 SD programs broadcast by commercial broadcasters. Devices for both HD and SD devices are available in the open market and provided by operators across India.

²¹ Multiplexes, Digital UK Industry <http://www.digitaluk.co.uk/industry/Multiplexes>

- 8. What should be most appropriate frequency band as per National Frequency Allocation Plan 2011 for implementation of Digital terrestrial transmission including mobile TV? Give your comments with justification. [NC]**
- 9. Should spectrum be exclusively earmarked for rollout of DTT services? If so, what should be the quantum considering the broadcasting sector requirement in totality?**

TRAI can benchmark various policy options in its consideration of how spectrum should be earmarked:

The whole spectrum can be shared for providing DTT service and 4G/Internet Service side by side.

- A. One part of the spectrum can be used to provide pure 4G / Internet Service.
- B. The other part of the spectrum may be divided between Public Broadcaster and Private Broadcasters with
 - no existing C&S License
 - existing C&S License but not having 4G license
 - existing C&S License as well as 4G License

Further TRAI policy options for licensing to private operators:

1. Only those private entities are to be offered a license who are keen to provide TV services for viewers in a specific area, rather than across the country.
2. Second, only those private entities are to be offered a license who do not have license for Unlinking/Downlinking satellite broadcast, as this would go a long way in balancing market power in the favor of DTT operators.

10. What should be the roadmap for digitization of terrestrial TV network in the country? Please provide your comments with justification.

11. What should be the Analog Switch off date(s) for the terrestrial TV channels in context with the suggested roadmap for DTT implementation? Please provide your comments with justification.

The DTT policy should be accompanied with a TV-White space policy as DTT may find commercial viability only in a few select geographic areas. Unallocated frequencies created as a result, should be allowed for secondary users especially wireless broadband. Further as explained above, in the Indian economic context and to boost Digital India, access to TVWS needs to be bundled with the National Optic Fiber Network / BharatNet, and other shared backbone networks like ERNET for long distance rural broadband.²²

As regards to simulcast in DD's terrestrial broadcasts there should be no set date for discontinuation. There is lot of space in terrestrial spectrum to offer analog, digital and mobile services together, much more so in non-urban areas. It is only in countries where terrestrial space is crowded that a sunset or simulcast period is required. A monitoring committee should be set up that decides whether simulcast should be ended on a case-to-case basis and after evaluating if the ecosystem including devices and consumer equipment has evolved and will be sustainable in the long run.

TRAI should also give considerable attention to the STB ecosystem which is currently missing and/or weakly implemented in Cable and Satellite (C&S) TV regulation. DD's terrestrial audience measured in terms of households has been declining in percentage, and recently even in absolute, terms; perhaps as a consequence, its current 27 million households predominantly entail the marginal sections of society – those unable to spend a few rupees on monthly cable rents, and in all probability completely unable to afford a subscription or an STB.²³ Consequently, there is a risk that at the end of the simulcast period, when STBs become necessary, there will be a sudden and further drop in Doordarshan's terrestrial audience – after having spent hundreds of millions on ushering in DTT.

The STB's required for DTT should necessarily be interoperable---not only among those of different (public and private) DTT broadcasters but also with STBs required for

²² “Shyam Ponappa: The buzz around TV white space”, Business Standards magazine, By Shyam Ponappa dated 4th November, 2015 and accessed on 8th August, 2016. (http://www.business-standard.com/article/opinion/shyam-ponappa-the-buzz-around-tv-white-space-115110401618_1.html)

²³ V. Parthasarathi, S. Chotani 2015

existing cable and DTH services. Effective interoperability between STBs will promote the regulatory objectives of ensuring access, diversity of choice and quality of services in the broadcast markets, as it competes with the Internet to stay relevant. As specified in the TRAI Pre-Consultation Paper on Set Top Box Interoperability April 2016, “The issue relating to technical interoperability mainly hover around the question of interoperability of STBs, between two platforms viz. DTH and Cable; and question of interoperability of STBs within the same platform i.e. with in Cable or DTH systems. Further, within a platform, there could be a question of interoperability of STBs across the different service providers using the same make of CAS. Presently, STB interoperability is not functional at any level.”²⁴ In the perspective of subscribers, provision of switch-over from one operator to another at a minimum exit load becomes an important aspect of broadcast services growth. If the set top box is based on Open Architecture and technically interoperable, the cost of switch-over from one service provider to another for a subscriber may be minimal.

12. Stakeholders may also provide their comments on any other issue relevant to the present consultation paper?

In light of the existing issues with DTT, in case the government does not want to go ahead with introducing private players in DTT some part of the spectrum in this band should be released immediately for telecom services. The spectrum could be freed and used to provide wireless Internet by private and/or non-profit companies. Given the emergence of mobile devices priority should be given to ‘data services’ so that broadband expansion can get a boost in India.

²⁴ TRAI, ‘Pre-Consultation Paper On Set Top Box Interoperability’, 4 th April, 2016
http://traai.gov.in/WriteReadData/WhatsNew/Documents/Pre_consultation_paper_on_interoperability_final.pdf

Annex I: Analysis of DTT Regimes across Jurisdictions

Table 1: Licensing Provisions under DTT Regimes across Jurisdictions

Country	LICENSING PROVISIONS						
	Public	Private	Multiplexes	National	Regional	Local	USL
Australia	Yes	Yes	Yes	Yes	Yes	Yes	Area Specific and National.
Canada	Yes (but Public DTT also paid in some locations)	Yes	Yes	Yes	Yes	Yes	Area Specific.
Denmark	Yes	Yes	Yes (5)	Yes	Yes	Yes	NA
France	Yes	Yes	Yes (6)	Yes	Yes	Yes	Area Specific and National.
Germany	Yes	Yes	Yes (5)	Yes	Yes	Yes	Area Specific and National.
Hong Kong	Yes	Yes	Yes (7)	Yes	Yes	Yes	Area Specific and National.
UK	Yes	Yes	Yes (8)	Yes	Yes	Yes	Area Specific and National.
USA	Yes	Yes		Yes	Yes	Yes	Area Specific and National.

Source: “Mapping Digital Media: A report by the Open Society Foundation”, accessed on 10th August,2016

<https://www.opensocietyfoundations.org/issues/media-information>

Country specific reports provided at the end of this document.

Table 2: Applicable Standards under DTT Regimes across Jurisdictions

Country	APPLICABLE STANDARDS						
	Frequencies (MFN/SFN/Hybrid)	Analog	Digital	TV	TVWS	Device	STBs ²⁵
Australia	526-582 MHz 582-820 MHz	Yes	Yes	Mixed	Local TV, Wireless, Broadband	TV / Mobile	DVB-T
Canada	53-72MHz, 76-88 MHz, 174-216MHz, 470-698 MHz	Yes	Yes	Mixed	Rural Wi-Fi	TV / Mobile	ATSC
Denmark	694 - 790 MHz	No	Yes	Digital	NA	TV / Mobile	DVB-T/ DVB-T2
France		No	Yes	Digital	Use for Wireless, Rural Internet	TV / Mobile	DVB-T/ DVB-T2
Germany	470 - 790 MHz	No	Yes	Digital	Local Channels	TV / Mobile	DVB-T/ DVB-T2
Hong Kong	471 - 806 MHz	Yes	Yes	Mixed	M2M Communicati on, Rural Broadband, WiFi Hotspot	TV / Mobile	DMB - T/H
UK	472 - 862 MHz	No	Yes	Digital	Local Channels, Wireless Service	TV / Mobile	DVB-T/ DVB-T2
USA	54 - 801 MHz	No	Yes	Digital (Only)	Local Channels, Wireless Service	TV / Mobile	ATSC

Source: “Mapping Digital Media: A report by the Open Society Foundation”, accessed on 10th August,2016

<https://www.opensocietyfoundations.org/issues/media-information>

Country specific reports provided at the end of this document.

²⁵ DTV Status, DTV Status website, accessed on 10th August, 2016,
<http://en.dtvstatus.net/>

Table 3: Organization of DTT Sector across Jurisdictions

Country	ORGANIZATION OF SECTOR					
	License fees	Auctions	Subsidies for STBs	USO	Media ownership	FDI
Australia		Yes	Pensioners will be given free digital television set-top boxe		Public and Private	Yes
Canada	Public Funded	Yes	No Subsidy	Local Cable TV		
Denmark		Yes				
France	Public Funded	Yes (1st priority to Public Broadcaster.	In built TV adopter mandatory		Public and Private	
Germany	Public Funded	Administrative Act	No Subsidy		Public and Private	Allowed
Hong Kong		Yes				
UK	Public Funded	Yes	Operator wise specific subsidy.		Public and Private	
USA		Yes	By Government coupons		Public and Private	

Source: “Mapping Digital Media: A report by the Open Society Foundation”, accessed on 10th August,2016

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