Recommendations/2010

Telecom Regulatory Authority of India

Implementation of
Digital Addressable Cable TV Systems
in India

New Delhi: August 05, 2010

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Preface

Cable and Satellite TV services in India have grown exponentially in the last seventeen years. However, the nature of the analogue cable TV services, which forms the bulk of the cable and satellite TV universe, poses a number of problems. Capacity constraints and the non-addressable nature of the analogue cable TV services results in several problems including complex business transactions and a high level of litigation.

Digital technology offers the requisite solution holding the promise of better satisfaction at all levels of the distribution chain including the consumers. Besides, digital addressable systems can enhance the scope of the services offered including broadband services. It is not surprising therefore that, during the consultation process, an overwhelming majority of the stakeholders have favoured early implementation of digitization in the country.

We in the Authority, after duly taking into consideration all aspects, have worked out a framework of implementation of digitization with addressability in India by December 2013. In doing so, we are suggesting several measures such as fiscal incentives, right of way etc. to enable this process.

It is hoped that these recommendations would be acted upon quickly to the benefit of all stakeholders.

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Chairman, TRAI

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Introduction

(i) Television transmission in India was started in the year 1959 by Doordarshan, in the terrestrial mode. This had a modest beginning with an experimental telecast in Delhi. Regular daily transmission commenced in 1965.

(ii) The first satellite based reception programme known as the Satellite Instructional Television Experiment (SITE), was conducted in 1975-76 in collaboration with NASA and ISRO. It was an experimental satellite communications project which made available informational television programs to rural India. The main objectives of the experiment were to spread education via satellite broadcasting, and to help India gain technical experience in the field of satellite communications. The experiment ran for one year from 1 August 1975 to 31 July 1976 and covered more than 2500 villages in six Indian states. The television programmes were produced by All India Radio and broadcast by NASA's ATS-6 satellite. The experiment was successful, as it played a major role in helping develop India's own satellite program, INSAT. The project showed that India could use advanced technology to fulfill the socio-economic needs of the country.

(iii) The first satellite based, live TV transmission using the INSAT 1B satellite took place with the live coverage of Independence Day celebrations on 15th Aug. 1982. Colour TV transmission in India was introduced by Doordarshan in the year 1982. In the same year, a satellite based National Telecast was also started through Doordarshan’s terrestrial network.

(iv) Cable television came into existence in India in 1983 when Doordarshan started its services through cable in rural areas of Rajasthan. At the commercial level, in 1989 a few entrepreneurs

set up small cable TV networks with local video channels showing movies & music videos after obtaining rights from film & music distributors. International satellite television was introduced in India in 1991. Spurred by major international events like the Gulf War and the growth of home-grown media companies, the industry experienced rapid growth, with the number of subscribers increasing from just 410,000 in 1992 to more than 91 million by the end of 2009 – a growth rate of nearly 40% every year for the last 17 years. The cable TV segment in India, although fragmented, has shown tremendous growth. In the last few years, the number of satellite television channels has increased from 136 channels in year 2005 to around 550 channels today. The large distribution sector now comprises of 6000 Multi System Operators (MSOs), around 60,000 Local Cable Operators (LCOs), 7 DTH/ satellite TV operators and several IPTV service providers.

(v) The exponential growth of the number of TV channels combined with the inherent limitations of the analogue cable TV system has given rise to a number of problems in the sector. TRAI's earlier recommendations dated 14th September 2005 on "*Digitalization of Cable Television*" had identified the need for a national plan for digitization. In 2007, the Authority constituted a group consisting of members drawn from the TRAI, the Ministry of Information and Broadcasting, Prasar Bharti, consumer organizations, broadcasters, MSOs, DTH operators, cable operators'/ distributors' associations and technical experts to deliberate on issues relating to digitization. The report of the group which highlighted the need for mandating digitization in a phased manner by the Government, was forwarded to the Ministry of Information and Broadcasting. Further, the recommendations of the Authority on "*Restructuring of Cable TV Sector*" dated 15 July 2008, emphasized the need for introduction of a licensing framework in the cable sector for faster digitization.

(vi) During the pre-consultation process in the recently concluded tariff exercise for cable TV services in non-CAS areas, non-addressability and the capacity constraint of the analogue system emerged as the root causes of many of the problems in the non-CAS cable TV system. In fact, the consultation paper on "*Tariff issues related to Cable TV Services in Non-CAS Areas*" dated 25th March 2010, contained a separate chapter on Digitization with Addressability. These recommendations are the outcome of the consultations and deliberations on the various issues connected with the achievement of *digitization with addressability*.

(vii) The layout of the contents is as follows. Chapter I - Broadcasting Sector-Nature and Limitations discusses the evolution of the broadcasting sector, the various distribution platforms, the role of different stakeholders in the value chain and the financial transactions that take place across the value chain. It further discusses different types of cable TV systems viz. analogue, hybrid and fully digital systems along with the inherent features and limitations of the analogue Cable TV system. Chapter II analyses various issues connected with the implementation of digitization with addressability in the cable TV sector, including the basic need for digitization, technology/standards, investment involved, incentives to stakeholders for implementing digital addressable systems, required amendments to the Cable TV Act, licensing of MSOs/LCOs and the need for an awareness programme for education of stakeholders. Chapter III describes the roadmap for implementing digitization with addressability in a phased manner. The recommendations of the Authority have been compiled in Chapter IV.

Chapter I: Broadcasting Sector-Nature and Limitations

1.1 This chapter gives an overview of the broadcasting sector, illustrating the roles played by various stakeholders across the value chain in different distribution platforms. It elaborates various forms of cable TV systems viz. Analogue Cable TV System, Hybrid Cable TV System and fully Addressable Digital Systems. It also analyses the inherent features and the limitations of the analogue cable TV system.

A. Overview of the Broadcasting Sector

1. Evolution of the Sector

1.2 The cable and satellite television market in India emerged in the early 1990s, spurred by major international events like the Gulf War and the growth of homegrown media companies. The industry has experienced rapid growth, with the number of subscribers increasing from just 410,000 in 1992 to more than 91 million by the end of 2009 – a growth rate of nearly 40% every year for the last 17 years. This expansion of subscriber base is mirrored by commensurate growth on the supply side. India today has a large broadcasting and distribution sector, comprising around 550 television channels, 6,000 Multi System Operators (MSOs), up to 60,000 LCOs, 7 DTH/ satellite TV operators and several IPTV service providers.

1.3 In 2009, the revenue size of the Indian television industry was estimated at Rs.25,700 crore[1]. Of this, Rs.16,900 crore (66%) is attributed to subscription revenue generated from consumers and the balance Rs.8,800 crore (34%) comes from the advertising market. The last five years have changed the dynamics of the

[1] FICCI- KPMG Media & Entertainment Industry Report, released March 2010

market significantly. Introduction of viewing platforms like DTH and IPTV, and digitization of the last mile (both voluntary and mandatory) have led to a more diverse, rapidly evolving multi-platform market. From a scenario where 100% of the cable & satellite (C&S) population was dependent on analogue cable services, DTH commanded around 20% market share by the end of 2009. Uptake of digital services is increasing and choice is becoming possible at the consumer end.

1.4 Conditional Access System (CAS) was mandated for cable services in the four metros – all of Chennai (Since September 2003) and parts of Mumbai, Delhi and Kolkata on December 31, 2006. In these areas, pay channels are relayed over cable necessarily through CAS-enabled or addressable systems.

1.5 In the case of DTH and IPTV services, all content is required to be encrypted and transmitted through conditional access systems. Thus these platforms are necessarily compliant with the CAS mandate for cable services. The rest of the country (i.e. where digitization and addressability are not mandated) continues to remain largely in an analogue cable-dominated environment. However, the share of digital platforms is increasing gradually even in these areas, led largely by voluntary digitization (without addressability) and growing penetration of DTH.

1.6 The following figure provides the distribution of cable TV homes in different parts of the country:

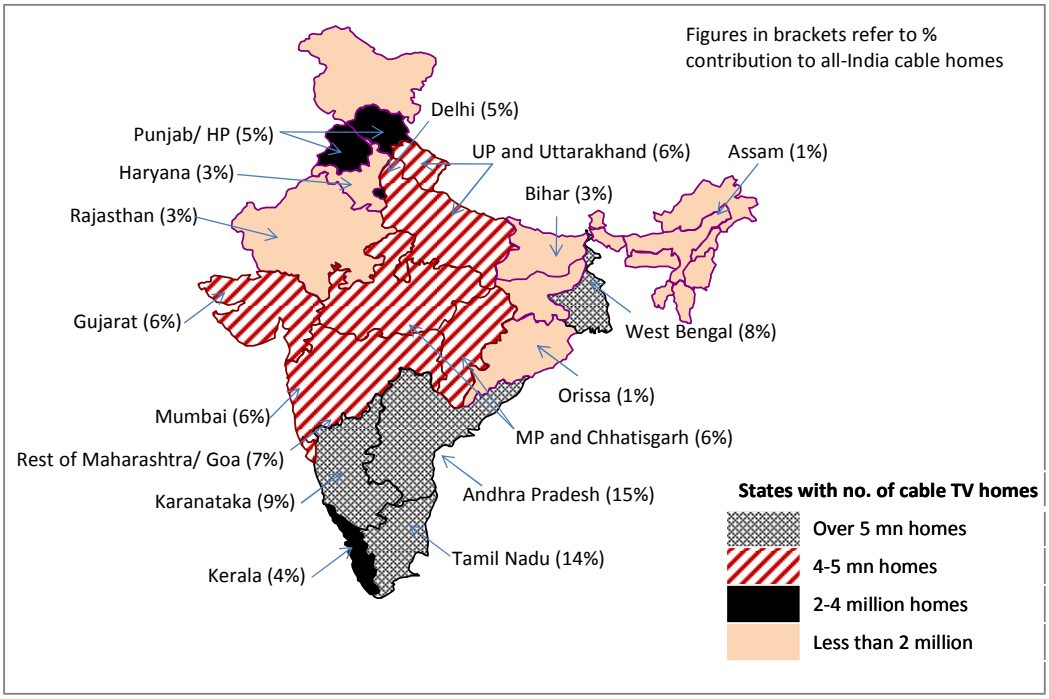


Figure 2.1: Share of Different States in All-India Cable TV Homes[2]

2. Distribution platforms

1.7 The following distribution platforms are present in India:

- Terrestrial – this mode of transmission is owned and operated by the national public service broadcaster – Doordarshan
- Cable
- DTH
- IPTV

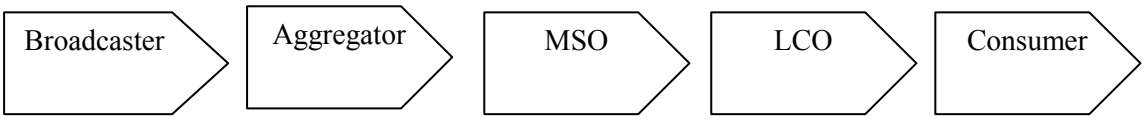
1.8 Of these, the last three i.e. Cable, DTH and IPTV are pay TV platforms (tariff-based services).

a) Cable

1.9 The cable services value chain comprises four main supply side entities i.e. broadcaster, aggregator, MSO, LCO and the end

[2] Market Survey by Francis Kanoi Marketing Research (2009)

consumer. The role of the broadcaster and aggregator is common across platforms.



Cable services value chain

(i)Broadcaster

1.10 The broadcaster owns the content to be televised and received by the viewer. The broadcaster's role in the supply chain includes transmitting or "up-linking" the content signals to the satellite (from where they are "down-linked" by the distributor). Around 550 channels are permitted to be down linked in India. These channels provide a mix of content across genres and languages. There are around 200 broadcasters. There are some large broadcasters that operate more than 10 channels, medium size broadcasters operating 2-10 channels and many small broadcasters that operate only one channel.

1.11 The broadcasting business in India is primarily driven by two sources of revenue – advertising and subscription. There are two main types of broadcasting business models:

(1) Free to Air (FTA) broadcasters rely on advertising revenue as their primary source of revenue, and thus are dependent on the distribution supply chain only to ensure reach to their target audience.

(2) Pay TV broadcasters have a dual source of income. The channels need to ensure reach not just to earn advertising revenue but are also dependent on the distribution network to collect subscription revenue from the consumer.

1.12 In addition to content production costs, broadcasters also bear costs related to distribution and marketing of their content. The following trends are observed with respect to the broadcasting business model in India. The growing strength of large media houses is evident from the fact that around 100 pay channels are estimated to garner over 50% of the industry's domestic advertising revenue[3]. The television broadcasters are heavily dependent on advertising revenues. The industry size is split 66:34 in the favour of subscription revenue at the retail level. However the income of major broadcasters is roughly in the ratio of 35:65 in favour of advertising revenue.

1.13 While the number of channels available in India has increased rapidly, the content of these channels is skewed in favour of advertiser-friendly markets. As the demands on broadcasters to invest in content and be present across multiple platforms increase, their operating cost base increases in proportion. To drive profitability and growth simultaneously, companies are looking at innovative ways of reducing their costs.

(ii) Aggregator

1.14 TV channels can be distributed by the broadcaster himself or through authorized distribution agencies to the distribution platforms. An aggregator is a distribution agent who undertakes the distribution of TV channels for one or more broadcasters. The role of the aggregator in the value chain is to provide bundling and negotiation services for subscription revenue on behalf of the broadcasters. The sale of channels by the broadcaster/ aggregator to the distributor can take two forms a) A-la-carte: one

[3] Based on analysis of data received from stakeholders during the consultation exercise

channel is sold as a single unit and b) Bouquet: two or more channels are bundled and sold as a single unit.

1.15 There are around 24 aggregators/ agents of broadcasters. Of these, the four main aggregators are Zee Turner (31 channels), Star DEN (23 channels), MSM Discovery (21 channels) and Sun Group's SDS (23 channels). The business model of an aggregator is largely commission-driven. They charge the broadcaster commissions in the range of 5%-10% for distributing these channels across different platforms[4].

1.16 These entities have a relatively small cost base, comprising salaries, travel and other operating costs. The key drivers of the aggregator business are a) Economies of scale i.e. large number of channels b) Competitive offerings i.e. popular channels and innovative packaging and c) Market knowledge i.e. strong understanding of the market, both in terms of the subscriber base and their willingness and ability to pay for different channels. A key trend observed in this market is the entry of large broadcasting alliances in aggregation. This may be attributed to the market environment in which pay channels operate, which is characterized by lack of addressability.

(iii) Multi System Operator (MSO)

1.17 The MSO's role is to downlink the broadcasters' signals, decrypt any encrypted channels and provide a bundled feed consisting of multiple channels to the LCO. The following paragraphs explain the evolution of the Multi-System Operator (MSO).

1.18 In the early days of cable, there were no MSOs and the broadcasters negotiated directly with LCOs as the number of

[4] Based on information received from major aggregators during the consultation exercise

broadcasters was limited and most channels were Free to Air. However, the number of operators grew significantly, driven largely by the prospects of this industry and the absence of a regime to cap the number of operators. As a result, the subscriber base became increasingly fragmented across thousands of LCOs. Thus, it became expensive and ineffective for broadcasters to negotiate with several thousand operators. As the cost of down-linking signals grew (in line with the number of channels), it also became inefficient for every LCO to invest in equipment to service a few hundred households. The MSO then emerged as a "master distributor" who would purchase content from various broadcasters and provide it to multiple LCOs.

1.19 It is estimated that around 6,000 MSOs are present in the Indian market today. There are national MSOs who have presence across the country, regional MSOs having presence across a few states, state wide MSOs who have presence within a state and local city based MSOs. The prominent MSOs who have large networks and reach in the country are Asianet, DEN Networks Ltd., Digicable, Hathway Datacom, IndusInd Media and Communication, KAL Cables (Sumangali), Ortel and Wire and Wireless India Ltd (WWIL).

1.20 The MSO business is dependent on the broadcaster/ aggregator for content and on the LCO for last mile connectivity and subscription revenue collection. Some MSOs also have "direct points" through which they service the last mile.

1.21 The key growth drivers for the MSO business are the following. MSOs with significant reach (i.e. a large network) are able to reduce their costs by leveraging the same infrastructure on a large subscriber base. Operators need to leverage their scale of operations to receive bulk discounts for content purchased from

broadcasters. The choice of markets (across states, cities and even localities) is an important determinant of the growth potential of an MSO. This increases the bargaining power of the MSO (since these are "must-reach" markets for the broadcaster). It also increases the potential of revenue from carriage[5] and placement[6] fee.

1.22 Recent trends observed in the MSO business are as follows. MSOs are observed to be gaining depth not just in their traditional markets but are also looking at lateral growth by entering into new regions. One of the ways in which MSOs have tried to expand to new regions is by buying out LCOs. This has led to huge premiums being paid for LCO operations in markets where the MSO perceives value in reaching out directly to the consumer. The recent corporate participation and investor interest in the MSO business has led to two unique market outcomes. Certain states and cities (e.g. Delhi, Maharashtra, Haryana and Bangalore) have a large number of MSOs (5-7) servicing each city. In contrast, it has been reported that certain markets are characterized by the presence of a single MSO.

1.23 The incidence of Carriage and Placement Fee is a recent phenomenon in the MSO business. Traditional cable services consisted of signals being carried in analogue mode, thereby significantly restricting the capacity of the cable. Since the number of channels present in the market outnumbers the capacity, MSOs charge carriage and placement fee for channels to be carried on their networks. These payments are essentially a

[5] Carriage Fee: Any fee paid by a broadcaster to a distributor of TV channels, for carriage of the channels or bouquets of channels of that broadcaster on the distribution platform owned or operated by such distributor of TV channels, without specifying the placement of various channels of the broadcaster vis-à-vis channels of other broadcasters

[6] Placement fee: Any fee paid by a broadcaster to a distributor of TV channels, for placement of the channels of such broadcaster vis-à-vis channels of other broadcasters on the distribution platform owned or operated by such distributor of TV channels

mechanism for the MSO to realize the efficient value of a "scarce" commodity – bandwidth to transmit channels.

1.24 The incidence of voluntary digitization is increasing among the larger MSOs. These MSOs have started to undertake infrastructure upgrades and installation of digital, addressable systems even in non-CAS areas. Transmission of digital signals allows the operator to increase the capacity to up to ten times that of analogue signals. Large MSOs are also expected to move towards offering triple play services. Globally, cable operators provide bundled cable, broadband and phone services. This allows the operator to reduce the cost of reaching a household (three services offered through a single wire rather than three separate wires) and significantly improves profit margins. Once the necessary digital infrastructure and subscriber management systems are in place, MSOs in India are also likely to differentiate their offering by providing multiple services to the end user.

(iv) Local Cable Operator (LCO)

1.25 The role of the LCO in the supply chain is to receive a feed (bundled signals) from the MSO and retransmit this to subscribers in his area through cables. The following information has been gathered regarding the number and type of LCOs operating in the market. Industry research and recent statements by major players estimate that there are up to 60,000 cable operators in the country. The business model is largely based on providing services to specific areas/ localities within a city. There is significant variation in the size of different LCO networks – ranging from less than 100 to over 10,000 subscribers. In all, the 60,000 cable operators service a total of 68 million analogue cable households, at an average of 1,100-1,200 analogue subscribers per operator.

1.26 The following operating models are observed in the LCO business: The traditional dependent LCO (or franchisee) purchases broadcast signals from an MSO. However, there is no restriction on the LCO and he can choose to exit his agreement with one MSO at any time and subsequently enter into an agreement with another MSO based on business decisions. The joint venture/ subsidiary model has emerged as a result of the recent wave of consolidation and LCO acquisition by large MSOs. The MSOs have majority/ minority ownership interests in these LCOs. Typically MSOs provide more favorable terms and financial assistance to JV companies and subsidiaries. The pricing and marketing strategies of DTH operators are posing a strong competitive challenge to incumbent analogue cable operators. Given the nature of the cable business, where cabling the last mile is usually undertaken by a single party, monopolies at the subscriber level continue to persist.

b) Direct to Home (DTH)

1.27 The role of the broadcaster and the aggregator remain unchanged in the DTH value chain. Instead of a two-stage distribution value chain, there is a single distributor – the DTH operator.

DTH/ Satellite services value chain

1.28 The DTH operator is responsible for both, negotiating with aggregators/ broadcasters and servicing the end consumer. The

mode of transmission between the operator and the consumer is via satellite rather than cable. Required customer premises equipment includes a satellite dish (to receive signals) and a set top box to decode signals and provide conditional access to paid content. The box is linked to a subscriber management system allowing the consumer to change his product/ service offering as required.

1.29 There are currently seven DTH operators operating in India. These include a) DD Direct Plus, which is owned by Doordarshan – a public service broadcaster and currently provides free DTH services and, b) Six private players – Airtel Digital TV, Big TV, Dish TV, Sun Direct, Tata Sky and Videocon d2h – who provide pay DTH services.

1.30 When evaluating the DTH business model it has been observed that the standalone nature of satellite transmission at the customer's premises allows DTH operators to be present across the country. Thus it can reach out to large geographic regions and to sparsely populated areas. Further, the provision of DTH services requires significant upfront investment and a long gestation period. The business is characterized by high customer acquisition costs. It has been observed that, to demonstrate a strong enough proposition for the consumer to shift, DTH operators often subsidize customer premises equipment and spend heavily on marketing and promotion in the initial years of operation.

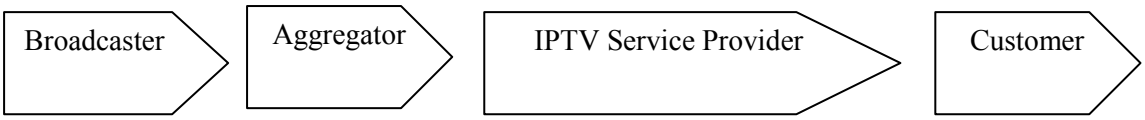
1.31 DTH has experienced growing uptake in specific regions in the country. Since its introduction in 2003, uptake has increased considerably – to around 19 million subscribers by end 2009. Growth has been higher in certain types of markets such as: (a) "Cable Dark" markets – markets where cable was not present due

to geographical distances or sparse population, (b) CAS markets – markets where addressability was mandated and consumers had to make switching decisions, and, (c) Affluent markets – certain sections of society that associate DTH with a premium product given options like Video on Demand (VoD), time shift viewing etc.

1.32 DTH is likely to face competition from digital cable in the near future. Although cable services are currently being provided mostly in analogue mode, the major MSOs are undertaking investments to move towards digital transmission.

c) Internet Protocol Television (IPTV)

The IPTV supply chain is organized similarly, i.e. there is a single distributor connecting the broadcaster to the last mile.



IPTV services value chain

1.33 IPTV technology combines television distribution with broadband and telephony, and provides the option of Triple Play Services to the consumer. The signals for these services are transmitted through cable/ optical fibre networks. Owing to high speed two-way connectivity of this technology, there is greater potential of offering value added services like video on demand (VoD), time shift viewing and gaming.

1.34 There are presently four major IPTV service providers in India – MTNL, BSNL, Bharti Airtel and Reliance Communications – who offer services either themselves or through their franchises. In some cases, these companies directly service the last mile as well as own the transmission head-end. In other cases, smaller

service providers lease the transmission head-end and provide IPTV services to subscribers.

1.35 The IPTV model is largely focused on triple play. Large investments are required to lay fibre optic cables till the last mile. Alternatively, companies can choose to lease the transmission network from infrastructure owners. IPTV services have the potential to offer value added services like online gaming, broadband and e-commerce which can be easily bundled along with the IPTV service.

(v) Consumer

1.36 The key stakeholder in the supply chain is the end consumer – as the survival of all industry players is dependent on consumer uptake of their products and services. Whether in the form of direct payment of subscription revenue or indirect spends which lead to advertising revenue for the industry, the consumer is the focal point of the broadcasting and distribution sector.

1.37 The following trends are observed with respect to consumer choice and quality of service. Although these insights apply to consumers across the country, they are especially relevant to analogue cable subscribers in non-CAS areas. It is seen that given the observed dependence of the Indian broadcasters on advertising revenue, a large number of new channels have been targeted towards audiences that are attractive to advertisers. Such audiences include urban affluent populations and large industrial states like Andhra Pradesh, Karnataka and Maharashtra. This has led to marginalization of consumers in less developed states. It has also led to limited content offerings developed for them. Such channels have found it difficult to enter the market given the high distribution costs that mass-based and

advertiser focused channels like national news, general entertainment or sports are currently incurring.

1.38 It has also been observed that there is limited availability of subscription-driven content such as special interest channels (focused on niche concepts like golf, science etc.) and technologically advanced content like high-definition (HD) channels. Once digitization removes the capacity constraint and there is visibility on the paying potential of subscribers – niche content can be expected to grow rapidly in India. This will be further enhanced by cross-platform competition from Internet, mobile and other digital media.

1.39 Further it has been reported that there is lack of standardization on pricing of services to consumers. The consumers are currently receiving and paying for different types of analogue cable services. The choice of channels lies with the MSO/ LCO and not with the end consumer. Discounting and non-payment of dues are also prevalent in analogue cable markets. These practices persist due to the high level of fragmentation at the last mile. Different billing and collection practices followed by LCOs also lead to differences in pricing and services. There are differing trends observed with respect to uptake of digital television services in non-CAS areas. Urban markets like Bangalore have experienced strong digital uptake, even in the absence of any mandatory move to CAS. However, subscribers in small towns and cities prefer to remain on analogue as the one-time cost of switching to digital services is too high.

3. Financial transactions

1.40 The total revenue of the Indian television industry was estimated at Rs. 25,700 crore in 2009, of which advertising accounts for

Rs.8,800 crore (34%) and subscription accounts for Rs.16,900 crore (66%) . Based on further analysis conducted during the course of this exercise, the size of the subscription market for analogue cable TV services is estimated at Rs.13,500 crore (68 million subscribers x ARPU of Rs.165 per month). The revenue from carriage and placement fee is estimated at approximately Rs.900-1,000 crore[7].

1.41 The key financial transactions in the analogue cable supply chain are a) advertising revenue to the broadcaster, b) collection of subscription revenue from the consumer, and its distribution across the supply chain and c) payment of carriage and placement fee to the distributors by the broadcaster.

a) Advertising Revenue

1.42 The size of the television advertising market – which was estimated at Rs.8,800 Crore in 2009 – appears to be low compared to global benchmarks[8].

1.43 It is also observed that in comparison with international markets, Indian broadcasters are dependent on advertising for a large portion of their income. This dependence has resulted in broadcasters' concentrated focus on 'advertiser friendly' genres and limited investment in niche or targeted content. This trend is confirmed through the fact that there is a large number of channels in established ad-friendly genres like General Entertainment, vis-à-vis niche genres like education and infotainment (channels that combine information and entertainment).

[7] As per MSO Alliance.
[8] As per ASSOCHAM Report on 'Future of Advertisement Industry in India' (May 2007)

1.44 It is also important to note that the television advertising business is closely linked to the television audience measurement system/ ratings. The advertising revenue of a channel, in large part, is determined by how effective a channel is at delivering a pre-defined target audience. Thus, viewership of a channel (based on a representative sample of towns/cities – known as metered markets) plays an important role in determining the advertising revenue potential of a channel. Given the lack of addressability in the market, the dependence on viewership measurement numbers also appears to be disproportionate.

1.45 TV ratings on a commercial basis are done by two agencies, TAM Media Research and aMap. Their operations are limited to a few large cities with a population above one lakh. All states except J&K, North-Eastern States, Bihar and Jharkhand are covered by TAM Media Research. The aMap sample includes all states except J&K and North-Eastern States but includes Jammu and Guwahati. Within big cities too, their sample size is limited to a total of about 7000 (TAM) and 6000 (aMAP) metered homes. Equipment and technology used till recently by TAM Media Research Pvt. Ltd., (TAMRPL) was not DTH and CAS compatible. Ratings are currently based on cable homes. 7000 people meters (TAM) are grossly inadequate when compared to the total size of the cable and satellite market. Further, the spread of channels is not uniform across different regions of the country. As a result, channels with predominant viewership in rural and other areas are disadvantaged in the ratings. Urban viewership decides the ratings of programmes and the programme schedules of TV channels.

b) Subscription Revenue

1.46 The analogue cable subscription market is estimated at Rs.13,500 crore. The flow of content from the broadcaster to the consumer is compensated by the flow of subscription revenue in the reverse direction. The pass-through of television subscription – from the local cable operator, to the multi system operator and further down to the aggregator and broadcaster – is the key transaction that links the value chain. At each step, the stakeholder involved adds value to the service and receives a share of the revenue. The estimated distribution of subscription revenue across the value chain, based on information received from stakeholders, is as follows: Broadcaster/Aggregator around 20% (Rs.2,900 crore) and Distributor (MSO+LCO) around 80% (Rs. 10,600 crore). As regards distribution of subscription revenue across the supply chain, it is relevant to note that there is very limited visibility on the subscriber base consuming and paying for the 129 pay channels analyzed for this exercise. In the absence of addressability, the subscription revenue transaction is being undertaken either as a fixed fee (lump sum), or on the basis of a "negotiated" subscriber base. The distribution of subscription revenue is also skewed due to lack of visibility.

c) Carriage and Placement Fee[9]

1.47 For a broadcaster dependent on advertising revenue, ensuring reach is critical. This is because higher reach implies greater access to the subscriber base – thereby providing an opportunity

[9] Carriage Fee: Any fee paid by a broadcaster to a distributor of TV channels, for carriage of the channels or bouquets of channels of that broadcaster on the distribution platform owned or operated by such distributor of TV channels, without specifying the placement of various channels of the broadcaster vis-à-vis channels of other broadcasters.
Placement fee: Any fee paid by a broadcaster to a distributor of TV channels, for placement of the channels of such broadcaster vis-à-vis channels of other broadcasters on the distribution platform owned or operated by such distributor of TV channels.

for the channel to improve its ratings. Carriage and placement fee provides the broadcaster access to an MSO's network. Due to the bandwidth constraints in the analogue transmission mode, the MSO "allocates" certain frequencies to the highest paying channels. This phenomenon can be interpreted in simple economic terms as a "demand-supply" mismatch. With supply remaining unchanged at around 80 channels and the total number of channels having risen steadily to around 550 – carriage fee reflects the entry barrier posed by analogue transmission.

1.48 Certain channels that have a steady demand in the market may pay lower carriage fee because the MSO would in any case want to carry those channels. The composition of the bouquet that the channel is part of and the relevance of that bouquet to the MSO also determines the value paid by a certain channel. If a genre has high competition amongst channels (and new channels continue to enter the market), then carriage fee is likely to be higher for that genre. This is because competition creates pressure on the number of frequencies allocated by the MSO to any particular genre. It has been observed that carriage fee is a phenomenon predominantly observed in metered markets. As discussed earlier in this section, this is because channel and programme ratings are key sources of information for media planners, and are reported to determine spending for a large number of national advertisers. Even within metered markets, the amount of carriage fee paid appears to be linked to the revenue potential of individual regions/ cities.

4. Nature and Characteristics of the Cable TV Market:

Cable TV systems can be analogue, hybrid or digital.

a) Analogue Cable TV System

1.49 The stakeholders in the analogue cable TV system are broadcasters, MSOs, LCOs and the consumers. The broadcaster supplies content, mostly in the form of bouquets of channels, to MSOs. The MSO collects the content (channels) from different broadcasters and after repackaging, gives it to the LCO for onward distribution to the consumer. The signal an LCO gets is a single bouquet of analogue channels belonging to different broadcasters.

1.50 The composition of the bouquet that reaches the consumer is determined by the MSO; it reflects the MSO's perception of what the consumers in the LCO's domain want to watch. An MSO supplies signals to many LCOs. Though it is technically possible for an MSO to offer different feeds for different LCOs, there are practical limitations on the number of such feeds.

1.51 Even if a feed is customised for a particular LCO, the bouquet of channels carried by this LCO cannot fully match the choice of TV channels of each subscriber. At best, a typical consumer can expect to watch a choice of channels broadly corresponding to the socio-cultural background of the LCO domain in which he is residing. However, he cannot make specific choices to suit his age, education, profession, language, or interests. In fact, choice of channels would vary from subscriber to subscriber. As a result, any particular subscriber in the analogue system may be paying for channels that he does not watch and may also be denied the viewing of specific channels of his choice.

1.52 The signal compiled by the MSO/LCO reaches the consumer's TV receiver set where different channels are selected by the tuner of the TV set. The tuner of a TV set has a limited capacity of channel selection. This ultimately limits the number of TV

channels a viewer can watch through his TV. The design of the TV tuner matches the TV standard adopted by a country. In India, the PAL B and PAL G systems have been adopted for the VHF and UHF bands respectively. A TV channel in the VHF band (30-300 MHz) requires a bandwidth of 7 MHz whereas in the UHF band (300 to 3000 MHz) it requires a bandwidth of 8 MHz. The PAL frequency chart for India is given in Annexure I.

1.53 As detailed in Annexure I, in all 101 channels can be accommodated. Taking into consideration terrestrial FM Radio and TV transmission as well, theoretically, the analogue cable system can have a capacity of 95-96 channels. However, given the quality and type of the cables, modulators, RF amplifiers etc. deployed in the network, the channel carrying capacity of the analogue cable system practically gets limited to around 85-90 channels only.

b) Hybrid Cable TV System

1.54 In many parts of India, a hybrid model is employed. In this model, some channels are carried in analogue form and the remaining capacity is used to carry digitally modulated channels. The combined signal is sent on the same cable.

1.55 In digital TV, compression techniques are employed for storage and distribution/transmission of content. These techniques capitalise on the redundancy of information in intra and inter-picture frames, the movement predictions of picture elements/objects and the limitations of the human eye and ear to compress the channel's bandwidth requirement. This achieves the dual objective of a near-normal viewing experience to the consumer and a remarkably reduced bandwidth (spectrum) requirement. The bandwidth requirement of a digital channel depends upon the complexity of content of the channel. Greater

movement and finer visual details require more bandwidth. As a rough estimate, 4 to 12 digital channels can be accommodated in the bandwidth of a single analogue channel, depending of course upon the modulation technique employed and the nature of content as explained above.

1.56 In the hybrid model, the capacity of the system increases so that around 30-50 analogue channels (FTA channels) and 250-400 digital channels (pay/local channels) can be carried. In the notified CAS areas and many voluntarily digitized areas, this model is being used. Where pay content is encrypted, only authorised subscribers can have access to the content. In notified CAS areas, the pay content is encrypted whereas in the case of voluntarily digitized areas, it is distributed without encryption. This is because addressability is mandatory in notified CAS areas whereas it is not so in voluntarily digitized areas. As explained above, digitization uses compression techniques to alleviate capacity constraints, creating more space for TV channels, value added services and broadband. However, it is addressability that provides choice to the consumer, promotes transparency in business transactions and checks signal piracy.

1.57 To view only FTA channels, a subscriber does not require a Set Top Box (STB). The cable is directly connected to the RF port of the TV receiver set. The TV tuner then takes up the analogue content, channel by channel. However, digital channels cannot be decoded by the TV tuner. For those subscribers who subscribe to pay channels also, the cable from the LCO is connected to a Set Top Box. A loop cable from this STB is connected to the RF port of the TV for viewing the analogue channels, while the digital channels are decoded by the STB and then viewed through the Audio/Video port of the TV receiver set.

1.58 The advantage of the hybrid model is that the viewers have a better choice as more channels can be made available to them. The biggest disadvantage is that the system lacks addressability i.e. the subscriber base is still not auditable/verifiable. Transactions between service providers are, as in the analogue system, on negotiation basis and inter-operator disputes are just as likely to occur.

c) Digital Addressable Cable TV System

1.59 In this model, all the channels, whether FTA or Pay, are delivered in the addressable-digital form only. This is akin to the DTH model. Not only is content carried in digital form, all content, whether pay or FTA, is also encrypted. The subscriber necessarily requires a Set Top Box (STB), duly authorized by the service provider (MSO), to view the TV channels. The same STB can also be used for the reception of other value added services and interactive services such as broadband.

1.60 This model further enhances the channel carrying capacity of the system over the hybrid model. In this model, all FTA channels are also carried in digital format making room for more channels. The decoded content from the STB can be viewed through the Audio/Video port of the TV receiver set.

B. Inherent features and limitations of Analogue Cable TV systems

1.61 Authority has recently concluded a detailed exercise on tariff issues in both non-addressable analogue and addressable digital systems. Based on the feedback received from stakeholders, the observations and conclusions of the Authority on the inherent

features and limitations of the analogue cable TV market are given below:

1. Lack of clarity regarding the cable subscriber base

1.62 From data and information gathered during the tariff exercise, it is observed that there is no reliable information on the number of subscribers receiving various channels through analogue cable TV services. Stakeholders have admitted that subscription revenue transactions are conducted on a 'negotiated' subscriber base. In non-addressable systems the amount of subscription fee, in lump sum, is negotiated between the broadcaster and the MSO. Based on this amount, the figure of subscriber base of the MSO is derived. The absence of reliable information on subscriber base is also recognized in the Interconnection Regulations. As per clause 9.1 of the Telecommunications (Broadcasting and Cable Services) Interconnection (Third Amendment) Regulation 2006, for example, in non-addressable systems, while executing an interconnection agreement for the first time between a multi system operator and a cable operator, the parties to the agreement shall take into account the subscriber base of the cable operator on the basis of the Subscriber Line Report (SLR) where such SLR exists. Where such SLR does not exist, this shall be negotiated on the basis of the evidence provided by the two parties on the subscriber base, including the subscriber base of similarly placed cable operators and local survey. The explanation below the clause states that the Subscriber Line Report (SLR) is only an indicative basis for arriving at the subscriber base and the subscriber base as mutually agreed by the two parties could be more than or less than the number indicated by the SLR.

1.63 Under the provisions of clause 12 of the Telecommunication (Broadcasting and Cable Services) Interconnection Regulation,

2004, in non-addressable systems, the multi system operators are required to furnish the updated list of cable operators along with their subscriber base to the broadcasters on a monthly basis. As the system is non-addressable, it is difficult to work out the real subscriber base. This often leads to disputes between the broadcasters and the MSOs. The tendency of the broadcaster is to seek enhanced subscription fee based on the assumed growth in subscriber base of the MSO while that of the MSO is to seek reduction in such subscription fee based on perceived reduction in the subscriber base. The subscriber base being a derived number, rather than an actual number, there is no clarity on the actual subscriber base leading to allegations of under-reporting by several stakeholders.

1.64 The Authority has examined the collateral evidence available in this regard. Figures in the inter-connect filings and other stakeholder data indicate that the 'negotiated' base of even the most popular channels is much lower than the total estimated number of about 68 million analogue cable homes in the country. The maximum connectivity (number of subscribers) declared by major broadcasters/ aggregators through interconnect agreements is in the range of 4-5 million consumers. The level of reporting varies from area to area and also depends on the relative bargaining powers of the stakeholders. While the level of the negotiated base for different channels cannot be taken as conclusive proof of under-reporting, it is nonetheless difficult to believe that the most widely distributed channels reach less than 10% of analogue cable TV homes.

1.65 It is observed that the average increase in subscription revenue of some large broadcasters is in the range of 15%-20% p.a. In light of the facts that: (1) all major channels/ bouquets are already currently operating at the prescribed limits and, (2) the permitted price increase as per TRAI's tariff orders have been in the range

of 4%-7% p.a., it would appear that the key reason for this increase is negotiation on the basis of a lump sum, with the connectivity being merely a derived value. Any increase in revenue can thus be realized through an increase in the number of subscribers, and no corresponding increase in price is required.

1.66 Further, the existing wholesale tariff is much higher than the revenue generated on the ground (ARPU paid by consumer). For example, the per-connection tariff at the wholesale level is ~Rs.700 month[10] at the wholesale level, while the retail level ARPU is in the range of Rs.165 per month. An inference that can be drawn is that this is because the wholesale tariff attempts to take into account the extent of loss (or limited pass through) that happens in the supply chain.

1.67 Again, the last publicly available CBEC report in 2005-06 shows only Rs.75 crore of service tax as being collected from the industry[11]. On a base of 68 million subscribers (as per NRS 2006) paying an average of Rs.165 per month, the estimated service tax collections from analogue cable should be in the range of Rs.1,400 crore per annum. Even if estimated full tax collections of Rs.1,400 crore per annum are likely be lower due to certain exemptions and other factors, there is still a significant gap between estimated and actual tax collection which points to the possibility of under-reporting of subscriber numbers in the cable industry.

1.68 Thus, while it may not be possible to incontrovertibly establish the fact of under-reporting or to quantify its extent, the Authority is of the view that there is sufficient collateral evidence to support the contention that the figures represented by the industry do

[10] Figure derived from data gathered during consultation exercise.
[11] Central Bureau of Excise and Customs, Service Tax Figures from last annual report which is publicly available (2005-06)

not have a proper correlation with the reality on the ground. In fact, "non-addressable" analogue transmission, by its very nature creates an environment that incentivises under-reporting of subscriber numbers, and at the same time makes it difficult to establish the actual numbers.

2. Frequent disputes and lack of collaboration among stakeholders

1.69 From the available evidence and stakeholders' comments, it is clear to the Authority that there is a lack of trust and transparency in the business models in the industry. This is mainly on account of the fact that the subscriber base is a derived number based on negotiations between the broadcasters and the MSO/LCO and most often it is based on pre-defined content cost and the reported ceiling wholesale price. As mentioned earlier, this often leads to disputes between the broadcasters and the MSOs. The tendency of the broadcaster is to seek enhanced subscription fee based on the assumed growth in subscriber base of the MSO while that of the MSO is to seek reduction in such subscription fee based on perceived reduction in the subscriber base. Pricing decisions are made in the absence of data and the price of a channel cannot be effectively negotiated using subscriber uptake numbers as a measure of the channel's popularity. Lump-sum deals could be inefficient as the quantum is decided in the absence of relevant business information. Another fall-out is that this has led to dependence on intermediaries such as aggregators and the distribution agents to guarantee revenue. The industry subscription revenue gets further fragmented by pay outs and commission to these intermediaries. There is a lack of trust between the broadcasters and the cable industry.

1.70 The Authority observes that the absence of relevant business information has led to frequent disputes between stakeholders.

These disputes often go into litigation and are observed in a number of areas including access to content, pricing of content and carriage. As litigation is time consuming and expensive, it leads to efficiency loss and is likely to adversely impact the growth of the industry. During the consultation process, suggestions have been made for bringing in a negotiated amount rather than subscriber numbers as the basis for interconnection agreements.

3. Relative importance of advertisement revenue in the broadcasters' revenue stream and its impact on content:

1.71 The estimated distribution of subscription revenue across the value chain, based on information received from stakeholders, is as follows: Broadcaster/Aggregator ~20% (Rs.2,900 crore) and Distributor (MSO+LCO) ~80% (Rs. 10,600 crore). On distribution of subscription revenue across the supply chain, it is relevant to note that in the absence of addressability, the subscription revenue transaction is being undertaken either as a fixed fee (lump sum), or on the basis of a "negotiated" subscriber base. Lack of visibility impacts the distribution of subscription revenue and there is reportedly limited pass through of subscription revenue to the broadcaster and MSO. In the broadcaster's perception, there are risks as well as transactions costs involved in negotiating distribution of subscription revenue in the absence of visibility. One of the consequences is that the broadcasters' business models depend substantially on advertisement revenue to diversify the risks and costs involved in the collection of subscription revenue. This dependence has an impact on content as the broadcasters tend to focus on advertisement friendly genres rather than niche or targeted content. Further, advertisement revenue of a channel depends upon how effectively it delivers a target audience. Since there is no addressability in

the market, the viewer-ship of channels is obtained from television audience measurement rating systems (TAM systems) which are in place only in a few cities (metered markets). The television advertisement business is closely linked to the TAM system.

1.72 The inadequacies of the present system result in disproportionate weightage to viewer-ship patterns of a small sample of viewers. The broadcasters focus on producing content which is popular in their perception. The perception of the broadcasters is in turn based on the Television Rating Points (TRP). However, as the ratings are skewed, the system promotes production of content which may not really be popular. The broadcasters fix the rates for advertisement spots for different programs based on the popularity of such program as reflected by Television Rating Points (TRPs). Therefore the delivery of content is also targeted to the preferences of the subscribers in TAM markets. This results in a restricted variety of content for the rest of the subscribers.

4. Incidence of carriage and placement fee

1.73 The dependence on advertisement revenue and the need to ensure reach for the broadcasters' channels is closely linked to the incidence of carriage and placement fee. As mentioned earlier, analogue cable dominates the market with over 75% of cable and satellite homes availing these services. Cable has a capacity to carry around 80 channels in analogue mode; however there are about 550 channels present in the market. This has led to a demand-supply mismatch and therefore, distributors are able to 'auction' frequencies to channels that are willing to pay more to be carried. The Authority observes that this has led to the emergence and growth of the phenomenon of carriage and placement fee in recent times.

5. *Lack of effective competition*

1.74 Distribution of cable TV in India is characterized by few dominant broadcasters and large multi system operators. Some of these broadcasters and large MSOs have become even stronger on account of vertical integration. The last mile operations on the other hand are highly fragmented and therefore there are large disparities in the bargaining power of various players in the distribution chain. At the subscriber level, there is lack of effective competition and lack of choice to the subscribers as the last mile operations are in the nature of a monopoly market.

1.75 The broadcasters own the content to be televised and received by the viewer. In the broadcasting space there are some large players that own and operate more than ten channels (controlling 33% of all the channels), mid-size players that operate between 2-10 channels (controlling 43% of all channels), and lastly standalone regional players or niche channel operators that operate only a single channel (controlling 22% of all channels).

1.76 It is estimated that there are around 6000 MSOs in the sector. The majority of these are small, local (city based) or regional (state based) MSOs with a subscriber base of a few thousand. There are some large MSOs having large networks and reach in the country. Competition is growing in the MSOs business. National operators are attempting to reach a threshold market share before undertaking major investments. Through aggressive LCO acquisition strategy, MSOs have tried to expand to new regions. The level of competition in the MSOs' business is not uniform throughout the country; certain cities and states (e.g. Delhi, Bangalore, Haryana, and Maharashtra) have a large number (5-7) of MSOs serving each city, on the other hand certain markets like Tamil Nadu and Punjab are characterized by regional monopolies – where close to 90% of the market is

dominated by a single MSO. There are thus instances of specific and regional and state based monopoly within the country which create barriers for entry of new players into these markets. Such MSOs are in a position to exert market power in their negotiations with the broadcasters on the one hand, and with the LCOs on the other.

1.77 The business model of LCOs is largely based on providing services to specific areas/localities within a city. Furthermore, there are significant variations in the size of different LCO networks - ranging from less than 100 to over 10000 subscribers. As stated earlier, the last mile operations provided by the LCO are in the nature of a monopoly market, though some amount of competition has emerged in recent times from DTH operators.

1.78 Fragmentation of operations at the level of the LCO is also linked to the existence of differential pricing at the retail level. From information gathered during the consultation exercise, it is evident to the Authority that while retail rates are capped under the prevailing tariff order, the Average Revenue per User (ARPU) per month varies considerably from operator to operator. Based on data received from Consumer Advocacy Groups, the monthly cable bill varies from Rs.70 per month to Rs.250 per month from area to area, and operator to operator. It affects the level of transparency in the supply chain as it further limits the visibility on what ARPU various LCOs are actually collecting. Although there could be a view that the lack of standardized pricing negatively affects consumer interest as some pay more than others for the same product, this can be counterbalanced by the argument that it enables a flexible pricing to accommodate the paying capacities of different strata of consumers.

1.79 Based on the above, the Authority observes that in the Indian broadcasting and cable market, there are marked variations in

the level of effective competition at various points in the supply chain in the same delivery platform as well as across various delivery platforms. The slow pace of growth of the alternative modes of delivery of television services is one of the major factors responsible for the lack of competition in the market. In addition, addressability is a crucial pre- requisite for effective competition. Information about the size of the market and the uptake of various platforms, products and services among the subscribers is essential for defining and encouraging effective competition. If sellers (broadcasters and distributors) do not know how many buyers (subscribers) are ultimately purchasing their services, the Authority concludes that the retail price and revenue arrangements among stakeholders cannot be negotiated on any scientific basis and hence cannot be left entirely to free market forces.

1.80 The above analysis suggests that due to legacy reasons and business pressures, the stakeholders have, over a period of time, aligned their business models to operate in a non transparent and inefficient environment. Lack of addressability is a root cause for the evolution of inefficient and non- transparent business models. There is a need to overcome these shortcomings. The next chapter explores possible solutions to deal with these issues and enable growth of the sector in a structured fashion for the benefit of all stakeholders.

Chapter II: Issues in Digitization with Addressability

2.1 This Chapter discusses the need for digitization with addressability to overcome the limitations of the analogue cable systems. It further discusses various issues such as technology, investment involved, regulatory interventions needed and various measures / incentives to be extended in order to bring about speedy implementation. Also discussed is the need for a comprehensive awareness programme to educate all stakeholders about benefits of digitization with addressability.

2.2 These issues were posed for consultation in the chapter on "Digitization with Addressability" in TRAI's consultation paper – "*Tariff issues related to Cable TV Services in the Non-CAS Areas*" dated 25th March 2010. A large number of stakeholders have responded to these issues in their written comments, their deliberations in the Open House Discussions at Delhi, Pune, Bangalore and Kolkata and also during discussions that the Authority held with the industry in New Delhi in the months of May and June 2010. The issues have been analysed in detail below.

A. Need for Digitization with Addressability:

2.3 The issue is whether complete digitization with addressability (a box in every household) is the way forward.

Stakeholder comments

2.4 Most of the stakeholders are of the view that addressable digitization will help in effective and efficient management of the industry. It will provide a level playing field to all stakeholders-broadcasters, MSOs, LCOs and the consumers. Digitization will

reduce the incidence of carriage and placement charges as there will be no demand-supply mismatch. One of the broadcasters has stated that digitization, as demonstrated in DTH, leads to better customer experience and lower tariff.

2.5 One stakeholder has said that the digitized cable TV infrastructure should be developed into the broadband infrastructure of the country with a view to integrate it with the national NGN for providing triple play to the masses. One of the broadcasters has suggested that digitization can be achieved through HITS which would permit customers to receive an identical service across the country and reduce the LCO/MSO risk. One of the stakeholder associations has stated that a neutral body, to be supervised and directed by TRAI, should be identified to help move the digitization process.

2.6 Some of the stakeholders have, however, cautioned that digitization at all levels is a stupendous task and so it should be gradually rolled out in phases. In the semi urban and rural areas where the demand for premium channels is low, analogue networks will continue to serve effectively for many more years. One of the broadcasters has stated that though complete digitization is the ideal scenario, developed markets have shown that digital and analogue homes can co-exist. The quality of service finally determines which system the consumer opts for. Digitization, along with stronger analogue regulation and licensing is the way forward. One stakeholder, National Cable and Telecom Association (NCTA), does not agree with the view that complete digitization is the way forward. In its view, India being a country with more than 80% population residing in rural areas and 4.5 crore families living below poverty line, digitization with addressability cannot be a viable solution.

Analysis

2.7 In the present cable TV system, service seekers (consumers) as well as service providers (Broadcasters, MSOs and LCOs) are at a disadvantage. The consumer has a limited choice of channels and he is also compelled to pay for channels which are not of his choice. Due to non-transparent business transactions, broadcasters, MSOs and LCOs are constantly involved in expensive litigation, which has come to characterise the very nature of business in this segment of the TV and entertainment industry.

2.8 The limitations of analogue cable TV transmission have given rise to non-transparent business transactions based on negotiated non-verifiable subscriber bases, differential pricing for the same content and incidence of carriage and placement fee on account of demand-supply mismatch arising out of capacity constraints and the advertisement-centric market strategy of broadcasters. These factors have resulted in a lack of collaboration amongst various stakeholders and as business models come into conflict, litigation has become more common.

2.9 Almost all stakeholders recognize that the single most effective step that can be taken to resolve the problems of the industry would be the implementation of digitization of the cable TV system with addressability. This consensus has emerged from the written comments of the stakeholders as well as from the views expressed by the stakeholders.

2.10 **Digitization** will solve the problem of capacity constraint and will enable incorporation of value added services (viz. Pay per View, Time Shifted Video, Personal Video Recorder, Near Video on Demand, Radio services, Broadband etc.) in the offerings to the customer, which would enhance the range of choice for the

customer and improve the financial viability of operations for the service provider. **Addressability** will ensure choice of channels to the consumer and transparency in business transactions and will build stakeholder confidence in the sector. It will also effectively address the issue of piracy.

2.11 Equipped with improved capacity and stakeholder confidence, the cable TV sector will be in a better position to face competition from other delivery platforms such as DTH, IPTV, Mobile TV and 3G enabled services. Digital addressable businesses would attract investment from the market which would eventually lead to an organized growth of the sector and provide the consumer value for his money and the investors, returns on their investment.

2.12 Apart from TV channels, other important services such as broadband, value added services and interactive services would get a big boost. Internet and Broadband access is widely recognized as a catalyst for economic and social development. It contributes enormously towards trade and generation of employment. Governments find it as a powerful tool to manage municipal services, provide improved governance, increase participation of the masses in e-democracy, and effectively monitor implementation of projects.

2.13 Broadband penetration in India is low, as there were only 9.45 million broadband connections in the country at the end of June 2010, as against the target of 20 million broadband subscribers by 2010 set by the Broadband Policy 2004. There were 451.94 million broadband connections worldwide as per the World Broadband Statistics for the quarter ending December 2009. Out of these 20.32% were cable modem connections. The majority of the cable modem connections were in North America (52.37%).

Some European countries like UK, Netherlands, Germany, Spain & Belgium also have a good number of cable modem connections.

2.14 International experience thus suggests that provision of broadband services has emerged as an attractive business avenue for the cable TV sector. Bundling broadband with digital TV channels is a promising proposition and a significant differentiator from DTH. Operators find that they can provide broadband at competitive prices and still generate relatively high margins. Leading MSOs have already begun to speed up infrastructure upgrades. As per Media Partners Asia report on Asia-Pacific Pay TV and Broadband Markets 2010, at the end of 2009, cable operators had an 11% share (about 8.5 lakh subscribers) of the broadband market in India.

Advantages of digitization with addressability to various stakeholders:

2.15 Digitization with addressability will result in number of advantages to Consumers, Broadcasters, MSOs, LCOs and Government, which are brought out in the following paragraphs.

2.16 For the consumer, there would be choice of channels, enabling him to budget his bill as per his choice and affordability. Thus, he would pay only for what he wants to watch. In addition, he would have a choice of interactive services like Video on Demand (VoD), Personal Video Recording (PVR), video gaming, tele-shopping, with additional features such as Electronic Program Guide (EPG) and broadband. He would derive value for his money with enhanced quality of service through competition among operators/platforms.

2.17 Broadcasters would be able to carry on their business transactions on auditable and verifiable subscriber bases instead

of negotiated bases. The digital dividend would ensure availability of channel choice and spectrum and hence allow viable business planning for existing broadcasters and new entrants. Regional channels would be encouraged. Thus, broadcasters would get value for their content, commensurate to quality and content would be protected against piracy. The increased capacity would also enable broadcasters to offer niche channels and HDTV channels.

2.18 MSOs would be benefited as they would be able to choose their channels on a-la-carte basis. They would be able to market pay channels based on demographics and socio-economic conditions in their markets. MSOs would be able to generate more revenue through broadband, value added and interactive services like VoD, PVR, video gaming, music and tele-shopping etc.

2.19 For local cable operators, business transactions will be based on auditable subscriber base. If the subscriber base declines, he would get commensurate financial relief for the same. Besides FTA subscription, he would get a share of revenue from all pay channels, broadband services and other value added services. Also, cable operators would be better equipped to meet customer requirements in terms of choice of channels and services and in terms of quality of service.

2.20 As far as Government is concerned, tax collection would match the market size. Also, Government would earn increased service tax revenue through enhanced deployment of broadband and other value added services.

2.21 Lastly, greater transparency in business transactions would greatly reduce litigations amongst service providers and reduce the need for regulatory interventions. This would result in better collaboration among service providers and overall growth of the sector. The Authority is of the view that the digitization with addressability is the way forward for the cable TV industry in the Non-CAS areas.

2.22 **The Authority recommends that digitization with addressability be implemented on priority for Cable TV services in Non-CAS areas.**

B. Technology/standards

2.23 The issue is regarding the need to prescribe the technology/ standards for digitization.

Stakeholder comments

2.24 On the issue of need to prescribe any technology/standards for digitization, most of the stakeholders have said that it should be left to the market. However some stakeholders including individuals are of the view that a minimum standard for digitization should be prescribed. These standards may be based on BIS norms. Further, to complement it, the regulator should come up with appropriate quality of service guidelines in the interest of the consumer.

2.25 One of the stakeholder associations has opined that the regulations should be open on this issue to accommodate various technologies and solutions subject to their adherence to a minimum set of standards, as periodically revised. One of the broadcasters has suggested that, as in DTH, in the cable sector also different technologies may co-exist and so any particular

technology need not be prescribed. One of the DTH operators has further stated that any standardisation should not stop the march of technology.

2.26 One stakeholder has suggested that BIS type parameters may be set by TRAI while prescribing the technology/standard for digitization which should, however, be neutral; also interoperability should be mandated. He has emphasised that the reverse integration of the conditional access system and the subscriber management system should be mandated to avoid leakages.

2.27 One of the broadcasters has indicted that all digital head-ends should be mandated to have a minimum capacity to carry 400 channels and this capacity should increase on annual basis. An MSO has given the view that there is no need to prescribe any technology or standards, but to safeguard the interests of the consumers a provision of refund to the subscriber, in case the subscriber does not want to continue with the existing MSO, should be made.

Analysis

2.28 There are two issues that have to be kept in mind while deploying any new technology, first, availability of compliant devices and, second, possibility of replacing the technology by another productive technology whenever available. In order to assimilate the benefits of a new technology, there could be, in principle, two strategies – mandating the most appropriate technology available or allowing service providers to choose and deploy the most appropriate technology. If the first option is adopted, it can be taken up in two possible ways- either by mandating all new entrants to start with the new technology and allowing the existing operators to migrate to the new technology at their own

pace or by having a migration plan with target dates for technological switch-over in a phased manner.

2.29 In TV broadcasting services such as DTH, Digital Cable TV and IPTV requiring STB at customer's premises, new service providers can provide STB with the latest technology such as MPEG-4. However, for existing service providers who use an MPEG-2 based network, migrating to MPEG-4 would be capital intensive, as it would require synchronised up-gradation of network as well as consumer end equipment. The mandatory change-over from one technology to another may be resented by service providers who are compelled to migrate to the mandated technology. Since many competing technologies may co-exist at any point of time, mandating the choice of a particular technology would be against the technology-neutral approach followed by the Authority.

2.30 The rate of change of technology in this area is very fast. So even if a network level technological standard is adopted, the particular standard may not remain relevant for very long. Technologies evolve continuously. Therefore, choice of a technology cannot be one time decision and has to be reviewed periodically.

2.31 The second option in achieving up-gradation to new technological standards is to allow or facilitate market forces to determine adoption of and migration to a new and promising technology at a self determined pace. The underlying philosophy of this approach is that technology decisions taken at the level of a service provider may prove to be more efficient. The Authority favours this approach.

2.32 It is however necessary that the equipments, devices and accessories used by the service providers are of standard quality, as they have a direct bearing on the quality of the signal and the quality of service to the consumers. The Cable Act also provides

that the cable operator shall use only those equipments which are BIS compliant in his cable television network.

2.33 **The Authority recommends that the equipments, devices and accessories used by the cable TV service providers be compliant to relevant BIS standards.**

C. Investment required

2.34 The issue is regarding the order of investment required for achieving digitization with addressability, at various stakeholder levels (MSOs, LCOs and Customers).

Stakeholder comments

2.35 Stakeholders, in their comments, have come up with different calculation methods and estimates for the fund requirement for complete digitization with addressability. MSOs have given an estimated amount of Rs.30,000 - Rs.50,000 crore in the next 5-7 years. A broadcaster has estimated that an investment of the order of Rs.55,000 to Rs.60,000 crore would be required for complete digitization with addressability of the network.

2.36 A regional MSO has indicated that funds required at MSO level is Rs.2-3lakh per channel per head-end and Rs.2000-3000 at subscriber end. In their view, no investment is required at LCO level except in those cases where existing network is in bad shape and needs up-gradation. One broadcaster has indicated that an investment of Rs.1800 (Rs.600 for STB and Rs.1200 at LCO/MSO level for head-end) per subscriber would be required for digitization. This cost is expected to decrease in the coming years.

2.37 Another broadcaster has estimated that at the MSO level investment of Rs.4 to 5 lakh per channel depending upon the grade of hardware, at the LCO level Rs.750 to Rs.1000 per subscriber and at the consumer level Rs.1200 to Rs.5000 depending upon the quality and features of the STB, would be required. Several broadcasters are of the view that cost would need to be borne by both MSOs and LCOs with the MSOs bearing the major share. It has been estimated that key cost items in the capital expenditure would be i) CAS enabled STB for Rs.1600, which would come down to Rs.1000 in the next 5 years and further to Rs.850 over the next decade. ii) Network, head-end and billing cost, currently Rs.200 per subscriber which would go up to Rs.300 over the next decade. So, an MSO would be spending Rs.1800-2000 per new customer in the first year.

2.38 One of the stakeholder associations has stated that the cost of up-gradation should be borne by the entire value chain of the TV industry and the Government should offer monetary support. Some long term revenue share with the Government could be considered, linked to the amount of subsidy required. This should be viewed as the long tem amortization of the Government's investment. Another stakeholder has suggested that the broadcaster should help funding through a digitization fund, MSO/LCO through a carriage and placement fee fund, the consumer through service tax and subscription fee and the TV industry through a cess on televisions.

2.39 One of the Cable Operator associations has said that it is regulatory support which would encourage the carriage service providers to go for digitization. Similar to the telecom sector, the Government can support through tax breaks, waiver of duties, subsidies from USO fund etc. One of the stakeholders has stated that it is possible to establish a HITS system for serving

customers countywide in less than Rs.15 crore. It has also been mentioned that a platform like HITS will not be viable with a single operator and should be managed as a shared infrastructure platform.

Analysis

2.40 There are four entities in the value chain in the Cable TV system viz. broadcaster or content provider, MSO, LCO and Consumer. As far as the broadcaster is concerned, the content is already in the digital form and therefore no implementation/up-gradation cost is involved at his end.

2.41 To harness the advantages of advancement in technology, it is very important to upgrade the existing cable infrastructure in the country. Major components of the up-gradation cost envisaged are as under:

i) Cost of CPE (Consumer Premises Equipment) i.e. the Set Top Box (STB): Presently, the cost of the STB varies from Rs.1500 for a vanilla box to Rs.3000 for one with advanced features like video recording etc. Larger volumes supported by increasing demand and the size of the market, would reduce the cost of the STBs further. In the long run, the price is expected to settle around Rs.1000 for an STB with standard features.

ii) Distribution network up-gradation cost: In most places, there is a hybrid fibre coaxial cable (HFC) network, having a mix of fibre optic cable and coaxial cable. Distribution of signals from MSO to LCO or group of LCOs is through fibre whereas the last mile is on coaxial cable. HFC network comprises of active components (Fibre optic Nodes, RF Amplifiers etc.) and passive components (fibre and co-axial cable, splitters and couplers etc.). Earlier, most of the cable networks used to

have only unidirectional connectivity, but for interactive services and broadband, two-way connectivity is required. Many of the major MSOs operating on hybrid cable model support bi-directional connectivity. Various technologies providing two-way connectivity are available. As per industry estimates, an up-gradation cost of Rs.800 per subscriber for a base of 1000 subscribers is involved in a hybrid cable model. For the Ethernet based approach using media interface and switches, the cost would be Rs.1200 and for Passive Optical Network approach, it would be Rs.21000 per subscriber (optical network unit ~ Rs.19500 at subscriber end, optical line terminal at operator's distribution point and fibre, coupler etc.). Thus, the up-gradation of the head-end is quite capital intensive. Already, many of the major national and regional MSOs are at different stages of up-gradation of their head-ends. They have focused on digitization of their networks; however, more attention now needs to be given to addressability. For implementing addressability, investment in conditional access systems (CAS) along with subscriber management systems (SMS) would be required.

iii) Apart from investment for up-gradation of infrastructure, training of manpower for operation and maintenance of the network will also require substantial investment. As per industry reports, some of the major MSOs have taken the initiative to arrange for funds through IPOs.

2.42 Even though there is a wide variation in the industry estimates of overall investment required for achieving digitization with addressability, there is no disputing the fact that the requirement of funds is very large. TRAI has already recommended to the

Government[12] enhancement of the limit for foreign investment to 74% from the existing 49%, for all MSOs (operating at national and state level) who take up digitization of their networks with addressability. Further, in the next section on incentives to stakeholders, the Authority is recommending tax holiday and reduction of duties in the sector. It is hoped that these measures will ensure adequate availability of funds and provide some financial relief for stakeholders who invest in programmes for implementing digitization with addressability.

D. Regulatory Issues

1. Amendment in Cable Act

2.43 In order to facilitate complete digitalisation of cable television networks in India, it may also be necessary to have a re-look at the provisions of section 4A of the Cable Television Networks (Regulation) Act, 1995 and carry out necessary amendments therein. For instance, sub-section (1) of section 4A of the Cable Act empowers the Central Government to notify States, cities, towns or areas wherein by such notification, the Central Government may make it obligatory for every cable operator to transmit or re-transmit programme of any pay channel through an addressable system. Sub-section (2) of the said section provides for specifying free-to-air channels to be included in a "basic service tier". Sub-section (6) of the said section further mandates that programmes of "basic service tier" shall be receivable by any subscriber on a receiver set of a type existing immediately before the commencement of the Cable Television Networks (Regulation) Amendment Act, 2002, without any addressable system attached with such receiver set in any manner.

[12] TRAI recommendation on "Foreign Investment Limits for Broadcasting Sector" dated 30th June 2010.

2.44 Section 4A of the Cable Act also contains an explanation which defines, inter alia, the expression "basic service tier" (BST), specifying that the TV channels included in the BST should be receivable on a TV set of the type prevalent before the 2002 Amendment came into force, without any addressable system attached to such TV set. Thus, the above provisions of section 4A of the Cable Television Networks (Regulation) Act, 1995 clearly mandate that the basic service tier of free-to-air channels should be available to subscribers without any addressable system attached to their TV sets in any manner. In other words, these provisions imply that in CAS areas, the programmes of the basic service tier should be available in the analogue mode. The present recommendations of the Authority contemplate that, after the proposed "sunset" date, both FTA and pay channels should be available to subscribers only through set top boxes helping in determining subscriber base with transparency, the continuance of the existing provisions of section 4A would result in the continuance of the analogue cable networks along with digital networks in CAS notified areas, thus preventing the total analogue "sunset" as contemplated in these recommendations. Further, if pay channels are offered in digital form and FTA channels are allowed to continue in analogue form without set top boxes, there is always the possibility that pay channels will be offered as FTA channels, resulting in piracy.

2.45 In order to make cable television systems fully digital (with hundred per cent addressability), it will be necessary for each subscriber to acquire a set top box, irrespective of whether such subscriber desires to watch pay channels or not. Having regard to the above, the Authority is of the view that in order to pave the way for a complete analogue switch off, the relevant provisions of section 4A of the Cable Act be amended suitably.

2.46 **The Authority accordingly recommends that for implementing the sunset date for Analogue Cable TV services, the Cable Television Networks (Regulation) Amendment Act 2002, be suitably amended.**

2. Licensing of MSOs/LCOs

2.47 The issue is regarding the structure of licensing for the sector that will ensure growth of the industry in an orderly fashion, and whether the structure can be such that the MSOs are licensed and the LCOs are franchisees or agents of the MSOs.

Stakeholder comments

2.48 Most of the stakeholders have favoured the view that MSOs should be licensed and LCOs should act as agent or franchise of the MSO. An LCO association has favoured this view and desired that there should be a proper revenue arrangement between MSO and LCO to safeguard the interests of the LCOs. It has further stated that the best solution for the LCOs is to give them regulatory support so that they can grow and consolidate their networks with the help of MSOs and broadband operators. An MSO association holds the view that the entire cable sector should be regulated through a facilitative mechanism and not through a licensing exercise.

2.49 One of the MSOs has opined that only those LCOs who choose to operate independently need be licensed. However, one of the MSOs has stated that even LCOs should be licensed to ensure their credibility and only a licensed LCO should be a franchise or agent of the MSO. In its view, licensed LCOs can even deal independently with the broadcasters. One of the stakeholders

has, however, suggested that the industry structure be left for the industry players to decide.

2.50 One of the broadcasters is of the view that licensing of LCOs will ensure better implementation at last mile, better declaration and better tax collection. One of the DTH players has stated that licensing of both the MSOs and LCOs will ensure compliance of the Government's policies and directions as well as provide a level playing field to all the carriage service providers using different platforms.

2.51 However many of the stakeholders have suggested that, to allow only serious and credible players in the cable TV sector, certain eligibility conditions such as minimum net worth requirement, compliance with TRAI Interconnection Regulations and other Government policies and guidelines etc., should be prescribed. Also, clear provisions for cancellation of licenses and punishment, in case of non-performance or violation of terms and conditions, should be spelt out in the license conditions.

2.52 One of the broadcasters has suggested discontinuance of licensing through the Postal Department. In its opinion, TRAI should be the licensing authority which should function on a set of guidelines/rules for licensing which can be framed taking into account the views of all the stakeholders. Another stakeholder has said that separate licenses should be granted for MSOs and LCOs. In its opinion, TRAI should devise a licensing structure and appoint a monitoring agency to oversee the entire process and grant it power to take penal action in case of non-compliance of the laid down regulations. The process of grant of license to the MSOs should be granted with proper checks and balances in order to avoid the creation of monopolies and to ensure structured industry growth.

Analysis

2.53 The present provisions of the Cable Television Networks (Regulation) Act, 1995 neither provide a separate role for Multi System Operators (MSOs) nor recognise the MSO as an entity in non CAS areas. The MSO has been recognized in the CAS regime and permission to existing MSOs is granted by the Ministry of Information & Broadcasting for providing cable services with addressable system in CAS notified areas. The functions of MSOs in both CAS and non-CAS areas are quite similar. An MSO functions in close coordination with broadcasters for content aggregation and onward distribution of the same to local cable operators. To perform these functions, the MSOs have to make substantial investments for infrastructure development including setting up of head-ends. In areas notified under CAS, MSOs have additional responsibilities relating to addressability and subscriber management systems (SMS). It is evident that MSOs have a functional role in the transmission system hierarchy distinct from that of the LCO who is primarily entrusted with the responsibility for providing TV signals to the customers. Thus, the MSO as an entity requires to be recognised in the Cable Television Networks (Regulation) Act, 1995 and a separate licensing framework for MSOs also needs to be instituted.

2.54 In the Cable TV Networks (Regulation) Act, 1995 there is no separate definition for MSO. However, as per Telecommunication (Broadcasting and Cable)Services(Fourth)(Addressable Systems) Tariff Order, 2010 dated 21st July 2010, the MSO has been defined as under:

> "Multi System Operator (MSO)" means a cable operator who receives a programming service from a broadcaster or his authorized agencies or from a HITS operator and retransmits the same or transmits his own programming service for

simultaneous reception either by multiple subscribers directly or through one or more local cable operators (LCOs), and includes his authorized distribution agencies by whatever name called."

2.55 This definition for the MSO can be adopted.

2.56 As per the Cable Television Networks (Regulation) Act, 1995, a local cable operator is required to register with the Head Post Master of the Head Post Office of the concerned area for giving services to the subscribers/TV viewers. The process of registration is simple and the scrutiny is restricted to the submission of certain basic information with corroborative documents. The postal authorities are not expected to conduct any verification.

2.57 The present procedure of registration has several weaknesses. The data regarding grant of registration is not available in the Ministry of Information & Broadcasting or its allied offices. There is a lack of clarity regarding the performance obligations of the cable operators. As a result, there is no provision for de-registration or any other form of supervisory intervention. There is no system to track renewals. The Authority is of the view that the short-comings can be effectively addressed by replacing the present registration procedure with a licensing regime.

2.58 With growing convergence, the Cable TV operators may soon offer a variety of services. A certain minimum technical capacity and financial strength backed with organizational ability will be required from such an LCO. Therefore, it would be advisable to bring the Cable TV service providers under a progressive, predictable and transparent licensing regime.

2.59 Authority in its earlier recommendations on *Restructuring of Cable TV Services* dated 25th July 2008 had stated that the existing system of registration for the Cable TV operators should be replaced by a licensing framework and the two entities, Local Cable Operator (LCO) and Multi System Operator (MSO), should be separately defined. In these recommendations, different aspects related to licensing viz. definition of who can apply for license, eligibility conditions for grant of the license, documents to be submitted by the applicant, operator's service area, licensing authority, duration of the license, entry fee and administrative fee, application processing time, suspension and termination of the license, license renewal process etc. have been elaborated. Relevant extracts from the recommendations are at Annexure III. Salient features of this licensing framework are summarised below:

Licensing Regime for Local Cable Operators (LCOs)

2.60 In case of LCOs, the applicant should be – i) a citizen of India or ii) an association of individuals or a body, whether incorporated or not, whose members are citizens of India or iii) A company, as defined in Sec 3 of Companies Act 1956 . The service area of the LCO license would be Revenue District or the geographical boundaries of the state. The LCO would be free to operate in any part of the service area of the license. Licensing Authority for licenses with service area limited to revenue district, would be the Senior Superintendent of Post Offices (Division head) and for licenses with the complete state as license service area, the Chief Post Master General (CPMG) of the Circle or his nominee officer would be the Licensing Authority. The duration of the license would be 5 years and the entry fee would be Rs.10,000 and Rs.100,000 for the revenue district and state level service licenses respectively.

2.61 Renewal of license would be granted to a license holder who seeks such renewal, on payment of renewal fee (Rs10,000 and Rs.100,000 for revenue district and state level service licenses respectively), provided such a license holder has complied with the terms and conditions of the license and has not committed any serious breach of the licensing conditions. The recommendations also provide for suspension and termination of the license in case of any breach by the licensee of terms and conditions of the license, or of the provisions of the Cable Television Networks(Regulation) Act 1995, or of the Rules made thereunder, or of TRAI's regulations/directions/orders. The migration of the existing LCOs to the new licensing regime would be completed within 12 months from 31st March of the year in which the revised procedure is notified or from the date of expiry of existing registration, whichever is earlier.

Licensing regime for Multi System Operators (MSOs)

2.62 The license area for MSOs can be a revenue district, a state or the entire country. An applicant who wishes to operate in a state level service area should be – i) a citizen of India or ii) an association of individuals or a body, whether incorporated or not, whose members are citizens of India or iii) a company, as defined in Sec 3 of Companies Act 1956. However, to operate in the entire country, the applicant should be an Indian company as defined in Sec 3 of the Indian Companies Act, 1956. The licensing authority for MSOs would be the Ministry of Information & Broadcasting (MIB), either directly or through any other administrative unit under its direct control. Any MSO, who desires to work as LCO, would separately have to apply to the concerned licensing authority for grant of such a license. The duration of all three type of MSO license i.e. revenue district, state and county level license, would be 5 years. The entry fee would be Rs.1 lakh, Rs.10 lakh and Rs.25 lakh for district, state

and county level licenses respectively with a minimum net worth requirement of Rs.5 lakh, Rs.10 lakh and Rs.25 lakh respectively.

2.63 The licensing authority can renew a license for a further period of 5 years on receipt of application fee (Rs.1 lakh for district, Rs.10 lakh for state and Rs.25 lakh for country level licenses or as decided by M/o I & B from time to time) from applicants who comply with the terms and conditions. Penalties and provisions of suspension and termination have been recommended for violation of licensing terms and conditions or of TRAI's regulations/directions/orders. As far as migration to the new licensing regime is concerned, all existing MSOs would be required to obtain licenses as per new guidelines within one year from the date of notification or from the date of expiry of existing registration as cable TV operator, whichever is earlier.

2.64 In addition, licensing authorities responsible for granting licenses to LCOs and MSOs would be required to provide the details of licensed LCOs and MSOs, their operational areas, the period of validity of the licenses etc. to the M/o I&B and to TRAI. It is also recommended that the M/o I&B may issue suitable guidelines to all broadcasters to give broadcast TV signals only to licensed MSOs for the area and for the time period for which the MSO is licensed.

2.65 As stated earlier, many of the stakeholders in their written comments, preferred the model where the LCO acts as an agent or franchisee of the MSO. However, in the Open House Discussions, many of the LCOs expressed their preference to maintain their separate identities and to operate independently.

2.66 As far as the structure of the industry is concerned, the Authority is of the view that whether the LCO should act as the franchise or

agent of the MSO be left to the industry to decide. All those LCOs that intend to operate independently would need to come under the licensing regime and those LCOs who do not wish to be under the purview of licenses could act as agents or franchisees of the MSO. Where the LCO acts as a franchisee or an agent of an MSO, the responsibility of ensuring quality of service will rest with the MSO.

2.67 **The Authority recommends that the licensing provisions made in the - "Recommendations on Restructuring of Cable TV Services" dated 25th July 2008, be implemented for LCOs and MSOs.**

E. Incentives to stakeholders for implementing digitization with addressability

2.68 The following paras discuss possible incentives that can be offered to various stakeholders so that digitization with addressability is implemented in the shortest possible time and the transition made is sustainable.

Stakeholder comments

2.69 Stakeholders have suggested a number of incentives for the cable TV sector for implementing digitization with addressability. A large number have stated that the sector should be granted infrastructure status on the lines of the dispensation given to the telecom sector. Other incentives suggested are waiver of entertainment tax, service tax, VAT, removal of import duty on STB and on all imported equipments required for digitizing the cable TV network. Further, an income tax holiday for the first few years has been suggested for stakeholders involved in the addressable digitization of the cable TV network. Some of the

stakeholders have also opined that spectrum charges on satellites should not be levied on service providers offering digital services. A number of MSOs have demanded that the right of way (ROW) permission should be given to them for laying underground optical fibre cable.

2.70 One of the broadcasters has suggested that sectoral restrictions should be removed and vertical integration with increased FDI limits up to 74% should be allowed for MSOs. Another suggestion is for the grant of loans on favourable terms by financial institutions and subsidy from the USO fund for network up-gradation in rural and semi-urban areas. One stakeholder has suggested that the Government should grant incentives similar to those available to companies investing in R&D activities, wherein 125% of the spend is allowed as deduction for tax purposes.

2.71 Another viewpoint is that Government should provide STBs free of cost to the consumers so that additional services like Internet and VoIP through cable network are also encouraged. Another suggestion is that the Regulator should indicate a move towards forbearance after digitization. MSOs have stated that, as an incentive to them, broadcasters should be mandated to provide a-la-carte channels to MSOs.

Analysis

2.72 The cable TV network, like telecom infrastructure, is important infrastructure for the country. Besides delivering digital television signals, it can be effectively used to deliver broadband services. Internationally, cable TV networks are widely used for broadband services. The incentives given by the Government played an important role in giving a boost to growth in the telecom sector. Telecom services are treated as infrastructure services and are eligible for various benefits and incentives including benefits

under section 80-IA and section 72A of the Income Tax Act. For promoting the telecom sector, the Government had provided a tax holiday of ten years (100% for the first five years and 30% for subsequent five years) for telecom companies who had started their services before 2005. In the era of convergence, telecom services could be provided through broadcast networks and broadcast services could be provided through telecom networks. So digital broadcast distribution networks and telecom networks merit similar treatment. The Authority is of the view that all the digital addressable broadcast distribution networks including cable TV network, DTH, HITS, IPTV be treated similar to telecom services and all the service providers who have set up a digital addressable distribution network before the sunset date(s) indicated in paragraph 3.11, be extended tax concession in the form of an income tax holiday, for the period from the date of setting up of the network, or 1.04.2011 whichever is later, till 31.03.2019. For this purpose, the date of certification by M/s BECIL or any other agency authorised by TRAI will be reckoned as the date of setting up of the network.

2.73 Duties and levies applicable to the broadcast distribution sector require rationalization. As discussed, migration to addressable digital systems calls for large capital investment. This would involve changing/up-grading of head-ends by MSOs and provision of STBs at the customer premises. The country does not have enough manufacturing capacity for these equipments as on date. This aspect is all the more significant when the system has to migrate to digital addressability within a fairly short period of time. In a positive move, setting up of digital head-ends has been notified under project imports by the Government. These projects now attract 5% customs duty and nil special CVD (S. No 39 of notification No. 42/96-Customs inserted vide notification No. 19/2010-Customs dated 27.2.2010 and S.No 73 of

notification No. 20/2006-Customs, inserted *vide* notification No. 24/2010-Customs dated 27.2.2010 refer), as against rates of 10% and 4% respectively, levied earlier. CVD and education cess, however, are levied at the rates of 10% and 3% respectively. As far as STBs are concerned, the basic custom duty is 5% and the CVD, Special CVD and education cess are levied at the rate of 10%, 4% and 3% respectively. During the migration period there is a need to bring down the prices of imported equipments by reducing basic custom duty. The Authority is of the view that the Government, as a special measure, allow reduction of the basic custom duty on the major items in digital addressable broadcast distribution i.e. digital head-end equipments and STBs, to zero level for the next 3 years, to give a boost to conversion of the broadcast distribution network to digital addressable.

2.74 **The Authority recommends that all service providers who have set up a digital addressable distribution network before the sunset date(s) indicated in paragraph 3.11, be treated similar to telecom service providers and be eligible for income tax holiday for the period from the date of setting up of the network, or 1.04.2011 whichever is later, till 31.03.2019. For this purpose, the date of certification by M/s BECIL or any other agency authorised by TRAI will be reckoned as the date of setting up of the network.**

2.75 **The Authority further recommends that the basic custom duty on digital head-end equipments and STBs be reduced to zero for the next 3 years to give a boost to conversion of the broadcast distribution network to digital addressable.**

2.76 The television industry has to pay service tax and entertainment tax in the states. There is wide variation in the entertainment tax being levied by different states. Based on the information provided by the states, a compilation of the entertainment tax

structure of some states is provided at Annexure II. According to the stakeholders, DTH and digital cable services are subject to multiple taxes and levies such as Service Tax, Entertainment Tax, Octroi/Entry Tax, VAT on Customer Premises Equipment, VAT on re-charge coupons etc. High/ multiple taxes make the services costlier. There is need therefore to rationalize the taxes and levies on the distribution sector.

2.77 As discussed, the digital cable TV network is vital infrastructure for penetration of broadband through which the e-Government services of both Central and State Governments can be accessed. The last publicly available CBET13 report in 2005-06 shows only Rs. 75 crore of service tax being collected from the industry. On a base of 68 million subscribers (as per NRS 2006) paying an average of Rs.165 per month, the estimated service tax collections from analogue cable should be in the range of Rs.1,400crore per annum. Once the cable network is addressable, it will be easy to verify the number of subscribers, which would definitely improve revenue collection for the Government.

2.78 The Government intends to introduce a GST regime very soon. It is expected that the service tax, entertainment tax and VAT would be subsumed in GST. In the interim there is a need to rationalize the taxes/levies on the broadcasting distribution sector. This will go a long way to help quick implementation of digital addressability in the digital TV network.

2.79 **The Authority recommends that the taxes/levies on the broadcasting distribution sector be rationalized.**

2.80 The MSOs/LCOs need a robust optical fibre/cable network across the country for distribution of signals. The optical

[13] Central Bureau of Excise and Customs, Service Tax figures from last Annual Report (2005-06)

fibre/cable network has multiple users and it is vital infrastructure for a country. Like the telecom service providers, MSOs/LCOs should also be eligible to seek Right of Way (RoW) on non exclusive basis for laying optical fibre. This has already been recommended by TRAI its recommendations on Restructuring of Cable TV Services dated 25th July 2008.

2.81 **The Authority recommends that the MSOs/LCOs be eligible for seeking Right of Way (RoW) on non-exclusive basis for laying optical fibre/cable network.**

F. Raising Awareness among the stakeholders

2.82 The issue under discussion is the institution of a communication programme to educate LCOs and customers on digitization with addressability so that there is effective participation.

Stakeholder comments

2.83 The proposal for an effective and aggressive communication and training programme for all stakeholders - consumers/LCOs/ MSOs/Broadcasters/TRAI/Ministry (Government)- for effective implementation of digitization with addressability in the cable TV sector, has been strongly favoured. Stakeholders have felt that the programme should emphasise the advantages of the addressable digital system, and its use for broadband and other interactive and value added services. The education programme should allay the fears of the stakeholders, especially the LCOs, regarding digitization. It should also sensitise service providers to the need for complying with applicable regulations.

2.84 The stakeholders have underlined the need for utilising all means of communications- running of infomercials and educational snippets on local channels of MSOs and LCOs, advertisement in

the print media, holding of awareness camps at the district level etc. - to educate all concerned. One of the stakeholders has suggested that the communication programme be conducted by the Regulator rather than any service provider, as it will be seen by the consumers as neutral, fair and in consumer interest. One of the suggestions is that TRAI should conduct Open House Discussions and make information available on its website.

2.85 One of the LCO associations has suggested that the help of Doordarshan and AIR Engineers posted at various transmitting sites should be taken to educate LCOs in semi-urban, rural and remote areas. It has also suggested that education in the subjects of broadcasting, broadband and cable television should be introduced in ITIs and other Government funded institutions. A similar view says that education programmes conducted at vocational training institutes will generate trained manpower for last mile up-gradation, operation and maintenance of the network.

Analysis

2.86 One of the key players in the up-gradation of the existing analogue cable TV system to digital addressable cable system is the LCO. There has been a reservation in the minds of the LCOs that, with the up-gradation of the cable TV system, their business interests would be adversely affected.

2.87 All such LCOs need to be sensitized to the reality that in all businesses, as technology changes, the business models also undergo change, and the roles of the stakeholders are redefined. To cope with the new requirements, stakeholders have to equip themselves with the latest knowledge and tools. As highlighted by the stakeholders themselves, a massive training programme would have to be undertaken across the country to develop the

skill and competence levels of the technicians and workforce deployed by the service providers.

2.88 The LCOs would need to be educated about the fact that even with an auditable and verifiable subscriber base, their business interests would be well served in the long run with the spread of interactive services, value added services and broadband services.

2.89 In all the phases of transition, it is envisaged that consumer education will play a crucial role. Consumer education will be required in two stages. In the first stage, it would enable the consumer to understand the advantages that accrue to him in terms of quality/reliability of the signal, choice of channels and availability of value added and interactive services, broadband etc. Once he perceives the advantages, he would be in a better position to accept the transition to a digital domain in the natural course of evolution of technology. The size of the market and the level of competition would ensure that the transition cost to the consumer remains reasonable. Once the consumer is sensitised, the MSOs and LCOs can safely mobilise the resources for the up-gradation of the head-ends and the rest of the cable network.

2.90 In the second stage, when the infrastructure is in place, the goal of consumer education would be to educate and motivate him to use the capabilities of his set top box effectively and efficiently. The issues of rights and responsibilities of the consumer, handling of equipment, safety of equipment etc. will be covered at this stage. A major effort would be required to educate about the consumer on the use of interactive and value added services and broadband through cable TV.

2.91 **The Authority recommends that a massive education programme be taken up to educate the stakeholders about the benefits of a digital addressable cable TV network.**

Chapter III: Roadmap for Digitization with Addressability

3.1 Having discussed the various issues involved in digitization with addressability, we now consider the aspect of drawing up a road map for implementation of digitization with addressability.

Stakeholder comments

3.2 Stakeholders have different views on the issue of an appropriate date for analogue switch-off. However, all the stakeholders feel that analogue switch-off should be implemented in a phased manner. Generally stakeholders have indicated a time frame of 4-5 years for complete switch-off for the analogue system. An MSO association has indicated a time frame of 7-10 years for complete digitization. One of the DTH players has stated that several developed as well as developing countries have provided a time table and a framework for the switch-over to digitization, considering it as a critical component of the national communication and economic policy.

3.3 One broadcaster has suggested that a digitization roadmap, including a machinery to oversee the process, should be put in force in consultation with the stakeholders. Complete digitization should be attained within two years. Regarding the manner of implementation, one broadcaster has expressed the view that the analogue switch-off date should be different for different regions/cities/areas, as this would ensure stable implementation in a phased manner.

3.4 One of the national level MSOs has cautioned that in India, where more than 30% population lives below the poverty line, complete analogue switch-off may not be possible. In their view, analogue switch-off of pay channels is important and that can be

done in a phased manner (yearly targets for select cities based on population) in a span of 1-6 years – in the first step. Year 7 onwards, in the second step, all the cities in a phased manner should be covered for all the channels, including the FTA channels.

3.5 Another MSO is of the view that even after providing adequate space for digital channels, the analogue cable system can carry 50 odd analogue channels and so the analogue switch-off should not be resorted to at all. Only pay channels should be mandated in digital form, in a phased manner. Similar views have been expressed by another stakeholder association, which states that channels of the public broadcaster and some basic entertainment, news and views for the Indian masses should continue to be in the analogue mode.

Analysis

3.6 Internationally, concerted efforts are being made for up-gradation to a fully digitized system. All operators in Hong-Kong have migrated to digital in 2004. USA fully converted to digital in 2009. China has set 2015 as its target date for digitization. Stakeholders in India have different views on the issue of appropriate date for analogue switch off. Considering the fact that the subscribers of TV channels in India belong to a range of socio-economic backgrounds from the very poor to the very affluent, a phased approach to transition from the analogue system to the addressable digital system would seem to be most appropriate. The approach of phased implementation is also supported by all the stakeholders. As the use of set top boxes increases, set top boxes would be available at more affordable prices. There arises the question as to whether the date for migration to digital should be the same for pay and FTA channels

or whether they should be different. If pay channels are offered in digital form and FTA channels continue in analogue form without STB, there is always the possibility that the pay channels will be offered as FTA, resulting in piracy. Additionally, if both pay and FTA channels are received through STB, it would help in determining the subscriber base with transparency. The Authority is of view that effective implementation will not be possible if the date of migration is different for pay and FTA channels.

3.7 Digitization has been under discussion since the year 2005 or even earlier. It is now time for action. An aggressive approach has to be adopted if the benefits are to be realised quickly by the industry. This is well within the realms of possibility. CAS has been implemented in Chennai and in parts of Delhi, Mumbai and Kolkata. The backbone networks of major MSOs are optical fibre based. Regarding the availability of set top boxes, it has been pointed out by stakeholders during consultation that there are a number of international manufacturers who could make set top boxes available in a very short time. Also, once the policy is announced, the manufacturers would schedule their production accordingly.

3.8 The roadmap for achieving nationwide addressable digitization in the cable TV service segment is envisaged in four successive phases. The four phases planned are as follows. In the first phase the four metros-Delhi, Mumbai, Kolkata and Chennai would migrate to the digital addressable system by 31st March 2011 (Ref. Annexure IV). In the second phase, the migration would be completed in the all the 38 cities having a population of over one million (Ref. Annexure IV), by 31st December 2011. In the third phase, migration would be completed in all urban agglomerations by 31st December 2012. In the fourth and last phase, the rest of the country (mostly rural areas) would migrate by 31st December

2013, which would be the sunset date for analogue transmission in the country.

3.9 Distributors who up-grade their cable networks to digital addressable systems before the sunset date may get their system certified to satisfy minimum specifications for addressable systems through an audit by M/s Broadcast Engineering Consultants India Ltd. or any other agency notified by the Authority from time to time for the purpose of such audit.

3.10 The Authority has issued a tariff order viz. The Telecommunication (Broadcasting and Cable) Services (Fourth) (Addressable Systems) Tariff Order 2010 (No. 1 of 2010) dated 21.07.2010, for addressable systems like DTH, HITS, cable systems, IPTV etc. This tariff order will apply progressively in the cable TV networks as the distributors (MSOs/LCOs) switch-over to digital addressable systems.

3.11 **The Authority recommends that the migration to a digital addressable cable TV system be implemented with sunset date for Analogue Cable TV Services as 31st Dec 2013, in four phases as follows (Ref. Annexure IV):**

Phase I: **In four Metros – Delhi, Mumbai, Kolkata and Chennai, by 31st March 2011.**

Phase II: **In all cities having a population of over one million, by 31st December 2011.**

Phase III: **In all other urban areas (municipal corporations/municipalities), by 31st December 2012.**

Phase IV: **In the rest of India, by 31st December 2013.**

Chapter IV: Summary of Recommendations

4.1 The Authority recommends that digitization with addressability be implemented on priority for Cable TV services in Non-CAS areas. (Paragraph 2.22)

4.2 The Authority recommends that the equipments, devices and accessories used by the cable TV service providers be compliant to relevant BIS standards. (Paragraph 2.33)

4.3 The Authority recommends that for implementing the sunset date for Analogue Cable TV services, the Cable Television Networks (Regulation) Amendment Act 2002, be suitably amended. (Paragraph 2.46)

4.4 The Authority recommends that the licensing provisions made in the - "Recommendations on Restructuring of Cable TV Services" dated 25th July 2008, be implemented for LCOs and MSOs. (Paragraph 2.67)

4.5 The Authority recommends that all service providers who have set up a digital addressable distribution network before the sunset date(s) indicated in paragraph 3.11, be treated similar to telecom service providers and be eligible for income tax holiday for the period from the date of setting up of the network, or 1.04.2011 whichever is later, till 31.03.2019. For this purpose, the date of certification by M/s BECIL or any other agency authorised by TRAI will be reckoned as the date of setting up of the network.

(Paragraph 2.74)

4.6 The Authority recommends that the basic custom duty on digital head-end equipments and STBs be reduced to zero for the next 3 years to give a boost to conversion of the broadcast distribution network to digital addressable.

(Paragraph 2.75)

4.7 The Authority recommends that the taxes/levies on the broadcasting distribution sector be rationalized.

(Paragraph 2.79)

4.8 The Authority recommends that the MSOs/LCOs be eligible for seeking Right of Way (RoW) on non-exclusive basis for laying optical fibre/cable network. (Paragraph 2.81)

4.9 The Authority recommends that a massive education programme be taken up to educate the stakeholders about the benefits of a digital addressable cable TV network.

(Paragraph 2.91)

4.10 The Authority recommends that the migration to a digital addressable cable TV system be implemented with sunset date for Analogue Cable TV Services as 31st Dec 2013, in four phases as follows (Ref. Annexure IV):

Phase I: In four Metros – Delhi, Mumbai, Kolkata and Chennai, by 31st March 2011.

Phase II: In all cities having a population of over one million, by 31st December 2011.

Phase III: In all other urban areas (municipal corporations/municipalities), by 31st December 2012.

Phase IV: In the rest of India, by 31st December 2013.

(Paragraph 3.11)

Annexure I

PAL Frequency Chart

	CH	Channel Frequency MHz	Picture Carrier MHz	Sound Carrier MHz	Colour Sub Carrier MHz
Band I	2	47...54	48.25	53.75	52.68
	3	54...61	55.25	60.75	59.68
	4	61...68	62.25	67.75	66.68
Mid Band	S1	104...111	105.25	110.75	109.68
	S2	111...118	112.25	117.75	116.68
	S3	118...125	119.25	124.75	123.68
	S4	125...132	126.25	131.75	130.68
	S5	132...139	133.25	138.75	137.68
	S6	139...146	140.25	145.75	144.68
	S7	146...153	147.25	152.75	151.68
	S8	153...160	154.25	159.75	158.68
	S9	160...167	161.25	166.75	165.68
	S10	167...174	168.25	173.75	172.68

Band III	5	174...181	175.25	180.75	179.68
	6	181...188	182.25	187.75	186.68
	7	188...195	189.25	194.75	193.68
	8	195...202	196.25	201.75	200.68
	9	202...209	203.25	208.75	207.68
	10	209...216	210.25	215.75	214.68
	11	216...223	217.25	222.75	221.68
	12	223...230	224.25	229.75	228.68
Super Band	S11	230...237	231.25	236.75	235.68
	S12	237...244	238.25	243.75	242.68
	S13	244...251	245.25	250.75	249.68
	S14	251...258	252.25	257.75	256.68
	S15	258...265	259.25	264.75	263.68
	S16	265...272	266.25	271.75	270.68
	S17	272...279	273.25	278.75	277.68
	S18	279...286	280.25	285.75	284.68
	S19	286...293	287.25	292.75	291.68
	S20	293...300	294.25	299.75	298.68

Hyper Band	S21	302...310	303.25	308.75	307.68
	S22	310...318	311.25	316.75	315.68
	S23	318...326	319.25	324.75	323.68
	S24	326...334	327.25	332.75	331.68
	S25	334...342	335.25	340.75	339.68
	S26	342...350	343.25	348.75	347.68
	S27	350...358	351.25	356.75	355.68
	S28	358...366	359.25	364.75	363.68
	S29	366...374	367.25	372.75	371.68
	S30	374...382	375.25	380.75	379.68
	S31	382...390	383.25	388.75	387.68
	S32	390...398	391.25	396.75	395.68
	S33	398...406	399.25	404.75	403.68
	S34	406...414	407.25	412.75	411.68
	S35	414...422	415.25	420.75	419.68
	S36	422...430	423.25	428.75	427.68
	S37	430...438	431.25	436.75	435.68
	S38	438...446	439.25	444.75	443.68
	S39	446...454	447.25	452.75	451.68

	S40	454...462	455.25	460.75	459.68
	S41	462...470	463.25	468.75	467.68
Band IV	21	470...478	471.25	476.75	475.68
	22	478...486	479.25	484.75	483.68
	23	486...494	487.25	492.75	491.68
	24	494...502	495.25	500.75	499.68
	25	502...510	503.25	508.75	507.68
	26	510...518	511.25	516.75	515.68
	27	518...526	519.25	524.75	523.68
	28	526...534	527.25	532.75	531.68
	29	534...542	535.25	540.75	539.68
	30	542...550	543.25	548.75	547.68
	31	550...558	551.25	556.75	555.68
	32	558...566	559.25	564.75	563.68
	33	566...574	567.25	572.75	571.68
	34	574...582	575.25	580.75	579.68
	35	582...590	583.25	588.75	587.68
	36	590...598	591.25	596.75	595.68
	37	598...606	599.25	604.75	603.68

Band V	38	606...614	607.25	612.75	611.68
	39	614...622	615.25	620.75	619.68
	40	622...630	623.25	628.75	627.68
	41	630...638	631.25	636.75	635.68
	42	638...646	639.25	644.75	643.68
	43	646...654	647.25	652.75	651.68
	44	654...662	655.25	660.75	659.68
	45	662...670	663.25	668.75	667.68
	46	670...678	671.25	676.75	675.68
	47	678...686	679.25	684.75	683.68
	48	686...694	687.25	692.75	691.68
	49	694...702	695.25	700.75	699.68
	50	702...710	703.25	708.75	707.68
	51	710...718	711.25	716.75	715.68
	52	718...726	719.25	724.75	723.68
	53	726...734	727.25	732.75	731.68
	54	734...742	735.25	740.75	739.68
	55	742...750	743.25	748.75	747.68
	56	750...758	751.25	756.75	755.68

	57	758...766	759.25	764.75	763.68
	58	766...774	767.25	772.75	771.68
	59	774...782	775.25	780.75	779.68
	60	782...790	783.25	788.75	787.68
	61	790...798	791.25	796.75	795.68
	62	798...806	799.25	804.75	803.68
	63	806...814	807.25	812.75	811.68
	64	814...822	815.25	820.75	819.68
	65	822...830	823.25	828.75	827.68
	66	830...838	831.25	836.75	835.68
	67	838...846	839.25	844.75	843.68
	68	846...854	847.25	852.75	851.68
	69	854...862	855.25	860.75	859.68

Annexure II

Status regarding levy of Entertainment Tax across various States and Union Territories- Year 2009-10

Sr. no.	State/UT	Tax Rate for cable services	Tax rate for DTH services	Remarks	As on date *
1	**Andhra Pradesh**	Rs. 2-5 connection per month *	Nil	* Tax incidence at MSO level: Rs.5 per connection per month in Municipal corporations and Secundrabad Cantonment Area; Rs 4/- in Selection grade Municipalities; Rs. 3/- for grade I & II Municipalities; Rs.2/- for other Municipalities; Ra.200 per month from Major Gram Panchayat; Rs.100/- per month from Minor Gram Panchayat	03.11.09
2	**Assam**	Rs.10-50 per subscriber per month *	Rs.25/- per subscriber per month; and, Rs.50/- per TV set per month in case of hotels	* Regarding Cable Services; - Proprietor of a cable TV network providing cable service to an individual subscriber – Rs.10/- per subscriber per month; - Proprietor of a cable TV network providing	13.11.09

Sr. no.	State/UT	Tax Rate for cable services	Tax rate for DTH services	Remarks	As on date *
				cable service to hotels – Rs.50/- per TV set per month; - Proprietor of a Hotel having its own cable TV Network– Rs.50/- per TV set per month.	
3	**Bihar**	Rs.15 per connection per month	Rs.15 per connection per month		08.09.09
4	**Chattisgarh**	Rs.10-20 per connection per month *	Nil	* Cable operators will be charged Entertainment Duty: Rs. Nil for town below 10,000 population; Rs. 10/- per connection per month for town with population 10001 to 50000; Rs 20/- per connection per month in towns with a population above 50,000.	13.11.09
5	**Gujarat**	**City area**: Rs. 600 for every first 100 connection per month & Rs.300 for every first 50 connection per month. **Rural area** : NIL	Rs. 200/- per annum per connection	Cable Operator need not pay Entertainment Tax in rural areas.	27.11.09

Sr. no.	State/UT	Tax Rate for cable services	Tax rate for DTH services	Remarks	As on date *
6	**Goa**	Rs. 10 -15 per connection per month (MSO & Cable Operator)	Rs. 25 per connection per month		16.09.09
7	**Haryana**	Nil	Nil		03.12.09
8	**Himachal Pradesh**	Nil	Nil		21.10.09
9	**Jharkhand**	Rs.30-50 per connection per month *	Nil	* For Cable services, entertainment tax is : Rs. 30/- per connection per month [Up to 5 channels] Rs. 50/- per connection per month [More than 5 channels]	26.11.09
10	**Karnataka**	Rs.15 per subscriber per month (u/s 4-C)	6% of revenue including activation and installation charges	Providing entertainment through antennae Twenty Rupees per cable Television or antennae per month per connection. ii) Providing entertainment through cable Fifteen Rupees per month per connection.	Website : www.dpal .kar.nic.in
11	**Madhya Pradesh**	Rs. 10-20 per connection per month	20% of revenue	Rates for tax on cable services vary according to area/population	
12	**Maharashtra**	Rs. 15 to 45 per month per television	At par with Cable services *	* Rs. 45 per television set per month for Municipal	26.10.09

Sr. no.	State/UT	Tax Rate for cable services	Tax rate for DTH services	Remarks	As on date *
		set *		Corporations and Cantonments; Rs. 30/- per television set per month for 'A' & 'B' Class Municipal Council; Rs.15/- per television set per month for rest of the areas.	
13	**Manipur**	Rs. 500 per month per operational area	No reference.		18.09.09
14	**Meghalaya**	Rs.10 per connection per month *	Nil	* For a Cable Operator: Less than 500 connection –No rebate; 500-1000connection- 10% rebate 1000-2000 connection- 20 % rebate > 2000 connection- 25% rebate	08.10.09
15	**Orissa**	5% of his monthly gross receipt.	No reference.	Source: http://as.ori.nic.in/salestax/ENT/act/Ent-Act2006.pdf	Website.
16	**Punjab**	Rs.15000/- per annum from a cable operator with the aid of antenna or cable television to a connection holder in the State of	Under consideration at the level of Government		13.11.09

Sr. no.	State/UT	Tax Rate for cable services	Tax rate for DTH services	Remarks	As on date *
		Punjab			
17	**Rajasthan**	Rs. 20/- per subscriber per month	10% of subscription charges		03.03.10
18	**Sikkim**	25 % of total payment including installation and connection charges, subscription and any other income in State of Sikkim (cost of cable wires is excluded)	Nil		11.11.09
19	**Tamil Nadu**	Nil	Nil		31.12.09
20	**Uttar Pradesh**	25% out of all aggregate payment for admission	25% out of each aggregate payment for admission		NIL
21	**Uttarakhand**	20% of revenue	20% of revenue	Tax on DTH services levied recently.	27.08.09
22	**West Bengal**	Levied on MSO @5% of Monthly Gross Receipts; Levied on su-cable operators @ Rs.1500/- per annum in Kolkata Metropolitan Planning	Nil	* Only those local cable operators who themselves exhibit from their VCP/VCR/VCD/DVD sets any performance, films or programmes through the same cable network by which they provide cable service to the customers, are liable	28.10.09

Sr. no.	State/UT	Tax Rate for cable services	Tax rate for DTH services	Remarks	As on date *
		area and @Rs.1000/- per annum in other areas. *		to pay such tax.	
23	**Chandigarh**	Nil	Nil		21.01.10
24	**Dadar and Nagar Haveli**	Nil	Nil		31.08.09
25	**Delhi**	Rs. 20/- per subscriber per month	Nil		17.11.09
26	**Puducherry**	10% of amount of monthly subscription	Nil		22.09.09

* Information as provided by State/UT Governments.

Annexure III

Extract of TRAI recommendations "Restructuring of Cable TV services" dated 25th July 2008

Licensing Framework for LCOs and MSOs

1. Change in present Legal provisions and Regulatory Framework

- The present system of registration for Cable TV operators should be replaced by a licensing framework.

- A separate licensing provision for Multi System Operators (MSOs) should be introduced thus recognizing them as an entity separate from Cable TV operators.

2. **Licensing framework for Local Cable TV operators ((LCOs))**

2.1 Definition of person and eligibility

- An individual who is a citizen of India;

- An association of individuals or body of individuals, whether incorporated or not, whose members are citizens of India;

- A company as defined in section 3 of the Companies Act, 1956 (1 of 1956) with such eligibility conditions as may be specified by the Central Government or the Authority;

2.2 Service Area

- The service area for Cable TV service license should be the Revenue District or the geographical boundaries of the State, as the case may be, in accordance to the license.

- The cable operator can operate in any/ all locality/ localities of the service area of license (District or the State as the case may be) on non-exclusive basis. There will be no restriction on cable operators to provide service in any part of the service area of license (District or the State as the case may be) on the ground of existence of incumbent Cable TV operator(s) in such part of the service area. Thus it is envisaged that once a Local Cable Operator (LCO) obtains the license, he will have complete freedom to operate in any part of the service area of license.

2.3 Licensing Authority

No person shall operate a cable television network unless he is licensed as a cable TV operator.

- The Senior Superintendent of Post Offices (Division Head) in whose area the revenue district falls shall grant District Level licenses to Cable TV operators on receipt of application form, entry fee, other supporting documents as defined and after fulfilling other formalities.

- Further, for State level license for cable operation, the Chief Post Master General of the Circle or any other officer nominated by the Chief Post Master General for the purpose shall grant licenses to Cable TV operators on receipt of application form, entry fee, other supporting documents as defined and after fulfilling other formalities.

- Department of Posts may be required to devise an appropriate code numbering plan for the whole country so that each licensor will allot a unique license number to every licensee. Such License number should consist of separately identifiable digits for particular state code, area code, LCO unique identity and validity. This will facilitate Computer based scrutiny of Cable TV operators, their renewal etc.

2.4 List of documents to be submitted along with application

Following documents shall be submitted along with the application for grant of license for Cable TV services:

a) In case of individual

(i) ID proof
(ii) Proof of residence
(iii) PAN number
(iv) Copy of current Income Tax Return
(v) Service Tax registration number (If the number is not available at the time of application, the same can be allowed to be submitted within two months. Applicant shall be required to file an affidavit to this effect along with the application for grant of license)
(vi) Affidavit stating that he has not been convicted for any criminal offence [Note: Individuals convicted for any criminal offence shall not be eligible for the license]

b) In case of association or body of individuals

(i) Document by which the association or body of individuals has come into existence, including address and other details
(ii) PAN number
(iii) Copies of current returns for Income Tax and Service Tax. In case of newly constituted association or body of individuals which have not filed any such returns, the Service Tax

registration number should be furnished (If the number is not available at the time of application, the same can be allowed to be submitted within two months. Applicant shall be required to file an affidavit to this effect along with the application for grant of license).

c) In case of companies

(i) A copy of the certificate of incorporation of the company alongwith copies of Memorandum of Association and Articles of Association
(ii) PAN number
(iii) Copies of current Tax returns for Income Tax and Service Tax. In case of new companies which have not filed any such returns, the Service Tax registration number (If these numbers are not available at the time of application, the same can be allowed to be submitted within two months. Applicant shall be required to file an affidavit to this effect along with the application for grant of licence).

[Note: Any change in the Memorandum of Association and/or Articles of Association shall be intimated to the licensing authority within seven days of such change.]

It is further recommended that an applicant whose license has been cancelled/ terminated earlier shall not be eligible for a fresh license.

2.5 Duration of License

- The duration of license for Cable TV services should be five years.

2.6 Entry Fee and the Administrative Cess

- An entry fee of Rupees Ten Thousand (Rs. 10,000/-) (non refundable) may be fixed for obtaining District level Cable TV service license.

- An entry fee of Rupees One Lakh (Rs. 100,000/-) (non refundable) may be fixed for obtaining State level Cable TV service license.

- A scheme for administrative cess, amounting to ten percent of license fee, should be evolved to meet the contingency needs of the Department of Posts for maintenance of records etc., of Cable TV operators. Such a cess should be imposed on the licenses. This should be retained at the licensing authority level and should not be credited to the Consolidated Fund of India. The licensing authority may levy, in addition to the entry fee of Rupees Ten Thousand or Rupees One lakhs, as the case may be, the administrative cess at the rate of 10 per

cent of the entry fee. The guidelines for collection, maintenance of records, utilization and audit of such an administrative cess may be evolved by the Ministry of Information & Broadcasting in consultation with Department of Posts.

- There will be no annual license fee.

- The entry fee for LCOs in NE and J&K region may be reduced to 50 % for applications received during initial period of three years from the date of notifications of new regime. The decision may be reviewed after three years by ministry of Information and broadcasting.

2.7 Timeframe for processing of license

- Licensing authority shall grant license for operation of Cable TV Network within 45 days from the date of the receipt of the application accompanied with all the required documents and payment of applicable entry fee.
- In case of refusal to grant license for operation of Cable TV Network, the reasons for the same shall be communicated to the applicant within 45 days.
- The appellate authority for District Level licenses shall be the Chief Post Master General of the circle having jurisdiction over the Senior Superintendent of Post Offices (Division Head) or an officer nominated by him.
- For the State level licenses, the CPMG/Pr. CPMG shall be the appellate Authority, as the case may be.
- Applicant shall have option to appeal to Appellate Authority within 30 days of receipt of such refusal or within 90 Days from the date of receipt of submission of application seeking license to operate Cable TV Network by the licensing authority, as the case may be.
- The provisions regarding appellate authority as proposed above should be in addition to, and not in derogation of, any other law for the time being in force.

2.8 Renewal process

- Application for renewal of Cable TV license shall be made to the Licensing Authority (The Senior Superintendent of Post Offices (Division Head) for District Level licenses and the Chief Post Master General of the circle for State level license) by the concerned Cable TV operator 3 months in advance of the date of expiry of license.
- License shall also provide details of total number of their subscribers, area of operation, type of signal feed (Analogue/Digital) along with the request for renewal.
- An LCO seeking renewal will also submit details regarding area of operation and number of subscribers to the licensing authority.

- LCO shall submit the following documents alongwith application for renewal of license:
  - Copy of current Income Tax, Entertainment tax and Service Tax returns filed;
  - Details of the authorised officer of the area to whom the licensee is reporting;

- Self certification that the licensee has neither been penalized nor debarred by authorized officer from providing service for any breach of licensing terms and conditions or any other unlawful activity.
- The Licensing Authority shall seek comments from the concerned authorised officer specified in the Cable Television Network (Regulation) Act, 1995, to ascertain about any breach of the licensing conditions.
- If no reply is received from the authorised officer within four weeks, it will be assumed that there is nothing adverse against the said Cable TV operator and licensing authority shall renew the license for a further period of 5 years on payment of prescribed fee.
- The fee for renewal of District level Cable TV license should be Rupees Ten Thousand (Rs. 10,000/-).
- The fee for renewal of State level Cable TV license should be Rupees One Lakh (Rs. 100,000/-).
- Department of Post may levy, in addition to the applicable renewal fee, an amount calculated at the rate of ten per cent of the total renewal fee as administrative cess.
- In case the licensing authority is informed of serious breach of licensing conditions by the authorised officer, then the request for renewal of the license shall be withheld and a show cause notice shall be issued to him. The licensing authority shall take decision within six weeks in accordance with the guidelines issued by Ministry of I&B / TRAI from time to time. If the renewal is denied then the reasons for such rejection shall be communicated to the concerned Cable TV operator. Such Cable TV operator can appeal to the appellate authority within 30 days of such rejection.
- Ministry of I&B /TRAI shall frame guidelines indicating the nature of breaches which will be treated as serious, warranting refusal of renewals or cancellation of license and such guidelines may be made binding on the licensee.

2.9 Suspension and Termination of License

- The license should have a provision for termination/ cancellation of license if there is any breach of terms and conditions of the license, or of the provisions of the Cable Television Networks (Regulation) Act, 1995 or the Rules made thereunder or TRAI's regulations/directions/orders. Such termination/ cancellation of the license shall be without prejudice to initiation of appropriate proceedings against the licensee under the relevant provisions of the

Cable Television Networks (Regulation) Act, 1995 or the Telecom Regulatory Authority of India Act, 1997, as the case may be.

- Any breach of licensing terms and conditions may be reported by the authorised officer, entertainment tax and service tax authorities to the concerned licensing authority (Senior Superintendent of Post Offices (Division Head) for District Level licenses and the Chief Post Master General of the State for State level license).
- The licensing authority shall issue a notice to the licensee and seek his explanation on the reported breach of licensing terms and conditions giving him reasonable time, not exceeding 15 days, and requiring him to show cause as to why the license should not be terminated/cancelled or why any penalty as contemplated in the terms and conditions of the license should not be imposed on the licensee.
- Upon receipt of the explanation of the licensee within the time so allowed or if the licensee fails to respond to such notice, after the expiry of the time so allowed, the licensing authority shall take a final view in the matter in accordance with the guidelines issued, by Ministry of I&B / TRAI from time to time, after taking into account all the facts and circumstances of the case including the explanation, if any, offered by the licensee and convey its decision to the concerned cable operator in writing.
- In case of termination/cancellation of a license, but there is no suspension of the license already in force, the licensee shall be given one month's time to close down his operations and to suitably notify his customers.
- In case of termination/cancellation/suspension of license, the licensing authority shall intimate the same to the authorized officer of the area for enforcing these orders.
- The license for a local cable operator shall include, as part of the terms and conditions of license, provisions for levy of a penalty by TRAI or by licensing authority, of upto Rupees one lakh for each violation of licensing terms and conditions, where the violations noticed do not fall under the classes of violations warranting termination/cancellation of the license, as indicated in the guidelines issued by the Ministry of I&B or for violation of TRAI's regulations/ directions/orders. The imposition of such penalty by the TRAI shall be without prejudice to initiation of appropriate proceedings against the licensee under the relevant provisions of the Telecom Regulatory Authority of India Act, 1997.

2.10 Migration of existing Cable TV operators

- All existing valid Cable TV operators holding valid registration would be permitted to migrate to new license regime within a period of 12 months from 31st March of the year in which the revised procedure is notified or from the date of expiry of existing registration, whichever is earlier.
- All existing Cable TV operators who have valid registration as on 31st March of the year in which the revised procedure is notified will be granted license on receipt of application for license, requisite entry fee

and subject to fulfillment of other terms & conditions prescribed in the license.

- Cable operators who do not possess a valid registration as on 31st March in that year will be treated as new applicants.

2.11 Data collection of LCOs

- The Licensing Authority will maintain the records of the licensed LCOs.
- The Licensing Authority will make adequate arrangements to furnish such information to Ministry of I&B and TRAI in such form and at such intervals as desired by them.
- The Department of Post will be provided administrative charges by way of levy of administrative cess (at the rate of ten per cent of entry fee and renewal fee as discussed earlier) to meet the administrative expenses in order to carry out the licensing data reporting and monitoring work.

3. Licensing framework for Multi System Operators (MSOs):

3.1 Definition of Multi System Operator (MSO)

Adoption of following definition of Multi System Operator (MSO) and Multi-System Cable Television Network in the Cable Television Networks (Regulation) Act, 1995:

- "Multi System Operator (MSO)" means any person who manages and operates a multi-system cable television network to provide cable television service to one /multiple local cable TV operator(s) or to any other distribution platform permitted and licensed by the Government".
- "Multi-System Cable Television Network" means a system for multi-channel downlinking and distribution of television programmes by a land based transmission system using wired cable or wireless or a combination of both".

3.2 Service Area

- The license area of an MSO may be the area of a revenue district, geographical boundaries of a State or the entire country as a whole, as the case may be.
- There will be no restriction on the number of MSOs in any particular area. MSOs will be permitted to operate anywhere within the service area of their license as per their business plan, without any roll out obligations.

3.3 Definition of person and eligibility

- For the license of MSO, the eligible "person" will be _ An individual who is a citizen of India;

- An association of individuals or body of individuals, whether incorporated or not, whose members are citizens of India;
- A company as defined in section 3 of the Companies Act, 1956 (1 of 1956) with such eligibility conditions as may be specified by the Central Government;
- License for Multi System Operator (MSO) will be granted only to an Indian company as defined in section 3 of the Companies Act, 1956 (1 of 1956) with such eligibility conditions as may be specified by the Central Government) as far as state level or country wide licenses are concerned. However, licenses for district level operations can be granted to a "person" as per the proposed definition.

3.4 Licensing Authority

- Licenses to MSOs shall be granted by Ministry of information & Broadcasting (MIB) either directly or through any other administrative unit under its direct control. One such arrangement could be through Press Information Bureau (PIB).
- Ministry of I&B may clearly define the licensing authority for MSOs desirous to operate at the district, state and country level.
- Ministry of I&B will allot a unique code/ registration number to every such licensee. The structure of unique code should consist of separately identifiable digits for particular state code, area code, MSO's unique code and validity. This will facilitate computer based scrutiny of MSOs and renewals of their licenses.
- Any MSO, who desires to work as LCO, shall have to apply to the concerned licensing authority for grant of such license separately.

3.5 List of documents to be submitted along with application

- A "person" desirous to get MSO license shall submit following documents along with the required entry fee to appropriate licensing authority:

(a) In case of individual –

(i) ID proof
(ii) Proof of residence
(iii) PAN number
(iv) Copy of current Income Tax Return
(v) Service Tax registration number (If the number is not available at the time of application, the same can be allowed to be submitted within two months. Applicant shall be required to file an affidavit to this effect along with the application for grant of license)
(vi) Affidavit stating that he has not been convicted for any criminal offence

[Note: Individuals convicted for any criminal offence shall not be eligible for the license]

(b) In case of association or body of individuals –

(i) Document by which the association or body of individuals has come into existence, including address and other details
(ii) PAN number
(iii) Copies of current Tax returns for Income Tax and Service Tax. In case of newly constituted association or body of individuals which have not filed any such returns, the Service Tax registration number shall be furnished (If the number is not available at the time of application, the same can be allowed to be submitted within two months. Applicant shall be required to file an affidavit to this effect along with the application for grant of license).

(c) In the case of companies, -

(i) A copy of the certificate of incorporation of the company along with copies of the Memorandum of Association and Articles of Association.
(ii) PAN number
(iii) Copies of current returns for Income Tax and Service Tax. In case of new companies which have not filed any such returns, the Service Tax registration number (If these numbers are not available at the time of application, the same can be allowed to be submitted within two months. Applicant shall be required to file an affidavit to this effect along with the application for grant of license).

[Note: Any change in the Memorandum of Association and/or Articles of Association shall be intimated to the licensing authority within seven days of such change.]

(iv) Entertainment Tax registration number
(v) Details of CEO & other directors
(vi) Details of proposed network architecture
(vii) Proof of networth in the form of certificate from the statutory auditor.

3.6 Duration of License

The duration of MSO license shall be 5 years for all the three types of licenses (i.e. District level, State level and country level).

3.7 Entry Fee

- The entry fee for district level MSO license shall be Rs. 100,000 and networth will be Rs. 5 lakhs.
- The entry fee for state level MSO license shall be Rs. 10 lakhs and networth will also be Rs. 10 lakhs.

- The entry fee for country Level MSO license shall be Rs 25 lakhs and networth will also be Rs. 25 lakhs.
- There will be no annual license fee.
- The entry fee for MSOs providing services in NE and J&K region may be reduced to 50% for applications received during initial period of three years from the date of notifications of new regime. This may be reviewed after three years by Ministry of Information and Broadcasting.

3.8 Timeframe for grant /refusal of license

- Licensing authority shall convey grant/refusal of license to an applicant within 3 months from the date of the receipt of the application complete in all respects. In case of refusal, the reasons shall be communicated to the applicant within this stipulated time frame.
- Ministry of I&B will also designate specific appellate authorities for entertaining appeals against refusal by the licensing authorities. The procedure for filing appeal shall be in addition to, and not in derogation of any other law for the time being in force.

3.9 Renewal process

- MSO shall apply for renewal of License to licensing authority atleast three months before the date of expiry of license.
- Every MSO shall submit following documents alongwith application for renewal of license:
  (i) Copy of current Income Tax, Entertainment tax and Service Tax returns filed;
  (ii) Details of the authorised officer to whom the licensee is reporting;
  (iii) Self certification that the licensee has neither been penalized nor debarred by authorized officer from providing service for any breach of licensing terms and conditions or any other unlawful activity.
- Ministry of I&B or its designated agency shall follow a suitable verification procedure as regards breach of terms and conditions of license, if any, on the part of the concerned licensee.
- Licensing Authority shall renew the license for further period of 5 years on receipt of applicable fee (Rs 100,000/- for district level, Rs 10 lakhs for state level and Rs. 25 lakhs for the country level licenses or as decided by Ministry of I&B from time to time) unless refused for reasons to be recorded in writing.
- Licensing Authority shall inform renewal/ refusal to the applicant atleast one month before the date of expiry of the current license to facilitate him to make appropriate arrangements and inform LCOs and broadcasters as the case may be.

3.10 License suspension and Termination

- The license for a multi system operator shall include, as part of the terms and conditions of license, provisions for levy of a penalty, either by TRAI or by the licensing authority, of upto rupees five lakh for district level license and upto rupees twenty lakhs for State and country level licenses for each violation of licensing terms and conditions or of TRAI's regulations/orders/directions. The imposition of such penalty by the TRAI shall be without prejudice to the revocation/termination of the license by the licensing authority and the initiation of appropriate proceedings against the licensee under the relevant provisions of the Telecom Regulatory Authority of India Act, 1997.
- TRAI shall examine the alleged violations on case to case basis and impose penalties on MSOs based on the seriousness of the offence and other conditions as applicable.
- The licensor shall reserve the right to cancel/ terminate the license issued to an MSO without prejudice to any other action as deemed fit in case of violation of terms and conditions of the license.

3.11 Migration procedure

- All existing MSOs shall have to obtain license as per new guidelines within one year from the date of such notification or from the date of expiry of existing registration as cable TV operator, whichever is earlier. Till such time, the existing valid registration shall be treated as "deemed license".

3.12 Other Licensing Obligations

- Within his licensed area of operation, an MSO shall not function as an exclusive franchisee/ distributor/ agent of any broadcaster.
- If an MSO appoints any franchisees/ distributors/ agents in any area to negotiate and function as an intermediatory on his behalf while dealing with the LCOs, then in all such cases, such intermediatories acting on behalf of MSOs shall be considered to be acting on behalf of and with the authorization of the MSO and the MSO shall be fully responsible for all their acts of commissions and omissions.
- MSOs shall be obliged to comply with all rules/regulations/orders/ directions as specified by TRAI from time to time and also to comply with all Acts, Rules, Regulations and Directions of the Government.
- MSOs will provide TV signal feed only to licensed LCOs and other distribution platforms permitted and licensed by the Government.

3.13 Data Collection regarding the MSOs

- The licensing authority responsible to grant licenses to MSOs shall provide the details of licensed MSOs, their operational area and the period of validity etc to Ministry of I&B and to the TRAI.

- Ministry of Information and Broadcasting shall place the information on their website for information of all stakeholders.
- All the MSOs shall be bound by various regulations, directions and orders issued by the TRAI from time to time under the Telecom Regulatory Authority of India Act, 1997.
- Ministry of I&B may issue suitable guidelines to all Broadcasters to give broadcast TV signals only to licensed MSO for the area and the time period for which the MSO is licensed.

Annexure IV

Towns by Class/Category

Census of India 2001

Class	Population Size	No.of Towns
Class I	1,00,000 and above	393
Class II	50,000 - 99,999	401
Class III	20,000 - 49,999	1,151
Class IV	10,000 - 19,999	1,344
Class V	5,000 - 9,999	888
Class VI	Less than 5,000	191
Unclassified		10*
All classes		4378

The number of towns and cities are 4378, as above.

* Population Census 2001 could not be held in these towns/cities of Gujarat State on account of national calamity. Source: Office of the Registrar General of India. (Population totals for India & States for the census of India – 2001).

Different Phases of the Digitization Roadmap

	Rank	City	Population (2009)	Population (2001)	State/UT
Phase I	1	Mumbai	13,922,125	11,978,450	Maharashtra
	2	Delhi	12,259,230	9,879,172	Delhi
	3	Kolkata	5,080,519	4,572,876	West Bengal
	4	Chennai	4,590,267	4,343,645	Tamil Nadu
Phase II	1	Bangalore	5,310,318	4,301,326	Karnataka
	2	Hyderabad	4,025,335	3,637,483	Andhra Pradesh
	3	Ahmedabad	3,913,793	3,520,085	Gujarat
	4	Pune	3,337,481	2,538,473	Maharashtra

	5	Surat	3,233,988	2,433,835	Gujarat
	6	Kanpur	3,144,267	2,551,337	Uttar Pradesh
	7	Jaipur	3,102,808	2,322,575	Rajasthan
	8	Lucknow	2,685,528	2,185,927	Uttar Pradesh
	9	Nagpur	2,403,239	2,052,066	Maharashtra
	10	Patna	1,814,012	1,366,444	Bihar
	11	Indore	1,811,513	1,474,968	Madhya Pradesh
	12	Bhopal	1,752,244	1,437,354	Madhya Pradesh
	13	Thane	1,739,697	1,262,551	Maharashtra
	14	Ludhiana	1,701,212	1,398,467	Punjab
	15	Agra	1,638,209	1,275,134	Uttar Pradesh
	16	Pimpri Chinchwad	1,553,538	1,012,472	Maharashtra
	17	Nashik	1,521,675	1,077,236	Maharashtra
	18	Vadodara	1,513,758	1,306,227	Gujarat
	19	Faridabad	1,464,121	1,055,938	Haryana
	20	Ghaziabad	1,437,855	968,256	Uttar Pradesh
	21	Rajkot	1,395,026	967,476	Gujarat
	22	Meerut	1,365,086	1,068,772	Uttar Pradesh
	23	Kalyan-Dombivli	1,327,927	1,193,512	Maharashtra
	24	Varanasi	1,200,558	1,091,918	Uttar Pradesh
	25	Amritsar	1,194,740	966,862	Punjab
	26	Navi Mumbai	1,187,581	704,002	Maharashtra
	27	Aurangabad	1,167,649	873,311	Maharashtra
	28	Solapur	1,128,884	872,478	Maharashtra
	29	Allahabad	1,125,045	975,393	Uttar Pradesh
	30	Jabalpur	1,066,965	932,484	Madhya Pradesh

	31	Srinagar	1,060,871	898,440	Jammu and Kashmir
	32	Visakhapatnam	1,058,151	982,904	Andhra Pradesh
	33	Ranchi	1,047,490	847,093	Jharkhand
	34	Howrah	1,034,372	1,007,532	West Bengal
	35	Chandigarh	1,033,671	808,515	Chandigarh
	36	Coimbatore	1,008,274	930,882	Tamil Nadu
	37	Mysore	1,007,847	755,379	Karnataka
	38	Jodhpur	1,006,652	851,051	Rajasthan
Phase III	All Other Urban Areas (Municipal corporations/Municipalities) (except 4 metros and 38 major cities listed above)				
Phase IV	Rest of India				