Telecom Regulatory Authority of India

Recommendations

on

Promoting Local Manufacturing in the Television Broadcasting Sector

31st March 2023

Mahanagar Doorsanchar Bhawan

Jawahar Lal Nehru Marg

New Delhi-110002

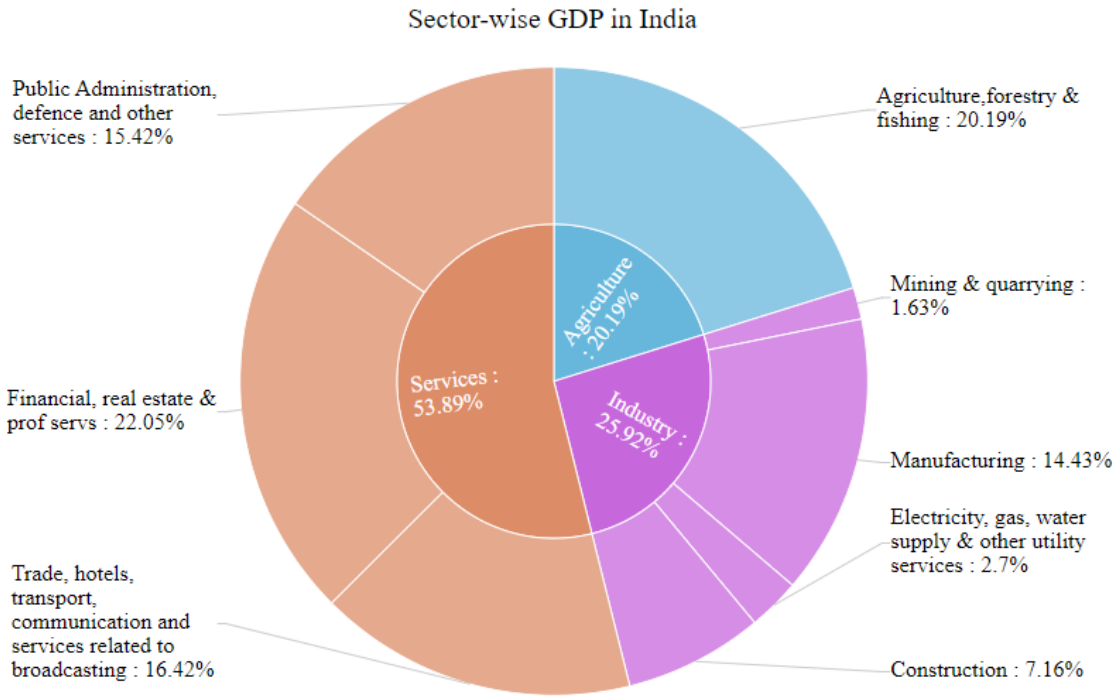
Website: www.trai.gov.in

Contents

CHAPTER – 1

INTRODUCTION

1.1 Economic growth and prosperity of a nation depends upon its progress in each sector of the economy i.e., Agriculture, Industry, and Services. As per the Economic Survey of 2020-21, share of these sectors in Gross Value Added (GVA)[1] in the Indian economy at basic price at current prices (2011-12 Series)1 are 20.19%, 25.92%, and 53.89% respectively. The industry sector also includes manufacturing. The share of the manufacturing in GVA in the Indian economy is 14.43% only. The industrial sector is expected to grow at 11.8% and as per advanced estimates, the industry share[2] is expected to increase by 28.2%.



[1] https://statisticstimes.com/economy/country/india-gdp-sectorwise.php#:~:text=The%20services%20sector%20accounts%20for,and%20allied%20sector%20share%2020.19%25.

[2] https://www.indiabudget.gov.in/economicsurvey/ebook_es2022/index.html#p=292

1.2 India has several industry sectors that have evolved over long periods. The industries in these sectors have matured over the years with robust policies and supporting ecosystems in place. However, pay television broadcasting in India commenced as an informal, unregulated sector. Enabled by recent regulatory and policy interventions, the sector has transformed to a structured, regulated sector. As mentioned in the consultation paper, digitization in the sector took place during 2012 to 2017. The sector lacked local manufacturing base and had to rely on foreign equipment in view of the time bound implementation of the Digital Addressable System (DAS) guidelines.

1.3 The television broadcasting distribution value chain comprises of broadcasters, distributor platform operators[3] (DPOs), last mile connectivity operators and equipment manufacturers/suppliers. Broadcasting equipment manufacturers and suppliers are further classified into manufacturers of headend equipment (i.e., LNB, IRD, Encoders, Multiplexers, etc.,), Consumer end equipment (i.e., Set Top Box, Hybrid Box, etc.), and Network equipment (i.e., EDFA, GPON OLT, Optical Fiber Cable, Signal Amplifiers, Repeaters, etc.). The growth of the broadcasting industry would eventually benefit from the growth of each subset of the industry mentioned above.

1.4 The headend equipment like the IRD, Encoders, Switches, Multiplexing equipment, CAS server Hardware etc. constitute an important part of the television distribution network. However, pursuant to implementation of DAS in the cable tv sector, demand for the headend equipment has tapered down. As a result, such equipment are mostly imported, and local manufacturing in this segment is negligible. Transmission equipment deployed in broadcast networks are common to a significant extent with the telecom sector and are accordingly sourced locally as well as through import. Interestingly, even though there is a huge, recurring demand for the consumer premise equipment, specially Set Top Boxes (STB), still local manufacturing sector has only a limited share of the market. Reliance on imported CPEs continues to be very high, especially in the feature rich, high-end STBs. These issues are examined in greater detail in the next chapter, along with stakeholders' comments.

1.5 In addition to the hardware equipment deployed in the network, certain key software components play a vital role in the broadcasting distribution chain. The Conditional Access System (CAS) is responsible for the encryption of content and

[3] Direct To Home (DTH) operators, Multi Systems Operators (MSOs), Headend Into The Sky (HITS) and IPTV operators are together termed as DPOs.

its secured delivery to authorized subscribers. CAS is at the core of the Digital Addressable System and is responsible for content security, entitlement management, and entitlement control for the content. The Subscriber Management System (SMS) essentially acts as the management centre for the CAS. The SMS is responsible for the activation/deactivation of STBs, managing subscriber information, channel information, billing, and other such activities.

1.6 The Indian Government attaches high priority to electronics manufacturing. Under the flagship initiatives – 'Make in India' and 'Digital India', the government has put special focus on transforming the country into a global manufacturing hub. The National Policy on Electronics (NPE) 2019, notified on 25th February 2019, aims *to position India as a global hub for Electronics System Design and Manufacturing (ESDM) by encouraging and driving capabilities in the country for developing core components, including chipsets, and creating an enabling environment for the industry to compete globally*. The key themes in the NPE 2019 include development of a component manufacturing ecosystem, fiscal incentives for the ESDM sector, promoting research and development (R&D) etc.

1.7 Several schemes and policies have been envisaged under NPE 2019 to boost local manufacturing in the electronics industry, such as Electronics Manufacturing Clusters Scheme (EMC), Electronics Development Fund, Preferential Market Access Policy, tax benefits and schemes aimed at skill development.

1.8 In 2020, the Government of India announced the launch of three electronics manufacturing schemes to further the objectives of NPE 2019. These were Production Linked Incentive (PLI) Scheme, Scheme for Promotion of manufacturing of Electronic Components and Semiconductors (SPECS) and EMC 2.0.

1.9 Production Linked Incentive Scheme (PLI) for large-scale electronics manufacturing, notified on April 01, 2020[4] offers a production linked incentive to promote domestic production. It aims to attract increased investments in mobile phone manufacturing and specified electronic components, including Assembly, Testing, Marking and Packaging (ATMP) units. Department of Telecommunications, Ministry of Communications, in its Guidelines for Production Linked Incentive Scheme (PLI) for promoting Telecom and Networking Products Manufacturing in India dated 3rd June 2021, has issued the list of Telecom equipment that are covered under the PLI scheme. Some equipment

[4] Notified vide Gazette Notification No.CG-DL-E-01042020-218990 dated April 01, 2020

covered in the list, such as OLT, GPON, ONT, etc.,[5] are used in the cable broadcasting distribution network. However, no such policy guideline specific to the broadcasting sector has been issued to date.

1.10 Apart from the above-mentioned schemes and initiatives, MeitY had earlier notified "Electronics and Information Technology Goods (Requirement of Compulsory Registration) Order, 2012" (CRO). CRO seeks mandatory compliance to ensure the safety of Indian citizens by curbing the import of substandard and unsafe electronic goods into India. As per the CRO, no person should manufacture or store for sale, import, sell or distribute goods that do not conform to the Indian standard specified in the order[6]. Set Top Boxes (STBs) are covered under the CRO[7]. Further, the Tariff Structure has been rationalized to promote domestic manufacturing of electronic goods, including, inter alia, Set Top Boxes for TV, Televisions, Cellular mobile handsets, LED products, and medical electronics equipment.

1.11 In May 2020, amidst the global struggle against the COVID-19 pandemic, the Government of India announced the 'Atmanirbhar Bharat Abhiyan' (meaning the Self-Reliant India Campaign). Considering that the pandemic could have long-term disruptive effects on the productive capacity, the said *Abhiyan* was announced with welfare measures to address the short-term distress of individuals and firms, and structural reforms to alleviate the long-term distress on the economy[8], along with the purpose to boost domestic manufacturing and prepare the country for tough competition in the global supply chain.[9]

1.12 Recently, government has approved an outlay of INR 76,000 crore for the development of Semiconductors and Display Manufacturing Ecosystem. Government's intervention to boost the electronic industry has come at a time when the global economy is facing an acute shortage of semiconductors due to disruption in supply chain. The PLI and other schemes to boost the semiconductors will not only help domestic companies to overcome the

---

[5]Available at: https://dot.gov.in/sites/default/files/2021_06_03%20PLI%20Scheme%20Guidelines%20for%20Telecom%20%26%20Networking%20Product.pdf

[6] Section 3(1), Electronics and Information Technology Goods (Requirement of Compulsory Registration) Order, 2012

[7] Schedule, Electronics and Information Technology Goods (Requirement of Compulsory Registration) Order, 2012

[8] Economic Survey 2020-2021, Ministry of Finance, Available at: https://www.indiabudget.gov.in/economicsurvey/doc/echapter_vol2.pdf

[9] Available at: https://pib.gov.in/PressReleseDetail.aspx?PRID=1623418

challenges posed by covid-19 but will also support them to become globally competitive, especially in chip making.

FDI in Industries

1.13 Indian Government has taken various measures to put in place a pro-investor Foreign Direct Investment (FDI) policy[10]. FDI inflow stood at US$ 45.14 billion in year 2014-15 and has been continuously increasing since then. India registered its highest ever annual FDI of US$ 81.97 billion (provisional) in the year 2020-21. FDI has been recording a double digit growth year on year (except COVID affected period). Several initiatives have been taken by the Government in April 2020 to further reform the FDI policy which shall facilitate an increased flow of long-term capital, global technology, process, and international best practices to support the growth, including of manufacturing in India.

1.14 Indian manufacturing is fast developing into an investment driver for foreign players with foreign direct investment (FDI) of US$ 104.18 billion between April 2000 and December 2021. With initiatives like 'Make in India' and 'Atmanirbhar Bharat Abhiyan', India's manufacturing base has been steadily growing. According to the World Bank's Ease of Doing Business (EoDB) Ranking 2020, India jumped 79 positions in just six years - from 142 in 2014 to 63 in 2019[11].

1.15 According to a recent CII-EY report titled "FDI in India – Now, Next and Beyond, Reforms and Opportunities", India can expect to attract anywhere between US$ 120 billion to US$ 160 billion in FDI annually by 2025, if it manages to increase the FDI to GDP ratio between 3-4%.[12] This FDI growth estimate is backed up by the growth potential of individual sectors, such as:

- Electronics Manufacturing: By 2030, the Indian government expects the electronics manufacturing sector to be worth US$ 300 billion.
- Display Panels/Touch Screens: The display panel market in India is estimated to grow from US$ 7 billion in 2021 to US$ 15 billion in 2025.
- Defense Sector: India's defense spending will increase to over US$ 250 billion in

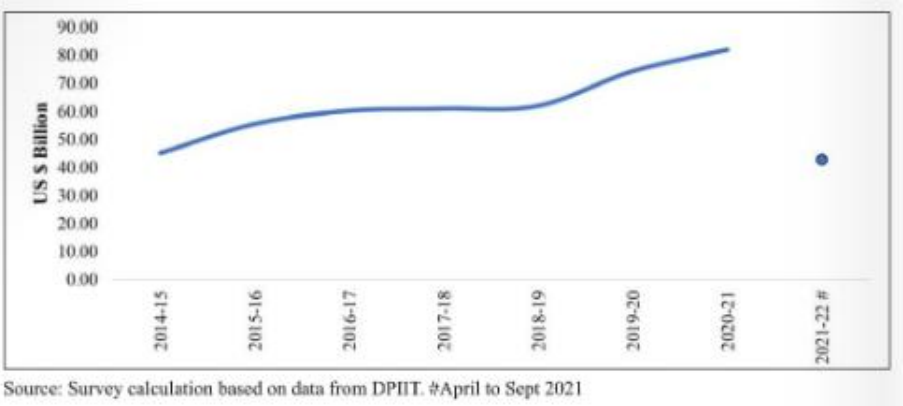
[10] https://www.indiabudget.gov.in/economicsurvey/ebook_es2022/index.html#p=292
[11] World bank has since not published EoDB rankings.
[12]https://www.ibef.org/blogs/india-a-hub-for-foreign-investments-in-the-manufacturing-sector

the next decade.

Many other sectors are contributing to double digit growth with more and more global leaders of manufacturing setting up plants/ facilities in India.

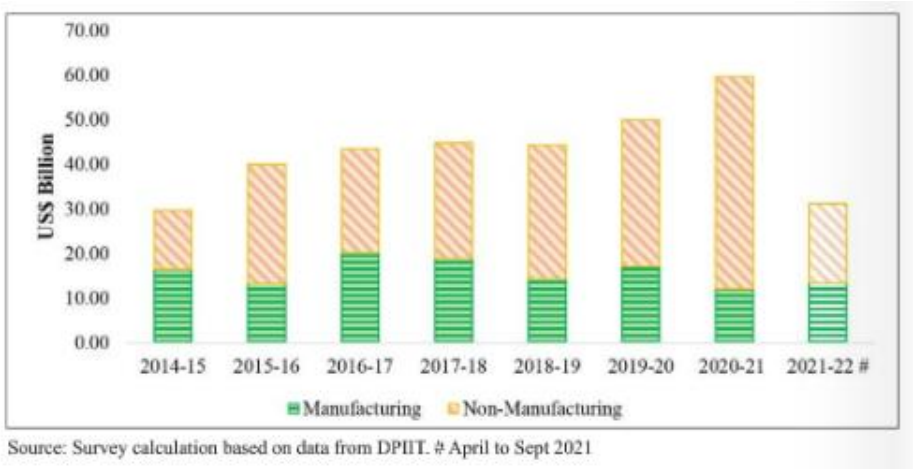
1.16 New Indian businesses are cropping up to capitalize on the growth opportunities mentioned above. The manufacturing sector recorded 50% growth in FY21, with 39,539 business registrations, compared with 26,406 in FY20.

Total FDI Inflows



Source: Survey calculation based on data from DPIIT. #April to Sept 2021

FDI Equity Inflows in Manufacturing and Non-Manufacturing Sector



Source: Survey calculation based on data from DPIIT. # April to Sept 2021

1.17 Despite the extant policy measures, the television broadcast sector is predominantly dependent upon imports for the deployment of equipment in the distribution networks. The share of locally manufactured equipment continues to remain insignificant. This raises the question regarding the constraints that have prevented the local manufacturing sector from capturing a greater market share. These concerns assume even greater importance when we consider that as per global industry reports, the global broadcast equipment market is

expected to reach around USD 6.5 billion by 2027, registering a CAGR of approximately 5.5% from 2022 to 2027.[13,14]

1.18 Therefore, the Authority, on suo-motu basis, issued a consultation paper (CP) on "Promoting Local Manufacturing in the Television Broadcasting Sector" on 22nd December 2021 seeking comments from the stakeholders to realistically assess India's true potential in equipment manufacturing. An Open House Discussion was also conducted online on 28th April 2022.

1.19 Based on the written submissions of the stakeholders and the discussion in the Open House Discussion, the issues have been examined. TRAI aims to arrive at appropriate recommendations to the Government to enable Indian broadcast equipment manufacturing sector in transitioning from an import-dependent sector to a global hub of manufacturing. The issues relating to local equipment manufacturing raised in the CP, responses received from the stakeholders, analysis, and the recommendations have been covered in Chapter 2. The responses were quite divergent. The Authority has taken a holistic view of the different facets of local equipment manufacturing. The summary of recommendations has been provided in Chapter 3.

[13]https://www.marketsandmarkets.com/Market-Reports/broadcast-equipment-market-111738599.html

[14] https://www.mordorintelligence.com/industry-reports/broadcast-equipment-market

CHAPTER 2
ISSUES AND ANALYSIS

2.1 Prior to initiating the consultation process, the Authority examined the pertinent issues relevant to the local manufacturing in television broadcasting sector. Preliminary interactions were also carried out with representatives of television broadcasting industry. Based on the inputs gathered, the prominent issues were dealt with in the consultation paper. This includes broad heads such as the present status of local manufacturing in the sector vis-à-vis import in different equipment categories, viz. headend equipment, transmission equipment, consumer premises equipment, along with key software components like CAS and SMS. The consultation paper also touched upon segment-wise demand trends and local production capabilities. Further, the paper has enumerated important policy measures launched by the government of India to promote local manufacturing in electronic equipment sector and sought stakeholder views about their effectiveness regarding the television broadcasting sector. Furthermore, major concerns flagged by industry during preliminary interactions were also taken up in the paper. Heavy reliance on other countries for components and CAS, better fiscal support/incentives to manufacturers in competing nations, last mile assembly with low-value addition in local manufacture, impact of trade agreements with other countries including ASEAN etc. were some of the major issues flagged by industry stakeholders.

2.2 In response to the issues raised in the consultation paper, comments were received from across industry segments, viz. local manufacturers, distribution platform operators, broadcasters, MSO association, Consumer Advocacy Group, industry bodies, government R&D centre, individual industry observers etc. Further, useful inputs were also provided by stakeholders in the Open House Discussion held virtually as part of the consultation process. All such comments have been examined and analysed with reference to the context. It is observed that there is significant overlap and correlation among various issues, which is also reflected in the comments received from stakeholders. In view of the overlap, the issues raised in the consultation paper have been re-arranged here in following groups:

A. Opportunities and capabilities for local manufacturing in the television broadcasting sector

B. Issues related to STB and CAS

C. Constraints faced by the sector and suggested remedial policy measures

D. Miscellaneous issues

The following sections summarize the stakeholders' comments under these heads, analysis of the issues considering the comments received, followed by the recommendations of the Authority.

A. Opportunities and Capabilities for local manufacturing in the television broadcasting sector

2.3 The rapid modernization of television distribution ecosystem has led to the growth in the penetration of television viewership across the country. This would have led to emergence and growth of local manufacturing of required equipment to feed the huge demand in the sector. However, this did not happen and as per the estimated figures mentioned in the consultation paper, the yearly broadcast imports in India still amount to around USD 20 billion. Lack of requisite capabilities in local industry is understandable at initial phase, in view of time-bound schedule of DAS implementation. However, despite the growth of reach of television, there is still a significant uncovered population. Television serves only 55 to 60% of homes. Therefore, the issue of promotion of local manufacturing in the sector merits a review. Further, the consultation paper has also raised the issue as to whether there is a scope in export markets that could perhaps make local manufacturing more relevant and competitive. The pertinent issues with reference to the aforementioned points have elicited exhaustive inputs from the stakeholders.

A.1. <u>Opportunities for local manufacturing</u>:

2.4 Majority of the stakeholders agree with the existing opportunities for local manufacturing in television broadcasting sector in India. However, regarding segment-wise opportunities in the sector, the stakeholders' opinions are disparate.

2.5 According to few stakeholders, opportunities exist not just in terms of local market but globally as well. Such stakeholders, however, highlighted that for doing export, competitiveness in cost and quality are paramount. As pointed out in few comments, with increasing Chinese production costs, Indian manufacturers now have opportunity to look at local market as well as the growing markets of Southeast Asia, Africa, Latin America etc. Stakeholders have commented that for cost and quality competitiveness, a global vision, i.e., markets outside India in addition to the local market would be a better approach from long-term perspective. In addition to the promotion of the local industry

and employment generation, saving of foreign exchange outgo, better support from local manufacturers etc. are cited as other expected benefits arising from promotion of local manufacturing. There is also a common view that keeping at par with the evolving technologies would be essential for local manufacturers. This will help in conforming to the global standards regarding equipment quality and backend services.

2.6 Television broadcasting sector is an ever-evolving sector, especially in terms of technology, as observed by the stakeholders. In their comments, majority of the stakeholders have emphasized upon need for a focussed approach for promoting local manufacturing in the sector. However, regarding the approach to be followed, diverse views are there. Some of the stakeholders have suggested to aim for end-to-end indigenization, right from design to parts and components, and eventually to assemblage and production. On the other hand, some stakeholders are in favour of a phased approach. They suggest that India should aim at first shifting of assembly to India. In second stage, development of local parts and components along with development of local design houses with government support/encouragement may be taken up. Once the vendor CEO-system develops, the large manufacturers with much higher localisation will establish their facilities in India. Many opinions are also in the favour of inviting global Original Design Manufacturers (ODMs) and Original Equipment Manufacturers (OEMs) to invest in India to enable inflow of global capital as-well-as technology.

2.7 As mentioned, stakeholders have expressed divergent views in respect of opportunities in local manufacturing of different equipment categories. Regarding the Headend equipment, most of the stakeholders have affirmed that these are mostly import-dependent. Further, stakeholders have also stated that with the implementation of DAS notification getting completed by March 2017, demand in this segment has tapered. It is also stated that the ability to design and produce the same is currently lacking in local manufacturing sector. It is further opined that looking at the infrequent demand and the considerable investments required to develop design and production capability for the same, it may not be opportune at this stage to venture into this segment. Opportunities for transmission equipment does exist as per the stakeholders, since the proliferation of the cable television network increases with increase in the TV penetration, leading to increased requirements of cables and transmission equipment. However, all transmission equipment does not seem to be getting manufactured locally, as per stakeholders' inputs. It is stated that high-end

products are mostly imported in CBU units or imported with the viewpoint of last mile assembly in India.

2.8 For the Consumer Premises Equipment (CPE) segment, almost all the stakeholders acknowledge that there is sufficient market and scope to promote local manufacturing. With growing TV penetration, replacement of old equipment and technological additions in the products, CPEs have maximum opportunities in the sector. Stakeholders from manufacturing industry submitted that the production capacity for STBs is sufficiently large. Moreover, more and more STB manufacturers are working on backward integration. However, they are unable to get domestic chipset and associated firmware. Yet, few stakeholders have commented that many components and parts of Set-Top Boxes (STBs) are still getting imported. However, few distribution platform owners (DPOs) stated that currently they are procuring majority of their STBs from local manufacturers.

2.9 It has been also stated that given the size of the Indian DTH market and limited manufacturing, till recent past, almost all the STB demand in India was met by imports from China, Thailand, Vietnam, etc. Due to Atmanirbhar Bharat initiative, the transition to Make-in-India has now commenced. However, owing to certain policy/ infrastructure related impediments, this has resulted in an increased cost of the product. It has been mentioned that there is high cost of investment in product specific manufacturing, especially for test equipment/systems. Hence, cost competitiveness still holds Indian manufacturers back, which is a cause of concern in harnessing such opportunities. Suggestion has been made by few stakeholders to promote cost-effective testing labs to enable testing of local product.

2.10 With regards to software category, the stakeholder comments have highlighted the constraints and challenges affecting wider acceptance of the CAS. These are discussed in greater detail in a subsequent section on STB and CAS. However, it has been noted that the stakeholders have not expressed enthusiasm about opportunities in the software segment, especially in CAS.

2.11 Almost all stakeholders have stressed upon for extending PLI schemes to broadcasting equipment, especially Set Top Box (STB). In addition, stakeholders are seeking other kinds of support from the government to deal with the cost disadvantages and lack of available resources. These issues are dealt in detail in the relevant sections below.

2.12 Further, one stakeholder has highlighted the challenges being faced by cable TV segment by the new emerging platforms of OTT and Free Dish. The stakeholder is seeking a regulatory parity across all platforms.

2.13 In summary, the stakeholders have commented that maximum opportunity lies in the STB/CPE segment; driven by continuous network growth, replacements, and upgrade from plain basic STBs to STBs with additional features, HD/ Hybrid STBs etc. As per one comment, Hybrid/OTT STBs along with ONT/ONU alone are expected to generate a yearly demand of 10 million for the next five years. Continued demands are also projected in network/transmission equipment considering expansion of TV penetration in uncovered pockets. However, as stated, most of the stakeholders see minimal opportunity in the headend segment since majority of the networks are already established and new demands are expected to be still fewer, in view of the likely consolidations in the market in the times to come. However, even while projecting huge opportunity in the STB/CPE segment, stakeholders have underlined the current dependence on import for majority of components. Stakeholders have opined that creation of local ecosystem for manufacturing of semiconductors and components will help Indian industry in competing with foreign firms in terms of cost and quality.

2.14 There is also a comment to focus on Indian satellite space for DTH broadcasting. The stakeholder highlighted the policy impediments in availing international satellites as there is shortage of Ku-band transponders on Indian satellites.

2.15 Due to lesser projected demand for the headend equipment as against the investments required for setting up local production capability for the same, there is a suggestion that instead of local manufacturing of headend equipment, their assembly can be encouraged in India.

2.16 There is also a suggestion that a different approach may be adopted for Core/Transmission equipment and CPE products. There is one comment that there are enquiries from Europe and US; however, post-covid Indian companies have dismantled their R&D facility due to financial stress.

A.2. Capabilities and potential of local manufacturing industry

2.18 Preliminary studies in the matter reveal that local manufacturing industry have developed capabilities to cater to equipment demands in the television distribution chain, especially in the transmission and CPE/STB equipment category. Deployments in the headend equipment continue to be mainly through

import. A self-evident reason is the continuous demand for the CPE/STB, thereby giving opportunity for the local manufacturers also. On the other hand, after completion of DAS implementation, the demands for the Headend have not only tapered down, but may only arise infrequently; caused by new network deployments, expansion, or upgrade of an existing network etc. Setting up production facilities in such a sector are not only capital intensive but also needs a certain time for the investments to break even. In such a scenario, it seems natural that local manufacturing has evolved in the CPE/STB segment and in transmission equipment. Regarding transmission equipment, there is a considerable overlap with the telecom sector demands, for which domestic capability already existed. On the other hand, against the estimated yearly STB demand of around 25-26 billion, the local manufacturing sector has developed an estimated production capacity of almost 20 billion. However, it needs to be examined as to why even this production capacity remains highly under-utilized.

2.19 Stakeholders' comments on these aspects reflect a mixed response as to the capabilities and potential of local manufacturing industry. A few stakeholders are of the view that local capability exists not only for assembly but design as well, especially in STB and transmission equipment segment. It is mentioned that while adequate capability exists for linear STBs, upscaling it for Hybrid STBs and ONT/ONU needs some additional test equipment. Further, lack of manufacturing capabilities in the local industry for the headend equipment is also implicit in the stakeholders' comments.

2.20 On the other hand, few stakeholders have pointed out the limitations of the local manufacturing sector regarding quality and cost competitiveness. It is mentioned that for long term customer satisfaction, quality issues are crucial for service providers. There are comments that though adequate capability exists for generic production resources, local sector lacks in product specific resources like testing equipment/facilities. High cost of investment, capacity utilization challenges due to seasonality of demand etc. are cited as some reasons behind the constraint. It is also mentioned that the lack of a local components ecosystem acts as a barrier for local industry to increase production scale to target other geographies and product lines.

2.21 Some stakeholders have commented that local capabilities are mainly in assemblage because local manufacturers lack IPR for the products and their software. Lack of IPR and software leads to dependence of the local manufacturer on foreign vendors for the same. Concern has also been raised regarding ability of the local manufacturing sector in keeping up with evolving technology trends.

2.22 The stakeholder comments have reiterated that the major service providers prefer field-proven and time-tested products, as any outage due to quality issues has serious implications on their business. It is indicated that the local manufacturing industry at present is not able to generate that confidence, consequently their deployments are primarily confined to small operators.

2.23 However, few stakeholders are of the opinion that local manufacturing should be encouraged for transmission equipment and CPEs though creation of sustainable technological and business ecosystem by the government. Technology transfers, financial incentivization are some of the measures suggested towards this objective. A consistent policy position that also focusses on supply side, in addition to consumption, have also been suggested in some of the comments. These are discussed in detail in the subsequent section on constraints and policy measures.

2.24 Further to the general observation about dwindling demand of headend equipment, a few stakeholders have stated that big DPOs prefer time-tested and field-proven solutions manufactured abroad, as there is a deficit of local capability to meet these demands for headend equipment. It was stated in the comments that bigger MSOs prefer to install equipment imported from US and Europe while smaller MSOs prefer imported equipment from China owing to reasons of economy. It is further stated that current trends predict more consolidations to be happening in the future in the television distribution services and hence newer set-ups will be lesser in numbers, due to which demand for Headend equipment is expected to be low. In view of this, some stakeholders have suggested that instead of investing in building production capacity for a likely low demand segment, encouraging assembly of headend equipment in India may be considered. This would result in employment generation and may encourage development of a local parts and components ecosystem.

2.25 With regards to Transmission Equipment, most of the stakeholders have suggested that with an increase in the TV penetration, more transmission equipment will be required, thereby sustaining the demand. However, regarding demands for type/category of transmission equipment, stakeholders have mixed views. One stakeholder has observed that fixed broadband networks like GPON are proliferating, creating demand for OLT in addition to CPE products like Hybrid/OTT STB and ONT/ONU. However, few comments also reflect reservations about the sufficiency of potential to promote its local manufacturing in terms of the volumes of its demand in India. Further, few stakeholders have suggested that there is potential for a manufacturing ecosystem in India at the hands of SME and MSME

for 'passive components' like mounters, fixtures, tools etc. that are involved in deployment. In general, stakeholders have agreed that there is more demand for transmission equipment in comparison with headend equipment.

2.26 A few stakeholders suggested that a different approach should be taken for transmission equipment, given the distributed and multilayer supply chain with multiple vendors. Many comments have highlighted that transmission equipment commonly used in both television broadcasting and telecommunication sectors attract more demands along with the benefits of policy initiatives for telecom sector. Further, stakeholders have advocated for measures like financial incentives for local manufacturers and technology transfers for local manufacturing of transmission equipment.

2.27 Almost all the stakeholders are of the view that the potential exists for the CPE products, viz. STBs and ONT/ONU. Stakeholders further support their view by pointing out that there is recurring demand in this segment and major imports are also happening in this area. Further, regarding the emerging segment in Hybrid/OTT STBs, stakeholders mention that such demands are at present being met by large international companies for high end products, and by Chinese manufacturers for low-end products. Few stakeholders have suggested that local manufacturers in India can initially aim for low-end products.

2.28 As mentioned in previous section, stakeholders also see potential in targeting markets outside India that use similar technologies This can be done through appropriate government policies and incentives along with investment by private industry. A phased approach, starting with neighbouring countries, South-East Asia, Africa, etc. have been suggested, before going global.

2.29 One stakeholder has also commented regarding the potential for development of local Conditional Access System (CAS) as well. Software support has been pivotal to service provisioning, especially when it comes to CAS, Subscriber Management System (SMS), STBs etc. Stakeholders have noted that only few STB manufacturers in India own IPR in the products and after sales software support. When foreign vendor creates the design, does the engineering, and subsequently owns the IPR in such required software, it directly creates a dependence for local manufacturers in India on such foreign vendors. Accordingly, it has been suggested to enable local manufacturers for building capability for product development and design as well, which will empower them with IPR ownership and better service support capabilities.

2.30 As per many stakeholders, there needs to be efficient local infrastructure for research and development, design, and component industry for the equipment of television broadcasting sector of India. Examples have also been shared from foreign markets like China where the local manufacturers have access to high quality components at low rates. Further, a well-developed R&D ecosystem in that country provides a competitive edge to their local manufacturing sector. In contrast, lack of R&D infrastructure and local component industry in India have been cited as factors hampering growth of local manufacturing and causing dependence on import of broadcasting equipment in SKD or CKD forms from foreign manufacturers. This also results in low value addition by the Indian manufacturers who perform last mile assembly before the final deployment of equipment.

2.31 Many stakeholders have emphasised on the technological benefits in the broadcasting ecosystem by having own R&D facilities. Diverse opinions of the stakeholders have been received regarding the R&D set-up in India for the television broadcasting sector. To keep up with the evolving technologies and be competitive in both locally and globally, few stakeholders have suggested for promotion of R&D hubs and special economic zones (SEZs) to ensure quality standards as a long-term measure. Dedicated funds for R&D facilities have also been suggested. Some stakeholders have suggested incentivising Indian Original Design Manufacturers (ODMs) and Original Equipment Manufacturers (OEMs) to set up local R&D facilities and manufacturing establishments in India. However, few have also mentioned that it may not be feasible for each manufacturing unit to have an in-house R&D facility as considerable investment is required in meeting the globally competitive standards. While there are some views in favour of nodal design centres under the government to meet this purpose. Few suggestions have also been received for industry level R&D centres. Few stakeholders believe that the current focus should be on quality manufacturing in India, stating that if India becomes a manufacturing hub, testing and R&D would follow.

Analysis

2.32 It was argued in the consultation paper that distinct categories of equipment deployed in television distribution networks have different procurement cycles. It was mentioned that the headend equipment is generally procured by a distributor at the time of roll-out. Further procurement, if any, occurs only when major expansions or upgrades are undertaken. On the other hand, Consumer Premise Equipment are required on a regular and recurring basis. Several factors drive the demand of STBs, such as i) extension of television services to uncovered TV households; ii) upgrade from SD to HD; iii) replacement of boxes completing useful life; iv) launch of converged services through hybrid STBs. As stated in the

consultation paper, all these factors together create an estimated annual demand of 26 million STBs. The transmission equipment procurements are likely to have a variable frequency of purchase, depending upon the network layout and business plan of the distributor.

2.33 The stakeholders' comments affirm these observations. The stakeholders have broadly agreed that due to tapering down of demands for the headend equipment since implementation of DAS notification got completed, there is not enough opportunity or incentives for local manufacturers to develop manufacturing capabilities for this segment. Looking at the reduced and infrequent demand for headend equipment, the Authority is of the view that, investing to set up production capabilities for this segment at this stage may not be commercially gainful.

2.34 It is also apparent that there are good opportunities in the CPE/STB segment due to the regular and high volume of demand. However, despite good opportunities in the CPE segment, local manufacturing sector does not enjoy adequate market share. There are several factors impacting better penetration of local STBs including, but not limited to, the cost of the end products. Cost competitiveness has come out to be an important issue for the existing opportunities in the sector. Another issue faced by local entities in manufacturing the CPE like STBs is the current global shortage of chipsets. Further, quality of end products also requires to be of competitive standards otherwise these opportunities would not be tapped to their potential. Such issues have been taken up for analysis in detail in subsequent sections on issues related to STB and CAS.

2.35 Demand for transmission equipment is also expected to remain there, to cater to the expansion of cable tv network to uncovered areas. Further, transmission equipment for backhaul connectivity and for consumer access are broadly the same as those used for providing telecom and broadband services. Therefore, there will be a sustained demand for such equipment. Moreover, local manufacturing capabilities are already there due to commonality with the telecom sector. In fact, the procurements in the government sector are now being done according to preference to Make in India products, in accordance with the government directive.[15] Such support in market access can be expected to encourage the local manufacturers in further enhancing and upgrading their capabilities and competitiveness. In the broadcasting sector, however, high end transmission equipment is currently being sourced through import, whereas generic equipment is procured from local manufacturers. It is expected that government initiatives,

[15] https://www.meity.gov.in/esdm/ppo

along with other such schemes like PLI etc. will enable the local manufacturers to become competitive with foreign manufacturers in terms of cost and quality.

2.36 Regarding the approach to be followed for promoting local manufacturing, diverse opinions are received from stakeholders. Some have suggested for promoting end-to-end indigenization. Others have suggested to promote a phased approach involving assembly in India at initial level and working its way up through developing local R&D, parts and components ecosystem etc. However, in order to arrive at a considered decision in the matter, various relevant factors including value chain maturity need to be examined. It needs to be understood that manufacturing industries in China, Korea, Taiwan etc. have built capacities across their manufacturing value chains over the years through certain enabling measures. It may be noted that in India bulk of the broadcasting equipment are currently imported in SKD or CKD forms. It discourages development of local components ecosystem because the majority of the components are already present in the pre-assembled kit, leaving mainly the last mile assembly in the domain of the local manufacturer. With Indian Original Equipment Manufacturers (OEMs), Original Design Manufacturers (ODMs) still being few and having marginal market share, most of local manufacturing consists mainly of assembly of components. With heavy reliance on imports for components, there is little scope for local value addition. A new or emerging market needs to grow its local manufacturing base once the demands and opportunities are established in the local markets, in tandem with the necessary initial supply from pre-existing foreign markets. Local manufacturing of components will help in improving localization levels of different equipment categories in the sector which are currently being mainly assembled in India. These issues are further examined in subsequent sections dealing with stakeholders' comments about constraints faced by the sector along with various policy measures.

2.37 Some non-fiscal measures suggested by the stakeholders are noteworthy for providing top level enabling environment to the industry. These include facilitating technology transfer through government support, through PPP model, or through industry led R&D centre. It may not be feasible for every OEM/ODM in this sector to have its own R&D set-up. Indigenous R&D is the need of the hour for long-term prospects of the local manufacturing in the television broadcasting sector. Suggestions to focus and develop an enabling environment on emerging demand segments like that for hybrid/ OTT STBs are also important. To upgrade and upscale their production capabilities, measures like framing of specifications/standards by a specialised body like TEC for these products and

setting up of local testing facilities will give an impetus to the local manufacturing industry.

2.38 A strong R&D ecosystem enables local value addition and reduces dependence on foreign components/products. As per Centre for Strategic and International Studies (CSES), China spent $468 billion, US spent $582 billion and Japan spent $171 billion on R&D in 2018.[16] South Korea, established Electronic Display Industrial Research Association of Korea (EDIRAK) and commissioned Highly Advanced National (HAN) program for undertaking broad ranging R&D on strategic technologies.[17] Such instances of foreign efforts on developing their R&D also set examples for India..

2.39 A good point to note is that the government is already seized of the matter and has rolled out several initiatives towards promotion of local manufacturing. In the Union Budget 2022-2023, it was mentioned that government contribution will be provided for R&D in "sunrise opportunities" like semiconductor and its ecosystem, artificial intelligence, green energy, etc.[18] To enable affordable broadband and mobile service proliferation in rural and remote areas, five per cent of annual collections under the Universal Service Obligation Fund will be allocated. This will promote R&D and commercialization of technologies and solutions.

2.40 OECD states that typically R&D financing has four sources: government, business, foreign funding and rest of the world.[19] Above-mentioned recent developments to boost R&D in related techno-commercial fields by way of dedicated funds for R&D and creating R&D establishments in the form of government-academia collaborations, may be considered as examples of different ways of enabling R&D in the local manufacturing ecosystem in the television broadcasting sector.

2.41 Further, appropriate measures are also underway for promotion of owning IPR in the local products. For instance, the Government has issued Public Procurement (Preference to Make in India) Order 2017 vide the Department of Industrial Policy and Promotion (DIPP) Order No. P-45021/2/2017-B.E.-II dated 15.06.2017 which is further revised vide No. P-45021/2/2017-PP (BE-II) dated 28.05.2018 to encourage 'Make in India' and to promote manufacturing and production of goods and services in India with a view to enhancing income and employment. Accordingly, the Department of Telecommunications (DoT), as the nodal

[16] https://chinapower.csis.org/china-research-and-development-rnd/
[17] https://in.nec.com/en_IN/pdf/-AssochamReport-NTIasKnowledgePartner.pdf
[18] https://www.indiabudget.gov.in/doc/budget_speech.pdf
[19] https://chinapower.csis.org/china-research-and-development-rnd/

department for implementing the provisions related to procurement of goods, services or works related to the telecommunication sector, has issued notification of telecom products, services or works vide notification No. 18-10/2017-IP No. 18-10/2017-IP dated 29/08/2018. The said notification contains the provision that, *"The maximum Local Content (LC) percentage for Design which can be claimed by a Local manufacturer for the telecom products based on in-house/ in country R&D costs incurred/ amortized to create IPR in India are as per Table-C subject to the condition that:*

(a) The Intellectual Property Right (IPR) resides in India for Hardware Design,
(b) The Copyright is in India for the software Design & Development."[20]

2.42 It is pertinent to note here that Telecom Centers of Excellence (TCoE) was established by DoT via PPP model to realize the goals of National Digital Communication Policy, to promote innovation in telecom sector via scientific research and development, to create new services and application, to generate IPR and develop manufacturing capabilities amongst others. It creates a platform for academia, industry and research institute for capacity building and development of a balanced telecom ecosystem.[21] 7 TCoEs came into existence by signing of MoUs between DoT, premier Academic Institutes and the sponsors from the Telecom Industry in 2007.[22] The important activities of TCOE India during the year 2020-2021 were to strengthen the R&D ecosystem in ICT where Government works as a facilitator, Industry as the ultimate user, and Academia as the research unit.[23] Apart from this, Telecom Equipment and Services Export Promotion Council (TEPC) has been set up by the Government of India to promote and develop exports of telecom equipment and services from India.[24] This council assists member companies in easy facilitation of their exports and strengthens the entire telecom ecosystem by catering to Telecom Hardware Manufacturing, Telecom Service Provision, Telecom Software, and Consultancy[25].

2.43 It is clear that while there are organizations like Telecom Centers of excellence and TEPC for telecommunications sector, no specific organization handles Broadcasting sector. Convergence of technologies has been blurring the lines dividing the manufacturing of broadcasting equipment and telecommunications

[20] https://dot.gov.in/sites/default/files/2018_11_02%20DOT%20PMA_1.pdf?download=1
[21] https://www.coai.com/indian-telecom-infocentre/telecom-centers-of-excellence-%28tcoe%29
[22] Id.
[23] https://dot.gov.in/sites/default/files/Annual%20Report%202020-21%20English%20Version.pdf
[24] Id.
[25] https://www.telecomepc.in/Home/content/Profile/Our-Profile

equipment. Therefore, Authority is of the view that existing institutions in telecommunications sector may be strengthened to undertake the task of developing the manufacturing of broadcasting equipment and also for export promotion.

2.44 In 2021, to promote AatmaNirbhar Bharat in Media and Broadcasting, it was announced that a Center of Excellence for Media and Broadcasting Technologies will be established at IIT Kanpur as a result of a MoU between Prasar Bharti and IIT Kanpur.[26] It will facilitate research regarding developing indigenous technology ecosystem for Direct to Mobile Broadcasting, convergence with emerging 5G standards, Artificial Intelligence and advanced algorithms for audio-visual media. Since media and broadcasting is an ever-growing industry and opportunities and capabilities of local manufacturing are already present as discussed in the previous section, there is a need of more Centers of Excellence dedicated for research and development in broadcasting sector especially taking into account paradigm technological shifts already taking place in the era of convergence.

In this era of convergence, TEPC or some similar organization, should also undertake the task of promoting exports in broadcast sector. TEPC may restructure itself to include the representation from MIB and Broadcasting industry. As we know that the Government is dedicated to supporting domestic product development and enabling manufacture with high domestic value-addition, the council should further this objective.

2.45 While a contextual reference has been made above with respect to R&D as an important step towards enabling local manufacturing sector and facilitating ownership of IPR for the locally manufactured equipment, it may be appropriate to mention here that issues related to R&D are being undertaken by TRAI in a comprehensive manner through a separate consultation process.

2.46 **In view of the foregoing discussion, the authority recommends that**:

1. Government should establish Centre(s)of Excellence for Broadcasting and converged technologies via PPP model or upgrade the telecom centre(s) of excellence to include the focus on broadcasting technologies and equipment. Such centre(s) should have representation from MIB, academia and concerned industry stakeholders to promote research and development to harness the capabilities and opportunities present and to build new capabilities and opportunities in the broadcasting industry. In

[26] https://www.iitk.ac.in/new/collaborate-on-nextgen-broadcasting-technology

collaboration with Ministry of Electronics and Information Technology (MeitY) and Department of Telecommunications, MIB should especially focus on emerging technologies and tenets of era of convergence and aim at building an eco-system for broadcast equipment.

2. Council for Promoting Exports in the broadcasting sector is necessary. Government should focus on enabling Telecommunications Export Promotion Council (TEPC) or some similarly placed organization to also promote and facilitate exports of locally manufactured broadcast equipment. TEPC may involve representatives of MIB and stakeholders from Broadcasting Industry to improve the focus on Broadcasting equipment.

3. Telecom Engineering Centre (TEC), Department of Telecommunications should be mandated to test and standardise all the broadcast equipment. TEC should release the list of specifications and requirements to be followed in manufacturing of the broadcast equipment.

B. Issues related to STB and CAS

2.47 Lack of a local CAS is cited as a major reason amongst others for less market share of locally manufactured STBs. The current market deployment is dominated by foreign CASs. Because of the reasons of security and other techno-commercial reasons, the foreign CASs prefer to integrate with established global STB/SoC manufacturers. The local manufacturers are not able to secure similar deals with CAS/SoC suppliers due to economies of scale among other possible reasons. This affects the cost-competitiveness of the locally manufactured STBs. As mentioned in the consultation paper, the Ministry of Electronics and Information Technology (MeitY), taking cognizance of this issue, enabled the development of local CAS through a Public-Private Partnership (PPP) model which has been available for deployment since last few years. However, the local CAS has not been able to grab the market share as expected, and thereby the uptake of local STBs has not got the boost as hoped.

2.48 In the meantime, the covid-pandemic situation, with the initial lockdowns and subsequently work from home becoming the new norm, led to rapid growth in the demand for OTT services in the country. This, in turn, has engendered a shift from traditional, linear STBs to hybrid boxes. Even within linear STBs, there is an increased proliferation of HD boxes, owing to more and more content being

released in HD and newer formats. Another factor in favour of HD boxes is the reducing difference in the production costs as compared to SD boxes. Therefore, this is also the time for the local manufacturing industry to align its capabilities with the emerging market trends. Stakeholders have provided their inputs on these issues which are discussed and analysed below.

2.49 Stakeholders, in their responses have listed out factors hampering the proliferation of local STB and CAS. As far as STBs are concerned, lack of competitiveness in terms of cost and quality has been cited as one of the major reasons apart from other factors affecting market share of local STBs. Stakeholders have commented that global vendors cater to a larger market across geographies and are therefore, able to offer better terms and prices for their products to customers due to economies of scale. Further, this also enables them to control their supply requirements for components in a better way. Especially, semiconductors have a long lead time, which the international players are able to manage better, based on their demand forecasts estimated over bigger markets and volumes. On the other hand, a smaller target market and seasonality of demand prevent the local manufacturers from ensuring timely availability of parts and components, in turn preventing in committing to a firm procurement/delivery schedule.

2.50 Another constraint affecting the local industry is the lack of indigenous R&D. In majority of the cases, Indian manufacturers depend upon foreign players for the design, which affects their response times when the need for technical support arises. Moreover, this also results in their inability to keep pace with the technological evolution taking place in the sector.

2.51 ASEAN FTA allowing duty free import of STBs has also been cited as an important reason affecting the cost competitiveness of local STB. Further, availability of finance on better terms to foreign manufacturers has been mentioned as another factor resulting in non-level playing field. Few stakeholders have emphasized upon the need for hand holding and financial support for the local ODM industry to support local manufacturing. Less capacity to invest, coupled with demand seasonality and low-capacity utilization are listed as other reasons eventually resulting in limited market share of local STBs.

2.52 Regarding Hybrid/OTT boxes, one stakeholder has raised the issue of major OTT platforms imposing minimum subscription guarantees on DPOs as a condition for making their content available to the DPO. This eliminates small players from

this emerging market segment, which in turn restricts local manufacturers from entering manufacturing of Hybrid/OTT boxes as small networks are their principal buyers.

2.53 The stakeholders have also suggested measures that may be taken to encourage adoption of locally manufactured STBs/CPEs. One of the measures as suggested by stakeholders pertains to incentivization of the local manufacturers. Few stakeholders have suggested that subsidy in acquisition of land and setting up of plant and machinery should help in encouraging local manufacturing of STBs/CPEs. Tax exemption for locally manufactured STB and facilitating technology transfers through PPP model have also been suggested as useful measures. Extension of PLI scheme to STBs has been suggested as another such measure.

2.54 Some stakeholders have also raised the need for improvement in local infrastructure for creation of a level playing field. Improving the quality and availability of power, along with rationalization of its cost for industry has been suggested by one stakeholder. Need for reform of labour laws and simplification of its compliance burden, improvement of domestic supply chain, including transport have also been pointed out. Developing a local ecosystem for components and semiconductors has also been suggested as one of the measures towards this objective.

2.55 Further, one stakeholder has commented that TRAI's recommendations on Interoperability of STBs[27] can help to reduce the import of STBs and its components and give boost to Make in India.

2.56 As far as Indian CAS is concerned, the stakeholders have responded with specific observations and qualifications in the matter. Many stakeholders have emphasized that CAS is an integral component of the television distribution chain. Apart from being integrated with headend equipment and STB, it has to be also tightly and securely integrated with SoC, middleware and applications. CAS is uniquely tailored as per the DPO's requirement and once deployed in a network, it is technically infeasible to change, in addition to exorbitant costs involved. With this background, the stakeholders have further commented that when Indian CAS was developed, majority of the DPOs had already established their network and systems. This restricted the market for the Indian CAS to mainly new networks.

[27] https://www.trai.gov.in/broadcasting/stb-interoperability

2.57 Further, stakeholders have observed that a CAS integrated with multiple SoCs stands a better chance of selection as it offers wider choice of STB manufacturers and SoC producers to the DPO, which at present is lacking in case of Indian CAS. Stakeholders have also commented that due to security reasons, content providers prefer to have a field-proven solution. Moreover, few stakeholders have mentioned about support related issues in case of Indian CAS. A conflict of interest has also been pointed out as a deterrent to the wider acceptance of Indian CAS in the sense that the CAS manufacturer was also an STB manufacturer.

2.58 On the other hand, few stakeholders are of the view that the Indian ODMs have already partnered with the Indian CAS and that now it is the operators' call to buy local STBs with Indian CAS. One stakeholder has commented that looking at the strength of India in IT systems and software, having a robust Indian CAS should not be difficult and that having an entity subject to Indian laws would help in addressing issues such as piracy, under-reporting of subscriber base etc. more effectively.

2.59 Apart from the challenges, few suggestions have also been received to address the constraints besetting the Indian CAS. There are comments suggesting that the technology transfer can be facilitated by government so that local manufacturers gain access to proven technology at competitive rates. Another stakeholder has commented that making CAS independent of the STB would reduce the dependence of local STB manufacturers on foreign CAS providers. The stakeholder has opined that TRAI's recommendations on interoperability, if implemented, could serve this purpose and could give a fillip to local manufacturing of STBs.

Analysis

2.60 From the response to the consultation process, majority view has emerged in favour of maximum opportunities and potential for local manufacturing in CPE segment as compared to headend and transmission equipment. Further, with increasingly converged networks with hybrid television, broadband and data services, demands are expected to increase exponentially for Hybrid/OTT STBs and ONT/ONUs.

2.61 It is apparent that the local manufacturing sector already has capabilities for manufacturing of STBs, existing production capacity of around 20 million boxes is a testimony to this fact. Further, as the Hybrid/OTT STBs and ONT/ONU

manufacturing have a lot in common with RF STBs, upscaling the production facilities to this emerging product segment should not be a major challenge for the local manufacturing sector. As has been pointed out in the stakeholder comments, only some upscaling including some additional test equipment may be needed.

2.62 However, it emerges from the stakeholders' comments that lack of competitiveness in terms of cost and quality acts as impediments for the Local STBs in gaining larger market share. Further, lack of indigenous design & IPR ownership and inability to keep pace with the technological evolution have been attributed as factors that need to be addressed appropriately to promote local manufacturing sector.

2.63 Further, besides the local manufacturers gearing up for production of Hybrid/ OTT boxes, it is important to address the issue of classification of Hybrid STBs under appropriate HS Code. With the hybrid boxes providing dual functionality viz. reception of broadcast television signal and internet access for streaming OTT content, the argument that the primary function of the device is the same as the RF STB with the internet access being an additional feature needs appropriate consideration. Further there is the issue of clarity regarding tariff classification of ONT/ONUs. Stakeholders' inputs reveal that the ONT/ONUs are at present primarily procured through import. In view of the increasing demand of these devices in the increasing converged environment, removal of any ambiguity regarding classification of these devices needs priority attention, in order to provide a level playing field for local manufacturing of ONT/ONUs as well as STBs. The issue of HS classification has been dealt in detail under the subsequent section on miscellaneous issues.

2.64 In addition to lack of local R&D ecosystem, impact of FTAs including the agreements with ASEAN countries also affect the cost competitiveness of local STBs. Another factor creating impediments in the local manufacturing of CPEs is lack of local ecosystem for parts and components.

2.65 On the positive side, it is encouraging to note that despite challenges, a trend for Make in India boxes has already started. As per many stakeholders, local manufacturing industry has improved considerably in terms of STB manufacturing over the years. Many players, especially the DTH operators, have already started shifting manufacturing of their boxes to India and local manufacturing of STBs can continue an upward trend in the coming times. In fact, one of the stakeholders, in its response to the consultation paper, has

projected to achieve manufacturing of more than 50% of their STBs in India by end of FY 2022. The stakeholder has also affirmed rolling out of India made high end hybrid STBs in Q1 of 2022.

2.66 Authority has taken note of the diverse inputs received on the pertinent issues covered under this section. In order to capitalize on the existing capabilities for manufacturing of STBs and with a long-term view, it is important to develop a local ecosystem for parts and components. Further, it is also important to have indigenous R&D ecosystem to enable local manufacturing sector to keep pace with technology. This would also be a prerequisite for the local manufacturing sector to expand their reach to markets outside India. As has been suggested, a phased approach may be adopted, starting with growing markets in Southeast Asia, Africa, Latin America. The responsibility to lead such R&D work may be entrusted to a government research centre in the lines of Centre for Development of Telematics (C-DOT) for the Telecom sector. Alternatively, a research centre with industry participation or a parallel approach may also be explored as strategy.

2.67 It may be noted here that Defence Research Development Organisation (hereinafter DRDO) released 'DRDO Guidelines for Transfer of Technology' were issued on 30th June 2015. The objective of Transfer of Technology (ToT) policy is to disseminate DRDO developed technologies through a framework that ensures seamless transfer of technology to industry(ies) to boost the growth and capabilities of defense manufacturing sector for achieving complete self-reliance.[28] The process provides a mechanism of 'Go to Market' strategy for products/ technologies developed by DRDO. Similar 'Go to Market' strategy may be considered for products developed through R & D initiative as proposed in previous paras.

2.68 It is important that R & D initiatives are provided with the requisite monitory support. MIB receives various fees including the license fee from DTH operators. Different ministries/ departments carve out specific portion of revenues for promoting the growth of the sector. For example Department of Telecommunication has created 'Universal Service Obligation Fund' (USOF). Primarily USOF has been established *to support the provision of telecom facilities in rural and remote areas of the country*. However, inter-alia, USOF also supports developmental projects under its function '*Leveraging of innovative and emerging*

[28] https://www.drdo.gov.in/sites/default/files/inline-files/DRDO%20Policy%20%26%20Procedure%20%20for%20ToT.pdf

new technologies'[29]. MIB may also examine to create a 'Technology Development Fund' from its license fee or other revenues. This fund can be, inter-alia, used for promoting development of products suitable for broadcasting sector in India.

2.69 With regards to CAS, the Authority has taken note of the issues highlighted about the local CAS. The Authority agrees that at all times, CAS should be compliant to all technical parameters and standards as may be issued by the Authority from time to time and should also be compliant to a uniform testing and certification mechanism as notified by the Authority vide the Telecommunication (Broadcasting and Cable) Services Interconnection (Addressable Systems) (Third Amendment) Regulations.[30] At the same time, India has been witnessing a growing demand for online digital content which is apparently a universal trend. This has led to the emergence of converged services, being delivered by hybrid STBs which deliver both the digital online content as well as the linear television broadcast to the consumer. In this era of convergence, there is a need of converged protection as well, which is provided by Digital Rights Management (DRMs). Notably, DRMs require a two-way path which is available in internet-based connectivity but not in DTH connections. However, cable TV and IPTV can provide the connectivity required for DRMs. Though DRMs cannot be expected to replace CAS completely in the near future, but the dependence on CAS (especially foreign CAS), which has been cited as a constraint for local manufacturers can be expected to reduce over time.

2.70 MeitY helped in development of Local CAS. However, uptake of the LOCAL CAS is still limited. Government may consider incentivizing the Distributors (Multi System Operators, DTH Operators etc.) for deploying Indian CAS. The suggested empowered committee may examine this issue and prepare appropriate incentive structure.

2.71 The Authority has taken also note of the stakeholders' comments on common measures for all equipment like tax benefits for local manufacturers of broadcasting equipment, higher import duties on finished products, skill development equipping the local manufacturers, R&D initiatives for making the industry competitive etc. PLI scheme and other policy measures of the government are covered in the subsequent sections.

[29] Functions of USOF: https://usof.gov.in/functions
[30] Available at: https://www.trai.gov.in/sites/default/files/Regulation_11062021.pdf

2.72 **In view of the foregoing, the Authority recommends that:**

1. To promote manufacturing of local broadcasting equipment, MIB may consider appropriate measures for developing local R&D ecosystem as enumerated below:

i. **Strengthen existing R&D Centres in public sector, such as C-DOT. MIB should consider appropriate target-based grant to C-DOT at least for 3 years for R&D work in support of local manufacturing of broadcasting equipment. Besides developing STB/ Hybrid-OTT STB/ CAS/ ONT/ ONU such R&D should include, emerging technologies in the era of convergence and 5G broadcasting as well**

ii. **MIB should also examine development of local R&D ecosystem along with industry participation through PPP route.**

iii. **MIB should create 'Technology development Fund' to promote R&D and development of local products/ technologies for Broadcasting Sector.**

iv. **Government should formulate a scheme to incentivize use of local CAS through an incentive structure for Distribution Platform Owners (Multi Systems Operators/ DTH Operators / HITS operator etc.)**

v. **In order to oversee and review outcome of such measures to promote R&D and standardisation, a Standing Empowered Committee headed by Secretary MIB along with members from MeitY, C-DOT, C-DAC, BECIL, TEC should be constituted.**

2. A go-to market strategy may also be adopted for the products developed through local R&D. MIB should designate an agency (e.g. BECIL) to develop appropriate modules and guidelines in the lines of 'Policy on Transfer of Technology' by DRDO for skill development and technology dissemination to different stakeholders in the manufacturing and distribution value chain.

C. Constraints faced by the sector and suggested remedial policy measures.

2.73 As per the estimates shared in the consultation paper, yearly import of equipment in the television broadcasting sector amounts to more than USD 20 billion. While it may include some of the imports pertaining to the telecom sector also, especially the transmission equipment which are common to both the sectors, yet the imports reveal a huge market worth being explored. While there

exists a local production capacity of around 20 million Set Top Boxes, the utilization levels remain quite low. The consultation paper has touched upon the reasons behind the heavy imports and various policy initiatives launched by the government of India for promoting local manufacturing and sought to understand their effectiveness through stakeholders' feedback. Stakeholders were invited to also comment upon other constraints and issues if any, that impact the market share of the local manufacturing sector.

2.74 Many stakeholders, in their comments/counter-comments and in OHD have talked about the existing gaps in the policy measures for local manufacturing in the television broadcasting sector. There is a common view among stakeholders that existing policy measures have not been adequate in promoting local manufacturing in the sector.

2.75 The stakeholders have emphasized the need for bringing changes in the existing PLI scheme to further the promotion of local manufacturing in television broadcasting sector. All the stakeholders have opined in favour of including broadcasting equipment, especially STBs, under either the existing PLI scheme for telecom equipment or initiating a separate PLI scheme for broadcasting equipment.

2.76 Few stakeholders have even discussed the specifications of the PLI scheme that are compatible with current market opportunities. One of the stakeholders has submitted that the Government should incentivize the domestic manufacturers by providing an incentive to the tune of 5.00% - 10.00% of net sales turnover for a period of five years from the date of commencement of commercial manufacturing and indigenous production. Another stakeholder suggested that the investment under PLI scheme should be reduced to Rs 5 crore for MSME as higher investment is not required for manufacture of Hybrid/OTT STBs and ONT/ONU.

2.77 Few comments contain the view that the PLI scheme should not provide incentive to EMS companies based on turnover, rather it should provide incentive to the manufacturers who develop the product and then get it made in India. Otherwise, it will promote local assembly of broadcasting equipment instead of promoting local manufacturing of broadcasting equipment. Along similar lines, another comment suggests that giving the benefits of PLI scheme to the developing company who has the IPR will encourage them to continue investing in more products and to give their software support to the customers.

2.78 Focus of stakeholders in the comments has been majorly received on STBs as OLT and ONT/ONU are already covered in the PLI scheme for telecom equipment. Stakeholders' comments states that overall domestic contribution in manufacturing of a set-up box is around 28% only. Stakeholders have submitted that there is a disability to the tune of 7-11% in the local manufacturing of set-up boxes when compared with their imports from countries like China. This disability has been calculated by comparing the cost of depreciation, subsidies available on capital and exports of components etc. in India and China. It has been mentioned that cost of depreciation cost is nil in China as most of the cost have been fully depreciated over time and hence creates the disability to the tune of 2-3% to Indian manufacturers. W.r.t the cost of capital, comments suggest that government subsidy in China is more upfront than linked to revenue. Though, this is hard to estimate at generic product level, it has a typical impact of 3~5% on earnings before taxes. The contribution of PCBA in overall manufacturing of set-up box is around 60% and owing to lack of ecosystem in India, it is largely imported. Due to the subsidies offered by China on exports of component manufacturing and custom duty imposed by India on imports of such components, the cost disparity to Indian manufactures is around 2-3%.

2.79 However, few stakeholders have also noted that local manufacturing of STBs is speeding up in India and hence, PLI should focus on component manufacturing. Few comments point out that headend equipment and CAS may be covered under PLI scheme once Indian manufacturers are in a position to supply them.

2.80 The stakeholders in the comments have also suggested that there should be Procurement Linked Incentive schemes as well to incentivize buyers. This is advantageous to eventually support local manufacturing and encourage localization.

2.81 Apart from this, some of the stakeholders' comments also suggest for incentives in the form of reduced taxes on domestically manufactured products and higher import duties on finished products. This will encourage the buyers to purchase from Indian manufacturers who procure and locally assemble the finished products and will provide an impetus and an edge to such manufacturers over foreign products that are not deploying local resources in the country. One comment also suggests that special financial assistance from external agencies like India Infrastructure Finance Co, IDFC etc. be extended to broadcasting sector.

2.82 Majority of the stakeholders have emphasized on the need of developing a local component ecosystem in the television broadcasting sector in India with necessary manpower, cost, quality, scale and incentivization. Few stakeholders have commented that performance of broadcasting equipment also depends on the quality of the components.

2.83 As mentioned earlier, STB manufacturing involves semiconductors which have a long lead time and international manufacturers keep them on long orders based on forecasts and estimations from their clients, as they are catering to different and large markets and thus can afford to place long term orders for the semiconductors and passive devices which local manufactures are unable to and thus commit to a firm delivery schedule. As also mentioned above, it has been suggested by a few stakeholders that the TRAI recommendations on Interoperability of Set Top Box, if implemented by MIB, will help reduce the imports of the STBs and its components.

2.84 Some stakeholders have mentioned entry barriers/constraints for local manufacturers of components, like the ability to invest in the procurement of the components in anticipation of the orders, needed investments in developing the products and owning the IPR in the components. Role of Indian ODMs have been mentioned in few comments to compete with the prices offered by international players.

2.85 Financial incentives, as available to the foreign manufacturers, have been cited as examples in few comments for promotion of local manufacturing of components. For instance, credit insurance has been mentioned by few stakeholders by way of which supply can be facilitated by giving adequate credits as in case of international manufacturers with cost-competitive components. Other forms of financial incentives suggested by stakeholders include access to working capital at reasonable terms, letters of credit for long-term ordering of the components and facilities of credit guarantee by banks etc.

2.86 While many stakeholders have commented for focus on manufacturing of semiconductors and chipsets, considering their importance in the equipment manufacturing ecosystem, few have also commented on making these components more readily available in the local markets with incentivization by way of lowering taxes and import duties. Further, few suggestions in the comments mention developing an ecosystem where the components like PCB, cables, power supplies, cabinets, packing materials etc. are available in the vicinity of the manufacturing cluster, so that inventory timelines are met. It has

been mentioned by some of the stakeholders that most of the ecosystem and capacity for manufacturing of components and semiconductors exists in China and relocation of the investments from China to India is one of the biggest disabilities. Some of the comments also suggest for incentives to promote product design by promoting independent design houses and testing labs with validation services.

2.87 W.r.t. ancillary industries like molding, castings, cables and connectors, stakeholders have mentioned that while injection molding machines are available in India, most of the tool design and tool making work is being done in China. In large scale manufacturing like Automobiles, these industries are like integrated clusters of Auto brand. However, for consumer electronics like STB, there are no brands in India, and hence there are no active clusters. Promoting molding and design tool rooms has been suggested as one of the measures to incentivize this industry.

2.88 A few stakeholders in their comments have listed the components for which local manufacturing capacity exists. It has been suggested that the import of populated boards, adapters, remote controls, plastic casings should be discouraged since indigenous capacity exists for these items. Further it has been mentioned that components like bare PCB boards, electronic components, Wi-Fi antennae and other specialized items should be permitted for import under nil customs duty since indigenous capacity for these items does not exist. Some stakeholders have suggested to aim for local capabilities in high value-add components like SoC and CPU ICs first. Suggestions also include testing and standardization of the components by a standards body so that local manufacturers of equipment may directly purchase from the approved manufacturers of components.

Analysis

2.89 As mentioned in the consultation paper, numerous policy measures have been launched under the umbrella of initiatives like Make in India, AtmaNirbhar Bharat Abhiyan etc. However, it emerges from the stakeholders' response that there may be a need to have specific focus on the television broadcasting sector to promote local manufacturing. The need for this arises from the kind of enablement and incentivization available to international manufacturers in foreign countries in this sector. Further, the policy initiatives should be flexible in view of the continuous evolution of technology and should encourage development of new technologies.

2.90 In 2020, the Union Cabinet had given its approval to introduce the PLI Scheme worth INR 1.46 lakh crore in 10 key sectors for Enhancing India's Manufacturing Capabilities and Enhancing Exports under AtmaNirbhar Bharat Abhiyan. Department of Telecommunications, Ministry of Communications, in its Guidelines for Production Linked Incentive (PLI) Scheme for promoting Telecom and Networking Products Manufacturing in India, dated 3rd June 2021, has issued the list of Telecom equipment which are covered under the PLI scheme.[31] The list includes a few types of equipment such as OLT, GPON, ONT, etc., which may also be used in the cable broadcasting distribution network. However, the PLI scheme is product specific and no such guideline specific to the broadcasting sector has been issued to date.

2.91 The electronics manufacturing sector suffers a disability of around 8.5% to 11% due to lack of adequate infrastructure, domestic supply chain and logistics, high cost of finance, inadequate availability of quality of power etc. It has been discussed in Part D of this recommendation under 'Logistics and Related issues' that such issues apart from others are faced by broadcast equipment manufacturing industry as well. The authority is of the view that there should be a specific PLI scheme for broadcasting equipment also.

2.92 The Authority has noted that the challenges for local manufacturing in Broadcasting sector are similar to the telecom equipment manufacturing. At a broader level, the challenges of electronic manufacturing are common to both telecom and broadcasting sectors. MeitY has already rolled out specific PLI schemes to promote local manufacturing providing incentives of 4 to 6%. Similarly, DoT has also rolled out specific PLI schemes to promote local telecom equipment manufacturing. As per DoT's PLI scheme, the applicable incentive percentage for MSMEs will be 7% for Year 1 & Year 2, 6% for Year 3, 5% for Year 4 and 4% for year 5 on eligible sales over the base year. For category other than MSME, the applicable incentive percentage will be 6% for Year 1 & 2, 5% for Year 3 & 4 and 4% for year 5 on eligible sales over the base year. As per available information, these schemes have evinced keen interest of entrepreneurs and investors. MIB may also design suitable PLI scheme on similar lines in respect of broadcasting equipment including Set Top Box.

---

31 https://dot.gov.in/sites/default/files/2021_06_03%20PLI%20Scheme%20Guidelines%20for%20Telecom%20%26%20Networking%20Product.pdf

2.93 Notably, with the emergence of converged services in the television broadcasting sector, driven by increasing demand for online digital content, hybrid Set-Top-Boxes are now becoming increasingly popular. Moreover, such boxes contain part of the functionality of telecom service as well as they enable internet access for viewing digital online content, in addition to performing the function of conventional Set Top Box. In a recent notification, DoT has included such hybrid/ internet set top boxes in the list of products eligible for PLI scheme.[32]

2.94 **In view of the foregoing, the Authority recommends that:**

1. **Linear Set Top boxes should be brought under PLI scheme. On the basis of the disability in local manufacturing of set top boxes, MIB may decide suitable rate of incentive to be provided under PLI scheme, in line with the incentives being provided by other Ministries. Also, the Standing Empowered Committee should examine demand potential of other broadcasting equipment, including its latent export demand, if any. Equipment having adequate demand potential may be brought under PLI scheme to promote local manufacturing of such equipment.**

2. **The Empowered Committee should periodically review the availability of indigenous components required for broadcasting equipment including chipsets. The availability of local components shall be taken into consideration while setting the localisation levels under the PLI scheme. The Committee should also periodically review the local availability of components and revise the localisation levels under the PLI scheme accordingly.**

3. **The empowered committee should periodically review the investment outlay required for obtaining benefits under the PLI scheme with a view to promote manufacturing by MSME for some selected equipment as may be identified from time to time.**

2.95 The Information Technology Agreement (ITA), which is a plurilateral agreement of WTO in the field of IT products, covers a large number of high technology products. It includes computers, telecommunication equipment, semiconductors, semiconductor manufacturing and testing equipment, software, scientific instruments, as well as most of the parts and accessories of

[32] https://dot.gov.in/sites/default/files/Design%20led%20manufacturing%20under%20Telecom%20PLI.pdf?download=1

these products. As a result, the import costs became lower than the local manufacturing costs for many products.

2.96 Further, National Policy on Electronics 2019 aims to position India as a global hub for ESDM. It focusses on encouraging and driving capabilities in the country for developing core components, including chipsets, and creating an enabling environment for the industry to compete globally.

2.97 Local manufacturing of components will help incentivize localization levels of different equipment categories in the sector which are currently being mainly assembled in India. Hence, it has been suggested that the components for which local manufacturing capacities exist in India, measures must be taken to promote their local manufacturing. However, for components for which local capacity does not exist, financial incentives like a credit guarantee scheme shall be provided. This will make it feasible for the local manufacturers to plan procurement of components in time and make long term investments on developing the broadcasting equipment with availability of working capital. Further, promotion of local manufacturing of components should also factor in the life cycle and procurement cycle of different types of components/equipment.

2.98 Another major issue faced by local entities in manufacturing the STBs is the current global shortage of chipsets. Also, most of the components and semiconductors are imported from China, Taiwan and Korea.

2.99 As mentioned in CP, the Scheme for Promotion of manufacturing of Electronic Components and Semiconductors (SPECS) was notified on April 01, 2020 which will provide a financial incentive of 25% on capital expenditure for the identified list of electronic goods that comprise the downstream value chain of electronic products, i.e., electronic components, semiconductor/display fabrication units, ATMP units, specialized sub-assemblies, and capital goods for manufacturing of the aforesaid goods, all of which involve high value-added manufacturing.

2.100 In December 2021, India's Union Cabinet approved the Semicon India Program (Program for Development of Semiconductors and Display Manufacturing Ecosystem in India), with an outlay of INR 760 billion for the development of a sustainable semiconductor and display manufacturing ecosystem in India. This includes multiple incentives like the "Design Linked Incentive (DLI)" which shall extend product design linked incentive of up to 50% of eligible expenditure and product deployment linked incentive of 6% - 4% on net sales for five years. Support will be provided to 100 domestic companies of semiconductor design for Integrated Circuits (ICs), Chipsets, System on Chips (SoCs), Systems & IP Cores

and semiconductor linked design and facilitating the growth of not less than 20 such companies which can achieve turnover of more than Rs.1500 crore in the coming five years.

2.101 These new incentives will be in addition to the support for supply chain segments getting benefits from existing Production-Linked Incentive (PLI) Schemes and electronics manufacturing schemes.

2.102 **In view of the foregoing, the Authority recommends that:**

MIB should promote local manufacturing of other relevant components (as may be identified by the Standing Empowered Committee) of the television broadcasting sector along the lines of Semicon India Program, so as to enable development of local ecosystem for manufacturing of television broadcast equipment.

D. Miscellaneous Issues

2.103 **No definitive scope of 'local manufacturing'**

The stakeholders' comments affirm that there is heavy reliance on imported equipment in the television broadcasting sector, due to which self-sufficiency is not present in different stages of local manufacturing.

Further, the term 'local manufacturing' itself has different interpretations as per the existing manufacturing practices in the television broadcasting sector of India. Suggestions have been made in the comments that 'local manufacturing' in the television broadcasting sector should be associated with a percentage of locally sourced components/services, subject to increasing this percentage every year. Many stakeholders have opined that mere assembly of components should be discouraged in the long-term interests of local manufacturers in the television broadcasting sector. In line with 'vocal for local', stakeholders' emphasis has been on production of components on the Indian soil instead of importing the same to assemble here.

As per the current market trends, it seems that the term 'local manufacturing' in this sector has been mostly reduced to 'assembly' of imported components either in Semi-Knocked Down (SKD) or Completely Knocked Down (CKD) form. There may be negative repercussions to this as these practices lean more on 'assemble in India' rather than 'Make in India' leading to significantly low local value addition. Given that there is low value addition by the local manufacturers in SKD/CKD forms, it

is stated by few stakeholders that the same should not be interpreted as 'local manufacturing' in India.

Few stakeholders have even voiced for outright ban of import of equipment in SKD forms. While there are mixed opinions, the majority believe that incentivization should not be allowed for imports made in SKD/CKD forms. However, few stakeholders have favoured CKD assembly with the condition that the import of components like populated boards, adapters, remote controls, plastic casings etc., for which indigenous manufacturing capacity exists, should be discouraged.

2.104 **Impact of Imports and International Obligations**

Stakeholders have cited duty-free imports of STBs under ASEAN FTA by large operators as one of the main reasons for the limited market share of local STBs. Some stakeholders have suggested to review the provisions of such treaties which are being misused/manipulated by certain international players. It has been suggested in the comments that the process of claiming the FTA benefits should be made more robust. Few stakeholders have suggested that Hybrid STB and ONT/ONU should be kept out of the purview of FTA agreements to provide a fair opportunity to the local manufacturers to be competitive in this growing market segment. On the other hand, one comment suggests that post customs notification dated 21st September 2020; FTA benefit is practically not there, and it creates huge financial exposure and procedural delays.

In this regard few stakeholders have also commented that the FTA cannot be wished away as they have far-reaching impacts on Indian exports. Some stakeholders have further stated that there should not be any intervention with the benefits that are available to the stakeholders on account of India being a signatory to the FTAs. The comments state that instead, the Government should undertake distinct and independent measures to develop a sustainable business and technological ecosystem in relation to broadcasting and cable television sector.

The Open House Discussion witnessed majority of the participants agreeing on the point that the international obligations of India as per the treaties/agreements cannot be reviewed or amended on a short notice, as such deliberations take time. Further, it was pointed out in OHD that few countries have natural advantage in terms of availability of raw materials which should be kept in mind with such international obligations.

2.105 **Logistics and related issues**

Stakeholders have commented on the issues related to freight and logistics costs in India, as well as challenges in availability of quality power, land, and labour at affordable rates as these create impediments in local manufacturing in the television broadcasting sector. Stakeholders' comments state that in order to promote local manufacturing, the government should ensure availability of basic infrastructural resources at economical costs, to help domestic manufacturers compete in global market and keep pace with evolving technologies to meet global standards.

It has been pointed in the comments that the cost disparity, primarily in logistics and supply chain exist due to cost of local transportation in the distributed supply chain, lack of common/bonded warehouse at low cost and work hours of employment for direct labour in cases of seasonality of demand.

Some stakeholders have suggested for incentivization measures such as providing land at subsidized rates to the local manufacturers, introducing one-time reimbursement of stamp duty and registration charges paid with respect to lease/purchase of land, introducing one-time reimbursement of land conversion fee payment that may be applicable for converting land from agricultural use to industrial use, separate subsidy on plant, power and machinery for manufacturers engaging in local manufacturing, and rationalizing cost of power for industries.

2.106 **Issues related to HS codes**

Some stakeholders have pointed out certain issues related to the HS codes of the equipment/components in the television broadcasting sector. It has been stated that since a Hybrid STB has a dual function, i.e., it decodes RF and provides internet access as well, therefore, either of HS Code 85287100 or HS Code 85176960 can apply to it. However, under the latter, the customs duty is nil. A suggestion can be seen in the comments that a Hybrid STB should be classified under HS Code 85287100, the same as the RF STB stating that the dominant function of the STB is as described under HS Code 85287100. An alternate suggestion has been made for a specific classification to be created for Hybrid STBs.

Further, a few comments mention that the tariff classification of ONT/ONU is not clear, and it is being cleared currently under various classifications including HS Code 85176950 under which the duty is nil. It has been suggested to remove this ambiguity.

2.107 **Issues related to grey market of STBs**

Few stakeholders have raised concerns related to the import of FTA STBs/ parts of STBs from various countries by under invoicing the equipment and its parts and importing under some different nomenclatures where the custom duty is minimal and/or nil, thereby avoiding payment of applicable duties and taxes to Government. These parties are importing STB parts in SKD form. These parts are then assembled locally and the final/finished product i.e., STBs/digital decoders are made available for sale in the market without payment of applicable GST and other applicable taxes. The comments highlight this deceitful way to evade payment of relevant duties and taxes.

Further, the issue of smuggling of STBs and its components has also been raised in the stakeholder's comment. It is stated that the payment of such STBs and its components is made in cash through Hawala route where the income is not accounted for. Such traders are also not registered with the competent authorities in accordance with the extant laws of India. Few comments mention that many dealers in the country are selling the STB under multiple brand names. All such illegal practices add to the challenges for local manufacturers, in addition to causing huge loss to the exchequer in the form of evasion of applicable taxes and duties.

Analysis

2.108 The miscellaneous issues narrated above cover the rest of the points raised by the stakeholders in the comments/counter-comments and during their participation in the OHD.

2.109 When we discuss the scope of local manufacturing, it is important to understand the different practices used by the local manufacturers in the television broadcasting sector. As mentioned in the Consultation Paper and supplemented by stakeholders' comments, various forms and practices in vogue in the sector in this regard are as follows:

(a) **Completely Knocked Down (CKD):** In this form, the parts or components of the broadcasting equipment are imported from another country where they are manufactured. Majorly all the essential components are imported in a complete kit with nothing pre-assembled, to India for final assembly. With the increase in CKD assembly, demands for local components may see a rise. Even a shift from SKD to CKD forms shows inclination towards more value-added content. However, local

manufacturing of such components may take time in India with key factor being scale of operation along with other factors.

(b) **Semi-Knocked Down (SKD):** SKD form can be seen as a middle ground between CKD and CBU where the kit resembles partly built/assembled components thereby reducing labour and quality checks which in turn leads to import duties higher than CKD but lower than CBU units.

(c) **Completely Built-up (CBU):** As the name suggests, CBU units are assembled equipment imported in India, ready to be sold as final products. It is known that CKD forms attract lesser import duties/ taxes as per the rules for customs in India. However, despite heavy import duties on CBU forms, certain high-end equipment is imported in CBU units because setting up local manufacturing or assembly plants becomes more expensive in these cases and hence, it becomes cheaper to import CBU units instead of CKD or SKD. This is, however, applicable to only certain equipment.

2.110 As stated in previous sections, most of the broadcasting equipment are currently imported in SKD or CKD forms. This results in the majority of the components being already present in the pre-assembled kit leading to last mile assembly. In due course of time when local manufacturing industry would gain adequate capacities for manufacturing of majority of components of the equipment in the television broadcasting sector, rules of customs may be revised to reduce the preferential treatment to CKD and SKD forms as suggested by many stakeholders. But as far as SKD or CKD forms are considered, it is also vital to understand the nascent development stage of the Original Equipment Manufacturers (OEMs), Original Design Manufacturers (ODMs) and local component manufacturers in the Indian market. A new or emerging market needs to grow its local manufacturing base once the demands and opportunities are established in the local markets, in tandem with the necessary initial supply from pre-existing foreign markets. India is gradually picking up pace in the promotion of local manufacturing and the government is also focused on the electronics manufacturing with numerous policy initiatives.

2.111 While analyzing the scope of "local manufacturing" it may be prudent to examine the manner in which the related terms are interpreted by different organizations/bodies. Firstly, TRAI in its Recommendations on "Promoting Local Telecom Equipment Manufacturing" dated 03.08.2018 had recommended for the following classification of all telecom products meant for use in the telecommunication network or by consumer and marketed in the country:

(a) **Fully finished imported products:** This category of products is manufactured by foreign registered companies using hardware designs and software technologies developed outside India and have high level of value addition outside India.

(b) **Indigenous products:** This category of products is designed and/or manufactured in India by the companies registered in India. Since the ambit of such products would be large, there would be a need to create more granularities in this classification as mentioned below:

(i) Made in India Products – Using designs of foreign registered companies, this category of products is manufactured in India by companies registered in India. Such products have imported sub-systems, which use HW and SW technology developed outside India and have very low level of value addition in India.

(ii) Designed in India Products - Products designed by India registered companies but manufactured outside India.

(iii) Designed and Made in India Products – Products designed and manufactured by the India registered companies in India.

2.112 Further, Ministry of Electronics and Information Technology (MeitY) vide the Public Procurement (Preference to Make in India) [PPP-MII] Order 2017 along with its subsequent revisions/notifications defined the scope of 'local content' and the percentages of 'value addition' as the qualifying conditions for different products under the said order.[33] This Order was issued to encourage 'Make in India' and to promote manufacturing and production of goods, services and works in India with a view to enhance income and employment. This is applicable for procurement by Ministry/Department/attached/subordinate office of, or autonomous body controlled by, the Government of India and includes Government companies as defined in the Companies Act.

2.113 Vide the revised 'Public Procurement (Preference to Make in India), Order 2017' dated 16.09.2020, "local content" has been defined as:- "Local content means the amount of value added in India which shall, unless otherwise prescribed by Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in per cent."

[33] https://www.meity.gov.in/esdm/ppo

2.114 In procurement of all goods, services or works in respect of which the Nodal Ministry/ Department has communicated that there is sufficient local capacity and local competition, only 'Class-I local supplier', as defined under the Order, shall be eligible to bid irrespective of purchase value. Classes of Local Suppliers based on local content as per the revised PPP-MII Order dated 04.06.2020 issued by the Department for Promotion of Industry and Internal Trade (DPIIT) are as under:

(a) **Class-I Local supplier** - a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%.

(b) **Class-II Local supplier** - a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%.

(c) **Non-Local supplier** - a supplier or service provider, whose goods, services or works offered for procurement, has local content less than or equal to 20%.

2.115 Only 'Class-I local supplier' and 'Class-II local supplier' shall be eligible to bid in procurement of all goods, services or works, and with estimated value of purchases less than Rs. 200 crore.

2.116 Paragraph 5 of the revised 'Public Procurement (Preference to Make in India), Order 2017' dated 04.06.2020 (with reiteration in subsequent revision dated 16.09.2020) states that these definitions are not permitted to be changed. However, if any nodal Ministry/Department finds that for any particular item, pertaining to their nodal ministry/department, the definition of Local Content, as defined in the Order, is not workable/has limitations, it may notify suitable mechanism for calculation of local content for that particular item. In furtherance of the aforesaid revised PPP-MII Order dated 04.06.2020, MeitY has notified the mechanism for calculation of local content for 13 Electronic Products like Desktop PCs, Thin Clients, Computer Monitors, etc. vide Notification No. 43/4/2019-IPHW-MeitY dated 07.09.2020.

2.117 As also mentioned in the consultation paper, further to the Public Procurement (Preference to Make in India), Order 2017; DoT had notified a list of telecom products, services, and works which have sufficient local capacity and local competition vide notification dated 29th August 2018. The said list of products included Set-Top boxes along with its Preference to Make in India (PMI), i.e., 50%

(2019-20) and the Local Content (LC), i.e., 55% (2019-20). However, vide the latest notification by DoT dated 31st August 2021 in supersession of the earlier notifications, the list of products has been revised. The revised list does not include set-top boxes.

2.118 The latest notification also revised the definition of local content for certain components/equipment. The notification clarified that if Printed Circuit Board Assembly (PCBA) and testing from imported/domestically manufactured parts and components using Surface Mounting Technology (SMT) process is done in India, then imported/domestically manufactured parts and components will be qualified for the purpose of Local Content. This shall be reviewed when the semiconductor Fab in India is operational. It is interesting to note that with the above latest developments, the listed products in the latest notification would qualify as local products even if they use imported components for domestic manufacturing given all the conditions under the Order are met.

2.119 It is reasonable to deduce that the local content in different products may vary as per the policy measure and the trends in that sector. Television broadcasting equipment may have varied local content depending on the available resources, opportunities and potential for local manufacturing of the specific product in question. Other government bodies like MeitY and DoT have set certain examples in this regard. Taking these and other relevant considerations in cognizance, the scope of "local manufacturing" may be appropriately defined for the television broadcasting sector.

2.120 **In view of the foregoing, the Authority recommends that:**

MIB should consider to define the scope of 'local manufacturing' for different equipment categories in the television broadcasting sector in terms of the percentage of the locally sourced components/services. The requirements of localisation as specified under the PLI scheme or any other incentivization scheme should be specified with reference to the local availability of the components. The Standing Empowered Committee should periodically review the availability of local components and its scope.

2.121 Regarding the issue of international obligations, it emerges that because of India being a party to ITA (Information Technology Agreement), WTO treaties, and Foreign Trade Agreements (FTA), the import costs became lower than the local

manufacturing costs for many products. Under ITA-1, each member agreed to eliminate customs duties and other duties and charges of any kind within the meaning of Article II, clause 1 (b) of Central Agreement on Tariff and Trade, 1994. India joined ITA on 25th March 1997. 217 tariff lines were brought down to zero since 2005, which has resulted in acceleration of ITA imports.[34] India had become party to a Free Trade Agreement (FTA)/Preferential Trading Agreement (PTA) with multiple countries and more negotiations in the form of agreements were in place in which the electronics hardware from these countries shall be imported at a preferential rate of duty, which is lower than the usual rate of tariff. FTAs signed by India are with production-driven economies like Taiwan and Japan.[35] Consumer electronics and home appliances are facing an inverted duty structure due to the introduction of FTAs, where the finished product is imported at 0 per cent concessional import duty, while components import attract around 7.5 per cent to 10 per cent customs duty, thus making the final product more costly than the imported product. As far as the granularity in the inverse duty infrastructure is considered, it is being discussed in separate consultation paper by TRAI.

2.122 Imports from ASEAN countries (primarily Vietnam and Thailand) cover a large percentage of the Indian STB procurements. However, the reported manipulation by manufacturers of certain countries to exploit the ASEAN FTA by simply shifting their manufacturing base to ASEAN countries, without doing prescribed level value addition in those countries as per provisions of the India-ASEAN FTA is a matter of concern and needs to be examined.

2.123 **In view of the foregoing, the Authority recommends that:**

MIB should engage with the Ministry of Commerce through the Empowered Committee and carry out a comprehensive review of the FTAs and such agreements with regard to their impact on local manufacturing in the television broadcasting sector and evaluate:

i. the need for any amendments in the existing agreements,
ii. the need of setting sunset date for the extant provisions,

[34] Available at: https://www.wto.org/english/tratop_e/inftec_e/itaintro_e.htm
[35] PricewaterhouseCoopers (PwC) and Consumer Electronics and Appliances Manufacturers Association (CEAMA) Report on Future of consumer durables and electronics in India: the changing landscape, 2018

iii. to work out factors to be taken into consideration in future while entering into such agreements, to suitably protect the interests of the local manufacturing sector.

The market trends, international obligations, and diplomatic necessities may be taken into consideration while carrying out such a review.

2.124 Some stakeholders in their comments have cited various logistics related issues in the local manufacturing of television and broadcasting equipment. An examination of the comments reveals that the issues raised are general in nature and applicable to the entire local manufacturing industry regardless of any specific sector. It is noted that the government is already running various schemes for promotion of local manufacturing which directly or indirectly aim at ease of doing business such as 'AtmaNirbhar Bharat Abhiyan', Make in India scheme for MSMEs, etc.

2.125 It is also worth noting here that a "Logistics division" has been created in the Department of Commerce on 7th July 2017, that has been given the mandate to develop an Action Plan for the integrated development of the logistics sector in the country, by way of policy changes, improvement in existing procedures, identification of bottlenecks and gaps and introduction of technology in this sector.

2.126 Logistics division has also planned to create an IT backbone and develop a National Logistics Information Portal which will also be an online Logistics marketplace that will serve to bring together the various stakeholders viz. logistics service providers, buyers as well as Central & State Government agencies on a single platform. The planned activities of the Logistics division shall have an impact not only on the domestic movement of goods by bringing down the overall cost and increasing the speed and ease of goods movement, but shall also contribute towards making Indian goods more competitive in the global market."

2.127 Along with the above, state governments at their levels have also launched schemes to enable local industries through various measures. For instance, the State of Uttar Pradesh has granted facilities to industries being set up in Uttar Pradesh with an investment above Rs. 100 crore. It includes capital subsidies, infrastructure subsidies, transport subsidies, interest free loan etc.[36] Further, State of Gujarat has launched scheme for assistance in rent for shed and plot

[36] https://niveshmitra.up.nic.in/Documents/MiniBooklet.pdf

developed by private developers to all MSME. As part of the scheme, assistance in service line and power connection charges to the tune of 35% of charges paid to distribution licenses for LT/HT service line, maximum up to Rs. 5,00,000 shall be provided.[37] Maharashtra provides for power tariff subsidies whereby charging only Re. 1 per unit and Re. 0.5 per unit depending upon the area in which located. It also provides 100% stamp duty exemption for acquiring land and for term loan purposes.[38] Tamil Nadu government offers choice to choose incentives from one of the four options available vis-à-vis fixed capital subsidy, flexible capital subsidy (in conjunction with other factors), SGST reimbursement and a turnover-based subsidy.[39]

2.128 In view of the above, the Authority is of the opinion that in view of the various initiatives already launched by central and state governments, a specific recommendation in this regard for the television broadcasting sector may not be required at this point. However, the situation may be reviewed later if there emerges the need and justification specific to this sector in terms of infrastructure or logistics support.

2.129 Regarding the need for clarity about applicable HS codes, few issues highlighted by the stakeholders need to be looked into. Regarding Hybrid STBs, there is a clear functional overlap as the device offers the dual features of the properties of RF STBs as well as internet access. There is, therefore, the possibility of the classification of the Hybrid boxes differently based on each of its functions. Further, there are also concerns regarding the classification of ONT/ONU which is stated to be ambiguous at the moment. The implications of these ambiguities may be crucial for the local manufacturing sector. Registration of a device with an HS code attracting nil or lower duty skews the level playing field to the disadvantage of local manufacturer. Further, in case of hybrid STBs, admissibility of similar nil/ lower duty class HS code puts the RF STBs to further disadvantage.

2.130 To further analyze this issue, it is essential to understand the HS code system first. HSN or HS code system was introduced almost three decades ago by the World Customs Organization (WCO). WCO helps in regulating both domestic and international trade transactions. The WCO Convention on Harmonized Commodity Description and Coding System (the HS convention) came out with

[37] https://www.standupmitra.in/Home/SubsidySchemesForAll#State
[38] Id.
[39] https://economictimes.indiatimes.com/small-biz/sme-sector/transforming-industrial-landscape-state-incentives-may-yield-long-term-economic-benefits/articleshow/82543320.cms

the Harmonized System (HS) Nomenclature to facilitate the standardization of trade documentation and the transmission of data.[40] An accurate classification of broadcasting equipment/components for any sector, including broadcasting helps in identifying the applicable tax rates and liabilities. To ease out compliances, under WCO's system of assigning codes to different products, 6 digits are assigned by WCO universally to products out of which first two digits refer to the HSN chapter, the next set of digits refer to the HSN heading, and the final two digits refer to the HSN sub-heading.[41] Up to 6 more digits may be added by the member nations as per their requirements. Turkey has 12-digit HS codes, US and China have 10-digit HS Codes and India has an 8-digit HS code system.

2.131 The HS nomenclature forms the basis of national Customs Tariff of over 200 nations, including India.[42] In 2021, India had made changes to the classification of goods under the Indian Customs Tariff Act after the new (seventh) edition of the Harmonized System (HS) nomenclature, HS-2022. The said changes came into effect on1st January 2022. This edition has introduced some significant changes to the Harmonized System with a total of 351 amendments at the six-digit level, covering a wide range of goods moving across borders.[43]

2.132 It is pertinent to note that HS codes are essential to be used correctly for filing GST invoices and for other tax compliances. As per the Central Board of Indirect Taxes and Customs (CBIC), HSN (Harmonized System of Nomenclature) code shall be used for classifying the goods under the GST regime. Taxpayers whose turnover is above Rs. 1.5 crore but below Rs. 5 crores shall use 2-digit code and the taxpayers whose turnover is Rs. 5 crore and above shall use 4-digit code. Taxpayers whose turnover is below Rs. 1.5 crore are not required to mention HSN Code in their invoices.[44]

---

[40] https://www.cbic.gov.in/resources//htdocs-cbec/deptt_offcr/Guidance%20Document%20on%20Correlation%20of%20Customs%20Tariff%20between%202021%20and%202022.pdf;jsessionid=C43DD04D32A05DE52E1236737B769FE6

[41] https://bfsi.eletsonline.com/the-impact-of-2022-hs-code-changes-on-businesses-in-india/

[42] https://www.cbic.gov.in/resources//htdocs-cbec/deptt_offcr/Guidance%20Document%20on%20Correlation%20of%20Customs%20Tariff%20between%202021%20and%202022.pdf;jsessionid=C43DD04D32A05DE52E1236737B769FE6

[43] https://www.cbic.gov.in/resources//htdocs-cbec/deptt_offcr/Guidance%20Document%20on%20Correlation%20of%20Customs%20Tariff%20between%202021%20and%202022.pdf;jsessionid=C43DD04D32A05DE52E1236737B769FE6

[44] https://www.cbic.gov.in/resources//htdocs-cbec/gst/Final-GST-FAQ-31218.pdf;jsessionid=42CACAB700D0B757713588319254D1C5

2.133 I t is evident that with the evolution of technology and increasing convergence, there can be different kinds of STBs which may have overlapping features with products of other classifications. While primary function of STBs is to receive television signals, yet feature rich STBs including Hybrid STBs now they have variety of features, including but not limited to recording, communication, interactive information exchange, access to internet or a combination of any of these features.

In view of the foregoing considerations, the Authority is of the opinion that there is an imminent need to examine this issue in detail and bring clarity of HS codes applicable to different types of STBs.

2.134 **In view of the foregoing, the Authority recommends that:**

It is expedient to clarify a specific HS code for the Hybrid Set-Top boxes, keeping in view the functionalities of the equipment in order to eliminate any ambiguities. MIB should resolve this issue appropriately by forming a committee under the chairmanship of Secretary from MIB and having members from Ministry of Finance, Ministry of Revenue and Department of Commerce. The committee should submit its recommendations withing 6 months of its formation as this issue is affecting the vision of Atmanirbhar Bharat.

2.135 When it comes to the classification of ONT/ONU, similar ideology applies to classify these as per the functions provided by the equipment. It is understood that the Department of Telecommunications is working on the relevant classifications to remove ambiguities, if any. Further, there are judicial precedents which may also help in understanding how the classification of ONT/ONU takes place in the extant regime. For instance, in the case of M/s Netlink ICT Private Limited[45], in 2021 the applicant, an importer, manufacturer and trader of Fiber-to-the-Home (FTTH) products; had filed an application seeking advance rulings on the classification of Gigabit Passive Optical Networks Optical Network Termination (GPON ONT) as it intended to import the same. It was claimed that GPON ONTs imported by the applicant are said to be akin to a router and perform the same functions as that of a router and are hence classifiable under sub-heading 85176930. Further, the applicant claimed that they are eligible for a nil rate of duty. With regard to the question of whether the

[45] Ruling Nos. CAAR/Mum/ARC/03/2022, available at: https://taxguru.in/wp-content/uploads/2022/01/In-re-Netlink-ICT-Private-Limited-CAAR-Mumbai.pdf

impugned devices are classifiable as routers under sub-heading 85176930, it was observed that the routers are covered under sub-heading 85176290. Although the impugned goods are performing routing functions, it also has certain additional functionalities.

2.136 A subscriber end equipment, as covered under sub-heading 85176950, is any terminal and associated equipment located at a subscriber's premises and connected with a carrier's telecommunication circuit at the demarcation point. It was ruled that it is clear that the ONT is included as one of the devices in the category of subscriber end equipment. Sub-heading 85176950 specifically includes subscriber end equipment. The device is covered under 85176950, therefore, it is not classifiable under sub-heading 85176290 as routers. Further, it was observed that in respect of applicability of the exemption notification, Sr. No. 13P of the Notification No. 24/2005 - Customs as amended exempts the goods specified under sub-heading 85176950. Accordingly, the impugned goods are eligible for benefits under the said notification. The ruling was given on 21st January 2022. Hence, it is also expedient for the stakeholders to understand the laws at place and such judicial rulings for the HS classifications of ONT/ONU.

2.137 Further, the Authority has taken note of the issue related to the grey market of STBs, which are in circulation in the market without legal compliances and relevant registrations. There have been complaints of piracy and illegal trade in different parts of the country and there have been instances of cases being registered under the relevant laws of India including relevant sections of Indian Penal Code 1860, The Copyright Act 1957 and The Information Technology Act 2008. Import of the STBs under false registrations, thereby evading applicable custom duties and further sale of such broadcasting equipment in the local markets under different nomenclatures to evade relevant taxes is a serious issue which cannot be ignored. The Authority considers it expedient for the concerned bodies to take appropriate actions in this regard.

2.138 **In this regard, the Authority recommends that:**

MIB should form a high level standing committee under the chairmanship of Secretary MIB and having members from Central Board of Indirect Taxes (CBIC) as well and should evaluate the issue of grey market of STBs in terms of illegal trade and payments in tandem with the measures undertaken by Central Board of Indirect Taxes and Customs and other relevant authorities in this regard. Immediate action is required in this regard, as such illegal activities are causing loss of revenue to the exchequer, in addition to causing undesirable asymmetries in the market.

Chapter 3

SUMMARY OF RECOMMENDATIONS

In view of the foregoing discussion, the authority recommends that:

1. Government should establish Centres of Excellence for Broadcasting and converged technologies via PPP model or upgrade the Telecom Centres of Excellence to include focus on broadcasting tehcnologies and equipment. Such centre(s) should have representation from MIB, academia and concerned industry stakeholders to promote research and development to harness the capabilities and opportunities present and to build new capabilities and opportunities in the broadcasting industry. In collaboration with Ministry of Electrnics and Information technology (MeITy) and Department of Telecommunications (DOT), MIB should especially focus on emerging technologies and tenets of era of convergence and aim at building an eco-system for broadcast equipment.

2. Council for Promoting Exports in the broadcasting sector is necessary. Government should focus on enabling Telecom Export Promotion Council (TEPC) or some similarly placed organization to also promote and facilitate exports of locally manufactured broadcast equipment. TEPC may involve representatives of MIB and stakeholders from Broadcasting industry to improve the focus on broadcasting equipment.

3. Telecom Engineering Centre (TEC), Department of Telecommunications should be mandated to test and standardise all the broadcast equipment. TEC should release the list of specifications and requirements to be followed in manufacturing of the broadcast equipment.

4. To promote manufacturing of local broadcasting equipment, MIB may consider appropriate measures for developing local R&D ecosystem as enumerated below:

i. **Strengthen existing R&D Centres in public sector, such as C-DOT. MIB should consider appropriate target-based grant to C-DOT at least for 3 years for R&D work in support of local manufacturing of broadcasting equipment. Besides developing STB/ Hybrid-OTT STB/ CAS/ ONT/ ONU such R&D should include, emerging technologies in the era of convergence and 5G broadcasting as well**
ii. **MIB should also examine development of local R&D ecosystem along with industry participation through PPP route.**

iii. **MIB should create 'Technology development Fund' to promote R&D and development of local products/ technologies for Broadcasting Sector.**

iv. **Government should formulate a scheme to incentivize use of local CAS through an incentive structure for Distribution Platform Owners (Multi Systems Operators/ DTH Operators / HITS operator etc.).**

v. **In order to oversee and review outcome of such measures to promote R&D and standardisation, a Standing Empowered Committee headed by Secretary of MIB along with members from MeitY, C-DOT, C-DAC, BECIL, TEC should be constituted.**

5. A go-to market strategy may also be adopted for the products developed through local R&D. MIB should designate an agency (e.g., BECIL) to develop appropriate modules and guidelines in the lines of 'Policy on Transfer of Technology' by DRDO for skill development and technology dissemination to different stakeholders in the distribution value chain.

6. Linear Set Top boxes should be brought under PLI scheme. On the basis of the disability in local manufacturing of set top boxes, MIB may decide suitable rate of incentive to be provided under PLI scheme, in line with the incentives being provided by other Ministries. Also, the Standing Empowered Committee should examine demand potential of other broadcasting equipment, including its latent export demand, if any. Equipment having adequate demand potential may be brought under PLI scheme to promote local manufacturing of such equipment.

7. The Empowered Committee should periodically review the availability of indigenous components required for broadcasting equipment including chipsets. The availability of local components shall be taken into consideration while setting the localisation levels under the PLI scheme. The Committee should also periodically review the local availability of components and revise the localisation levels under the PLI scheme accordingly.

8. The empowered committee should periodically review the investment outlay required for obtaining benefits under the PLI scheme with a view to promote manufacturing by MSME for some selected equipment as may be identified from time to time.

9. MIB should promote local manufacturing of other relevant components (as may be identified by the Standing Empowered Committee) of the

television broadcasting sector along the lines of Semicon India Program, so as to enable development of local ecosystem for manufacturing of television broadcast equipment.

10. MIB should consider to define the scope of 'local manufacturing' for different equipment categories in the television broadcasting sector in terms of the percentage of the locally sourced components/services. The requirements of localisation as specified under the PLI scheme or any other incentivization scheme should be specified with reference to the local availability of the components. The Standing Empowered Committee should periodically review the availability of local components and its scope.

11. MIB should engage with the Ministry of Commerce through the Empowered Committee and carry out a comprehensive review of the FTAs and such agreements with regard to their impact on local manufacturing in the television broadcasting sector and evaluate:

iv. the need for any amendments in the existing agreements,

v. the need of setting sunset date for the extant provisions,

vi. to work out factors to be taken into consideration in future while entering into such agreements, to suitably protect the interests of the local manufacturing sector.

The market trends, international obligations, and diplomatic necessities may be taken into consideration while carrying out such a review.

12. It is expedient to clarify a specific HS code for the Hybrid Set-Top boxes, keeping in view the functionalities of the equipment in order to eliminate any ambiguities. MIB should resolve this issue appropriately by forming a committee under the chairmanship of Secretary from MIB and having members from Ministry of Finance, Ministry of Revenue and Department of Commerce. The committee should submit its recommendations withing 6 months of its formation as this issue is affecting the vision of Atmanirbhar Bharat.

13. MIB should form a high level standing committee under the chairmanship of Secretary MIB and having members from Central Board of Indirect Taxes (CBIC) as well and should evaluate the issue of grey market of STBs in terms of illegal trade and payments in tandem with the measures undertaken by Central Board of Indirect Taxes and Customs and other relevant authorities in this regard. Immediate action is required in

this regard, as such illegal activities are causing loss of revenue to the exchequer, in addition to causing undesirable asymmetries in the market.

LIST OF ACRONYMS

Sl. No.	Acronym	Description
1	ACC	Advanced Chemistry Cell
2	AI	Artificial Intelligence
3	ASEAN	Association of Southeast Asian Nations
4	ATMP	Assembly, Testing, Marking and Packaging
5	AV	Audio/Video
6	BAT	Bouquet Association Table
7	BCD	Basic Customs Duty
8	CAGR	Compound Annual Growth Rate
9	CAS	Conditional Access System
10	CAT	Conditional Access Table
11	CATV	Cable Television
12	CBU	Completely Built Up
13	CEAMA	Consumer Electronics and Appliances Manufacturers Association
14	CFCs	Common Facility Centres
15	CII	Confederation of Indian Industry
16	CKD	Completely Knocked Down
17	CNN	Cable News Network
18	CPE	Consumer Premises Equipment

19	CRM	Customer Relationship Management
20	CRO	Compulsory Registration Order
21	CTN (R) Act	Cable Television Networks (Regulation) Act
22	CW	Control Words
23	DAS	Digital Addressable Systems
24	DD	Doordarshan
25	DFS	Dynamic Frequency Selection
26	DPO	Distribution Platform Operator
27	DRM	Digital Rights Management
28	DTH	Direct-to-home
29	DVB	Digital Video Broadcasting
30	DVB-C	Digital Video Broadcasting Cable
31	DVB-S	Digital Video Broadcasting Satellite
32	DVB-T	Digital Video Broadcasting Terrestrial
33	ECM	Entitlement Control Message
34	EDF	Electronics Development Fund
35	EDFA	Erbium-Doped Fiber Amplifier
36	EIT	Event Information Table
37	EMC	Electronic Manufacturing Clusters
38	EMM	Entitlement Management Message
39	EMS	Electronic Manufacturing Services
40	EPG	Electronic Programme Guide

41	ESDM	Electronics System Design and Manufacturing
42	FM	Frequency Modulation
43	FTTH	Fiber to the Home
44	FTA	Free-to-Air/ Foreign Trade Agreements
45	GDP	Gross domestic product
46	GeM	Government e-Market
47	GPON	Gigabit Passive Optical Network
48	HD	High Definition
49	HDMI	High-Definition Multimedia Interface
50	HFC	Hybrid Fibre Coax
51	HITS	Headend In The Sky
52	ICs	Integrated Circuits
53	iCAS	Indian Conditional Access System
54	INR	Indian Rupee
55	IPTV	Internet Protocol Television
56	IRD	Integrated Receiver/Decoder
57	ISP	Internet service provider
58	IT	Information Technology
59	ITA	Information Technology Agreement
60	LCN	Logical Channel Number
61	LCO	Local Cable Operators
62	LED	Light Emitting Diodes

63	LNB	Low-Noise Block
64	MeitY	Ministry of Electronics and Information Technology
65	MIB	Ministry of Information and Broadcasting
66	MSO	Multiple System Operators
67	NIT	Network Information Table
68	NLE	Non-Linear Editing
69	NPE	National Policy on Electronics
70	ODM	Original Design Manufacturer
71	OEM	Original Equipment Manufacturer
72	OF	Optical Fiber
73	OLT	Optical Line Termination/ Terminal
74	ONT	Optical Network Termination
75	PAT	Program Association Table
76	PCBs	Printed Circuit Boards
77	PDA	Personal Digital Assistant
78	PID	Packet Identifier
79	PLI	Production Linked Incentives
80	PMA	Preferential Market Access
81	PMP	Phased Manufacturing Programme
82	PMT	Program Map Table
83	PON	Passive Optical Network
84	PPCB	Populated Printed Circuit Boards

85	PSI	Program Specific Information
86	QAM	Quadrature Amplitude Modulator
87	QPSK	Quadrature Phase Shift Keying
88	R&D	Research and Development
89	RF	Radio Frequency
90	SAS	Subscriber Authorization System
91	SD	Standard Definition
92	SDT	Service Description Table
93	SKD	Semi-Knocked Down
94	SMS	Subscriber Management System
95	SoC	System on Chip
96	SPECS	Scheme for Promotion of manufacturing of Electronic Components and Semiconductors
97	STB	Set-top box
98	SW	Shortwave
99	TRAI	Telecom Regulatory Authority of India
100	TV	Television
101	USD	United States Dollar
102	VA	Value Addition
103	WDM	Wave Division Multiplexing
104	WTO	World Trade Organization

Annexure

R-1/14/(1)/2022-B AND CS(1 AND 3)

49326/2022/B&CS(I&III)

M/s Tata Sky Ltd

FY	Gross Revenue reflected in Form-D	License fee reflected as payable in Form-D	Date of Payment	Amount
2016-17	Rs. 6619.89 crore	Rs. 490.69 crore	13.02.2017	Rs. 100/-
			23.03.2017	Rs. 48,858/-
			12.04.2017	Rs. 100/-
			28.04.2017	Rs. 387,00,00,000/-
			28.04.2017	Rs. 97,64,93,400/-
				Rs. 484,65,42,458/-
2017-18	Rs. 7303.62 crore	Rs. 562.81 crore	02.05.2018	Rs. 561,23,13,802/-
				Rs. 561,23,13,802/-
2018-19	Rs. 7694.62 crore	Rs. 588.42 crore	10.02.2020	Rs. 150,00,00,000/-
			04.04.2020	Rs. 438,41,74,012/-
				Rs. 588,41,74,012/-
2019-20	Rs. 9781.80 crore	Rs. 447.11 crore	04.05.2020	Rs. 447,11,08,013/-
				Rs. 447,11,08,013/-
2020-21	Rs. 9508.10 crore	Rs. 443.21 crore	28.04.2021	Rs. 1/-
			30.04.2021	Rs. 443,20,54,500/-
Grand Total				**Rs. 443,20,54,501/-**

R-1/14/(1)/2022-B AND CS(1 AND 3)

49326/2022/B&CS(I&III)

M/s Bharti Telemedia Ltd

FY	Gross Revenue reflected in Form-D	License fee reflected as payable in Form-D	Date of Payment	Amount
2016-17	Rs. 3441.71 crore	Rs. 207.58 crore	27.04.2017	Rs. 207,58,27,920/-
				Rs. 207,58,27,920/-
2017-18	Rs. 3765.14 crore	Rs. 232.91 crore	26.04.2018	Rs. 232,90,81,042/-
				Rs. 232,90,81,042/-
2018-19	Rs. 4105.58 crore	Rs. 254.06 crore	29.04.2019	Rs. 254,05,85,595/-
				Rs. 254,05,85,595/-
2019-20	Rs. 2950.50 crore	Rs. 277.23 crore	30.04.2020	Rs. 67,22,49,270/-
			30.04.2020	Rs. 70,00,00,000/-
			30.04.2020	Rs. 70,00,00,000/-
			30.04.2020	Rs. 70,00,00,000/-
			Total	**Rs. 277,22,49,270/-**
2020-21	Rs. 3075.35 crore	Rs. 289.22 crore	16.04.2021	Rs. 10/-
			27.04.2021	Rs. 289,22,12,331/-
				Rs. 289,22,12,341/-

R-1/14/(1)/2022-B AND CS(1 AND 3)

49326/2022/B&CS(I&III)

M/s Dish TV India Ltd

FY	Gross Revenue reflected in Form-D	License fee reflected as payable in Form-D	Date of Payment	Amount
2016-17	**Rs. 2446.52 crore**	Rs. 93.81 crore	26.04.2017	Rs. 96,00,00,000/-
				Rs. 96,00,00,000/-
2017-18	Rs. 4341.18 crore (Dish TV) + Rs. 1605.51 crore (Videocon d2h) = **Rs. 5946.69 crore**	Rs. 257.27 crore	27.04.2018	Rs. 100,00,00,000/-
		This includes the amount with respect to M/s Videocon d2h Ltd which got merged with and into M/s Dish TV India Ltd from 22.03.2018. (i.e. Rs. 169.05 crore for M/s Dish TV India Ltd + Rs. 88.22 crore for M/s Videocon d2h Ltd = Rs. 257.27 crore)	15.10.2018	Rs. 50,00,00,000/-
			11.04.2019	Rs. 25,00,00,000/-
			29.11.2019	Rs. 20,00,00,000/-
			31.12.2019	Rs. 10,00,00,000/-
			07.02.2020	Rs. 1,00,00,000/-
			07.02.2020	Rs. 1,00,00,000/-
			10.02.2020	Rs. 1,00,00,000/-
			11.02.2020	Rs. 1,00,00,000/-
			12.02.2020	Rs. 1,00,00,000/-
			13.02.2020	Rs. 1,00,00,000/-
			14.02.2020	Rs. 1,00,00,000/-
			17.02.2020	Rs. 1,00,00,000/-
			19.02.2020	Rs. 1,00,00,000/-
			19.02.2020	Rs. 1,00,00,000/-
			20.02.2020	Rs. 1,00,00,000/-
			24.02.2020	Rs. 1,00,00,000/-
			25.02.2020	Rs. 15,00,00,000/-
			25.02.2020	Rs. 1,00,00,000/-
			26.02.2020	Rs. 1,00,00,000/-
			28.02.2020	Rs. 1,00,00,000/-
			02.03.2020	Rs. 1,00,00,000/-
			03.03.2020	Rs. 1,00,00,000/-
			04.03.2020	Rs. 1,00,00,000/-
			05.03.2020	Rs. 1,00,00,000/-
			06.03.2020	Rs. 1,00,00,000/-
			09.03.2020	Rs. 1,00,00,000/-
			11.03.2020	Rs. 1,00,00,000/-
			12.03.2020	Rs. 1,00,00,000/-
			13.03.2020	Rs. 1,00,00,000/-
			16.03.2020	Rs. 1,00,00,000/-
			17.03.2020	Rs. 1,00,00,000/-
			18.03.2020	Rs. 1,00,00,000/-
			19.03.2020	Rs. 1,00,00,000/-
			20.03.2020	Rs. 1,00,00,000/-
			22.05.2020	Rs. 1,00,00,000/-
			27.05.2020	Rs. 1,00,00,000/-
			28.05.2020	Rs. 1,00,00,000/-
			28.05.2020	Rs. 1,00,00,000/-
			29.05.2020	Rs. 1,00,00,000/-
			01.06.2020	Rs. 1,00,00,000/-
			02.06.2020	Rs. 1,00,00,000/-
			03.06.2020	Rs. 1,27,99,914/-
				Rs. 257,27,99,914/-
2018-19	**Rs. 4757.73 crore**	Rs. 156.32 crore	04-06-2020	1,00,00,000/-
			04-06-2020	5,00,00,000/-
			05-Jun-20	1,00,00,000/-
			08-Jun-20	1,00,00,000/-

09-Jun-20	1,00,00,000/-
10-Jun-20	1,00,00,000/-
11-Jun-20	6,00,00,000/-
12-Jun-20	1,00,00,000/-
01-Jul-20	1,00,00,000/-
03-Jul-20	2,00,00,000/-
06-Jul-20	1,00,00,000/-
07-Jul-20	1,00,00,000/-
08-Jul-20	1,00,00,000/-
09-Jul-20	1,00,00,000/-
13-Jul-20	2,00,00,000/-
14-Jul-20	1,00,00,000/-
16-Jul-20	1,00,00,000/-
20-Jul-20	1,00,00,000/-
06-Aug-20	1,00,00,000/-
07-Aug-20	1,00,00,000/-
10-Aug-20	1,00,00,000/-
12-Aug-20	1,00,00,000/-
13-Aug-20	1,00,00,000/-
14-Aug-20	1,00,00,000/-
17-Aug-20	1,00,00,000/-
18-Aug-20	1,00,00,000/-
19-Aug-20	1,00,00,000/-
20-Aug-20	1,00,00,000/-
21-Aug-20	1,00,00,000/-
24-Aug-20	1,00,00,000/-
25-Aug-20	1,00,00,000/-
26-Aug-20	1,00,00,000/-
27-Aug-20	1,00,00,000/-
28-Aug-20	1,00,00,000/-
31-Aug-20	1,00,00,000/-
01-Sep-20	1,00,00,000/-
02-Sep-20	1,00,00,000/-
03-Sep-20	1,00,00,000/-
04-Sep-20	1,00,00,000/-
07-Sep-20	1,00,00,000/-
09-Sep-20	1,00,00,000/-
10-Sep-20	2,00,00,000/-
11-Sep-20	1,00,00,000/-
14-Sep-20	1,00,00,000/-
15-Sep-20	1,00,00,000/-
16-Sep-20	1,00,00,000/-
17-Sep-20	1,00,00,000/-
18-Sep-20	1,00,00,000/-
21-Sep-20	1,00,00,000/-
22-Sep-20	1,00,00,000/-
23-Sep-20	1,00,00,000/-
24-Sep-20	1,00,00,000/-
25-Sep-20	1,00,00,000/-
05-Oct-20	1,00,00,000/-
06-Oct-20	1,00,00,000/-
14-Oct-20	1,00,00,000/-
20-Oct-20	1,00,00,000/-
22-Oct-20	1,00,00,000/-
03-Nov-20	1,00,00,000/-
04-Nov-20	3,00,00,000/-
10-Nov-20	2,00,00,000/-
11-Nov-20	1,00,00,000/-
12-Nov-20	1,00,00,000/-

			13-Nov-20	1,00,00,000/-
			17-Nov-20	1,00,00,000/-
			18-Nov-20	1,00,00,000/-
			18-Nov-20	2,00,00,000/-
			19-Nov-20	1,00,00,000/-
			23-Nov-20	2,00,00,000/-
			24-Nov-20	1,00,00,000/-
			25-Nov-20	1,00,00,000/-
			26-Nov-20	1,00,00,000/-
			27-Nov-20	1,00,00,000/-
			10-Dec-20	1,00,00,000/-
			15-Dec-20	2,00,00,000/-
			16-Dec-20	2,00,00,000/-
			23-Dec-20	1,00,00,000/-
			29-Dec-20	1,00,00,000/-
			30-Dec-20	2,00,00,000/-
			31-Dec-20	2,00,00,000/-
			11-Jan-21	4,00,00,000/-
			18-Jan-21	4,00,00,000/-
			19-Jan-21	4,00,00,000/-
			25-Jan-21	4,00,00,000/-
			27-Jan-21	2,00,00,000/-
			29-Jan-21	4,00,00,000/-
			02-Feb-21	4,00,00,000/-
			03-Feb-21	4,00,00,000/-
			04-Feb-21	4,00,00,000/-
			05-Feb-21	4,00,00,000/-
			08-Feb-21	4,00,00,000/-
			09-Feb-21	2,00,00,000/-
			10-Feb-21	2,50,00,000/-
			11-Feb-21	2,50,00,000/-
			12-Feb-21	2,50,00,000/-
			15-Feb-21	3,81,61,862/-
				Rs. 156,31,61,862/-
2019-20	**Rs. 1953.66 crore**	Rs. 136.88 crore	16.02.2021	Rs. 4,50,00,000/-
			17.02.2021	Rs. 3,50,00,000/-
			18.02.2021	Rs. 2,00,00,000/-
			22.02.2021	Rs. 4,00,00,000/-
			23.02.2021	Rs. 2,00,00,000/-
			24.02.2021	Rs. 70,00,000/-
			02.03.2021	Rs. 4,75,00,000/-
			04.03.2021	Rs. 4,75,00,000/-
			10.03.2021	Rs. 4,95,00,000/-
			12.03.2021	Rs. 4,99,00,000/-
			13.03.2021	Rs. 4,99,00,000/-
			15.03.2021	Rs. 4,99,00,000/-
			16.03.2021	Rs. 4,99,00,000/-
			17.03.2021	Rs. 4,99,00,000/-
			18.03.2021	Rs. 4,99,00,000/-
			19.03.2021	Rs. 4,99,00,000/-
			22.03.2021	Rs. 30,00,00,000/-
			23.03.2021	Rs. 4,99,00,000/-
			12.04.2021	Rs. 5,00,00,000/-
			13.04.2021	Rs. 6,00,00,000/-
			15.04.2021	Rs. 5,00,00,000/-
			16.04.2021	Rs. 4,00,00,000/-

			20.04.2021	Rs. 2,00,00,000/-
			23.04.2021	Rs. 4,00,00,000/-
			28.04.2021	Rs. 1,00,00,000/-
			25.05.2021	Rs. 8,80,71,845/-
			Total	**Rs. 136,87,71,845/-**
2020-21	**Rs. 2035.25 crore**	Rs. 145.13 crore	07.06.2021	Rs. 1,00,00,000/-
			09.06.2021	Rs. 1,00,00,000/-
			10.06.2021	Rs. 1,00,00,000/-
			11.06.2021	Rs. 1,00,00,000/-
			14.06.2021	Rs. 1,00,00,000/-
			16.06.2021	Rs. 1,00,00,000/-
			18.06.2021	Rs. 1,00,00,000/-
			21.06.2021	Rs. 1,00,00,000/-
			23.06.2021	Rs. 1,00,00,000/-
			25.06.2021	Rs. 1,00,00,000/-
			05.07.2021	Rs. 1,00,00,000/-
			12.07.2021	Rs. 2,00,00,000/-
			14.07.2021	Rs. 1,00,00,000/-
			19.07.2021	Rs. 1,00,00,000/-
			21.07.2021	Rs. 1,00,00,000/-
			23.07.2021	Rs. 1,00,00,000/-
			26.07.2021	Rs. 2,00,00,000/-
			28.07.2021	Rs. 1,00,00,000/-
			03.08.2021	Rs. 1,00,00,000/-
			09.08.2021	Rs. 1,00,00,000/-
			11.08.2021	Rs. 1,00,00,000/-
			13.08.2021	Rs. 1,00,00,000/-
			16.08.2021	Rs. 1,00,00,000/-
			18.08.2021	Rs. 1,00,00,000/-
			20.08.2021	Rs. 1,00,00,000/-
			23.08.2021	Rs. 1,00,00,000/-
			01.09.2021	Rs. 1,00,00,000/-
			03.09.2021	Rs. 1,00,00,000/-
			07.09.2021	Rs. 1,00,00,000/-
			09.09.2021	Rs. 1,00,00,000/-
			13.09.2021	Rs. 1,00,00,000/-
			02.09.2021	Rs. 1,00,00,000/-
			06.09.2021	Rs. 1,00,00,000/-
			08.09.2021	Rs. 1,00,00,000/-
			10.09.2021	Rs. 1,00,00,000/-
			14.09.2021	Rs. 1,00,00,000/-
			16.09.2021	Rs. 1,00,00,000/-
			15.09.2021	Rs. 1,00,00,000/-
			17.09.2021	Rs. 1,00,00,000/-
			05.10.2021	Rs. 1,00,00,000/-
			07.10.2021	Rs. 1,00,00,000/-
			04.10.2021	Rs. 1,00,00,000/-
			06.10.2021	Rs. 1,00,00,000/-
			08.10.2021	Rs. 1,00,00,000/-
			12.10.2021	Rs. 1,00,00,000/-
			14.10.2021	Rs. 1,00,00,000/-
			20.10.2021	Rs. 1,00,00,000/-
			01.11.2021	Rs. 1,00,00,000/-
			03.11.2021	Rs. 1,00,00,000/-
			11.10.2021	Rs. 1,00,00,000/-
			13.10.2021	Rs. 1,00,00,000/-
			18.10.2021	Rs. 1,00,00,000/-
			08.11.2021	Rs. 2,00,00,000/-

R-1/14/(1)/2022-B AND CS(1 AND 3)

49326/2022/B&CS(I&III)

			10.11.2021	Rs. 1,00,00,000/-
			11.11.2021	Rs. 1,00,00,000/-
			15.11.2021	Rs. 2,00,00,000/-
			16.11.2021	Rs. 2,00,00,000/-
			15.11.2021	Rs. 1,00,00,000/-
			19.11.2021	Rs. 2,00,00,000/-
			22.11.2021	Rs. 2,00,00,000/-
			07.12.2021	Rs. 1,00,00,000/-
			09.12.2021	Rs. 1,00,00,000/-
			13.12.2021	Rs. 1,00,00,000/-
			15.12.2021	Rs. 1,00,00,000/-
			06.12.2021	Rs. 1,00,00,000/-
			08.12.2021	Rs. 1,00,00,000/-
			10.12.2021	Rs. 1,00,00,000/-
			14.12.2021	Rs. 1,00,00,000/-
			16.12.2021	Rs. 1,00,00,000/-
			20.12.2021	Rs. 1,00,00,000/-
			22.12.2021	Rs. 1,00,00,000/-
			24.12.2021	Rs. 1,00,00,000/-
			05.01.2022	Rs. 1,00,00,000/-
			21.12.2021	Rs. 1,00,00,000/-
			23.12.2021	Rs. 1,00,00,000/-
			27.12.2021	Rs. 1,00,00,000/-
			13.01.2022	Rs. 1,00,00,000/-
			14.01.2022	Rs. 4,00,00,000/-
			17.01.2022	Rs. 2,00,00,000/-
			18.01.2022	Rs. 2,00,00,000/-
			24.01.2022	Rs. 2,00,00,000/-
			02.02.2022	Rs. 1,00,00,000/-
			04.02.2022	Rs. 1,00,00,000/-
			21.01.2022	Rs. 2,00,00,000/-
			01.02.2022	Rs. 1,00,00,000/-
			03.02.2022	Rs. 1,00,00,000/-
			10.02.2022	Rs. 1,00,00,000/-
			11.02.2022	Rs. 2,00,00,000/-
			14.02.2022	Rs. 1,00,00,000/-
			15.02.2022	Rs. 1,00,00,000/-
			17.02.2022	Rs. 1,00,00,000/-
			21.02.2022	Rs. 3,00,00,000/-
			22.02.2022	Rs. 1,00,00,000/-
			23.02.2022	Rs. 1,00,00,000/-
			Total	**Rs. 111,00,00,000/-**