



Telecom Regulatory Authority of India



Consultation Paper

on

Making ICT Accessible for Persons with Disabilities

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Stake holders are requested to furnish their comments to the Advisor (CA & IT), TRAI by 22.01.2018 and counter-comments by 05.02.2018. Comments and counter-comments would be posted on TRAI's website www.trai.gov.in. The comments and counter-comments in electronic form may be sent by email to advisorit@traigov.in

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Chapter – I: Introduction

Background

- 1.1 Telecommunication and broadcasting services have become ubiquitous in the last two decades. These services now reach out to the most remote and underserved areas of the world, thereby empowering millions of people. Telecommunication services also provide the underlying infrastructure through which several services of the economy such as banking, education, healthcare and public services etc. are delivered. Currently, Information and Communication Technology (ICT) is fundamentally transforming the way agriculture, trade/commerce, and transportation is being carried out. Future advances in ICTs—including mobile broadband, the Internet of Things (IoT), robotics and artificial intelligence, 3-D printing, and others—will provide the tools for additional, unprecedented advances in healthcare, education, energy services, agriculture, and environmental monitoring and protection etc.
- 1.2 An equal and inclusive society involves providing equal opportunities to all sections of society irrespective of their physical, economic, social or religious identity in all spheres of life viz education, skill development, economic empowerment etc. and ensuring full participation of all persons including PwDs. Consequently, programmes such as ‘Digital India’ envisage an inclusive growth and digitally empowered society.
- 1.3 For having an inclusive society it is important that the benefits of the technological advancement are passed on to every person, including persons with disability (PwD). It is observed that PwDs are often not able to access ICT services on account of lack of the

necessary accessibility features, unaffordable prices of the accessibility equipments or unavailability of required services to make them compatible to use by PwDs.

1.4 As per “e-Accessibility Policy Handbook for Persons with Disabilities”, accessibility is a measure of the extent to which a product or service can be used by a PwD as effectively as it can be used by a person without that disability¹. Further, the concept of accessibility relates to the diverse needs and abilities of a diverse section of the user population – PwDs– and is expressed in degrees, from “fully accessible”, to “partially accessible”, to “completely inaccessible” for a specified user group. The more number of peoples that can use the product and the more tasks they can carry out with it, the more accessible the product is considered to be. Some illustrative examples of inaccessibility are given below:

- A bank’s Automated Teller Machine (ATM) could be inaccessible in the following ways:
 - The machine may be positioned too high for a person in a wheelchair to reach some of the controls.
 - Poor quality visual display with low contrast between text and background, or text-only visual display making reading difficult or impossible for persons with vision or reading impairments.
 - Prompts and responses written in complex language or jargon, making them difficult to understand for persons with some cognitive or learning disabilities.
- Similarly, websites which typically contain a mixture of text, images, links, buttons, tables, interactive forms and other content can be inaccessible in the following ways:

¹ Nirmita Narsimhan, e-Accessibility Policy Handbook for Persons with Disabilities, available at www.g3ict.org/download/p/fileId_833/productId_163.

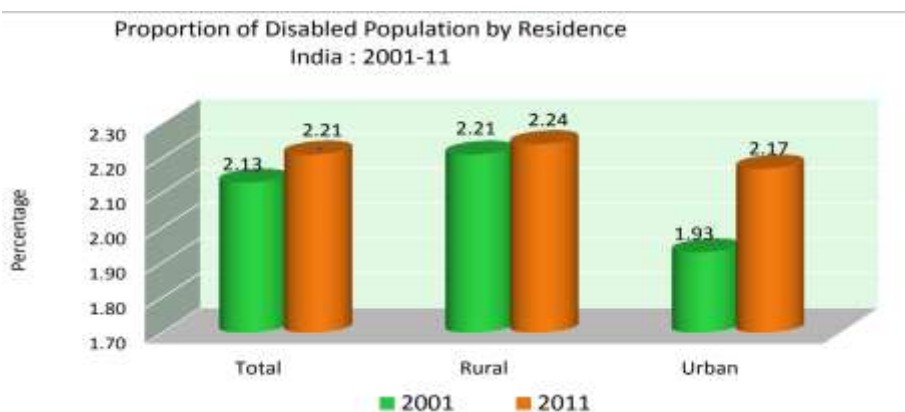
- On-screen buttons are made to respond only to a mouse click, so a person with a physical disability who cannot use a mouse cannot 'click' buttons by pressing the 'Enter' key on their keyboard as another option.
- On a payment form, the labels of input boxes and controls (e.g. 'name', 'choice of payment method') are displayed in a way that cannot be read by the text-to-speech software used by a person with visual impairment.
- Visual design and layout are inconsistent from page to page, making the website confusing and difficult to learn for persons with some cognitive or learning disabilities.
- Online videos have no captions (subtitles), audio description tracks or text transcripts. Therefore, deaf, hard of hearing and blind users do not have access to the full content.

Where legislation, public policy or organizational policies require ICT products and services to be accessible, a recognized accessibility standard is usually referenced. Being 'accessible' then means complying with that standard.

- 1.5 It is pertinent to note that about 15% of the world's population lives with some form of disability, of whom 2-4% experience significant difficulties in functioning². A very large proportion of PwDs live in the developing countries where scarcity of resources could further accentuate problems faced by these people. In India, as per the last census data, an increase in number of PwDs was observed between 2001 and 2011. This increase has occurred both for urban and rural areas. The percentage of PwDs to the total

² World Health Organisation, World report on disability, available at http://www.who.int/disabilities/world_report/2011/report/en/.

population grew from 2.13% in 2001 to 2.21% in 2011³ with 2.68 crore PwDs in the country.



Source: Department of Empowerment of Persons with Disabilities (Divyangjan)

- 1.6 The United Nations Convention on the Rights of Persons with Disabilities’ (UNCRPD), adopted in 2006, is a historic international human rights treaty intended to protect the rights and dignity of PwDs. Parties to the UNCRPD are required to promote, protect, and ensure the full enjoyment of human rights by PwDs and ensure that they enjoy full equality under the law. The convention opens up opportunities to drive forward inclusive policy for people with disability. It also serves as a benchmark for the evaluation of policy aimed at improving the lives of people with disabilities. India was one of the earliest signatories of the UNCRPD when it signed the convention in October 2007.
- 1.7 Article 1 of the UNCRPD defines “persons with disabilities” as including, *“those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.”* Article 9 of the Convention recognizes the right of PwDs to enjoy equal access to the physical and digital environments and transportation in rural and urban areas. This

³ Ministry of Statistics and Programme Implementation, “Disabled persons in India: A statistical profile 2016”, p. 19 available at <http://www.thehinducentre.com/resources/article9780615.ece>.

provision specifically enumerates some of the obligations of state parties with respect to advancing digital accessibility, such as (a) ensuring that private entities that offer facilities and services which are open or provided to the public take into account all aspects of accessibility; (b) providing training for stakeholders on accessibility issues facing PwDs; (c) promoting other appropriate forms of assistance and support to PwDs to ensure their access to information; (d) promoting access for PwDs to new information and communications technologies and systems, including the Internet and (e) promoting the design, development, production and distribution of accessible information and communications technologies and systems at an early stage, so that these technologies and systems become accessible at minimum cost.

- 1.8 Further, the Optional Protocol to the UNCRPD also embeds the cardinal accessibility principle of “universal design” within the general obligations for signatory nations. The protocol lays down that member states are under an obligation to undertake or promote research and development of universally designed goods, services, equipment and facilities which should require the minimum possible adaptation and the least cost to meet the specific needs of a person with disabilities, to promote their availability and use, and to promote universal design in the development of standards and guidelines;

The protocol also defines “universal design” as *“the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. “Universal design” shall not exclude assistive devices for particular groups of persons with disabilities where this is needed.”*

1.9 In India, the National Policy for Persons with Disabilities (2006), adopted by the Government of India, recognizes that:

*"Persons with Disabilities are valuable human resource for the country and seeks to create an environment that provides equal opportunities, protection of their rights and full participation in society. It is in consonance with the basic principles of equality, freedom, justice and dignity of all individuals that are enshrined in the Constitution of India and implicitly mandate an inclusive society for all, including persons with disabilities."*⁴

1.10 The International Telecommunication Union (ITU) recognizes that the three hallmarks of universal access and universal service are **availability, accessibility and affordability**⁵. The ICT regulation toolkit developed by ITU stresses more on the fact that the special initiatives division of the International Telecommunications Union (ITU-D) places special importance for promoting accessibility for PwDs. The focus is to create awareness about equal opportunities for PwDs and to support member states to meet obligations under Article 9 of the UNCRPD

1.11 Typically, ICT laws, policies and regulations do encourage principles of universal access by promoting competition, affordable services, ensuring last mile connectivity, protection of consumers etc. While such measures benefit all users, the needs of PwDs are unique and require a deliberate focus on design and implementation of services. Further, even within the disability community, different categories of PwDs have varying issues in accessibility. A law or regulation that truly encapsulates universal access has to take into account the different experiences of PwDs

⁴ Ibid.

⁵ ITU, ICT Regulation Toolkit- Universal Access: An Overview, available at <http://www.ictregulationtoolkit.org/toolkit/4.1>.

while accessing telecommunication and broadcasting services and devices. Further, such laws also have to consider the differences of experiences and requirements within the broader PwD community. For instance, the ICT accessibility requirements of the visually impaired will be different from those of the cognitively impaired.

1.12 It is pertinent to note that governments, development partners, civil society and disability sector experts are working together to ensure protection of the rights of PwDs by promoting accessibility in public buildings, educational opportunities etc. Further, in ICT sector as well, there have been developments in designing and manufacturing of aids and assistive devices and services for PwDs. However corresponding changes in services or content is yet to come particularly in India. For example in case of set top boxes from broadcasting services, it is observed that even though accessible set top boxes have been designed for PwDs, here is lack of content available which support the use of such set top boxes. Similarly, even though content on websites may be machine readable, service providers continue to send utility bills in a format that cannot be accessed by persons with visual impairment. These instances demonstrate that the benefits of ICT development have not reached fully to the PwDs. Therefore, the Authority is of the view that additional policy interventions should be explored and implemented to address the unique challenges faced by the PwD community.

1.13 Under section 11(1)(a) (iv) and (v) of the Telecom Regulatory Authority of India Act, 1997, TRAI has been mandated to promote efficiency in the operation of telecommunication services so as to facilitate growth in such services and technological improvements in the services provided by the service providers. Therefore, the Authority suo-motu has initiated this consultation process with the

objective to identify key areas where policy interventions are needed, to understand the barriers being faced by the PwDs in accessing telecom and broadcasting services so that appropriate positive actions are taken at policy level. Such policy interventions can be in the form of recommendations to the Government or through the formulation of regulations or advisory guidelines to the equipment/service providers or a combination of all of the aforementioned.

- 1.14 This consultation paper has been divided into four Chapters. Chapter-II delves into the issues and challenges being faced by the PwDs. Chapter-III focuses on international best practices that promote ICT accessibility while Chapter-IV sets out the summary of issues for the consultation of the stakeholders.

Chapter-II

Challenges for PwDs in accessing telecom and broadcasting services

- 2.1 In this age of technology, active and complete participation in society and the polity is not possible without access to information and communication technologies (ICT) in general and telecommunication and broadcasting services in particular. Therefore, the UNCRPD acknowledges the risks of exclusion of PwDs from participating equally in this age of technology by defining ICT accessibility as integral to general accessibility rights and equates it with accessibility to the physical environment and transportation. It is the first international human rights instrument mandating that ICT technologies and systems be made accessible as an imperative for PwDs to fully enjoy these fundamental rights in a non-discriminatory manner. Further, the UNCRPD provides a human rights basis for existing policies and programmes developed by many countries, such as universal service and access policies for telephony, video programming and/or web accessibility, and sets out a clear roadmap for signatories lacking such policies.
- 2.2 In order to give effect to the principles for empowerment of PwDs that were laid down by the UNCRPD, in 2016 the Government of India enacted the Rights of Persons with Disabilities Act (the RPWD, 2016)'. This legislation sets out obligations to promote accessibility and defines a PwD as “a person with long term physical, mental, intellectual or sensory impairment which, in interaction with barriers, hinders his full and effective participation in society equally with others.”
- 2.3 The ITU has also recognised the unique challenges faced by PwDs while accessing telecommunication and broadcasting services and

devices and has categorized them broadly on the basis of various types of disabilities. They are as follows:⁶

- a. *Audio impairment:* Persons with audio impairment are deprived of social interaction and unable to communicate by telephone because they cannot hear the caller or automated electronic messages, such as those of a customer care offered by various service providers. Further, they do not have access to critical emergency services like requesting police, fire services or medical assistance.
- b. *Visual impairment:* Persons who are visually challenged or have low vision are unable to see screens and hence cannot use features such as touch screen keyboards or access contact lists to call numbers stored in the address book, send and receive messages. Similarly, they may also face difficulties in navigating the keypad and menu of a television remote.
- c. *Dexterity based disabilities:* Buttons on a mobile phone or even a set top box is not designed keeping in mind persons who have difficulties in using their limbs, or flexing their arms/fingers. They may also face problems in accessing retail stores of service providers due to lack of ramp at the entrance, enough space for maneuvering the wheelchair inside the store, slippery flooring, etc.
- d. *Cognitive disabilities:* Depending on the type of cognitive disability, a person may have problems related to memory, analytical skills, attention, reading skills, mathematical or computational comprehension, reading comprehension, and

⁶ International Telecommunications Union, Making Mobile Phones and Services Accessible for Persons with Disabilities (2012).

communication. User interfaces (UI) that are complex in design and contain inconsistent UI elements do not take such disabilities in account.

2.4 However, there can be many other types of disabilities with specific accessibility requirement pertaining to use of ICT services and devices. For instance, the list above does not recognize speech based disabilities specifically. Further, there can be other challenges (apart from the ones enumerated in above para) that PwDs may face while accessing telecommunication and broadcasting services.

2.5 In view of above the issues for the consultation is:

Q1. Which are the disabilities, with specific accessibility requirement, other than those mentioned in para 2.3 that require consideration for preparing a framework?

Q2. Apart from the challenges enumerated in para 2.3, what other challenges do PwDs face while accessing telecommunication and broadcasting services?

Government initiatives to address the accessibility challenges:

Policy measures:

2.6 As mentioned earlier, India has signed and ratified the UNCRPD. India is also a signatory to the Biwako Millennium framework towards an Inclusive, Barrier-free and Rights-based Society for Persons with Disabilities in Asia and the Pacific (2002).

2.7 Further, as stated earlier, the Government of India also enacted the Rights of Persons with Disabilities Act (the RPWD, 2016). This legislation, inter-alia, enumerates various measures that the appropriate government and local authorities should take to

enable access to ICT by PwDs. The legislation imposes the following obligations on the appropriate government in this regard:⁷

- To take measures to ensure that all content available in audio, print and electronic media are in accessible format;
- To ensure that PwDs have access to electronic media by providing audio description, sign language interpretation and close captioning;
- To ensure that electronic goods and equipment which are meant for everyday use are available in universal design;
- To take measures to promote development, production and distribution of universally designed consumer products and accessories for general use for PwDs.

2.8 Further, the National Telecom Policy, 2012 also seeks to make broadband access and rural telephony available in a non-discriminatory manner.⁸

Government schemes and initiatives

Telecommunication

2.9 Different ministries and departments of the Government of India are taking steps to increase access to telecommunications and broadcasting services for PwDs. In September 2011, the Universal Service Obligation Fund (USOF) under the Department of Telecommunication (DoT), proposed to invite applications for three categories of pilot projects namely, dedicated ICT centers with assistive technologies in rural educational, rehabilitation or

⁷ The National Policy on Universal Electronic Accessibility, available at: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=99845>.

⁸ The National Telecom Policy, 2012, available at [http://meity.gov.in/writereaddata/files/National%20Telecom%20Policy%20\(2012\)%20\(480%20KB\).pdf](http://meity.gov.in/writereaddata/files/National%20Telecom%20Policy%20(2012)%20(480%20KB).pdf).

vocational training centres for PwDs, accessible public access points in villages and special handsets with/without bundled content.

2.10 In 2009, the Department of Electronics and Information Technology(DeitY), initiated a process to formulate a national policy to ensure accessibility of websites and ICT products and services. Under this policy, all government websites are required to comply with the accessibility standards set out under Web Content Accessibility Guidelines 2.0 (WCAG 2.0) and with other international accessibility standards for all electronic information and products and services delivery.⁹WCAG 2.0 lays out the manner in which web content can be more accessible to PwDs. It was developed through the W3C process¹⁰ in collaboration with individuals and organizations around the world, with an objective of providing a shared standard for web content accessibility. The four key principles of WCAG 2.0 is to make web content perceivable, operable, understandable, and robust.¹¹

2.11 In October 2013, the Government approved this National Policy on Universal Electronic Accessibility to provide electronics and ICTs to people from all strata of society including PwD. The strategies envisaged in the policy include:

- a) Creating awareness on universal electronics accessibility and universal design.
- b) Capacity building and infrastructure development.

⁹ Centre for Internet and Society, Accessibility of Government Websites in India: A Report, available at:<https://cis-india.org/accessibility/accessibility-of-government-websites-in-india>.

¹⁰ Web Accessibility Initiative, How WAI Develops Accessibility Guidelines through the W3C Process: Milestones and Opportunities to Contribute, available at <https://www.w3.org/WAI/intro/w3c-process.php>.

¹¹ W3C Recommendation, Web Content Accessibility Guidelines (WCAG) 2.0(December, 2008), available at <https://www.w3.org/TR/WCAG20/>.

- c) Setting up of model electronics and ICTs centres for providing training and demonstration to special educators and physically as well as mentally challenged persons.
- d) Conducting research and development, use of innovation, ideas, technology etc. whether indigenous or outsourced from abroad.
- e) Developing programme and schemes with greater emphasis for disabled women/children.
- f) Developing procurement guidelines for electronics and ICTs for accessibility and assistive needs.

2.12 The Government has also launched the "Accessible India Campaign" which is a nation-wide flagship campaign for achieving universal accessibility that will enable PwDs to live independently and participate fully in all aspects of life. The campaign seeks to enhance the accessibility of built environment, transport system and ICT ecosystem. This campaign also focuses on access to ICT and lays out the following plan of action to increase accessibility to telecommunications services:

- *Enhancing proportion of accessible public documents and government web content and ensuring that they meet WCAG 2.0 standards.*
- *Conducting accessibility audit for 50% government websites (central and state) and to converting it into accessible formats.*

Broadcasting

2.13 With regard to enhancing accessibility in broadcasting, section 29(h) of RPWD Act, 2016 states that the appropriate government and local authorities should take measures to ensure that

persons with hearing impairment can have access to television programmes through sign language or subtitles.

2.14 Further, the Accessible India campaign discussed above focuses on broadcasting as well. It intends to ensure that at least 25% of the television programmes aired on government channels meet accessibility standards. Another campaign objective includes development and adoption of national standards on captioning and sign-language interpretation in consultation with national media authorities.¹²

2.15 While many policy measures and Government schemes have been set rolling, not much has happened on the ground. This indicates that a thorough review of measures already implemented should be undertaken and a new strategy needs to be designed for future measures.

2.16 In view of the above the issues for the consultation are:

Q3: In your opinion, what are the reasons for the desired benefits of ICT(telecom and broadcasting) not reaching the PwDs despite several policy measures and scheme being implemented?

Q4: What additional or corrective measures can be taken by the Government to enable better access to telecommunication and broadcasting services and devices to PwDs? Please give a rationale for your response.

¹² Accessible India Campaign, available at <http://accessibleindia.gov.in/content/>.

Measures suggested by ITU to address the accessibility challenges:

2.17 The ITU has identified certain measures that can be taken to address the aforementioned challenges. They are as follows:

- *Availability and affordability of accessible equipments:* Accessible ICT i.e. access to end-user equipments, such as mobile handsets, televisions, tablets and computers, offer features to enable PwDsto use ICTs effectively needs to be made available in the market and to ensure that such devices are affordable.
- *Access to assistive technologies:* In order to ensure barrier free interaction with the digital world, it is essential that assistive technologies are free or available at a low cost through subsidies or grants. It is imperative to either make devices accessible or ensure that devices are compatible with third party assistive technologies. There is also a need for training of PwDs and those who assist them on the use of technologies and features made available.
- *Products and tariff plans:* Products and tariff plans offered by TSPs may be structured in a way that recognize the ways that PwDs use services – for example, TSPs should consider offering subsidized text-only mobile communications packages for deaf or hearing-impaired users.
- *Accessible services and interfaces:* To ensure complete and equal participation in the digital world, PwDs require services and interfaces that ensure that content on television, the Internet or in other electronic media is available in accessible formats – for instance, through the use of closed captions for users who are deaf or hard of hearing and audio description for users who are blind or visually impaired. There also need to

be awareness campaigns on the availability of accessible content.

- *Inaccessible customer services:* PwDs face challenges accessing customer services offered by telecom service providers. Customer services need to be redesigned to address the specific needs of PwDs.¹³

2.18 Certain other measures can also be taken by the TSPs and equipment vendors to address the challenges faced by PwDs while accessing telecom and broadcasting services. The possibility of collaboration amongst the state entities, TSPs, vendors/equipment suppliers and other stakeholders can also be explored.

2.19 In view of the foregoing the issue for consultation are:

Q5: Apart from the measures suggested by ITU, what additional measures can be taken by the TSPs and equipment vendors/suppliers and other stakeholders to address the challenges faced by PwDs while accessing telecom and broadcasting services?

Q6. What are the areas where collaboration between various stakeholders would be useful and how?

Measures suggested in telecom and broadcasting sector

2.20 In the telecom sector, India is predominantly a pre-paid mobile market with over 97% of mobile subscriptions are pre-paid and remaining in post-paid. With less than 3% post-paid

¹³ International Telecommunications Union, Model ICT Accessibility Policy Report (2014), available at <http://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Documents/ICT%20Accessibility%20Policy%20Report.pdf>.

subscriptions also constitutes a significant number considering the fact that India has over 1.2 billion mobile subscriptions. These post-paid subscribers get bills either in printed form or in electronic form. When subscribers opt for billing notification in electronic form, certain TSPs send the bills in picture format which cannot be read even with the aid of a screen reader. For those bills which are sent in printed form, TSPs can consider printing billing details in braille alphabets/numbers or using large print to enable accessibility for the visually impaired as well as special text and multimedia message packages for the hearing impaired. These formats can be sent to specific subscribers who opt for the said facility. Similarly pricing and contract information can also be provided in accessible form for the persons who opt for this format. In case a TSP wants to provide handsets along with mobile subscriptions it can provide accessible handsets or partner with such equipment manufacturers. Manufacturer can modify/provide switch-on and switch-off keys so that persons having difficulty in hand movements can access this key. Another measure that can be considered to increase the input time for IVR. In case of USSD based communication input time for user with motor disability for inserting USSD code can be increased. In case of keyboards for PCs/Laptops provision for a grid on the keypad would make it easier to type. Another alternative is to put more space between the alphabets and numbers on the keypad.

- 2.21 In broadcasting sector, with digital access system becoming compulsory in India, cable television can be broadcast only in digital encrypted format which requires television sets to be connected to a set top box (STB). Therefore, this creates a strong case for STBs becoming compatible for visually impaired viewers by providing audibly accessible options. Some jurisdictions have mandated STBs to be accessible to visually impaired or blind

persons with user option which does not require vision. For instance, FCC Accessibility Rules formulated under Section 255 of the Communications Act requires devices used for watching television provided through cable, satellite, telephone company fibre, etc. accessible to PwDs.¹⁴ Under the present rules, the mandate is that any such device which provides certain functions as on-screen text menus or guides, must be audibly accessible to people with visual impairment or are blind. These functions are:¹⁵

- Channel/program selection
- Display of channel/program information
- Setup options
- Closed captioning control and display options
- Video description control
- Current configuration information
- Playback controls (such as play, pause, rewind, fast forward, stop, and record)
- Input source selection

2.22 In U.K. Electronic Program Guide (EPG)¹⁶ providers are governed under the Communications Act, 2003 which requires them to incorporate such features in their EPGs which is compatible, to the extent possible, for PwDs. Since the functionality of EPGs is dependent upon STB hardware and software, EPG providers work in collaboration with disability groups and STB manufacturers to develop EPGs compatible for PwDs.¹⁷

¹⁴ FCC, Accessible TV and Set-Top Box Controls, Menus and Program Guides, available at: <https://www.fcc.gov/consumers/guides/accessible-tv-and-set-top-box-controls-menus-and-program-guides>.

¹⁵ Ibid.

¹⁶ EPGs are screen-based menus of channels and/or programmes which allow viewers of multi-channel television services to click through to the channel of their choice using their remote control.

¹⁷ Ofcom, Code of Practice on Electronic Programme Guides, available at: https://www.ofcom.org.uk/_data/assets/pdf_file/0031/19399/epgcode.pdf.

- 2.23 Accessibility of Television for PwD can be increased by making certain changes in the programme contents and by use of assistive technologies to make television more accessible, for example well-designed remote controls with legible buttons. It could also be a wireless connection between a television and the viewer's hearing aid.
- 2.24 For viewers who have hearing impairment since birth will benefit from signs and some may be able to follow captioning. For viewers who developed hear impairment (oralists), most will benefit from captioning, unless they also have visual impairments. For viewers with hearing impairments who use hearing aids, being able to hear the programme can be helped by the use of wireless connections between the television receiver and the hearing aid itself. Closed captioning of the programme will also help many to follow fast colloquial speech, unless they have vision or reading impairments.
- 2.25 For viewers who have vision impairments since birth, the main access option for television programmes in vernacular language is audio captioning (also known as audio subtitles or spoken subtitles). Currently services of this kind use speech synthesis at the broadcaster playout center to generate an additional audio track. This can be delivered using the same mechanisms as audio description.
- 2.26 Some of the devices used by persons with visual impairment have camera and associated accessories which warns him about the obstruction ahead. Some of these devices use Global Positioning System(GPS) or location based services (LBS) to get the information about their route or to identify their location. It is important that in case they use internet services for availing such devices, it is important that they get uninterrupted internet/LBS

access. There is a need to identify that what additional measures can be taken or technologies can be deployed by service providers or equipment manufactures to assist PwDs. Some software applications(apps) can be developed for assisting the PwDs and device manufacturer be mandated to put these in white list so that these can be downloaded in all types of operating systems viz Android, iOS, Windows etc.

2.27 In some of the countries the government has mandated, through license terms and condition, the provision of information to the PwDs in accessible form, in case they opt for the same. In addition, steps can be taken to mandate development of certain percentage of contents meant only for PwDs viz audio and visual captioning, additional audio track, etc.

2.28 As per The UN Convention on the Rights of Persons with Disabilities Article 9.2(a), governments are required to establish accessibility standards. Article 4(g) states that they must "*promote the availability and use of new technologies, including information and communications technologies, mobility aids, devices and assistive technologies, suitable for persons with disabilities, giving priority to technologies at an affordable cost.*" Thus governments should promote ICT accessibility standards, and adopt international standards to the greatest possible extent to achieve economies of scale to lower cost and ensure interoperability at the same time. In India too steps can be taken for adoption of international accessibility standards¹⁸ for telecommunication and broadcasting services and devices.

2.29 In view of the above, the issues for the consultation are:

¹⁸ Joint report by ITU and G3ict on [e-Accessibility Policy Toolkit for Persons with Disabilities](http://www.e-accessibilitytoolkit.org/toolkit/international_cooperation/international_standards_development), available at: http://www.e-accessibilitytoolkit.org/toolkit/international_cooperation/international_standards_development.

Q7. Should the Government/TRAI direct the telecom and broadcasting service providers to provide information pertaining to billing, usage, pricing and contracts in the form accessible to PwDs? Please provide a rationale for your response.

Q8: Should the Government/TRAI mandate that the devices used for watching television provided through cable, satellite/DTH, fibre, etc. should be made accessible to PwDs?

Q9. Should international accessibility standards be adopted for telecommunication and broadcasting services and devices in India? Please suggest steps required to ensure their adoption by the service providers/device manufacturers.

Q10. What additional measures can be taken or technologies can be deployed by service providers or equipment manufactures to assist PwDs?

Q11 Should device manufacturers be mandated to allow in their device's operating system those applications which are meant to assist the PwDs? Please justify your response.

Emergency services for the PwDs

2.30 Emergency situations cause panic and distress and can adversely affect the ability to communicate of any person. The problem becomes acute for PwDs and they may find making emergency calls almost impossible. In a report published in 2012, the ITU noted the specific challenges faced by PwDs in soliciting help in emergency situations. For instance, people with hearing and speech impairment may not be able to call and request assistance. Visually impaired person may find it extremely difficult in sharing their location which is necessary for providing

assistance. Similarly, under a stressful situation, people with cognitive impairment may not be able to fully explain the emergency.¹⁹

2.31 As mentioned earlier, Article 9 of the UNCRPD states the need to take measures for identification and elimination of obstacles and barriers to accessibility, which inter-alia include information, electronic, communications services including emergency services. Hence, emergency communication services need to be tailored to suit the specific requirements of PwDs. For this purpose, relay services are considered particularly important for PwDs in the case of an emergency or accident to be able to contact the emergency services provider.²⁰

2.32 In 2015, TRAI while preparing its recommendations on "Single Number based Integrated Emergency Communication & Response System" had taken into consideration the specific comments received from representatives of PwDs and had recommended to the government that SMS based access to the Integrated Emergency Communications and Response System (IECRS) should also be provided. However, there is also a case for developing other access options like email, voicemail and video messaging. For instance, by using video calls, persons with hearing impairments can communicate in sign language and the proposed Public Safety Answering Points (PSAP) can use sign

¹⁹ The International Telecommunication Union and G3ict – The global initiative for inclusive ICTs, "Making mobile phones and services accessible for persons with disabilities"(2012), available at: <http://staging.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Documents/Making%20Mobile-English.pdf>.

²⁰ ITU-D Study group 1, Access to telecommunication/ICT services by persons with disabilities and with specific needs, 2017, available at: <https://www.itu.int/pub/D-STG-SG01.07.4-2017>.

language interpreter relay services to interpret the message.²¹ The facility can also be used by people with visually impairment. In addition to this, voice mail could be of great assistance for them if they are unable to access PSAP through SMS. Further, a system may have to be devised where PSAP can be informed that call being made by a person with disabilities so the PSAP personnel can guide and support such callers to minimize the stressful situation²².In US, the Americans with Disabilities Act (ADA) requires all emergency service centers to have a Telecommunications Device for the Deaf (TDD) available for receiving emergency calls from similar devices.²³

- 2.33 For PwDs, it is important that mobile phones and services provide accessibility features and are compatible with assistive technologies such as hearing and visual aids, and that they can communicate with others and access emergency services via relay services. Applications are being developed where only the emergency button of the mobile phone is made accessible to a part of the body. This button is clicked to access mobile phone wirelessly to send out emergency information and location information to family members, police, hospitals, etc. Japan proposes to cut out a part of the operation unit of the mobile phone, with a button in the vicinity of the ornaments of the body, is a method of pressing the button in the emergency

²¹ “Response on behalf of Persons with Disabilities to the TRAI Consultation Paper on Universal Single Number Based Integrated Communication and Response System”, Amba Salelkar, Available at: http://www.trai.gov.in/sites/default/files/Amba_Salelkar.pdf.

²² Ibid.

²³ The International Telecommunication Union and G3ict – The global initiative for inclusive ICTs, “Making mobile phones and services accessible for persons with disabilities”(2012), available at: <http://staging.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Documents/Making%20Mobile-English.pdf>.

situations.²⁴ Additionally, emergency information made available to the public can also be provided in formats accessible to PwDs such as sign language, text for persons with hearing impairment, and audio messages on television/video programming for those with visual disabilities.²⁵ It can also be considered that every device/handset manufacturer will make at least one model of handsets for PwDs which is having accessibility features and which are compatible with assistive technology features such as hearing and visual aids including emergency buttons etc.

2.34 In view of the foregoing the issue for consultation is:

Q12. What measures can be taken in India so that emergency services are made more accessible for PwDs? Should the implementation of these measures by TSPs be made mandatory by the Government?

Q13. Should the device/handset manufacturer be mandated to manufacture atleast one model of handsets for PwDs which is having accessibility features and which are compatible with assistive technology features such as hearing and visual aids including emergency buttons etc.?

²⁴ ITU-D Study group 1, Access to telecommunication/ICT services by persons with disabilities and with specific needs, 2017, available at: https://www.itu.int/dms_pub/itu-d/opb/stg/D-STG-SG01.07.4-2017-PDF-E.pdf.

²⁵ Ibid.

Funding Mechanism and awareness campaign

2.35 In several countries such as U.S, U.K, Australia, France, New Zealand and Thailand, Universal Service Obligation Fund(USOF) has been channelised to make ICT accessible to PwDs.²⁶ For instance, in UK, the Electronic Communications (Universal Service) Order 2003 provides special measures for PwDs. These special measures include access to directory services, priority fault repair services, relay services, billing in compatible formats, etc.²⁷ Ofcom, the telecom regulator in the UK, designates service providers as universal service provider (USP) to carry out the obligations. Presently, BT and KCOM are the designated USP in the UK.²⁸ BT provides the text relay service in UK under the USO which is accessed by subscribers through their respective communication providers. In Australia, Telstra is the primary USP who provides reasonable access to PwDs to voice telephony, including mobile phones or any equivalent form of communication, if voice telephony is not available.²⁹

2.36 In US, the USOF was set up under the Telecommunications Act, 1996 which is administered by an independent not for profit corporation set up by the FCC.³⁰ Due to the federal government structure, universal service programs are run differently by the

²⁶ CIS and G3ict, Universal Services for Persons with Disabilities - A Global Survey of Policy Interventions and Good Practices, December 2011.

²⁷ The Electronic Communications (Universal Service) Order 2003, available at: <http://www.legislation.gov.uk/uksi/2003/1904/schedule/made>.

²⁸ Ofcom, Universal Service Obligations, available at: <https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/telecoms-competition-regulation/general-authorisation-regime/universal-service-obligation>.

²⁹ ACMA, Universal Service Obligations, available at: <https://www.acma.gov.au/Industry/Telco/Carriers-and-service-providers/Obligations/universal-service-obligation-obligations-i-acma>.

³⁰ Universal Service Administrative Company, available at: <http://www.usac.org/about/about/universal-service/default.aspx>.

respective State Public Utilities Service Commission. For instance, Wisconsin Service Fund is financed by service providers which provides special measures for PwDs.³¹ Similarly, the California Public Utilities Commission runs Programs to provide assistive technology and devices for PwDs.

2.37 As mentioned earlier, in India though USOF has been utilised to fund some pilot projects to enable access to ICT by PwDs, the Indian charter for USOF does not expressly provide for making ICT accessible to PwDs. However, there is a provision of funding projects such as device manufacturing, service delivery, application development etc under corporate social responsibility program. The Ministry of Corporate Affairs'(MCA) notification under section 135 of the Companies Act, 2013³² makes it mandatory (with effect from 1st April, 2014) for companies which fulfill the following criteria to undertake CSR activities:

- Companies with a net worth of Rs. 500 crores or greater, or
- Companies with a turnover of Rs. 1000 crores or greater, or
- Companies with a net profit of Rs. 5 crores or greater

Therefore, all such companies are required to spend, in every financial year, at least 2% of the average net profits of the company made during the three immediately preceding financial years, in pursuance of their Corporate Social Responsibility(CSR) Policy.

2.38 Projects or programs under CSR to be taken up by the companies covered by above the provisions are specified in Schedule VII to the 2013 Act which inter-alia includes:

³¹ Wisconsin Universal Service Fund, available at: <https://psc.wi.gov/Pages/Programs/USF.aspx>.

³² The Companies Act, 2013, available at <https://mca.gov.in/Ministry/pdf/CompaniesAct2013.pdf>

- Eradicating hunger, poverty and malnutrition, promoting health care including preventive healthcare and sanitation and making available safe drinking water;
- Promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly, and the differently-abled and livelihood enhancement projects;

2.39 Therefore the provisions in the Companies Act offer ample scope for the companies to take up projects and activities under the CSR provisions that can enhance and facilitate the ICT accessibility for the PwDs as it is well within the essence of the CSR policy laid down by the government. It is also relevant to mention here that Circular No. 21/2014, dated 18-6-2014³³ issued by MCA has clarified that provisions for aids and appliances to PwDs is covered under category of promoting health care including preventive health care. Accordingly, development of applications, devices and services meant for the PwDs are said to be covered under CSR. Main issue would be to encourage companies to utilize their CSR fund for development of applications, devices and services meant for the PwDs.

2.40 Awareness campaign for PwDs to encourage usage of ICT tools, devices, applications and services need to be run so that PwDs are informed about ICT tools available to them to assist them in living an independent life. The tools and services can be for mobile accessibility, TV accessibility or for web accessibility. The awareness campaign may be run on sustained basis to have a desired effect. Steps can also be taken to promote the manufacture and development of these tools in India. Provision of

³³ Ministry of Corporate Affairs, Clarifications with regard to provisions of Corporate Social Responsibility under section 135 of the Companies Act, 2013., available at https://www.mca.gov.in/Ministry/pdf/General_Circular_21_2014.pdf

certain incentives for manufacturing and development of tools may also be considered.

2.41 In view of the above discussion, the issue for consultation is:

Q14. How should companies be encouraged to utilise their CSR funds for development of applications, devices and services for the PwDs? What kind of devices and applications can be envisaged/designed to make achieve ICT accessibility for PwDs?

Q15. Should any other funding mechanism for the development of applications, devices and services meant for the PwDs be considered? Please give a rationale for your response.

Q16. How can effective campaigns be designed to create awareness about use of ICT accessibility tools? Can such campaigns be funded by CSR funds? If not, what other mechanisms can be used to fund such campaigns?

Q17. Should the Government incentivize the manufacturing and development of ICT tools and devices viz. tools for mobile accessibility, TV accessibility or for web accessibility for PwDs? Please give a rationale for your answer.

Q18. Please give inputs/suggestions/comments on any other issues which you feel are relevant to the subject matter.

Chapter-III:

International practices on accessibility for PwDs

3.1 The UNCRPD mandates ICT accessibility. The widespread adoption of the UNCRPD has resulted in signatory nations adopting slew of policy measures in order to ensure that the accessibility needs of PwDs are incorporated within the legal and regulatory paradigm. Many countries have taken a number of measures to ensure accessibility of telecommunications and broadcasting services for PwDs. This chapter details the manner in which certain jurisdictions have operationalised their obligations under the UNCRPD.

Telecom

United States of America

3.2 The legal framework in US lays down several provisions to ensure accessibility of telecom services for PwDs. FCC rules under section 255 of the Communications Act mandate that telecom equipment manufacturers and service providers must make their products and services accessible to PwDs, if such access is readily achievable. If access is not readily achievable, the manufacturers and service providers must make their devices and services compatible with peripheral devices and specialized customer

premises equipment that are commonly used by people with disabilities, if such compatibility is readily achievable.³⁴

3.3 All hardware and software telephone network equipment and telecommunications equipment are covered under FCC rules. Such equipments include telephones, wireless handsets, fax machines, answering machines and pagers.

3.4 In terms of services, the rules cover basic and special telecommunications services, including regular telephone calls, call waiting, speed dialing, call forwarding, computer-provided directory assistance, call monitoring, caller identification, call tracing and repeat dialing, as well as voice mail and interactive voice response systems that provide callers with menus of choices.

3.5 Further, the FCC rules define the following terms:

- *Accessible*: A product or service is deemed accessible if it provides accessible input, control and mechanical functions, as well as accessible output, display and control functions. For example, a pager that has both audio and visual controls for inputting information, as well as both audio and visual methods for retrieving messages, would be accessible to a person who is blind or deaf.
- *Usable*: For a product or service to be usable, people with disabilities must be able to learn about and operate the product's or service's features effectively. This requirement includes providing access to information and documentation for the product or service, including instructions and user guides. In addition, companies must provide functionally

³⁴ "Telecommunications Access for People with Disabilities", FCC, available at: <https://www.fcc.gov/consumers/guides/telecommunications-access-people-disabilities>.

equivalent access to support services, such as technical support hotlines and databases, call centers, service centers, repair services and billing services.

- *Compatible:* The FCC requires that, where accessibility is not readily achievable, a product or service must be made compatible with peripheral devices or specialized equipment, if compatibility is readily achievable. Peripheral devices are devices that help make telecommunications products and services accessible to individuals with disabilities. Examples are teletypewriters (TTYs), visual signaling devices and amplifiers. To achieve compatibility, the FCC rules require:
 - external electronic access to all information and control mechanisms
 - a connection point for external audio processing devices
 - the ability to connect with TTYs
 - the ability to use TTY signals

3.6 Some other examples of telecom related legal provisions for PwDs are:

The Hearing Aid Compatibility Act: The Hearing Aid Compatibility Act requires the FCC to ensure all wireline telephones manufactured or imported for use in the United States and all "essential" telephones, such as public phones, emergency phones and workplace phones, are hearing-aid compatible. Digital wireless phones were also covered under FCC rules since 2003.

Telecommunications Relay Service (TRS): This service allows persons with hearing or speech disabilities to place and receive telephone calls. In US, TRS is available in all 50 states, the District of Columbia, Puerto Rico and the U.S. territories for local and/or

long-distance calls. TRS providers are generally telecom service providers. TRS is provided free of cost to the users. TRS providers are compensated for the costs of providing TRS from either a state or a federal fund.³⁵ There are several types of TRSs available to users depending upon the needs and the equipment available. Examples include: Text-to-Voice TTY-based TRS, Speech-to-Speech Relay Service, Captioned Telephone Service, Internet Protocol Relay Service etc.

European Union

3.7 The European Commission Universal Service Directive (Directive 2002/22/EC), 173 prescribes rules relating to the needs of PwDs with regard to telecommunications which includes fixed, wireless and broadband telephony. Under the directive, the National Regulatory Authorities (NRA) of member states are empowered to adopt measures according to their prevailing circumstances to provide adequate option of telecommunication services to PwDs.

3.8 Some of the measures taken by NRAs in different European Member States which build upon the EU Directive are mentioned below³⁶.

- Billing in accessible formats: Czech Republic, France, Greece, Ireland, Italy, Lithuania, Netherlands, Norway, Poland, Portugal, Slovenia, Sweden, Switzerland, and UK.
- Information about accessible services covered by the universal service obligation: Czech Republic, France, Greece,

³⁵ "Telecommunications Relay Service", FCC, available at: <https://www.fcc.gov/consumers/guides/telecommunications-relay-service-trs>

³⁶ Joint report by ITU and G3ict on 'Making mobile phones and services accessible for persons with disabilities', available at: <http://staging.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Documents/Making%20Mobile-English.pdf>

Ireland, Italy, Lithuania, Malta, Norway, Portugal, Slovakia, Slovenia, Sweden, Switzerland, and UK.

- Special measures of access for emergency situations such as the sms112 project: Czech Republic, France, Greece, Ireland, Italy, Malta, Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Sweden, Switzerland, and UK.
- Text Relay Services: Czech Republic, Germany, Greece, Hungary, Ireland, Italy, Latvia, Netherlands, Norway, Portugal, Slovakia, Sweden, Switzerland, and UK.
- Video Relay Service: Germany, Sweden
- Speech to Speech Relay Services: Sweden
- Quick dial and speed dial keys for mobile telephony Czech Republic, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Sweden, Switzerland, and UK.
- Volume adjustment in handsets – Czech Republic, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Sweden, Switzerland, and UK.

United Kingdom

3.9 The legal framework for providing communication access to PWDs is primarily governed by the Equality Act, 2010 and the Communications Act, 2003 (Communications Act). The former ensures that disabled people are not unreasonably discriminated against in accessing services or information. The latter legislation imposes obligations on the Office of Communications (Ofcom) to consider the needs of PwDs, elderly and low-income groups while

discharging their regulatory functions. Further, section 10 of this Act imposes a duty on Ofcom to encourage availability of easily available communication apparatus which can be used with ease by widest possible set of people, including those with disabilities.

3.10 The *General Conditions* introduced under the Communications Act lays down special measures for end-users with disabilities which needs to be adopted by communication providers operating in the UK. Some of the important measures are:

3.11 *Access to an approved text relay service for people who are deaf or speech-impaired:* This service offers live text-to-speech and speech-to-text translation services. Such relay service must be capable of being accessed by end-users of the service from readily available compatible terminal equipment, including text-phones, braille readers, personal computers and mobile telephones

3.12 *Special Tariffs for relay service:* The subscriber and end-user shall be charged for conveyance of messages through relay services at the same rate as would have been charged for a message conveyed without relay services. The communication providers shall also design a *special tariff scheme* to compensate such subscribers who takes more time to make calls using relay services.

- Access to emergency SMS (mobile only) for people who cannot make a voice call and who need to contact the emergency services.
- Free directory enquiries and through connection of calls.
- Priority fault repair – this service is available to disabled customers who need urgent repair and is charged at standard rates.

- Third party bill management - enabling a nominated friend or relative to act on behalf of someone who needs help to manage their affairs.
- Bills and contracts in alternative formats
- A guide to publicising services to be made available to disabled customers.

Australia

3.13 The Telecommunications (Consumer Protection and Service Standards) Act 1999 (the TCPSS Act), guarantees Standard Telephone Service (STS) as part of the Universal Service Obligation (USO).

3.14 The TCPSS Act also provides for the National Relay Service [NRS] which allows people who are deaf, hearing and/or speech impaired to access a standard telephone service on terms and in circumstances that are comparable to the access other Australians have to a standard telephone service, including access to emergency services. The NRS also enables anyone in the community to communicate with people who are Deaf, hearing or speech impaired. The NRS is funded through a levy on eligible telecommunications carriers³⁷.

3.15 Australia's Telecommunications (Equipment for the Disabled) Regulations, 1998, outline features and equipment that must be available for use with standard telephone services. They include one-touch dial memory, hands-free capability (a speaker and/or a handset cradle), built-in hearing aid coupler, cochlear implant, telephone adaptor, volume control – to amplify either the incoming or outgoing caller's voice, alternative alerts to indicate

³⁷Telecommunications (Consumer Protection and Service Standards) Act 1999, available at: <https://www.legislation.gov.au/Details/C2012C00089>.

that the telephone is ringing (either an additional ringing device with adjustable volume tone and pitch, or a visual alert), provision of lightweight handsets and the facility to connect a second piece of equipment in parallel with the existing telephone.³⁸

3.16 It also requires that standard customer equipment used in connection with the STS must include a raised ‘pip’ on the ‘five’ digit key to assist people who are vision impaired to locate number keys on the keypad, and a limit on interference between handsets and hearing aids.³⁹

Brazil

3.17 Brazil has proposed public policies aimed at achieving full accessibility for PwDs.⁴⁰

- A programme, to support institutions providing assistance to persons with hearing disabilities, with implementation of an individual fixed access point and telecommunication terminal for hearing-impaired persons, coupled with payment of the basic fixed telephony service subscription, using resources from the Fund for the Universalization of Telecommunication Services.
- Short-Message Service (SMS) Plan for persons with hearing difficulties in the low-income bracket, and calling for a certain volume of messages at reduced cost.

³⁸ ITU, Report on “Accessibility in Mobile Phones and Services for Persons with Disabilities”, 2011, available at: http://www.itu.int/net4/ITU-D/CDS/circulars-dm/DM/DM_2011/pdf/DM-059_SIS_InvitationLetter_Excerpt_en.pdf.

³⁹ Ibid.

⁴⁰ Joint report by ITU and G3ict on ‘Making mobile phones and services accessible for persons with disabilities’, available at <http://staging.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Documents/Making%20Mobile-English.pdf>.

- All fixed and mobile telephone service providers are required to have an intermediate communication facility to assist persons with hearing or speech disabilities.
- It is a requirement that at least two percent of all public telephones, upon request, are adapted to accommodate people with mobility, hearing or speech impairments, and that 100 percent of public telephones be adapted for visually-impaired persons

France

3.18 French government and regulator, along with operators and disability organizations signed a voluntary charter⁴¹ for improving access to mobile telephony for disabled end users which lay down priorities such as the introduction of necessary and comfort features, innovation of new features and provision of analysis and market accessibility features for the service providers to work on.

3.19 Operators are offering accessible handsets, provide bills in Braille or large print for the visually impaired as well as special text and multimedia message packages for the deaf.

Malaysia

3.20 In Malaysia, access for PwDs is part of the universal service obligation. Malaysia's Universal Service Provision identifies PwDs as an "underserved community/group" as "being groups of people in served areas that do not have collective and/or individual access to basic communications services". Act also includes services for disabled consumers in the specific services that service providers are mandated to offer.

⁴¹ Joint report by ITU and G3ict on 'Making mobile phones and services accessible for persons with disabilities', available at <http://staging.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Documents/Making%20Mobile-English.pdf>

South Africa

3.21 South Africa has a strong legislative framework for telecommunication accessibility in the form of a code⁴² with detailed recommendations on accessible services. The code includes provision of inclusive products and services by manufacturers and operators, design of accessible products and services by service providers, provision of emergency, relay, directory and call progress information services, operator assistance at all call centres, billing in alternative formats and accessible advertisements.

Canada

3.22 Canadian Radio-television and Telecommunication Commission [CRTC] has mandated the wireless service providers to provide a copy of the contract, privacy policy, fair use policy, and Critical Information Summary in an alternative format, at no charge to a disabled customer upon request at any time during the period of contract. CRTC has also provided for an extended trial period of 30 days with one month usage quota as trial period for persons with disabilities⁴³ to test the functionality of their device and quality of service in respect of contracted plans. This extended period, as against the 15 days standard trial period, has been mandated by the Commission keeping in view the fact that customers with disabilities still require additional usage in order to ascertain the suitability of devices and services to their needs.

⁴²The Independent Communications Authority of South Africa, Code for People with Disabilities, available at:

<https://www.icasa.org.za/ConsumerProtection/ConsumerSpecialReports/tabid/732/ctl/ItemDetails/mid/2674/ItemID/2836/Default.aspx>

⁴³Canadian Radio-television and Telecommunications Commission, Telecom Regulatory Policy CRTC 2017-200, available at <http://www.crtc.gc.ca/eng/archive/2017/2017-200.htm>.]

3.23 Some of the major wireless Service Providers in Canada, of their own volition, offer in-store sign-language interpretation or language assistance, upon request. The Commission encourages all SPs to offer in-store sign-language interpretation, upon request by the customer. The SPs are required by the Commission to publicize all of their disability-specific products/services - including the availability of in-store sign-language interpretation - on their websites.

Broadcasting

United Kingdom

3.24 Sections 303 to 308 of the Communications Act provide for television services for the deaf and visually impaired. Under Section 303, it is the duty of Ofcom to draw up, and from time to time to review and revise, a code giving guidance on how to promote the understanding and enjoyment by persons who are deaf or hard of hearing, persons who are blind or partially-sighted, and persons with a dual sensory impairment, of the programmes to be included in such services. Ofcom also has to decide upon the means by which such understanding and enjoyment should be promoted. Pursuant to this statutory obligation, Ofcom has issued Guidelines on the provision of television access services in UK.⁴⁴ Broadcasters licensed in the UK providing television access

⁴⁴Guidelines on the provision of television access services, Ofcom, available at: https://www.ofcom.org.uk/_data/assets/pdf_file/0023/19391/guidelines.pdf.

services (subtitling, signing and audio description)⁴⁵ should have regard to these Guidelines.

Japan

3.25 Broadcasters have a responsibility for transmitting their programs to viewers independently not only from “regional difference” but also from “individual difference”.

Captioning:

3.26 The Ministry of Internal Affairs and Communications (MIC) guidelines⁴⁶ stipulate that by the end of 2017, 100% of all programs should be closed-captioned including live programs.

Speech rate conversion (SRC):

3.27 SRC is a very useful tool for the elderly and visually impaired persons to access broadcasting services without difficulty. TV and radio receiver equipped with SRC have been manufactured. Website service of radio news with SRC also has been provided.

⁴⁵ *Audio description* is a service primarily aimed at blind or visually-impaired people. It comprises a commentary woven around the soundtrack, exploiting pauses to explain on-screen action, describe characters, locations, costumes, body language and facial expressions to enhance meaning and enjoyment for blind or visually-impaired viewers. *Subtitling* is text on screen representing speech and sound effects that may not be audible to people with hearing impairments, synchronised as closely as possible to the sound.

⁴⁶ See Chapter 5, Section 4 - Development of an Affluent and Vital Ubiquitous Network Society, available at:
<http://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2009/chapter5-4.pdf>

Chapter 4

Summary of the Issues for Consultation

Q1. Which are the disabilities, with specific accessibility requirement, other than those mentioned in para 2.3 of the Consultation Paper that require consideration for preparing a framework?

Q2. Apart from the challenges enumerated in para 2.3 of the Consultation Paper, what other challenges do PwDs face while accessing telecommunication and broadcasting services?

Q3: In your opinion, what are the reasons for the desired benefits of ICT(telecom and broadcasting) not reaching the PwDs despite several policy measures and scheme being implemented?

Q4: What additional or corrective measures can be taken by the Government to enable better access to telecommunication and broadcasting services and devices to PwDs? Please give a rationale for your response.

Q5: Apart from the measures suggested by ITU, what additional measures can be taken by the TSPs and equipment vendors/suppliers and other stakeholders to address the challenges faced by PwDs while accessing telecom and broadcasting services?

Q6. What are the areas where collaboration between various stakeholders would be useful and how?

Q7. Should the Government/TRAI direct the telecom and broadcasting service providers to provide information pertaining to billing, usage, pricing and contracts in the form accessible to PwDs? Please provide a rationale for your response.

Q8: Should the Government/TRAI mandate that the devices used for watching television provided through cable, satellite/DTH, fibre, etc. should be made accessible to PwDs?

Q9. Should international accessibility standards be adopted for telecommunication and broadcasting services and devices in India? Please suggest steps required to ensure their adoption by the service providers/device manufacturers.

Q10. What additional measures can be taken or technologies can be deployed by service providers or equipment manufactures to assist PwDs?

Q11 Should device manufacturers be mandated to allow in their device's operating system those applications which are meant to assist PwDs? Please justify your response.

Q12. What measures can be taken in India so that emergency services are made more accessible for PwDs? Should the implementation of these measures by TSPs be made mandatory by the Government?

Q13. Should the device/handset manufacturer be mandated to manufacture at least one model of handsets for PwDs which is having accessibility features and which are compatible with assistive technology features such as hearing and visual aids including emergency buttons?

Q14. How should companies be encouraged to utilise their CSR funds for development of applications, devices and services for the PwDs? What kind of devices and applications can be envisaged/ designed to make achieve ICT accessibility for PwDs?

Q15. Should any other funding mechanism for the development of applications, devices and services meant for the PwDs be considered? Please give a rationale for your response.

Q16. How can effective campaigns be designed to create awareness about use of ICT accessibility tools? Can such campaigns be funded by CSR funds? If not, what other mechanisms can be used to fund such campaigns?

Q17. Should the Government incentivise the manufacturing and development of ICT tools and devices viz. tools for mobile accessibility, TV accessibility or for web accessibility for PwDs? Please give a rationale for your answer.

Q18. Please give inputs/suggestions/comments on any other issues which you feel are relevant to the subject matter.

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List of Acronyms

Abbreviation	Description
ADA	Americans with Disabilities Act
apps	applications
ATM	Automated Teller Machine
CRTC	Canadian Radio-television and Telecommunication Commission
DeitY	Department of Electronics and Information Technology
DoT	Department of Telecommunications
DTH	Direct to Home
EPG	Electronic Program Guide
FCC	Federal Communications Commission
GPS	Global Positioning System
ICT	Information and Communication Technology
IECRS	Integrated Emergency Communications and Response System
IoT	Internet of Things
ITU	International Telecommunication Union
IVR	Interactive voice response
LBS	Location Based Services
MCA	Ministry of Corporate Affairs
MIC	The Ministry of Internal Affairs and Communications
NRS	National Relay Service
Ofcom	Office of Communications
PCs	Personal Computers
PSAP	Public Safety Answering Points
PwDs	Persons with disabilities
SMS	Short-Message Service
SPs	Service Providers
SRC	Speech rate conversion
STB	Set Top Box

STS	Standard Telephone Service
TDD	Telecommunications Device for the Deaf
RPWD, 2016	Rights of Persons with Disabilities Act, 2016
TCPSS Act	The Telecommunications (Consumer Protection and Service Standards) Act 1999
TRS	Telecommunications Relay Service
TSPs	Telecom Service Providers
TTYs	Teletypewriters
UI	User interfaces
UK	United Kingdom
UNCRPD	The United Nations Convention on the Rights of Persons with Disabilities
USO	Universal Service Obligation
USOF	Universal Service Obligation Fund
USP	Universal Service Provider
USSD	Unstructured Supplementary Service Data
WCAG 2.0	Web Content Accessibility Guidelines 2.0