Making ICT and MOBILE PHONES ACCESSIBLE FOR PERSONS WITH DISABILITIES IN AFGHANISTAN

Report





Making ICT and mobile phones accessible for persons with disabilities in Afghanistan

January 2014



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Executive summary

This report documents the state of access to the Internet and information and communications technologies, with a special focus on mobile phones for persons with disabilities in the Islamic Republic of Afghanistan. It is based on the ITU-G3ict report on 'Making mobile phones and services accessible for persons with disabilities' which was released in September 2012.

The report examines the international and national legal framework for ICT accessibility which obliges Afghanistan to implement programmes on ICT accessibility, explains key accessibility concepts, showcases disability wise ICT assistive solutions for computers and mobile phones and analyses policy and practical barriers to implementing ICT accessibility. It concludes with recommendations for inclusion of the accessibility agenda in the overall ICT policy framework of Afghanistan and provides two sample templates for funding projects on ICT accessibility in the area of computers and mobile phones.

Some of the high level recommendations include use of the Telecom Development Fund (a universal service charge has been levied on operators since 2003) to roll out accessibility projects, formulation of an electronic accessibility policy and a code of good practice for telecommunications in partnership with the industry, investing in research and development in open source assistive technology in local languages, identification of accessibility as a key criteria for any government procurement, identification and adoption of standards in different domains of ICT and inclusion in the draft copyright act of a fair use clause permitting conversion of materials into accessible formats without the permission of copyright holders. A few enabling amendments/modifications/ additions to existing acts, policy and regulation to facilitate the Ministry of Communications and Information Technology (MCIT) and the Afghanistan Telecommunications Regulatory Authority (ATRA) to act immediately upon recommendations in the area of accessible ICTs are also suggested.

There are a number of annexes in this report: Annex A gives examples of the kinds of policies which countries around the world have formulated on ICT accessibility; Annex B showcases some projects funded out of the universal service funds in other countries; Annex C contains a list of some open source assistive mobile technology; Annex D and E are the project templates.

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INTRODUCTION

1 The international framework

Over 1 billion people across the world or about 15 per cent of the world population ¹ live with some form of disability. As the world population profile becomes older and with increasing incidence of chronic health conditions such as diabetes, cancer and cardiovascular disease, etc., the prevalence of disability is also on the rise. Thus, it is more imperative than ever today, to address issues facing persons with disabilities and remove barriers that prevent them from fully participating in society. Technological advancements today have greatly enhanced the access of the disabled, both to the physical environment, as well as to information and services. For instance, persons who are blind or have low vision can read and use computers with the help of speech technology like screen readers, and deaf, hard of hearing or speech-impaired can communicate on mobile phones through text and video messages. Features such as pictures, predictive text etc. can be of great utility to persons with cognitive difficulties and illiterate persons. Information and communications technology (ICT) solutions hence have tremendous potential to enable persons with disabilities to connect to the information society and lead independent and productive lives, thereby ensuring inclusion. They have proven to be a critical tool in the hands of policy makers to ensure universal inclusion and participation.

The issue of accessibility has been addressed in several international treaties and frameworks. Most recently, it has been incorporated in the International Telecommunications Regulations (ITRs) drafted at the World Conference on International Telecommunications (WCIT) in Dubai in 2012.² Article 8B under 57D 8.3 of the ITRs states that:

"Member States should promote access for persons with disabilities to international telecommunication services, taking into account the relevant ITU-T Recommendations."

This chapter gives a brief overview of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) and the Biwako Millennium Framework and their dispositions which are especially relevant to the implementation of ICT accessibility.

The UNCRPD³ which came into force in May 2008 was formulated based on the principle that persons with all disabilities must be able to enjoy basic human rights and fundamental freedoms. The preamble recognises disability as an evolving concept which results from the interaction between persons with impairments and attitudinal and environmental barriers that hinder full and effective participation in society on an equal basis with others. It defines disability as:

"persons with disabilities include 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."

Although accessibility itself has not been specifically defined in the UNCRPD, it is a fundamental concept of the Convention which has been recognised as one of its eight principles⁴ and established as an integral

World Disability Report, WHO and WB Group, http://whqlibdoc.who.int/publications/2011/9789240685215 eng.pdf

www.itu.int/en/wcit-12/Pages/default.aspx

www.un.org/disabilities/default.asp?id=259

⁴ Article 3 of the Convention

part of human rights⁵. This is evident from the fact that the word 'access' has been used nine times, and accessibility, seventeen times throughout its text. Access to ICTs is also inextricably woven into the dispositions of the Convention in different ways, since most rights such as right to education, employment, information and to life as a whole in today's information age is powered by ICTs. It is for this reason that Article 9 of the convention explicitly articulates the right of persons with disabilities to access information and communications technologies on an equal basis and without discrimination. It also calls upon Member States to encourage the private sector to deliver accessible products and services. Since technologies and ICT environments are constantly evolving, the Convention has defined obligations in relation to desired outcomes by application areas, rather than in specific technical terms. Hence, policy makers, civil society and industry can identify and define solutions customized for their country.

There are key dispositions of the UNCRPD which are relevant to ICT accessibility:

- Article 4 outlines obligations on the States Parties and specifically mentions ICT and accessibility.
 - Article 4g) recommends states parties "To undertake or promote research and development
 of, and to 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".
 - Article 4h) obliges states parties to "provide accessible information to persons with disabilities about mobility aids, devices and assistive technologies, including new technologies, as well as other forms of assistance, support services and facilities".
- Article 5 recommends that States Parties take appropriate steps to provide reasonable accommodation⁶ in order to ensure equality and avoid discrimination.
- Article 9 on Accessibility explicitly provides that States Parties should take appropriate measures
 to ensure to persons with disabilities access, on an equal basis with others, to the physical
 environment, to transportation, to information and communications, including information and
 communications technologies and systems'.
 - Article 9.1 b) includes information, communications and other services, including electronic services and emergency services as areas in which obstacles and barriers to accessibility need to be removed.
 - Article 9.2 b) requires private sector service providers to provide accessible services.
 - Article 9.2 f) requires States Parties to promote other appropriate forms of assistance and support to persons with disabilities to ensure their access to information.
 - Article 9.2 g) asks States Parties to promote access for persons with disabilities to new information and communications technologies and systems, including the Internet.
- Article 19 concerning living independently promotes assistive technologies to support living and inclusion within the community.
- Article 21 concerning the freedom of expression and opinion and access to information directs states parties to ensure that persons with disabilities have access to information in all forms of communication of their choice and promotes the use of Braille, assistive technologies, sign languages and all accessible means, mode and formats of communication; it also urges private

World Disability Report, Introduction, page xxi

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According to Art. 2 of the CRPD, "Reasonable accommodation means necessary and appropriate modification and adjustments not imposing a disproportionate or undue burden, where needed in a particular case, to ensure to persons with disabilities the enjoyment or exercise on an equal basis with others of all human rights and fundamental freedoms;", www.un.org/disabilities/default.asp?id=262

entities and mass media providers, including providers of services through the Internet to make their services accessible to persons with disabilities.

- Article 24 concerning education contains accessibility requirements, mentions reasonable
 accommodation and promotes assistive technologies in order to ensure that persons with
 disabilities have access to education on an equal basis with others in their communities.
- Article 26 concerning rehabilitation promotes assistive technologies.
- Article 27 concerning work and employment recommends that an open, inclusive and accessible
 work environment be available to persons with disabilities; it promotes the provision of
 reasonable accommodation to persons with disabilities in the workplace.
- Article 29 concerning political rights contains accessibility requirements and promotes assistive technologies.
- Article 30 concerning participation in cultural life, recreation, leisure and sport requires cultural materials and television to be accessible.
- Article 31 concerning the collection of statistics and research data to enable States to fulfil their
 obligations under the CRPD, mentions that this data should be accessible to Persons with
 disabilities.
- Article 32 concerning international cooperation recommends that international cooperation be accessible to Persons with disabilities and promotes the sharing of accessible and assistive technologies.

Biwako Millennium Framework

The United Nations Secretariat for the Asia and Pacific region (UNESCAP), which has 62 Member States, formulated the Biwako Millennium Framework for Action towards an inclusive, barrier-free and rights-based society for persons with disabilities in Asia and the Pacific. The Biwako framework is time bound up to 2013 and will be replaced by a new framework which is under process. It promotes policies that governments in the Asia-Pacific region can use to foster inclusive, rights based and barrier free societies for persons with disabilities. The preamble defines these terms as follows:

"An 'inclusive' society means a society for all and a 'barrier-free' society means a society free from physical and attitudinal barriers, as well as social, economic and cultural barriers. A 'rights-based' society means a society based on the concept of human rights, including the right to development".

The framework specifies nine principles or policy directions, one of which explicitly talks about universal design i.e. to:

"Adopt the concept of universal and inclusive design for all citizens, which is cost-effective, in the development of infrastructure and services in the areas of, inter alia, rural and urban development, housing, transport and telecommunication."

In addition, the framework also defines seven priority areas for action such as self-help organizations of persons with disabilities, early detection, intervention and education, training and employment among others. One such priority area is access to information and communications, including information, communications and assistive technologies. For each priority area, the framework identifies the critical issues, millennium development goals, targets of the Biwako Millennium Framework and the actions needed to achieve the targets.

⁷ <u>http://uncrpd.nileshsingit.org/international-documents-on-disa/biwako-millenium-bmf</u>

There is a lot in terms of international framework and precedence which promote physical and ICT accessibility for persons with disabilities. Annex A contains a table outlining the different policy initiatives of a few countries on Internet and electronic accessibility. Governments wishing to implement this can draw upon best practices from around the world to implement it in their country.

2 Understanding ICT accessibility

This chapter gives an overview of the key concepts of ICT accessibility and ICT solutions which enable access by persons with disabilities to the information society.

2.1 ICT accessibility

Accessibility is a measure of the extent to which a product or service can be used by a person with a disability as effectively as it can be used by a person without that disability. As life in the 21st century is increasingly moving online and into the cloud, the concept of accessibility is gaining universal recognition as a fundamental requirement to be able to connect every individual on the planet to the information society. While accessibility is beneficial to society at large, it is especially critical for specific groups such as persons with disabilities to function effectively and independently. The application of accessibility can broadly be classified into the areas of physical and ICT infrastructure and services.

Physical accessibility refers to making the surrounding physical environment such as buildings, roadways, transportation etc. accessible to persons with disabilities. Some examples of physical accessibility include ramps to complement steps in buildings, audio announcement systems on lifts with Braille dots on the buttons to facilitate independent access by the blind, visual signage accompanying public address systems to facilitate access by the deaf, uniformity of pavements and public walkways with sloping curbs to ease navigation by wheel chair users, blind and the elderly and having low floor busses or busses with lifts for the benefit of those who are unable to climb due to a disability or age.

ICT accessibility covers accessibility of electronic infrastructure and services, which essentially means that it affects every domain of human activity today, be it governance, business, sports and leisure, education, employment or social interaction. Accessibility of ICT benefits a very large constituency of people such as persons with disabilities, senior citizens, illiterate people, linguistic minorities, people with very low bandwidth Internet connections⁹ and those accessing the Internet through hand held devices such as mobile phones.

Given that information and services are increasingly communicated over the Internet, ensuring the accessibility of this medium becomes very important. In the absence of electronic accessibility, persons with disabilities are in danger of being excluded from essential services, social interaction and information sources delivered through ICT tools. Government or commercial services or information may be delivered through ICT tools such as TV, computers, mobile phones, tablet PCs, digital interfaces and public information terminals. Tasks like interacting with a website, a telephone, an electronic kiosk or simply watching the news or following emergency public announcements which are mundane or commonplace for non-disabled persons can become overwhelmingly difficult or impossible to accomplish for persons living with disabilities if accessibility of these ICT tools is not considered.

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e-Accessibility Policy Toolkit for Persons with Disabilities, available at www.e-accessibilitytoolkit.org/toolkit/eaccessibility_basics/accessibility_and_the_purposes_of_icts

For instance, people accessing the net through a dialup connection

ICT accessibility broadly includes accessibility of hardware, software, websites and content. There are universally accepted standards for different areas of accessibility, such as the Web Content Accessibility Guidelines (WCAG) for websites and the Digital Accessible Information System (DAISY) for content. Similarly standards exist for different ICT products and services such as databases, multimedia, television, Automated Teller Machines (ATMs), governments around the world are increasingly adopting these standards within their policy frameworks to ensure that electronic public infrastructure is accessible to all persons. This is an essential prerequisite to having democratic and efficient e-governance and m-governance systems.

Before going into further detail on the subject of ICT accessibility, it is necessary to understand a few concepts such as universal design, reasonable accommodation and assistive technology and what they mean in the context of ICT accessibility.

2.2 Universal design

The principle of universal design is a key concept for accessibility. It is explicitly promoted in Article 2 of the UNCRPD as follows:

"Universal design" means 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.

A three-pronged approach is recommended in order to promote universal design:

- 1) The product/service needs to undergo minimum possible adaptation at the least cost, when being customized to meet the specific needs of persons with disabilities.
- 2) The availability and use of products, environments, programs and services subject to universal design needs to be promoted.
- 3) Standards and guidelines that promote universal design need to be developed and disseminated.

The concept of universal design recognises the diversity of the human population and the fact that human needs and abilities are constantly changing. Today, the universal design approach has expanded the application of accessible design concepts to not only ICT but also to programs and services. In addition, universal design of the built environment is an inclusive cost effective approach to good design for buildings and built up areas. As it takes into account the needs of all people, buildings based on universal design concepts require less upgrading and renovation as they age.

2.3 Reasonable accommodation

According to the definition in Article 2 of the UNCRPD:

"Reasonable accommodation" means "necessary and appropriate modification and adjustments not imposing a disproportionate or undue burden, where needed in a particular case, to ensure to persons with disabilities the enjoyment or exercise on an equal basis with others of all human rights and fundamental freedoms.

Reasonable accommodation is closely allied with accessibility as it may be the only way to enable persons with disabilities to enjoy the same rights and freedoms as other people. Article 2 of the UNCRPD takes the position that denial of reasonable accommodation is itself a form of discrimination. In addition, Article 5 on equality and non-discrimination directs signatory States to take appropriate steps to provide reasonable accommodation. Provision of reasonable accommodation is also explicitly mentioned in Article 14 Liberty and security of person, Article 24 Education and Article 27 Work and employment. Thus, all countries that are signatories to the UNCRPD need to incorporate reasonable accommodation into their legislation.

Reasonable accommodation could mean different things in different contexts. For instance, it could mean the provision of speech recognition software to enable visually impaired persons to work or a writer to enable blind students to sit for exams; or the provision of a sign language interpreter for hearing impaired persons; or ensuring that all software and systems used in the workplace or place of study conform to accessible design principles; it could also mean making modifications to a water closet or restroom so that a person using a walker can work in the building. Ensuring that the mainstream environment, products and services conform to universal design may reduce the number of reasonable accommodations that need to be made; however, assistive technology or accommodations may still be required for persons with specific disabilities.

2.4 Assistive technology

Assistive technology in the context of this report refers to technology that enables persons with disabilities to access information, communication or the environment. Assistive technologies harness the power of ICT systems to help and support independent living, personal mobility, working and communication. As access to employment, education, leisure and forms of social interaction become increasingly dependent on ICT, many people are dependent on assistive technologies to help them access the tools used across all of these settings.

Assistive technologies have evolved to meet different needs depending on the kind of disability. While one user may be unable to see the display screen on account of a visual disability another may be unable to physically access the technology. For instance, a person with motor skills impairment may not be able to use a standard keyboard or mouse. Other needs include those of persons who are unable to read or communicate using the technology for e.g. persons with learning disabilities like dyslexia may not be able to read blocks of text, persons with hearing disabilities may not be able to use technologies that are reliant on audio.

Some of the solutions provided by assistive technologies for persons with different kinds of disabilities are listed below:

- **Vision**: Accessibility features are built into operating systems like Windows¹¹, Linux¹² and Apple Mac¹³. In addition to these, many technologies provide ways for users to either adjust the screen settings as per their needs (enlarging text, changing contrast) or provide a way to convert visual output into audio or tactile forms via Braille or screen readers such as Jaws.
- Physical: In addition to accessibility features within the operating system, users may require a combination of a hardware alternative to a standard keyboard and mouse and software to adjust the way that the keyboard or mouse alternative responds to input. ¹⁴ Open source solutions such as Dasher and FXC software allow the user to further customise the operating system. Additional support can be provided via solutions like touchscreens, switching, voice recognition and on screen keyboards, among others. ¹⁵

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G3ICT eAccessibility Toolkit,
www.e-accessibilitytoolkit.org/toolkit/promoting assistive technologies/introduction assistive%20technologies

www.bbc.co.uk/accessibility/win/sub_root.shtml

www.bbc.co.uk/accessibility/linux/sub_root.shtml

www.bbc.co.uk/accessibility/mac/sub_root.shtml

www.e-accessibilitytoolkit.org/toolkit/promoting assistive technologies/solutions

http://abilitynet.wetpaint.com/

• Reading and communication: Standalone devices are available for people with reading and communication difficulties for e.g. Voice Output Communication Aids (VOCA) (for speech difficulties), eBook readers (for reading difficulties), spelling aids for people with reading difficulties such as dyslexia. Tools such as RapidSet and Washer enable users to change the text styles to make reading easier. Certain other software like VuBar, RedPlease, and Bookreader add extra tools to the system to support reading. In addition there are many commercial and proprietary technologies that enhance the computer with special features. Examples of such hardware tools include Daisy readers and Kurzweil machines and examples of software tools are Dragon Naturally Speaking and TexthelpRead.

Further information on assistive technology can be found at $GATE^{16}$ and $EMPTECH^{17}$.

2.5 Accessibility standards

Technical design standards provide a consensus in the industry on the main components required to implement accessibility. This ensures that everyone has the same expectations from each technology, thus promoting flexibility and interoperability between systems. A big advantage of standards is that once they are adopted standards can influence change on a global scale and lay the groundwork for countries implementing their accessibility policies. All that the countries need to do is to base their accessibility policy on a particular international standard and the more the number of countries that adopt a standard, the greater the interoperability of technologies developed in these countries. Standards ultimately provide users with disabilities with the certainty that barriers will not prevent them from participation in society.

USA has made it a civil rights requirement for the federal government to only procure technology that meets accessible design specifications as provided by the Electronic and Information Technology Accessibility Standards or Section 508, as it is widely known. Thus, the federal government is incentivising organizations and people to design accessible mainstream technologies. Apart from Section 508, the other most widely adopted standards for accessibility on the Internet are the World Wide Web Consortium's (W3C) Web Content Accessibility Guidelines (WCAG). An important standard dealing with digital talking books is Digital Accessible Information System or DAISY. In addition to these, there are many other standards and standards organizations working in the area of accessibility. Some of these are outlined in greater detail below.

2.5.1 Web content accessibility guidelines

The W3C is an international industry consortium created in 1994 to develop common protocols that enhance the interoperability and promote the evolution of the World Wide Web. In 1997, the consortium launched the Web Accessibility Initiative (WAI) to work towards removing accessibility barriers for people with disabilities. The WAI published the WCAG 1.0 which was later followed by version 2.0. The WCAG are the most widely adopted accessibility guidelines across the world. The WAI website has a wealth of information on accessibility, with an introduction, guidelines, presentations and tutorials and links to many other resources. The WCAG 2.0 has 12 guidelines organised under four principles – Perceivable, Operable, Understandable and Robust.¹⁹

AbilityNet's Global assistive technology encyclopedia, available at http://abilitynet.wetpaint.com/

Emptech's guide to assistive technologies available at www.emptech.info/

www.access-board.gov/sec508/standards.htm

www.w3.org/WAI/WCAG20/glance/

Examples of guidelines under each of these criteria are:

- Perceivable: Involves guidelines that make it easier for users to see and hear content, provide
 text alternatives for non-text content (such as providing a description for pictures or controls
 that identify their purpose, using alternative methods of implementing captcha code), provide
 captions for multimedia content etc.
- Operable: Includes guidelines that make it easier for users to operate the website for e.g.
 ensuring that all functionality is available from a keyboard (and not just a mouse), ensuring that
 users have enough time to read and use content, helping users navigate and find content (such
 as adding links at the top of the page to each area of content)
- Understandable: Includes guidelines to make text readable and understandable (for instance providing sign language interpretation for all content, using the clearest and simplest language, using a light pastel background rather than white background behind black text), making content appear and operate in a predictable manner (for e.g. not initiating a change of context such as when a component is brought into focus i.e. avoiding opening new windows/tabs from a link unless it is necessary), helping users identify and avoid errors (for e.g. provide a description of any errors detected during input)
- Robust: Includes guidelines to maximize compatibility across different versions of user tools
 including assistive technologies (for e.g. ensuring that deprecated technology features are not
 used, web pages are validated and HTML is complete and well-formed)

Each guideline can be tested against three levels for conformance – A, AA and AAA. The WCAG also covers mobile accessibility guidelines. WAI is working on Applying WCAG 2.0 to Non-Web Information and Communications Technologies (WCAG2ICT), a website accessibility conformance methodology and other tools to facilitate the spread of accessible technology.

2.5.2 Unicode Consortium²⁰

The Unicode Standard²¹ is the internationally accepted standard for the representation of digital text on various platforms. It assigns a unique code for every character irrespective of platform, programme, font or language. Standardizing digital text content in compliance with Unicode allows for greater interoperability, assures greater accessibility and eliminates error in processing and ensure lossless transmission of data and better interoperability.

2.5.3 **DAISY**

The DAISY consortium is a global consortium of organizations dedicated to finding the best way to read and publish. It was formed in May 1996 by talking book libraries to lead the worldwide transition from analogue to digital talking books.²² DAISY (Digital Accessible Information System) is an open, interoperable and non-proprietary contents/user interface standard that can be used to create accessible content.

Although Daisy was originally developed for persons with print disabilities, it is also a best practice for digital talking books; education and training materials; HIV/disaster prevention tools; and publication tools for indigenous languages. DAISY is currently deployed by governments worldwide such as at the U.S.

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www.unicode.org/consortium/consort.html

http://unicode.org/

www.daisy.org

Library of Congress²³, at Dedicon Netherlands²⁴, the largest library for the blind in the Netherlands, and at the TPB Swedish Library of Talking Books and Braille.²⁵

In general, DAISY provides the following benefits

- It allows a person to navigate the digital talking book in a way comparable to how a print book would be used. For example, readers can examine the book by page, section, or chapter, or use a table of contents or an index.
- 2) Users can synchronize an electronic text file with an audio file and choose to either examine the text and/or listen to its audio version.
- 3) Users can generate an electronic Braille file from the electronic text used to create the DAISY book; or produce a structured digital "text-only" document which can be read with a DAISY software player along with a Braille display or speech synthesizer.

2.5.4 Other accessibility standards

In addition to the accessibility standards mentioned above, there are many other organizations working in the area of setting accessible standards.

ISO/IEC JTC1 is a joint technical committee created by the International Standardization Organization (ISO) and the International Electrotechnical Commission (IEC) to provide a single, comprehensive standardization committee to address ICT standardization. JTC 1 has established a Special Working Group on Accessibility (SWG-A). Its objectives include:

- determining an approach and implementing the gathering of user requirements;
- gathering and publishing an inventory of all known accessibility standards efforts;
- identifying areas / technologies where voluntary standards are not being addressed.

The three main deliverables of the SWG are

- 1) User Needs Summary that outlines barriers faced by persons with disabilities during standard planning and development.
- 2) Standards Inventory that itemizes all known standards and public policies related to accessibility.
- 3) Guidance on mapping user needs.

A very important standards setting organization is the International Telecommunication Union (ITU) which works extensively in the fields of Radio Communications (ITU-R), Standardization (ITU-T) and Development (ITU-D). ITU-T has been promoting accessibility with the concept of total communication and the principle of 'design for all' since 2000 – with Recommendation ITU-T F.703. The ITU-T Joint Coordination Activity on Accessibility and Human Factors (JCA-AHF) was set up to increase awareness on accessibility and human factors. It assists ITU-T Study Groups on how to provide accessibility for persons with disabilities in its standards and also communicates, coordinates and assists not only ITU-T but also the other two ITU sectors, ITU-D and ITU-R. Two study groups with have AHF responsibilities are ITU-T Study Group 2 (Operational aspects of service provision and telecommunication management), which looks at human factors related issues for improvement of the quality of life through international

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www.loc.gov/nls/reference/factsheets/audiobkplayers.html

www.dedicon.nl/ www.daisy.org/member/67/Dedicon%20Netherlands,%20accessible%20information%20for%20people%20with%20a%2 Oprint%20impairment

www.tpb.se/english/

telecommunications, and Study Group 16 (SG 16) (Multimedia, coding, systems and applications), which deals with accessibility to multimedia systems and services for persons with disabilities. Some examples of the standards developed by ITU–T that address accessibility and usability needs of persons with disabilities, older persons, and children are listed below²⁶:

- E.121: Pictograms, symbols and icons to assist users of the telephone service (Easy-to-understand symbols).
- E.135: Human factor aspects of public telecommunication terminals for people with disabilities.
- E.136: Specification of a tactile identifier for use with telecommunication cards.
- E.138: Human factor aspects of public telephones to improve their usability for older people.

The following ITU-T Recommendations on accessibility are a result of ITU-T Study Group 16 work:

- V.18 provides for harmonization of text telephony.
- V.151 Procedures for the end-to-end connection of analogue PSTN text telephones over an IP network utilizing text relay.
- T.140 specifies the general presentation protocol for text conversation.
- T.134 details how to use text conversation in the T.120 data conferencing environment.
- H.323 Annex G defines text conversation in H.323's packet multimedia environment.
- H.248.2 allows gateway procedures between Text Telephony in PSTN and real-time text in IP and other networks.
- H Series Supplement 1 gives users the requirements on video communication for sign language and lip reading.

Telecommunication accessibility checklist for standards writers:

 F.790 provides telecommunication accessibility guidelines for older persons and persons with disabilities.

In addition, another landmark activity undertaken by ITU is the development of an online e-Accessibility toolkit²⁷ in collaboration with G3ict²⁸ for policy makers. An abridged version of the toolkit is also available in print form.

Some international standards development organizations involved in e-Accessibility are JISC²⁹, ETSI ³⁰ and InterNational Committee for Information Technology Standards (INCITS) ³¹.

In addition to SDOs, international civil society organizations like International Center for Disability Resources on the Internet (ICDRI), Global Partnership for Disability and Development (GPDD), Royal National Institute of Blind People (RNIB) and many others are also involved in e-accessibility work.

G3ict – the Global Initiative for Inclusive Information and Communication Technologies – is an Advocacy Initiative of the UN GAID, the United Nations Global Alliance for ICT and Development, launched in December 2006 in cooperation with the Secretariat for the Convention on the Rights of Persons with Disabilities at UN DESA. Its mission is to facilitate and support the implementation of the dispositions of the Convention on the Rights of Persons with Disabilities on the accessibility of Information Communication Technologies (ICTs) and assistive technologies.

www.e-acc<u>essibilitytoolkit.org/toolkit/international_cooperation/international_standards_development#International_</u>

www.e-accessibilitytoolkit.org/

www.jisc.go.jp/eng/

www.etsi.org/WebSite/AboutETSI/AboutEtsi.aspx

³¹ www.incits.org/

ICT accessibility is critically important in the increasingly Internet and mobile phone driven world and needs to be implemented in e-governance and m-governance as well as all other areas of human activity like education, banking, health care, transportation and recreation. Accessibility needs to be applied across initiatives such as Public Telecentres, Internet/telephony kiosks, ticket vending machines, ATMs and in all situations where a person has to interact with a machine, software or any other electronic interface. It can be easily achieved if it is incorporated at an early stage in the life cycle of an ICT product by following universal design and accessible standards. Adherence to standards ensures that the concepts and basis on which assistive technology is developed remain consistent across platforms. It is critical that governments adopt and adapt accessibility standards and principles in policy and practice to enhance the quality of life for their citizens.

3 Mobile accessibility features and services

This chapter outlines various features that can be provided in mobile phones to make them accessible to persons with different kinds of disabilities and describes special services that can be provided via mobile phones or wireless communications to improve accessibility and quality of life. A more detailed explanation of the topics in this chapter can be found in the ITU-G3ict report *Making mobile phones and services accessible for persons with disabilities.* 32

3.1 Cognition – Basic accessibility features and services

People with cognitive disabilities may have problems related to memory, analytical skills, attention, reading skills, mathematical or computational comprehension, reading comprehension, and communication. For such persons, it is important to have a clear and simple user interface (UI), and consistent UI elements for easy selection of options.

Speech recognition where the computer or mobile device recognizes verbal commands given by the user and takes appropriate action is one of the most important accessibility solutions for persons with cognitive disabilities. This has become very accurate with many voice dictation applications now being able to detect accents. Closely linked with speech recognition is the 'text to speech' ability where electronic text is converted into speech. This feature makes it easier for persons with cognitive disabilities to read contact names, messages etc.

Other accessible features include predictive texting which makes typing messages easier³³; audio, visual and vibrating alerts for receiving calls as well as for built in schedule reminders, larger display screens and formatting options for text to make reading easier; clear and easy to understand instruction manuals, menus with simple and prominent icons and navigational ease; feature to associate photos with telephone numbers, a highly pictorial visual display to enable ease of use for non-readers, provision of audio, visual and /or tactile feedback upon pressing the keypad, predictive help menus and keypad shortcuts.

3.2 Dexterity – Basic accessibility features and services

Persons who are unable to use their limbs, or flex their arms/fingers easily due to a disability/ impairment will not be able to press or otherwise physically navigate buttons on a mobile phone.

One of the most important accessibility features for persons with impaired dexterity is voice recognition. Voice commands for working on computers and cell phones for placing calls, composing text messages or documents, navigation, web surfing etc. help quadriplegics and persons with limited dexterity to use

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http://g3ict.org/resource_center/publications_and_reports/p/productCategory_whitepapers/subCat_0/id_191

http://us.blackberry.com/support/devices/blackberry_accessibility/#tab_tab_cognitive

computers and mobile phones. Another useful feature is auto text. This reduces the number of keystrokes needed to type the message³⁴ and benefits users with limited hand movement.

Sensitive touch screen phones can also benefit users with movements limited to their fingers. For people who may have trouble holding cell phones steady (such as people with Parkinson's, nervous disorders, hypothyroidism or elderly people), downloadable applications make it possible to take clear pictures by adding 'anti-shake' functionality to standard cell phone cameras.

Some other accessible features include call answer by pressing any key, enabling the user to lock modifier keys on QWERTY keypad phones to perform actions requiring multiple keystrokes with a single keystroke, voice activated answering with speakerphone, candy bar design to avoid extra movements, flat back on the phone to allow for operation on a table top rather than having to be held, optional accessories such as a Bluetooth headset or keyboard to make texting and talking easier and ergonomic grips and skid-free casing for improved stability.

3.3 Hearing – Basic accessibility features and services

People who are deaf or hard-of-hearing are unable to communicate over telephone because they cannot hear the caller or automated electronic messages, such as customer care services of an airline or banking service.

Some accessibility features to help the hearing impaired to use mobile phones include visual or vibrating alerts to intimate the user about incoming calls, emails, messages, calendar appointments, and wake up alarms and visual or tactile indicators for the keypad. Having adjustable volume control helps persons who are partially hearing impaired and also enhances hearing aid functionality for deaf persons. Another useful feature is having a call log displaying missed calls that the user might have not have answered on account of not feeling the vibrator or seeing the lights. Video conferencing and messaging options like SMS (short messaging service), email and MMS (multimedia messaging service), offer alternative means of communication for e.g. deaf persons can communicate via sign language through video chat. Mono audio, which involves transferring both left and right channel audio content to both ear-phones, helps people with hearing difficulties in one ear. ³⁵ One accessibility device specifically for the hearing/speech impaired is a Text Teletypewriter (TTY) which transmits typed text conversation over telephone lines instead of a spoken one. Users can send and receive text messages in the same manner that regular phone calls are made and received, if TTY machines are deployed at both ends of the conversation. Captioning, which involves the display of transcribed audio, also enables hearing impaired persons to watch videos and movies and is supported by many mobile phones including the iPhone. While closed captioning refers to the display of transcribed audio only to people who specifically request it, open captioning means display of transcribed audio for all.

Accessible Services for the hearing impaired include:

- **Relay services**: Relay services are human operated services for media and mode translation during phone conversations.
- Tailor made plans for the deaf: such as paying only for messaging and not for voice calls or by providing not only "only text" but also "only text and data" plans as against the bundling of voice in the usage plan, as is customary. For example, T-Mobile³⁶ in the US has a data only plan. AT&T also has a Text Accessibility Plan (TAP).³⁷

http://us.blackberry.com/support/devices/blackberry_accessibility/#tab_tab_mobility

www.apple.com/accessibility/iphone/hearing.html

http://phoneboy.com/1945/why-the-deaf-heart-t-mobile

http://relayservices.att.com/content/225/Text Accessibility Plan TAP.html

• SMS to Avatar translation for the hearing impaired and illiterate (Tunisia): Websign is a project of the University of Tunisia, based on the technology of avatar (animation in virtual world). The software converts typed text into a real-time and on-line interpretation in sign language with the help of a dictionary of word and signs. The dictionary has a very simple interface and even allows persons to create their own signs and words.³⁸

3.4 Vision – Basic accessibility features and services

The blind and people with low or impaired vision are unable to see the screen and hence cannot use the phone for making calls to contacts in the address book, sending and receiving messages, navigating the keypad and menu etc.

One of the most important accessibility features for the visually impaired are screen readers which translate the information on the screen into speech, non-speech sounds and Braille for a Braille display. Mobile phones may have a built-in screen reader or support a third party screen reader. In addition to software, mobile handsets can also come with built-in features that facilitate their use by the visually impaired. These could be tactile markers to help orient fingers on the keypad (e.g. the raised dot on the number five on telephones and mobile phones aids keypad navigation) and audible or tactile feedback to confirm that a button has been pressed, as well as for specific services or features like low battery, call waiting etc. Adjustable font sizes, changeable main display size, backlighting and brightness/contrast controls for display can help partially sighted people change the settings to suit their needs. Basic text-to-speech functionality to check caller identity and read text messages and scanner and OCR (Optical Character Recognition) to provide print to electronic text conversion (e.g. KNFB Reader)³⁹ enable visually impaired persons to convert text inputs into formats accessible to them. Screen magnifiers are essential for those with a certain degree of usable vision. In addition, people with low vision also benefit from a variety of services such as digital libraries and GPRS.⁴⁰

3.5 Illiteracy – Looking beyond disability

Although illiteracy is not classified as a disability, its prevalence among disabled persons deserves special attention. Many features designed for persons with disabilities may help illiterate persons use a mobile phone with greater ease and understanding, which in turn enhances the business case for service providers and handset manufacturers to include accessibility features. Some such features are

- **Intuitive user interface**: An intuitive UI is largely understandable based on graphical icons thereby facilitating the use of modern cell phones.
- Audio based interface: A primarily audio-based interface has to support not only the native language of people with limited literacy skills, but also their local dialect for convenience and ease of use.
- Other features include audible or tactile feedback for the keypad, ability to associate photos with telephone numbers, keypad shortcuts, and voice recognition.

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http://hebergcck224.rnu.tn/ws/index.php

³⁹ www.knfbreader.com/

General Packet Radio Service. It is a packet oriented mobile data service that allows mobile networks to transmit packets to the internet, thus enabling services like MMS, Instant Messaging, SMS messaging and broadcasting, and 'Always On' Internet amongst others.

http://en.wikipedia.org/wiki/General Packet Radio Service#Usability

In addition to features, innovative use of smart phones can help people gain literacy skills. For instance, Celedu (Mobile + Education) has started a project in this direction in India by spreading language skills and other learning content through downloadable games on cell phones. ⁴¹ Answering a question advances the person in the game.

3.6 Special services offered by wireless service providers

In addition to the accessibility features and services mentioned earlier, there are special services that can improve access and enhance the quality of life for persons with disabilities. Some of these initiatives are briefly described in this section.

3.6.1 Digital libraries for visual or reading-impaired users

eBooks have opened up many possibilities for visually impaired people as they can be downloaded onto mobile phones and computer devices and read anytime, anywhere via a screen reader or digital talk feature. DAISY is a system of creating digital talking books for presenting written content in an audio-based format. It is possible and easy for print impaired individuals to navigate DAISY material, which is presented in a sequential and hierarchical arrangement that consists of marked-up text synchronized with audio. Mini Daisy players like Code Factory's Mobile DAISY player and Nuance's DAISY2Go have made it possible to download and listen to DAISY books on mobile phones, doing away with the need to carry laptops or specialized devices. The other aspect of this advance is the establishment of libraries like Biblio-Net in Japan (distributed by NTT DoCoMo)⁴² and Bookshare⁴³ in the USA, which stock Braille and digital talking books and are used by print and visually impaired users from around the world. Another popular digital library is Project Gutenberg which has over 33 000 free eBooks, including DAISY books.⁴⁴

3.6.2 Global Positioning System (GPS)

Lack of knowledge of one's surroundings is a huge barrier for independent mobility for the visually impaired. Cell phones have become a source of GPS information through the use of built-in GPS receivers, and in most cases freely available maps. In order to benefit the visually impaired, information displayed on these maps needs to be accessible with a compatible screen reader.

GPS software allows users to pre-plan their travel route, explore their surroundings with the 'announcement' of nearby addresses and points of interest, be aware of their current location, get notification on intersections, street exits etc. while walking, get turn-by-turn navigation instructions and access voice based guidance. Examples of GPS applications include. WalkyTalky and Intersection Explorer, GPS applications based on Google Maps usable with the screen reader TalkBack, the open source GPS solution Loadstone, Ovi Maps, Navigon – which is accessible with the screen reader VoiceOver, ⁴⁵ Mobile Geo⁴⁶ etc.

http://nextlab.mit.edu/spring2009/celedu/

www.dinf.ne.jp/doc/english/access/0705_IFLA-rightscom/part2/116_japan_special.html

⁴³ www.bookshare.org

www.gutenberg.org

^{45 &}lt;u>www.navigon.com/portal/int/produkte/navigationssoftware/mobile_navigator_iphone_eu.html</u>

www.codefactory.es/en/products.asp?id=336

3.6.3 Relay services

Relay services are human operated services for media and mode translation during phone conversations. They usually require financial support since their operation requires human resources. Relay services may be video, text, speech-to-speech, captioned speech or instant messaging. Video relay services (VRS) enable sign language communication between hearing or speech impaired people using a sign language interpreter and a videophone/ webcam, and anyone who owns a regular phone. Text relay services are traditional relay services for TTY devices that translate between text-to-speech or speech-to-text, usually for people with speech impairments, hearing difficulties, total hearing impairment or hearing and visual impairment. Speech-to-speech relay services support speech calls for users with speech impairments or cognitive disabilities. Captioned speech relay services (captioned telephony or CapTel) translates real-time conversation into captions and is useful for people who can communicate orally, but have difficulty in hearing. Instant Messaging relay is a text-based solution on mobile phones for individuals who are hard-of-hearing, or have speech loss.

In order to integrate relay services, there are many conditions that need to be satisfied such as calls to/from a number for a person with disability should be able to automatically connect through a relay service selected by the user if the user so decides. Relay services should work with all commonly used handsets and terminals and users should be also be able to use the same phone for calls in those modes they handle themselves, as for calls placed through relay services and to emergency services.

Relay services typically require high bandwidth and are particularly adapted for mobile phones with video capabilities.

3.6.4 Voice based services

Voice based services enable users to dial and use other features of the cell phone using their voice. These can be used with the cheapest handsets since application is server based. Examples of such services are Voice Dial and Voice Info which are designed to assist customers who have limited ability to dial a number with a keypad. The service allows users to maintain an address book and call someone in their address book by saying their name. A menu of voice activated remote services is also available and gives access to a number of practical information from weather forecast to travel information or general news. Another service is Voice on the Go which is a cloud-based service for smart phones that lets users compose emails, send SMS messages, place calls, and post updates to social networks

3.6.5 Emergency phone services

Making emergency calls can be nearly impossible for persons with disabilities, thereby restricting their ability to convey essential information pertaining to the emergency. For instance hearing and speech impaired people may not be able to call and request assistance; visually impaired people may not be able to pinpoint the exact location where emergency assistance is required; under a stressful situation, people with cognitive impairment may not be able to fully explain the emergency.

Emergency services thus need to be designed to accommodate these calls. Some of the ways in which this is done around the world are:

• In Europe, a single number (112) is used for placing emergency calls. REACH112⁴⁷ funded under the EU ICT Policy Support Programme allows disabled users to communicate with each other as well as directly with the emergency services using alternative means of communication including texting.

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www.reach112.eu/view/en/index.html

- The Australia Government has initiated a SMS-based emergency service for the hearing impaired and hard of hearing community. 48 Hearing impaired persons can now request assistance by sending an SMS to the national emergency number 106.
- In United States, the Americans with Disabilities Act (ADA) requires all emergency service centres to have a Telecommunications Device for the Deaf (TDD) available for receiving emergency calls from similar devices. ⁴⁹ People with hearing impairment using Video Relay Service (VRS) or IP Relay on their cell phones can register and get 10-digit telephone numbers from their VRS or IP Relay provider in the US to make and receive calls, including calls to 911 emergency service centres.

3.6.6 Customer services

Customer service is a critical component of any programme offered by service providers to reach out to the community of disabled mobile phone users. Major success stories and good practices are well established by mainstream international service providers. Some examples are:

- **Orange**: has an accessibility charter expressing its commitment to accessibility and mentions among other things that it has made both its internal and external websites WCAG (Web Content Accessibility Guidelines) compliant and also developed a dedicated distribution network to improve access to its special offers by disabled people and older people with disabilities. ⁵⁰
- AT&T: offers several services for users with disabilities. For people with visual impairment, it offers services like Braille and large print billing and free voice dial. Free local directory assistance is also provided. Further, AT&T has dedicated customer care centres to assist disabled customers such as the National Center for Customers with Disabilities for AT&T Mobility and the AT&T Sales and Service Centre for Disability and Aging for AT&T landline customers. These centres can arrange for an alternate billing format such as Braille or large print and can advise customers with hearing, vision, mobility, and/or speech disabilities about equipment, accessories, features and calling plans.⁵¹
- Both AT&T and Orange also train their staff about accessibility features and the needs of
 persons with disabilities. An additional good resource is the detailed UK regulation covering the
 servicing of persons with disabilities by mobile operators.

A wide variety of handset features and services exist to make mobile communications accessible to persons with disabilities. Many of the solutions are easily available across different handsets, although users may not realize their accessibility value. Policy makers can play a big role in encouraging accessibility development in handsets and ensuring that services are accessible for all customers, including customers with disabilities.

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www.deafau.org.au/download/SMSemergencyservicesapril2010.pdf

www.ada.gov/cguide.htm

www.iso.org/sites/WSC Accessibility 2010/presentations/4 Group 3 04 Monique Mai Francois-Rene%20Germain_Geneve2010Nov03VD.pdf

www.disabled-world.com/communication/messenger/instant-messaging.php

4 Access to information and communication technologies for persons with disabilities in Afghanistan

This chapter examines the specific situation in Afghanistan with respect to the promotion and use of ICTs for persons with disabilities. It outlines the country profile, giving details of culture, geography, demographics, statistics on telecommunication penetration and disability since these are important from the viewpoint of understanding country specific needs and challenges, and gives an overview of the different ministries and agencies overseeing ICT and disability in Afghanistan. It then looks at some of the key policies which directly or indirectly promote the use of ICT for persons with disabilities and the public and before concluding with some practical recommendations for change at the policy and programme levels.

4.1 Country profile

The Islamic Republic of Afghanistan is a landlocked country that shares borders with Iran, Pakistan, Uzbekistan, Tajikistan, Turkmenistan and China. It has an area of 652 230 km² and is a largely mountainous country with the Hindu Kush mountain range dividing it into three major regions. The central highlands are part of the Himalayas and take up two-thirds of the country's area; the South Western plateau is about 25 per cent and the fertile Northern plains makes up the rest of the country. ⁵²

The Islamic Republic of Afghanistan has a Council of Ministers and a National Assembly. The President is the Chief Executive and the Commander-in-Chief of the armed forces. The Afghanistan Constitution was adopted in 2004 and an executive president was elected. A general election to choose parliamentarians was conducted the following year. The president was re-elected in 2009.

From an administrative standpoint, Afghanistan is divided into 34 provinces or wilayats, each with its own capital and a provincial administration. The provinces are further sub-divided into around 398 smaller districts, each covering a city or a few villages.⁵³

Afghanistan has a population of 30 419 928 people according to a 2012 estimate⁵⁴, growing at a rate of 2.22 per cent. The population comprises multiple ethnic groups such as Pashtun, Tajik, Hazara, Uzbek, Aimak, Turkmen, Baloch and other.⁵⁵ Afghanistan is linguistically diverse, with different languages being spoken by different ethnic groups. The official languages are Dari and Pashto.

Afghanistan is primarily an Islamic country, with almost 99 per cent of its population following the religion, with around 80 per cent of the people being Sunni Muslims, about 19 per cent Shia Muslims and less than 1 per cent of the people following other religions including Christianity, Buddhism, Sikhism and Hinduism. The population of Afghanistan is largely nomadic and tribal, for example the Pashtuns who are the largest ethnic group, are made up of around 60 major tribes.⁵⁶

The literacy levels in Afghanistan are low. A 2011 Unicef report estimated that 39 per cent are literate although the female literacy rate is only 13 per cent. ⁵⁷ Other human development indices are also a cause

http://en.wikipedia.org/wiki/Afghanistan#Ethnic groups

http://en.wikipedia.org/wiki/Demography_of_Afghanistan

http://en.wikipedia.org/wiki/Provinces of Afghanistan

This number includes 2.7 million refugees in Pakistan and Iran. CIA world factbook available at www.cia.gov/library/publications/the-world-factbook/geos/af.html

⁵⁵ Ihid

www.unicef.org/infobycountry/files/ACO Education Factsheet - November 2011 .pdf

for concern – the Afghanistan infant mortality rate is 121.63 deaths per 1 000 live births, the highest in the world; maternal mortality rates are 460 deaths per 100 000 births; 32.9 per cent of the children under the age of five are malnourished (as of 2004); there are only 0.21 physicians for every 1 000 people; an estimated 52 per cent of the population does not have access to drinking water and 63 per cent do not have access to sanitation facilities.⁵⁸

There are three major occupations: agriculture, industry, and services. Almost 78 per cent of the labour force is engaged in agriculture and around 5.7 per cent in industry. The remaining 15.7 per cent provide different services. ⁵⁹ Around 36 per cent of the population is below the poverty line, ⁶⁰ and the unemployment rate was around 35 per cent according to a 2008 estimate. ⁶¹ Though the unemployment rate seems to have come down to be over 15 per cent in a 2011 Gallup poll ⁶², the actual proportion of Afghans with a full-time, formal job was only 20 per cent, which is among the lowest in the world.

Afghanistan is a low income country with an estimated GDP (purchasing power parity) of USD 30.11 billion as of 2011 and a per capita GNI of USD 330 (2010)⁶³.

4.1.1 Telecommunications and ICT usage

The telecom usage in Afghanistan in 2011, based on data from the Afghanistan National Data Centre and the Ministry for Communications and Information Technology⁶⁴ is:

- Fixed-telephone subscriptions (2011-12): 211 066.
- Mobile-cellular subscriptions (2011-12): 18,017 830.
- Telecom penetration (2012): 66 per cent.
- Internet penetration (2012): 26 per cent.

From the usage statistics, it can be seen that the number of fixed line subscriptions — whether for the telephone or broadband is a minuscule percentage of the population and correspondingly the number of individual Internet users is also very low. However, more than half the population has a mobile subscription.

According to statistics published by the Afghanistan Telecom Regulatory Authority (ATRA)⁶⁵, at the end of June 2012, there were five mobile network operators, one landline operator and 44 Internet service providers. The numbers of GSM and CDMA subscribers were 18 644 701 and 150 784 respectively, taking the overall mobile subscriptions to 18 795 575. The number of landlines was 86 482. ATRA states overall population coverage to be about 88 per cent.

60 Ibid.

www.cia.gov/library/publications/the-world-factbook/geos/af.html

⁵⁹ Ibid.

⁶¹ Ibid.

www.gallup.com/poll/150698/suffering-increases-afghanistan.aspx

www.unicef.org/infobycountry/afghanistan statistics.html

Based on information provided by Mr. Wais Payab (Acting Director Technology and Innovation, Head of Afghanistan National Data Center (ANDC)) and Mr. Ajmal Ayan (Board Member, Ministry of Communications and IT)

http://atra.gov.af/en/page/7379

4.1.2 Disability in Afghanistan

Though the commonly used definition of disability is based on the WHO and Biwako Millennium framework definitions, the term 'persons with disabilities' does not have any specific definition associated with it in Afghanistan. ⁶⁶

There is a lack of reliable data on the incidence of disability in Afghanistan⁶⁷. The population of persons with disabilities was estimated to be between 747 500 and 867 100 people according to the National Disability Survey in Afghanistan (NDSA) in 2006 based on an estimated population of 25 million people.⁶⁸ Approximately 17 per cent of the persons with disabilities are war disabled (126 000 to 146 000). Between 52 000 and 60 000 people are landmine/ERW survivors; about 6.8 per cent of the total number of people with disabilities. On average, one household in every five has a family member with a disability. Some additional statistics from the NDSA highlight the dire condition of persons with disabilities. About 70 per cent of persons with disabilities aged over 15 years are unemployed (53 per cent of males and 97 per cent of females). Additionally, almost 73 per cent of persons with disabilities above six years of age (as compared to 51.4 per cent for non-disabled people) did not receive any education. The situation of girls is worse wherein only 15 per cent of girls with disabilities under the age of seven go to school (as compared to 24 per cent for girls without disability).⁶⁹

The problems are compounded by the fact that disability services are not equitably spread across all areas of the country and many people with disabilities lack appropriate care or must travel long distances to access it. For instance physical rehabilitation facilities are available in only 80 out of 364 districts in 19 of 34 provinces in Afghanistan.⁷⁰

However, no further details are available on the proportion of persons with disabilities, their access to education or ICT. Many years of war have left hundreds of thousands of Afghans with disabilities including amputations, blindness, paralysis.⁷¹ Another factor contributing to a potentially higher incidence of disability in Afghanistan is the lack of access to clean drinking water and sanitation facilities, inadequate healthcare coverage etc. leading to disease, which if untreated lead to disability.

From an assessment of the circumstances based upon various data/documents in the public domain and interaction with persons with disabilities it may be stated that the major barriers hindering access of the disabled to ICT in Afghanistan would broadly include the below mentioned factors:

- general poverty;
- low literacy levels;
- low penetration of affordable telecommunication services in rural areas;
- lack of awareness of the potential of ICTs to transform the lives of persons with disabilities;

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Disability at a glance report 2010 ESCAP, available at www.unescap.org/sdd/publications/disability/disability-at-a-glance-2010.pdf

www.who.int/disabilities/policies/documents/Afghanistan.pdf

www.apminebanconvention.org/fileadmin/pdf/mbc/IWP/SC june08/Speeches-VA/SCVA-StatusImplem-3June08-Afghanistan-ActionPlan-en.pdf

www.apminebanconvention.org/fileadmin/pdf/mbc/IWP/SC_june08/Speeches-VA/SCVA-StatusImplem-3June08-Afghanistan-ActionPlan-en.pdf

⁷⁰ Ibid

Handicap International report on the National Disability Commission, available at www.ucl.ac.uk/lc-ccr/lccstaff/jean-francois-trani/NationalDisabilityCommission1004.pdf

- absence of a suitable policy environment to promote ICTs and access to information for persons with disabilities;
- shortage of adequate physical and financial infrastructure to promote ICT accessibility;
- lack of knowledge about available technologies and accessibility related concepts;
- lack of skilled manpower to work with accessibility concepts such as web accessibility and universal design;
- lack of trained persons to develop and use assistive technology;
- physical/logistical difficulty in accessing ICT training centres;
- non-affordability of internationally available assistive technologies;
- non-availability of assistive technology in local languages;
- lack of adequate government support for promoting ICT accessibility for persons with disabilities.

Special initiatives need to be taken to overcome these challenges if persons with disabilities are to be included in national development.

4.1.3 Key insights

- Years of political instability and war have resulted in Afghanistan having a very high incidence of disability, especially physical disability. Hence, the welfare of the disabled is a very high priority for policymakers.
- Afghanistan has a very young constitution and many of its laws and policies are in draft form.
 Hence, there is good opportunity for learning from the best practices of other countries in implementation of ICT accessibility.
- Since the country is home to multiple languages, assistive technology must be developed to cater to its varied linguistic needs. This would benefit not only persons with disabilities living within Afghanistan, but possibly also those living in neighbouring countries speaking the same language.
- The majority of persons with disabilities in Afghanistan are below the poverty line. Hence there is a need to adopt open source and low cost technology solutions.
- Afghanistan has a very high percentage of nomadic people, hence the mobile phone as a tool
 for communication would ideally be the primary means of accessing ICT. Furthermore, given the
 geographical terrain, it may be easier to promote the mobile phone rather than enable landline
 access in remote hilly areas.
- There is very little public and private infrastructure even for basic amenities, hence providing for the specific needs of the disabled is a challenge. ICT with its potential to bridge many infrastructural gaps should therefore be a priority.

4.2 Government ministries and organizations concerned with ICTs and disability

4.2.1 Government ministries

The main government ministry and the focal point for coordinating matters relating to disability is the Ministry of Labor, Social Affairs, Martyrs and Disabled (MoLSAMD).⁷² The ministry is further subdivided into four sections⁷³, each with its own Deputy Chairman:⁷⁴

- Labor (dealing with labour welfare and skill development);
- Social Affairs (social welfare programme);
- Finance and Administration (administration and finance capacity development); and
- Martyrs and Disabled (programme for the welfare of families of martyrs and the disabled).

MoLSAMD is present in all 34 provinces and its objectives include collecting data on persons with disabilities from all provinces to facilitate access to monthly pensions; advocating for the rights of persons with disabilities; development of new legislation to protect the rights of persons with disabilities; facilitating access to vocational training courses; and, the inclusion of persons with disabilities. MoLSAMD provides vocational skills training through its 17 training centres, designs and implements programme curricula, prepares academic guidelines for training, assessment and evaluations, and issues certificates. Another responsibility of the ministry is to determine the capacity building, coordination and registration of NGOs working in the non-formal sector. The ministry liaises with other concerned ministries to identify capacity-building needs.⁷⁵

The Ministry of Education (MoE) is responsible for policy formulation, organization and supervision of education in Afghanistan. A department of inclusive education was established at the MoE in late 2006. This department coordinates and implements pilot programmes for the MoE and was responsible for allocating staff for inclusive education in 34 provinces. MoE directly implements most of the educational programmes, including but not limited to policy formulation, formal schools, curriculum development, teacher education colleges, technical, vocational and educational training (TVET) schools, literacy courses, community-based education, training and capacity building of staff and monitoring and evaluation. The MoE functions through 34 provincial departments and its central administration located in Kabul. The MoE is further split into departments like general education, planning and evaluation, administration and finance, TVET school affairs, academic council, Office of the Minister, Department for Internal Audit, and Inspection and the TVET Policy and Programs Development Department. Additionally, the National Institute for Curriculum Development was established in 2011 and is responsible for the broad curriculum policies of all types of educational programmes including those for technical and vocational education.

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http://molsamd.gov.af/en/

http://afghanistan.buildingmarkets.org/node/6594

⁷⁴ www.who.int/disabilities/policies/documents/Afghanistan.pdf

www.unevoc.unesco.org/wtdbase_prev3.php?ct=AFG&ct2=&ct3=&disp=3

http://en.wikipedia.org/wiki/Ministry of Education (Afghanistan)

Status report on Afghanistan national Disability Action Plan, available at www.apminebanconvention.org/fileadmin/pdf/mbc/IWP/SC june08/Speeches-VA/SCVA-StatusImplem-3June08-Afghanistan-ActionPlan-en.pdf

www.unevoc.unesco.org/wtdbase_prev3.php?ct=AFG&ct2=&ct3=&disp=3

⁷⁹ Ibid

The Ministry of Public Health (MoPH) aims to "improve the health and nutritional status of the people of Afghanistan in an equitable and sustainable manner" ⁸⁰. Its core values and principles in its vision for 2015, it include that it considers health to be the right of each individual and is committed to creating conditions that support health and well-being without discrimination. In its basic package of health services (BPHS), MoPH identifies services to persons with disabilities as one of its core areas and includes activities such as disability awareness, prevention and education and assessment and treatment of disabled and physically impaired patients. ⁸¹

The Ministry of Communications and Information Technology (MCIT)⁸² has a mandate to provide quality communication, information technology (IT) and postal services to the population of Afghanistan at affordable prices. Its priorities include delivering telecommunication and IT services to rural areas, supplying high speed Internet for the population of Afghanistan at affordable price, providing technical assistance to the Ministry of Interior (MoI) on the successful implementation of National Identity Card (NID), extending the fibre optic network to areas that have not yet been covered, building and placing the first telecommunication satellite in orbit, replacing analogue TV with digital TV as well as enhancing the capacity of the Afghanistan government by introducing the concept of e-Government and encouraging all the ministries to integrate ICT within their practices.

4.2.2 Organizations involved with disability

There are many international and local disability organizations working in Afghanistan .Some of them are listed below:

- Accessibility Organization for Afghan Disabled:⁸³ is a local NGO and non-profit organization led
 by persons with disabilities in order to provide support and services for persons with disabilities
 and find ways to prevent disability in Afghanistan. It aims to upgrade the capacity of persons
 with disabilities and find ways for their equal inclusion in the Afghan society through self-help
 activities and employment opportunities.
- **Development and Ability Organization (DAO)**:⁸⁴ (formerly called the Afghanistan Disabled Union) was founded in 2004 to develop advocacy and awareness activities and research for persons with disabilities throughout Afghanistan. Its goals are to promote an inclusive and barrier free society in Afghanistan as well as protect and promote the rights and dignity of persons with disabilities within the Afghan constitution.
- Hearing Impaired Foundation for Afghan (HIFA):⁸⁵ Offers educational and vocational training for deaf children and youth. It also has an ideology unit.
- International Assistance Mission (IAM):⁸⁶ is an international Christian organization working in Afghanistan to build capacity in the areas of health and economic development. In 2011, IAM had 17 projects in seven provinces, covering areas like renewable energy, community development, economic development in remote rural areas and poor urban communities, training eye care professionals, and working with the disabled.

http://moph.gov.af/en/page/584

http://moph.gov.af/en/Documents?DID=122

http://mcit.gov.af/en

www.aoad-af.org/

www.daoafghanistan.org/adu.htm

www.disabilityworld.org/04-05 04/gov/afghanistan.shtml

www.iam-afghanistan.org/who-we-are

- **SERVE Afghanistan**:⁸⁷ is a charity working in the areas of community development, education and vocational training for persons with disabilities in Afghanistan, and public health/nutrition education.
- Afghan National Association of the Blind (ANAB): ⁸⁸works for the betterment of blind and partially sighted Afghan people. It provides opportunities and trains people to use the Braille script, provides vocational training for both male and female trainees, teaches blind persons the skill of moving about freely with or without a white cane and also imparts daily living skills.
- Afghan National Association of the Deaf (ANAD):⁸⁹ is working to build a Kabul school for the deaf which when complete, will comprise a primary and secondary school that will serve 800 students, a teacher-training centre, the headquarters of the Afghan National Association for the Deaf (ANAD) and a farm to provide vocational training in agriculture for the deaf.

Other organizations include National Association of Disabled Women in Afghanistan (NADWA), International Committee for Red Cross (ICRC), Disabled Shura of Afghanistan (DSA) and Afghanistan Amputee Bicyclists for Rehabilitation and Relaxation (AABRAR).

4.2.3 Key insights

The welfare of the disabled is clearly a priority for the government of Afghanistan. This is evident from the fact that it has a focal point by way of a dedicated ministry (MoLSAMD) looking after disability affairs. The welfare of the disabled is recognized as a multi-sectoral issue and accordingly different ministries have assumed responsibility for incorporating the specific needs of the disabled within their policies and programmes.

4.3 Policy, legislation, and regulatory framework related to disability and ICTs

Afghanistan is a signatory to the Declaration on the Full Participation and Equality of People with Disabilities in the Asia Pacific Region as well as the Biwako Millennium Framework for action towards an inclusive, barrier free and rights based society for persons with disabilities. Afghanistan also recognizes the World Program of Action, the Standard Rules on the Equalization of Opportunities for Persons with Disabilities, and the 1983 International Labor Organization Convention 159 on Vocational Rehabilitation and Employment (Disabled Persons). Afghanistan is not a signatory to the United Nations Convention for the Rights of Persons with Disabilities (UNCRPD) or its optional protocol. However, it has taken several policy initiatives with regard to persons with disabilities. It had a separate ministry to cater to the needs of persons with disabilities namely the Ministry of Martyrs and Disabled. However, as disability was initially viewed as a war issue, more emphasis was laid on the war injured and the needs of other persons with disabilities were met through non-governmental organizations. However, now the government has taken steps to provide for persons with disabilities under the merged Ministry of Labor, Social Affairs, Martyrs and Disabled (see 4.2.1).

www.serveafghanistan.org/

http://orgs.tigweb.org/afghanistan-association-of-the-blind

http://openarchitecturenetwork.org/projects/dlygad2 nominee-m2m

www.apminebanconvention.org/fileadmin/pdf/mbc/IWP/SC_june08/Speeches-VA/SCVA-StatusImplem-3June08-Afghanistan-ActionPlan-en.pdf

⁹¹ Ibid

4.3.1 Disability policy and legislation

There are a number of policy, legislation, and regulatory frameworks already in place in Afghanistan.

Constitution

Article 53 of the Constitution of Afghanistan, enjoins the state to:

"regulate medical services as well as financial aid to survivors of martyrs and missing persons, and, for the reintegration of the disabled and handicapped and their active participation in the society, the state shall adopt necessary measures in accordance with the provisions of the law."92

It also states that:

"The state shall guarantee the rights of retirees, and shall render necessary aid to the elderly, women without caretakers, disabled and handicapped as well as poor orphans in accordance with the provisions of the law."

Afghanistan National Disability Action Plan (2008-2011)

The Afghanistan National Disability Action Plan (ANDAP)⁹³ was formulated on the basis of extensive consultations amongst the MoLSAMD and other concerned government ministries, representatives from the parliament, from the embassies of countries including Canada, Germany, Japan, and the United States, the European Commission, international agencies, local and international NGOs including disabled persons organizations. The other ministries included defense, education, foreign affairs, information and culture, public health, rural rehabilitation and development, transport and women's affairs. Consultations were carried out in two national workshops conducted between 2006 and 2008 and resulted in the formulation of the ANDAP as a realistic way forward.

The ANDAP covers the following priority areas:

- Part 1: Understanding the extent of the challenge (data collection): Objectives include maintaining an up to date data base of landmine/ERW survivors as well as disability services available across the country, setting up a monitoring and evaluation mechanism for ANDAP progress.
- Part 2: Emergency and continuing medical care: Objectives include creation and dissemination of a directory of all emergency and continuing care providers, enhancement of emergency prehospital response capabilities, development of emergency evacuation capability and improve quality and accessibility of trauma services; improvement of access to primary healthcare system; increase the number of female healthcare providers.
- Part 3: Physical rehabilitation: Objectives include Creation of a directory of physical rehabilitation services, improvement and expansion of accessibility of such services as well as building capacity, etc.
- Part 4: Psychological support and social reintegration: Objectives include awareness raising, creation of directory of such services, improvement and expansion of sports and social programmes for persons with disabilities etc.

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Full text at: www.ag-afghanistan.de/constitution.pdf.

⁹³ Ibid

- Part 5: Economic reintegration: Objectives include creation of a directory of providers of various economic reintegration services, extend the coverage of economic integration programmes including employment, vocational training, microcredits, self-employment etc. to a larger number of the disabled.
- <u>Part 6: Community based rehabilitation (CBR):</u> Objectives include development of national CBR strategy, improvement in coverage and strengthening of network, raising awareness etc.
- <u>Part 7: Inclusive education</u>: Objectives include increasing awareness, improvement of tools and pedagogical methods for inclusive education, strengthening institutional capacity and improvement of access to schools etc.
- Part 8: Laws and public policies: Objectives include adoption of a national law for the rights and privileges of persons with disabilities, signing and ratifying the UNCRPD, launch of a nationwide awareness raising campaign, improvement of accessibility of buildings and disability services, etc.

Afghanistan National Development Strategy

The Afghanistan National Development Strategy (ANDS)⁹⁴ defines the national development and poverty reduction policies and projects that will be implemented from 2008 to 2013. The Strategy finds that persons with mental disorders and poor persons with disabilities are amongst the most vulnerable members of society⁹⁵ and in its overview, it has identified the lack of vocational training for people with disabilities as a key issue. Though the issue of disability has been linked to that of poverty, some of the action plans are relevant for persons with disabilities. Generating employment is seen as an important issue, and the strategy avers that the "administration will employ more women and disabled people." Importantly, the strategy then holds that "[h]igher attention will be given to supporting disabled peoples access to facilities, including specialized institutions and adjusting schools and universities to meeting their needs.⁹⁶

Education Law 1387(2008-09)

The Afghanistan Education Law⁹⁷ states at the very outset in Art. 3 that all Afghans have an equal right to education without discrimination. Art. 4 provides for free pre-school education, intermediate education, secondary, technical, professional, vocational, artistic and formal education, Islamic education and higher education. Teacher training, literacy and basic practical education in the public educational and training institutions are provided for free. Art. 5 mandates that children aged six to nine must be enrolled in intermediate or basic level education.

Art. 24 lays out the objectives of the technical, professional, vocational and artistic education level:

- Train human resources in the technical- professional, vocational and artistic fields needed by the society and international market considering national and international standards, with special concern to the woman needs.
- 2. Develop and expand knowledge and skills in the technical- professional, vocational and artistic section, through theoretical and practical manner, in the needed fields.

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Text of the strategy is available at www.undp.org.af/publications/KeyDocuments/ANDS Full Eng.pdf.

[&]quot;Social protection programs will focus on supporting the most vulnerable and the poorest of the poor. This includes "children at risk", chronically poor women, poor disabled, mentally ill without family protection..."

Page 63, Afghanistan National Development Strategy, available at Text of the strategy is available at www.undp.org.af/publications/KeyDocuments/ANDS Full Eng.pdf.

http://planipolis.iiep.unesco.org/upload/Afghanistan/Afghanistan Education law.pdf

- 3. Provide special education for the blind and disabled students in appropriate and needed fields.
- 4. Prepare students for admission into the educational institutions and universities.

To address the significant challenges facing the education system in Afghanistan, the MoE set targets⁹⁸ to increase access to technical vocational and educational training (TVET) by establishing new institutions such as increasing the number of regional institutes from 16 to 32, provincial schools from 38 to 102 and district school to 364 during the years 2009-2014. It aims to increase the enrolment and training of TVET students from 19 500 in 2009 to 150 000 in March 2014 and also increase female and disabled participation to 30 per cent and 1 000 students respectively. In addition, the ministry aims to build teaching capacity by encouraging TVET teachers to pass competency based exams, using active participation methodology and providing quality curriculum, training materials and equipment etc.

National Skills Development Plan

The president of Afghanistan initiated the National Skills Development Plan (NSDP)⁹⁹ in Berlin in 2004 with the objective of contributing to the socio-economic recovery by developing a national TVET system that is responsive to the needs of the labour market and also provides Afghan people with the skills and knowledge for employment. The NSPD comprises:

- funding short-term vocational training for building the TVET system;
- developing occupation skills standards, a national qualifications framework, and the capacity of trainers and training providers.

National Education Strategic Plan 1386-1389 (2006-2010)

The National Education Strategic Plan (NESP)¹⁰⁰ of the Ministry of Education stated that as new educational facilities were constructed, the needs of children with disabilities would also be considered in order to increase their access to education. It provided for children with disabilities to be integrated into regular schools where possible. This could require building modifications, special training for teachers and appropriate curriculum considerations. It also advocated the establishment of provincial resource centres and equipping them to serve children with hearing, visual and multiple impairments. Teachers with special training to teach children with disabilities would be recruited to work in these schools/resource centres. The NESP target was to attain a net primary school enrolment rate for children with disabilities of 45 per cent for boys and 30 per cent for girls by 1389 (2010)

National Labour Code

The National Labour Code¹⁰¹ of 2007 states in Art. 76(3)(4) that there will be a provision for opening training centres for the rehabilitation of people with disabilities. There is also a specific provision for jobs for the disabled in Art. 117¹⁰², where it is stated that: "The organization has the responsibility to provide jobs for the employees who have become disabled while performing their jobs. It has to determine whether the staff has become disabled. After their disability is confirmed, according to their capabilities, they have to be provided with the job opportunities." It is also stated that the "wage and other rights of the work-related disabled employee cannot be less than the wage that he earned previously." 103

www.apminebanconvention.org/fileadmin/pdf/mbc/IWP/SC_june08/Speeches-VA/SCVA-StatusImplem-3June08-Afghanistan-ActionPlan-en.pdf

www.unevoc.unesco.org/wtdbase_prev3.php?ct=AFG&ct2=&ct3=&disp=1

⁹⁹ Idem

Full text is available at www.ilo.org/dyn/natlex/docs/MONOGRAPH/78309/83636/F774573068/AFG78309.pdf.

¹⁰² Ibid.

¹⁰³ Article 117(2).

Basic package of health services and essential package of hospital services

Current challenges in providing health care services include acute shortages of specialized units, inappropriate and non-standardized infrastructure and facilities, lack of electricity, water supplies or sanitation systems, limited trained human resources particularly specialized physicians, lack of standard equipment, lack of facilities for family members or facilitators for persons with disabilities¹⁰⁴, limited financial resources, problems with accessibility caused by lack of roads and public transport, and insecurity in some parts of the country.

The basic package of health services (BPHS)¹⁰⁵ is the foundation of the Afghan health system. It outlines the services that should be provided by each type of primary health care facility and also the staff, equipment, diagnostic services, and medications required to provide those services. Specifically with regard to disability, it outlines what kinds of disability services can be found at which type of facility e.g. war injuries should be referred to a district hospital whereas disability awareness raising and training can take place at all types of outposts. Disability services is one of the core areas of the BPHS and includes activities such as disability awareness, education and prevention, home visits (for paraplegics), referring war injuries and traumas as well as children with physical anomalies to the district hospital for treatment, treatment of disabilities at hospitals, physiotherapy etc.

The essential package of hospital services (EPHS)¹⁰⁶ identifies a standardized package of hospital services to be provided at each level of hospital and serves as a guide to the MoPH. From a disability standpoint, EPHS requires hospitals to be accessible to all patients including those with physical disabilities. It also states that hospital environments and equipment should not pose barriers to persons with disabilities.

4.3.2 ICT policy and regulation

The extent of ICT usage in Afghanistan is very low, and as recently as ten years ago, the citizens had next to no ICT access. This has been a challenge for the government, which had to start from scratch to develop infrastructure with very limited resources. ¹⁰⁷ The main aspect of the national policy on ICT was enabling private sector investment. Now, five major telecom providers and over forty Internet providers operate in the country. ¹⁰⁸ Around 85 per cent of the population has telecom coverage; the government also expects much growth of ICTs over the next five years. ¹⁰⁹

National telecom and Internet policy 2003

The general principles and goals of the national telecom and Internet policy¹¹⁰ include the creation of a regulatory legal environment that nurtures industry growth. To this end, it advocates the establishment of an independent telecommunication regulator. The policy also proposes maximum engagement of private sector investment, establishment of a level playing field for competition, introduction of market liberalisation and promotes the use of Internet and ICTs. Specific targets include restoring the productivity

¹⁰⁴ Section 6.1of the EPHS.

www.msh.org/afghanistan/pdf/Afghanistan BPHS 2005 1384

www.msh.org/afghanistan/pdf/Afghanistan EPHS.pdf

Interview with Afghanistan Minister of Information and Communications Technology, His Excellency Amirzai Sangin, in Geneva during the World Summit on Information Society (WSIS) in May 2012: http://teatechtalk.com/?p=156.

¹⁰⁸ *Idem.*

¹⁰⁹ *Idem.*

http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN016398.pdf

of public networks, establishing a voice and data national long distance network and national backbone and issuance of nationwide licences.

It states that the government telecommunication policy is to enable the rapid growth of affordable communications to all Afghans, whoever they may be and wherever they may live. To this end the role of the government is to stimulate the introduction of telecommunication network services in underserved and rural communities to the best of its ability, with available resources and with support from donors.

In section 4, the policy discusses the establishment of ATRA, lays down its chief functions. Some relevant ones for the purpose of implementing ICT accessibility are: regulating tariffs, consumer protection, monitoring service quality and adherence to rules by service providers. ATRA also has an obligation to electronically publish its policies and other documentation like scoring criteria and annual report.

Section 9.17 provides for the setting up of a telecommunications development fund (TDF) by the then Ministry of Communications (now MCIT) which will cater to "re-investment in telecommunication infrastructure projects of strategic importance, including for public safety, or to provide basic access services in communities not adequately addressed by licensed operators." It also lays down the contribution as 2.5 per cent for mobile service providers and fixed-line service providers.

Licensed operators can apply for project funding to the ATRA from the TDF. Section 10 deals with provision of licences for Internet service providers by the ATRA. Two classes of Internet licences have been identified- providers of international Internet protocols and domestic Internet service providers.

ICT action plan and strategy (2003)

The ICT action plan and strategy was released in October 2003.¹¹¹ Several action items were envisaged in fields such as ICT and education, ICT infrastructure, ICT in commerce and trade, and ICT and government. For example, in the field of ICT and education, it was resolved to "Create opportunities through which students, in particular those in remote locations, can be exposed to technology. These could include Mobile Internet Units, i.e., buses equipped with computers and Internet access that visit schools; networking academies that give students and teachers the skills to design, build, and maintain computer networks; and tele-centres that would be operational in schools during and after class hours."¹¹² However, the extent of success of the ICT action plan has been varied, and has left something to be desired. ¹¹³

One example of ICT policy implementation has been the opening of telekiosks, in the form of booths in post offices around the country, which are equipped with several computers to enable Internet access. The kiosks also provide training on software and the use of computers, depending on the need and level of the individual user. The telekiosk venture has largely been successful and it is felt that it will be instrumental in the years to come as a means of spreading ICT awareness in the country.

Policy Paper on Draft Information and Communication Technologies, Ministry of Communications, Afghanistan, available: www.trade.gov/static/afghanistan_ictpolicy.pdf.

¹¹² Supra note 23, page 11.

See generally: "ICT Capacity Development Project of the Ministry of Communications", available: erc.undp.org/evaluationadmin/downloaddocument.html/docid/D1081.

¹¹⁴ *Id.*

¹¹⁵ *Id.*

Law for Regulating Telecommunications Services (2005)

The Law for Regulating Telecommunications Services¹¹⁶ was enacted in order to "promote and develop telecom services, regulate and supervise the telecom market, guide the relationship between the Telecom Regulatory Authority (ATRA) and Operators or Service Providers, Users and other interested parties".

Some of its provisions which are relevant for the purpose of ICT accessibility implementation include:

- Art. 2 (1): provision of further access to Telecommunications Services to the public throughout the country;
- Art. 4: Establishment of the ATRA
- Art. 6: Duties and Authorities of ATRA. Some of them include regulating and supervising activities of service providers, providing advice for policy formulation to Ministry of Communication. The ATRA also needs to prepare and publish forms in relation to issuance of licences and to monitor compliance with licence norms, modify, review, suspend and revoke licences, respond to complaints of consumers, specify and approve technical standards for telecommunication re-equipment and devices, establish contributions to the Telecom Development Fund and supervise its spending, develop a plan for regulating affairs relating to expenditure of the TDF and the manner for using such funds in consultation with the MCIT, support the interests of users of telecommunication services; Establish technical, economic or other consultative committees, as deemed necessary; determine whether any person has breached any condition of a licence or permit and take steps to stop the continuation of such breech; fine violators for breach of conditions of licence or permit and require them to pay compensation to the consumer
- Art. 11: Public consultation ATRA may initiate public consultation on its own initiative or upon suggestion of interested persons. Art 13 lays down that ATRA shall issue licence conditions and operators will be bound by them.
- Art. 16: gives the ATRA the power to amend licences.

Draft ICT law

The draft ICT law¹¹⁷ includes the promotion of eGovernment services amongst its aims. It recognizes "the importance of the information-economy and information-society for the economic and social prosperity of Afghanistan.' It seeks to promote the use of e-government services and electronic communications by public and private organizations citizens and to ensure that these services are developed in a manner that is responsive to the needs of users and consumers. Most encouragingly, the draft law commits to ensuring 'that, in relation to the provision of electronic transaction services, the special needs of particular communities, areas and the disabled are duly taken into account." ¹¹⁹

Universal access policy

The universal access policy document on rural telecommunication development in Afghanistan was released by the Ministry of Communication and Information Technology and the Afghanistan Telecommunications Regulatory Authority (ATRA) in 2008. Several guiding principles were laid down in the policy for rural telecommunication

¹¹⁹ Ibid,

www.lexadin.nl/wlg/legis/nofr/oeur/lxweafg.htm

http://mcit.gov.af/en/page/7083

¹¹⁸ Ibid

Full text of the Policy is available at: http://atra.gov.af/Content/files/UAPolicyDocument-210ct2008-FinalEd1_0.pdf.

development, such as the setting up of an administrative implementation framework, the use of a telecom development fund, ownership of universal access projects and so on. The main target identified was that of universal access to telecommunications, with 10 per cent of the uncovered population to be covered by the universal access programme by 2012, and a further 20 per cent by 2015. ¹²¹ As per Section 20 of the policy, the universal access projects that were to be undertaken were network infrastructure access projects for rural areas, telecentres, PCOs, agricultural portals, mobile Internet kiosks, satellite phones, connectivity of rural schools and clinics to ICT services, and IT and related services. ¹²²

As part of the universal service obligation, a service charge of 2.5 per cent of net revenues for all GSM operators and 1.5 per cent for local fixed service providers has been levied since 2003. However neither the actual universal access policy nor the manual of operating procedures for the utilization of the telecom development fund was formulated until 2008. 123

An important provision of this policy lies in Section 41, which discusses integration with other National Programmes. As per Section 41.1, "ATRA shall coordinate with the Ministry of Education and will provide support to those rural schools that have ICT equipment, ICT teachers and require Internet connectivity." Further, Section 41.2 states that "ATRA will coordinate with the Ministry of Public Health (MoPH) for the provision of connectivity to rural clinics." There is also provision for integration with agricultural programmes and e-Governance Programmes. ¹²⁴

The universal access programme: Manual of operating procedures

The manual¹²⁵ recognises that "economic development and telecommunications are closely interrelated and interdependent."¹²⁶ It states that for Afghanistan universal access to telecommunications can be defined as '[t]he availability, through broad geographic coverage, of community-based broadband information and communications services that include voice, data services, and access to the Internet, and that are available, affordable, and of high quality, for all citizens of the country.'¹²⁷ Very importantly it provides for 'special treatment for those with disabilities to ensure they have equal access to services.'¹²⁸ It discusses the details of the Afghanistan telecommunications development fund, and the method of sourcing and disbursing funds. It then looks at the development of the rural programme and how projects in rural areas are to be selected, what business models need to be kept in mind etc. Section 8 of the Manual details the regulation of rural operators and the various conditions for licences for rural operators.

4.3.3 Miscellaneous policy and legislation

Afghanistan does not yet have a copyright law – there appears to be a draft, however, it is unclear whether it contains a fair use provision permitting conversion of reading materials into accessible formats for persons with disabilities without permission from copyright holders.

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Definitions of Universal Access Targets, Page 8 of the Universal Access Policy Document on Rural Telecommunication Development.

¹²² Section 20, Universal Access Policy Document on Rural Telecommunication Development.

Telecom Regulatory and Policy Environment in Afghanistan, Results and Analysis of the 2009 TRE Study, available at http://lirneasia.net/wp-content/uploads/2008/04/AfghanTREV2.pdf

¹²⁴ Section 14.3 and 14.4 of the Universal Access Policy Document on Rural Telecommunication Development.

Full text can be accessed at http://atra.afghanistan.af/en/page/6982.

Supra note 32, "Economic and Social Benefits of Rural Telecommunication", page 2 of the Manual.

Supra note 76,page 8

¹²⁸ Ibid, page 9

Procurement Law 2008

The Afghan Procurement Law was enacted in 2008 with the objective of regulating the "public procurement of goods, services and coordination of works, both domestic and foreign, for administrations, institutions, and mixed companies." The law covers all entities, municipalities and units funded under the government budget.

Some provisions which are relevant to ICT accessibility implementation are described below:

Chapter I (contains general provisions):

- Art. 2 lays down that the purpose of the Act is to ensure transparency in procurement proceedings, to have effective control of financial affairs and public expenditure, to ensure best value in the procurement of goods and services and to provide tendering opportunities to all eligible participants in procurement.
- Art. 10 lays down that entities must find ways to use information technology in the procurement proceedings.

Chapter II (covers procurement planning):

- Art. 11 mandates the preparation of a procurement plan.
- Art. 14 stipulates that descriptions of the goods are to be given in the bidding documents, and any included plans, samples etc., including details such as quantity and quality and technical specifications. Subsection 2(ii) also says that the description shall include description of national and international standards.

Chapter III (lays down the criteria for eligibility of bidders):

- Art.17 (1) discusses eligibility and qualification of bidders.
- Art. 18 covers prequalification of bidders. Art. 19 provides for the creation of a data base of bidders.

Chapter IV covers procurement proceedings and conditions for implementation:

According to Art. 22, open tendering shall be the default method for procurement.

Chapter VII lays down conditions to ensure transparency and accountability:

- Art. 67 provides for the development of a procurement website.
- Art. 95 lays down that the Procurement Policy Unit (PPU) may enact special provisions to give
 effect to this Act. It requires a compendium of legislative and policy documents applicable to
 procurement to be published in printed and electronic form. It also mandates the publication of
 procurement proceedings through print, broadcast media and the Internet and states that all
 procurement documentation and results should be made promptly available to the public.

4.3.4 Key insights

Afghanistan has not yet ratified the UNCRPD.

An analysis of policies reveals that though many of them are in draft form, a lot of emphasis is being given to promoting the rights of persons with disabilities. Afghanistan has a ministry (MoLSAMD) dedicated as a focal point for matters relating to persons with disabilities which works in a coordinated manner with other ministries and agencies such as MoE and MoPH to promote the rights of the disabled in different

http://moi.gov.af/Content/files/Procurement Law 2009 English.pdf

areas. For instance, with respect to education, there is a separate department within MoE itself to promote inclusive education. The MoPH also runs specific health care programmes targeting persons with disabilities and has identified disability as one of its core services in its BPHS. There is a specific article in the Constitution of Afghanistan dealing with the provision of medical services to the disabled and protecting their rights and integration into society.

However, with respect to ICTs, MCIT has no specific policies which mention promoting ICT for the disabled and the mandate to do so must be read within the larger mandate to promote ICT for the general public. The ANDAP contains detailed points for action in different areas and is a good step forward. It was formulated through a consultative process with civil society and involved the coordinated effort of multiple ministries. Some key areas for special attention such as data gathering, monitoring and implementation mechanism, access to emergency services, awareness raising and capacity building activities in various areas such as rehabilitation, increasing employment opportunities through specialised training and programmes etc. are also covered under the ANDAP. It further talks about promoting inclusive education, formulating a policy to promote the rights of persons with disabilities and ratification of the UNCRPD by Afghanistan.

However, there is no specific mention of using ICTs to carry out these activities, or to include access to ICTs for persons with disabilities as a distinct mandate or objective of the plan. This should be something which is definitely covered in the next five year action plan on disability and could also be the subject matter of an independent policy/law in Afghanistan. The Education Law guarantees the right to education for all Afghans without discrimination and compulsory intermediate for all children between the ages of six and nine years. Hence this would also apply to persons with disabilities. In addition, there is a provision specifically on providing need based/customized training to blind and disabled students. The NESP also covered education for children with disabilities. Further, MoE has a separate department specifically to look after inclusive education. Hence there appears to be some administrative and policy infrastructure to promote education for the disabled and there is a need to design appropriate strategies and policies to give effect to this right.

There is nothing specific about providing assistive technology or making reasonable accommodations in the workplace in the Labour Act, although it does provide for equal opportunities to employment.

There is at present no specific initiative undertaken to promote ICT and telecom accessibility. However, the functions and powers given to ATRA under the Law for regulating Telecommunications Services and the National Internet and Telecom Policy offer several opportunities for intervention. For instance ATRA can include provision of accessible services as part of the licence terms, help develop customised tariff plans for persons with disabilities, include accessibility as a measure of quality of service. It can use the TDF to fund projects for promoting mobile usage amongst persons with disabilities, and it can collect information on broadband, fixed landline and mobile usage by persons with disabilities as part of its regular survey. Although the telekiosk venture does not enable access by the disabled at present, these could be equipped with basic and open source assistive technology and made inclusive. Evaluation and monitoring are essential for identifying gaps in policy implementation. MCIT and ATRA should publish regular reports on the status of connectivity which include access by persons with disabilities as a specific section of the report. A good resource for a country to evaluate its progress with respect to ICT accessibility is the G3ict ICT self-assessment framework for UNCRPD signatories. This is available on the eaccessibility toolkit website. 130

^{130 &}lt;u>www.e-accessibilitytoolkit.org/</u>

4.4 Recommendations

4.4.1 Afghanistan Telecom Regulation Authority – (ATRA)

ATRA can do the following to promote telecommunication accessibility:

- Include accessible service delivery, especially access to emergency services, as part of the licence terms of operators¹³¹.
- Identify accessibility as a criterion for good quality of service and establish systems for assessing and benchmarking the same.
- Launch pilot projects and programmes for funding accessible ICTs, particularly fixed landline and mobile services through the telecom development fund.
- Maintain an accessible website and work with other telecom related government agencies to also have accessible websites.
- Encourage service providers and manufacturers to maintain accessible websites with dedicated web page(s) containing information about their products or services for persons with disabilities.
- Encourage development and deployment of open source assistive technology such as screen readers for mobile devices in local languages. This could be bundled as an application or as a service by service providers.
- Incentivise service providers to design special tariff schemes and packages to encourage mobile use amongst persons with disabilities.
- Undertake periodic surveys to gather data on mobile adoption and use by persons with disabilities.
- Encourage international cooperation in this area.
- Fund or coordinate with MoE, MoLSAMD etc. training activities for persons with disabilities in the use of assistive technology for their communication needs.
- Use the telecom development fund for providing basic fixed, mobile and broadband services for persons with disabilities in both rural and urban areas using assistive technology.
- Fund/encourage development of low cost assistive technology for local languages.

4.4.2 Ministry of Communication and Information Technology (MCIT)

The MCIT can play a crucial role in making telecommunication services accessible to persons with disabilities:

- Formulate a policy/ code of good practice for accessibility of telecom products and services through a consultative process involving persons with disabilities and their representative organizations¹³².
- Formulate a law/regulation/policy/code which will ensure accessibility of telecommunication services for persons with disabilities through a consultative process involving persons with disabilities and their organizations.
- Include accessibility within the provisions of the Telecommunications Law 2005 during its next amendment.

 $^{^{131}}$ Sri Lanka has included accessibility as part of the licence terms for service providers.

¹³² Example— UK Ofcom has brought out policy documents with accessibility provisions

- Promote public private partnerships to develop and deploy assistive technology for telecommunications for persons with disabilities at affordable prices and in local languages.
- Encourage research and development of open source accessible mobile phones and assistive mobile technologies.
- Maintain an accessible web site and promote web site accessibility with the telecom industry and other government departments.
- Ensure that m-governance services are provided in an accessible manner.
- Identify a basic set of minimum services and facilities which will be made available to persons
 with disabilities over the coming year by the national service provider and other service
 providers, such as provision of accessible handsets with large numbers, colour display, priority
 assistance within two days of complaint, special toll free number for assistance, special number
 for emergency services, hearing aid couplers and voice amplifiers for the deaf etc.
- Identify and adopt internationally recognized accessibility standards for telecommunication products and services such as those developed by the International Telecommunication Union (ITU) and the International Standards Organization (ISO).
- Organise awareness raising activities such as conferences and workshops for service providers and equipment manufacturers.
- Ensure that mobile penetration amongst persons with disabilities is a part of the national plan for telecommunications and is also included in the universal service policy of the country.
- Specify accessible ICT infrastructure as part of procurement guidelines wherever applicable.
- Develop accessibility guidelines for mobile equipment manufacturers and service delivery standards for service providers.
- Design a score card for accessible services and encourage accessibility amongst operators through incentives such as awards, tax breaks, concessions etc.
- Identify and adopt standards for accessibility in various domains of ICT such as websites, documents, audio visual media and so on.
- Identify critical ICTs for persons with disabilities and make them generally available rather than on request for reasonable accommodation.
- Integrate accessibility into ongoing projects such as making common service centres (CSCs)¹³³ (telecentres) accessible by providing open source screen reader and accessible hardware.
- Set up a centre of excellence for accessibility which will be responsible for implementation and monitoring of the policy. The centre roles would include identification of standards for different ICT application areas with periodic reviews and conduct of awareness raising and training across the country.
- Formulate a policy on e-accessibility which should be mandatorily followed by the government and also promoted with the private sector.
- Make web accessibility mandatory and include accessibility as a key ingredient across all policies
 and strategies of this ministry such as e-governance, open standards, the IT policy and so on.
 Draw up an action plan for implementation of web and electronic accessibility to be achieved in
 a phase wise manner over the next few years.

Similar to the Government of India initiative for common service centres which provide high quality and cost-effective video, voice and data content and services, in the areas of e-governance, education, health, telemedicine, entertainment as well as other private services. More information available at http://csc.gov.in/index.php?option=com content&view=article&id=109&Itemid=262

- Ensure that all e-governance web sites are in conformance with the W3C/WAI guidelines and encourage private organizations also to maintain accessible web sites.
- Hold consultations with persons with disabilities and their organizations to develop accessible, easy to use e-governance applications.
- Ensure that all electronic documents are accessible and in mobile friendly formats.

4.4.3 Ministry of Labour, Social Affairs, Martyrs and Disabled (MoLSAMD)

- Maintain an accessible country portal containing information on all laws, policies, programmes, schemes and resources relating to persons with disabilities¹³⁴
- Work with governments and industry on policy formulation and encouraging the provision of inclusive ICT products and services. Ensure that ICT accessibility is a mandate within the disability legislation:
 - The Disabled Persons (Protection and Welfare Act) 1982, and
 - The National Plan and Policy on Disability 2006.
- Gather data on persons with disabilities and carry out periodic surveys to assess their levels of access in different areas such as education, ICT, health etc.
- Coordinate with different ministries to maximise use of accessible ICT for persons with disabilities. For instance, work with MCIT and MoE to deliver educational material to children with special needs on mobile phones.
- Organise workshops and seminars to raise awareness on issues surrounding ICT and telecommunication accessibility.
- Create grants and schemes for provision of assistive technology at no or subsidised cost to persons with disabilities in urban and rural areas.
- Fund research and development in assistive technology.
- Help to monitor the implementation of policies.
- Work with service providers to ensure that appropriate and necessary software and hardware are developed.
- Facilitate international cooperation and sharing of knowledge.
- Hold consultations with persons with disabilities and their organizations to formulate sector specific accessibility policies and guidelines.

4.4.4 Telecommunication development fund

- Identify accessibility of telecommunication and mobile services for persons with disabilities as a specific mandate of the universal access definition.
- Implement pilot and large scale projects and programmes to provide basic and special telecom services for persons with disabilities. These could include provision of services such as relay service, subsidised cost of mobile phones, low tariff plans, development of specialised software or provision of specialised services like daily news or library service. Annex B contains a table of projects which have been funded by the universal service funds in other countries.
- Prescribe accessibility as a key criterion for projects to be supported by the fund.

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¹³⁴ An example of such a portal is the South African project NAP <u>www.napsa.org/za/portal</u>

- Ensure that call for proposals, tender documents and all other documentation and information published by the TDF is accessible to persons with disabilities.
- Require service providers to provide equal levels of access to persons with disabilities as part of universal service agreements.
- Maintain an accessible website.

4.4.5 Ministry of Education

- Ensure that ICT training using assistive technology is provided to all children right from the school level in urban and rural areas.
- Provide specialised training for teachers to teach children with disabilities using assistive technology.
- Encourage use of ICTs in examinations and flexible methods of taking examinations.
- Create an electronic resource of all educational curricula from school to university level in different subjects which can be accessed on computers and mobile phones using assistive technology.
- Create a network of schools and universities which can share digitised educational content.
- Create a policy to promote use of ICT for students with disabilities from school to university level.
- Fund research and development of assistive technologies and learning aids in local languages
- Ensure that websites adhere to W3C Mobile Web Best Practices (MBWP)¹³⁵ and WCAG 2.0¹³⁶.

4.4.6 Ministry of Public Health

- Ensure that accurate statistics on persons with disabilities and their access to resources is gathered through the census and other surveys.
- Support and fund accessible m-health and social welfare services, such as providing information
 on common diseases like aids, polio and malaria, disaster preparedness and early warning
 systems, toll free health help lines, job vacancy updates etc.
- Develop assistive technology and accessible content for disaster preparedness. This will include awareness raising and preparatory content, as well as delivery of information and services during the disaster.
- Create a data base of multimedia, text, audio, video etc. training materials and messages to use
 in time of emergency and ensure that persons with disabilities are trained to understand what
 they mean when they receive those messages.
- Actively involve persons with disabilities in all emergency planning and review of policies and systems and incorporate universal design in all emergency planning since universal access and universal design benefit everyone, not just persons with disabilities.
- Maintain an accessible web site in accordance with the W3C/WAI guidelines and ensure that all
 information is provided electronically and in accessible mobile friendly formats.

¹³⁵ www.w3.org/TR/mobile-bp/

¹³⁶ www.w3.org/TR/WCAG20/

4.4.7 Procurement Policy Unit

- Recognise accessibility as a general principle of procurement.
- Prescribe accessibility standards in the prequalification and bidding documents.
- Give preference to applicants who have a proven track record of accessibility.
- Ensure that accessibility is one of the evaluation criteria for received bids.
- Maintain an accessible web site in accordance with the W3C/WAI guidelines and ensure that
 accepted accessibility standards for various goods and services are published on the website so
 that accessibility can be incorporated by applicants.
- Ensure that the entire procurement process, including information and documentation such as call for proposals, tender documents, prequalification and bidding documents etc. are provided electronically and in accessible formats.
- Provide training in accessibility and accessibility standards to officials dealing in procurement.
- Agencies in charge of/involved in public procurement such as administrative divisions of public services and consumer welfare organizations can include accessibility as a condition for public procurement.

4.4.8 Afghanistan draft copyright law

• Add a fair use provision in the draft copyright act to permit conversion and sharing of works in accessible formats by persons with print disabilities.

4.5 Enabling access to ICTs: Specific programmes/projects

The above discussion would certainly help guide future policy and legislation. It would also be worthwhile to consider effecting a few enabling amendments/modifications/additions to existing acts, policy and regulation to facilitate the MCIT and ATRA to act upon recommendations in the area of accessible ICTs immediately.

4.5.1 Law for Regulating Telecommunications Services (2005)

According to Art. 2(1) of the law, its purpose includes the provision of further access to telecommunication services to the public throughout the country. Art. 6 (15), Chapter II, relating to duties and authorities of the telecom regulatory authority states that: "for the purpose of attaining the objectives of this law, the telecom regulatory authority shall speed up installation and development of affordable telecommunication networks and services throughout Afghanistan."

This is followed by Art. 6(16) which requires that the regulatory authority shall:

"Support the interests of users of telecommunications services."

A suggested amendment would be as follows:

"Support the interests of users of telecommunications services including persons with disabilities."

The term 'persons with disabilities,' would need to be defined in Chapter 1, Art. 3 dealing with definitions of expressions. It would be appropriate to use the definition provided in Art. 1 of the UNCRPD which is as follows:

'Persons with disabilities include 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.'

Further amendments could be suggested once an authentic English translation of the law is available

4.5.2 Telecommunications and Internet policy 2003, Part I

In the introductory chapter, it is stated that:

"The Government's Telecommunications Policy is to enable the rapid growth of affordable communications to all of our people so they may experience the Digital Age, wherever they are and whoever they may be."

A suggested reformulation is as follows:

"The Government's Telecommunications Policy is to enable the rapid growth of affordable communications to all of our **people, taking into account special needs of particular communities, areas and persons with disabilities,** so they may experience the Digital Age, wherever they are and whoever they may be. 137"

4.5.3 Telecommunications and Internet policy 2003, Part II

In section 1 of this document the ICT vision is described as follows:

"To enable Afghanistan to benefit further from Information and Communication Technologies (ICTs) by becoming part of the global information society while preserving Afghanistan's cultural heritage. To promote national goals as well as in order to achieve a tolerant and vibrant Afghanistan, Afghanistan will use ICTs to improve Government and social services expeditiously and foster the rebuilding process, increase employment, create a vibrant private sector, reduce poverty and support underprivileged groups."

A possible reformulation could be:

"To enable Afghanistan to benefit further from Information and Communication Technologies (ICTs) by becoming part of the global information society while preserving Afghanistan's cultural heritage. To promote national goals as well as in order to achieve a tolerant and vibrant Afghanistan, Afghanistan will use ICTs to improve Government and social services expeditiously and foster the rebuilding process, increase employment, create a vibrant private sector, reduce poverty and support underprivileged groups including particular communities, women and persons with disabilities."

4.5.4 Universal access programme: Manual of operating procedures

This document defines universal service as follows:

'[A] set of affordable services delivered ubiquitously to households or individuals throughout an area, with no practical impediments to subscription and usage.'

A more specifically enabling definition could be:

A set of affordable services **as governed by the Telecommunications Law¹³⁸** delivered ubiquitously to all household **and accessible** to all individuals, throughout **the country**, with no practical impediments to subscription and usage.

 $^{^{137}}$ The language of this amendment is consistent with that of the draft ICT law of Afghanistan

¹³⁸ An enabling amendment in the Telecommunications Law 2005 as suggested above would strengthen this provision.

4.6 Analysis of priority areas for programmes/projects

Given the strong emphasis on education and vocational training for the disabled in Afghanistan policy and legislation, the ideal starting point would be provision of accessible ICT training centres in schools with a high percentage of disabled students or special schools. These can also be used by the rural community at large in off-hours and on school holidays¹³⁹. The telecommunication development fund may be utilised for funding the connectivity. Funding for infrastructure, hardware and software for the programme and trained ICT facilitators (to assist teachers and students familiarize themselves with the use of the AT equipped ICT equipment) could come from Ministry of Education (MoE) ¹⁴⁰ or MoLSAMD. The project may be taken up on pilot basis, commencing with a few schools at first and learning from the implementation of the pilots could be built into a subsequent scaled up universal access scheme¹⁴¹.

Another area which can be explored is support for accessible rural PCOs or telecentres¹⁴² which could also be run by a disabled person. This is consistent with the goals of the national telecommunications policy 2003 which envisages that such facilities shall provide the advantages of modern communications to all Afghans as quickly as possible. It is also in line with universal access targets defined in Section 4 of the universal access policy document (2008) which envisages a telecentre in every village with a population of 1 000 to 2 000 people. These would become a nodal point for delivery of ICT enabled government services relating to information, education and health; an important priority area listed in the telecom and ICT policy 2003. This document also emphasises ICT access for the underprivileged groups. TDF would be the funding mechanism. Such telecentres would also ensure access by the disabled to emergency services which is envisioned in section 24 of the universal access policy¹⁴³.

Further, given that mobile coverage and density are far greater than landline penetration and that there is a preponderance of physical disability in Afghanistan, providing accessible mobile phones (duly equipped with appropriate assistive technology) to the disabled could be another programme worth implementing in the immediate future. The mobile phone can provide access to a host of services to the disabled including social services, healthcare, information, education and emergency services. It may be provided with/without a bundled content subscription such as access to news/information updates and online libraries.

The active involvement of NGOs is encouraged in government policies and plans.¹⁴⁴ Accordingly, NGOs could play an important role in implementing such projects in partnership with eligible service providers. The need for such partnerships is recognised and encouraged by the universal access programme manual of operating procedures project which states that: 'bidders will be encouraged to enhance their bids by bringing to the table partners that will contribute other resources (such as end-user equipment and training).' ¹⁴⁵

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Thus serving as Telecentres as envisaged in section 7.9 and 7.10 of Universal Access Programme Manual of Operating Procedures (2008)

Universal Access Policy Document (22 October 2008) provides for integration with education programmes of MoE as far as internet connectivity is concerned but may not provide for ICT equipment and computer trainers for schools. Capital costs and operating expenses for ICT connectivity may be provided in case of rural schools (Section 7.4)

This is in keeping with the Universal Access Programme Manual of Operating Procedures (2008) which provides that, 'ATRA will float a tender for a pilot project and will review the results of the tendering, proposals evaluation, selection of successful bidder and contract award processes and will take the appropriate corrective actions in regard to these processes for the future RTD projects.'(section 7.5)

As per the Universal Access Programme Manual of Operating Procedures, physical infrastructure may be funded for Telecentres (section 7.4)

Also required by the Universal access programme: Manual of operating procedures, 8.5.

¹⁴⁴ For example MoLSAMD, in particular, recognises importance of NGOs.

¹⁴⁵ Universal access programme: Manual of operating procedures, pp-12 & 13

It is thus recognised that to be successful apart from ICT connectivity and infrastructure, universal access projects must provide training and content too. Again, it would be advisable to carry out pilot projects first so as to incorporate their implementation experience into a larger scheme.

5 Examples/templates

To begin with two project templates have been incorporated in the report as Annex D and E. The first is an expression of interest document for pilot projects providing access to ICT and ICT enabled services for persons with disabilities in rural Afghanistan. The advantage is that this allows the applicants considerable flexibility as to project types/coverage/deliverables and such projects can emanate from the community in keeping with the bottom up approach encouraged in the universal access procedural manual. This may be particularly suited to a green field initiative such as projects for accessible ICTs in rural areas. It would allow even small/local players to apply. However, in this case ATRA/TDF administration may have to play a proactive role in identifying project types in consultation with stakeholders, project advocacy and support. Here project evaluation would be qualitative, based on a points system.

The second project template is a draft tender document for accessible ICT training centres in schools. The latter is more structured would necessitate technical prequalification followed by financial evaluation. It assumes the availability of experienced market players who would be willing to bid for the project. Project documentation is based on the on-going initiatives of the India Government Department of Electronics and IT (DeitY)¹⁴⁶ and Department of Telecommunications Universal Service Obligation Fund (USOF)¹⁴⁷.

While these documents cover an indicative range of the abovementioned programme/project requirements and incorporate procurement practices which are generally in tune with those of Afghanistan, they can be easily modified or customised to the needs of the country after discussions with government/regulatory agencies and consultations with other stakeholders.

Thus, the recommended approach for the launch of these projects would be to go through a formal consultation process to create awareness, better understand the needs of the disabled and bring concerned stakeholders on board. It would commence with a request for comments/feedback on a project concept paper placed on the ATRA website. This would be followed by a stakeholder conference to discuss and finalise scheme details. If possible funding and other support especially for project components such as infrastructure, content and training, which cannot be funded from the telecommunications development fund, may be associated with ministries (MoE/MoLSAMD etc.). Subsequently, the tenders or expression of interest, as the case may be, would be floated to elicit bids/applications.

http://deity.gov.in/content/ernet

¹⁴⁷ www.usof.gov.in/usof-cms/disabled.htm

Annex A – Table of ICT accessibility policies around the world

S.No	Country Name	Details of Policies	URL	Applicability
1.	AUSTRALIA	 Legislation + Advisory Notes Disability Discrimination Act, 1992 World Wide Web Access: Disability Discrimination Act Advisory Notes Guide to Minimum Website Standards, 2000, Revised April 2003 Better Practice Guide: Internet Delivery Decisions Maguire v. Sydney Organizing Committee for the Olympic Games (2000) 	1) www.comlaw.gov.au/Details/C2012C00110 2) www.hreoc.gov.au/disability rights/standards/www 3/version3 2.html 3) www.agimo.gov.au/archive/mws.html 4) www.hreoc.gov.au/disability rights/webaccess/anao guide.htm 5) www.hreoc.gov.au/disability_rights/decisions/comdec/Maguire%20v%20SOCOG3.htm	General laws preventing discrimination on grounds of disability. Advisory Notes on Web Accessibility – includes both Government and Private Websites.
2.	CANADA	 Legislation + Task Force+ Government Support and liaison with industry 1) The Employment Equity Act 2) Task Force on Access to Information for Print-Disabled Canadians 3) The Canadian Human Rights Act 4) Communications Policy of the Government of Canada 5) Assistive Devices Industry Office (ADIO) 	 http://laws-lois.justice.gc.ca/eng/acts/E-5.401/ www.collectionscanada.gc.ca/accessinfo/005003-4300-e.html http://laws-lois.justice.gc.ca/eng/acts/h-6/ www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12316&section=text www.at-links.gc.ca/as/ 	Human Rights Legislations and Web Accessibility Standards applicable to only government departments, ministries and agencies but NOT private organizations. Continuous process improvement and monitoring in place.
3.	GERMANY	 Advanced Legislative Measures 1) Act on Equal Opportunities for Disabled Persons (Behindertengleichstellungsgesetz – BGG) 2) Federal Ordinance on Barrier-Free Information Technology 	www.gesetze-im-internet.de/bgg/ www.einfach-fuer-alle.de/artikel/bitv_english/	Advanced model with legislations covering both web and other electronic infrastructure. Continuous process improvement and monitoring in place. Special measures to facilitate the effective implementation of equal rights for women with disabilities.

S.No	Country Name	Details of Policies	URL	Applicability
4.	IRELAND	Legislation + Independent State Body 1) The Employment Equality Act (1998) 2) The Equal Status Act (2000, 2004) 3) The Disability Act (2005) 4) NDA Code of Practice	1) www.irishstatutebook.ie/1998/en/act/pub/0021/index.html 2) www.justice.ie/en/JELR/ EqualStatusActsConsldtd 00 04.pdf/ Files/EqualStatusActsConsldtd 00 04.pdf 3) www.irishstatutebook.ie/2005/en/act/pub/0014/index.html 4) www.nda.ie/cntmgmtnew.nsf/0/ 3DB134DF72E1846A8025710F0040BF3D/\$File/COPPLain.pdf	No specific law covering web accessibility. General Laws for equality and prevention of discrimination. Web Accessibility Guidelines is not mandatory even for public sector. The National Disability Authority is the independent state body providing expert advice on disability policy and promoting universal design in Ireland.
5.	ITALY	Legislation and Decree 1) Law 4/2004, January 9th 2004 ("Stanca Law"): "Provisions to support the access of the disabled to information technologies 2) Decree of the President of the Republic, March 1st 2005, No. 75 - "Enforcement Regulations for Law 4/2004 to promote the access of the disabled to information technologies 3) Ministerial Decree, July 8th 2005 - "Technical Rules of Law 4/2004 4) Italian law 67/2006 "Provisions for the judicial protection of persons with disabilities, victims of discrimination	www.pubbliaccesso.it/normative/law 20040109 n4.htm www.pubbliaccesso.it/normative/ implementation regulations.htm www.pubbliaccesso.it/normative/DM080705-en.htm www.pubbliaccesso.it/normative/DM080705-en.htm www.ittig.cnr.it/BancheDatiGuide/Disabilita/ LawNo67of1March2006.html	Web accessibility. General laws for equality and prevention of discrimination. Both public and private agencies fall within the ambit of the law. CNIPA, The National Centre for ICT in Public Administration monitors the implementation of policies.
6.	JAPAN	Accessibility Policies 1) Japanese Industrial Standard (JIS) X 8341 2) New IT Reform Strategy	 www.comm.twcu.ac.jp/~nabe/data/JIS-WAI/, www.mitsue.co.jp/english/column/backnum/20040625a. html www.kantei.go.jp/foreign/policy/it/ITstrategy2006.pdf 	No specific legislation around accessibility but accessibility policies for both web and other electronic infrastructure in the form of industrial standards. No law to enforce implementation.

S.No	Country Name	Details of Policies	URL	Applicability
7.	KOREA	Legislation and Government bodies 1) The 2007 Korea Disability Discrimination Act 2) National Informatization Act	http://korea.assembly.go.kr/index.jsp http://unpan1.un.org/intradoc/groups/public/documents/UN-DPADM/UNPAN042828.pdf	The Ministry of Public Administration and Security and the National Implementation Society Agents have been championing the cause of web accessibility since 2005. Web accessibility Guidelines. General laws for equality and prevention of discrimination.
8.	NEW ZEALAND	Legislation and Cabinet directives, as well as international obligations 1) NZ Government Web Standards and Recommendations v2.0 2) New Zealand Bill of Rights Act 1990 3) Human Rights Act 1993	http://webtoolkit.govt.nz/standards/nzgws-2/ www.legislation.govt.nz/act/public/1990/0109/latest/ DLM224792.html www.legislation.govt.nz/act/public/1993/0082/latest/whole.html	Web Accessibility Standards and Guidelines. General laws for equality and human rights.
9.	PHILLIPINES	No legislation or policy addressing web accessibility. 1) Manila Declaration on Accessible ICT and Manila Accessible ICT Design recommendation 2) The Philippine Web Accessibility Group (PWAG)	www.un.org/esa/socdev/enable/manilarecom.htm http://pwag.org/	Web Accessibility.
10.	PORTUGAL	 Web accessibility guidelines for public websites. No specific legislation. Accessibility of Public Administration Websites for Citizens with Special Needs (Resolution of the Council of Ministers № 97/99) Other measures 	www.acessibilidade.net/petition/government_resolution.html www.epractice.eu/en/document/5255947	Web Accessibility. Has passed a resolution in parliament on accessibility.

S.No	Country Name	Details of Policies	URL	Applicability
11.	SWEDEN	 National laws, guidelines, ordinances and bills. Swedish National Guidelines for Public Sector Websites (24 hour agency web guidelines, 2002) Swedish Ordinance 2001:526 Swedish Government Bill 2004/05:175 Swedish Government Bill 1999/2000:79 Disability Ombudsman Act (1994:749) Prohibition of Discrimination in Working Life of People because of Disability Act (1999:132) 	www.eutveckling.se/static/doc/swedish-guidelines-public-sector-websites.pdf www.ho.se/upload/ Disability Ombudsman Act,%20uppdaterad2.pdf	Web accessibility guidelines are not mandatory and apply primarily to public agencies.
12.	THAILAND	 Guidelines and Plans Thai Web Content Accessibility Guidelines (Th-WCAG) Bridging the Digital Divide Strategic Plan (2008-2010) 	www.thwcag.com/ 2) www.itu.int/ITU- D/asp/CMS/Events/2009/PwDs/docs/Session-8- Proadpran.ppt	Web Accessibility guidelines – part of telecom policy. Indigenous set of web accessibility standards
13.	UK	Legislation, Guidelines and Plans 1) Equality Act 2010 2) The Statutory Code of Practice 2010: Accessible information 3) BS 8878:2010: British Standards Institute 4) e-Accessibility action plan – Department for Culture, Media and Sport	www.legislation.gov.uk/ukpga/2010/15/contents www.equalityhumanrights.com/uploaded_files/ EqualityAct/servicescode.pdf www.equalityhumanrights.com/footer/accessibility-statement/general-web-accessibility-guidance/ www.culture.gov.uk/images/publications/11-p110a-e-accessibility-action-plan-update-january-2011.pdf	Generic anti-discrimination legislation. No specific accessibility-related legislation. Web Accessibility Guidelines applicable to both public and private agencies.

S.No Co	ountry Name	Details of Policies		URL	Applicability
14. US		ederal Laws, Policies, Guidelines) Section 251(a)(2) and 255 of the Communications Act of 1934, as amended by the Telecommunications Act of 1996	1)	http://transition.fcc.gov/Reports/1934new.pdf	Both Web and e-accessibility.
	2	Section 504 of the Rehabilitation Act, 1973	2)	www.dol.gov/oasam/regs/statutes/ sec504.htm#.UHPQZVHm5fk	
	3	Section 508 of the Rehabilitation Act of 1973, as amended in 1998	3)	www.access-board.gov/sec508/guide/act.htm	
) Americans with Disabilities Act (ADA), 1990	4)	www.ada.gov/pubs/adastatute08.htm	
	5	The Assistive Technology Act, 1998	5)	www.section508.gov/docs/ AssistiveTechnologyActOf1998Full.pdf	
	6	US Department of Education's Requirements for Accessible Electronic and Information Technology (E&IT) Design v2.0, 2001	6)	www.access-board.gov/sec508/assessment.htm	
	7	2) 21st Century Communications and Video Accessibility Act of 2010	7)	www.fcc.gov/cgb/consumerfacts/CVAA-access-act.pdf	
15. EU	1 2 3 4	Communication eEurope 2002: Accessibility of Public Websites and their Content eEurope 2005 Action Plan	1) 2) 3) 4) 5)	www.europarl.europa.eu/charter/default_en.htm http://ec.europa.eu/information_society/eeurope/2002/ documents/archiv_eEurope2002/actionplan_en.pdf http://eur- lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2001:0 529:FIN:EN:PDF http://ec.europa.eu/information_society/eeurope/2002/ news_library/documents/eeurope2005/eeurope2005_en. pdf http://ec.europa.eu/information_society/eeurope/i2010/ index_en.htm http://ec.europa.eu/information_society/activities/	The resolution and action plan for web accessibility are applicable to public sector websites and their content in European Commission Member States and in the European institutions.

Annex B – Table of accessibility programmes and policies under Universal Access/Service Obligations

S.No	Country	USF Process (Institutional set up/selection process)	Legal Basis	Regulatory stipulations/ Provisions	Implemented Schemes/Projects	References
1.	AUSTRALIA	Designated USP	Obligation to provide standard telephony to all citizens and make accommodation for PWDs where necessary	Priority assistance	Accessible fixed telephony	Details available at www.acma.gov.au/WEB/STANDARD/pc = PC 2413.
2.	FRANCE	Designated USP	EU Universal Service Directive Disabled users as "social categories with special needs."		Accessible pay phone facilities Creation of relay services	EU Directive: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002L0022:EN:HTML Legislation Summary: http://europa.eu/legislation summaries/information society/legislative framework/124108h_en.htm
3.	IRELAND	Designated USP	EU Universal Service Directive	Braille billing	Accessible pay phones National relay service Provision for assistive technologies to use with telecommunication devices	EU Directive: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002L0022:EN:HTML Legislation Summary: http://europa.eu/legislation summaries/information society/legislative framework/124108h en.htm Ireland telecom's Code of Practice with Provisions: www.eircom.ie/bveircom/pdf/Code of Practice Disabilities 250110.pdf

S.No	Country	USF Process (Institutional set up/selection process)	Legal Basis	Regulatory stipulations/ Provisions	Implemented Schemes/Projects	References
4.	ITALY	Designated USP	EU Universal Service Directive	Priority assistance and repair	90 hours of free Internet usage/50 percent reduction for visually impaired users Accessible pay phone facilities Discounts/exceptions on monthly phone bills	EU Directive: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002L0022:EN:HTML Legislation Summary: http://europa.eu/legislation_summaries/information_society/legislative_framework/l24108h_en.htm
5.	INDIA	US Administration /Selection of USP by bidding	Indian Telegraph(Amendment) Act 2003	Affordable access to all people in rural areasinterpreted to include special schemes for the disabled	Pilot Projects for: provision of Accessible telecommunication infrastructure (mobile phones and computers/servers), assistive software and content (including real time information and data bank of books and other printed matters relevant to persons with disabilities in regional languages).	Legislation: http://indiankanoon.org/doc/286252/ Schemes under the USOF: www.usof.gov.in/usof- cms/usof schemes.htm "USOF's Pilot Project Scheme for Access to ICTs and ICT Enabled Services for Persons with Disabilities in Rural India", http://papers.ssrn.com/sol3/papers.cfm ?abstract_id=1964930

S.No	Country	USF Process (Institutional set up/selection process)	Legal Basis	Regulatory stipulations/ Provisions	Implemented Schemes/Projects	References
6.	JAMAICA	Designated USP			Computer infrastructure for special schools	Universal Access Obligations in Jamaica: www.our.org.jm/images/stories/conten t/Telecommunications/Consultation/Do cuments/Toward%20Universal%20Servi ce%20- %20Access%20Obilgation%20for%20Tel ecommunications%20Services%20in%20 Jamaica%20-%20Second%20_0.pdf Government of Jamaica ICT Policy: www.jis.gov.jm/pdf/GOJ_ICTPOLICY_Ma rch2011.pdf
7.	KENYA	Organization setup			ICT for People with Disabilities project: ICT centres in special schools Accessibility web portal	Legislation: www.cck.go.ke/services/universal acce ss/downloads/Universal Acces and Ser vice Regulations 2010.pdf ICT for People with Disabilities Project: www.cck.go.ke/services/universal acce ss/projects/icts for people with disabi lities.html

S.No	Country	USF Process (Institutional set up/selection process)	Legal Basis	Regulatory stipulations/ Provisions	Implemented Schemes/Projects	References
8.	LITHUANIA	Designated USP	Accessibility for persons with disabilities as part of USO under Law on Electronic Communications 2004 EU Universal Service Directive<<	Mandate to ensure that a minimum of 10 per cent of public pay phones are accessible. Billing in alternative formats Accessible information about universal services	300 litas (approx €85) subsidy for new handset Provision for one textual public payphone in every disabled rehabilitation centre.	EU Directive: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002L0022:EN:HTML Legislation Summary: http://europa.eu/legislation summaries/information society/legislative framework/124108h en.htm Telecom and Regulatory Updates in Lithuania: https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/LT Country Chapter 17th Report 0.pdf
9.	MALAYSIA	Organization setup/USP selection	Identifies persons with disabilities as an underserved community/group		"Klang Valley Broadband Push 90" aims at 90 per cent household broadband penetration in the Klang Valley by 2010. It targets public institutions, schools, libraries, communities within particular municipalities and disabled communities within Klang Valley. Internet access facilities to disabled entrepreneurs.	Legislation: Communication and Multimedia Act, www.agc.gov.my/Akta/Vol.%2012/Act% 20588.pdf Universal Service Provision and Policy in Malaysia: www.itu.int/ITU-D/asp/CMS/Events/2010/ITU-ADB/Malaysia/S2-Mr_Aminuddin_Basiron.pdf

S.No	Country	USF Process (Institutional set up/selection process)	Legal Basis	Regulatory stipulations/ Provisions	Implemented Schemes/Projects	References
10.	NEW ZEALAND	USO instruments	Deed for Telecommunications Relay Services		Text Relay and Video Relay Service Centres	Telecommunication Act, 2001: www.legislation.govt.nz/act/public/200 1/0103/latest/DLM124961.html New Zealand Relay: www.nzrelay.co.nz/About/ TSO Deed: www.med.govt.nz/sectors-industries/technology-communication/pdf-docs-library/communications/trs-tso-agreements/trs-supply-agreement-july%202011.pdf
11.	PAKISTAN	Organization setup/USP selected through bidding			\$6.1million project for digitalization of Audio World Library and expanding assessable Internet café at PFFB Islamabad Support to strengthen the Low vision centre at Rawalpindi hospital to make it a comprehensive Low Vision Unit of the country	Legislation: Pakistan Telecommunication (Amendment) Act, 2006: www.na.gov.pk/uploads/documents/13 21341025 369.pdf Project with Al Shifa Eye Trust: www.usf.org.pk/Publicphase.aspx?phas eid=50&pgid=12&phasename=Project% 20with%20Al-Shifa%20Eye%20Trust Project With Pakistan Foundation Fighting Blindness: www.usf.org.pk/Publicphase.aspx?phas eid=51&pgid=12&phasename=Project% 20with%20%20Pakistan%20Foundation %20Fighting%20Blindness

S.No	Country	USF Process (Institutional set up/selection process)	Legal Basis	Regulatory stipulations/ Provisions	Implemented Schemes/Projects	References
12.	POLAND	Designated USP	EU Universal Service directive Services for persons with disabilities as part of USO under Telecommunications Law of 2004	Terminal equipment adapted to meet the needs of persons with disabilities	Accessible pay phone facilities	Telecommunications Law, 2004: www.en.uke.gov.pl/ukeen/index.jsp?pla ce=Lead09&news %20cat id=17&news id=490&layout=2&page=text EU Directive: http://eur- lex.europa.eu/LexUriServ/LexUriServ.do ?uri=CELEX:32002L0022:EN:HTML Legislation Summary: http://europa.eu/legislation_summaries /information_society/legislative_frame work/I24108h_en.htm
13.	PORTUGAL	Designated USP	EU Universal Service directive Provision of special pricing for disabled users and accessible pay phones under Decree-Law no. 458/99	Billing in accessible formats Information about accessible services Measures to be taken to make emergency services accessible	Voluntary subsidy on telephone charges for hearing impaired users Text Relay Services	Decree Law 458/99: www.anacom.pt/text/render.jsp?conte ntld=981855 EU Directive: http://eur- lex.europa.eu/LexUriServ/LexUriServ.do ?uri=CELEX:32002L0022:EN:HTML Legislation Summary: http://europa.eu/legislation summaries /information society/legislative frame work/I24108h en.htm

S.No	Country	USF Process (Institutional set up/selection process)	Legal Basis	Regulatory stipulations/ Provisions	Implemented Schemes/Projects	References
14.	SLOVAK REPUBLIC	Designated USP	EU Universal Service directive Access to public telephone services for persons with disabilities as part of USO under Act 610 on Electronic Communications 2003	Free directory enquiry Round the clock technical support	Accessible payphone facilities with 25 per cent of total payphones to be marked and be accessible to hearing impaired.	Electronic Communications Act, 2011: www.teleoff.gov.sk/data/files/ 20551.pdf EU Directive: http://eur- lex.europa.eu/LexUriServ/LexUriServ.do ?uri=CELEX:32002L0022:EN:HTML Measure laying down provisions for public payphones for users with health disabilities: www.teleoff.gov.sk/index.php?ID=309
15.	SLOVENIA	Designated USP	EU Universal Service Directive Accessibility for persons with disabilities as part of USO under Law on Electronic Communications	Priority service and repair Accessible information about available Information about call costs, remaining balance on prepaid etc through voice messages for visually impaired users. Special number for assistance for visually impaired users	50 per cent discount for setting up a fixed line connection for eligible persons with disabilities services 5 per cent discount on monthly charges on fixed telephone services for eligible persons with disabilities	EU Directive: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002L0022:EN:HTML Law on Electronic Communication: http://mid.gov.si/mid/mid.nsf/V/KA0E6 FADE1BF5BBFAC1256EA50054D399/\$file/Electronic_Communications_Act_May_04.pdf Universal Service Policy: www.apek.si/universal-service-and-emergency-numbers

S.No	Country	USF Process (Institutional set up/selection process)	Legal Basis	Regulatory stipulations/ Provisions	Implemented Schemes/Projects	References
16.	SWEDEN	No formal structure or USP	EU directive/ programmes under national disability policy	Specialist terminal equipment accessible billing systems information and emergency services	funding for projects for innovative communication solutions relay services	Electronic Telecommunication Act: www.pts.se/upload/Documents/EN/The Electronic Communications Act 2003 389.pdf EU Directive: http://eur- lex.europa.eu/LexUriServ/LexUriServ.do ?uri=CELEX:32002L0022:EN:HTML Policies and projects: www.pts.se/en- gb/People-with-disabilities/Trials/
17.	THAILAND	Organization setup	Telecommunications Business Act, 2001		Monthly 30-minute phone card for persons with disabilities Relay Service	Legislation: www.thailawforum.com/database1/tele com-business-act.html
18.	UNITED KINGDOM	Designated USP	EU Universal Service Directive Electronic Special measures for persons with disabilities under Communications (Universal Service) Order 2003		Text relay service Accessible pay phones	EU Directive: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do http://eur-lex.europa.eu/LexUriServ.do http://eur-lex.europa.eu/LexUriServ.do http://eur-lex.europa.euro

S.No	Country	USF Process (Institutional set up/selection process)	Legal Basis	Regulatory stipulations/ Provisions	Implemented Schemes/Projects	References
19.	UNITED STATES	Organization setup		Grant Program for non- profits under USF for programmes or projects	Access to media publications Relay Service ICT projects for schools Loans/subsidies programme for purchase of assistive technologies	Telecommunication Act, 1996: http://transition.fcc.gov/telecom.html Universal Service Administrative Company (USAC) projects: www.usac.org/default.aspx

Annex C – Table of open source assistive mobile technologies

Application and Platform	Description/ Purpose	Availability (Free / Open source / Paid)	Developer	Remarks
Talkback for Android	Screen Reader for Android.	Open source / Free	Google	Available for devices running Android 2.1 and is preinstalled on 4.0 and above devices.
Speil	Screen Reader for Android.	Free	Nolan Darilek (Individual)	Spiel is a flexible, scriptable screen reader providing spoken feedback for most UI controls and actions.
Mobile Accessibility	Screen Reader + Suite of Simple and Accessible application for Android.	Paid	Code Factory	Is also available for free with certain network like AT&T, Sprint Powered network.
Eyes Free Shell (Marvin Shell)	Screen Reader + Suite of accessible application for Android.	Free / Open Source	Google Accessibility Team	Self voicing Home Screen with touch access for including couple of other application to make the phone accessible
Ideal Accessibility	Self voicing application for android.	Free and Paid	IDEAL Group, Inc. Android Development Team	Suite of accessible application, that install their own or 3 rd party accessible application.
Mobile Speak	Screen Reader for Windows Mobile 6.5 and earlier and Nokia / Symbian / Anna / Symbian ^3 phones	Paid	Code Factory	Also available for free with some operator like AT&T.
Talks	Screen Reader for Nokia / Symbian / Anna / Symbian ^3 phones	Paid	Nuance	
Nokia Screen Reader	Screen Reader for Nokia C5, 700, 701 and 808	Free	Nokia (Developed by Code Factory)	
Voice Over	Apple IPhone and IPad	Free	Apple	
Blackberry Screen Reader	BlackBerry® Curve™ 9350, 9360, 9370, 9320 and 9220	Free	RIM	http://mobileapps.blackberry.com/devicesoftware/entry.do?code =bsr#lang
Oratio	Blackberry ® Curve 8520	Paid	Code Factory	No more available as the free screen reader has been launched.

Annex D - Project template A

EXPRESSION OF INTEREST

Government of Afghanistan

Afghanistan Telecom Regulatory Authority

Office of the............ (DESIGNATION),

Telecom Development Fund (TDF)

Dated

Subsidy Support from TDF for Pilot Projects providing Access to ICT and ICT Enabled Services for Persons with Disabilities in Rural Afghanistan

1. Background

- 1.1 Afghanistan is home to............ disabled persons. As per....... (REFERENCE), million (NUMBER) suffer from some form of disability. (NUMBER) per cent of persons with disabilities live in rural areas. A good percentage (SPECIFY PERCENTAGES IF AVAILABLE) of these would either be unemployed and/or illiterate. Information and Communication Technology ("ICT") can play an important role in facilitating the socio-economic and political inclusion and mainstreaming of persons with disabilities as ICT can enable them to access various services (health, education, government services etc.), information, employment opportunities etc. and most importantly, to communicate effectively in spite of their particular disability. In recognition of the significance of ICT in improving the daily lives of persons with disabilities, enhancing their well-being and productivity and enabling their active participation in society, a scheme of Pilot Projects for access to ICT facilities combined with Assistive Technologies ("ATs") for persons with disabilities in rural Afghanistan is being launched.
- 1.2 The Telecommunications Development Fund (TDF), came into being with effect from(DATE) with the passing of the.........(NAME) Act(DATE) in........(DATE). In accordance with........(INSERT SPECIFIC REFERENCE TO AN ACT/RULE/CLAUSE) TDF has a mandate of providing access to telecommunication and information technology services to all people in rural areas.
- 1.3 Accordingly, in......(DATE), TDF circulated a concept paper on 'Pilot Projects for Connecting Persons with Disabilities through Information and Communication Technology (ICT) and Mobile Phones in Rural Afghanistan. A stakeholders' conference was held by TDF on(DATE) to elicit feedback, comments and suggestions of stakeholders on the proposed scheme and based upon the feedback thus obtained, the scheme has now been finalized. All details of the scheme including proceedings of the stakeholder conference are placed at http/.......(URL OF WEBSITE).

2. Objectives of the Scheme

- 2.1 The primary objective of the scheme is to provide persons with disabilities in rural Afghanistan with meaningful access to telecommunications facilities and through telecommunications facilities enable them to access public services, information, educational and employment opportunities thereby helping them to achieve self-reliance and facilitate their inclusion in mainstream society.
- 2.2 Pilot Projects accepted under the scheme will facilitate access to ICT for persons with disabilities. The scheme will take the form of facilitation with regard to:
 - (i) Provision of appropriate ATs by way of **Telecommunications Infrastructure** (mobile phones and computers/servers).
 - (ii) **Connectivity** (mobile or internet as case may be). This may/may not be provided at a discounted rate for project duration by Service Providers.
 - (iii) Assistive Software
 - (iv) **Relevant Content** (including real time information and data bank of books and other printed matters relevant to persons with disabilities in regional languages).
 - (v) Projects would also cover the aspect of **Training of both facilitators and persons with disabilities** in the use of ATs.
- 2.3 Various combinations of some or all of the above facilities could be provided depending on the nature of the project

3. Scope of Work

- 3.1 Service Providers are expected to coordinate with proposed partners to lead the implementation of the project. Roles and responsibility envisaged for different stakeholders as and where applicable are as follows:
 - Service Provider: To coordinate with content providers, equipment manufacturers and NGOs/organizations working for persons with disabilities (where applicable) to formulate project proposals and lead the implementation of projects under the scheme. Also to provide special tariff plans keeping in mind specific needs of persons with disabilities (if applicable)
 - Educational/Vocational/Rehabilitation Institutions (for persons with disabilities): To communicate the needs of persons with disabilities and make necessary arrangements for incorporating use of ATs to make ICTs accessible. To undertake training of trainers/facilitators and persons with disabilities regarding use of ATs and also facilitate in the development of a data bank of training material, books, reports, journals etc. in accessible formats
 - **Equipment Manufacturers:** To offer discounts on equipment, such as mobile handsets/telephones/computers etc. equipped with necessary ATs
 - Application and Content Developers: To identify demand of different kinds of content for persons with disabilities in coordination with concerned NGOs and institutions and deliver the content in easily accessible formats
 - Non-Governmental Organizations: To identify and convey the requirements of persons with disabilities, facilitate scheme implementation including training of trainers/facilitators, persons with disabilities, operators of public access points/ICT centres and help by way of handholding throughout the project duration

- Concerned Ministries and Departments of Government of Afghanistan: To offer necessary assistance and support including funding to TDF/service providers and other project participants to ensure realization of objectives of this scheme
- **TDF:** To undertake the responsibility to evaluate and approve project proposals from interested participants, provide subsidy for projects launched under the scheme, evaluate, compile and disseminate scheme results for further scaling up of such initiatives
- 3.2 Upper ceiling limit for subsidy support shall be ...(AMOUNT IN CURRENCY) per Pilot Project. Funding from TDF will cover connectivity, telecommunication infrastructure and software. Training, facilitation and content would have to be funded by partners/other ministries/donors

4. Responsibilities of the Service Provider

- 4.1 It shall be the overall responsibility of the Service Provider to execute the Pilot Project in association with the identified NGOs/organizations working for persons with disabilities.
- 4.2 Service Provider may also partner with appropriate Equipment Manufacturers, Assistive Technology (AT) Provider, Content Provider as deemed necessary.
- 4.3 Service Provider will be responsible for maintaining technical and financial data on the execution of the Project.
- 4.2 Service Provider will be required to provide the AT enabled ICT services under the accepted Pilot Project to persons with disabilities for a period of at least 12 months from the date of signing of the agreement with the TDF.
- 4.3 The Service Provider shall specify the intellectual property rights (IPR) liabilities, if any, associated with the Pilot Project at the outset so that this aspect shall not create a hindrance at a subsequent stage. Financial repercussions, if any, of the IPR aspect shall also be clearly specified by the Service Provider.

5. Eligibility Condition

5.1 As per The Universal Access Programme Manual of Operating Procedures (SPECIFY RULES), following categories of Service Providers are eligible to apply for the scheme:

(INSERT CATEGORY OF SERVICE PROVIDER)

6. Type of Projects to be Funded

- 6.1 The type of pilot projects which could be undertaken shall include but are not limited to:
 - Setting up of in-house ICT centres equipped with appropriate ATs for persons with disabilities in educational/rehabilitation/vocational training institutions in rural areas
 - Provision of special handsets with/without access to bundled content for persons with disabilities in rural areas
 - Public access to ICT facilities with ATs in villages or near rural institutions dealing with persons with disabilities
- 6.2 (An indicative list of possible projects is given at Annexure II)

7. Processing of the Applications

7.1 The selection of the Service Provider will be made by a fully transparent process.

- 7.2 The project proposals will be shortlisted for eligibility in a time bound manner by scrutinizing all the applications.
- 7.3 Presentation shall be made by eligible applicants to the Members of the Evaluation Committee on the Pilot Projects giving details of the proposed Assistive Technology, subsidy requirement, proposed partners, project timelines, etc.
- 7.4 Based on presentations made by shortlisted parties, the Evaluation Committee shall give the recommendations for the Pilot projects to be supported.
- 7.5 The quantum of subsidy within the prescribed limit, and its phasing shall be decided by the Evaluation Committee.
- 7.6 The number of such pilot projects shall be limited to (SPECIFY NUMBER (based upon size of programme)).

8. Evaluation Criteria

- 8.1 Applications will be evaluated for their technical and financial merits. The evaluation criteria would include:
 - Experience/Credentials of the Service Provider and the proposed partners in carrying out similar projects;
 - Compatibility of the proposed costs of Pilot Project with proposal scope and effort;
 - Conformity of stated Objectives with the specific needs of the target persons with disabilities;
 - Clarity of proposed approach, scope and limitations of the project;
 - Potential for sustainability and scalability of the Pilot Projects after the subsidy period;
 - Potential of the proposed Assistive Technology (AT) to provide sustained wide-spread benefit;
 - Completeness of the project in terms of availability of partners and funding for activities other than those supported by TDF;
 - Willingness of the Service Provider to contribute to the overall cost of the project.

9. Agreement

- 9.1 A bilateral agreement shall be signed between the Service Provider and TDF.
- 9.2 The clauses in the Agreement may cover, inter alia, monitoring the project, inspection, examination of records, time frame, payment schedules, termination, resolution of disputes, etc.
- 9.3 Liability of each of the parties shall be spelt out clearly in the Agreement.
- 9.4 A specific payment schedule will be incorporated in the agreement. The payment will be made periodically based on satisfactory provision of AT enabled ICT services to the targeted persons with disabilities. To facilitate monitoring of the project and project evaluation, the Service Provider shall be required to submit the returns in the prescribed formats.

10. Support from TDF is not available for:

- Basic research;
- Travel, conferences, workshops, etc.;
- Content;
- Training.

11.	Submission of Applications
11.1	Applicants are encouraged to study the concept note, conference proceedings etc. as available a http://htm (WEBSITE) while formulating project proposals.
11.2	TDF shall receive the application in format as per Annexure I to this EoI for subsidy support for Pilo projects till Hours (TIME). of(DATE).
11.3	The applicant is requested to carefully study the instructions before filling in the application form. The application with supporting documents may be sent, in six copies along with the soft copy to:
٨	Лr/Ms
	(DESIGNATION)
	TDF
	(ADDRESS)
Е	mail:

11.4 TDF reserves the right to amend these Pilot Project Funding Guidelines, without notice.

ANNEXURE I

APPLICATION FORM

Office of theTDF

TDF's Pilot Project Scheme

Access to ICTs and ICT Enabled Services for

Persons with Disabilities in Rural Afghanistan

PROJECT APPLICATION FORM

TDF EoI No: date

ALL DETAILS ARE ESSENTIAL. PLEASE SIGN ON EACH PAGE

CONTENTS

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7	Timelines and Key Milestones from Date of Signing Agreement	65
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ALL DETAILS ARE ESSENTIAL. PLEASE SIGN ON EACH PAGE

1. Project Details

1.1 Project Name

1.2 Project Category (Please tick)

- i. persons with disability Setting up of ICT centres equipped with appropriate ATs for persons with disabilities in educational/rehabilitation/vocational training institutions in rural areas.
- ii. Provision of special handsets with/without access to bundled content for persons with disabilities in rural areas.
- iii. Public access to ICT facilities with ATs in villages/near rural institutions dealing with persons with disabilities
- iv. Other-Please specify

1.3 Area of Operation

< District, Village, Rural Institution Name and Address>

1.4 Details of Service Provider and Partners

1.4.1 Service Provider

<Name, Contact Information, Signature of and documentation in proof of being Authorized Signatory, previous experience in the field of ICTs for persons with disabilities. Enclose copy of licence/registration>

1.4.2 Equipment Manufacturer

<Name, Contact Information, Signature of and documentation in proof of being Authorized Signatory, previous experience in provision of ICTs/ATs for persons with disabilities.>

1.4.3 NGO

<Name, Contact Information, Signature of and documentation in proof of being Authorized Signatory, previous experience in working with persons with disabilities> Area of work> other aspects to establish credentials>

1.4.4 Educational/Vocational/Rehabilitation Institution for persons with disabilities

<Name, Contact Information, Signature of and documentation in proof of being Authorized Signatory, previous experience in working with persons with disabilities, Area of Work, other aspects to establish credentials>

1.4.5 AT Provider

<Name, Contact Information, Signature of and documentation in proof of being Authorized Signatory, previous experience in provision of ATs for persons with disabilities>

ALL DETAILS ARE ESSENTIAL.
PLEASE SIGN ON EACH PAGE

1.4.6 Content Provider

<Name, Contact Information, Signature of and documentation in proof of being Authorized Signatory Signature, previous experience in provision of content for persons with disabilities>

1.4.7 Target Beneficiaries

< District, Village, Name of Institution, Number of Beneficiaries, Type of disability>

2. Objective of the Project

<Explain objectives and expected outcomes, contribution of project in improving accessibility and empowering persons with disabilities. Please indicate clearly the specific needs of persons with disabilities that are being addressed and how the project shall meet these needs.>

3. Scope of Pilot Project

< Detail project components, timelines, explicitly mention scope, limitations of pilot project. >

4. Credentials

<Please provide details of any certificates ,experience, capabilities and skills as well as relevant credentials (i.e. special achievements, letter of appreciation from clients, etc.) with respect to projects etc. related to ICTs/ATs for persons with disabilities of each partner</p>

5. Pilot Project Approach

< Detail the approach that would be adopted in the execution of this project, supported by work distribution among different partners and reasons for these decisions. Please indicate clearly proposed Roles and Responsibilities of each partner. Explain how coordination shall be achieved amongst partners and how the project progress shall be monitored. Please explain in detail what new ATs are being used/which existing ATs are being customized and how. Whether the underlying the technology is proprietary or open source. Is there any relationship with an existing project of another Government Department/Ministry? How is the project going to be implemented and supported covering all stages from initiation, setting up of necessary infrastructure, service provisioning to maintenance, as applicable. Specifically explain anticipated training requirements of project (persons with disabilities, PCO/internet centre franchisees, trainers) and how these shall be met. Any special tariff plans proposed by Service Provider keeping in mind specific needs of persons with disabilities>

6. Project Deliverables

<Provide list of expected outcomes/Deliverables with qualitative and quantitative details>

ALL DETAILS ARE ESSENTIAL. PLEASE SIGN ON EACH PAGE

7. Timelines and Key Milestones from Date of Signing Agreement

S.No.	Milestone	Target Completion Date	Comments

8. Assumptions and Risk Factors

<Provide list of all assumptions related to the project, what are risk factors and how will they be met>

9. Financial Analysis

<Provide costing details of various components of Project used in the Financial Analysis of Project. Provide market value/price of each project component/service and if applicable, also provide discounted price if provided as part of Corporate Social Responsibility (CSR). Costs must be broken up under heads of hardware, software, content, training and facilitation costs and others (please specify), with each category being further detailed>

10. Funding Details

<Provide an exhaustive list of planned sources of funding for various project components especially content and training/facilitation. Sources could include CSR, The TDF, and relevant Government Departments/Ministries/Agencies etc. List contribution expected from each source, provide documentary proof in support of availability of funding>

11. Additional Information

<List other aspects that are not covered above but Project Applicant wishes to provide information about>

12. Sustainability and Scalability

<Indicate how the project shall be sustained beyond the subsidy period and the potential/plans if any for scaling up of the project, Detail how affordability and availability of AT enabled ICTs to be ensured beyond subsidy period>

13. Declaration

Service Provider must furnish a declaration in the enclosed pro-forma

ALL DETAILS ARE ESSENTIAL. PLEASE SIGN ON EACH PAGE

DECLARATION

(To be signed by the Applicant)

The particulars given in the Application Form are true and correct. No material has been suppressed or
concealed. It is certified that I, (Name of the authorized signatory on behalf
of the Service Provider have read the guidelines, terms and conditions governing the scheme and
undertake to abide by them on behalf of my/ our organization/ company. The financial assistance, if
provided, shall be put to the declared use.
APPLICANT's SIGNATURE
(With seal of the company)
Date
Place
(Strike out whichever is not applicable)

ANNEXURE II – Indicative List of P	roiects
------------------------------------	---------

(Based upon discussions with stakeholders)

Annex E – Project template B

PROJECT	TEMPLATE B
No	Dated

ISLAMIC REPUBLIC OF AFGHANISTAN MINSTRY OF COMMUNICATIONS AND INFORMATION TECHNOLOGY (MCIT) AFGHANISTAN TELECOMMUNICATION REGULATORY AUTHORITY

TENDER DOCUMENT INFORMATION and COMMUNICATION TECHNOLOGY (ICT) TRAINING CENTRE AT SCHOOLS FOR DISABLED STUDENTS

Information and Communication Technology (ICT) Training Centre at Schools for Disabled Students

INTRODUCTION

Government of Afghanistan has sanctioned a project to setup(INSERT NUMBER OF) ICT training centres in phases in the country at various schools/special schools for disabled students in rural Afghanistan. Under this project, the selected centres will be provided dedicated Leased Line VSAT for Internet/Broadband, Servers, Computers, Local Area Networking (LAN), Computer Furniture and Uninterrupted Power Supply (UPS) for a backup of 30 minutes along with Software, and Special Assistive IT tools for disabled children, The ICT training centres will help disabled children to enhance their educational and IT skills for higher education and for employment. 128 Kbps Broadband VSAT (OR SPECIFIY TECHNICAL REQUIREMENTS) for Internet and Intranet will be provided by the winning bidder to all(SPECIFY NUMBER) ICT training centres in the country as per Technical specifications contained in this tender document.

DEFINITIONS

(Define Eligible Bidder)

INVITATION TO BIDDERS

MCIT.....invites bids from Eligible Service Providers ("bidder") in partnership with OEM of active networking Components/Servers/Software providers or Authorized System Integrator/Channel Partners/Reseller of such OEMs for Site Preparation, Supply, Installation and Maintenance of Server/Personal Computers/Printers/UPS/ LAN /Software /Special tools for Disabled children/Computer Furniture and Un-interrupted Power Supply (UPS) for a backup of 30 minutes for setting up ICT training centres for children with visually challenged, hearing impaired, physically challenged, in the area of information technology in Schools (NUMBER.) located across the country. Estimated number of schools in each District is given in Annexure-I.

Each of the schools would be provided one fully networked computer lab consisting of the hardware/software/furniture. The details of specifications of Computer Hardware, Software, Special tools for disabled children, UPS and Computer furniture for these schools are at Annexure-II, III, IV and V respectively.

The bidders are advised to study the tender document carefully. Submission of bids shall be deemed to have been done after careful study and examination of the tender document with full understanding of its implications. This section provides general information about the issuer, important dates and addresses and the overall eligibility criteria for the bidders. The aspiring bidders should submit their bids in compliance with the Scope of Work, Tender procedures and Contract terms as prescribed in the following sections of the Tender Document.

SCOPE OF WORK

The scope of work includes the following:

- 1. It is intended to enter into a rate contract valid for a period of one year to carry out the work in (SPECIFY NUMBER) schools across the country. Estimated number of schools in each District is given in Annexure-I. The actual schools may vary.
- 2. Supply, installation, commissioning, integration and maintenance of hardware and software at each school. The list and specification of Computer Hardware/Software, Special Assistive IT tools for disabled children, UPS and Computer furniture are given at Annexure-II, III, IV and V respectively. This will entail Installation of ten desktop computers, one server and special Assistive IT tools/software for disabled children in one room at each school/location. It may be noted that ten PC proposed per school is an average requirement which can be changed depending on the strength of students and other prevailing conditions to be decided by the MCIT at a later stage. Considering the same the number of PC to be installed at each site may be less than, more than or equal to ten.

- 3. Supply and installation of LAN cabling in the computer room for 10 computers, 1 server with appropriate number of UTP ports of standard(specify country/international) standard brand, Jack panel –CAT6,I/O CAT6,Patch Chord of 3 ft or 7 ft. of standard(specify country/international brand, PVC conduct pipe of(SPECIFY COUNTRY/INTERNATIONAL BRAND) in the computer lab. Installation of one Ethernet switch, Jack Panel and integration of server and computers with LAN in the computer room.
- 4. Complete supply and installation of electrical cabling with 2.5 Sq.mm and 6mm Cable, electrical power points of appropriate wattage and in appropriate numbers as required for the installation and integration of the hardware (desktop computers, Server etc.) and software procured from the bidder. Installation of Un-interrupted Power Supply (UPS), earth for 5KVA UPS, Electrical PVC. Conduit pipe, switches (5 amp),socket (5 pin), Power plug (16 amp), MCB, MCB Box (6 way, 8 way),holder, ceiling rose of standard (SPECIFY COUNTRY/INTERNATIONAL STANDARD) brand for 10 desktop and 1 server. Area to be covered 400 Sq. Ft. (approx.) will be provided. Refer for electrical layout Annexure VI.
- 5. Proper earth to ensure ground to neutral voltage of less than 2 volts (OR AS PER COUNTRY REQUIREMENT).
- 6. Complete supply and installation for white washing with using good quality dry distemper of standard (SPECIFY COUNTRY/INTERNATIONAL STANDARD) brand. Tiling Non-Skid, Non-Vitrified (Size of tiles: 400x400mm to 600x600mm) of standard brand (SPECIFY COUNTRY/INTERNATIONAL STANDARD), white cement of standard brand and white putty of standard (SPECIFY COUNTRY/INTERNATIONAL STANDARD) Brand, sands ,small stone chips, Black Cement standard (SPECIFY COUNTRY/INTERNATIONAL STANDARD) brand. Area to be covered 400 sq.ft. (approx.) will be provided.
- 7. Supply of MAKE/MAKE...(SPECIFYCOUNTRY/INTERNATIONAL STANDARD BRANDS) Furniture to keep Server, clients, Printer, UPS and software CDs in the computer room.(Please refer Annexure V for product view)
- 8. Pre-loading of all software (including operating system) in the hardware and testing the same before dispatching hardware for installation and commissioning at the schools.
- 9. On site free comprehensive Warranty for 1 year.
- 10. Bidder's OEM partner should have direct support location owned by the bidder in the District/Province where installation takes place.
- 11. Posting of adequate manpower (at least two technical persons) at District/Province level for carrying out the on-site comprehensive warranty and annual maintenance for hardware and software.
- 12. The bidder has to prepare each school site as per the following:
 - (i) Each special/integrated school site will allocate a room for setting up a computer lab for installing ten desktops, one server and special Assistive IT tools/software for disabled children, UPS and Computer Furniture. The designated computer lab would be inside the school/institution premises.
 - (ii) Bidder shall prepare the computer lab of approximately 400 Sq. feet as per the requirement to house the equipment. If in any case the availability of space is less than mentioned, the bidders must inform MCIT on priority basis within one week after receiving of purchase order in written. Also if in any case , the floor tiling already exist in school premises/computer lab, vendors are not required to redo floor tiling. Intimation must be send to MCIT in written regarding this.
 - (iii) Computer lab can have partitions as described below:

Computer room:

- ➤ Will have ten desktop computers each with computer table and chair.
- > Two UTP ports for each desktop computers and one server.
- ➤ UPS Power outlets (5 Amp.) for every computer for powering system, monitor/ speaker and one spare power point for future use.

Separate Partition in Computer room for server

- ➤ Will have one Server with Server table and chair, one network laser printer with printer table.
- > Two UTP ports for each, server and network printer.
- ➤ UPS Power outlets (5 Amp.) for the server for powering system, monitor, speaker and two spare power point for future use.
- Two UPS Power outlets (5 Amp.) for one network laser printer.

Separate Partition (preferably outside computer lab) for UPS

To place one 5 KVA online UPS system with 30 minutes power backup with Sealed Maintenance free Batteries and steel rack for battery housing and Isolation transformer-5KVA.

Separate partition (5*8 feet) may be provided for Server and UPS separated from computer lab. A semi-glazed aluminium partition having laminated board up to a height of 4ft. and 4mm thick glass up to a height of 4 ft. should be provided for one server. The cross-section of the aluminium tube shall be 2.5"x1.5". The doors of computer room as well as partitioned server room should be fitted with a door closer.

In case schools already have or providing separate room for UPS, the partitioning of Lab for UPS is not required.

(iv) Electrical cabling in the computer lab for above mentioned number of power points and for UPS, cabling for UPS from main power supply meter of the school/institute site (in accordance with the point no 4 above of scope of work).

GENERAL CONDITIONS

The following instructions should be carefully noted:

- The bid must be supported by a formal tie-up148 with a reputed manufacturer or authorized representative of the products offered. They must have experience of five years in the area of deploying state-of-the-art IT products and must have support centre all over the country/internationally. In case of representative, the authority from the manufacturer/distributor may be submitted. Documentary proof may be enclosed. If Authorization of any item is not available readily at the time of bid submission, same may be produced before issue of PO.
- 2. The OEM partners should be ISO 9001:2000 Certified Company. Valid documentary proof should be enclosed.

¹⁴⁸ Document in support of the same may be demanded

- 3. With regard to implementation of the project for setting up of ICT training Centres for visually challenged, deaf and dumb and children with other disabilities, in the area of IT, OEM partner should have experience in the field of supplying, commissioning and installation of ICT infrastructure.
- 4. All the items should be state-of-the art with latest version confirming to International standards. The entire project is to be implemented on turnkey basis, end-to-end i.e. supply, installation and on-site comprehensive maintenance of equipment.
- 5. Rate contract will be for.... schools. MCIT may at its discretion reduce/increase the quantity of the items or may drop any of the item, as per site requirements, in the Purchase Order. However, Lowest bidder will be decided on the basis of total cost of bill of material specified in Annexure VII(i) to VII(iv).

6.	Sale of Tender
	Tender documents can be purchased from MCIT (SPECIFY PLACE) during(DATE) to(DATE) between(TIME)PM to(TIME).PM every day except for Saturdays, Sundays and Public Holidays, on payment of(AMOUNT IN CURRENCY) in the form of Demand Draft or Banker's Cheque drawn on/issued by any Nationalized/Scheduled(COUNTRY NAME) Bank in favour of MCIT, payable at(PLACE).
	The Tender Document can also be downloaded from(SPECIFY WEBSITE) during the periodto(DATES). In such case, an amount of/(AMOUNT IN CURRENCY) in the form of Demand Draft/Bankers' cheque drawn in favour of "MCIT (PLACE)" would be required to be furnished along with the Part-I of the bid.
7.	Tenders/Bids placed in sealed envelopes should bear the following inscription:-
	"Tender Enquiry No.:
	"Bid for the supply of Server/Personal computers/Software/Printer/LAN/Special Assistive IT tools/UPS and other Infrastructure - etc. for setting up ICT Training Centres for Disabled Persons"
	"Due Date and Time for submission of Bid:."(DATE) at (TIME) PM
	"Due Date and Time for Opening of Bids:(DATE) at(TIME) PM
	Tenders/Bids placed in sealed envelopes/covers bearing the information as stated above should be received in MCIT to the following:
	(ADDRESS)

- **8.** Clarifications regarding tender document: The prospective bidders requiring any clarification about the contents of the tender document may notify the purchaser as per following schedule:
 - (i) Date of receipt of queries (*):(DATE) by(TIME) PM
 - (ii) Response to Queries (on website only): by(DATE)
 - (*) queries to be handed over in the office of the officer signing this enquiry by hand only.
- 9. Quotations should be submitted in two separate parts i.e. Part-I (Technical Bid) and Part II (Financial Bid).

Part-I - Technical Bid in one cover, consists of

- (i) In case, the tender document is downloaded from MCIT's web site i.e.(not purchased from MCIT against payment of........(AMOUNT IN CURRENCY) then the Bid should also submit a Tender document fee of/- in the form of Demand Draft/ Banker's cheque, in addition to Earnest Money Deposit (EMD).
- (ii) EARNEST MONEY DEPOSIT SHOULD ALSO BE SUBMITTED IN THIS COVER.
- (iii) Technical specification of the system/services offered along with list of deliverables, literature, pamphlets, drawing etc. This cover should consist of complete technical specifications, make, model, names of supplier/manufacturer and commercial terms etc. of the solution offered. Price column in this cover should be kept blank.
- (iv) List of deliverables (without cost) shall be fully reflected in the technical bid.
- (v) Bidder must submit Service Level Agreement (SLA) as per Annexure-VIII duly accepted the same by affixing stamp and signature.

Part-II - Financial Bid in second cover, should contain:

- (i) Second cover indicating "COVER FOR FINANCIAL BID" should consist of the price details of bill of material specified in Technical Part of the bid. The list of deliverables referred above of all Hardware/ Software, Special Assistive IT tools for disabled children in the area of IT, UPS and Computer furniture for these Schools are given at Annexure-II, III, IV and V respectively to setup(NUMBER) ICT training centres in the country at various special/integrated schools for disabled students should be submitted in separate cover marked "Financial Bid - Part II. Rates/cost to be quoted in Annexure-VII only.
- (ii) The list of deliverables shall be fully reflected in the price bid.
- (iii) Tenders once submitted shall be final and no amendment shall be permitted.

Both the covers i.e Part-I (Technical Bid) and Part-II (Financial Bid) should first be sealed separately, and then both the covers should be kept in a single sealed bigger cover. This cover should be submitted to the ".....(ADDRESS)" before due date and time of tender. In case of any missing information on the above, the bid is likely to be rejected.

10. Bids should be valid for a minimum period of.......(NUMBER) days after the due date.

11....

- 12. The Bids must reach the undersigned on or before the due date, i.e.,(DATE) at(TIME) PM. Bids received after the due date and time are liable to be rejected. In the event of due date being a closed holiday or declared holiday for Central Government offices, the due date for submission of the bids will be the following working day at the appointed time and venue.
- 13. The rates should be quoted in (CURRENCY) for delivery at the respective school sites indicated in the bid document. All prices shall be fixed and shall not be subject to escalation of any description. The rates must be quoted as per the Proforma provided in Annexure-VII only.
- 14. Govt. Levies like sales tax, VAT etc. shall be paid at actual rates applicable on the date of delivery. These rates should be shown separately accordingly giving the basic price, Sales Tax, VAT etc.
- 15. The bids with incomplete or no details, no technical literature in support of the product offered will be out rejected outright. The bidder must quote all the products strictly as per specifications. Complete technical details along with make, model number, complete specification, pamphlets, literature of the systems highlighting the special features of their offer should be supplied along with the quotation.
- 16. It may specifically be mentioned in the form of undertaking by the bidder whether the quotation is strictly as per bid specifications/conditions. If not, deviations must be spelt out specifically. In the absence of this, the quotation may be rejected.

- 17. Please give the Registration number of the firm along with the No. allotted by the Sales Tax authorities in your quotation.
- 18. MCIT reserves the right to accept or reject any bid or cancel the bid proceedings without assigning any reason whatsoever.
- 19. Incomplete quotations are liable to be rejected.
- 20. Bidder shall sign all pages of quotation and drawings forwarded with the quotation. All changes, alterations, corrections in the bid shall be signed in full by the person(s) signing the bid with date. No erasure and/or over writing is/are permissible.
- 21. The Bidder shall quote the rates in English language and international numerals. The rate shall be in whole numbers. These rates shall be entered in figures as well as in words. In the event of the order being awarded, the language of all services, manuals, instructions, technical documentation etc., provided for under this contract, will be English149.
- 22. Transfer of Tender Documents by one Bidder to another is not permissible. Similarly transfer of tenders submitted by one Bidder, is not permissible.
- 23. In case of any discrepancy between rates mentioned in figures and words, the latter shall prevail.
- 24. 90% payment shall be released against installation and commissioning and balance 10% after completion of warranty period or 100% on installation if the firm submits the Performance Bank Guarantee of the amount equivalent to 10%, which should be valid for the period of warranty as well as receipt of pre-receipted bill in triplicate.
- 25. Bidder must quote for all the items of the Package as mentioned in the Annexure-II, Annexure-III, Annexure IV and Annexure-V in the prescribed Proforma given in Annexure-VII. The bidder not quoting all the items of Annexure-II, III, IV and V will be summarily rejected. Cost comparison will be made strictly as per Bill of Material specified in Annexure-VII.
- 26. MCIT may waive any minor infirmity or may seek any clarification, if so desired.
- 27. Any attempt of negotiation direct or indirect on the part of the bid with the authority to whom he has submitted the bid or authority who is competent finally to accept it after he has submitted his bid or any endeavour to secure any interest for an actual or prospective bidder or to influence by any means the acceptance of a particular bid will render the bid liable to be excluded from consideration.
- 28. The bidder shall notify the Purchaser in writing of all sub-contracts awarded under the contract, if not already specified in his bid. Such notification, in his original bid or later, shall not relieve the bidder from any liability or obligation under the contract.
- 29. The bidder must have successfully executed, implemented and delivered government projects in time; satisfactory commissioning report of such project along with Purchase Order must be submitted. The bids submitted by the bidder, which were incapable to deliver the projects/work in time awarded by MCIT in past will not be considered.

30. Inspection

MCIT or its representative shall have the right to inspect or to test the items to confirm their conformity to the ordered specifications. The supplier shall provide all reasonable facilities and assistance to the inspector at no charge to MCIT. In case any inspected or tested goods fail to conform to the specifications, MCIT may reject them and supplier shall either replace the rejected goods or make all alterations necessary to meet specification required free of cost to MCIT.

¹⁴⁹ This is optional based on country requirements

31. Earnest Money Deposit

Each quotation must be accompanied by Earnest Money Deposit of amount as stated below and shall be in the form of Demand Draft/Pay Order/Bank Guarantee of any Nationalized Bank taken in the name of (DESIGNATION OF FINANCE OFFICER), MCIT, New Delhi. Bank Guarantee should be valid minimum for a period of 180 (OR OTHER NUMBER) days from the original due date of the quotation. Quotations received without Earnest Money Deposit are liable to be rejected.

Amount of Earnest Money Deposit for bidding ICT training Centres for disabled children in the area of Information Technology across the country, is(AMOUNT in FIGURES) i.e.(AMOUNT IN WORDS).

- (a) Any tender not accompanying with EMD and tender fee (if tender document is downloaded from website) will be considered non responsive and rejected outright.
- (b) Earnest Money is liable to be forfeited and bid is liable to be rejected, if the bidder withdraw or amends, impairs or derogates from the bid in any respect within the period of validity of the bid.
- (c) If the successful bidder fails to furnish the Performance Security (refer para 31.1 within 15 days of the placement of the purchase order, the earnest money shall be liable to be forfeited by the purchaser.
- (d) The earnest money of all the unsuccessful bidders will be returned as early as possible after the expiration of the period of the bid validity but no later than 30 days of the issue of the purchase order. No interest will be payable by the Purchaser on the Earnest Money Deposit.
- (e) The Earnest Money of successful bidder shall be returned after furnishing of Performance Security.

31.1 Performance Security

The successful bidder shall submit a Performance Security of 10% of the cost of the purchase order valid for the duration of warranty period within 15 days of the placement of purchase order. The Performance Security may be in the form of Demand Draft/Pay Order/Bank Guarantee of any nationalized bank. In case supplier fails to deliver the items within delivery period or provide satisfactory after sales service within the warranty period, the Performance Security submitted by the firm is liable to be forfeited. Performance Security shall be released immediately after the onsite free comprehensive warranty for one year of all supplied Hardware/Software, is over. No interest will be payable by MCIT on the Performance Security.

32. Guarantee/Warranty

- (i) All goods or material shall be supplied strictly in accordance with the specifications. No deviation from such specifications of these conditions shall be made without MCIT agreement in writing which must be obtained before any work against the order is commenced. All materials furnished by the successful Bidder pursuant to the Order (irrespective of whether engineering/design or other information has been furnished, reviewed or approved by MCIT) are guaranteed to be of the best quality of their respective kinds (unless otherwise specifically authorized in writing by MCIT) and shall be free from faulty design to the extent such design is not furnished by MCIT. The goods/materials used by the successful Bidder and its workmanship should be of proper quality so as to fulfil in all respects the operating conditions and other requirements specified in the order. With respect to all the equipment shall be for a period of one year from the date of acceptance of equipment/materials except consumable items.
- (ii) If any trouble or defect originating with the design, materials, workmanship or operating characteristic of any materials arise any time prior to 12 months after commissioning, and the Bidder notified thereof, the Bidder at his own expense and at no cost to MCIT as promptly as

possible make such alterations, repairs and replacements at site as may be necessary for the functioning of the equipment in accordance with the specifications.

- (ii) MCIT may at its option remove such defective material at the Bidder's expense, if the Bidder does not act reasonably after being informed.
- (iv) In the event that the materials supplied do not meet the specifications and/or are not in accordance with the drawings, data sheets and rectification is required at site, MCIT shall inform the Bidder giving full details of deficiencies. The Bidder shall attend at his own expense to meet and come to an agreement with the representatives of MCIT the action required to correct the deficiencies and do the rectification/replacement to make the system functional as per specifications within four weeks of MCIT written information to the Bidder failing which the MCIT may encash the Bank Guarantee.
- (v) Warranty shall include on-site comprehensive free maintenance of the whole equipment supplied including free replacement of all parts. The defects, if any shall be attended to on immediate basis but in no case any defect should prolong for more than 72 hours. The on-site comprehensive warranty shall be for a period of one year from the date of acceptance of the equipment by MCIT.

32.1 AMC

All the prospective bidders may also quote for AMC of all hardware/software, LAN, special Assistive tools for a period of one year after the completion of warranty period of 1 year. MCIT reserves the right to extend the said AMC to 3 years at the quoted price. It is however, clarified that only one year AMC price would be included for price comparison. A separate Purchase Order for AMC will be issued, if required.

33. Delivery Period

- The Delivery at all the sites is required within.......(SPECIFY NUMBER) weeks on placement of the purchase order. Delivery schedule shall be informed minimum 10 days in advance. Delivery report countersigned by user shall be submitted within 10 days from Date of Delivery. Any delay by the supplier in the performance of delivery of items shall render the supplier liable to any or all of the following sanctions-forfeiture of its Earnest Money Deposit, imposition of liquidated damage as per para 34 below or/and cancellation of the purchase order for default.
- Any delay in the supplies/installation would be reported to MCIT and specific prior approval for delay with justification would be taken on case-to-case basis.
- All the systems, hardware and software shall be installed and commissioned within(NUMBER) weeks from the date of award of contract at all the sites. Installation schedule shall be given minimum 10 days in advance. Installation report countersigned by user shall be submitted within 10 days from Date of Installation. Any delay by the supplier in the performance of installation/commissioning of items shall render the supplier liable to any or all of the following sanctions-forfeiture of its Earnest Money Deposit, imposition of liquidated damage as per Para 34 below or/and cancellation of the purchase order for default. Detailed activity chart for smooth and timely commissioning of the project shall be enclosed along with the Bid.
- In case the MCIT/School is not able to deliver/handover the location/space for site to vendor for setup/installation/commissioning of the ICT training centre in time, the delivery period for setup will be extended for this particular site on case to case basis.

34. Liquidated Damages

If the supplier fails to deliver any or all of the goods, or do not complete the installation within the period specified in the purchase order, MCIT shall without prejudice to its other remedies, deduct as liquidated damage 1 per cent of the price of the delayed goods for every week.

- 35. Rates quoted by the bidder shall be on the basis of delivery and installation at the respective site and also final and no negotiation will be held.
- 36. The bidder will sign Service Level Agreement, which will be renewed each year on the basis of performance of the vendor. The Service Level Agreement is placed at Annexure VIII. This SLA must be submitted in the technical bid, duly signed in lieu of acceptance of SLA terms.

37. Rejection and Return of Tender

MCIT reserves the right to reject any or part of the Tender without assigning any reason. The documentation submitted by Bidders shall not be returned unless the Bidder explicitly states this request at the time of submission of their Tender. MCIT also reserves the right at its sole discretion, not to award any order under the Tender called. MCIT shall not pay any costs incurred in the preparation and submission of any Tender. Also tender of the bidder who have defaulted in execution of previous purchase order in implementation of such project will be rejected.

If the Bidder gives wrong information in his Tender, MCIT reserves the right to reject such Tender at any stage or to cancel the Contract, if awarded, and forfeit the Earnest Money besides other remedies.

Canvassing in any form in connection with the Tender is strictly prohibited and the Tenders submitted by the Contractors who resort to canvassing are liable for rejection.

38. Modification and Withdrawal of Bids

The Bidder may modify or withdraw its bid after the bids submission, provided that written notice of the modification or withdrawal is received by the Purchaser prior to the last date prescribed for receipt of bids.

The Bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of the tender. A withdrawal notice may also be sent by fax or cable but followed by a signed confirmation copy, post marked not later than the last date for receipt of bids.

No bid shall be modified subsequent to the last date and time for receipt of bids.

No bid shall be withdrawn in the interval between the last date for receipt of bids and the expiry of the bid validity period specified by the Bidder in the Bid. Withdrawal of a bid during this interval may result in the Bidder's forfeiture of its bid EMD.

39. Comparison and Evaluation of Tenders

The Tenders received and accepted will be evaluated by MCIT to ascertain the best and lowest cost evaluated Tender in the interest of Project for the complete scope of the proposal.

In the evaluation of Tenders, the overall efficiency and economy of the system offered will be kept in view.

The Tenders found technically acceptable and meeting all qualifying criteria for responsiveness of tender shall be compared on the basis of price quoted by the Bidders.

Yours faithfully,

Annexure I

Tentative List of Schools

(Numbers of each type to be provided to facilitate evaluation)

Note: The list of schools in the entire country would be provided later at the time of issue of purchase order

Annexure II - List of items proposed at each school/institutes of disabled children (indicative)

SI. No.	Item	Qty. per School
1.	Computer Server	01
2.	Desktop PC	10
3.	Anti-virus software	01
4.	LAN Ethernet switch	01
5.	UPS	01
6.	MS-Office with 10 user Academic licence	01
7.	Stationery -	
	Blank CD – Pack of 20 CDs	02 (Packs)
	Pen Drive 8 GB	02
	Braille Paper for Basic D	10000 sheets
8.	VSAT Internet/Broadband Connection (SPECIFY TECHNICAL REQUIREMENT)	01
9.	Installation of LAN (15 points)	01
10.	Installation of electric cabling	01
11.	Furniture:	
	(i) Table-Buddy	11
	(ii) Chair-PCH 4103 (without wheels)	20
	(iii) TV /Printer Table	01
12.	Partitioning, Flooring and Whitewash	01

Annexure IIA - List of items and specification proposed at each school/ institutes of disabled children (indicative)

SI. No	Item		
1	Server: Minimum Cor	nfiguration	01 No.
	СРИ	One Dual-core processors 3.0 GHz or above, 4MB Cache	
	Memory	4 GB Upgradable to 8 GB	
	HDD	250GB SATA HDD (up to 4)	
	Form Factor	Tower	
	Ethernet Interface	Integrated dual Gigabit Ethernet controllers with I/OAT support on Windows and Linux environments	
	VGA	At least 8 MB integrated on motherboard	
	Monitor	17" Colour TFT/LCD	
	PCI Slots	5 PCI slots	
	Ports 1 serial port, 4+1USB, Dual Gigabit of ports, 2* PS/2, 1* VGA		
	Keyboard	107 keys OEM PS/2	
	Mouse	OEM PS/2	
	Optical Drive	DVD ROM drive	
	OS Support	Windows 2003/2008, RHEL 5.0	
	OS	Windows Server 2008 (Pre-installed)	

Note: The future road map of processor/ server should not be at the end of life in next one year

С		Item	Qty. per School
2	Desktop PC: Min	imum Configuration	10 Nos.
	Processor:	Latest Generation x86 Dual-Core desktop Processor with 3 GHz freq or above with 4MB L2 cache memory or higher supporting Multi-Threading Capability providing Sysmark 2007 score of 190 or above.	
	Motherboard	Latest Compatible chipset supporting above mentioned processor based motherboard with support for PCI Express x16 graphics port. Motherboard should be FCC certified and ROHS compliant	
	BIOS	With support for: Flash, Plug and Play, DMI 2.0, ACPI	
	Memory:	2*2 GB DDRIII RAM Memory @ 1066 MHz or better with 2 DIMM slots Expandable up to 8 GB	
	Hard Disk Drive:	500 GB 7200 rpm SATAII (3 Gbit/s) Drive with pre-failure alert with 8MB Cache Buffer	
	Hard Disk Controller:	Integrated On-Board Hard Disk Controller supporting Serial ATA Interfaces	
	Monitor	19" TFT Monitor-wide	
	Key Board	114 Keys or more Multimedia Keyboard needs to pass a life test of Standard key with 10 million cycles under normal operation.(5times/second, 120gf), and Hot key is 500 thousand cycles under normal operation.(5 times/second, 160gf), after life test return force no less than 10 grams.	
	Mouse	USB Optical Scroll Mouse with anti-static mouse pad resolution of Optical 1000 cpi, Complying to CE and FCC norms	
	Network Card	Integrated on board of Controller 10/100/1000 with PXE support and Remote wake up	
	Interfaces	1Serial, Minimum 6 USB Ver. 2.0. (with 2 in front) and Audio Ports	
	Expansion- Graphics Slots	At least 2 PCI slots with 1 PCI Express x1 and 1 PCI Express X16 graphics slot	
Cabinet MATX Cabinet with at least 6 bays (2x5.25" External, 2x3.5" External, 2x3.5" Internal		MATX Cabinet with at least 6 bays (2x5.25" External, 2x3.5" External, 2x3.5" Internal)	
	Audio Integrated on board ALC 662 or higher Audio Controller		
	Power Supply	Minimum 250 Watts SMPS (as per intel recommendation)	
	Certifications AND Compliance's	ISO 9001: 2000 for OEM Manufacturing, Windows OS Certification, Microsoft certificate of authenticity – COA to have OEM's name, Direct Named OEM and Gold partner Certificate from Microsoft, Partner certificate from Intel, Vista ready.	
	Other S/W Tools/Licenses	Single utility for complete System protection and recovery: OS, Application and data recovery, secure data removal option, Asset and health manageability capability, withsecurity suite - Antivirus with spyware and malware protection.	
	Operating System:	OEM Windows 7 Prof. with recovery media to be preloaded. Vendor must furnish a list of serial numbers of all CoA along with the corresponding list of PC system serial numbers for Operating system licences which are pre-loaded	
	Application Software	It is required to provide a software application enabling users with data entry and word processing capabilities in at least(NUMBER) most common (COUNTRY) languages. This software application should provide intuitive and friendly user interface, including graphical display over a virtual keyboard, of all possible characters, conjuncts and letter combinations,(REQUIRED BY LANGUAGE SPECIFIED) thus displaying at any given moment the predicted conjuncts and letter combinations, according to previous typing sequence through fast orientation logic This software application should further enable quick selection of different(COUNTRY) languages, and be applicable to various commonly used online(i.e. Chat, Email, Web browsing) as well as offline (MS Word, EXCEL, PowerPoint, ACCESS, Dreamweaver, SQL) applications.	

Note: The future road map of processor/ pc should not be end of life in next one year

SI. No.	Item		
3	Anti-virus Software with 10 client licence Software		01
4	LAN Ethernet switch	LAN Ethernet switch 10/100 Mbps – 24 Port with Jack panel	01
5	UPS	Installation of On line UPS – 5KVA with 30 Minutes backup time (detailed Specifications as per Annexure-IV)	01
6	MS-Office	MS-Office 2007 with multi-lingual support 10 user Academic licence	01
7	Stationery		
		 Consumable – Blank CD – pack of 20 CDs Pen Drive 8 GB Braille Paper for Basic D – 	2 packs 2 10000 sheets
9	Installation of LAN	To connect 10 PCs, 1 Server and 1 Printer and its LAN cabling on CAT VI cable, Jack Panel I/O etc.	01
10	Installation of electric cabling	Installation of electric cabling and electrical power points of appropriate wattage to install the hardware, UPS and dedicated earth.	01
11	Furniture	MAKE/MAKE/MAKE or equivalent ISO branded Computer furniture to keep all the supplied hardware in the computer lab (such as one server, eight desktop PCs, one Braille Printer, UPS, wall mounting rack for switch etc.).	
	(i)	MAKE/MAKE/MAKE or equivalent Table - Buddy	11
	(ii)	MAKE/MAKE/MAKE or equivalent Chair (without wheels)	20
	(iii)	MAKE/MAKE/MAKE or equivalent TV/Printer Table	01
12	Partitioning, Flooring and Whitewash	Partition in the computer lab Floor tiling for 400 square feet in each school and white Wash	01

Note: Equivalent Products from any brands may be accepted if the same meet our requirement and features.

Annexure III – Description of software/hardware tools (indicative)

List of Assistive Technologies for setting up of Composite Integrated Computer Training Centres with 10 PCs and one server for blind and low vision schools, hearing impaired schools and schools for the disabled

For Blind and Low vision (specify country/international standard) on schools

S.No.	Assistive Technology	Application/ Purpose	Qty. per school
1.	Screen reading and screen magnification software for the Blind with (COUNTRY) Accent Voice and in bilingual edition i.e. English and (COUNTRY) language. Also providing braille support. (05 user licence)	For conversion of a normal PC into a Talking PC as well as giving the choice to have screen reader or screen magnification or both to enable the blind and/or low vision to operate computers independently and also to train blind persons on using the computer. It must provide an (COUNTRY) Accent Voice in bilingual edition i.e. English and Hindi language	1
2	Typing training and keyboard orientation software for the blind (10 user licence) with introductory Braille typing support	To provide complete guidance and practice lessons for learning keyboarding skills and developing typing speed in a systematic manner like a touch typist using all ten fingers. Introduction to typing in Braille.	1
3	Magnification Device with interface to PC Monitor / or VGA Monitor	For reading and writing by students with low vision. It should magnify whatever material is placed under its camera and magnifies the image on the Screen in colour. It should help for reading hand written material and for drawing diagrams or viewing pictures and graphs. The magnification needs to be adjustable to suit the needs of the low vision student.	1
4	Large Print Keyboards	For persons with low vision for easy identification of the keys, keys 4 times larger which are having large print letters in white with the base of the keyboard being black in colour for better contrast.	5
5 a b.	Flatbed Scanner OCR Scanning and Reading Software with (COUNTRY) Accent Voice	Scanning Device This software converts the computer and scanner combination into a scanning and reading machine to enable the blind and low vision students to scan and read printed books independently. Also allows to save as WAV Files.	1
6	Braille embosser	For production of computer lessons and school textbooks to support the learning by blind students.	1
7	Acoustic Cabinet for Braille embosser	For protection from heat and dust with cooling system	1
8,	Braille Translation Software for (COUNTRY) Languages	For translation of (COUNTRY) language text directly into (COUNTRY) language Braille, eliminating the laborious task of 6-dot data entry.	1
9	Talking Arithmetic Software	A talking interactive program that assist in teaching arithmetic to the students who are blind, low vision, learning disabled etc.	1
10	Laserjet Printer	Print speed Up to 16 ppm, Media sizes supported A4, A5, A6, B5, B6, Hi-Speed USB 2.0	1

For deaf/ hearing impaired schools (indicative)

S.No.	Assistive Technology	Application/ Purpose	Qty. per school
1.	Typing training and keyboard orientation software	To provide complete guidance and practice lessons for learning keyboarding skills and developing typing speed in a systematic manner like a touch typist using all ten fingers.	1
2	Conversor Pro Multipack (each set having 1 transmitter along with 10 receivers	For communicating wirelessly with the deaf children by the teacher during class. To be worn by the students connected to its hearing aid that amplifies the sound so that the impaired students listen to the teacher clearly. Should be connected to the computer speaker so that the students can listen to the sound cues of the PC helping him/her to understand.	1
3.	Word prediction software	Since the hearing impaired face the challenges in learning English grammar, they need the support for English language word prediction, help in punctuations while preparing notes or typing their lessons. Specially for the students studying in schools teaching in local languages	1
4.	Adobe Creative Suite 4 Design Premium	It is the ultimate toolkit for crafting precise page layouts, achieving typographic finesse, creating stunning digital images and vector graphics, developing eye-catching web pages and rich interactive experiences, and producing them all with utmost fidelity within a single, unified creative environment.	1
5.	Colour Laserjet Printer	Print speed black Up to 12 ppm; Print speed colour Up to 8 ppm; Media sizes supported A4, A5, A6, B5 (ISO, JIS) Hi-Speed USB 2.0, 10/100 Base-TX with RJ45 connector	1

For physically impaired and schools for disabled persons (indicative)

S.No.	Assistive Technology	Application/ Purpose	Qty. per school
1.	OnScreen Keyboard for persons with disabilities	An on-screen Keyboard which allows users with mobility impairments to type data directly into any Windows Applications.	1
2.	Head/ Mouth Sticks Keyboard	For typing on PC keyboard or on touch screen for operation of computers by persons with upper extremities or paralysis neck down	1
3.	Clevy Keyboard and Overlay	Colour coded keyboard with large keys to help a person with physical challenges to operate a keyboard with ease.	1
4.	Head Movement / Body part tracking Mouse -	It is beneficial for people with Cerebral Palsy, Multiple Sclerosis, Quadriplegia, Muscular Dystrophy, ALS, Carpal Tunnel Syndrome or any disability where users have little or no control of their hands. It is an easy-to-understand software for hands-free operation of a computer using a web camera (web-cam) to track body movements, (head, nose, chin, finger or toe, for example)	1
5.	Mouse emulation support	This software provides Mouse Emulation Support where a person who cannot click needs to simply move the mouse to the desired function or command button and the click is automatically activated by the system.	1
6.	Foot Pedal Mouse	Foot Pedals act as a three-button programmable keyboard in conjunction with your regular keyboard. It lets your feet take over lengthy, awkward or painful repetitive keystrokes or mouse clicks. Key actions like Shift, Enter and Space can be re-mapped and entered with one of the three-foot pedals. Each pedal can also be programmed to handle macros or key sequences of up to 13 characters in length.	1
7.	Typing training and keyboard orientation software with introductory Braille typing support	To provide complete guidance and practice lessons for learning keyboarding skills and developing typing speed in a systematic manner like a touch typist using all ten fingers. Introduction to typing in Braille.	1
8.	Voice Recognition Software – Hands free with support for (COUNTRY) Accent	Hands Free Software: This software enables operation of your computer completely by voice. It is the only system that allows operation of any application and full control over the Windows operating system. Voice Recognition Software - Voice recognition programs allow users to write text, navigate the Web, send e-mail, and use applications by using voice commands rather than a mouse or keyboard. Provides Playback Dictation, TTS and Supports Microsoft Word, Excel, Outlook Express	1
9.	Pointing Devices (Switches for persons with muscular dystrophy and Locomotive deficiency) (Set of 5 different types of switches)	For typing or performing mouse clicks while operating a computer by students who cannot use the keyboard or control their hand movements due to locomotive or physical—disability to be used in conjunction with onscreen keyboard program like QualiKey, Pointing Devices (Microlite plus button)	1
10.	Touch Screen (size "17" inch or above)	A hardware device that is mounted onto a computer monitor and allows a user to make selections, move objects and pull down menus with the touch of a finger.	1

11.	Word Prediction Software (per user licence) Reading and Writing Tool with Word Prediction and Reading Support in (COUNTRY) English Accent	Word Prediction along with Screen Reading with Text Zoom using (COUNTRY) English Voice. Spelling, thesaurus and dictionaries. Lexicon Editing. Abbreviation Expansion. Convert to WAV Files. Also scans and OCR from a printed book.	1
12.	Dyslexia Pack with following: Dyslexia Screener with annual licence support Dyslexia Portfolio (Complete set) Record Forms/Pupil Booklet (5 of each) York Assessment of reading for comprehension (complete set) Dyslexia Guidance Book	Dyslexia is a specific learning difficulty that hinders the learning of literacy skills. This problem with managing verbal codes in memory is neurologically based and tends to run in families. Other symbolic systems, such as mathematics and musical notation, can also be affected. Beginning with the Dyslexia Screener, you'll be able to screen your students for dyslexic tendencies. Print reports and track students' progress using the screener, after working through the curriculum-based titles within the pack, reading comprehension, sequencing, grammatical awareness and more with Dyslexia Pack	1
13.	Autism pack For all stages of language development from emerging vocabulary comprehensions to basic language mastery.	This package includes programs for student in all stages of language development emerging vocabulary comprehensions to basic language mastery. It contains 12 software programs for cause and effect training early vocabulary development, emerging syntax, category concepts and expressive language. The inclusion of following Programs may be ensured: • Creature Chorus First Words, First Words II, First Verbs • Exploring Nouns, Exploring Verbs • Talking Nouns I, Talking Nouns II, Talking Verbs • First Categories. • Simple Sentence Structure. • TalkTime with Tucker.	1
14.	Laser jet Printer	Print speed Up to 16 ppm, Media sizes supported A4, A5, A6, B5, B6, Hi-Speed USB 2.0	1

Annexure IV – Technical specification of 5 KVA UPS system (indicative)

TECHNOLOGY	Microprocessor controlled True On-line Double conversion PWM Technology, using IGBT as switching devices.
User Interface	Monitoring panel with LED display to provide complete information for: UPS on, Line on, Battery operation, Bypass
POWER RATING	5 KVA
ELECTRICAL INPUT	
Rated Voltage	Single Phase 230 V AC
Voltage Range	180 V to 260 VAC at 100% Load
Frequency Range	48Hz ~ 54Hz, 50H <u>+</u> 5%
Power factor	>=0.95
Efficiency Overall	>90%
ELECTRICALOUTPUT	
Voltage	230V AC, selectable (220, 230, 240 V)
Frequency	50Hz +/- 0.2Hz
Power factor	0.80
Crest Factor	3:1
Voltage distortion	<=2% total harmonic with 100% linear load
Overload Capacity	150% for 1 minute
	125% for 30 seconds.
Bypass	Automatic, Manual
PROTECTIONS	Input Over/ Under Voltage
	Overload at the output
	Battery Short Circuit
	Over Temperature Protection
ALARMS	Mains Fail
	Low Battery
	Overload
	Overheat
BATTERY	
Туре	Sealed Valve Regulated Lead Acid (VRLA) battery, maintenance free with steel rack for battery housing.
Backup Time	30 Minutes Minimum VAH required = 2500 VAH

AMBIENT PARAMETERS					
Operating	0 to 45 degree C				
Humidity	0 to 90 %				
Audible Noise	Less than 50 db				
DIMENSIONS and WEIGHT	Light Weight Smaller Footprint				
Communication Interface and UPS monitoring software	It should be possible to transmit electrical parameters to the computer users through RJ45 interface.				
	UPS monitoring software for "auto" shutdown feature to be provided and option for providing SNMP management feature should be provided.				
Quality standard	ISO certification, safety and EMC certification as per IEC standards.				
Warranty	On site free comprehensive Warranty for one years				

Notes:

- 1. All the equipment and components including batteries and interconnection cables supplied and installed should have one year on-site free comprehensive warranty from the date of installation.
- 2. The UPS systems have to be installed at ICT training centres in the country at various special/integrated schools for disabled students. The list of selected schools is in the bid document. Each UPS system has to be supplied and installed by the vendor directly at the place of installation.
- 3. Vendors should have service centres in all state capitals and UT(s) across the country. Documentary proofs of the same should be furnished along with the bid.
- 4. The vendor/OEM should be indigenous UPS manufacturer engaged in production of UPS for the last ten years. Besides sufficient capacity and infrastructure, vendor should have sufficient financial capability and should have a turnover of at least(AMOUNT) in any two of the preceding three financial Years.

Annexure V - Computer furniture

The bidder is required to setup a computer lab at ICT training centres in the country at various special/integrated schools for disabled students. Computer lab will be equipped with 1 Server, 10 desktop computers, 1 Network Printer, a 5 KVA UPS system with 30 minutes power backup SMF batteries, Ethernet switch, VSAT IDU, computer stationary and supplied software etc. (Indicative)

The bidder is required to quote the required MAKE/MAKE/MAKE or equivalent (ISO 9001:2000 certified) Branded furniture to keep and use the above equipment. The bidder has to provide the Table – Buddy and Chair (without wheel) for each desktop computer and Server.

Specifications

- The table top made up of 18 mm thick, pre-laminated particle board (OSL) with PVC Straight edge covering.
- Other panels: made of 18 mm thick plain particle board with Foil lamination finish and Melamine edge covering
- Keyboard tray to be provided with roller runner.
- PVC nail foot provided at base

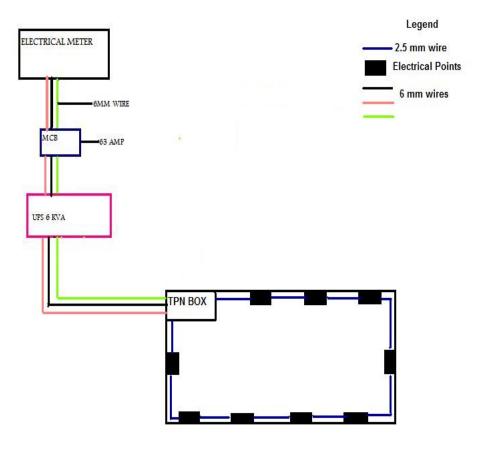
Computer table Printer table

Size: 790W x 400D x 750H mm Size: 600W x 400D x 750H mm

The bidder is required to setup the computer lab with partitions and classroom as per layout at **Annexure VII**.

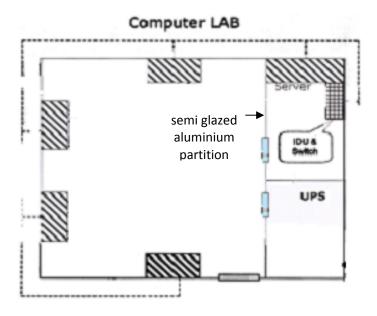
<u>Partition details for Computer lab</u>: Separate partition (8*10 feet) to be given for server and UPS in computer lab as shown in the layout at <u>Annexure-VII</u>. A semi glazed aluminium partition having laminated board up to a height of 4 ft. extended 4 MM thick glass up to a height of 4 ft. should be provided. The cross-section of the aluminium tube shall be 2.5"x1.5". The doors of computer room as well as partitioned server room should be fitted with a door closer. Separate partition for 5 KVA UPS and batteries to be constructed outside the room wherever facility/space is available.

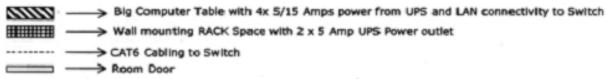
Annexure VI – Electrical outline



Annexure VII - Proposed layout of computer lab (indicative)

Proposed Installation





Annexure VII (i) – Proforma for rates for items proposed at each School = Numbers

SI.	ltem	Qty (per school) (A)	**Unit Price (in CURRENCY) (B)	Total Price (C) C=A*B	Sales Tax (in Rs.) / VAT (D)	Service Tax (in CURRENCY/ VAT (E)	Total Cost (in CURRENCY.) (F) F=C+D+E
1	Servers	01					
2	Desktop PC	10					
3	Anti-virus software for one server and 10 client computers	01					
4.	LAN Ethernet. switch 10/100 Mbps – 24 Port with Jack panel	01					
5.	On line UPS – 5KVA with 30 Minutes backup time	01					
6.	MS-Office with multi-lingual support with 10 user licence	01					
7.	Stationary Consumable – Blank CD – pack of 20 CDs Pen Drive 8 GB Braille Paper for Basic D –	2 packs 02 Nos. 10 000 sheets					
8.	Installation of LAN to connect 10 PC, 1 Server and 1 Printer and its LAN cabling on CAT VI cable, Jack Panel I/O etc.	01					
9.	Installation of electric cabling and electrical power points of appropriate wattage to install the hardware, UPS and dedicated earth	01					

10.	MAKE/MAKE/MA KE or equivalent ISO branded Computer furniture to keep all the supplied hardware in the computer lab (such as one server, eight desktop PCs, one Braille Printer, UPS, wall mounting rack for Ethernet. switch etc.).						
10.a	MAKE/MAKE/MA KE or equivalent Table - Buddy	11					
10.b	MAKE/MAKE/MA KE or equivalent Chair (without wheels)	20					
10.c	MAKE/MAKE/MA KE or equivalent ISO branded Printer /TV Table	01					
11.	Partition in the computer lab Floor tiling for 400 square feet in each school, white wash, electrical cabling*	01					
12	VSAT Connection of TECHNICAL SPECIFICATION						
13	AMC of 1 year after 1 year warranty ##	All Items					
	TOTAL (G)						

GRAND TOTAL = G *(NUMBER OF SCHOOLS)

Breakup of AMC for all items may be also be provided in separate sheet. Extendable to three years at the sole discretion of MCIT, if required.

^{*} Break up of all items (Electrical cabling, power points, whitewash, and flooring aluminium portioning, LAN cabling) etc may be provided separately.

^{**} Inclusive of one year Comprehensive warranty

Annexure VII (ii) – Proforma for rates for assistive tools proposed for blind and low vision schools

Proposed No. of Schools =(NUMBER)

SI.	Assistive Technology	Qty (per school) (A)	**Unit Price (in CURRENCY) (B)	Total Price (C) C=A*B	Sales Tax (in CURRENCY) / VAT (D)	Service Tax (in CURRENCY) / VAT (E)	Total Cost (in CURRENCY) (F) F= C+D+E
1	Screen reading and screen magnification software for the Blind With (COUNTRY) Accent Voice and in bilingual edition i.e. English and (COUNTRY) language. Also providing Braille support. (05 user licence)	01					
2	Typing training and keyboard orientation software for the blind (10 user licence) with introductory Braille typing support	01					
3	Magnification Device with interface to PC Monitor / or VGA Monitor	01					
4	Large Print Keyboards	05					
5 a. b.	Flatbed Scanner OCR Scanning and Reading Software with (COUNTRY) Accent Voice	01					
6	Braille embosser	01					
7	Acoustic Cabinet for Braille embosser	01					
8	Braille Translation Software for (COUNTRY)Languages	01					
9	Talking Arithmetic Software	01					
10	Laserjet Printer	01					
11	AMC of 1 year after 1 year	All Items					
			TOTAL (G)				

GRAND TOTAL = G *(NUMBER)

^{**} Inclusive of one year Comprehensive warranty

^{##} Breakup of AMC for all items may be also be provided in separate sheet. Extendable to three years at the sole discretion of MCIT, if required.

Annexure VII (iii) – Proforma for rates for assistive tools proposed for deaf/hearing impaired schools

Proposed No. of Schools=(NUMBER).

SI	Assistive Technology	Qty (per school) (A)	**Unit Price (in CURRENCY) (B)	Total Price (C) C=A*B	Sales Tax (in CURRENCY) / VAT (D)	Service Tax (in CURRENCY) / VAT (E)	Total Cost (in CURRENCY) (F) F= C+D+E
1	Typing training and keyboard orientation software	01					
2	Conversor Pro Multipack (each set having 1 transmitter along with 10 receivers	01					
3	Word prediction software	01					
4	Adobe Creative Suite 4 Design Premium	01					
5	Colour Laser jet Printer	01					
6	AMC of 1 year after 1 year warranty ##	All Items					
7.			TOTAL (G)				

GRAND TOTAL = G * (NUMBER)

Breakup of AMC for all items may be also be provided in separate sheet. Extendable to three years at the sole discretion of MCIT, if required.

^{**} Inclusive of one year Comprehensive warranty

Annexure VII (iv) – Proforma for rates for assistive tools proposed for physically impaired and schools for disabled persons

Proposed no. of Schools – 15 approx.

SI.	Assistive Technology	Qty (per school) (A)	**Unit Price (in CURRENCY) (B)	Total Price (C) C=A*B	Sales Tax (in CURRENCY) / VAT (D)	Service Tax (in CURRENCY) / VAT (E)	Total Cost (in CURRENCY) (F) F=C+D+E
1	On Screen Keyboard for persons with disabilities	01					
2	Head/ Mouth Sticks Keyboard	01					
3	Clevy Keyboard and Overlay	01					
4	Head Movement / Body part tracking Mouse -	01					
5	Mouse emulation support	01					
6	Foot Pedal Mouse	01					
7	Typing training and keyboard orientation software with introductory Braille typing support	01					
8	Voice Recognition Software – Hands free with support for COUNTRY Accent	01					
9	Pointing Devices (Switches for persons with muscular dystrophy and Locomotive deficiency)(Set of 5 different types of switches)	01					
10	Touch Screen (size "17" inch or above)	01					
11	Word Prediction Software (per user licence) Reading and Writing Tool with Word Prediction and Reading Support in COUNTRY English Accent	01					
12	Dyslexia Pack	01					
13	Autism pack	01					
14	LaserJet Printer	01					
15	AMC of 1 year after 1 year warranty ##	All Items					
16			TOTAL (G)				

GRAND TOTAL = G * (NUMBER)

^{**} Inclusive of one year Comprehensive warranty

^{##} Breakup of AMC for all items may be also be provided in separate sheet. Extendable to three years at the sole discretion of MCIT, if required

Annexure VIII – Service level agreement (indicative)

Terms of the Service Level Agreement would be as under:

For Server, Desktop Computers, Printers, UPS system, Isolation Transformers, Ethernet switch, LAN including electrical cabling, preinstalled software etc:

- 1. All the supplied hardware/software should be under one year on site free comprehensive warranty.
- 2. Bidder guarantees that all the supplied hardware/software at ICT training Centres downtime should not exceed 5% averaged on a yearly basis for 24x7x365 days operation.
- 3. The maximum time to repair (MTTR) to ICT training centres complaint will not exceed 72 hours. However, prior exception to the above MTTR shall be taken from MCIT on case-to-case basis.
- 4. Bidder should provide a satisfactory certificate duly signed and stamped by the user at the end of each year of the warranty period failing which balance payment will not be released till then.
- 5. (a) During the warranty: In case the maximum time to repair supplied equipment exceeds the above-mentioned duration then the warranty period of that equipment will be extended proportionately which will be two-times the number of days the system would remain down.
 - (b) During the Warranty period: In case the equipment are not made operational within 21 days (three weeks) from the lodging of the complaint, Bank Guarantee provided by the bidder to MCIT shall be invoked in respect of that equipment during warranty period.

The downtime of the equipment starts from the time MCIT's and User's complaint is logged in at the bidder address as provided by the bidder for escalating complaints. Any delay in this shall be excluded from the availability calculations. The complaint can be logged during working hours (..... AM - PM (TIME) on all working days, excluding Sundays and national holidays). Any delay in escalating a complaint shall be excluded from the availability calculations.

Abbreviations

Art: Article

DAISY: Digital Accessible Information System

ICT: Information and Communications Technology

IT: Information Technology

ITU: The International Telecommunication Union

OCR: Optical Character recognition

TTS: Text to Speech

TTY: Text Teletypewriter

UI: User interface

UNCRPD: The United Nations Convention on the Rights of Persons with Disabilities

W3C: World Wide Web Consortium

WAI: Web Access Initiative

WCAG: Web Content Accessibility Guidelines

References

- e-Accessibility Toolkit for policy makers, by ITU-G3ict, available at www.e-accessibilitytoolkit.org
- Making Mobile Phones and Services Accessible for Persons with Disabilities, report by ITU-G3ict, available at www.itu.int/ITU-D/sis/PwDs/Documents/Mobile Report.pdf
- Making Television Accessible Report, by ITU- G3ict, available at <u>www.itu.int/</u>
 ITU-D/sis/PwDs/Documents/ITU-G3ict%20Making TV Accessible Report November 2011.pdf
- Universal Service for Persons with Disabilities: A Global Survey of Policy Interventions and Good Practices, by G3ict-CIS, available at http://g3ict.org/resource-center/publications-and-reports/p/productCategory-whitepapers/subCat-0/id-193
- UN Enable- Frequently Asked Questions available at www.un.org/disabilities/default.asp?navid=23&pid=151#sqc10.
- W3C Web Accessibility Initiative available at www.w3.org/WAI/.
 Webaim, web accessibility initiative, available at, www.webaim.org
- Website of the **DAISY Consortium** available at <u>www.daisy.org/about-us</u>
- Daisy and Emergency preparedness, available at: www.daisy.org/daisypedia/daisy-and-emergency-preparedness
- UNESCO ItrainOnline website provides accessible web design training and tools at <u>www.itrainonline.org/itrainonline/english/usability.shtml#Web%20Site%20Usability%20and%2</u> OAccessibility%20-%20Accessibility
- **EU, 112-the Single European Emergency Number**, General Fact Sheet 44 available at http://ec.europa.eu/information society/doc/factsheets/044-112-blue-en.pdf
- Section 508: "Electronic and Information Technology Accessibility Standards", available at www.access-board.gov/sec508/standards.htm
- Industry Canada's Accessible Procurement Toolkit, available at <u>www.apt.gc.ca/ap11000E.asp?ld=1</u>
- Buy Accessible Wizard, U.S. General Services Administration at www.buyaccessible.gov/. See also ICT accessible procurement chapter in e-Accessibility Toolkit for Policy Makers at www.e-accessibilitytoolkit.org/toolkit/public procurement/

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