Consultation Paper No. 2/2012

**CONSULTATION PAPER**

ON

**Making ICT and Mobile Phones Accessible for Persons with Disabilities in Nepal**

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**Nepal Telecommunication Authority**

**22 November, 2012**

**Foreword**

1. In today’s context, Telecommunication/ICT plays an important role for the development of an individual and country as a whole. However, significant number of persons with disabilities are still unable to avail Telecommunication/ICT facilities as it is not accessible to them. Out of 7 billion people in the world, more than one billion people live with some form of disability including old age population. Hence, it is quite necessary that the ICT and mobile phones are made accessible to the persons with disabilities so that they are not left out of the mainstream ICT development.

2. Access to Information is a basic human right accepted worldwide and persons with disabilities (PwDs) cannot be an exception. Likewise, Nepal has already a signatory to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). Fragmented efforts are being carried out by different government entities, INGOs and NGOs for helping persons with disabilities. NTA has initiated a plan to make ICT and mobile phones accessible to persons with disabilities in technical collaboration with International Telecommunication Union. Draft report “**Making ICT and mobile phones accessible for persons with disabilities in Nepal**” has been prepared. The same report was also discussed in detail during the ITU mission’s recent visit to Kathmandu from 5 to 9 November with all the stakeholders in person as well as during the workshop held on 9th of November, 2012. NTA believes that with the coordinated effort from all the stakeholders, we can have the desired result. NTA has produced this consultation paper No. 2/2012 on "**Consultation Paper on Making ICT and mobile phones accessible for persons with disabilities in Nepal**" to get comments, suggestions and feedbacks from all the stakeholders and general public. The draft report is a part of this consultation paper for your perusal.

3. The Authority invites written responses latest by **December 11, 2012**. The written responses and the comments may be sent by **E-mail** to [**ntra@nta.gov.np**](mailto:ntra@nta.gov.np) **/** [**urregmi@nta.gov.np**](mailto:urregmi@nta.gov.np)or **by** **Fax to +977 1 4101034** or may be sent directly to Nepal Telecommunications Authority, Tripureshwor, Kathmandu, P.O. Box No. 9754

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Contents

[Executive Summary 7](#_Toc338079516)

[Introduction 8](#_Toc338079517)

[1 The international framework 8](#_Toc338079518)

[1.1 United Nations Convention on the Rights of Persons with Disabilities 8](#_Toc338079519)

[1.2 Biwako Millennium Framework 10](#_Toc338079520)

[2 Understanding ICT accessibility 11](#_Toc338079521)

[2.1 ICT Accessibility 11](#_Toc338079522)

[2.2 Universal design 12](#_Toc338079523)

[2.3 Reasonable Accommodation 12](#_Toc338079524)

[2.4 Assistive Technology 13](#_Toc338079525)

[2.5 Accessibility Standards 14](#_Toc338079526)

[2.5.1 Web Content Accessibility Guidelines 14](#_Toc338079527)

[2.5.2 Unicode Consortium 15](#_Toc338079528)

[2.5.3 DAISY 15](#_Toc338079529)

[2.5.4 Other Accessibility standards 16](#_Toc338079530)

[3 Mobile Accessibility features and services 19](#_Toc338079531)

[3.1 Cognition – Basic Accessibility Features and Services 19](#_Toc338079532)

[3.2 Dexterity - Basic Accessibility Features and Services 19](#_Toc338079533)

[3.3 Hearing - Basic Accessibility Features and Services 20](#_Toc338079534)

[3.4 Vision – Basic Accessibility Features and Services 21](#_Toc338079535)

[3.5 Illiteracy – Looking Beyond Disability 21](#_Toc338079536)

[3.6 Special Services offered by Wireless Service Providers 22](#_Toc338079537)

[3.6.1 Digital libraries for visual or reading-impaired users 22](#_Toc338079538)

[3.6.2 Global Positioning System (GPS) 22](#_Toc338079539)

[3.6.3 Relay Services 22](#_Toc338079540)

[3.6.4 Voice Based Services 23](#_Toc338079541)

[3.6.5 Emergency Phone Services 23](#_Toc338079542)

[3.6.6 Customer services 24](#_Toc338079543)

[4 Access to Information and Communication Technologies for Persons with Disabilities in the Federal Democratic Republic of Nepal 25](#_Toc338079544)

[4.1 A - Country Profile 25](#_Toc338079545)

[4.1.1 Telecommunications and ICT usage 26](#_Toc338079546)

[4.1.2 Disability 26](#_Toc338079547)

[4.1.3 Key insights 27](#_Toc338079548)

[4.2 B - Overview of Government Ministries and Organizations concerned with ICT and Disability 28](#_Toc338079549)

[4.2.1 Government Ministries 28](#_Toc338079550)

[4.2.2 Organizations involved with Disability 29](#_Toc338079551)

[4.2.3 Key Insights 31](#_Toc338079552)

[4.3 C - Overview of the Policy Framework related to Disability and ICT 31](#_Toc338079553)

[4.4 Disability 32](#_Toc338079554)

[4.4.1 Protection and Welfare of the Disabled Persons Act 2039 (1982) 32](#_Toc338079555)

[4.4.2 The Protection and Welfare of Disabled Persons Rules, 2051 BS (1994) 33](#_Toc338079556)

[4.4.3 The Children’s Act, 2048 BS (1992) 34](#_Toc338079557)

[4.4.4 The Social Welfare Act 2049 BS (1992) 34](#_Toc338079558)

[4.4.5 Local Self Government Act 1999 34](#_Toc338079559)

[4.4.6 Copyright Act, 2059(2002), 2002 35](#_Toc338079560)

[4.4.7 Five/Three year plans 35](#_Toc338079561)

[4.4.8 Education Act, 2028 BS (1971) 36](#_Toc338079562)

[4.4.9 National Education System Plan, 2028 BS (1971) 37](#_Toc338079563)

[4.4.10 Basic and Primary Education Plan (1991–2001) 37](#_Toc338079564)

[4.4.11 Special Education Policy 2053 BS (1996) 37](#_Toc338079565)

[4.4.12 National Policy and Action Plan, 2006 38](#_Toc338079566)

[4.5 ICT 38](#_Toc338079567)

[4.5.1 Telecommunications Act, 2053 BS (1997) 38](#_Toc338079568)

[4.5.2 IT Policy 2057 BS (2000) 39](#_Toc338079569)

[4.5.3 IT Policy 2067 BS (2010) 39](#_Toc338079570)

[4.5.4 Telecom Policy 2060 BS (2004) 40](#_Toc338079571)

[4.5.5 Electronic Transaction Act 2063 BS (2008) 40](#_Toc338079572)

[4.5.6 Right to Information Act 2064 BS (2007) 41](#_Toc338079573)

[4.5.7 Public Procurement Act 2063 BS (2007) 41](#_Toc338079574)

[4.5.8 Nepal eGovernment Interoperability Framework 41](#_Toc338079575)

[4.5.9 Other 42](#_Toc338079576)

[4.6 Key Insights 42](#_Toc338079577)

[4.7 D - Recommendations 44](#_Toc338079578)

[4.7.1 Nepal Telecom Authority (NTA) 44](#_Toc338079579)

[4.7.2 Ministry of Information and Communication 45](#_Toc338079580)

[4.7.3 Ministry for Women, Children and Social Welfare & associated departments and agencies 46](#_Toc338079581)

[4.7.4 Rural Telecommunications Development Fund (RTDF) 47](#_Toc338079582)

[4.7.5 Ministry of Environment, Science and Technology 47](#_Toc338079583)

[4.7.6 Ministry of Education 48](#_Toc338079584)

[4.7.7 Ministry of Health and Population 48](#_Toc338079585)

[4.7.8 Public Procurement Monitoring Office 49](#_Toc338079586)

[4.7.9 Nepal Copyright Registrar’s Office (NCRO) 49](#_Toc338079587)

[4.8 Suggested Enabling Amendments to Telecom Legislation/Policy: 49](#_Toc338079588)

[4.8.1 Telecommunications Policy 2060(2004): 50](#_Toc338079589)

[4.8.2 Telecommunications Act 2053(1997) 51](#_Toc338079590)

[4.8.3 Rural Telecom Development Fund Bylaws 52](#_Toc338079591)

[4.8.4 Enabling Access to ICTs: Specific Programmes/Projects 52](#_Toc338079592)

[5 Examples/Templates 53](#_Toc338079593)

[6 Abbreviations 54](#_Toc338079594)

[7 Annexure-A – Table of ICT Accessibility policies around the world 55](#_Toc338079595)

[8 Annexure-B - Table of accessibility programmes and policies under Universal Access/Service Obligations 61](#_Toc338079596)

[9 Annexure-C: Table of Open Source Assistive Mobile Technologies 69](#_Toc338079597)

[10 Annexure D - Project Template 1 70](#_Toc338079598)

[11 Annexure E - Project Template 2 71](#_Toc338079599)

[12 Useful References 72](#_Toc338079600)

# 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 Federal Democratic Republic of Nepal. 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 Nepal to implement programmes on ICT accessibility, explains key accessibility concepts, showcases disability wise ICT assistive solutions for computers and mobile phones and analyzes 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 Nepal 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 Rural Telecom Development Fund 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 amendment of the Copyright Act to include 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 and the Nepal Telecommunications Authority (NTA) to act upon recommendations in the area of accessible ICTs immediately are also suggested.

There are 6(six) annexures in this report. Annexure A gives examples of the kinds of policies which countries around the world have formulated on ICT accessibility, Annexure B showcases some projects funded out of the Universal Service Funds in other countries, Annexure C contains a list of some open source assistive mobile technology and Annexure D and E are the project templates. The last annexure contains a list of some useful references.

# Introduction

# The international framework

Over 1 billion people across the world or about 15 per cent of the world’s population[[1]](#footnote-1) live with some form of disability. As the world’s population profile becomes older and with increasing incidence of chronic health conditions such as diabetes, cancer and cardiovascular diseases 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 the blind can read and use computers with the help of speech technology like screen readers and the deaf 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. 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 by states parties.

## United Nations Convention on the Rights of Persons with Disabilities

The UNCRPD[[2]](#footnote-2) 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 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”. 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 principles[[3]](#footnote-3) and established as an integral part of human rights[[4]](#footnote-4). 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.

A few key dispositions of the UNCRPD which are relevant to ICT accessibility are given below:

* Art. 4 outlines obligations on the States Parties and specifically mentions ICT and accessibility.
  + Art. 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”.
  + Art 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”.
* Art. 5 recommends that States Parties take appropriate steps to provide reasonable accommodation[[5]](#footnote-5) in order to ensure equality and avoid discrimination.
* Art. 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’.
  + Art 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.
  + Art. 9.2 b) requires private sector service providers to provide accessible services.
  + Art. 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.
* Art. 19 concerning living independently promotes assistive technologies to support living and inclusion within the community.
* Art. 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 entities and mass media providers, including providers of services through the internet to make their services accessible to persons with disabilities.
* Art. 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.
* Art. 26 concerning rehabilitation promotes assistive technologies.
* Art. 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.
* Art. 29 concerning political rights contains accessibility requirements and promotes assistive technologies.
* Art. 30 concerning participation in cultural life, recreation, leisure and sport requires cultural materials and television to be accessible.
* Art. 31 concerning the collection of statistics and research data to enable States to fulfill their obligations under the CRPD, mentions that this data should be accessible to Persons with disabilities.
* Art. 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.”[[6]](#footnote-6)

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.

There is a lot in terms of international framework and precedence which promote physical and ICT accessibility for persons with disabilities. Annexure 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.

# 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.

## 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[[7]](#footnote-7). 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 buses or buses with lifts for the benefit of persons who are unable to climb due to a disability or old 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 connections[[8]](#footnote-8) and those accessing the internet through hand held devices such as mobile phones.

Given that information and services these days 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.

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.

## Universal design

The principle of Universal Design is a key concept for accessibility. It is explicitly promoted in Art. 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.

## 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. Art. 2 of the UNCRPD takes the position that denial of reasonable accommodation is itself a form of discrimination. In addition, the convention’s Art. 5 on Equality and non-discrimination directs states parties to take appropriate steps to provide reasonable accommodation. Provision of reasonable accommodation is also explicitly mentioned in Art. 14 (Liberty and security of person), Art. 24 (Education) and Art. 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.

## 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.[[9]](#footnote-9) 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 Windows[[10]](#footnote-10), Linux[[11]](#footnote-11) and Apple Mac[[12]](#footnote-12). 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.[[13]](#footnote-13) 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.[[14]](#footnote-14)
* **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](http://www.abilitynet.wetpaint.com/)[[15]](#footnote-15) and [EMPTECH](http://www.emptech.info/)[[16]](#footnote-16).

## 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.[[17]](#footnote-17) Thus, the federal government is incentivising organisations 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 organisations working in the area of accessibility. Some of these are outlined in greater detail below.

### 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](http://www.w3.org/WAI/) 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 4 principles – Perceivable, Operable, Understandable and Robust.[[18]](#footnote-18) 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 3 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)](http://www.w3.org/TR/wcag2ict/), a website accessibility conformance methodology and other tools to facilitate the spread of accessible technology.

### Unicode Consortium[[19]](#footnote-19)

The Unicode Standard[[20]](#footnote-20) 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, program, 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.

### 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 Analog to Digital Talking Books.[[21]](#footnote-21) DAISY denotes the Digital Accessible Information System which 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. Library of Congress[[22]](#footnote-22), at Dedicon Netherlands[[23]](#footnote-23), the largest library for the blind in the Netherlands, and at the TPB Swedish Library of Talking Books and Braille.[[24]](#footnote-24)

In general, DAISY provides the following benefits

1. 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.

### 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 and
* identifying areas / technologies where voluntary standards are not being addressed.

The three main deliverables of the SWG are

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

A very important standards setting organisation 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 its 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 telecommunications management) which looks at ‘Human factors related issues for improvement of the quality of life through international 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 below[[25]](#footnote-25):

* 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 SG 16’s work:

* [V.18](http://www.itu.int/rec/T-REC-V.18/en) provides for harmonization of text telephony
* [V.151](http://www.itu.int/rec/T-REC-V.151/en) Procedures for the end-to-end connection of analogue PSTN text telephones over an IP network utilizing text relay
* [T.140](http://www.itu.int/rec/T-REC-T.140/en) specifies the general presentation protocol for text conversation
* [T.134](http://www.itu.int/rec/T-REC-T.134/en) details how to use text conversation in the T.120 data conferencing environment
* [H.323](http://www.itu.int/rec/T-REC-H.323/en) Annex G defines text conversation in H.323’s packet multimedia environment
* [H.248.2](http://www.itu.int/rec/T-REC-H.248.2/en) allows gateway procedures between Text Telephony in PSTN and real-time text in IP and other networks
* [H Series Supplement 1](http://www.itu.int/rec/T-REC-H.Sup1/en) gives users the requirements on video communication for sign language and lip reading
* [Telecommunication Accessibility Checklist](http://www.itu.int/pub/T-TUT-FSTP-2006-TACL/en) for standards writers:
* [F.790](http://www.itu.int/rec/T-REC-F.790) provides telecommunications 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 toolkit[[26]](#footnote-26) in collaboration with G3ict[[27]](#footnote-27) 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 JISC[[28]](#footnote-28), ETSI [[29]](#footnote-29) and InterNational Committee for Information Technology Standards (INCITS[[30]](#footnote-30)).

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.

ICT Accessibility is critically important in today’s 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.

# 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’[[31]](#footnote-31)

## 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. Some of the accessibility features are described below.

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 easier[[32]](#footnote-32); 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.

## 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 computers and mobile phones. Another useful feature is Auto Text. This reduces the number of keystrokes needed to type the message[[33]](#footnote-33) 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.

## 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 those of 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 buds helps people with hearing difficulties in one ear. [[34]](#footnote-34) 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 for 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. e.g. T-Mobile[[35]](#footnote-35) in the US has a data only plan. AT&T also has a Text Accessibility Plan (TAP)[[36]](#footnote-36)
* **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.[[37]](#footnote-37)

## Vision – Basic Accessibility Features and Services

Persons with blindness or low 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)[[38]](#footnote-38) 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.[[39]](#footnote-39)

## 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, voice recognition.

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.[[40]](#footnote-40) Answering a question advances the person in the game.

## 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.

### 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)[[41]](#footnote-41) and Bookshare[[42]](#footnote-42) 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.[[43]](#footnote-43)

### 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,[[44]](#footnote-44) Mobile Geo[[45]](#footnote-45) etc.

### 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 a 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.

### 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

### 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. REACH112[[46]](#footnote-46) funded under EU’s 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.
* The Australian government has initiated a SMS-based emergency service for the hearing impaired and hard of hearing community.[[47]](#footnote-47) Hearing impaired persons can now request assistance by sending an SMS to the national emergency number 106.
* In USA, 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.[[48]](#footnote-48) 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.

### 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.[[49]](#footnote-49)
* **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's 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.[[50]](#footnote-50)
* 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.

# Access to Information and Communication Technologies for Persons with Disabilities in the Federal Democratic Republic of Nepal

This chapter looks at the specific situation in Nepal with respect to the promotion and use of ICTs for persons with disabilities. It is divided into four sections- Section A outlines the country profile, giving details of culture, geography, demographics, statistics on telecommunications penetration and disability since these are important from the viewpoint of understanding country specific needs and challenges. Section B gives an overview of the different ministries and agencies overseeing ICT and disability in the country. Section C looks at some of the key policies which directly or indirectly promote the use of ICT for persons with disabilities and the public and Section D concludes with some practical recommendations for change at the policy and programme levels.

## A - Country Profile

Nepal is a landlocked country sharing its borders with India and China. Its area is spread over 147,200 kilometres comprising the low lying plains near the Indian border, the middle hills and valleys of the Mahabharat range and the high plains of the Himalayan range. Nepal has eight of the world’s highest peaks, including Mount Everest and Kanchenjunga.[[51]](#footnote-51) From an administrative standpoint, Nepal is divided into 5 regions, 14 zones and 75 districts. There are 3913 village development committees and 58 municipalities[[52]](#footnote-52).

Nepal has a population of 28,951,852[[53]](#footnote-53) people (as of July 2010) with the highest density population being in Kathmandu and the remainder scattered around the surrounding mountain ranges. This figure includes expatriates working abroad. In terms of age groups, roughly 34% of the population consists of individuals under the age of 14, 61% are between the ages of 15 and 64 and approximately 4% belongs to the over 65 category. Hence Nepal has a predominantly young population which can contribute to and benefit greatly from connection to the global information society. It is home to diverse cultural and linguistic groups such as Chhetris, Brahman-Hill, Magar, Tharu, Tamang, Newar, Muslim, Kami, Yadav and so on. Amongst the hundred odd languages spoken in Nepal are Nepali (official language), Maithili, Bhojpuri, Tharu (Dagaura/Rana), Tamang, Newar, Magar, Awadhi and others.[[54]](#footnote-54).

Agriculture is the predominant source of livelihood. Urban Nepalis are engaged in various industries and services. Agriculture and services contribute to 40% of the GDP each, while industries contribute the remaining 20%[[55]](#footnote-55). The estimated average annual national income in 2005 was USD 1,038 for women and USD 2,072 for men[[56]](#footnote-56). In 2008, the unemployment rate was approximately 46% and according to a 2011 estimate, approximately 30.9% of the population is below the poverty line[[57]](#footnote-57). The literacy rate for adults (aged 15 and above) for both men and women was 59.1% in 2009.[[58]](#footnote-58)

Nepal has incidence of natural calamities such as severe thunderstorms, landslide, floods, drought and famine which are determined by the summer monsoon.

### Telecommunications and ICT usage

According to Nepal Telecommunications Authority[[59]](#footnote-59), the telecom usage for Nepal is as follows:

* Number of Fixed landline telephone subscriptions: 839,710 (Penetration rate: 3.15%)
* Number of Mobile-cellular telephone subscriptions: 15,334,413 (Penetration rate: 57.60%)
* Number of data & internet users: 5,043,091 (Internet Penetration rate: 18.94%)
* Number of Rural PCO’s: 2,622

These statistics indicate that telecommunications and ICT usage is on the lower end of the spectrum in Nepal and even though the mobile-cellular telephone subscription level far outstrips the other categories, it is still used by less than half the population. As of 2005-06, Nepal had a score of 0.19 on the Digital Opportunity Index (DOI). This index evaluates the opportunity, infrastructure and utilization of Information and Communication Technologies (ICTs) worldwide[[60]](#footnote-60). Nepal ranked 147 out of 181 nations.

One of the reasons for low ICT penetration is the topography of Nepal, with high mountain ranges rendering many places physically remote and inaccessible. There are inadequate and limited transportation services in the remote areas, as well as inadequate media and telecommunication services (except for Radio Nepal) in the remote locations. This leads to low or no access to internet facilities in rural areas and distant locations. Inadequacy of resources to promote and develop ICT programmes is another limiting factor. However, projects such as Nepal Wireless, which seeks to introduce a mesh network for internet [[61]](#footnote-61)in even the rural parts of Nepal, should help bring improvements.[[62]](#footnote-62)

### Disability

There is not much current data available on persons with disabilities. The statistics available in generic studies are largely varied and are likely to be inaccurate because of numerous factors such as an imprecise definition of the term ‘disability’, under-reporting and logistical challenges to information gathering. A 1999 report of the World Bank states that 67% of the population in Nepal has some form of disability with the majority of the disabled (59.6% men and 77.7% women) being uneducated[[63]](#footnote-63). The National Census of 2001 recorded only 0.45% of the population as disabled while UNICEF’s 2001 Situational Analysis of Disability in Nepal found that 1.63% of people lived with a disability.[[64]](#footnote-64) Furthermore, the statistics that are available do not reflect the range of disabilities, in particular mental illness, which is still not appropriately categorized in Nepal, with many mentally ill people being sent to prison[[65]](#footnote-65). There is no data available on their occupation, average income and status with respect to the poverty line etc.

However, given the fact that world over the majority of persons with disabilities living in developing countries are below the poverty line (since they have negligible access to infrastructure and resources), it is safe enough to assume that the same situation prevails in Nepal. This would also imply that whatever small percentage of the disabled population has access to any ICT facilities at all would be concentrated in urban areas. Since penetration of even basic telecommunications services is very low in the far flung rural areas of Nepal, ensuring that these services and facilities reach the disabled in an accessible and affordable manner on a priority basis can prove to be a challenge. 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 Nepal would broadly include the below mentioned factors:

* General poverty.
* Low penetration of affordable telecommunications services in rural areas.
* Lack of awareness of the potential of ICTs to transform the lives of persons with disabilities.
* 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 are needed to overcome these challenges if persons with disabilities are to be included in national development.

### Key insights

* There is little documentation on the number of persons with disabilities and their access to resources. Effort has to be made to gather accurate data through the national census and other periodic surveys in different areas such as their access to telecommunications services.
* Nepal has a predominantly young population and the percentage of youth with disabilities is also likely to be correspondingly high. More than others, young persons have a great potential and need to be connected to the information society.
* Nepal is home to various linguistic communities; hence solutions must be devised to cater to the linguistic needs of persons of all communities. In terms of assistive technology and electronic content, this essentially means that technology such as text to speech software must be developed and deployed in different languages. The official language could however be a good starting point. Similarly, electronic content must be in Unicode font to enable reading by screen readers.
* Majority of the persons with disabilities would not be able to afford internationally available commercial assistive solutions. There is a clear need to develop indigenous open source solutions to cater to local needs and to tap into networks and resources of countries like India which share some similarity of culture and have a larger resource pool.

## B - Overview of Government Ministries and Organizations concerned with ICT and Disability

### Government Ministries

Some of the key government ministries involved in ICT and Disability in Nepal are outlined in this section.

ICT predominantly comes under the purview of two ministries namely, Ministry of Information and Communications and the Ministry of Environment, Science and Technology.

The Ministry of Information and Communications (MoIC)[[66]](#footnote-66) was established with an objective to expand the information and communication sector for social and economic development. MoIC formulates and implements the rules, regulations and policies pertaining to postal services, telecommunications, broadcasting, press and film development. Associated with this ministry is the National Telecommunications Authority (NTA), which is the telecom regulator of Nepal.

The NTA is an independent autonomous body set up under the Telecommunications Act 1997. Its aims are to make necessary arrangements to ensure that basic telecommunications service and facilities are available in all rural and urban areas of Nepal and to protect the rights and interests of consumers by ensuring that quality services are provided. It is responsible for granting licenses to operators and for prescribing, fixing and approving the standard or quality of service; approving and regularizing fees for provision of telecom services; inspecting and monitoring the activities of operators to ensure quality of service to customers and providing suggestions to Government of Nepal on the policy, plan and programmes to be adopted by the Government for the overall development of the telecommunications service.[[67]](#footnote-67)

Ministry of Environment, Science and Technology[[68]](#footnote-68) handles both Environment and Science and Technology matters. Its objectives are promoting the sustainable development of the country and conserving the natural and cultural environment. From a science and technology point of view, its aims are to promote use of modern science and technology in Nepal, create an enabling environment for scientific research and development, promote and develop indigenous methodology and to promote the use of information technology in national development. The National Information Technology Centre (NITC) of Nepal which is responsible for developing the technology sector in Nepal comes under this Ministry.[[69]](#footnote-69)

Disability issues are primarily dealt with by four ministries – the Ministry of Women, Children and Social Welfare, Ministry of Education, Ministry of Health and the Ministry of Local Development.

Ministry of Women, Children and Social Welfare[[70]](#footnote-70) plays a pivotal role in disability related issues and development. It plans policies, enacts legislation, implements and coordinates programmes to provide equal opportunities for women, children and persons with disabilities. It has developed policies and laws applicable to the welfare of persons with disabilities, some of which are specific to the disabled while others are applicable to all persons. It oversees the National Coordination Committee on Disability which comprises 41 members, including 24 drawn from several concerned ministries, and 17 members drawn from different organizations of Persons with disabilities, experts, and civil society. [[71]](#footnote-71) The committee is also known as the Disabled Service National Coordination Committee.[[72]](#footnote-72)

The Ministry of Education (MoE)[[73]](#footnote-73) in Nepal formulates policies and plans for the educational sector and implements these policies through various organizations/institutes established under it such as the Department of Education, National Centre for Educational Development, Curriculum Development Centre (CDC), Non-formal Education Centre and the Teacher Service Commission. The MoE also oversees the Special Education Council which provides educational materials to students with disabilities.[[74]](#footnote-74)

The Ministry of Health and Population (MoHP)[[75]](#footnote-75) works towards improving the health of the people of Nepal including mental, physical and social well-being for overall national development. It is also responsible for the effective delivery of curative services, disease prevention and establishment of a primary health care system. One of its aims which concerns disability is the research and development of Preventive, Promotive, Curative, and Rehabilitative services associated with different systems of medicine like Allopathy, Ayurveda, Unani and Homeopathy.

The Ministry of Local Development[[76]](#footnote-76) is responsible for formulating policies, plans and programs relating to local self-governance; local, remote area and community development; training, research and monitoring, coordination and implementation of these plans and programs. It is responsible for mobilizing local human resource and people’s participation and one of its objectives is to empower socially and economically disadvantaged groups such as “women, dalit, indigenous, Madheshi, Muslim, disabled and ultra-poor people through social mobilization and their mainstreaming into the wave of development.”[[77]](#footnote-77)

### Organizations involved with Disability

The Disabled Service National Coordination Committee is the focal point for disability in the government. Its functions are to provide guidance to the Government on policies and plans and coordinate these with programmes amongst government agencies and organizations. It also monitors and evaluates programmes related to persons with disabilities; it was given the specific responsibility of monitoring the National Policy and Action Plan on Disability 2006, along with related ministries.[[78]](#footnote-78)

Some non-governmental organizations involved with Disability in Nepal[[79]](#footnote-79) include:

* **National Federation of the Disabled Nepal**[[80]](#footnote-80): works to increase the participation of persons with all types of disabilities in social, political, economic, and gender related activities and towards ensuring that persons with disabilities get equal opportunities and participate fully in social, economic and political activities. It is a member organization of Disabled Peoples International. It is also working towards promoting DAISY implementation in Nepal, to aid persons with visual and print disabilities.
* **Nepal Disabled Association:**[[81]](#footnote-81) provides vocational, medical, social, economic and educational rehabilitation services for disabled persons at its new life medical centre. It also operates an SOS children’s village and promotes education using ICT for children with disabilities.
* **Association for the Welfare of the Mentally Retarded**:[[82]](#footnote-82) provides social services for the welfare of persons with mental disabilities and their families. It carries out activities such as establishing resource and family counseling centres, organizing workshops or vocational training, community based rehabilitation, competency based training for teachers and fosters public awareness.
* **Nepal Association of the Blind**:[[83]](#footnote-83) works towards the rights and interests of the blind. Its current focus is on establishing local branches, providing educational training and attending to the needs of hitherto neglected sections of the visually impaired population such as women, rural people, and the elderly and young children.
* **Nepal Association for Welfare of the Blind**:[[84]](#footnote-84) works towards rehabilitating persons with blindness and vision impairments and providing them with opportunities for participating in mainstream society. It also works for the prevention, cure and reversal of blindness.
* **Nepal Disabled Women Association**:[[85]](#footnote-85) works with women with all types of disabilities to raise awareness about the problems they face, advocate for their basic human rights such as education, health, employment / livelihoods, rehabilitation, social security and protection and to build capacity an empower them to participate in society.
* **Nepal National Federation of the Deaf and Hard of Hearing:**[[86]](#footnote-86)  is a member organization of the World Federation of the Deaf and works towards improving the living conditions of the deaf and improving their access to education, information and services.

In addition to the organizations listed above, there are many other national and international organizations supporting disability issues in Nepal[[87]](#footnote-87). International organizations include World Vision, World Health Organization, Save the Children Norway, Impact Foundation UK, Helen Keller International and Handicap International.

### Key Insights

* ICT and Disability related issues and programmes are handled by multiple ministries and agencies. Hence in order to have ICT accessibility integrated into the system, coordinated effort needs to be made at various levels by multiple parties.

## C - Overview of the Policy Framework related to Disability and ICT

Nepal has different government agencies which are dedicated to ICTs. The directive principles of the Constitution of Nepal, 2047 BS guarantee rights, benefits and protection of people with disability, even as the Protection and Welfare of the Disabled Persons Act 2039 (1982) and The Protection and Welfare of the Disabled Persons Rules 2051 (1994) have made various provisions for the development and protection of interests of persons with disabilities[[88]](#footnote-88). The United Nation's standard Rules on the Equalization of Opportunities for persons with disabilities 1993, and the Asian and Pacific Decade of Disabled Persons, (1993-2002) have drawn attention to the continued activities for persons with disabilities in Nepal.[[89]](#footnote-89) Since it was necessary to prepare and implement a timely national policy and action plan based on the Extended Asian and Pacific Decade of Disabled Persons, (2003-2012) and Nepal’s commitments under the Biwako Millennium Framework of Action, Mandates for Action, the National Policy and Action Plan on people with Disability 2063 was prepared by the Disabled Service National Coordination Committee. It incorporates the opinion and suggestions of various ministries and associated bodies, the civil society, persons with disabilities and their organizations. It has suggested that a policy will be adopted for production and promotion of information materials necessary for raising awareness about issues related to persons with disabilities. A dictionary of sign language is also meant to be developed and legal recognition provided for communication of hard of hearing. The strategy planned for the same includes the transmission of sign language news and giving training to people with disabilities in various topics of modern communication and information technology.[[90]](#footnote-90)

Nepal is signatory to many international conventions that directly or indirectly relate to the issue of disability. The Government of Nepal ratified the Convention on the Rights of the Child[[91]](#footnote-91) in 1989, and is a signatory of the Salamanca Declaration (1994)[[92]](#footnote-92). The South Asian Association for Regional Cooperation (SAARC), of which Nepal is a member, declared 1993–2002 as the SAARC Decade for the Disabled. Nepal is also a signatory to the UN “Convention on the Rights of Persons with Disabilities”, along with the Optional Protocol,since the year 2008 and also ratified both in 2010.

Some of Nepal’s key legislations and policies concerning Disability and ICTs are outlined in the following sections.

## Disability

The Nepalese constitution defines persons with disabilities as persons who are mentally or physically unable or incompetent to lead a normal life. This term includes persons whose mobility is impaired, who suffer from spinal curvature, who are visually impaired in one or both eyes, who have hearing impairment, who are unable to speak properly, or whose hands, legs or fingers are impaired or missing.[[93]](#footnote-93)

Some of the provisions in the Interim Constitution of Nepal (2007)[[94]](#footnote-94) relating to persons with disabilities includes:

* Art. 13(3) mentions the ‘right to equality but states that ‘special provision can be made by law for the protection and advancement of the interests of women, children, the aged or ... those who are physically and mentally incapacitated’[[95]](#footnote-95)
* Art. 35(9) states that ‘The state shall pursue a policy of making special provisions of social security for the protection and welfare of single women, orphans, children, helpless, the aged, disabled, incapacitated persons and the disguising tribes.’[[96]](#footnote-96)
* Art. 22(4), states that “helpless, orphaned or mentally retarded children, children who are victims of conflict or displaced and street children at risk shall have the right to receive special privileges from the State to ensure their secure future”.[[97]](#footnote-97)

### Protection and Welfare of the Disabled Persons Act 2039 (1982)

The Protection and Welfare of the Disabled Persons Act, 2039 BS (1982) was the first law enacted in Nepal to address disability issues.[[98]](#footnote-98) This Act was promulgated with a view to protect and promote rights and interests of Nepalese disabled persons and to prevent the causes of disability.

Section 4 of this act on the protection of the interest of disabled persons obliges the government to make appropriate provisions “to make available necessary medicines and health services to the disabled persons for the treatment of their disability, to make them have such accessories, equipment and tools as are required to minimize, to the maximum extent possible, the adversaries likely to occur due to their disability, and to have acquisition of capacity to work, to provide them with welfare assistance and services to rehabilitate them educationally, professionally, economically, physically, mentally, socially and to make them fully participate in the community on the basis of equality.”

Under Section 5, which provides for the right of equality, the Act states that a person with disability cannot be deprived of *inter alia*, education and training, political rights, employment, useful, productive and economic activities, merely on the basis of his/her disability.

Section 6 which covers Education and Training Management provides for the free enrolment of disabled persons in any educational institute and for the training of teachers teaching the disabled.

Section8 covers Training and Employment Management. It includes provision of essential trainings to the disabled “as may enable them have proper reward of labour in an environment commensurable to their condition” and provision of disabled friendly environment to provide suitable returns to their skills. This covers provisions such that “Arrangements may be made to provide the disabled labors with additional facilities needed at least for the maintaining of normal livelihood”[[99]](#footnote-99) and “Necessary arrangements may be made for appropriate trainings and employment for making the disabled persons economically independent. Arrangements may be made to provide them with such type of training as may enable them have proper reward of labour in an environment commensurable to their condition”.[[100]](#footnote-100) Nepal has an open labour policy. In a factory having over 25 workers, at least 5% must necessarily be disabled.

The Act authorizes the government to provide whole or partial tax discounts for assistive devices for the disabled; equipment, tools or raw materials and for goods used in private employment of the disabled.[[101]](#footnote-101)

The implementation of this Act falls under the jurisdiction of the Ministry of Women, Children and Social Welfare.

### The Protection and Welfare of Disabled Persons Rules, 2051 BS (1994)

The Protection and Welfare of Disabled Persons Rules, 2051 BS (1994)*[[102]](#footnote-102)* contain provisions for different aspects of development of the disabled community, ranging from the functions and duties of a social welfare officer to the establishment of disabled persons homes. A social welfare officer is tasked with determining and tracking the number of disabled people in the community, issuing identity cards and formulating district level plans and programs for the welfare of persons with disabilities.[[103]](#footnote-103) The Rules also provide for setting up a disabled person’s home. Other areas covered by the rules include arrangements for free education and training; medical treatment; employment; exemption from income tax; establishment of a ‘disabled person device fund’; legal facilities and land for shelter and agriculture, among others.[[104]](#footnote-104)

The implementation of these rules devolves upon the Ministries of Education, Culture and Women, Children and Social Welfare.

### The Children’s Act, 2048 BS (1992)

The Children’s Act, 2048 BS (1992)*[[105]](#footnote-105)* recognizes the rights of children to survival, protection and development. It provides legal protection to all children, including children with disabilities in the workplace and in criminal proceedings. In Section36(2), the Act says that “in the case of deaf, blind and children with intellectual disabilities, they would be kept in the child welfare home until they are sent to other child welfare homes which are specially made for them.” The implementation of this Act falls under the jurisdiction of the Ministry of Women, Children and Social Welfare.

### The Social Welfare Act 2049 BS (1992)

The Social Welfare Act 2049 BS (1992)[[106]](#footnote-106) defines ‘social welfare activity’ as follows: “*Social welfare activity* means the welfare activity oriented towards the economic and social upliftment and self-reliance to the weak, helpless and disabled individuals.”[[107]](#footnote-107)

Section9 lays down the functions, duties and rights of the Social Welfare Council established under Section5 of this Act. The Council is responsible for running welfare activities and extending help to establish social institutions and organization to run their programmes.[[108]](#footnote-108) Its aims also include conducting trainings, studies and research programs in social welfare areas; establishing and managing a fund for social welfare activities and disseminating information and documentation amongst social welfare organizations. The implementation of this Act falls under the jurisdiction of the Ministry of Women, Children and Social Welfare.

### Local Self Government Act 1999

The Local Self Government Act 1999*[[109]](#footnote-109)* has created provisions for maintaining data on people with disabilities, and ensures their protection and livelihoods according to national policy.[[110]](#footnote-110) It provides guidelines for the Village Development Committees (VDC) and enjoins upon them to provide assistance for the activities of persons with disabilities of the village, and maintain a record of the persons with disabilities in their territory[[111]](#footnote-111). The implementation of this act is the responsibility of the Ministry of Local Government.

### Copyright Act, 2059(2002), 2002

The *Copyright Act, 2059(2002)[[112]](#footnote-112)* approved by the Royal Assent, under sections 18 and 20 allows reproduction of some portions of any work for the purposes of education and for general informative purposes. Specifically,

* Section16 (1) states that no authorisation is required from an author or a copyright holder in case of reproductions of some portions of a published work for personal use.
* Section16 (2) provides a rider to 16 (1) stipulating that no reproduction is allowed which is prejudicial to the economic right of the copyright owner.
* Section17 permits citations of some portions of a copyrighted work for fair use
* Section18 permits reproduction of small portions of copyrighted works for the purpose of teaching and learning.
* Section19 allows libraries and archives to reproduce one copy in case of loss of its copy.
* Section20 allows reproduction, broadcast and other communication for the purposes of information to the general public as long as the sources and name of the author of any work are mentioned

However, no specific provisions or exceptions have been made for the benefit of persons with disabilities. There is no provision permitting conversion and sharing of copyrighted works into **accessible formats**[[113]](#footnote-113) without the permission of rights holders. Hence published content remains unavailable for persons with disabilities. Section16 which permits fair use for personal use restricts this to only ‘some portions’ and not the whole work. Similarly, reproduction for the purpose of teaching under section18 is also restricted to some portions. Libraries and archives are permitted under section19 to reproduce only one copy, in case of loss.

### Five/Three year plans

The Tenth Five-Year Plan (2002–07)[[114]](#footnote-114) was formulated with the main objective of poverty alleviation. It recognized the fact that overall development could only be achieved by mainstreaming groups that had hitherto lagged behind in development; the disabled community being one of such groups. The Plan had many provisions for persons with disabilities and aimed to build an inclusive and barrier-free society. It emphasized the creation of targeted programs for the upliftment, employment and basic security of disadvantaged groups like, dalits, indigenous people and disabled persons. Some ways in which it sought to empower and involve people with disabilities is via sports activities; providing prevention and rehabilitation centres and educational opportunities from primary to post-graduate level. The responsibility for implementing the plans devolves on all the government ministries which cover development areas such as the ministries of Women, Children and Social Welfare; Education; Youth and Sports.

In the Three Years Interim Plan, released in 2008[[115]](#footnote-115), it has been recognized that support will be provided through education, training and skill development to increase the access of low income groups including, inter alia, backward classes, conflict affected and disabled people, in domestic and foreign employment.[[116]](#footnote-116)

The approach paper for the latest Three year plan (2010-11 to 2012-13)[[117]](#footnote-117) has provisions for persons with disabilities. Under Section8.10 dealing with Health and Nutrition, point 5.3 of the working policy advocates establishing an insuring mechanism for health services targeted at the disabled community, amongst others.

Section10.5 is titled Persons with Disability and aims to “provide necessary social, economic and physical infrastructure and facilities including appropriate employment for the prestigious, free, hindrance-free and self-dependent livelihood for the persons with disability”. The proposed strategy for this is by creating a favourable environment and mainstreaming persons with disabilities, by enhancing the legal, institutional, physical and economic infrastructures, providing social protection, carrying out targeted programs, collaborating and coordinating with development partners and carrying out rehabilitation of persons with disabilities within the community.

### Education Act, 2028 BS (1971)

Nepal’s Education Act, 2028 BS (1971)[[118]](#footnote-118) authorizes the government to define special rules for the education of persons with disabilities. Though the Education Bylaws allow students with disabilities extra time to take their examinations, inclusive education was not in the picture until the Special Education Policy 2053 (1996)[[119]](#footnote-119) was enacted. This policy promotes inclusive education and aims to mainstream persons with disabilities into the education system by integrating special education into the Education for All policy. It makes provisions for free education and scholarships; educational material production and distribution and teacher training. It also mandates improving school infrastructure and developing resource capacity in special education. The implementation of this Act and policy are overseen by the Ministry of Education.

The Act itself defines 'special education' as "special type of education to be given to blind, deaf dumb or the children who are physically or mentally disable". Section 6A lays down that the special education will be on par with general education. Section 16D provides for free primary education in all community schools in Nepal with facility for provision of free text books to children. While section 16 D (2) permits fees to be prescribed for lower secondary and secondary education in all community schools, it provides for free education in community schools for "Dalits, Janjati and girl children and other students who are below the poverty line." Section 16J provides for institutional scholarships to be given to "poor, disabled, woman, dalits or indigenous tribes in such a way that such scholarship shall not be less than Ten percent of the total number of the enrolled students in such school." As per section 19 (2) (t) the Government of Nepal is empowered to include provisions relating to special education in any rules framed to give effect to the provisions of the Act.

### National Education System Plan, 2028 BS (1971)

The National Education System Plan, 2028 BS (1971)[[120]](#footnote-120) (NESP) changed the educational management, curriculum and financial system of Education in Nepal. The National Education Committee was formed under an Act of the same name, in order to implement the NESP.[[121]](#footnote-121) It was chaired by the Minister of Education.[[122]](#footnote-122) The Special Education Council (SECTION) was also established to coordinate special education programmes in the country, with the main responsibilities being that of drafting policy on special education; providing funds, curriculum, and textbooks and running various programmes for persons with disabilities.

### Basic and Primary Education Plan (1991–2001)

The *Basic and Primary Education Plan* (1991–2001) led to the initiation of the National Special Education Programme in 1992. The programme introduced the concept of resource rooms and teachers for the first time and sought to integrate disabled children into mainstream schools.[[123]](#footnote-123)

### Special Education Policy 2053 BS (1996)

The Special Education Policy 2053 BS(1996) [[124]](#footnote-124) was formulated in order to raise awareness about socialising the disabled and making arrangements for education in conformity with their disability to enable them to become independent and self reliant. The policy defines disability as a physical, mental and sensitive defect in any person which causes difficulty in performing daily business. It further classifies the kinds of disabled persons such as physically disabled (person with a physical defect who can perform daily business with help), mentally retarded (deficiency in capacity of carrying out activities compared with persons of similar age group or unable to speak), deaf (a person who is unable to speak or hear but is otherwise physically able), blind (a person who is completely unable to see with both eyes and needs to use Braille) and so on. Other categories include hearing impaired, vision impaired, problem in voice, language and communication skills, teaching inability and multi-disability. The policy defines special education as the teaching, learning and training arrangements made to meet the needs of children with disabilities. Some important provisions of the policy are:

1. Awareness raising programmes for the public.
2. Survey programme to collect accurate disability data.
3. Integrated education.
4. Teachers training.
5. Relation and co-ordination with NGOs.
6. Development of educational materials.

The policy covers provision of educational materials and special equipment, conducting special training programmes for teachers by both disabled and non disabled trainers, providing special needs based work training, vocational training, skill oriented informal education programme for adults with disabilities and organizing consultative programme for parents and guardians of  
persons with disabilities. The policy states that primary and secondary education should be provided to disabled children free of cost.

### National Policy and Action Plan, 2006

The National Policy and Action Plan, 2006 has adopted the long term objective of establishing inclusive, obstacle free and rights-based society for people with disability, and to include them in the mainstream of national development. It believes that a continuous and coordinated implementation of activities to improve the access of persons with disabilities to education, health, trainings, employment, rehabilitation as well as public places, services and communications will certainly make their lives trouble-free and respectable. Some of the priority areas identified in this plan were Legislation, Information and Research, Awareness and Advocacy, Training and Employment, Accessibility, Communication, Transportation, Education, Sports, Cultural and Recreational Activities, Prevention of Disabilities, Health services and Treatment, Rehabilitation, Empowerment and Poverty Reduction, Assistive Devices and Support Services and Women and Disabilities among others.[[125]](#footnote-125)

The policy was formulated with a view to ensuring the rights of people with disabilities. Taking this context into view, it is necessary to establish access of people with disabilities to education, health, trainings, employment, rehabilitation as well as public places, services and communications. ICTs are today a key means to realise this objective.

## ICT

### Telecommunications Act, 2053 BS (1997)

The Telecommunications Act, 2053 BS (1997)[[126]](#footnote-126) was formulated to ensure that telecommunications services be made reliable and easily available to the public, to involve the private sector and to regularize and systematize the service. The Act established the National Telecom Authority (NTA) as an autonomous and corporate body with perpetual succession. The Act gives the following powers to the NTA

* + Section14 gives the NTA the power to determine the quality and standard of the machine, facilities and equipment relating to telecommunications and telecommunications service. It prescribes the minimum standard for quality of service to be followed by the operators.
  + Section24 empowers NTA to grant licenses under certain terms and conditions for prescribed fees.
  + Section 26 (4) permits amendment to the license upon application by the licensee or by NTA by giving notice.
  + Section 28 gives NTA the power to cancel a license. Section30 (6) also gives NTA the power to designate any operator to extend services to any specific area.
  + Under Section 43, NTA can approve the service charge to be levied for customers
  + Section 61. 2(c) gives NTA the power to frame rules on the terms and conditions to be complied with by the licensee during the operation of the Telecommunications Service and matters relating to the standard of service to be provided to the customers.
* Section 30 (4) provides for the establishment of a fund through regular contributions from licensees which will be used to expand and develop telecommunications in rural areas.
* Section 34 (2) gives the power of the Government to exempt fully or partially the customs duty, sales tax and other charge on import of any telecommunications equipment.

The implementation of the Telecommunications Act, 2053 BS (1997) devolves upon the Ministry of Information and Communication.

### IT Policy 2057 BS (2000)

The central theme of the IT Policy 2057 BS (2000)[[127]](#footnote-127) was poverty alleviation. Some key features of this policy were

* Objectives: The policy aims to make information technology accessible to the general public and increase employment through these means (Section3.1) and build a knowledge based society (Section 3.2).
* Strategies: The policy planned to achieve its objectives by employing several strategies such as carrying on research and development, expanding IT and prioritising private participation. (Section4.2); preparing capable manpower, expanding IT and sustainable development via public and private partnerships (Section4.3); promoting e- governance and rural development using IT (Section4.7 and 4.8 respectively); and enhancing professional industry through the use of IT (Section 4.12).
* The policy had several provisions that are relevant for the purpose of this report. It prioritized R&D in IT (section5.3) and directed that assistance be provided to educational institutions along with training in different IT areas (Section 5.6). Section5.7 provided a directive to computerize Government information and disseminate information through dedicated websites. In addition Section6.4 promoted distance learning.

### IT Policy 2067 BS (2010)

The IT Policy 2067 BS (2010)[[128]](#footnote-128) document highlights the importance of extending the Information Technology to the rural areas, Untouchables, indigenous, Women, disabled, and aged people. ............”[[129]](#footnote-129) In particular, Clause 8.6 states that “Special opportunity will be specially provided to the Women, Untouchables, Indigenous, impoverished, disabled and people of other communities living in rural and inaccessible areas to increase their access to Information Technology”[[130]](#footnote-130)

### Telecom Policy 2060 BS (2004)

After the Telecommunications Act of 2053 BS, the Telecom Policy 2060 BS (2004)[[131]](#footnote-131) was formulated in 2004. It lays emphasis on affordable access to telecommunication services to all the Nepalese people. In particular, it provides for universal access to telecommunications services through the shared telephone, through fixed line and mobile phones and by making ICT services available through community centres. It mandates that a telecom service provider must provide service to a consumer in an urban area upon ordering and provide appropriate ICTs as per the capacity and need of the rural areas. It provides for the deployment of appropriate ICTs for development and property alleviation.

It allows for common use of the telephone and re-selling the service by the telephone holder in order to ensure that the available facility is used to the maximum extent. The policy also directs that a rural telecommunication fund be set up with compulsory contributions in the form of a rural telecommunications fee to be paid by all the service providers and government subsidies. The extension of telecommunications services to areas remaining uncovered in spite of roll out obligations on Licensees is envisaged to be carried out on the basis of least subsidies. The operation of this fund is the responsibility of the Nepal Telecommunications Authority.

The policy discusses Universal Service Obligation and lays down that the incumbent service provider is mandated to provide service to all consumers in Nepal. It directs that small service providers shall be mobilized to provide information and communication technology that require special training and literacy. It directs the Ministry of Information and Communication as well as the NTA to publish annual reports on the status of connectivity and service and lays down the formulation of legislation to implement the policy. The IT Policy 2010 also contains very little reference to ICT accessibility for the disabled. The fourth paragraph of the background envisions the facilitation of ICT access to the “Rural areas, Untouchables, indigenous, Women, disabled, and aged people “. Furthermore, clause 8.6 provides, “special opportunity will be provided to the Women, Untouchables, Indigenous, impoverished, disabled and people of other communities living in rural and inaccessible areas to increase their access to Information Technology “.

### Electronic Transaction Act 2063 BS (2008)

The Electronic Transaction Act 2063 BS (2008) [[132]](#footnote-132) has provisions to validate and give legal recognition to electronic documents, signature and transactions, facilitate the admission of electronic documents, signature and transactions as evidence in case of dispute and also penalization of unauthorized access to information.

### Right to Information Act 2064 BS (2007)

The Right to Information Act 2064 BS (2007)[[133]](#footnote-133) states that every citizen has a right to information subject to the provisions of the Act and lays down that every citizen has a right to the information with the public bodies (Section3).

The Act defines information as “any written document, material, or information related to the functions, proceedings thereof or decision of public importance made by the Public Bodies.” Public importance is defined as “a subject related directly or indirectly with the interest of citizens” and written document is defined as “any kind of scripted written document and the word shall also mean any audio visual materials collected and updated through any medium or that can be printed or retrieved.”

It lays down the responsibilities of a public body to classify, publicize and broadcast information, to make citizen access to information simple and easy and for this purpose allows the public body to use different languages and mass media while publishing, broadcasting or otherwise making information public. In Section 5(5), the Act lays down that the information officer in charge of providing information upon an application from a Nepali citizen must as far as possible provide it in the format requested for by the citizen.

### Public Procurement Act 2063 BS (2007)

The Public Procurement Act 2063 BS (2007)[[134]](#footnote-134) was formulated with the purpose of making public procurement more open, transparent, objective and reliable; obtaining the maximum returns from public expenditures and promoting good governance.

Section13 lays down directives around the bidding process, mandating that a public entity has to prepare the bidding documents, prior to the invitation to bid; bidding document must state the nature of procurement, time required for procurement and technical specifications; criteria for qualification of bidders where bids are invited without prequalification and the criteria and methodology for evaluation of bids and selection of the bidder. Section25 and Section26 deal with the evaluation and rejection of bids.

The Act applies to all government ministries, public sector bodies, universities and any institutions that are operated by the government or with government assistance in the form of loans or grants. This Act does not currently mandate that the procurement process be accessible and that the items procured satisfy accessibility requirements.

### Nepal eGovernment Interoperability Framework

The High Level Commission for Information Technology (HLCIT) in Nepal initiated the development and implementation of ICT standards and a Nepal eGovernment Interoperability framework (NeGIF)[[135]](#footnote-135). The aim was to build an environment where government systems will interact seamlessly in an integrated manner irrespective the underlying technology, vendor, software or application being used. The framework promotes the use of open source technology and open standards to ensure transparency and competitiveness. It also incorporates some accessibility considerations. In section5.4 (b) one of the stated policies is that special accessibility needs have to be kept in mind while designing applications. In section6.4.17 it mandates WCAG as the standard to be used for implementing special needs accessibility. Though the final draft of the NeGIF appears to have been completed by January 2011, it is unclear whether this has been adopted by the government and to what extent its use has been mandated.

### Other

Another pertinent legislation is Natural Calamity (Relief) Act. 2039 BS (1982) [[136]](#footnote-136), which is the core legal instrument governing disaster management in Nepal, with the National Strategy for Disaster Risk Management (NSDRM) serving as the key policy document. The Government of Nepal is responsible for disaster management activities both by law and practice, and humanitarian actors in Nepal have been supporting the government's efforts. The Nepal Centre for Disaster Management (NCDM) was established in 2002 with the mission of generating nationwide awareness on disaster risks and their management, building local community on disaster risk mitigation, preparedness, rescue, relief, rehabilitation and reconstruction and exploiting all available resources at times of emergencies to provide immediate rescue and relief assistance to disaster victims.[[137]](#footnote-137)

There is also a provision for a Contingency Fund, in Article 98 of the Interim  
Constitution of Nepal (2007), to utilize in any kind of emergency. Article 13 of the Natural  
Calamity Relief Act provides for Disaster Relief Funds for purposes of disaster response. There is also a Prime Minister's Relief Fund for the purpose of rescue, assistance and to carry out the responsibilities of the government, non-governmental actors, civil society and the NRCS in different phases of the disaster management cycle. Similarly, the Interim Development Plan (2007-2009) is comprehensive and has adopted public-private partnership in disaster response.[[138]](#footnote-138)

## Key Insights

Having looked at the various laws and policies in Nepal which relate to disability and ICT, it is clear that while laws do exist to guarantee basic rights for persons with disabilities, there is a gap in terms of specific mandate or policy to promote ICT accessibility and access to ICT enabled services and resources, including simple telecommunications services. For instance, the Nepali constitution mentions the word 'disabled' 12 times, demonstrating the aspiration to promote the rights of persons with disabilities, along with other vulnerable groups. However, the words 'disability' or 'reasonable accommodation' find no mention in the Telecom Policy 2060 BS (2004), although it does use the words 'access' and 'accessibility' in a non-disability related context. . There is very limited focus on disability even in the IT Policy, 2010. For example, the first objective of the IT policy is to increase employment by making information technology accessible to the general public. However, there is no reference to universal design or reasonable accommodation in any of the laws or policies of Nepal. There is however reference to accessible ICTs and to enabling education, employment and training for persons with disabilities in the Protection and Welfare of the Disabled Persons Act 2039 (1982). Special Education Policy 2053 (1996) lays down specific provisions to enable access to education for persons with disabilities, which covers provision of educational materials, aids and appliances, specialized trainings and courses, accommodations in examinations and so on.

The Local Self Government Act 1999 confers the responsibility of collecting data and statistics about persons with disabilities by local governments and Village development committees. However, a special effort needs to be made to collect information about persons with disabilities in the census and other surveys.

The National Policy and Action Plan, 2006 for disability mentions awareness raising as one of its priorities. However none of the Acts or policies studied here makes any specific or detailed reference to persons with disabilities’ access to resources and services and involving them in the policy formulation and monitoring process. The definitions of ‘disability’ found in the Constitution and the Special Education Policy 2053 (1996) show that disability is still understood in terms of physical impairments and the transition to defining disability according to the social model as described in the UNCRPD is yet to take place. Furthermore, the term ‘accessibility’ has not been defined in any Act or Policy, nor is there any reference to standards for accessibility in any domain of human activity. The Nepal draft eGovernment Interoperability framework does contain references to web accessibility, but it is unclear as to whether the NeGIF has been adopted or mandated and to what extent.

Nepal has some provisions for providing aids and appliances which are necessary for persons with disabilities to function independently, including those required for education and employment. These are mentioned in several different Acts and policies such as the Protection and Welfare of the Disabled Persons Act 2039 (1982), Education Act, 2028 BS (1971), Special Education Policy 2053 (1996) and Rules and the National Policy and Action Plan 2006. The Protection and Welfare of the Disabled Persons Act 2039 incorporates positive measures such as authorizing the government to provide tax discounts for purchase of assistive technology, tools and other equipment for persons with disabilities. The Disabled Persons Welfare Rules constitutes a fund for this purpose called the Disabled Persons Service Fund. However, while there is some effort to disburse funding for assistive technology and aids and appliances, there is not much emphasis given to developing indigenous technology in local languages at affordable cost. This is an aspect which needs to be given more attention since the majority of population may not be conversant with English and cannot afford products available in the international market. Development for country specific needs will have to be sourced from within Nepal. Finding sources of funding for disability related needs such as the development of specialized software is always a challenge in any developing country. Even existing sources of funding such as the Rural Telecom Development Fund does not seem to have been tapped into for supporting accessibility related projects. Nepal appears to have at least two funds which can be used for this purpose, namely the Rural Telecom Development Fund which is used for providing universal service to rural areas and the Disabled Persons Service Fund, both which are controlled by two separate ministries. At present, the Rural Telecom Development Fund does not appear to have been used for supporting disability related project needs.

The IT Policy 2057 BS (2000) talks about computerizing government information and making it available to the public, as well as about providing training to educational institutions and distance learning, but does not mention making these available/accessible to persons with disabilities. Clearly specific measures are to be undertaken if these services are to be accessed by persons with disabilities.

There is no mention of standards for accessibility in any of the policies in Nepal. This is critical since it serves as a reference for service providers to render accessible services. There is a need to formulate an electronic accessibility policy which will identify standards for different areas of information and services delivery such as websites, mobile phones etc. In terms of access to telecommunications services, the Telecom Policy 2060 BS (2004) mandates the incumbent service provider to provide services to all consumers in Nepal. However, no specific measures have been outlined in this or any other policy document as to what kinds of services and accommodations will be made for persons with disabilities, such as hearing aid couplers, subsidized or special tariff plans, priority service and special services such as directory or news service. A code of good practice for telecom manufacturers and service providers would also be useful to make telecommunications accessible.

There is at present no provision in the Nepal: Copyright Act, 2059 (2002) to permit conversion, reproduction and sharing of materials in accessible formats by persons with print disabilities. This fair use provision is necessary if persons are to be able to generate and share accessible content within Nepal and with other countries. Given that there are limited resources for conversion of books, Nepalis with print disabilities would really benefit from such a provision as they would be enabled to borrow books from libraries in other countries. This would also be very timely, given that the Government is extremely supportive of an international treaty to permit conversion and cross border sharing of materials in accessible formats for persons with print disabilities at the World Intellectual Property Organization[[139]](#footnote-139).

The Right to Information Act*, 2064 (2007)* places a responsibility on public bodies to publicize and broadcast information to the public in a simple manner and to do so as far as possible in the requested format. While this Act does not explicitly identify Braille, electronic text, sign language etc, as accessible formats, by giving a general mandate to provide information in the requested format, it implicitly includes publication in accessible formats. This requirement could however be made explicit

A very important area for policy reform with respect to ICT and accessibility is in the Public Procurement Act, 2063 (2007), which at the moment does not mention accessibility in any way. Public procurement plays a major role in implementing ICT accessibility since it determines procurement and deployment of ICTs across the government. It is vital that adherence to accessibility standards becomes a key ingredient of all public procurement as a step towards ensuring equal access, reducing cost of retrofitting/ providing alternative accommodations and encouraging uptake by the private sector as well. One way of having a systemic impact is to have a public procurement toolkit as has been effected by countries such as Denmark, Ireland, Canada and USA.

Evaluation and monitoring are essential for identifying gaps in policy implementation. MoIC and NTA are required to publish annual reports on the status of connectivity. There is an urgent need to include access by persons with disabilities as a specific entry in this report. A good resource for a country to evaluate its progress with respect to ICT accessibility is the G3ict’s ICT self-assessment framework for UNCRPD signatories. This is available on the e-accessibility toolkit website.

## D - Recommendations

Recommendations for various ministries and allied organizations for taking concrete steps towards empowering persons with disabilities, especially via ICT accessibility are outlined in this section.

### Nepal Telecom Authority (NTA)

NTA can do the following to promote telecommunications accessibility:

* 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 organizations[[140]](#footnote-140).
* Include accessible service delivery, especially access to emergency services, as part of the license terms of operators[[141]](#footnote-141).
* Identify accessibility as a criterion for good quality of service and establish systems for assessing and benchmarking the same.
* Use the Telecommunications Development Fund for providing basic fixed, mobile and broadband services for persons with disabilities in both rural and urban areas using assistive technologies. This could include
  + Launch pilot projects and programmes for funding accessible ICTs, funding of development and deployment of open-source assistive technology such as screen readers for mobile devices in local languages. (Annexure B lists a few accessibility programmes and policies under Universal Access/Service Obligations in different countries and Annexure C lists a few open source assistive technologies which come bundled with different mobile phones). This could be bundled along with connections by service providers.
  + 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 a dedicated web page(s) containing information about their products or services for persons with disabilities.
  + Incentivize/Mandate service providers to design special tariff schemes and packages to encourage mobile usage amongst persons with disabilities.
  + Undertake periodic surveys to gather and publish data on telephony/mobile services/internet adoption and use by persons with disabilities.
  + Encourage international cooperation in this area.
  + Mandate that at least some percentage of public access facilities (community telephones) provided through universal service are accessible to persons with disabilities (for example, the ones around educational institutions/special disability institutions). The local government should be able to request for such a facility based upon the number/type of disabled population. The aim should also be to upgrade these to accessible internet centres.
  + Identify and adopt internationally recognized accessibility standards for telecommunications products and services such as those developed by the International Telecommunication Union (ITU) and the International Standards Organization (ISO).

### Ministry of Information and Communication

The MoIC can play a crucial role in making telecommunications services accessible to persons with disabilities -

* Formulate enabling law/regulation/policy/code which will ensure accessibility of telecommunications services for persons with disabilities through a consultative process involving persons with disabilities and their organizations.
* Include accessibility within the provisions of the Telecommunications Policy 2056, (2004) and Telecommunications Act, 2053 BS (1997) through amendment.
* Promote public private partnerships to develop and deploy assistive technology for telecommunications for persons with disabilities at affordable prices and in local languages.
* Fund research and development of open source technologies for computers and mobile phones. Establishment of accessible emergency services (for e.g. through text), and relay services etc. are other projects which can be funded.
* Maintain an accessible web site and promote web site accessibility with the telecom industry and other government departments.
* Fund training activities for persons with disabilities in the use of assistive technology for their communication needs or engage with Ministry of Women, Children and Social Welfare and Ministry of Education for this purpose.
* Work with Ministry of Environment, Science and Technology to ensure that e-governance and 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 2 days of complaint, special toll free number for assistance, special number for emergency services, hearing aid couplers and voice amplifiers for the deaf etc. These could be handled under the universal service obligation- either through policy or through license terms and be an obligation of Universal Service provider.
* Organize awareness raising activities such as conferences and workshops for service providers and equipment manufacturers.
* Ensure that ICT penetration amongst persons with disabilities is a part of the national policy and 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.

### Ministry for Women, Children and Social Welfare & associated departments and agencies

* Maintain an accessible country portal containing information on all laws, policies, programmes, schemes and resources relating to persons with disabilities.[[142]](#footnote-142)
* Work with governments and industry on policy formulation and provision of inclusive ICT products and services.
* Ensure that ICT accessibility is a mandate within the disability legislation- The Disabled Protection and Welfare Act, 2038 BS (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 and so on.
* Coordinate with different Ministries to maximize use of accessible ICT for persons with disabilities. For instance, work with MoIC and MoE to deliver educational material to children with special needs on mobile phones.
* Organize workshops and seminars to raise awareness on issues surrounding ICT and telecommunications accessibility.
* Create grants and Schemes for provision of assistive technology at no or subsidized cost to persons with disabilities in urban and rural areas.
* Fund Research and Development in Assistive Technology.
* Help to monitor implementation of policies.
* Work with developers to ensure that appropriate and necessary software and hardware are developed.
* Facilitate international cooperation and sharing of knowledge.

### Rural Telecommunications Development Fund (RTDF)

* Identify accessibility of telecommunication and mobile services for persons with disabilities as a specific mandate of the universal service obligation.
* 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, subsidized cost of mobile phones, low tariff plans or development of specialized software or provision of specialized services like daily news or library service.
* Prescribe accessibility as a key criterion for projects to be supported by the Fund.
* Ensure that call for proposals, tender documents and all other documentation and information published by the RTDF 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.
* Fund accessible ICT centres with assistive technologies in schools/special schools through a pilot project scheme.
* Fund accessible community telephone/internet centres for public access in rural areas. This would also benefit the illiterate population.
* Fund pilot projects/schemes for providing mobile access by way of special tariffs and appropriate handsets with/without bundled content as per requirements of persons with disabilities.

### Ministry of Environment, Science and Technology

* 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 Public 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 could have the following roles: identification of standards for different ICT application areas with periodic reviewing, 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.
* Fund development of low cost assistive technology for local languages.
* 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.
* Ensure that all e-governance websites are in conformance with the W3C/WAI guidelines and encourage private organizations also to maintain accessible websites.
* 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.

### 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 specialized 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 on different subjects which can be accessed on computers and mobile phones using assistive technologies.
* Create a network of schools and universities which can share digitized and accessible 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’s Mobile Web Best Practices(MBWP)[[143]](#footnote-143) and the WCAG 2.0[[144]](#footnote-144).
* Agencies in charge of/involved in education related public procurement such as administrative divisions of public services can include accessibility as a condition for public procurement.

### Ministry of Health and Population

* Ensure that accurate statistics on persons with disabilities and their access to resources are gathered through the Census and other surveys.
* Hold consultations with persons with disabilities and their organizations to formulate sector specific accessibility policies and guidelines.
* 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 facilities 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.

### Public Procurement Monitoring Office

* Recognize 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.

### Nepal Copyright Registrar’s Office (NCRO)

* Add a fair use provision in the Copyright Act, 2059(2002)to permit conversion and sharing of works in accessible formats by persons with print disabilities.

## Suggested Enabling Amendments to Telecom Legislation/Policy:

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 Ministry of Communications and Information and the NTA to act upon recommendations in the area of accessible ICTs immediately. Suggestions in this regard are given below:

### Telecommunications Policy 2060(2004):

1. Paragraph 3.4 relating to objectives of the Telecommunications Policy 2060 (2004) states that,

“Arrangement shall be made for getting opportunity to use appropriate information and communication technology for poverty alleviation and development of the rural areas.”

A suggested reformulation would be as under:

*Arrangement shall be made for* ***providing*** *opportunity* ***to all persons in rural areas*** *to use appropriate information and communication technology* ***as a means of*** *poverty alleviation* ***of rural population*** *and development of the rural areas.* ***This would include special measures for illiterate persons, women, backward classes and disabled persons. Where required and as decided by the Nepal Telecommunications Authority, these may be funded from the rural telecommunications fund on least subsidy basis.***

2. Paragraph 4.1 dealing with ‘Universal Access to the Telecommunication Service’ states that:

“The telecommunication service shall be extended in a manner that there shall be universal access to the service. The telecommunication service shall be made available to the consumers through the shared telephone. Emphasis shall be given to extend telephone as fixed, mobile, etc. therefor. The satellite system may also be applied for extension of service. Other services pertaining to information and communication shall be made available through the Community Centre.”

Given that paragraph 3 and its sub paragraphs describe the objectives of the telecommunications policy as being “to make the telecommunications service reliable and accessible to all people at reasonable cost…”[[145]](#footnote-145) and of enabling “access of general public of rural and urban areas of the Kingdom to the telecommunication service”….[such that] the telecommunication service shall be available within the shouting distance in the inhabitated areas,”[[146]](#footnote-146) a suggested enabling amendment to para 4.1 could be as follows:

*The telecommunication service shall be extended in a manner that there shall be universal access to* ***reliable, affordable*** *telecommunications services* ***within shouting distance of inhabited areas, for all people including disabled persons, in both rural and urban areas.*** *The telecommunication service shall be made available to the consumers through the shared telephone. Emphasis shall be given to extend telephone as fixed, mobile, etc. therefor. The satellite system may also be applied for extension of service. Other services pertaining to information and communication shall be made available through the Community Centre.”*

3**.** Paragraph 4.8 relating to ‘Appropriate Information and Communication Technology for the Users of the Rural Areas’ states that:

“Appropriate information and communication technology shall be made available as

per the capacity and need of the users of the rural areas.”

A suggested reformulation would be as under:

*Appropriate information and communication technology shall be made available as*

*per the capacity and needs of the users of the rural areas* ***including disabled persons.***

4. Under paragraph 5.1 relating to the Working Policy w.r.t Universal Access to Telecommunications Services and strategies thereof, sub paragraph 5.1.1.4 states that,

“The service shall be provided to the areas where the service is not available from the aforesaid measures through the service providers selected by means of tender on the basis of least subsidies in a manner that the amount shall be borne from the rural telecommunication fund for rural telecommunication development.”

A suggested reformulation would be as under:

*The service shall be provided to the* ***un-served or underserved*** *areas* ***and populations******in cases*** *where* ***appropriate*** *service is not made available from the aforesaid measures, through the service providers selected by means of tender on the basis of least subsidies in a manner that the amount shall be borne from the rural telecommunication fund for rural telecommunication development*

### Telecommunications Act 2053(1997)

1. In the Preamble to the Act it is stated that,

“Whereas, it is expedient to make the Telecommunications service reliable and easily available to the public, involve private sector as well in Telecommunications Service and to regularise and systematize such service.”

A suggested amendment would be:

*Whereas, it is expedient to make the Telecommunications service reliable,* ***accessible*** *and easily available to the public, involve private sector as well in Telecommunications Service and to regularise and systematize such service.*

The term ‘accessible telecommunications service’ may be defined in Chapter 1, Section 2 Definitions. A suggested definition is as follows:

*Accessible telecommunications service means that the service can be used by a person with disability as effectively as it can be used by a person without that disability*.[[147]](#footnote-147)

2. Similarly, Chapter 3, Section 13 dealing with ‘Functions. Duties and Powers of the Authority’, item (b) expresses that t**he** ‘**functions and duties of the Authority**’ **shall** include**: -**,

‘To make the Telecommunications Service reliable and easily available to the public’

A suggested amendment would be as under:

*To make the Telecommunications Service reliable,* ***accessible*** *and easily available to the public.*

3. Section 13, item (m) under Chapter 3 of the Act states that NTA’s functions and duties shall include the following,

“To develop and extend or cause to be developed and extended the Telecommunications Service in such a way that it protects the rights and interests of the consumers”,

A suggested amendment is as under:

*To develop and extend or cause to be developed and extended the Telecommunications Service in such a way that it protects the rights and interests of the consumers* ***including persons with disabilities***

### Rural Telecom Development Fund Bylaws

(Will be suggested after obtaining English translation from NTA)

### Enabling Access to ICTs: Specific Programmes/Projects

#### Analysis of Priority Areas

Given the strong emphasis on education and training of the disabled in Nepalese 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 holidays. The Rural Telecommunications Development Fund (RTDF) of Nepal may be utilised for funding the infrastructure, hardware and software for the programme. In case training/facilitation is to be provided, funding towards 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)[[148]](#footnote-148) or Ministry of Women, Children and Social welfare[[149]](#footnote-149). The Ministry of Environment Science and Technology and MoE could help with provision of specially developed or customised (to country needs) assistive software and educational content respectively. 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 scheme.

Another area which can be explored is support for accessible rural PCOs/ICT centres which could also be run by a disabled person. (Apart from being in line with Universal Access approach of the Telecommunications Policy 2060 (20004), this is consistent with the National Policy and Plan of Action on Disability 2006[[150]](#footnote-150) and would serve the dual purpose of access to communications as well as employment for PwDs.). RTDF would be the funding mechanism. Further, given that mobiles accounts for the lion’s share of Nepalese teledensity, providing accessible mobile phones to the disabled with/without bundled content specific to their needs could be another programme worth implementing in the immediate future.

The active involvement of NGOs is encouraged in Government policies and plans (for example paragraph 7.5.7 of the National policy and Plan of Action on Disability 2006[[151]](#footnote-151)). Accordingly, NGOs could play a lead role in implementing such projects either as lead applicants (provided that the same is permissible as per RTDF rules) or in partnership with eligible Service Providers. Clause 5.9.3 of the Telecommunications Policy 2060 (20004) is a somewhat enabling provision in this regard[[152]](#footnote-152). Again, it would be advisable to carry out pilot projects first so as to incorporate their implementation experience into a larger scheme.

# Examples/Templates

To begin with two project templates have been incorporated in the report as an Annexure. (Annexure D & E).The first is an Expression of Interest (EoI) document for Pilot Projects providing Access to ICT and ICT Enabled Services for Persons with Disabilities in rural Nepal. The second is a Draft Tender Document for accessible ICT training centres in schools. The former’s advantage is that it allows the applicants considerable flexibility as to project types/coverage/deliverables. 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 RTDF 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 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 Department of Electronics and IT (DeitY) and Universal Service Obligation Fund (USOF), Department of Telecommunications of the Government of India (GOI) respectively.

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 Nepal, 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 NTA website. This would be followed by a stakeholders’ conference to discuss and finalise scheme details. Subsequently, the tenders or EoI, as case may be, would be floated to elicit bids/applications.

# 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

USA: United States of America

W3C: World Wide Web Consortium

WAI: Web Access Initiative

WCAG: Web Content Accessibility Guidelines

# Annexure-A – Table of ICT Accessibility policies around the world

| S.No | Country Name | Details of Policies | URL | Applicability |
| --- | --- | --- | --- | --- |
| 1. | AUSTRALIA | Legislation + Advisory Notes   1. Disability Discrimination Act, 1992 2. World Wide Web Access: Disability Discrimination Act Advisory Notes 3. Guide to Minimum Website Standards, 2000, Revised April 2003 4. Better Practice Guide: Internet Delivery Decisions 5. Maguire v. Sydney Organizing Committee for the Olympic Games (2000) | 1. <http://www.comlaw.gov.au/Details/C2012C00110> 2. <http://www.hreoc.gov.au/disability_rights/standards/www_3/version3_2.html> 3. <http://www.agimo.gov.au/archive/mws.html> 4. <http://www.hreoc.gov.au/disability_rights/webaccess/anao_guide.htm> 5. <http://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) | 1. <http://laws-lois.justice.gc.ca/eng/acts/E-5.401/> 2. <http://www.collectionscanada.gc.ca/accessinfo/005003-4300-e.html> 3. <http://laws-lois.justice.gc.ca/eng/acts/h-6/> 4. <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12316&section=text> 5. <http://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 | 1. <http://www.gesetze-im-internet.de/bgg/> 2. <http://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. |
| 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. <http://www.irishstatutebook.ie/1998/en/act/pub/0021/index.html> 2. <http://www.justice.ie/en/JELR/EqualStatusActsConsldtd_00_04.pdf/Files/EqualStatusActsConsldtd_00_04.pdf> 3. <http://www.irishstatutebook.ie/2005/en/act/pub/0014/index.html> 4. <http://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 | 1. <http://www.pubbliaccesso.it/normative/law_20040109_n4.htm> 2. <http://www.pubbliaccesso.it/normative/implementation_regulations.htm> 3. <http://www.pubbliaccesso.it/normative/DM080705-en.htm> 4. [http://www.ittig.cnr.it/BancheDatiGuide/Disabilita/LawNo67of1March2006.html](http://www.ittig.cnr.it/BancheDatiGuide/Disabilita/LawNo67of1March2006.html%20) | Web accessibility. General laws for equality and prevention of discrimination. Both public and private agencies fall within the ambit of the law. [**CNIPA**](http://www.cnipa.gov.it/site/it-IT/), 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 | 1. <http://www.comm.twcu.ac.jp/~nabe/data/JIS-WAI/>, <http://www.mitsue.co.jp/english/column/backnum/20040625a.html> 2. <http://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. |
| 7. | KOREA | Legislation and Government bodies   1. The 2007 Korea Disability Discrimination Act 2. National Informatization Act | 1. <http://korea.assembly.go.kr/index.jsp> 2. <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 Act1993 | 1. <http://webtoolkit.govt.nz/standards/nzgws-2/> 2. <http://www.legislation.govt.nz/act/public/1990/0109/latest/DLM224792.html> 3. <http://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) | 1. <http://www.un.org/esa/socdev/enable/manilarecom.htm> 2. <http://pwag.org/> | Web Accessibility. |
| 10. | PORTUGAL | Web accessibility guidelines for public websites. No specific legislation.   1. Accessibility of Public Administration Websites for Citizens with Special Needs (Resolution of the Council of Ministers Nº 97/99) 2. Other measures | 1. <http://www.acessibilidade.net/petition/government_resolution.html> 2. <http://www.epractice.eu/en/document/5255947> | Web Accessibility. Has passed a resolution in parliament on accessibility. |
| 11. | SWEDEN | National laws, guidelines, ordinances and bills.   1. Swedish National Guidelines for Public Sector Websites (24 hour agency web guidelines, 2002) 2. Swedish Ordinance 2001:526 3. Swedish Government Bill 2004/05:175 4. Swedish Government Bill 1999/2000:79 5. Disability Ombudsman Act (1994:749) 6. Prohibition of Discrimination in Working Life of People because of Disability Act (1999:132) | 1. <http://www.eutveckling.se/static/doc/swedish-guidelines-public-sector-websites.pdf>   5. <http://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   1. Thai Web Content Accessibility Guidelines (Th-WCAG) 2. Bridging the Digital Divide Strategic Plan (2008-2010) | 1. <http://www.thwcag.com/> 2. http://[www.itu.int/ITU-D/asp/CMS/Events/2009/PwDs/docs/Session-8-Proadpran.ppt](http://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 | 1. <http://www.legislation.gov.uk/ukpga/2010/15/contents> 2. <http://www.equalityhumanrights.com/uploaded_files/EqualityAct/servicescode.pdf> 3. <http://www.equalityhumanrights.com/footer/accessibility-statement/general-web-accessibility-guidance/> 4. <http://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. |
| 14. | US | Federal Laws, Policies, Guidelines   1. Section 251(a)(2) and 255 of the Communications Act of 1934, as amended by the Telecommunications Act of 1996 2. Section 504 of the Rehabilitation Act, 1973 3. Section 508 of the Rehabilitation Act of 1973, as amended in 1998 4. Americans with Disabilities Act (ADA), 1990 5. The Assistive Technology Act, 1998 6. US Department of Education’s Requirements for Accessible Electronic and Information Technology (E&IT) Design v2.0, 2001 7. 21st Century Communications and Video Accessibility Act of 2010 | 1. <http://transition.fcc.gov/Reports/1934new.pdf> 2. <http://www.dol.gov/oasam/regs/statutes/sec504.htm#.UHPQZVHm5fk> 3. <http://www.access-board.gov/sec508/guide/act.htm> 4. <http://www.ada.gov/pubs/adastatute08.htm> 5. <http://www.section508.gov/docs/AssistiveTechnologyActOf1998Full.pdf> 6. <http://www.access-board.gov/sec508/assessment.htm> 7. <http://www.fcc.gov/cgb/consumerfacts/CVAA-access-act.pdf> | Both Web and e-accessibility. |
| 15. | EU | Charter, Framework, Action Plan, Guidelines   1. The EU Charter of Fundamental Rights 2. eEurope Action Plan 2002 3. Communication eEurope 2002: Accessibility of Public Websites and their Content 4. eEurope 2005 Action Plan 5. i2010 Strategy Framework 6. Measuring progress of e-Accessibility in Europe | 1. <http://www.europarl.europa.eu/charter/default_en.htm> 2. <http://ec.europa.eu/information_society/eeurope/2002/documents/archiv_eEurope2002/actionplan_en.pdf> 3. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2001:0529:FIN:EN:PDF> 4. <http://ec.europa.eu/information_society/eeurope/2002/news_library/documents/eeurope2005/eeurope2005_en.pdf> 5. <http://ec.europa.eu/information_society/eeurope/i2010/index_en.htm> 6. <http://ec.europa.eu/information_society/activities/einclusion/library/studies/meac_study/index_en.htm> | 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. |

# Annexure-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 <http://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/l24108h_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/l24108h_en.htm>  Ireland telecom’s Code of Practice with Provisions: <http://www.eircom.ie/bveircom/pdf/Code_of_Practice_Disabilities_250110.pdf> |
| 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 areas-interpreted to include special schemes for the disabled | Pilot Projects for: provision of Accessible telecommunications 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 PwDs in regional languages). | Legislation: <http://indiankanoon.org/doc/286252/>  Schemes under the USOF: <http://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> |
| 6. | JAMAICA | Designated USP |  |  | Computer infrastructure for special schools | Universal Access Obligations in Jamaica: <http://www.our.org.jm/images/stories/content/Telecommunications/Consultation/Documents/Toward%20Universal%20Service%20-%20Access%20Obilgation%20for%20Telecommunications%20Services%20in%20Jamaica%20-%20Second%20_0.pdf>  Government of Jamaica ICT Policy: <http://www.jis.gov.jm/pdf/GOJ_ICTPOLICY_March2011.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\_access/downloads/Universal\_Acces\_and\_Service\_Regulations\_2010.pdf](http://www.cck.go.ke/services/universal_access/downloads/Universal_Acces_and_Service_Regulations_2010.pdf)  ICT for People with Disabilities Project: <http://www.cck.go.ke/services/universal_access/projects/icts_for_people_with_disabilities.html> |
| 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/l24108h_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 disability 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*](http://www.agc.gov.my/Akta/Vol.%2012/Act%20588.pdf)  Universal Service Provision and Policy in Malaysia: <http://www.itu.int/ITU-D/asp/CMS/Events/2010/ITU-ADB/Malaysia/S2-Mr_Aminuddin_Basiron.pdf> |
| 10. | NEW ZEALAND | USO instruments | Deed for Telecommunications Relay Services |  | Text Relay and Video Relay Service Centres | Telecommunication Act, 2001: <http://www.legislation.govt.nz/act/public/2001/0103/latest/DLM124961.html>  New Zealand Relay: <http://www.nzrelay.co.nz/About/>  TSO Deed: <http://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 center 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/1321341025\_369.pdf](http://www.na.gov.pk/uploads/documents/1321341025_369.pdf)  Project with Al Shifa Eye Trust: <http://www.usf.org.pk/Publicphase.aspx?phaseid=50&pgid=12&phasename=Project%20with%20Al-Shifa%20Eye%20Trust>  Project With Pakistan Foundation Fighting Blindness: <http://www.usf.org.pk/Publicphase.aspx?phaseid=51&pgid=12&phasename=Project%20with%20%20Pakistan%20Foundation%20Fighting%20Blindness> |
| 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: <http://www.en.uke.gov.pl/ukeen/index.jsp?place=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_framework/l24108h_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:  <http://www.anacom.pt/text/render.jsp?contentId=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_framework/l24108h_en.htm> |
| 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:  <http://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: <http://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/KA0E6FADE1BF5BBFAC1256EA50054D399/$file/Electronic_Communications_Act_May04.pdf>  Universal Service Policy: <http://www.apek.si/universal-service-and-emergency-numbers> |
| 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: <http://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: <http://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: <http://www.thailawforum.com/database1/telecom-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?uri=CELEX:32002L0022:EN:HTML*](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002L0022:EN:HTML)  Communication Act, 2003: <http://www.legislation.gov.uk/ukpga/2003/21/contents>  The Electronic Communications (Universal Service) Order 2003:  <http://www.legislation.gov.uk/uksi/2003/1904/schedule/made>  Text Relay Service: <http://www.textrelay.org/about_us.php> |
| 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: <http://www.usac.org/default.aspx> |

# Annexure-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](https://play.google.com/store/apps/developer?id=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](http://codefactory.es/) | 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 incuding 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](https://play.google.com/store/apps/developer?id=IDEAL+Group,+Inc.+Android+Development+Team) | Suite of accessible application, that install their own or 3rd party accessible application. |
| Mobile Speak | Screen Reader for Windows Mobile 6.5 and earlier and Nokia / Symbian / Anna / Symbian ^3 phones | Paid | [Code Factory](http://codefactory.es/) | 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. |

# Annexure D - Project Template 1



# Annexure E - Project Template 2



# Useful References

* **e-Accessibility Toolkit for policy makers**, by ITU-G3ict, available at [www.e-accessibilitytoolkit.org](http://www.e-accessibilitytoolkit.org)
* **Making Mobile Phones and Services Accessible for Persons with Disabilities,** report by ITU-G3ict, available at <http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf>
* **Making Television Accessible Report, by ITU- G3ict,** available at <http://www.itu.int/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 [http://www.un.org/disabilities/default.asp?navid=23&pid=151#sqc10](http://www.un.org/disabilities/default.asp?navid=23&pid=151).
* **W3C Web Accessibility Initiative** available at <http://www.w3.org/WAI/>.
* **Webaim, web accessibility initiative**, available at, <http://www.webaim.org>
* Website of the **DAISY Consortium** available at <http://www.daisy.org/about-us>
* **Daisy and Emergency preparedness**, available at: <http://www.daisy.org/daisypedia/daisy-and-emergency-preparedness>
* **UNESCO ItrainOnline** website provides accessible web design training and tools at [http://www.itrainonline.org/itrainonline/english/usability.shtml#Web%20Site%20Usability%20and%20Accessibility%20-%20Accessibility](http://www.itrainonline.org/itrainonline/english/usability.shtml)
* **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 <http://www.access-board.gov/sec508/standards.htm>
* **Industry Canada’s Accessible Procurement Toolkit**, available at <http://www.apt.gc.ca/ap11000E.asp?Id=1>
* **Buy Accessible Wizard**, U.S. General Services Administration at [www.buyaccessible.gov/](http://www.buyaccessible.gov/) . See **also ICT accessible procurement chapter in e-Accessibility Toolkit for Policy Makers** at <http://www.e-accessibilitytoolkit.org/toolkit/public_procurement/>
* **Information Technology Industry Council Voluntary Product Accessibility Templates (VPATs), available at,** [**www.access-star.org/ITI-VPAT-v1.2.html**](http://www.access-star.org/ITI-VPAT-v1.2.html)

1. World Disability Report, WHO and WB Group,

   <http://whqlibdoc.who.int/publications/2011/9789240685215_eng.pdf> [↑](#footnote-ref-1)
2. http://www.un.org/disabilities/default.asp?id=259 [↑](#footnote-ref-2)
3. Article 3 of the Convention [↑](#footnote-ref-3)
4. World Disability Report, Introduction, page xxi [↑](#footnote-ref-4)
5. 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;”, <http://www.un.org/disabilities/default.asp?id=262> [↑](#footnote-ref-5)
6. <http://uncrpd.nileshsingit.org/international-documents-on-disa/biwako-millenium-bmf> [↑](#footnote-ref-6)
7. e-Accessibility Policy Toolkit for Persons with Disabilities, available at

   <http://www.e-accessibilitytoolkit.org/toolkit/eaccessibility_basics/accessibility_and_the_purposes_of_icts> [↑](#footnote-ref-7)
8. For instance, people accessing the net through a dialup connection [↑](#footnote-ref-8)
9. G3ICT eAccessibility Toolkit, <http://www.e-accessibilitytoolkit.org/toolkit/promoting_assistive_technologies/introduction_assistive%20technologies> [↑](#footnote-ref-9)
10. <http://www.bbc.co.uk/accessibility/win/sub_root.shtml> [↑](#footnote-ref-10)
11. <http://www.bbc.co.uk/accessibility/linux/sub_root.shtml> [↑](#footnote-ref-11)
12. <http://www.bbc.co.uk/accessibility/mac/sub_root.shtml> [↑](#footnote-ref-12)
13. <http://www.e-accessibilitytoolkit.org/toolkit/promoting_assistive_technologies/solutions> [↑](#footnote-ref-13)
14. <http://abilitynet.wetpaint.com/> [↑](#footnote-ref-14)
15. AbilityNet’s Global assistive technology encyclopedia, available at <http://abilitynet.wetpaint.com/> [↑](#footnote-ref-15)
16. Emptech’s guide to assistive technologies available at <http://www.emptech.info/> [↑](#footnote-ref-16)
17. <http://www.access-board.gov/sec508/standards.htm> [↑](#footnote-ref-17)
18. <http://www.w3.org/WAI/WCAG20/glance/> [↑](#footnote-ref-18)
19. <http://www.unicode.org/consortium/consort.html> [↑](#footnote-ref-19)
20. <http://unicode.org/> [↑](#footnote-ref-20)
21. <http://www.daisy.org> [↑](#footnote-ref-21)
22. <http://www.loc.gov/nls/reference/factsheets/audiobkplayers.html> [↑](#footnote-ref-22)
23. http://www.dedicon.nl/

    <http://www.daisy.org/member/67/Dedicon%20Netherlands,%20accessible%20information%20for%20people%20with%20a%20print%20impairment> [↑](#footnote-ref-23)
24. <http://www.tpb.se/english/> [↑](#footnote-ref-24)
25. <http://www.e-accessibilitytoolkit.org/toolkit/international_cooperation/international_standards_development#International> [↑](#footnote-ref-25)
26. <http://www.e-accessibilitytoolkit.org/> [↑](#footnote-ref-26)
27. G3ict – the Global Initiative for Inclusive Information and Communication Technologies – is an Advocacy Initiative of the [UN GAID](http://www.un-gaid.org/), 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](http://www.un.org/disabilities/) at UN DESA. Its [mission](http://g3ict.org/about/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. [↑](#footnote-ref-27)
28. <http://www.jisc.go.jp/eng/> [↑](#footnote-ref-28)
29. <http://www.etsi.org/WebSite/AboutETSI/AboutEtsi.aspx> [↑](#footnote-ref-29)
30. <http://www.incits.org/> [↑](#footnote-ref-30)
31. <http://g3ict.org/resource_center/publications_and_reports/p/productCategory_whitepapers/subCat_0/id_191> [↑](#footnote-ref-31)
32. <http://us.blackberry.com/support/devices/blackberry_accessibility/#tab_tab_cognitive> [↑](#footnote-ref-32)
33. <http://us.blackberry.com/support/devices/blackberry_accessibility/#tab_tab_mobility> [↑](#footnote-ref-33)
34. <http://www.apple.com/accessibility/iphone/hearing.html> [↑](#footnote-ref-34)
35. <http://phoneboy.com/1945/why-the-deaf-heart-t-mobile> [↑](#footnote-ref-35)
36. <http://relayservices.att.com/content/225/Text_Accessibility_Plan_TAP.html> [↑](#footnote-ref-36)
37. <http://hebergcck224.rnu.tn/ws/index.php> [↑](#footnote-ref-37)
38. <http://www.knfbreader.com/> [↑](#footnote-ref-38)
39. 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> [↑](#footnote-ref-39)
40. <http://nextlab.mit.edu/spring2009/celedu/> [↑](#footnote-ref-40)
41. <http://www.dinf.ne.jp/doc/english/access/0705_IFLA-rightscom/part2/116_japan_special.html> [↑](#footnote-ref-41)
42. <http://www.bookshare.org> [↑](#footnote-ref-42)
43. <http://www.gutenberg.org> [↑](#footnote-ref-43)
44. <http://www.navigon.com/portal/int/produkte/navigationssoftware/mobile_navigator_iphone_eu.html> [↑](#footnote-ref-44)
45. <http://www.codefactory.es/en/products.asp?id=336> [↑](#footnote-ref-45)
46. <http://www.reach112.eu/view/en/index.html> [↑](#footnote-ref-46)
47. http:// [www.deafau.org.au/download/SMSemergencyservicesapril2010.pdf](http://www.deafau.org.au/download/SMSemergencyservicesapril2010.pdf) [↑](#footnote-ref-47)
48. <http://www.ada.gov/cguide.htm> [↑](#footnote-ref-48)
49. http://www.iso.org/sites/WSC\_Accessibility\_2010/presentations/4\_Group\_3\_04\_Monique\_Mai\_Francois-Rene%20Germain\_Geneve2010Nov03VD.pdf [↑](#footnote-ref-49)
50. <http://www.disabled-world.com/communication/messenger/instant-messaging.php> [↑](#footnote-ref-50)
51. G3ict country profile of Nepal, available at <http://g3ict.org/resource_center/country_profiles/nepal> [↑](#footnote-ref-51)
52. “General Information on Nepal”, available at <http://www.adrc.asia/countryreport/NPL/2010/NEPAL_CR2010B.pdf>. [↑](#footnote-ref-52)
53. Country Profile on Disabilty, Kingdom of Nepal, prepared by the Japan International Cooperation Agency, available at <http://siteresources.worldbank.org/DISABILITY/Resources/Regions/South%20Asia/JICA_Nepal.1.pdf> [↑](#footnote-ref-53)
54. <http://en.wikipedia.org/wiki/Demographics_of_Nepal> [↑](#footnote-ref-54)
55. <https://www.cia.gov/library/publications/the-world-factbook/geos/np.html> [↑](#footnote-ref-55)
56. <http://nepal.unfpa.org/en/pdf/FactSheet_FP_smart_investment_ENG.pdf> [↑](#footnote-ref-56)
57. <http://www.theodora.com/wfbcurrent/nepal/nepal_economy.html> (DIA FACTBOOK) [↑](#footnote-ref-57)
58. UNDP Country profile,Human development indicators; available at <http://g3ict.org/resource_center/country_profiles/nepal> [↑](#footnote-ref-58)
59. Statistics available at [http://www.itu.int/ITU-D/icteye/Login.aspx?ReturnUrl=%2fITU-D%2ficteye%2fSectionure%2fMainPage.aspx](http://www.itu.int/ITU-D/icteye/Login.aspx?ReturnUrl=%2fITU-D%2ficteye%2fSecure%2fMainPage.aspx) [↑](#footnote-ref-59)
60. Created by the the Korea Agency for Digital Opportunity and Promotion (KADO) and the International Telecommunication Union (ITU), ref. <http://g3ict.org/resource_center/country_profiles/nepal> [↑](#footnote-ref-60)
61. Project run by E-Networking Reserch and Development to introduce ICT services in Nepal’s rural areas. See generally <http://nepalwireless.net/> [↑](#footnote-ref-61)
62. See generally: <http://www.nepalwireless.net/index.php?option=com_content&view=article&id=104&Itemid=98>. [↑](#footnote-ref-62)
63. <http://siteresources.worldbank.org/DISABILITY/Resources/Regions/South%20Asia/JICA_Nepal.1.pdf> [↑](#footnote-ref-63)
64. “Disability Policy in Nepal”, available at [www.dhrcnepal.org.np/download/Policy\_paper.pdf](http://www.dhrcnepal.org.np/download/Policy_paper.pdf). [↑](#footnote-ref-64)
65. Disbiltiy and development partners website, available at http://www.ddpuk.org/dismov.html [↑](#footnote-ref-65)
66. <http://www.moic.gov.np/> [↑](#footnote-ref-66)
67. <http://www.nta.gov.np/en/about-us-en/functions-duties-and-powers-en> [↑](#footnote-ref-67)
68. <http://www.moenv.gov.np> [↑](#footnote-ref-68)
69. <http://nitc.gov.np/> [↑](#footnote-ref-69)
70. <http://www.mowcsw.gov.np/> [↑](#footnote-ref-70)
71. Disability at a glance report 2010,UNESCAP.The Committee draws members from participation from representatives from Ministry of Finance, the National Planning Commission, the Social Welfare Council and Nepal Industrial Development Corporation. [http://www.unescap.org/sdd/#\_Ministry\_of\_Women#\_Ministry\_of\_Women](http://www.unescap.org/sdd/#_Ministry_of_Women) [↑](#footnote-ref-71)
72. National Policy and Plan of Action on Disability 2006, available at http://rcrdnepa.files.wordpress.com/2008/05/national-policy-and-plan-of-action2006-eng.pdf [↑](#footnote-ref-72)
73. <http://www.moe.gov.np/> [↑](#footnote-ref-73)
74. Based on response to questionnaire on ‘Present state of Accessible ICT for persons with Disabilities’ provided by Mr. Birendra Raj Pokharel [↑](#footnote-ref-74)
75. <http://www.mohp.gov.np/english/home/index.php> [↑](#footnote-ref-75)
76. <http://www.mld.gov.np/> [↑](#footnote-ref-76)
77. <http://www.mld.gov.np/mld/eng/intro.php> [↑](#footnote-ref-77)
78. National Policy and Action Plan on Disability 2006, available at <http://rcrdnepa.files.wordpress.com/2008/05/national-policy-and-plan-of-action2006-eng.pdf> [↑](#footnote-ref-78)
79. <http://g3ict.org/resource_center/country_profiles/nepal> [↑](#footnote-ref-79)
80. <http://www.nfdn.org.np/> [↑](#footnote-ref-80)
81. <http://www.nepaldisabled.com/index.php> [↑](#footnote-ref-81)
82. [http://www.awmr.org.np/](%20http://www.awmr.org.np/) [↑](#footnote-ref-82)
83. [http://www.nabnepal.org](http://www.nabnepal.org/) [↑](#footnote-ref-83)
84. <http://www.nawbnepal.org.np/> [↑](#footnote-ref-84)
85. <http://www.ndwa.org.np/> [↑](#footnote-ref-85)
86. <http://www.nfdh.org.np/>, <http://www.miusa.org/orgsearch/index_html/orgResult_detail?itemnum=1396> [↑](#footnote-ref-86)
87. <http://www.disability.dk/partner-countries/nepal/country-strategy> [↑](#footnote-ref-87)
88. The Standard Rules on the Equalization of Opportunities for Persons with Disabilities, available at <http://www.un.org/esa/socdev/enable/dissre00.htm>. [↑](#footnote-ref-88)
89. National Policy and Plan of Action for Disability 2006, available at <http://rcrdnepa.files.wordpress.com/2008/05/national-policy-and-plan-of-action2006-eng.pdf> [↑](#footnote-ref-89)
90. National Policy and Plan of Action, <http://rcrdnepa.files.wordpress.com/2008/05/national-policy-and-plan-of-action2006-eng.pdf> . [↑](#footnote-ref-90)
91. Convention on the Rights of the Child, available at <http://www2.ohchr.org/english/law/crc.htm> [↑](#footnote-ref-91)
92. The Salamanca Statement and Framework for Action, available at [www.unesco.org/**education**/pdf/SALAMA\_E.PDF](http://www.unesco.org/education/pdf/SALAMA_E.PDF). [↑](#footnote-ref-92)
93. Country Profile on Disability, Kingdom of Nepal, prepared by the Japan International Cooperation Agency, available at <http://siteresources.worldbank.org/DISABILITY/Resources/Regions/South%20Asia/JICA_Nepal.1.pdf> . [↑](#footnote-ref-93)
94. Interim Constitution of Nepal, available at <http://www.worldstatesmen.org/Nepal_Interim_Constitution2007.pdf> [↑](#footnote-ref-94)
95. Article 13 of the Interim Constitution, available at <http://www.worldstatesmen.org/Nepal_Interim_Constitution2007.pdf>. [↑](#footnote-ref-95)
96. *Id.* [↑](#footnote-ref-96)
97. Article 22(4) of the Interim Constitution: “Helpless, orphan, mentally retarded, conflict victims,d isplaced, vulnerable and street children shall have the right to get special privileges from the State to their sectionured future”, available at <http://www.worldstatesmen.org/Nepal_Interim_Constitution2007.pdf> . [↑](#footnote-ref-97)
98. The Disabled Persons Protection and Welfare Act 2039 (1982), available at <http://www.dhrcnepal.org.np/download/DWP_Act_2039.pdf> [↑](#footnote-ref-98)
99. Section 8(3) of the Act [↑](#footnote-ref-99)
100. Section 8(1) of the Act. [↑](#footnote-ref-100)
101. Section 10(4) of the Act. [↑](#footnote-ref-101)
102. The Protection and Welfare of the Disabled Persons Rules 2051 (1994), available at [www.dhrcnepal.org.np/download/DWP\_Rules\_2051.pdf](http://www.dhrcnepal.org.np/download/DWP_Rules_2051.pdf). [↑](#footnote-ref-102)
103. Section 6 of the Rules. [↑](#footnote-ref-103)
104. Asia-Pacific Development Centre for Disability – Country profile of Nepal, 2012, available at <http://www.apcdfoundation.org/?q=content/nepal> [↑](#footnote-ref-104)
105. The Children’s Act 2048 (1992), available at <http://www.lawcommission.gov.np/en/documents/prevailing-laws/prevailing-acts/Prevailing-Laws/Statutes---Acts/English/Children-Act-2048-(1992)/)> [↑](#footnote-ref-105)
106. Available at <http://www.lawcommission.gov.np/en/documents/law-archives/old-acts/Prevailing-Laws/> [↑](#footnote-ref-106)
107. Section 2(a) of the Act. [↑](#footnote-ref-107)
108. Sections 9(1) and 9(b) of the Act. [↑](#footnote-ref-108)
109. The Local Self Governmenance Act, 2055 (1999), available at <http://www.nepaldemocracy.org/documents/national_laws/local_gov_act.htm>. [↑](#footnote-ref-109)
110. Section 28(k)(6) of the Act. [↑](#footnote-ref-110)
111. Asia-Pacific Development Centre for Disability – Country profile of Nepal, 2012,available at <http://www.apcdfoundation.org/?q=content/nepal> [↑](#footnote-ref-111)
112. The Nepal Copyright Act, available at [www.wipo.int/wipolex/en/text.jsp?file\_id=189129](http://www.wipo.int/wipolex/en/text.jsp?file_id=189129). [↑](#footnote-ref-112)
113. ‘Accessible formats’ shall include, but not be limited to, large print, with different typefaces and sizes all being permitted according to need, Braille, audio recordings, digital copies compatible with screen readers or refreshable Braille and audiovisual works with audio description.  It shall also be understood that whether a format is accessible or not will vary depending on the purpose for which the work is to be used and so, for example, an audio recording of a book without indexing may be accessible for a visually impaired person listening for pleasure but not where a visually impaired person needs access for the purposes of study. – From WIPO Treaty for Improved Access for Blind, Visually Impaired and other Reading Disabled Persons at <http://www.keionline.org/misc-docs/tvi/tvi_en.html#toc16> [↑](#footnote-ref-113)
114. Nepal’s 10th five year plan available at the planning commission website <http://www.npc.gov.np/en/plans-programs/detail.php?titleid=18> [↑](#footnote-ref-114)
115. http://www.npc.gov.np/en/plans-programs/detail.php?titleid=19 [↑](#footnote-ref-115)
116. Chapter 6, Section 8. [↑](#footnote-ref-116)
117. Nepal’s 3 year plan approach paper (unofficial translation) available at   
      <http://www.npc.gov.np/uploads/publications/20110901113819.pdf> [↑](#footnote-ref-117)
118. Education Act, 2028 BS (1971), available at the Nepal Law commission website, <http://www.lawcommission.gov.np/en/documents/prevailing-laws/prevailing-rules/Prevailing-Laws/Statutes---Acts/English/Education-Act-2028-(1971)/> [↑](#footnote-ref-118)
119. See<http://www.unesco.org/education/wef/countryreports/nepal/rapport_1.html> [↑](#footnote-ref-119)
120. “Status of Education in Nepal and Development plan” - paper by Gangalal Tuladhar at http://web.isc.ehime-u.ac.jp/ice/6-1@Gangalal Tuladhar\_text \_8p.pdf [↑](#footnote-ref-120)
121. National Education Committee Act 2028 BS, available at <http://www.propublic.org/tai/download/The%20National%20Education%20Committee%20Act%5B1%5D.%202028.pdf> [↑](#footnote-ref-121)
122. See generally: <http://www.ibe.unesco.org/curriculum/Asia%20Networkpdf/ndrepnp.pdf>. [↑](#footnote-ref-122)
123. Asia-Pacific Development Centre for Disability – Country profile of Nepal, 2012; available at <http://www.apcdfoundation.org/?q=content/nepal> [↑](#footnote-ref-123)
124. Special Education Policy 2053 BS(1996) , available at <http://www.lawcommission.gov.np/en/documents/Prevailing-Laws/prevailing-policies/English/Special-Education-Policy-2053-(1996)/> [↑](#footnote-ref-124)
125. National Policy and Action Plan, 2006 , available at <http://rcrdnepa.files.wordpress.com/2008/05/national-policy-and-plan-of-action2006-eng.pdf> [↑](#footnote-ref-125)
126. Section 4 of the Act lays down that HMG may operate special programmes relating to social welfare activities and social service in different areas, first amongst them being, ‘To render welfare and kindness to the children, old age, helpless or disabled people.’

     The Telecommunications Act, 2053 BS, available at <http://www.itu.int/ITU-D/treg/Legislation/Nepal/law.htm> [↑](#footnote-ref-126)
127. IT Policy 2057, available at

     <http://nta.gov.np/en/component/joomdoc/Policies/IT%20Policy%202057%202000.pdf/download> [↑](#footnote-ref-127)
128. IT Policy 2067 BS (2010), available at <http://www.ncf.org.np/upload/files/300_en_IT_Policy2067(Eng).pdf> [↑](#footnote-ref-128)
129. Para 4, Background of IT Policy 2010 as translated by Mr Udaya Raj Regmi, Depuy Director,NTA [↑](#footnote-ref-129)
130. Ibid [↑](#footnote-ref-130)
131. Telecom Policy 2060 BS (2004), available at <http://www.lawcommission.gov.np/en/documents/prevailing-laws/prevailing-rules/Prevailing-Laws/prevailing-policies/English/Telecommunication-Policy-2060-(2004)/> [↑](#footnote-ref-131)
132. Electronic Transaction Act 2063 BS (2008), available at http://www.lawcommission.gov.np/en/documents/prevailing-laws/prevailing-rules/Prevailing-Laws/Statutes---Acts/English/Electronic-Transaction-Act-2063-(2008)/ [↑](#footnote-ref-132)
133. Right to Information Act 2064 BS (2007), available at http://www.lawcommission.gov.np/en/documents/prevailing-laws/prevailing-rules/Prevailing-Laws/Statutes---Acts/English/Right-to-Information-Act-2064-(2007)/ [↑](#footnote-ref-133)
134. Public Procurement Act 2063 BS (2007) , available at http://www.lawcommission.gov.np/en/documents/prevailing-laws/prevailing-rules/Prevailing-Laws/Statutes---Acts/English/Public-Procurement-Act-2063-(2007)/ [↑](#footnote-ref-134)
135. http://nitc.gov.np/attachments/090\_NeGIF Main Report v2.0.pdf [↑](#footnote-ref-135)
136. Natural Calamity (Relief) Act. 2039 BS (1982) available at <http://www.lawcommission.gov.np/en/documents/Prevailing-Laws/Statutes---Acts/English/Natural-Calamity-(Relief)-Act-2039-(1942)/> [↑](#footnote-ref-136)
137. <http://www.ncdm.org.np/home_mission.php> [↑](#footnote-ref-137)
138. <http://reliefweb.int/report/nepal/international-disaster-response-law-idrl-nepal-–-study-strengthening-legal-preparedness> [↑](#footnote-ref-138)
139. http://www.wipo.int/meetings/en/details.jsp?meeting\_id=27382 [↑](#footnote-ref-139)
140. Example- UK’s Ofcom has brought out policy documents with accessibility provisions [↑](#footnote-ref-140)
141. Sri Lanka has included accessibility as part of the license terms for service providers. [↑](#footnote-ref-141)
142. An example of such a portal is the South African project NAP <http://www.napsa.org/za/portal> [↑](#footnote-ref-142)
143. http://www.w3.org/TR/mobile-bp/ [↑](#footnote-ref-143)
144. http://www.w3.org/TR/WCAG20/ [↑](#footnote-ref-144)
145. Paragraph 3 of the **Telecommunications Policy 2060 (2004)** [↑](#footnote-ref-145)
146. Paragraph 3.1, ibid [↑](#footnote-ref-146)
147. e-Accessibility Policy Toolkit for Persons with Disabilities, <http://www.e-accessibilitytoolkit.org/toolkit/eaccessibility_basics/accessibility_and_the_purposes_of_icts> [↑](#footnote-ref-147)
148. As per provisions of the Education Act, 2028 BS (1971) and the Special Education policy 2053 BS (1996) [↑](#footnote-ref-148)
149. As provided under Sections 6 and 8of the Protection of the Disabled Persons act 2039(1982) [↑](#footnote-ref-149)
150. Para 7.5.5 of the National Policy and Plan of Action on Disability, 2006,stipulates that priority to be given to qualified disabled persons to operate PCOs/multipurpose communication centres. [↑](#footnote-ref-150)
151. Para 7.5.7 of National Policy and Plan of Action on Disability 2006 states that ‘Training will be provided to people with disability about modern information technology. For tis non-government agencies will be mobilised.’ [↑](#footnote-ref-151)
152. Clause 5.9.3 of the Telecommunications Policy 2060 (20004) states that ‘The body acting as the focal point shall give assistance to the various governmental and non-governmental agencies for the common use of information and communication technology for development of the rural areas.’ [↑](#footnote-ref-152)