National Information and Communication Technology Policy, 2015

Ministry of Information and Communication, Government of Nepal, Singhadurbar, Kathmandu, Nepal

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List of Acronyms and Abbreviations

ADSL	Asymmetric Digital Subscriber Line
EMF	Electro Magnetic Fields
FTTH	Fiber-to-the-Home
GNI	Gross National Income
ICNIRP	International Commission on Non Ionizing Radiation Protection (ICNIRP)
ICTs	Information and Communications Technologies
IXP	Internet Exchange Points
LAPA	Local Adaptation Plan of Action
NAPA	National Adaptation Plan of Action
NCERT	Nepal Computer Emergency Response Team
NDLI	National Digital Literacy Initiative
QoS	Quality of service
RTDF	Rural Telecommunications Development Fund
ITES	IT-enabled Services
BPO	Business Process Outsourcing
NTIS	Nepal Trade Integration Strategy

1.   Background

Information and Communication Technologies are increasingly at the core of strategies aimed at securing the goals of sustainable development and stimulating economic growth in countries around the world. Among others, these technologies are shaping the way social interaction takes place and public services are delivered in some fundamental ways. It is precisely along these lines that the Government of Nepal has placed a great deal of importance on transformative potential of ICTs and positioning these technologies within the larger context of its far reaching developmental aspirations premised around poverty reduction as an overarching goal.

ICTs assume particular significance in the light of fact that efficiency more than ever is now an indicator of competitiveness. As such, nations, private sector entities and people that find the means to become more efficient will advance and prosper.

Among others, ICTs hold the potential to help create conditions for better governance, with more transparent and efficient bureaucracies. Similarly, ICTs can help address structural problems in education systems enabling expanded access to education services as well as help bridge quality gaps in education. ICTs can also significantly improve the health sector by enabling expanded outreach to health care services and driving efficiency through the system.

In addition to the roles these technologies play in development, the sector also offers tremendous prospects for economic growth and employment creation through enablement of IT-ITeS/BPO based business models.

It is within these contexts that the Government of Nepal has accorded high level of policy emphasis for the development ICT sector. Nepal has the opportunity to make a difference by adopting and using ICT as a tool available to reduce the development divide and increase the chances of improving the quality of life of the citizens.

Apart from opportunities however, the ever evolving nature of ICTs also offers a host of challenges from policy perspectives. For one, fast paced technological innovations in ICT domain come attendant with far reaching policy implications which traditional policy formulation approaches fail to address properly. As a result, existing policy provisions in Nepal need to be revisited in the light of dynamism that characterizes the sector.

This policy is premised around the realization that there is an urgent need to formulate strategic responses to account for technological trends shaping the ICT sector. Formulating policy responses in alignment with the dynamism of the sector becomes all the more important given the need to adequately factor in key strategic imperatives impinging on faster uptake of ICTs in the country, namely issues surrounding cyber security, data protection, privacy and respect for intellectual property rights. Equally important is the need to address the challenges posed by technological convergence especially from regulatory and governance perspectives. Given that telecom connectivity is fast expanding across the country, inching closer to saturation point, the focus should now should also shift on demand side fundamentals that need to be strengthened in order to ensure strategic alignment of resourcefulness offered by ICTs with our growth and development aspirations.

2.   Past Policy endeavours

Nepal has undertaken a number of policy initiatives in the Information and Communication Technology sector over the past several years.

National Communication Policy formulated in 1992 in essence paved the way for the liberalization of the telecommunication sector in Nepal followed by the enactment of The Telecommunications Act and Regulations in 1997. This marked an important milestone in the form of a cogent legal and institutional framework for the regulation of the sector. Building upon these initiatives, a new telecommunications policy announced in 2004 laid the crucial groundwork for further intensification of the process of liberalization of the sector through the introduction of technology neutrality and open licensing regime, among others. Similarly, Information Technology Policy (IT Policy) announced in the year 2000 was the first policy initiative aimed at positioning IT as tool for development and growth. The IT Policy has since been revised in 2010. The formulation of draft broadband policy in the year 2014 marks yet another initiative aimed at creating a favourable environment for the growth of ICT sector and through this means, catalyzing the development efforts.

3.   Achievement

One of the major outcomes of a liberalized and open telecommunication sector has been the growing reach of telecommunication services in the country and intensified uptake of Internet. Competitive intensity of the sector has increased over the years and as a result, telecom penetration is significantly on the rise throughout the country. Cellular telephony in particular has registered impressive uptake as evidenced by its sustained growth trajectory over the past few years with current penetration rate crossing well over 90%. Similarly, marked improvements have been seen in the area of telecommunications infrastructure in a way that could help create an ecosystem for rollout of a number of network based services. For example, in terms of backbone infrastructure, there are three complete east-west fiber optic backbones in Nepal. A fourth Kathmandu-Hetauda backbone is available through Nepal Electricity Authority which has now commenced hauling optic fiber cable with the roll-out of high power electrical lines infrastructure. In addition, a fifth backbone running through Kathmandu, Pokhara and Butwal has been rolled out. There is a need now, among others, to catalyze the development of rural backhaul links feeding into these backbones to expand telecommunications/ICT access to locations at the extremities of commercial broadband coverage.

4.   Key Issues and challenges

The presence of disparate policy initiatives and institutional arrangements for the development of ICT sector in Nepal however also points towards lack of coherent strategy in line with the technological trends that have been shaping up the sector over the years. Rapid take-up of Internet and mobile wireless communications has been some of the key trends shaping the ICT landscape. These trends have come attendant with policy implications of varied nature. For example, the Internet has truly become mainstream with predominant use of social media, making it relevant for so many people in their daily lives. Security concerns and concerns about privacy, personal saftey and intellectual property rights have accompanied such technological changes. In addition, as indicated earlier, the wider take-up and convergence of ICTs also raises new regulatory issues that traditionally would be seen as separate from telecommunications policy and regulation. In such a rapidly evolving field, it is necessary to ensure that policy and regulation adapt to new developments.

The existence of a number of insititutional arrangements with overlapping mandates and spheres of influnece surrounding the ICT sector in Nepal has resulted in project execution difficulties and hampered smooth rollout of ICT projects.

Given the current state of telecommunications and information technology sector, Nepal needs to enhance its overall readiness for effectively harnessing these technologies by articulating its policy positions on new technologies like Voice over Internet Protocol (VoIP), Internet Protocal Television (IPTV), new forms of social networking, etc.

This policy is formulated basically in response to the felt need for realigning the underpinning substance of existing ICT related policy and regulatory regime with the ramifications of ever-intensifying technological innovation. Among others, transformation from circuit-based telecommunication networks to packet-based ones using the Internet protocol (IP) has brought about digital convergence and offered a host of challenges and opportunities from policy perspectives.

It has been observed that the lack of a coherent policy position befitting the technological dynamism that has charecterized the ICT landscape has offered many challenges for the holistic development of the ICT sector. The current state of policy incongruence has hindered, for example, the growth of IT and IT enabled services sector to the detriment of economic growth prospects that this sector could open up. Similarly, government transformation prospects anchored in potentialities offered by ICTs have not gained traction on account of lack of a coherent policy framework grounded on latest development in the sector.

It is precisely along those lines that this policy stresses the need for a well-defined and consistent policy and regulatory framework for addressing converged regime of telecommunications, broadcasting, and ICT.

5.   Guiding principles of the proposed policy

The implementation of this Policy shall be guided, among other things by the right of access to information as well as the need to promote transparency, fairness and accountability in the delivery of government services and execution of roles and responsibilities of government agencies. The following constitutes some of the guiding principles of the policy:

5.1   This policy is intended to create foundational groundwork for an overarching vision of "Digital Nepal". As per this vision, Information and Communication Technology will be a key driving force in transforming Nepali society into knowledge and information based society and strengthening Nepal's pursuit of equality and sustainable growth by leveraging Information and communication technology.

5.2   The implementation of this policy will be Government-led and Private Sector-driven.   Public-Private Partnerships (PPP) shall form one of the bases for implementation   of this policy especially in matters and projects of national character and importance.   Government shall take leadership mainly in facilitating the mobilisation of investment   and resources required for development of national telecommunications infrastructure   backbones with particular focus on expanding access to broadband, as well as the full   implementation of this policy.

5.3   This policy is primarily designed to guide and mainstream the use of ICTs in all sectors of the Nepalese economy within the overall context of socio-economic development and poverty reduction agenda pursued by the country.

5.4   In order for this policy to make meaningful impact on social and economic development of the country, the policy goals, objectives and strategies shall also be linked with the

overall national developmental objectives, priorities and programmes such as the periodic development plans formulated by National Planning Commission. This policy will therefore form a basis for all sectors to draw their respective ICT strategies from.

5.5 Infrastructural synergies shall be promoted while upgrading existing and developing new infrastructure such as roads and electric power and facilitating cost effective roll-out of telecommunications and broadband infrastructure aimed at supporting the goals of the policy.

5.6 This policy shall be supported by appropriate legislation/directives aimed at effective separation of roles and responsibilities for policy formulation/guidance, regulation and operation in order to ensure transparent and effective regulatory functions based on emerging trends of convergence and establish institutional mechanisms for policy implementation.

5.7 The implementation of this policy shall take into account relevant regional and global strategies and best practices in transforming the nation into a knowledge based society by cultivating strong linkages with the UN Millennium Development Goals (MDGs), WSIS beyond 2015, WTO, Broadband Commission, UN-ESCAP, post 2015 sustainable development agenda etc.

5.8 Nepal will continue to uphold the principle of freedom of expression on the Internet and net neutrality

5.9 The policy intends to promote platform neutral services in e-governance

6.0 Goals of Information and Communication Technology policy

6.1 Nepal will strive towards enhancing overall national ICT readiness with the objective of being at least in the top second quartile of the international ICT development index and eGovernment rankings by 2020.

6.2 At least 75 percent of the population will have digital literacy skills by the end of 2020.

6.3 A universal broadband access to all people on an equitable basis will be in place. By 2020, 90 percent of the population will be able to access the broadband services.

6.4 The role and significance of ICT industries and services (including telecom services) will increase in the Nepali economy with ICT value added (including digital content and service industry) accounting for at least 7.5% percent of GDP by 2020.

6.5 Apex level institutional arrangement will be restructured to effectively drive ICT agenda in the country in the light of emerging technological and application trends shaping the sector. Along these lines, Ministry of Information Technology and Communication Technology will be restructured and re-named as the Ministry of Information Technology and Communication. A detailed Organization & Management study will be carried out with a view to restructuring the Ministry within the year 2016 in order to effectively respond to evolving nature of the sector. Ministry of Information Technology and Communication will be the focal Ministry for all ICT related matters.

6.6   The jurisdiction of Nepal Telecommunications Authority will be expanded to secure complete alignment with policy provisions outlined in this document. Along these lines, Nepal Telecommunications Authority will be renamed Nepal Communication Authority and its areas of operation restructured accordingly.

6.7   By 2020, entire population of Nepal would have access to internet

6.8   80% of all citizen facing government services would be offered on line by 2020

6.9   e-Procurement will be promoted as means of driving transparency through government procurement processes covering all public procurement of goods and services irrespective of cost and volume of such procurements by 2018

6.10   G2G implementation would be promoted with a view to achieving complete automation of the operations of land administration, revenue administration and management, vital registration, passport and citizenship certificate services by 2020.

6.11   Broadband access will be expanded across the country with the goal of achieving a broadband Internet user penetration rate of 30% at a minimum of 512kbps and making available at least 10 Mbps download speed on demand in urban areas by 2018.

6.12   Special funding arrangements will be developed and implemented within 2018 to support innovation and incubation of on-line businesses and start-ups

7.   Policy

7.1   Human Resource

7.1.1   Specific measures will be taken to develop human resources in the ICT and related domain targeting critical skill areas across key sectors of the economy in order to accelerate the development of Nepal's information society and economy;

7.1.2   Initiatives will be taken to ensure that educational institutions imparting ICT courses and specific skill sets are incentivized to align their course offering with technological dynamism shaping the sector. Along these lines, institutional capacity of such institutions along infrastructure and human resources dimensions will be enhanced.

7.1.3   Youth and gender issues will be mainstreamed in ICT related human resource development activities.

7.2   ICT in education, research & development

7.2.1   Appropriate measures will be taken to facilitate and promote the integration of ICTs within the entire Nepali educational system to support administration, pedagogy, learning and research, with a view to improving the quality of education and training at all levels and enhancing access to education

7.2.2   A nationwide E-Schools and other related initiatives will be formulated and launched to promote E-learning and E-Education as well as life-long learning. ICT capacities of tertiary level educational institutions will also be enhanced in a way that helps improve broad learning outcomes

7.2.3　Arrangements will be made to ensure effective implementation of ICT in Education Master Plan formulated by the Ministry of Education

7.2.4　The initiative towards setting up an open university in Nepal will be strengthened with the objective of operationalizing the same by the year 2018

7.2.5　Science and technical education will be strengthened as the basis for laying the foundation for human resource and skills development in ICT;

7.2.6　A National ICT Research and Development Fund will be created with a view to promoting a) The development and deployment of applications and relevant content associated with Government developmental goals to be delivered over telecommunications networks (including via smart phones and tablets) and through telecentres, b) The development of Intellectual Property in ICT, particularly in telecommunications and Information technology domains, working in conjunction with the international research and development community.

7.3　Promoting public access and content development

7.3.1　Universal access/service goals and strategies for rural telecommunications/ICTs, radio and TV transmission infrastructure and service rollout will be developed with immediate effect

7.3.2　The initiative to transform Postal Offices and Community libraries as public access points for E-Commerce, E-Government and Internet based services with the support of the private sector and civil society will be strengthened;

7.3.3　A countrywide programme to attract community, civil society and private sector participation to install basic communication services including internet connectivity around community centers such as schools, health posts, VDC and community buildings will be developed and implemented;

7.3.4　Directives will be issued whereby provision of toll-free service to not-for-profit agencies working on key social agenda in areas such as education, healthcare and counseling services across the country will be made mandatory for telephone (fixed and/or wireless) service providers

7.3.5　An enabling and conducive framework will be created that provides special incentives especially for youths and women in the establishment of ICT services in rural and underserved areas across the country

7.3.6　Specific measures will be taken to drive innovation around development of ICT based content and services tailored to meet key development and service delivery challenges

7.4　Developing the ICT Industry Sector

7.4.1　An ICT Enterprise Development Fund structured along the lines of venture capital fund will be created in conjunction with financial institutions and the private sector to support start-ups and innovative Nepalese ICT companies and entrepreneurs

7.4.2   Appropriate mechanism for Incubator projects targeting SMEs in the ICT sector will be developed and implemented. Along these lines, measures will be taken to provide seed capital for such projects

7.4.3   An open and transparent forum/environment for consultation/dialogue on matters of interest for policy makers, regulators, operators, consumers and other stakeholders in the ICT sector will be created in close coordination with the private sector

7.4.4   Special initiatives and measures will be implemented aimed at promoting local and Foreign Direct Investment (FDI) in ICTs including technology transfer programmes between local and foreign companies;

7.4.5   Special incentives to local ICT industry will be provided with a view to helping them develop into a globally competitive software industry based on proprietary, free and open source solutions to serve the domestic and export markets. Along these lines, specific measures will be taken to lower the barriers to entry of local IT firms and service providers in participating in government ICT projects funded through internal or international resources

7.4.6   A special IT-ITES/BPO business promotion cell will be created within the Ministry of Commerce and Supplies in alignment with Nepal Trade Integration Strategy (NTIS)

7.4.7   An enabling regulatory framework will be created addressing key issues of IPR, privacy and data protection.

7.4.8   A Software and Services Industry Promotion Board will be established through collaborative arrangements between the public and the private sector to promote ICT industry development and IT-ITES/BPO sector

7.4.9   A diagnostic study of current state of play of IT, IT enabled services/ BPO in Nepal will be carried out within the year 2016

7.4.10   Specific policy measures will be taken to attract investments in IT Park located at Banepa, Kavre.

7.5   ICT for Government service innovation and good governance

7.5.1   Initiatives aimed at streamlining delivery of on-line services by government agencies and strengthening government wide uptake of ICTs will continue to be strengthened. Along these lines, the Government will formulate and introduce revised eGovernment Master plan by the year 2016.

7.5.2   Arrangements will be made to ensure that ICTs are leveraged to complement sectoral development strategies. Along those lines, government agencies will be required to incorporate ICT enablement of operational management and

delivery of citizen facing services in the respective agencies as part of their annual plans and programmes.

7.5.3   Special measures will be taken to secure congruence of ICT strategies with emerging governance, political and state restructuring direction that the country will take within the overall context of a new constitution

7.5.4   A Government-wide network and communication system will be developed utilizing the same infrastructure backbone as the foundation for implementation of the E- Government strategy;

7.5.5   All necessary work leading upto the successful implementation of Electronic Transaction and Digital Signature Act and Regulations will be completed by the year 2016. Along these lines, Nepal's PKI infrastructure along with complete operational modality will be rolled out within the year 2016

7.6   ICT in SMEs & promotion of e-Commerce

7.6.1   Measures will be taken to encourage and strengthen electronic payment system in the country to facilitate enhanced growth of eCommerce and enable on-line payment transaction in eGovernment services.

7.6.2   A comprehensive national eCommerce Readiness Assessment will be carried out featuring benchmarking with international best practices

7.6.3   Steps will be taken to create an internationally compatible legal and regulatory framework that accommodates rules for commercial transactions;

7.6.4   Appropriate monetary and fiscal policy measures will be established to ensure consumer confidence in E- Commerce

7.6.5   Mechanisms to protect intellectual property rights related to E-Commerce will be strengthened.

7.6.6   Special program will be formulated in conjunction with trade and commerce related organizations to drive the uptake of eCommerce in Nepal

7.6.7   In advancing its e-commerce strategy, the Government will promote its collaboration with the private sector and its international counterparts to position and promote e-commerce and e-business in Nepal

7.6.8   A conducive system for the protection of intellectual property rights in cyberspace will be put in place;

7.6.9   Measures will be taken to address issues relevant to privacy, such as protection for personal information and confidentiality of consumer related matters;

7.6.10 Small and Medium Enterprises (SMEs) will be encouraged to apply ICT to develop their business and enhance competitiveness, focusing on ICT for management, production and linkages to buyers.

7.6.11 Special measures will be taken to ensure that export oriented Small and medium-sized enterprises (SMEs) in Nepal are set to increase exports of their goods and services using virtual marketplaces (VMPs)

7.6.12 Initiatives will be taken in conjunction with related stakeholders to roll out payment infrastructure services involving Transaction, Clearing and Settlement infrastructures.

7.7 Telecommunications Infrastructure

7.7.1 National broadband network will be build taking into account the particular topography and suitability of the media.

7.7.2 In order to avoid the duplication of investment in infrastructure construction, utilization of the existing cross sector infrastructure and sharing of the telecommunications infrastructure will be will be implemented..

7.7.3 RTDF will be used in telecommunications infrastructure construction.

7.7.4 Terrestrial microwave frequencies will be made available in a timely manner to build wireless backbone.

7.7.5 Special emphasis will be given to improve the international connectivity.

7.8 Convergence of Telecommunications, ICTs and broadcasting

7.8.1 Steps would be taken to ensure convergence in the policy, legal, regulatory and institutional mechanism in the telecommunications/ICT and broadcasting sectors.

7.9 ICT in agriculture

7.9.1 Appropriate programs will be developed and implemented to improve productivity as well as competitiveness of the agricultural sector through the use of ICTs in the planning, implementation, monitoring, market expansion and the information delivery processes.

7.9.2 Private sector investment in the development and provision of ICT services including infrastructure in rural areas having marked intensity in agriculture related activities will be incentivized along with public resources

7.9.3 Appropriate measures will be adopted to deploy, exploit and integrate ICTs and other technologies into the operations and activities of the sector from production, through to processing, packaging, marketing and distribution;

7.10 ICT in Health

7.10.1 A detailed strategic framework will be developed in collaboration with key stakeholder to improve access to quality healthcare as close to the community as possible through the deployment and exploitation of ICTs and other modern technologies.

7.10.2 Appropriate measures will be taken to promote investment in ICT-based healthcare systems to increase the opportunity for citizens to have access to adequate and appropriate modern health services irrespective of time, distance and location;

7.10.3 A comprehensive national telemedicine programme will be developed and implemented to efficiently and effectively utilize scarce human resources and to further improve human capacity in the healthcare delivery system;

7.10.4 A collaborative approach involving public sector, private sector and civil society will be adopted in the deployment and utilization of ICTs in the health sector;

7.10.5 A legal/regulatory and ethical framework will be developed for effective use of the Health Information and security measures to safeguard the privacy of patient information inherent in digitized health care records will be implemented;

7.11   ICT in tourism

7.11.1 Comprehensive measures will be taken to integrate ICTs in the development of the tourism industry.

7.11.2 Steps will be taken to work closely with the private sector as agents for extending and expansion of the ICT infrastructure and services in all major tourist destinations throughout Nepal

7.12   Telecommunication and ICTs in mitigating the impact of Climate Change

7.12.1 Special measures will be taken to develop innovative approaches to climate change adaptation through the integration of traditional and emerging ICTs, including the development of 'e-adaptation' applications that support the implementation NAPA as well as LAPA. In addition, such measures will also be geared towards supporting specific sectoral strategies on key areas affected by climate change such as water, food security, health, disasters, etc.

7.13   ICT in Environment and natural resources

7.13.1 Special emphasis will be accorded to facilitate the conservation of Nepal's natural resources & heritage as well as protection of the environment.

7.13.2 Specific policy measures will be implemented to ensure that development of all ICT infrastructure in the country as well as any manufacture and disposal of ICT products shall be done in conformity with existing and future policies and guidelines on heritage/natural resources conservation and environmental protection;

7.13.3 A comprehensive set of ICT applications and systems will be implemented so as to enhance the management and monitoring of the efficient and effective utilization of Nepal's natural resources and heritage;

7.13.4 Initiatives will be taken to mainstream gender issues using ICTs in the management, development and use of natural resources.

7.14 Telecommunications and ICTs for natural disaster preparedness, mitigation and relief

7.14.1 A comprehensive telecommunication/ICT disaster preparedness plan will be developed incorporating strategies for disaster risk reduction, prediction, preparedness, mitigation and response.

7.15 Human Exposure to Electromagnetic fields and safe disposal of electronic waste

7.15.1 Necessary measures will be taken to handle and control e-waste in order to mitigate the hazards which can arise from used telecommunication/ICT equipment

7.15.2 Measures will be taken to address public concern about the possible human health effects caused by prolonged exposures to radio signals/electromagnetic fields from communications installations.

7.16 Conformance, Interoperability and Standards in Telecommunications and ICTs

7.16.1 Nepal will meaningfully engage with related international agencies involved in the area of interoperability and conformity of telecommunication/ICT equipment with view to reducing interference, ensuring interoperability, quality and reliability among communication systems and helping stakeholders make informed procurement decisions.

7.17 Cloud computing

7.17.1 All government agencies will be required to evaluate safe, secure cloud computing options before making any new investments on ICT hardware, application and services.

7.17.2 A cloud computing/ shared services framework will be deployed using Government Integrated Data Center with a view to maximizing capacity utilization, improving IT flexibility and responsiveness, and minimizing cost in using ICTs in Government agencies.

7.18 Access to telecommunications and ICT services for rural and remote areas

7.18.1 Specific strategies will be developed to further expand access to ICT services to people living in rural and remote areas of Nepal

7.18.2 Mechanisms to mobilize RTDF will be strengthened to secure meaningful deployment of ICTs in rural and under-served areas

7.19 Access to Telecommunications and ICT services for persons with disabilities and specific needs

7.19.1 Specific measures will be taken to promote ICT accessibility and access to ICTs for persons with disabilities with a view to increasing the access of such persons to public services and to promote independent living

7.20 ICTs for Youth , women and Girls

7.20.1 Specific programs will be developed for positioning ICTs as an instrument to mainstream youth and women issues in all activities of the economy and society as well as to empower youths and women through opportunities created by the implementation of ICT projects and programmes in the country.

7.20.2 Activities that promote women and youth friendly initiatives will be encouraged through specific policy measures. Fair access to ICTs by youths and women as well as the disadvantaged in society will also be promoted;

7.20.3 Specific directives will be issued to make it mandatory for telephone (fixed or wireless) service providers to provide toll-free service to support special not-for-profit organisations targeting their services at youths, women, vulnerable and the physically challenged groups;

7.20.3 Specific measures will be implemented to counter gender imbalances affecting women's participation and their ability to benefit from the information society at all levels;

7.20.4 Creativity and innovation around ICTs among youths and women will be encouraged through the introduction of specific programs leading to entrepreneurship development;

7.20.5 The development of ICT based platform will be encouraged to provide a forum for collaboration and exchange of ideas on matters affecting youths and women;

7.20.6 Measures will be taken to enable full and equal participation of women and youths in creating the Information society.

7.20.7 Specific measures will be taken to promote use of ICT to change gender norms to prevent gender-based violence, report incidents of gender-based violence, and coordinate response services;

7.21 Building confidence and security in the use of ICTs

7.21.1 Cyber security policies that enhance individual and collective security while preserving Nepali citizens' right to privacy and other fundamental values and freedoms will be developed and implemented.

7.21.2 Measures will be taken to mandate all organizations providing public information and communication services such as telecommunication, Internet, email services to incorporate administrative, technological and other such practical measures to enable national security agencies to curb misuse and unsolicited content and/or information

7.21.3 Steps will be taken to secure full and comprehensive implementation of Electronic Transaction Act with required amendments in the legal and regulatory framework to allow for effective investigation and prosecution of cyber related crimes;

8.0   Vision

To transform Nepal into an information and knowledge-based society and economy

9.0   Mission

To create conditions for the intensified development and growth of ICT sector as a key driver for Nepal's sustainable development and poverty reduction strategies.

11.0   Objectives of National Information and Communication Technology Policy

11.1   To empower and facilitate Nepal's participation in the Global Knowledge Society.

11.2   To transform Government service delivery regime by promoting transparency, efficiency, inclusiveness and participation through effective utilization of information and communication technologies

11.3   To promote ICT to further productivity among the sectors that is key drivers of the national economy.

11.4   To foster efficient, inter-operable, secure, reliable and sustainable national ICT infrastructure in alignment with grass-root needs, and compliant with regional and international standards

11.5   To promote research and innovation on the role of ICT on the resilience of low-income communities amid potential environmental, economic and social shocks

11.6   To further streamline clear strategies and obligations for licensed ICT service providers with respect to universal access/service goals and Quality of Service (QoS) and ensure cost- effective connectivity to ICT services such as Internet, E- Commerce and E-Government services;

11.9   To promote cost-effective and qualitative last-mile access technologies for providing secure access to internet including commercial and public information services, eGovernment applications by communities (including the disadvantaged and physically challenged) especially in rural and underserved areas;

11.10   To create easily accessible, affordable and innovative public access points under a comprehensive eCommunity/ Village network initiative;

11.12   To create a favorable environment for cooperation and partnership in ICT among public and private sectors, civil society, and between all stakeholders at local, national, regional and international levels.

11.13   To increase the institutional capacity along infrastructure and human resource dimensions in public and private educational institutions including schools, colleges/ universities that offer ICT courses and use ICTs for pedagogical purposes;

11.14 To create a conducive environment for increasing annual enrolment and output of students in key professional skills areas such as telecommunications/electronics engineering, computer science/IT, etc. and promote market driven skills development initiatives in ICT

11.15 To deploy ICTs at all levels of Nepali educational system in order to improve educational outcomes while expanding access to education and training facilities

11.16 To support local and indigenous content development as well as applications targeting the capturing, archiving and dissemination of local and indigenous knowledge, content and information resources as well as the promotion of diverse linguistic and cultural heritage of Nepal;

11.17 To facilitate the participation of youths and women in ICTs particularly in media and content development initiatives;

11.18 To address gender-based inequalities and promote gender-sensitive measures to encourage the active participation of women in national and community-based ICT initiatives

11.19 To promote the use of free and open source software as well as open standard in software development for government agencies

11.20 To create an innovative, market responsive, highly competitive and well regulated ICT industry

11.21 To promote joint venture initiatives for local entrepreneurs with international private investors in the provision of public ICT goods and services in order to catalyze the growth of the sector

11.22 To help develop ICT business incubators and promote start-up projects in close coordination with the private sector through the creation of a supportive eco-system

11.23 To create a favourable business environment and promote Nepal as an attractive destination for ICT-related investments, especially in the area of IT-ITES/BPO, within the region and on the international market

11.24 To restructure the ICT market and technological base with a view to making the ICT sector a significant contributor to the social and economic development of the country.

11.25 To create conditions for intensified roll-out of national telecommunications infrastructure backbone as a way to expand broadband based ICT services across the country

11.26 To ensure an integrated, coordinated and synergistic approach towards the development and deployment of ICTs including other supporting physical infrastructure such as electricity and transport infrastructure;

11.27 To minimize duplication and costs through infrastructure sharing among public and private sector investment projects and to create an efficient and cost-effective Government-wide communications network infrastructure linking national, provincial and district administration;

11.28 To facilitate regional economic integration by utilizing regional and international telecommunications infrastructure projects and Asian Information Superhighway infrastructure initiatives.

11.29 To safeguard public sector information and investment against negative impacts of deploying and using ICTs.

11.30 To promote a stable, fair and competitive investment climate to facilitate the development of e-Trade and E-Commerce activities in the country;

11.31 To develop a highly competitive ICT industry capable of serving as the engine for driving Nepal's active participation in global trade;

11.32 To facilitate the adoption of E-Commerce especially by SMEs in agriculture, tourism, and manufacturing as well as non-traditional exports to ensure productivity and growth;

11.33 To increase the competitiveness of farmers in production, processing and marketing of agricultural products and services through the effective and outcome oriented utilization of ICTs;

11.34 To promote the development of ICT entrepreneurs at SME level as part of the rural agro- business industry development and strengthen the development, application of ICTs in agriculture.

11.35 To improve communication systems across the country especially in areas of touristic interest to support tourism development in the country

11.36 To use ICTs in the documentation, promotion and effective marketing of the full potential of Nepal's world class and niche tourist destinations to the local, regional and international market;

11.37 To ensure that all ICT related activities have very minimal negative environmental impact during construction, operation and disposal/de-commissioning;

11.38 To conserve natural resources and safeguard Nepal's heritage using ICT tools.

11.39 To support the development of mid-to-long term basic planning that provides policy direction and tasks for e-Government

11.40 To support formulation of development strategy for ICT converged services to support and plan for mid-to-long term resolution for overcoming the digital divide

11.41 To ensure all installed ICT infrastructure and capacity is utilized effectively and contributes to resilience and redundancy.

12.   Strategies

12.1   Human Resource Development

12.1.1   Short, medium and long-term ICT human resource development Plans will be developed and implemented in close coordination with industry and academia, factoring in technological dynamism shaping the ICT sector ;

12.1.2   Centers of Excellence for training/education in Telecommunications and Electronic Engineering, Computer Science/Information Technology etc will be created. Measures will also be taken to increase annual enrolment and output of students in key professional skills areas such as telecommunications/electronics engineering, computer science, Information Technology and all related fields.

12.1.3   Digital literacy will be encouraged as a basic requirement for employment and promotion in all sectors;

12.1.4   ICT awareness programmes will be developed among all citizens and ICT as an alternative career path will be promoted for youths and women;

12.1.5   Favourable environment for public and private sector organizations will be created to invest in education and human resource development programmes as well as in the training and up-dating of personnel skills in ICT. Along these lines, appropriate measures will be taken to ensure the quality assurance of non-university tertiary training providers.

12.1.6   Community based ICT training and sensitization programmes will be developed and promoted in conjunction with local government authorities, private sector and civil society;

12.1.7   A nationwide ICT re-training and skills update initiatives will be facilitated covering all the sectors in response to rapid technological changes. Nepal Administrative Staff College will be designated the focal institution responsible for skills update initiative targeted at government employees. Along these lines, Nepal Administrative Staff College will be reoriented and capacitated to conduct a range of ICT capacity development initiative for government agencies.

12.1.8   Institutional linkages between educational/training establishments and industry will be promoted by working closely with the private sector so as to ensure that demand side requirements are adequately reflected in human resource development initiatives.

12.1.9   Steps will be taken to ensure adequate access to education and training resources for the physically challenged and vulnerable groups;

12.1.10 Local and foreign direct investment in knowledge and expertise development will be encouraged and promoted to support the development of human resources requirement of the country. Along these lines, training institutions providing international certification courses will be incentivized to expand their services in Nepal.

12.1.11 The participation of professional private sector bodies in developing appropriate curriculum and ICT skills needed in industry will be encouraged and promoted

12.1.12 Arrangements will be made to effectively implement ICT in Education Master plan developed by the Ministry of Education

12.1.13 Measures will be taken to address the human resource requirements in key sectors of the economy targeting critical managerial, technical and operator skills aimed at securing the growth of information economy

12.2 ICT in education, research & development

12.2.1 Steps will be taken to ensure that integration and deployment of ICTs in the education system will be adequately funded through government resources

12.2.2 Partnerships will be developed with private sector and other stakeholders in the quest for increased ICT literacy;

12.2.3 E-Learning systems will be promoted to extend the reach of educational services including teachers training programs

12.2.4 The integration of computer skills into the teaching and learning process at primary, high school and tertiary levels will be promoted and facilitated;

12.2.5 A comprehensive National ICT curriculum and qualification system will be developed covering a set of market driven competencies

12.2.6 Teacher training institutions will be capacitated to introduce programmes on teacher education in ICTs

12.2.7 The development and the adoption of IT enabled Educational Management Information Systems within the public and private educational institutions will be promoted and facilitated to improve the quality of managing educational delivery activities, operations and monitoring;

12.2.8 The development, deployment and utilization of electronic-based distance education, training and learning systems will be promoted in the Nepali educational system to complement and supplement regular, class-room based education and training;

12.2.9 Special measures will be taken to promote the participation of the private sector and other establishments including industries and businesses in industrial research as well as cutting-edge R&D activities;

12.2.10 Special schemes aimed at promoting affordable acquisition of computers and other ICT products by students, trainers and educational institutions; based upon appropriate policy measures will be formulated and implemented

12.2.11 Specific measures will be taken to encourage and facilitate collaborative research; R&D projects and knowledge transfer partnerships between Nepalese universities/ research institutions with international counterpart institutions;

12.2.12 Special programmes will be formulated and implemented to promote and facilitate the adoption of educational technologies and Internet access within the public and private educational institutions targeting all levels of the educational system;

12.3   Access, media and Content

12.3.1 A nationwide programme will be developed and implemented with a view to attracting community, civil society and private sector participation to install basic communication Services and internet access points around community centers such as schools, health posts and public libraries

12.3.2 Special regulatory and CSR related measures will be taken to encourage telecom operators (fixed and/or wireless) to provide toll-free service to *not-for-profit* agencies supporting community initiatives in areas such as education and health counseling services across the country;

12.3.3 Appropriate regulatory and licensing framework will be created to provide special incentives for youths and women in the establishment of ICT services in rural and underserved areas across the country.

12.3.4 Special programmes will be developed to support local and indigenous content development as well as applications targeting the capturing and dissemination of local and indigenous knowledge, content and information resources as well as the promotion of Nepali languages and cultural heritage;

12.3.5 Steps will be taken to address gender-based inequalities and instituting gender-sensitive measures to encourage the active participation of women in national and community-based ICT initiatives

12.4   ICT Industry

12.4.1 Information Technology Park located at Banepa, Kavre will be declared a Special Economic Zone within the year 2015 and a detailed business plan for the park will be developed. Along these lines, the feasibility study for turning the Park into a business incubation and start-up hub will be carried out

12.4.2 A diagnostic study of current state of play of IT, IT enabled services/ BPO will be carried out within the year 2016 with a view to benchmarking Nepal against competing destinations in the region and globally

12.4.3 Special tax instruments and incentives to promote the development of the local ICT production and services industry will be developed and implemented;

12.4.4 Specific measures will be taken to promote, stimulate and support the development of innovative local content and applications;

12.4.5 Centers of Excellence for the research and training of ICT professionals will be established;

12.4.6 ICT incubator projects will be promoted

12.4.7 Special programs will be launched in conjunction with the private sector to promote the development, adoption and enforcement of international standards and best practices within the ICT industry to facilitate the development of world-class and globally competitive local ICT products and services;

12.4.8 An aggressive and forward looking marketing strategy will be developed to promote Nepal as a competitive destination for ICT-related foreign direct investment;

12.4.9 Specific steps will be taken to promote and actively support the use of ICTs in the service delivery value chain in all sectors of the Nepalese economy.

12.5 ICT for Government service innovation and good governance

12.5.1 Proper institutional and staffing arrangements will be made with a view to driving e-government initiatives, securing periodic update of GEA and providing crucial coordination support. It will also set ICT standards and implementation guidelines, with an emphasis on open standards and reducing total cost of ownership of IT implementations in government agencies.

12.5.2 E-government initiative of the Government of Nepal will be conceptually premised around open government theme, embracing transparency, accountability and cooperation among the public sector, private sector and civil society. Along these lines, opening up of government data will be promoted so that people and businesses can access and make use of this data, using multiple channels and technologies.

12.5.3 The use of social media will be promoted to drive inclusion and participation in governance.

12.5.4 Nation wide public sector ICT capacity development initiative will be launched to enhance readiness of government personnel in line with the emerging trend of technology enabled evolution in service innovation.

12.5.5 A comprehensive national Geographic Information Infrastructure will be developed to support planning, policy and decision making at all levels of government..

12.6 SMEs and e-Commerce

12.6.1 A feasibility study aimed at developing a comprehensive legislation regarding e-commerce will be carried out within the year 2018. This will include legislation on digital signatures, privacy, consumer protection, copyright and intellectual property, and content regulation

12.6.2 Establish monetary and fiscal policy measures to ensure consumer confidence in E- Commerce;

12.6.3 Develop effective laws and regulations that shall govern E-Commerce at national level supported by regional and international systems;

12.6.4 Establish mechanisms to protect intellectual property rights related to E-Commerce.

12.6.5 Facilitate the adoption of E-Commerce especially by SMEs in agriculture, tourism, small scale mining and manufacturing as well as non-traditional exports to ensure productivity and growth

12.6.6 Cultivate a culture of E-Commerce in the country, which supports electronic business transactions at national, regional and international levels;

12.6.7 Develop action plans aimed at facilitating the involvement of Small and Medium Enterprises (SMEs) and disadvantaged groups to enhance their effective participation in E-Commerce activities;

12.6.8 A thorough review of electronic payment scenario in Nepal in terms of legal, regulatory and infrastructural requirements will be conducted

12.6.9 Specific measures will be taken to modernize government payments leading to the development of a comprehensive national payments system that can also support financial inclusion

12.6.10 Promote and incentivize e-payment service providers including development of strategies aimed at positioning mobile phones as a device promoting financial inclusion and facilitating on-line financial transaction. Along these lines e-payment enablement in at least 10 government services within the year 2018 will be secured.

12.6.11 A special program will formulated and rolled out to obtain substantial benefits from migrating government expenditures and collections to electronic payments through payments infrastructures to process such payments safely, efficiently and at a reasonable cost.

12.6.12 Restructure and modernize the banking and payment system to facilitate electronic banking and financial services in order to increase the development of E-Commerce and trade;

12.6.13 National e-Payment infrastructure will be set up in the country to facilitate and enable on-line payments.

12.6.14 Initiatives will be taken to ensure that payment and settlement systems in the country are safe, efficient, interoperable, accessible, inclusive and compliant with international standards.

12.7 Telecommunications infrastructure

12.7.1 RTDF will be extensively utilized for building nation-wide back haul infrastructure both optical fiber as well as wireless based.

12.7.2 The development and deployment of a telecommunication infrastructure backbone with regional and international connectivity will be facilitated through Public-Private Partnerships and other appropriate arrangements to offer reliable, high capacity and nationwide service to data, voice and video service content providers;

12.7.3 Necessary legal, regulatory and institutional framework and incentives will be created to support the development of the ICT infrastructure in the country;

12.7.4 Market based guidelines for infrastructure sharing, network interconnection, tariff among other things will be developed as part of the licensing framework;

12.7.5 Steps will be taken to ensure that public sector organizations will liaise, coordinate and harmonize with the agencies responsible for the ICTs before embarking on telecommunications/transmission infrastructure projects to avoid duplication;

12.7.6 Clear policy guidelines will be formulated for developing, sharing and utilization of telecommunication infrastructure within the public sector as part of strategies aimed at leveraging ICTs to streamline delivery of government services;

12.7.7 Measures will be taken to effectively operationalize RTDF to support the development of ICT infrastructure and service rollout especially in rural and underserved areas;

12.7.8 Further measures will be taken to ensure that network operators optimize connectivity to the national ICT backbone and Internet Exchange Point to reduce interconnection costs and broaden network access;

12.7.9 Measures will be taken to strengthen regional infrastructure initiative like SASEC and Asian Information Superhighway projects as the basis for implementing regional and international telecommunications connectivity

12.7.10 Measures will be taken to incorporate provision for telecommunications infrastructure such as laying of fiber optic cables or such other technologies into the design of any public infrastructure project especially when rehabilitating or building roads, electricity grids and railway lines.

12.7.11 Appropriate measures will be promoted to ensure that Internet and other traffic will be exchanged within Nepal using local peering or exchange points as far as it is possible to do so, recognizing that the use of international peering points in other countries imposes an unnecessary cost burden and a potential security risk.

12.7.12 Fast track processes associated with the provision of rights of way including space on land and on or in buildings for the installation of telecommunications infrastructure will be introduced. These should cover both areas that are already developed and those to be developed or redeveloped, where an infrastructure has yet to be installed.

12.7.13 A comprehensive set of regulations and guidelines will be established by Ministry of Information and Communication in conjunction with all relevant Ministries to promote Infrastructure sharing (passive and active) on the principles of neutrality, non-discrimination, and equal access.

12.7.14 Spectrum will be allocated for high speed digital microwave communication to provide cost effective backhaul services for mobile broadband services

12.7.15 Nepal will continue to promote the concept of Asia-Pacific Information Superhighway to promote regional information and communication technology connectivity

12.8 Convergence of Telecommunication, ICTs and broadcasting

12.8.1 Appropriate measures including the formulation of Convergence Policy will be taken to to facilitates the provision of different services over different platforms.

12.8.2 Existing regulatory and institutional frameworks will be modified to address convergence

12.8.3 Steps will be taken to ensure that the country's legal framework contains necessary legislation to support ICT environment created by convergence

12.9 ICT in agriculture

12.9.1 A integrated agricultural information system on agro-technologies, pricing and market information for all agro products will be created in order to provide strategic information for farmers, government agencies, agricultural cooperatives and other stakeholders at national, district and community levels;

12.9.2 Intensive ICT awareness campaigns will be undertaken for all types of farmers in the use of traditional and new ICT tools at all levels;

12.9.3 Weather and agro-meteorology early warning systems will be developed and deployed to support agricultural production and predict as well as prevent disasters;

12.9.4 Incentives for deployment of affordable ICT solutions to support rural connectivity of farmers especially those within the geographical coverage of existing ICT infrastructure will be developed;

12.9.5 Special programmes will be developed and executed to promote ICT skills among agricultural extension workers, managers of cooperatives and farmers;

12.9.6 Special project will be launched to develop database systems and applications including Geographical Information Systems (GIS) to support agricultural input resource management as well as to support land and water resource management, environmental monitoring and impact assessment, crop yield assessment and livestock management among others;

12.9.7 A monitoring and evaluation system will be developed for the conservation and sustainable utilization of natural resources in the agricultural production process;

12.9.8 Two-way information dissemination to support the physical and socio-economic planning processes in the agricultural system will be developed

12.10 ICT in Health

12.10.1 Develop an appropriate National Health Management Information System;

12.11.2 Facilitate connectivity and access to communication services in health institutions to support healthcare delivery;

12.11.3 Develop appropriate ICT infrastructure at all levels of the healthcare system to support the collection, use, management and dissemination of health care information;

12.11.4 Promote and encourage ICT training and skills development among healthcare professionals;

12.11.5 Deploy ICTs to support education and awareness initiatives aimed at combating major national health threats such as HIV/AIDS, malaria, and other infectious diseases.

12.11   ICT in Tourism

12.11.1 Stakeholders will be encouraged and incentivized to develop information platforms (portals) for niche tourism products and destinations and create databases for collection of tourism information to support planning, monitoring and evaluation;

12.11.2 Measures will be taken to strengthen National Spatial Data Infrastructure as mechanism for cross-sectoral collaboration in sharing and exchange of natural resources information;

12.11.3 Institutional mechanisms will be developed to establish an Integrated Geographic Information System to support heritage conservation, natural resources Management and early warning systems to predict natural disasters /phenomena that may affect natural resources management, environment protection and tourism performance;

12.11.4 An integrated travel and tourism information systems to support operators in the travel and tourism industry will developed;

12.11.5 Measures will be taken to promote and integrate ICT skills in the provision of world class training programmes by hospitality training services providers

12.11.6 Partnerships with the private sector will be formed to support the development of E-Commerce solutions in the tourism industry.

12.12   Telecommunication/ICTs in mitigating the impact of climate change

12.12.1 Specific initiatives will be taken to promote innovative strategies supported by Information and Communication Technologies (ICTs) such as mobile phones, community radios, or the Internet and related applications to overcome barriers that arise throughout climate change adaptation processes.

12.12.2 Specific programs will be developed to enhance food security by strengthening agricultural production systems

12.12.3 Collaborative arrangements with academia and civil society will be worked out in order to promote innovation on use of ICTs in climate change, including e-adaptation applications that foster new mechanisms for information and knowledge sharing, capacity building, networking and collaboration towards adaptation goals. Along these lines, Universities will be encouraged to support R&D activities in ICTs and climate change.

12.12.4 Special programmes will be formulated to leveraged ICT to help strengthen capacity of institutions involved in processes of climate change adaptation, improving the availability of resources and skills needed for effective adaptation.

12.12.5 A special task force will be formed to explore ways and means of leveraging ICTs to support National Adaptation Plan of Action (NAPA) and Local Adaptation Plan of Action.

12.13 ICT in environment and natural Resources

12.13.1 The use of ICT applications such as Geographic Information Systems (GIS) and weather forecasting technologies will be promoted to facilitate the monitoring and provision of relevant environmental information to relevant stakeholders, including decision-making processes for the adaptation of human habitats.

12.14 Telecommunication/ICTs for natural disaster preparedness, mitigation and relief

12.14.1 A telecommunication/ICT disaster preparedness plan and strategy will be developed factoring in the role of telecom/ICT in disaster risk reduction, prediction, preparedness, mitigation and response.

12.14.2 International best practices in the application of telecommunications/ICTs for the purpose of disaster preparedness, mitigation, response and recovery will be adapted to national context. Along these lines, due attention will be given to the use of remote sensing for disaster prediction, detection and mitigation as well as Implementation of Satellite Telecommunications for Disaster Management, among others.

12.15 Human exposure to Electromagnetic fields and safe disposal of electronic waste

12.15.1 EMF guidelines set out by WHO (World Health Organization) /ICNIRP (International Commission on Non Ionizing Radiation Protection) will be adopted in developing country position on EMF thresholds. In addition to this, a study will be conducted to assess the need for other risk management policies for RF exposure in the country.

12.15.2 Both voluntary and mandatory instruments will be assessed for limiting exposure to EMF. Along these lines, details of both the instruments will be worked out in due course.

12.16 Conformance, Interoperability and Standards in telecommunications/ICT

12.16.1 Specific measures will be taken to use conformity assessment that many regional and national standards bodies already provide for conformity

12.16.2 Appropriate   conformity-assessment regimes and procedures based on applicable recommendations from international agency like ITU would be adopted, leading to better quality of service/quality of experience, and to higher probability of interoperability of equipment,

12.17 Cloud Computing

12.17.1 Shared infrastructure/Cloud computing will be accorded a high degree of   priority when considering ICT applications in government agencies

12.17.2 Government agencies will be required evaluate safe, secure cloud computing options before making any new ICT investments

12.17.3 A shared/cloud computing infrastructure will be rolled out enabling deployment of cloud based applications and services

12.17.4 Taking into account the proliferation of the operation of data centers by the private sector, a standard for data centre will be formulated. The standard thus formulated will be applicable for all entities operating data centers.

12.18 Access to telecommunications/ICTs in rural and remote areas

12.18.1 A special national level programme to bridge the digital divide will be launched

12.18.2 Policy and regulatory provisions aimed at expanding access to ICTs to the people living in rural and remote areas will be reviewed to assess their efficacy

12.18.3 A national level survey will be conducted to identify areas and communities excluded from telecommunication and internet access

12.18.4 A nation-wide digital literacy initiative will be formulated to enhance the capacity of communities to meaningfully harness ICTs

12.18.5 A national white paper on Nepal's digital divide scenario will be published to guide policy interventions

12.19 Access to Telecommunications/ICT services for persons with disabilities and specific needs

12.19.1 An Advisory ad-hoc Committee with representation also from Disability organization, on ICT accessibility will be established within Nepal Telecom Authority in order to provide advisory support on matters relating to the needs of person with disabilities in the country.

12.19.2 Appropriate measures will be taken to expand the role and scope of RTDF to include strategies aimed at enhancing ICT accessibility to persons with disabilities. Along these lines, guidelines for mobilizing RTDF in support of enhancing ICT accessibility objectives will be developed within 12 months of endorsement of this policy document

12.19.3 Existing ICT policies, legislation and regulations to promote ICT accessibility will be revised to

12.19.4 Measures will be taken to facilitate the development of curricula and training of information technology professionals on mobile ICT accessibility

12.19.5 The training of persons with disabilities in using accessible ICTs and the training of professionals supporting persons with disabilities in adopting and using ICT will be facilitated

12.20 ICTs for Youth, women and girls

12.20.1 Measures will be taken to enable full and equal participation of women and youths in creating the Information society.

12.20.2 Specific measures will be taken to promote use of ICT to change gender norms to prevent gender-based violence, report incidents of gender-based violence, and coordinate response services;

12.20.3 Special ICT training programs for youths and women will be designed and implemented in partnership with local communities;

12.20.4 Specific measures will be taken to promote ICT awareness among youths and women and develop literacy programmes;

12.20.5 Steps will be taken to encourage the participation and integration of youths and women in organs and processes of national policy formulation, planning and decision-making through information access mechanisms;

12.20.6 Specific projects will be launched to promote innovative and start-up (incubator) projects for youths and women as ICT entrepreneurs;

12.20.7 Measures will be taken to facilitate and encourage the development of electronic networks and systems for associations and organisations engaged in the advancement of youth and Women issues in the country;

12.20.8 Appropriate measures will be taken towards acknowledging, protecting and defending women's rights in the information society;

12.20.9 Specific measures will be taken to provide infrastructure and affordable access to ICT tools and services in rural and urban areas, especially with a view to expanding access to youth and women

12.21 Building confidence and Security in the use of ICTs

12.21.1 A national level initiative to maintain an effective legal framework and enforcement capabilities to disrupt and prosecute cyber crime will be undertaken. Along these lines, the law enforcement agency capability on cyber crime will be significantly enhanced to understand, investigate and disrupt cyber crime. Specific steps will be taken to make it easier to report cyber crime and ensure that the intelligence from reporting is fed back into effective action and advice to the public.

12.21.2 Specific programmes will be formulated and launched in order to raise awareness and to educate and empower people and firms to protect themselves online.

12.21.3 A government wide capacity building initiative will be launched in conjunction with government run training agencies with a view to building capacity to deter and defend against high-end threats

12.21.4 A national cyber security cell will be established within the government structure to develop its ability to prevent, detect, defend against and recover from cyber-attacks.

12.21.5 In conjunction with academia, postgraduate education will be strengthened to expand the pool of experts with in-depth knowledge of cyber security related issues.

12.21.6 Programmes of certified specialist training will be established in order to drive up the skill levels of information assurance and cyber security professionals in conjunction with the private sector.

12.21.7 Initiatives will be taken to encourage Internet Service Providers (ISPs) to help individuals identify whether their computers have been compromised and what they can do to resolve the compromise and protect themselves from future attacks.

12.21.8 Best ways to improve cyber security education at all levels so that people are better equipped to use cyberspace safely will be explored.

12.21.9 A government wide NCERT will be established in order to dynamically respond to cyber security related issues.

12.21.10 Law enforcement agency capability on cyber crime will be significantly increased by 2018 backed by development of new training programs, giving more capability to understand, investigate and disrupt cyber crime.

12.21.11 Commencing 2016, the police will mainstream cyber awareness, capacity and capabilities throughout their service.

12.21.12 Specific measures will be taken to improve levels of professionalism in information assurance and cyber defense across the public and private sector. Along these lines, initiatives will be taken to establish a scheme for certifying the competence of information assurance and cyber security professionals by December 2016, and a scheme for certifying specialist training in 2018.

12.21.13 Specific measures will be taken to improve levels of professionalism in information assurance and cyber defense across the public and private sector. Along these lines, initiatives will be taken to establish a scheme for certifying the competence of information assurance and cyber security professionals by December 2016, and a scheme for certifying specialist training in 2018.

12.21.14 Specific measures will be taken to help boost and maintain the pool of experts in Nepal and to encourage the development of a community of 'ethical' hackers in the country who can help ensure its networks are well protected

12.21.15 A Computer Crimes Investigation Unit for the enforcement Electronic Transaction Act as well as the National Electronic communication Security Centre will be established within the internal organs of appropriate agencies to safeguard information and communication infrastructure, networks and systems as part of the reform process to ensure the availability, authenticity, integrity and confidentiality of Government, public and private communication networks and systems; data and information content integrity; consumer privacy and protection. These outfits will also security issues damaging or corrupting Nepal's cultural heritage, national image and identity;

13.0   Institutional arrangement

13.1 Implementation of policy and strategy framework

A National Information and Communication Technology Policy Implementation Steering Committee will be formed at the Ministry of Information Technology and Communication with the following structure.

Hon. Minister, Ministry of Information and Communication Technology	Chairperson
Member, National Planning Commission	Member
Secretary, Ministry of Education	Member
Secretary, Ministry of Health	Member
Secretary, Ministry of Agriculture	Member
Secretary, Ministry of Finance	Member
Secretary, Ministry of Local Development	Member
Secretary, Ministry of Information and Communication	Member
Chairman, Nepal Telecommunications Authority	Member
Representative Private Sector / Domain Expert	2 Members
Joint-Secretary (Policy and Programme), Ministry of Information and Communication	Member-Secretary

The primary role of Information and Communication Technology Policy Implementation Steering Committee is to provide overall coordination support for the effective implementation of policy provisions along with monitoring and evaluation of policy interventions.

The Steering Committee will form an ICT Policy Implementation Sub-Committee comprising of representation from the stakeholder community and domain experts, including the private sector, to provide it with domain specific expert advice and recommendations in relation to the execution of policy provisions.

13.2 Formulation of National ICT Master Plan/National e-Strategies
The policy and strategy framework will be implemented through National ICT Master plan/National e-Strategies to be developed and endorsed by the Government of Nepal.

14.   Resource Mobilization

The overall goals of Information and Communication Technology Policy will be achieved through the mobilization of both public and private sector resources. The proposed policy framework is expected to create conditions for private sector investment in the sector complemented by public sector resource mobilization based, among others, upon universal service obligation commitments through the use of RTDF. The possible grants and technical assistance from bilateral, multilateral and other international agencies could also be used.

15.   Legal and regulatory arrangements

Appropriate Legal and regulatory arrangements will be made for the implementation of this policy and provisions therein if deemed necessary.

16. Monitoring and evaluation

A framework will be developed within the fiscal year 2072/73 (2015/16) to serve as a basis for carrying out periodic monitoring and evaluation of the execution of Information and Communication Technology Policy and ICT master plan. It will be the primary responsibility of Implementation Steering Committee to carry out monitoring and evaluation of programs and policy provisions relating to ICT services and infrastructure build-out.

17. Assumptions and Risks

The following constitutes key assumptions and risk perceptions in relation to the proposed Information and Communication Technology Policy.

Assumptions:

−   ICT as one of the core elements of development agenda will enjoy high level of political commitment in the days ahead resulting in significant resource commitments on harnessing ICTs to achieve policy outcomes across sectors

−   There will be intensified demand for ICT services driven by increased public sector deployment of ICT application and services, thereby creating conditions for more private sector investment in the sector

−   Necessary legal and regulatory reforms in the area of licensing and spectrum governance will be taken in an urgent basis to promote investment in the sector

Risks:

−   Overall investment climate might be compromised on account of delays in much needed legal, regulatory and institutional reforms

−   The continuing challenges associated with chronic power shortages could dampen the overall demand for ICT services and create disincentive for investment

−   Lack of oversight giving rise to skewed, purely market driven expansion of ICT services resulting in exclusion of the communities outside urban areas resulting in widening digital divide