

# **National ICT Policy - 2009**

**Ministry of Science and Information & Communication Technology  
Government of the People's Republic of Bangladesh**

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# National ICT Policy 2009

## A. Preamble

In today's world, Information and Communication Technology (ICT) is considered as the most effective constituent for the development of a nation. In order to decide on the ways to deliver the benefits of ICT to the greater mass of the country, the present Government, in its previous tenure, felt the necessity of an Information and Communication Technology policy. The intention was reflected in measures such as tax waiver from import of computers, connecting Bangladesh with the Information Superhighway and allocation of fund 400 million Taka for promotion of IT sector. Digital Telephony was also introduced during that period. Especially mobile phone business was opened up through removal of monopoly with a view to keep the mobile communication within the reach of the common people. For the development of Information & Communication Technology in the country, the Government formed a committee for formulating a national policy on ICT (vide Circular No: MOST/Sec-09/NCST-1/99/90 Dated: 10-05-1999). Though the policy was approved in 2002, the vision of developing a knowledge-based society in the country within 2006 could not be realized because of sluggishness of the next Government. Needless to say, that we have to go a long way to achieve that level of maturity in ICTs. In view of this, the ICT stakeholders felt the need to revise the current ICT Policy in line with the national goals, objectives and capabilities. Accordingly, the 'National ICT Policy Review Committee' was formed by the Ministry of Science and ICT (vide Circular No. MOSICT/Section-13/IT-7/1999/Part-2/108, Dated: 4-5-2008, published in Bangladesh Gazette in Vol.29: July 17, 2008). The 'National ICT Policy 2009' is the outcome of the work of this committee.

It is expected that the successful implementation of the vision and objectives of the National ICT Policy 2009 will facilitate materialise Digital Bangladesh which the government pledged to build within 2021 by.

### A.1 Rationale for a National ICT Policy

The constitution of the People's Republic of Bangladesh has edified social equity and ICTs are the best means to propagate that ethos within a framework optimizing the effective utilization of the nation's limited natural and abundant human resources.

The article 19 of the constitution clearly mandates:

- “ **19. Equality of opportunity.-** (1) The State shall endeavour to ensure equality of opportunity to all citizens.
- (2) The State shall adopt effective measures to remove social and economic inequality between man and man and to ensure the equitable distribution of wealth among citizens, and of opportunities in order to attain a uniform level of economic development throughout the Republic.”

The policy is intended as a binding guide for all planners and executive officers of the state. It is also meant to be an investment guide for private enterprises, a social mobilization guide for NGOs/civil societies and a benchmark for electronic delivery of citizen services.

## A.2 Present Context and Future Trends

Bangladesh has not been able to harness the power of ICTs for economic and social gains to the extent that other countries of the world have done. The promise of ICTs has only become stronger with time and a future without ICTs in any part of the world is unthinkable. As the financial barrier to ICTs is much lower than many other modern technologies, and as the future of human society is inextricably linked with ICTs, Bangladesh as a country must embrace ICTs as a matter of policy and set an aggressive strategy to make up for the current lag and leapfrog into the ranks of top ICT-ready countries.

As a nation, Bangladesh is still classified as a least-developed country (LDC) with a per capita GNP of USD 600 per annum. With more than 1,000 people per square km, the country has the highest population density in the world, aside from city-states. There are few proven natural resources, though there are some in the energy sector that are not sufficient to meet the total energy needs now or in the future. Generally speaking the only abundant resource the country has is its young population.

The national vision is to raise the economic profile of the nation to that of a middle-income country within a decade which would require more than doubling of our current level of per capita GNP. This economic vision must be achieved in a manner that is socially equitable and just.

Optimal resource utilization, certified skills development, efficient communication and quality education delivery are some of the ways in which the above goals can be realized within the specified timeframe by pushing the growth rate to above 7.5% through extensive use of ICTs. By sustaining this level of growth, the country's GNP can be increased twenty-fold from the present level and high-income status can be achieved within 30 years.

## A.3 Structure and Conventions

The policy document is structured as a hierarchical pyramid with a single vision, 10 broad objectives, 56 strategic themes and 306 action items. The vision and objectives are aligned with the general national goals while the strategic themes are areas within the broad objectives that can readily benefit from the use of ICTs. The action items are generally meant to be implemented either in the

- short term (18 months or less),
- medium term (5 years or less) or
- long term (10 years or less).

However, some action items have been recommended for continuation throughout multiple terms where the scope of the activity gradually expands in the longer terms.

Conventional notions of vision, objective, strategic theme, etc. tend to differ greatly from person to person and from discipline to discipline. Thus, for the purpose of this policy proposal, the following definitions have been adopted for a) Vision, b) Objective c) Strategic Theme, d) Action Item, and e) ICTs.

**Definition of Vision:** The national aspirations with respect to maximising the use of ICTs for national development

**Definition of Objective:** A set of related goals to be achieved to realize the Vision

**Definition of Strategic Theme:** A broad recommendation to guide the development and implementation of specific action items

**Definition of Action Item:** A particular implementation task under a strategic theme with clearly specified outcomes, time limits and actors

**Definition of ICTs:** All e-technologies used in creating, storing, processing, communicating and disseminating information of all kinds

## **B. Policy Ownership, Monitoring and Review**

The ICT Policy must be owned by all stakeholder groups who will continually seek to have the mandates of the policy adhered to in all spheres of national life. The policy must have a *Champion* in the highest levels of the Government. Accordingly, the following Policy Ownership arrangement is envisaged.

The National ICT Policy shall be monitored and coordinated by the Minister in charge of ICT while the associated action programmes will be implemented and/or supported by the Bangladesh Computer Council or its successor organisation; all Government agencies and quasi-state bodies will implement ICT Policy in their respective area. Instruction from National ICT Task Force will be taken for any deviation in implementing the Policy.

The action plans under the policy shall be reviewed at least once a year for implementation status checks, necessary reprioritizations and changes in programmes. The strategic themes shall be reviewed every three years along with realignment of specific goals with new developments. The whole policy itself shall be reviewed in totality every six years and long-term goals adjusted according to achievements and failures along the way.

With the aims and objectives of the National ICT Policy 2009 materialized, Bangladesh is expected to become a 'knowledge society' within one generation.

## **C. Vision**

Expand and diversify the use of ICTs to establish a transparent, responsive and accountable government; develop skilled human resources; enhance social equity; ensure cost-effective delivery of citizen-services through public-private partnerships; and support the national goal of becoming a middle-income country within 2021 and join the ranks of the developed countries of the world within thirty years.

## **D. Objectives**

- D.1. Social Equity:** Ensure social equity, gender parity, equal opportunity and equitable participation in nation-building through access to ICTs for all, including persons with disabilities and special needs
- D.2. Productivity:** Achieve higher productivity across all economic sectors including agriculture and SMME (small, medium and micro enterprises) through the use of ICTs.

- D.3. Integrity:** Achieve transparency, accountability, responsiveness and higher efficiency in the delivery of citizen-services.
- D.4. Education and Research:** Expand the reach and quality of education to all parts of the country using ICTs, ensure computer literacy at all levels of education and public service and facilitate innovation, creation of intellectual property and adoption of ICTs through appropriate research and development.
- D.5. Employment Generation:** Enlarge the pool of world-class ICT professionals to cater to the local and overseas employment opportunities.
- D.6. Strengthening Exports:** Ensure a thriving software, ITES and IT manufacturing industry to meet domestic and global demands and thereby increase foreign exchange earnings, attract foreign direct investments and reduce dependence on imports.
- D.7. Healthcare:** Ensure quality healthcare to all citizens by innovative application of ICTs.
- D.8. Universal Access:** Ensure connectivity to all as a public service obligation (PSO).
- D.9. Environment, Climate and Disaster Management:** Enhance creation and adoption of environment-friendly green technologies, ensure safe disposal of toxic wastes, minimize disaster response times and enable effective climate-change management programmes through use of ICTs as Bangladesh is facing the dual scourge of environmental pollution due to rising industrial and consumer wastes and also global-warming-induced climate-change due to excessive carbon emissions of the industrialized countries
- D.10. Supports to ICTs:** Develop appropriate infrastructure including power, and regulatory framework for effective adoption and use of ICTs throughout the country

## **E. Strategic Themes**

### **E.1. Social Equity:**

- 1.1** Mainstream social advancement opportunities for disadvantaged groups as an immediate priority to minimize economic disparity and bridge the digital divide for (a) lower income groups, (b) ethnic minorities, (c) women, and (d) persons with disabilities and special needs
- 1.2** Facilitate citizens' participation in local and national government, and policy making as a broad national agenda
- 1.3** Provide incentives to the private sector and NGO/CSO/CBOs to generate and share locally relevant and local language digital content and online services
- 1.4** Develop and preserve content to bolster culture, heritage and religion

- 1.5 Bring into focus children's issues, including protection of children from harmful digital content

## **E.2. Productivity:**

- 2.1 Encourage maximum utilization of ICT services nationwide to boost productivity of small, medium and micro enterprises and agriculture sector, and focus on innovation and competitiveness
- 2.2 Ensure dissemination and utilization of latest know-how and market information to increase production capability and supply chain management of agriculture through ICT applications
- 2.3 Ensure better monitoring, skills gap determination, appropriate training and modern enterprise operations to enhance productivity of large enterprises by encouraging immediate implementation of end to end applications (ERP)
- 2.4 Ensure sustainable productivity in the service sector through increased automation of operations and management information systems
- 2.5 Encourage e-commerce, e-payments, and e-transactions in general bringing in a new dimension of productivity to the economy at the earliest

## **E.3. Integrity:**

- 3.1 Ensure the use of Bangla in all ICT activities
- 3.2 Reduce harassment, time and cost of the people and ensure transparency and accountability in government service delivery by monitoring citizens' charter and making results of all services delivery public including services related to justice and law & order
- 3.3 Establish interconnectivity across government offices for effective data sharing
- 3.4 Build capacity of public functionaries and foster leadership for electronic service delivery
- 3.5 Mandate availability of all public information through electronic means and ensure sustainability of ICT-based citizens' services delivery
- 3.6 Introduce ICT-based monitoring of planning, implementation and effectiveness of development projects

## **E.4. Education and Research:**

- 4.1 Assess skills of ICT professionals and meet gaps with targeted training programmes to overcome the short-term skills shortage in the ICT industry and adopt continuing education and professional skills assessment and enhancement programmes
- 4.2 Encourage closer collaboration between academia and industry to align curriculum with market needs

- 4.3 Establish an ICT Centre of Excellence with necessary long-term funding to teach and conduct research in advanced ICTs
- 4.4 Extend the reach of ICT literacy throughout the country by incorporating ICT courses in primary and secondary education and technical and vocational education and training (TVET) programmes
- 4.5 Enhance the quality and reach of education at all levels with a special focus on Mathematics, Science and English
- 4.6 Ensure ICT Literacy for all in public service
- 4.7 Boost use of ICT tools in all levels of education including ECDP, mass literacy and lifelong learning
- 4.8 Ensure access to education and research for people with disabilities and special needs using ICT tools
- 4.9 Ensure that all universities provide global standard ICT education and introduce Postgraduate Programmes in ICT education to encourage research and innovation

#### **E.5. Employment Generation:**

- 5.1 Provide incentives for investment in local ICT industry
- 5.2 Build institutional capacity for producing greater number of IT professionals in line with domestic and global demands for knowledge workers
- 5.3 Standardize skills for local ICT industry
- 5.4 Facilitate global employment of skilled ICT workforce
- 5.5 Provide financial assistance to ICT professionals for skills development

#### **E.6. Strengthening Exports:**

- 6.1 Develop strong marketing, promotion and branding for Bangladeshi ICT products and services in global markets
- 6.2 Ensure access to finance for promising software and ITES companies
- 6.3 Develop and maintain reliable ICT infrastructure
- 6.4 Provide incentives to increase export and create industry friendly policy and enabling environment
- 6.5 Foster innovation through research and development to improve quality, process, technology, domain, value chain and niche markets

#### **E.7. Healthcare:**

- 7.1 Improve management of healthcare delivery system using telemedicine and modern technologies



7.2 Improve community awareness and access to health care facilities for all including difficult to access areas, with a special emphasis on child, maternal and reproduction health

7.3 Ensure Quality Assurance of health care services

7.4 Enhance capacity of National Health Service Delivery System

**E.8. Universal Access:**

8.1 Extend universal connectivity to all citizens as a public service obligation within 5 years

8.2 Extend internet backbone infrastructure to all district headquarters immediately at the same access cost as in the capital

8.3 Extend Internet and IP telephony services to all parts of the country within 5 years through providing incentives as stipulated in the national telecom policy

8.4 Make IP-based telecommunications ubiquitous and affordable by all through aggressive adoption of NGN and license-free regime

**E.9. Environment, Climate and Disaster Management:**

9.1 Promote entire environmental preservation including land and water resources by adopting environment-friendly green technologies

9.2 Promote entire environmental protection including land and water resources through the use of ICT tools

9.3 Protect citizens from natural disasters through ICT-based disaster warning and management technologies

9.4 Ensure safe disposal of toxic wastes resulting from use of ICTs

9.5 Promote efficient relief management and post disaster activities monitoring

**E.10. Supports to ICTs:**

10.1 Ensure reliable and cost-effective power

10.2 Create supportive legal framework for IPR protection, online document sharing, transactions and payments

10.3 Establish a Government Interoperability Framework to be adhered to by all government ICT projects

10.4 Promote the use of cost-effective, open source and open architecture solutions

10.5 Build ICT infrastructure facilities in educational institutions

10.6 Decentralize ICT growth outside the capital

**10.7** Improve education quality in IT, Mathematics and English

**10.8** Improve Internet availability and reliability

## **F. Action Plans and Funding**

The action plans are the tangible dimension of the ICT policy which will ultimately determine the degree of success or failure of the policy itself. At 306 items, the list is comprehensive, but not exhaustive. Some action items are marked with an asterisk (\*) to indicate their overarching importance in relation to others under the same objective.

The objectives and strategic themes stated above drive the action plans. The plans are grouped in tables first by the broad objectives and then subdivided under specific strategic themes. The action items have a running serial number across all objectives and tables.

Action items have indicative implementation timeframes, e.g., short-term, mid-term and long-term. Short-term is meant to be 18 months or less, mid term is meant to be longer than 18 months but not more than 5 years while long-term is meant to be longer than 5 years but not more than 10 years.

In the ICT sector, looking ahead even 2 years is a challenge as the industry is continuously evolving at a rapid pace. The short-term action items are the needs of the hour while the mid-term and long-term action items need to be aligned with the ground-realities and developments in ICTs during annual reviews of the action items.

Separate allocations have to be made in the national budget for implementing the action items. A budget line for e-governance should be created in every ministry, department, and autonomous bodies for routine ICT activities. An ICT Development Fund should be created through block grants in the annual budget to be accessed by public sector entities by a process of competition.

## Objective #1: SOCIAL EQUITY

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 1.1:</b> Mainstream social advancement opportunities for disadvantaged groups as an immediate priority to bridge the digital divide and minimize economic disparity for (a) lower income groups, (b) ethnic minorities, (c) women, and (d) persons with disabilities and special needs						
*1	Establish Community e-Centres (telecentres) initiated and operated by the private sector to facilitate access to computers, Internet and e-citizen services. Provide relevant content, pricing structure, and incentive through nominal bandwidth charges for underdeveloped areas and marginalized populations. The govt. may also provide hosting in public and local government facilities by charging nominal rent.	MoSICT, MoEst, BTRC, NGOs, district administrations	Citizens will be able to access critical services from their doorstep with reduced cost, time, and hassle.	All urban locations and upazilas covering 50% of the country's population including at least 20% of the rural communities	75% of the population	100% of the population
*2	Establish Community e-Centres in City Corporations, Upazila Parishads, Pourashavas and Union Parishads (UPs).	MoSICT, BTRC, NGOs, district administrations, LGD	Provide access to critical services within easy reach to minimize time, cost, and hassle to citizens.	100% City Corporations, 100% Upazila Parishads, 25% Pourashavas, 10% UPs	100% pourashavas, Zila Parishad, 50% UPs	all UPs
*3	Launch Citizens Helpdesk in public organisations. The host is not mandated to be physically located at the relevant public organisation. Telecom operators will have to provide low-toll/toll-free numbers for these call centres.	MoSICT, BTRC, NGOs, district administrations, LGD	Provide access to critical information through phone to minimize cost, time and hassle to citizens.	All City Corporations, Zila Parishad	All utility providers, all Pourashavas and Upazila Parishads	
*4	Provide incentives to create low-cost, affordable Bangla processing tools and software to develop searchable text and voice content from printed material with special attention to persons with disabilities and special needs	MoSICT, MoEdu, MoSW, UGC, NCTB	These technologies will benefit persons with disabilities and also most of the illiterate population who are functionally 'print-disabled'.	Dictionary, text to speech, IVR	OCR, handwriting recognition, machine translation	Voice recognition
*5	Modify ISP licenses to ensure rural connectivity through extending network and provide a mechanism such as USO fund whereby govt. can provide cash and tax incentives to ISPs providing services in rural areas	MoSICT, MoPT, BTRC	Ensure affordable and reliable rural connectivity.			

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*6	Expand the voter ID to National ID platform to be used for all citizens' services such as birth registration, passport, bank account, school enrollment, healthcare, vaccination, VGF/VGD and other social safety net programmes.	ECS, LGD, MoHFW, DPE, MoSW	Ensure that the broad foundation created by the voter ID database is reused for other critical social services, thus lowering cost and time for implementation of these services. Ensure that databases are interoperable so that policy decisions have deeper integration and cross-agency services are more effectively designed.	National ID card with identification of persons with disabilities and special needs, driving license, birth registration, passport, bank accounts, etc.	Vaccination, school enrollment, relief, land records	Other social safety net programmes
7	Enable all citizens to apply for and receive public grants electronically.	MoSICT, MoRA, MoWCA, MoSW, MoLWA	Ensure overall transparency of grant giving.			
*8	Provide access to critical public services related to livelihood and human development through online means from any location in Bangladesh.	All ministries/ divisions, Cabinet Division	Electronic delivery mechanisms will enable citizens to access critical services from their doorstep with lower cost, time, and hassle.	100 public services (2 per ministry/ division)	300 public services	All others
9	Develop special ICT literacy and training programmes for ethnic minorities	MoCA, MoCHTA, CHT Zila Parishads	Narrow the digital divide between ethnic minorities and the rest of the population.	10% of ethnic minorities	50% of ethnic minorities	100% of ethnic minorities
10	Develop web and mobile enabled e-commerce platforms indigenous artisans	MoCHTA, MoCommerce, CHT Zila Parishads, CHT Unnayan Board	Websites featuring work of remote artisans will enable buyers to contact them or buy products online, thus increasing income earning opportunities, allowing them to form effective cooperatives to market their products, and creating new job opportunities.	e-commerce site with arts and crafts	Promotion of eco-tourism	
11	Establish women's e-commerce centre to expand market access to promote women-led micro enterprises	DWA, MoIndustries, MoWCA, private sector	Increase income earning opportunities for women without leaving their localities, enable them to form effective cooperatives to market their products and services, and create new job opportunities.	Divisional HQs	District towns	Upazilas

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*12	Launch a Development TV Channel using the under-utilized terrestrial channel of BTV	MoInformati on, private sector	Broaden and deepen the distance education and awareness capacities of the government.	12 hours/day	24 hrs/day	
<b>Strategic Theme 1.2:</b> Facilitate citizens' participation in local and central government, and policy making as a broad national agenda						
13	Ensure filing of public grievances through electronic means. The government and local government authorities should provide publicly accessible responses to the grievances.	MoSICT, MoPT, BTRC, Cabinet Division, MoEst, LGD	Accepting public grievances through govt. websites and email will promote greater transparency and faster resolution to grievances.	City Corporations, Zila Parishad, Pourashavas, Upazila Parishad	50% Union Parishads	100% Union Parishad
*14	Mandate all new policies to be featured on govt. websites to collect public feedback.	All ministries	Enable greater participation of citizens in policy debates regardless of location and time.		City Corporations, Pourashavas, Upazila Parishad	Union Parishad
<b>Strategic Theme 1.3:</b> Provide incentives to the private sector and NGO/CSO/CBOs to generate and share locally relevant and local language digital content and online services						
*15	Provide grants for local language and locally relevant content development. This may include digital content for educational purposes, capacity development, dissemination of vital information relating to life and livelihood, etc.	MoInformati on, MoSICT, MoCA, MoHFW, MoA, MoEdu, MoPME, all relevant ministries	Wide benefits in providing education, training, and vital information to large segments of the population.			
<b>Strategic Theme 1.4:</b> Develop and preserve cultural content to bolster culture, heritage and religion						
16	Promote archiving and dissemination of multimedia content for indigenous culture, heritage and religion.	MoCA, National Archives, National Museum, MoCHTA, MoRA, UNESCO	Ensure permanent preservation and dissemination of important content related to indigenous culture, heritage and religion.	wiki, websites on cultural content	Computer scripts for indigenous languages (Monipuri, Chakma, etc.)	
<b>Strategic Theme 1.5:</b> Bring to focus children's issues, including protection of children from harmful digital content						
*17	Provide grants for development of content suitable for children. This may include digital content for children's education and awareness development at different levels.	MoWCA, UNESCO, UNICEF	The fun and interactive aspect of digital material will promote greater interest for learning and better knowledge retention.	Competition among companies for development of child-friendly content.		
18	Train parents on how to filter content harmful to children through websites and TV programmes.	MoWCA, MoInformati on	Help parents be prepared for protecting children from easily accessible but harmful digital content.	Websites on how to filter sites	TV programmes	Awareness programmes in schools and CICS

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*19	Train ISPs on how to detect and block sites with content harmful to children.	MoInformati on, MoSICT, BTRC	Create awareness among ISPs about the type of content to block.	Subscribe to international forums that track harmful sites	Database of local and foreign sites	
20	Create advocacy programmes to create awareness about content harmful to children.	MoInformati on, MoWCA, NGOs	Create awareness among all social actors about harm done by certain digital content and develop protective measures.	Websites with cartoons that help children understand what harmful content is	TV programmes	

## Objective #2: PRODUCTIVITY

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 2.1:</b> Encourage maximum utilization of ICT services nationwide to boost productivity of small, medium and micro enterprises and agriculture sector, and focus on innovation and competitiveness						
21	Conduct a study to understand the current status of ICT and services availability for business.	MoSICT and relevant trade organisations	Study Report benefit: determine e-readiness	✓		
22	Conduct media campaign to build mass awareness on benefit of ITES and business opportunity.	MoSICT, MoInformation, MoA, MoFL, NGOs, BASIS, BCS and media	Road shows, talk shows and relevant communications through TV, radio, other electronic media, and newspapers, will help people understand the benefit of IT usage.	District level for SMME	Union level for agriculture	
23	Arrange fairs, exhibitions & targeted workshops for local enterprises. Roadshows and other interactive programmes.	MoCommerce, MoInformation, FBCCI, SMEF and IBPC	Open up business opportunities with foreign investors	✓	✓	
24	Explore PPP education & training for developing skilled HR for improving enterprise productivity.	BCC & BSCIC MoEdu & MoSICT	Optimum PPP framework for productive resource development. Achieve required level of skilled HR to support immediate and future needs of enterprises.	✓	✓	
25	Implement ICT based model SMME (one for each category) at Dhaka and other divisional HQs.	MoSICT, BASIS, BCS	Building best practice Model in each category in each Division. Exhibit role models to inspire other SMME	in Dhaka	in all other divisions	
26	Arrange Internet connectivity up to all villages of the country	BTRC & MoPT	Maximise ICT usage	up to Upazila	up to villages	
27	Develop Agriculture, Food and SMME related content in Bangla.	MoSICT, MoA, MoFin, MoCommerce, MoIndustries, BASIS and BCS	Appropriate Bangla content. Support beneficiaries and provide access to relevant local content.	✓	✓	
28	Enable e-commerce platforms for SMMEs.	NGOs, private sector, MoCommerce, BB, MoF	PKI & e-payment gateway in operation	✓		

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
29	Develop network within communities to share indigenous knowledge and innovations related to pest management, crop preservation, etc.	MoA, MoInformation	Community Radio, telecentres, web based networks.	✓		
<b>Strategic Theme 2.2:</b> Ensure dissemination and utilization of latest know-how & market information to increase production capability and supply chain management of agriculture through ICT applications						
30	Establish SME resource centre focused on agricultural needs spanning relevant supply chain in the local context.	MoSICT, NGOs, SME Foundation and trade org.	Strategic alliance with local chamber/ telecentre	In all districts, 25% of Upazila Parishads, 5% of Union Parishads	In 100% of Upazila Parishads, 25% of Union Parishads	100% of Union Parishads , selected primary schools at village level
31	Establish e-governance in all executive layers of the society, community and Government.	MoSICT, LGRD, Youth Development Ministry and PMO	Online service delivery. Increase service delivery for SMME business.	Assessment & Planning	Implementation	
32	Arrange export fairs, exhibitions, seminars, workshops.	BEPZA, MoCommerce	Sharing of latest knowledge with all target groups and market information	Division level	District level	✓
33	Enhance the agricultural supply chain management system through business portals accessible through various electronic channels.	MoCommerce, MoIndustries, BASIS, BCS, private sector	Creation of transparent, knowledge-based trading platforms that will play a major role in reducing/ eliminating rent-seeking middlemen opportunities.  A trading and information platform spanning the entire supply chain.	✓		
34	Arrange targeted workshops with Non Resident Bangladeshis (NRB) and international research organisations for technology & knowledge transfer for productivity in the agriculture sector.	MoSICT, MoCommerce, BASIS, BCS and other Trade org.	Knowledge transfer from more mature economies/industries	Leverage the TEIN3 network.	Establish connectivity and knowledge sharing links with other international research organisations	✓



No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
35	Provide training of extension workers and farmers on updated technologies, credit schemes, etc. using ICTs.	MoA, MoFL, MoEF	Cost-effective and frequent capacity building of extension workers	✓	✓	✓
36	Provide farmer literacy and education through distance-learning, adjusted to the needs of farmers, for production and agro-processing industry.	MoA, MoFL, MoEF, NGOs, private sector	Capacity building of farmers based on local needs and accommodating seasonal calendars and other local preferences.	✓	✓	✓
37	Provide up-to-date demand-supply and market rate information on agri produce at market yards.	DAM, private sectors	Disseminate critical pricing data across the country to assist producers in getting the best possible prices.	Establish centralized price information repository with field capability for data collection.	Expand field capability. Develop analysis capacity at the central locations.	
38	Utilize GIS based soil mapping system to analyze detailed data to provide information relating to crop suitability, land zoning, nutrient status and fertilizer dosage.	SRDI	Reduce wastage and increase yield through the use of agricultural inputs based on specific soil condition.	Pilot in a few selected upazilas with data from Union Parishads	Extend to all Upazilas, 10% Union Parishads	Extend to all Union Parishads
39	Ensure timely access to livestock, poultry and fisheries disease diagnosis and prescription through remote consultation.	MoFL	Reduce business losses for the individual farmer or cooperative.	Pilot in a few district veterinary and fisheries centres with access from Union Parishads	Extend to all district veterinary and fisheries centres.	Extend to all Upazila veterinary and fisheries centres.
40	Provide access to m-banking for farmers and agro-businesses.	MoA, MoFL, MoFin, financial institutions, mobile operators	Extend the reach of conventional banking in terms of cost-effective disposal of micro-loans and micro-payments without a commensurate expansion of physical facilities and human resources.	Policy decisions. Potentially modification to existing laws, enactment of new laws. Pilot in a few areas.	Mobile phone recharge mechanism or something equally ubiquitous and cost-effective in 50% of the country	m-banking available for farmers in all parts of the country
41	Develop Internet and mobile-based trading platforms for agriculture produce for extended supply chain.	MoA, MoFL, MoCommerce				

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 2.3:</b> Ensure better monitoring, skills gap determination, appropriate training and modern enterprise operations to enhance productivity of large enterprises by encouraging immediate implementation of end to end applications (ERP)						
42	Form joint monitoring and review task force up to Upazila level.	MoCommerce, MoSICT, ICT Task Force				
43	Initiate a pilot project to promote sector based customized ERP.	MoSICT, BCC, BASIS, BCS	Improve management information productivity, and provide effective monitoring and decision support.	Implement 5 pilots in 5 sectors	Implement 10 Pilots	
44	Create strategic management consultancy capacity for productivity improvement.	Private sector, MoIndustries, MoSICT				
45	Create and disseminate e-Learning resources on Energy Efficiency, ISO competencies, Lean Six Sigma, advanced Production System, etc.	MoPEMR, MoCommerce, MoIndustries, MoSICT	Support enterprises to improve quality of services and to comply with standards.	✓		
<b>Strategic Theme 2.4:</b> Ensure sustainable productivity in the service sector through increased automation of operations and management information systems						
46	Implement ICT based automation and MIS model at Division level.	MoSICT, BASIS, BCS	End-to-end applications and content. Improve information management for higher business growth and market competitiveness.	✓	✓	✓
47	Initiate a pilot project to promote sector based customized MIS.	MoA, MoFDM, MoHFW, BASIS, and BCS	Develop an Application Services system for enterprises	Implement 3 pilots for Agri, Food & Health sectors	Implement 10 pilots	
<b>Strategic Theme 2.5:</b> Encourage e-commerce, e-payments, and e-transactions in general to bring in a new dimension of productivity to the economy at the earliest						
48	Implement ICT Act 2006 and create infrastructure for e-commerce, e-payments, and e-transactions.	MoFin, MoSICT and BB	Facilitate trade & business productivity	Frame rules & regulations for ICT Act 2006. Establish legal and infrastructural facilities for issuing CA licenses. Generate awareness on alternative options such as PGP which require no CA to operate.		

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
49	Establish Certifying Authority (CA).	MoSICT, MoFin, and BB	Ensure security in e-commerce applications.	Frame rules & regulations for payment gateway. Appoint Controller of Certifying Authority (CCA). Initiate operation and issue license.		
50	Develop capacity development programmes for the judiciary & the law enforcement agencies.	MoHA, MoEst	Introduce a separate training curriculum in PATC and respective Academy	✓		

### Objective #3: INTEGRITY

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 3.1:</b> Ensure the use of Bangla in all ICT activities						
51	Promote the use of standard Bangla keyboard and resolve related issues, if any.	BSTI, BCC, Industry Associations	Anyone using Bangla can expect to have a standard keyboard	✓		
52	Update Bangla encoding standard to align it with Unicode and ISO	BCC, BSTI, Copyright Office, Industry Associations	Encourage software vendors to use the standard encoding	✓		
53	Digitally publish all govt. publications in Bangla using a standard encoding to guarantee document portability.	MoEst	All Bangla documents will be portable across platforms, applications, and time		✓	
54	Join the Unicode Consortium as an Institutional Member	BCC, MoSICT	Bangladesh will have a direct voice in Bangla script encoding issues in Unicode		✓	
<b>Strategic Theme 3.2:</b> Reduce harassment, time and cost to the public and ensure transparency and accountability in government service delivery by monitoring citizens' charter and making service delivery results public						
*55	Develop national web portal as a "one-stop shop" for delivering e-citizen services	PMO, BCC	Citizens can obtain e-citizen services from one location instead of having to search in multiple electronic locations. Reduce confusion and rent-seeking opportunities.	✓		
*56	Enable payment of utility bills through mobile phones, banks, ATMs or other service centres from any location and at any time of the day	All utility providers	Reduce the monthly hassle, cost, and time spent paying utility bills. Govt. would benefit from increased transparency and efficiency in operations, and faster recovery of payments.	✓		
*57	Enable online status check of court cases	Supreme Court, MoLaw, Land Appeal Board	Obtaining hearing dates and other information through the web/SMS would reduce time, cost, and hassles to citizens.	Supreme Court (Appellate and High Court Divisions)	District courts	
58	Enable electronic filing of GD and FIR	MoHA	Web and SMS-based filing of GD and FIR.	All police stations of Dhaka metropolitan area	Other metropolitan cities	all police stations

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
59	Ensure access to public transport schedules, fares and ticket purchasing through the Internet and mobile phone.	MoCommunications	Enable citizens to obtain schedule/fare information without going to the station or waiting in line, thus reducing time, money, and hassle.	Railway, Biman		
60	Allow online registration and work permit for foreign investors	Bol	Increase overall efficiency in foreign investors' registration system, thus increasing foreign investment and elevating the image of the country.	✓		
*61	Allow online VAT registration	NBR	Reduce time, cost of compliance and hassle to obtain VAT registration for companies/business firms. This will also increase the taxpayers' compliance rate, which will also increase VAT collection.	✓		
*62	Allow online Tax filing. Introduce online tax payment system either collectively or successively for a whole financial year	NBR	Allowing citizens to file tax returns at their convenience from the comfort of their home will save citizens time, money and hassle, resulting in high rate of tax filing and collection.	✓		
*63	Allow online issuance/renewal of passports	Passport	Minimize or eliminate harassment by middlemen. Citizens will not have to travel long distances to collect forms or for issuing/renewal of passports.	✓		
64	Enable registration and ownership transfer of motor vehicles to be done electronically.	BRTA	Save vehicle owners from visiting multiple locations to register their vehicles. Ensure overall transparency of the system, which will authenticate the registration and contribute to reducing accident rates.	✓		
*65	Allow online issuance/renewal of driving license	BRTA	Increase efficiency of issuance/renewal system, and ensure authenticity of the document, thus reducing the number of illegal drivers.	✓		

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*66	Allow online issuance/renewal of trade license	City Corporations	Ensure transparency in the trade license issuance system since there will be no room for bribery or nepotism, thus reducing illegal trades.	✓		
*67	Allow citizens to report cases of corruption electronically	ACC	Empower citizens by giving them a voice in fighting corruption, thus helping the govt. fight corruption more effectively.	✓		
68	Allow online lodging arrangements, booking of tickets for Hajj	MoRA	Reduce hassles with logistics of Hajj, especially for those who have never been abroad, and elderly Hajjis.	✓		
69	Issue property registration certificates online	Dept of Registration	Reduce corruption by giving detailed records of individual property and assets.		✓	
70	Register businesses/NGOs online	Registrar of JSC	Reduce time and paperwork by providing rules, regulations and requirements online.	✓		
*71	Ensure quick customs clearance of cargos	NBR		✓		
72	Provide e-Assisted Consular attestation	MoFA	Enhance transparency and reliability of the system, thus reducing hassle to clients and eliminating the chance of frauds that can potentially threaten national security.	✓		
73	Establish dairy information kiosk at collection centres	RDCD	Ensure faster turn-around time for quality assurance leading to elimination of middlemen and immediate payment to farmers based on more accurate and transparent quality assessment.	✓		
74	Modernize bridge toll system	Bridge Division	Increase efficiency of toll collection and save citizens time and hassle.	✓		
*75	Launch online job bank	MoEWOE, BMET	Establish easy linkage between graduates of TTC and recruiting agencies. TTCs will be better informed about the demand-supply situation, and be able to plan accordingly.	✓		

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
76	Enable database of freedom fighters	MoLWA	Enable freedom fighters to effectively and efficiently receive various privileges offered by the govt. It will also be a document of national and historic value.	✓		
77	Allow SMS/IVR-based allocation for sugarcane farmers	MoIndustries	Establish a transparent and fair purchase system, which would save cost, time, hassle of the farmers	✓		
*78	Computerize land management and registration system	MoLand	The greatest number of criminal cases is associated with land related issues. Digitization of land records will save citizens from tremendous hassle, corruption and harassment.	All circles of Dhaka through PPP by taking lessons from Demra/ Manikganj	All DC offices and district A/C land offices	countrywide
*79	Promote online publishing of and adherence to Citizens' Charters	All ministries, divisions, departments		✓		
*80	Establish electronic payment gateway for inter-bank electronic transactions for citizens and businesses	BB	This would obviate the need for having designated banks for making electronic payments to the government. Citizens can make payments from any banks.	✓		
*81	Make all public tenders available online.	All public sector organisations	Increase transparency in government purchases.	✓		
82	Publish public procurement notices in at least one tender portal operated by the Bangladeshi ITES providers.	All public sector organisations	This will make the procurement process more transparent, easy, dynamic and cost-effective.	✓		
<b>Strategic Theme 3.3: Establish interconnectivity across government offices for effective data sharing</b>						
*83	Use ICT tools for file and information sharing among all the ministries/ divisions and departments/offices under these. Motivation and training to relevant govt. officials will be conducted	MoSICT, MoPT, BTRC, BCC	Effective information sharing will ensure more informed policy decisions. File movement can be tracked transparently.	Use of email and LAN for electronic file sharing and dissemination (not physical files)	tracking of physical files.	transformation of govt. towards electronic file processing

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*84	Create a national network for the government to connect the public organisations.	MoSICT, MoPT, BTRC, BCC	Enable electronic sharing of information across govt. offices.	Ministries, Divisions, Departments, DC offices, Upazila offices	District offices other than DC offices, Upazila offices	
85	Establish necessary policy framework and introduce IP telephony and video conferencing services in critical government offices.	MoSICT, MoPT, BTRC, BCC	Reduce, and in some cases obviate, travel time and cost for meetings.	Ministries, Divisions, Departments, DC offices	District offices with DC offices, Upazila offices	
*86	Establish National Data Resource Centre to control and manage the public network and act as a system of national databases to store and supply national data	BCC, MoSICT, Cabinet Division	Improve delivery of e-Services to citizens; ensure security of public data; improvement of data sharing and reduction of duplication across government organisations	Establishment of National Data Resource Centre	Develop capacity for national data network management	
87	Provide training to officials of all public sector organisations through web-based mechanisms and video conferencing	PATC, BCSAA, APD, BCC, regional govt. offices	Reduce, and in some cases obviate, travel time and cost for trainings.	PATC, BCSAA, BCC, BCS	Regional administrations	
<b>Strategic Theme 3.4: Build capacity of government officials and foster leadership for electronic service delivery</b>						
*88	Mandate basic computer and Internet literacy for all Class I and II appointments in all public sector organisations for practical examinations (before viva voce).	PSC, MoEst	Enable much wider and more informed ICT usage within all public sector organisations	Starting from BCS exam to be held in 2009		
*89	Add a 50-mark examination (to the current 300-mark examination) for applied computer and Internet literacy for senior scale promotion examinations for cadre services.	MoEst	Enable much wider and more informed ICT usage within govt.	Starting in January, 2010		
*90	Ensure no promotion to national pay grade 1 and 2 without demonstration of basic computer and Internet literacy.	MoEst	Enable much wider and more informed ICT usage within govt.	Starting in January, 2010		
*91	Insert new criteria for assessment of basic computer and Internet literacy in the ACR.	MoEst	Enable much wider and more informed ICT usage within govt.	Starting from January, 2010 (or before, if it can be included in the current ACR revision process).		



No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
92	Cease new stenotypist recruitment in the government. Convert all existing stenotypists to data entry operators through proper training.	MoEst, all GoB organisations	Enable much wider and more informed ICT usage within govt.	Starting in January, 2010.		
*93	Redesign ICT and e-Governance curriculum of government training academies with a distinct focus on change management and process re-engineering.	MoSICT, MoPT, BCC, Cabinet Division, MoEst	Update curriculum to be consistent with 21 <sup>st</sup> century skills for govt. officials. The training should be updated every two years. Training will include the following: 1) e-Governance leadership focusing on change management and process re-engineering 2) Basic computer and internet literacy 3) ICT Policy and Act	✓		
*94	Orient all senior public servants towards effective use of ICTs in service delivery and administration. This needs to be driven through a mandate from Cabinet Division and orchestrated by the Ministry of Establishment.	MoSICT, MoPT, BTRC, Cabinet Division, PATC, BCSAA, BCC, NIMC	Enable more informed ICT usage for administrative automation and service delivery.	✓		
*95	Develop institutional buy-in, incentive mechanisms and leadership for leveraging ICTs for service delivery with appropriate modifications to the Terms of Reference of e-Governance Focal Points and budget authority on the ICT part of the agency budget.	PMO, Cabinet Division, MoEst, MoSICT, BCC	Develop necessary high-level leadership for e-Governance and ICT-based service delivery.	Appoint Secretary in the Ministry/ Division and head of org at dept./corp. level as the e-Gov Focal Point. The Secretaries will report to the ICT Task Force for ICT Policy Implementation. The non-Secretary FPs will report to respective Secretaries.	Evolve the leadership structure with changes in the organisational structure of the govt in terms of ICT focus.	
*96	Develop ICT Cell for all public sector organisations to be run by ICT professionals. Create ICT posts for this Cell. All ICT posts in the public sector should be declared technical posts.	All government organisations, MoEst, MoSICT	Ensure sustainability of e-Governance projects; employment generation in public sector	All ministries, divisions and directorates	District and upazila level government organisations	

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*97	Develop career ladder (including <i>in situ</i> promotion) and special compensation/ incentive packages to be offered to the ICT professionals of all public sector organisations comparable to those of private sector.	MoFin, MoEst, MoSICT	Encourage ICT professionals in the government sector; strengthen ICT capacity within the government		Develop capacity in MoSICT to facilitate transfer, posting, and career management of ICT professionals in the govt.	
*98	Develop shared services for supporting and maintaining technologies within the government (system analysis, process re-engineering, support, maintenance, upgrade, project management) with additional technical allowance for ICT personnel.	PMO, Cabinet Division, Mo Est, MoSICT, BCC	Significantly improve technical capabilities of the government to initiative, implement and sustain service delivery and administrative automation projects using ICTs. Enable transfer & promotion of ICT personnel within the government with selective compensation according to market rates.	<ul style="list-style-type: none"> <li>▪ Develop ICT resource pool within the ministry structure to provide support and maintenance</li> <li>▪ Establish govt.-owned company to provide skills such as project management, process re-engineering, system analysis, etc.</li> <li>▪ Modify government procurement rules to accommodate the above.</li> </ul>	Central shared services for a cluster of ministries or all ministries	
<b>Strategic Theme 3.5: Mandate availability of all public information through electronic means and ensure sustainability of ICT-based citizens' services delivery</b>						
*99	Mandate all public information to be made accessible through appropriate electronic means including SMS and other channels.	All govt., semi-govt. and local govt. institutions	Enable citizens to access critical information on-demand in a cost effective and efficient manner.	All ministries and divisions, departments, all divisional HQs,	All directorates & agencies, all district and upazila administration	All UPs
*100	Allocate development budget at the level of each organisation on e-Governance initiatives and revenue budget for operations and maintenance of ICT-based citizens' services delivery systems	All ministries, divisions, departments		Upto 5% of ADP, 2% of revenue budget		

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*101	Promote public-private partnerships for the private sector to invest in government service delivery using ICTs	All ministries, divisions, departments	Ensure financial sustainability and reduce burden of high initial investment on the part of the government	Feasibility study based on local and domestic best practices in ICT and non-ICT sectors. Promote PPP in as many new e-Citizens' Service initiatives as possible.	Establish PPP as the preferred model of launching e-Citizen Services	
<b>Strategic Theme 3.6:</b> Introduce ICT-based monitoring of planning, implementation and effectiveness of development projects						
102	Monitor collection and disbursement of foreign aid electronically	ERD	Enhance the transparency of aid disbursement, keep track of incoming and outgoing grants while increasing the administrative efficiency	✓		
103	Assess effectiveness of development projects by exchanging dialogue with citizens using ICT.	IMED	Citizens' voices will be heard in the assessment of effectiveness and improvement of projects.	✓		
*104	Deploy computer-based project planning and resource allocation system	Planning Commission	Ensure appropriate and adequate allocation of funds and resources for effective project planning.	✓		

#### Objective #4: EDUCATION AND RESEARCH

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 4.1:</b> Assess skills of ICT professionals and meet gaps with targeted training programmes to overcome the short-term skills shortage in the ICT industry and adopt continuing education & professional skills assessment & enhancement programmes						
*105	Initiate ICT Professional Skill Assessment and Enhancement Programme (IPSAEP)	BCC, BASIS, BCS, Academia	1. More Industry ready people. 2. Increased opportunity for skilled IT workforce to get overseas jobs.	Initiate IPSAEP as a government programme in collaboration with industry and academia	Establish private entity for operations with ownership from the govt., industry, & academia	
<b>Strategic Theme 4.2:</b> Encourage closer collaboration between academia and industry to align curriculum with market needs						
*106	Develop labour market information system to assess domestic and global labour demands for education planning	MoEdu, MoLabour, MoEWOE, BANBEIS, BBS	Create market-oriented skill sets		✓	
*107	Encourage Industry affiliation & attachment programme for ICT students / graduates. Industry will offer at least 5% of their HR for internship.	ICT Industry, Academia	1. Fresh Graduates / Interns get good Industry exposure, which makes them more employable. 2. Industry can pick and choose with less HR investment.		✓	
108	Adopt need-based research projects with Industry, Academia, and Government partnership.	ICT Industry, Academia	1. Foster innovation for appropriate and sustainable technologies for our country. Industry & Academia share their knowledge, practices and experience.			✓
*109	Mandate Continuous Professional Development (CPD) through industry certifications for software design, development, quality assurance and project management	ICT Industry, Academia			✓	

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
110	Mandate Continuous Professional Development (CPD) through industry certifications for hardware and networking troubleshooting and maintenance, system integration, and network design	ICT Industry, Academia			✓	
111	Create technology transfer programmes with success indicators through the involvement of NRBS	ICT Industry, Academia, NRBS		✓		
*112	Identify market niches with global competitive advantage for Bangladesh for ICT and ITES (web and mobile content development, animation, Game Development, DTP, financial transaction processing, etc.).	ICT Industry		✓		
113	Develop marketable skills for domestic and international markets by incorporating ITES-focused short courses in TVET programmes	MoEdu, MoEWOE, ICT Industry		✓		
<b>Strategic Theme 4.3:</b> Establish an ICT Centre of Excellence with necessary long-term funding to teach and conduct research in advanced ICTs						
*114	Invest in Bio-Informatics R&D to record the genetic mapping profiles of our agricultural products		Improve the quality of education through research on latest technologies, tools, processes and QA systems	✓		
115	Provide incentives to create of subject-focused ICT centre of excellence in each university		Improve the quality of education through research on latest technologies, tools, processes and QA systems			✓
*116	Adopt industry-ready applied research projects with mandatory industry & academia collaboration using government grant facilities.			✓		
<b>Strategic Theme 4.4:</b> Extend the reach of ICT literacy throughout the country by incorporating ICT courses in secondary education and TVET programmes						
*117	Redesign the ICT literacy curriculum for secondary and higher secondary syllabus at regular intervals based on the needs of an inclusive and cost-effective knowledge society.			✓		

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*118	Ensure ICT literacy in a cost-effective way for primary and secondary students and teachers, since ICT skills have been recognized as part the 21 <sup>st</sup> century basic skills.	MoPME, MoEdu, DPs		Ensure LAN and internet connected computer labs with appropriate technical support in district secondary schools, and all model primary schools. Publish yearly impact assessment reports.	Expand such labs to all secondary schools and 25% of primary schools with electricity.	Expand such labs to 50% of primary schools with electricity.
119	Ensure ICT skills as part of TVET programmes for marketable skills development	MoEdu, MoPME, MoEWOE, DPs		Identify marketable niches for most productive ICT areas for TVET and introduce updated curriculum through TVET programmes.	Update TVET ICT programmes every three years	
*120	Ensure subsidized pricing for internet connectivity to primary and secondary educational institutions and TVET programmes	MoPME, MoEdu, MoPT, BTRC, DPs		✓	✓	
<b>Strategic Theme 4.5:</b> Enhance the quality and reach of education at all levels with a special focus on Mathematics, Science and English						
*121	Install computers, LAN, reliable Internet connectivity with reasonable speed and multimedia teacher training content for all Secondary Teachers' Training Colleges; with a special focus on Mathematics, Science and English	MoEdu, Planning Commission, DPs	Leverage ICT tools for imparting effective Teachers' Training at the secondary level with special focus in Mathematics, English, and Science subjects.	Ensure LAN and internet connectivity for Secondary education TTCs. Pilot multimedia teacher training content in all TTCs with selected schools.	Mainstream multimedia-based teacher training through TTCs and self-paced training curriculum with a strong focus on peer learning and action research.	Furnish video-conferencing for teacher training with action research as predominant mode of teacher training.

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*122	Install computers, LAN, reliable Internet connectivity with reasonable speed and develop multimedia teacher training content (emphasising Mathematics, Science & English) for all Primary Teachers' Training Institutes, like PTIs, URCs and NAPE	MoPME, Planning Commission, DPs	Leverage ICT tools for imparting effective Teachers' Training using e-learning materials in all subjects at the primary level.	Ensure LAN and internet connectivity for PTIs, URCs and NAPE. Pilot multimedia teacher training content in 10% URCs with selected schools.	Mainstream multimedia-based teacher training through all URCs and self-paced training curriculum with a strong focus on peer learning and action research.	Furnish video-conferencing for teacher training with action research as predominant mode of teacher training.
*123	Organise regular national (including at grassroots level), regional, and international competitions on ICT related topics and support participation of national teams in international events.	MoSICT, BCC, Industry, Academia	Create enthusiasm about ICT among various segments of the population, and lead to enhancement of ICT skills.	✓		
124	Provide incentives/special loans/performance-based grants to teachers to acquire ICT tools			✓		
125	Create central repository for e-Learning content for teacher training and for all students. Provide Incentives for e-Learning content development.	MoSICT, MoEdu, MoPME, PMO, Planning Commission			✓	
126	Provide students incentives for studying science at the secondary and higher secondary levels	MoEdu, DPs	More science enrollments will ensure a larger pipeline of ICT professionals.	✓		
127	Install computers, Internet connectivity and appropriate multimedia educational content for every primary, secondary & higher secondary school accessible to each student; include solar energy panels, if necessary.	MoEdu, different NGOs, DPs	Increased ICT literacy among all students.		✓	
128	Develop multimedia educational content for the secondary and higher secondary levels, and distribute to the students.	MoEdu, different NGOs	Leverage ICT tools to mitigate the shortage of good quality teachers, particularly in rural schools and colleges.		✓	
*129	Create a Model School as an Information Access Centre with ICT facilities in each union, so that all other adjacent school students can use that facility.	MoEdu, MoSICT, different NGOs	Increased ICT literacy among all students.	10% of Union Parishads	50% of UPs	All UPs

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*130	Mandate Higher Mathematics for secondary science students	MoEdu	Empower students to enroll into ICT subjects at the tertiary level.	✓		
131	Install computers, LAN, reliable Internet connectivity with reasonable speed and multimedia educational content for TVET institutions	MoEdu, MoEWOE	Leverage ICT tools for improving technical & occupational skills with minimum investment.		✓	
132	Install computers, LAN, reliable high-speed Internet connectivity for tertiary educational institutions	UGC, Universities	1. Students will become ICT enabled & effective professionals. 2. Use ICT for accessing global knowledge resources.		✓	
133	Ensure that the teachers of higher secondary level and secondary level ICT courses are at least IT graduates and IT diploma holders respectively.			✓		
<b>Strategic Theme 4.6: Ensure ICT Literacy for all in public service</b>						
*134	Ensure ICT literacy evaluation as part of public service entrance exams	Public Service Commission (PSC), MoEst	Govt. employees will be more efficient and able to deliver public services through ICT.	✓		
*135	Ensure ICT literacy evaluation as part of the Annual Confidential Report (ACR)	Public Service Commission (PSC), MoEst	Govt. employees will be more efficient and able to deliver public services through ICT.	✓		
<b>Strategic Theme 4.7: Boost use of ICT tools in all levels of education including ECDP, mass literacy and lifelong learning</b>						
*136	Create Bangla language platform for mobile applications	BTRC, Telecom companies (both operators & phone manufacturers)	Enhance adult learning through Bangla content.	✓		
137	Participate with international endeavours for social inclusion using ICT.	MoSICT, MoPME, MoEdu, DPs		Explore low-cost computer options		
138	Ensure access to Public Library Services through ICT	MoCA		Central Public Library and divisional branches	All district branches	



No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*139	Utilize mass media tools such as radio and television to broadcast educational programmes	MoPME, MoEdu, Mol, private sector, DPs		Allocate significant time slots for educational purposes in the under-utilized BTV terrestrial channel	Ensure 12-hour educational TV broadcast	Ensure 24-hour educational TV broadcast
140	Introduce ECDP for all poor rural children in regular and community schools for at least six months using multimedia tools	MoPME			✓	
141	Introduce ECDP for the children in the remote areas, including the ethnic minorities, using multimedia tools	MoPME			✓	
*142	Develop marketable skills (i.e. English, Graphics courses, etc) for domestic and international market by incorporating e-Learning in existing youth development programmes.	MoYS, MoEdu		Pilot this in 10 Youth Development Centres of the govt.	Expand this programme to all youth development centres of the govt.	
<b>Strategic Theme 4.8:</b> Ensure access to education and research for people with disabilities and special needs using ICT tools						
*143	Develop Bangla speech processing tools – text to speech (TTS), automatic speech recognition (ASR) – for print disabled community			Create the required linguistic resources	Create Bangla TTS	Create Bangla ASR
144	Develop Bangla script processing tools – optical character recognition (OCR), Braille reader – for the print disabled			Create a single-font fixed-size printed script OCR	Multi-font size independent printed script OCR	OCR for typewritten documents
145	Integrate natural language processing tools in applications					Integrate TTS, ASR, OCR in various applications
<b>Strategic Theme 4.9:</b> Ensure that all universities provide global standard ICT education and introduce Postgraduate Programmes in ICT education to encourage research and innovation						
*146	Periodic ranking of IT programmes of private and public universities by a competent body (including academia and industry) approved by UGC	UGC, BCC, IPSAEP Authority, ICT Industry	1. Encourage healthy competition for higher quality ICT education. 2. More alignment towards Industry needs.	✓		
147	Preferentially allocate private university merit-based scholarships to boost ICT-related studies	UGC, private universities	Increased enrollments of bright students in ICT related subjects to reverse the current declining trend.	✓		

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
148	Encourage industry to collaborate with universities to carry out their mid to long term research activities	ICT Industry, Academia	1. Foster innovation for appropriate and commercially feasible technologies for the ICT Industry. 2. Industry & Academia share their knowledge, practices and experience.		✓	
149	Mandate industry to have in-house R&D department. This R&D unit may collaborate with universities.	ICT Industry, Academia	1. Industry moves upward in the Value Chain. 2. Industry becomes more attractive for the talented people who want to pursue creative and challenging work.			✓
*150	Organise regular national, regional, and international conferences.	Academia	Bangladesh ICT brand gets exposure.	✓		
*151	Publish regular national journals on the various ICTs.	BCS, Academia, BCC	Bangladesh ICT brand gets exposure.	✓		
*152	Build electronic library in tertiary teaching institutions to make knowledge produced there easily available. Link to other similar institutions.	Tertiary educational institutions – govt, and private	Archive and share knowledge produced in universities.	Bring all universities including Open University under a National Research and Education Network (NREN)	Bring all colleges under National University under this network	
*153	Link all the electronic libraries to the global hierarchical research networks.	Academia, Govt, TEIN-3	Leverage global research and enrich local knowledge.	✓		
154	Create Bangladesh Computer, Communications & Electronics Society to coordinate research and development activities.	BCS, BCC	A single apex body will be able to coordinate different ICT activities more cohesively.			✓
155	Introduce ICT based defense solutions from local Industry & academia for the sake of national security	Academia, govt.	Preserve strategic independence for national defense issues.			✓
156	Establish mechanism to revise computer science curriculum at the tertiary level every two years.			✓		
157	Promote data collection through alternative channels like telecentres, for social and scientific research					✓

## Objective #5: EMPLOYMENT GENERATION

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 5.1: Provide incentives for investment in local ICT industry</b>						
158	Establish an Authority/Body on ICT Industry development	PMO, MoSICT, Industry Associations	Speed up implementation of decisions taken on the basis of ICT policy.	✓		
*159	Establish ICT Industrial Development Fund (IIDF).	PMO, MoFin, proposed ICT Industrial Development Authority	Facilitate funding of projects for software/ITES industry development by reducing the time of regular budgetary approval.	US\$ 100 Million (Tk. 700 crore)		
160	Establish a separate ICT Company Accreditation Body to evaluate company eligibility for govt. support	BCC, BTRC, proposed ICT Industrial Development Authority, Industry Associations	Accreditation will make the evaluation and approval process faster and more transparent.	✓		
*161	Establish Special Working Capital Funding at reduced bank interest rate for both local and export works	BB, MoFin and different commercial financial institutions	Solve the problem of access of finance for IT companies	✓		
162	Reimburse training cost (50%) of ICT Professionals	MoSICT, MoFin	Incentive for companies to invest in training of HR, which will enable them to employ more ICT professionals.	✓		
*163	Discount price for rent in govt. owned IT Parks, STP, Incubator, HiTech Park, Internet and other utilities	MoFin, MoPT, MoSICT, BTRC, BTCL, MoPEMR, PDB	Initial support for high prospect IT companies will enable them to overcome the early challenges of becoming competitive	✓		
*164	Ensure price preference (at least 25% for all public procurement) for local ICT products	IMED, CPTU	Ensure enough jobs for the local ICT industry	✓		
165	Create a Venture Capital fund for young ICT graduates to establish startup ICT companies	BB, BCC, financial institutions	Enable young and talented IT & business professionals with bright ideas to set up new ventures		✓	
166	Create special ICT Entrepreneurship Development Fund.	BB, financial institutions	In absence of right kind of capital/equity market, this fund (should be matched by sponsors' own equity) can play the role of source for 'long term investment fund'	✓		
167	Provide special benefit proportionate to the number of ICT professionals employed	Proposed ICT Industrial Development Authority	Encourage IT companies to grow & increase recruitment.		✓	

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 5.2: Build institutional capacity for producing greater number of IT professionals in line with domestic and global demands for knowledge workers</b>						
*168	Establish special scholarship/ education loan for science education at the secondary/higher secondary/Bachelor's level	MoEdu, BB, financial institutions	Reverse the trend of non-science education (less than 15% of higher secondary graduates are in Science group)	✓		
*169	Double the number of seats at the CS/CSE/CE departments at all the public universities	MoEdu, UGC	Increase the pipeline of HR pool for the software industry by making IT education affordable to larger number of poor students	✓		
170	Provide special incentive for IT teachers in cities to go to regional colleges (on short-term deputation)	MoEdu, UGC, National University	Ensure quality IT subject teachers outside Dhaka	✓		
171	Provide special privilege for local ICT professionals / ICT Teachers to stay in their home districts	MoEdu, UGC, MoEWOE, National University	Ensure quality IT subject teachers outside Dhaka.		✓	
172	Introduce ICT undergraduate programme at the district level colleges under National University (at least one college at every district)	MoEdu, UGC, National University	Disseminate IT education across the country and make it more affordable to poor students		✓	
173	Assess global ICT HR requirements, create existing ICT HR database. Forecast future ICT HR demands and identify national focus.	MoSICT, BASIS, BCS	Assess the demand and supply situation of IT professionals to make appropriate decisions		✓	
*174	Increase enrollment of female students in the ICT courses	MoWCA, MoEdu, MoEWOE	Ensure gender balance in ICT sector. Females are better suited for some ITS/ITES jobs.	Target Divisional & District levels	Target Upazila levels	Target Union / Village Levels
*175	Mandate ICT Industry to gradually increase their female workforce to at least 30% of total HR	Industry Associations	Ensure gender balance in ICT sector. Females are better suited for some ITS/ITES jobs.		✓	
<b>Strategic Theme 5.3: Standardize skills for local ICT industry</b>						
176	Ensure the quality of education (content, delivery, teachers) by UGC	UGC	Improve the quality and effectiveness of IT education at tertiary level	✓		

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*177	Create one-year on-the-job training programme for all ICT Graduates (under strict criteria) with 80% salary (max. Tk. 10,000 per month) reimbursed to software companies	MoSICT, MoFin	Incentive for software companies to recruit fresh graduates and train them to become skilled professionals.	✓		
<b>Strategic Theme 5.4: Facilitate global employment of skilled ICT workforce</b>						
178	Collect information on and create awareness about global ICT Employment	BASIS, BCS, BCC	Helping IT professionals to explore opportunities for global placement	✓		
*179	Provide training on foreign languages (other than English) and specialized technologies for overseas employment	BCC	Make the IT professionals more 'employable' in certain high growth markets (e.g. Japan, Korea, Germany, etc)	✓		
*180	Conduct research on global Human Resource needs vis-à-vis local capability to identify national focus	BASIS, BCS, BCC	Identify the right type of skill gaps in the global market to make the right strategic decisions		✓	
181	Create special promotional programme (by EPB, BMET, Probashi Ministry, and Foreign Labour wings, and Bangladesh Missions abroad) for high end overseas employment in IT	MoEWOE, MoFA	Promotion of Bangladeshi IT professionals in the selected markets	✓	✓	
182	Provide incentives for recruitment agents/exchanges working with ICT professionals	MoEWOE/BMET	Incentives for agents to explore new IT employment markets		✓	
*183	Create strategic roadmap for Human Resources Development for the ICT industry (both home & abroad)	BCC	This planning tool will ensure right supply of IT workforce to meet the demand, thus creating employment	✓		
<b>Strategic Theme 5.5: Provide financial assistance to ICT professionals for skills development</b>						
*184	Provide long term loan (with minimum 4 yr. grace period and max. 4% interest rate) for ICT education	BB, financial institutions	Make IT education affordable to the talented but poor students, who will be able to repay the loan after graduation	✓		
185	Provide 100% govt. scholarship in ICT Study for students getting CGPA 5 in both the secondary and higher secondary levels.	MoEdu, MoSICT	Make IT education affordable to the talented but poor students.		✓	

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
186	Provide special scholarship for ICT education (10 meritorious students from every Upazila) at the undergraduate level based on the higher secondary results.	MoEdu, MoSICT	Make IT education affordable to the talented but poor students, thus increasing the HR pool for the software industry		✓	

## Objective #6: STRENGTHENING EXPORTS

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 6.1:</b> Develop strong marketing, promotion and branding for Bangladeshi ICT products and services in global markets						
*187	Provide proper funding and priority for Competency Assessment & Strategic Roadmap of the ICT Industry for export.	MoCommerce, PMO	Attract FDI and local investment.	Prepare Competency Assessment and Roadmap	Revisit Roadmap every 2 years	
*188	Establish ICT Marketing Desk with ICT knowledgeable people at the Bangladesh Embassies in major markets.	MoCommerce, MoFA	Increase export of Software & ITES.	In USA and Sweden	In at least 5 more countries based on roadmap (e.g. UK, Japan, etc.)	In at least 20 countries.
*189	Create a Bangladesh ICT brand as a top ICT outsourcing destination (more than just logo, website, brochures and support desk to promote Bangladesh ICT)	MoCommerce, MoFA	Strategic marketing and branding will make Bangladesh ICT known to foreign buyers.	Develop a marketing plan to promote Bangladesh ICT in the international market	Promote Bangladesh ICT in international forums including news and electronic media.	
190	Participate in major ICT fairs, conferences and business linkage programmes by ensuring highest level of policy & industry level participation and allocating enough budget	MoCommerce, EPB, IBPC	Attract foreign buyers, investors, and media. Generate export leads.	Participate in fairs in 5 major countries	Participate in fairs, conferences and road shows in more than 10 major markets	Participate in fairs, conferences and road shows in more than 20 major markets
191	Invite international ICT companies, opinion leaders and journalists to Bangladesh by organizing international fairs and conferences to promote Bangladesh ICT domain and technology focus for sales & marketing. Their travel and other expenses will have to be covered to make them interested in Bangladesh.	MoCommerce, MoSICT, IBPC	Promote and enhance image of Bangladesh ICT among foreign buyers.	Invite from 5 countries.	Invite from 15 countries.	
*192	Create ICT clusters based on region, services, domain and technology focus for sales & marketing	MoCommerce, MoSICT, IBPC	Increase performance and reduce costs in production, marketing, etc. ICT clusters can learn from each other and thus improve expertise and quality.	Create a marketing cluster for European and North American markets	Create a marketing cluster for new markets; also create technology and domain clusters.	

Strategic Theme 6.2: Ensure access to finance for promising software & ITES companies						
*193	Improve EEF policy based on Industry proposal	MoFin, BB, MoSICT	Improve service delivery and speed up the process.	Revise policy with input from industry, academia and govt. agencies	Increase EEF fund allocation to meet industry demand.	
*194	Allocate collateral-free loan fund against working capital in software & ITES sector.	MoFin, BB, MoSICT	Make finance available to ICT companies to execute their projects on time.	Allocate Tk 100 crore.	Allocate more funding according to industry demand.	
195	Formulate financial policy to support and develop Venture Capital fund for the ICT sector	MoFin, BB, MoSICT	Support companies with new and innovative ideas			
Strategic Theme 6.3: Develop and maintain reliable ICT infrastructure						
*196	Provide regionally cost-competitive and reliable Internet bandwidth for everyone	MoPT, BTRC	ICT companies can get uninterrupted service.	✓		
197	Allow lease facility of the existing connectivity infrastructure (fiber, copper and other cabling set up of BTCL & other operators) to the Internet distribution.	MoPT, BTRC	Reduce cost, increase access to the Internet, reduce deployment time, increase revenue income, and avoid monopoly			
198	Provide discounted rates for bandwidth for software industry, ICT incubator or park, libraries, education & research organisations, Internet kiosks, telecentres, etc. to promote a knowledge-based society. The process of sanctioning discount should be as simple as possible.	MoPT, BTRC	Make Bangladeshi ICT companies cost effective compared to their competitors	75% discount for ICT industry		
*199	Establish more Software Technology Parks, Hi-Tech Parks and ICT Incubators all over the country.	MoSICT	Increase investment in ICT sector from local and foreign investors, make local companies cost-competitive, increase employment & export.	Set up Software Technology Park in Mohakhali		
200	Expedite the process of setting up an alternative / second submarine cable connectivity for redundancy. Ensure connectivity at the village level.	MoPT, BTRC	Ensure redundancy of Internet	Set up second submarine cable	Ensure connectivity at village level	



*201	Introduce one stop service for right of way permission, payment of fees, etc. for installation of cable and ducts by concerned authorities. Ensure nominal charges for right of way.	BTRC, MoPT	Provide fast, efficient and reliable Internet service all over the country	✓		
<b>Strategic Theme 6.4: Provide incentives to increase export and create industry friendly policy and enabling environment</b>						
202	Ensure proper implementation and updating of IPR Laws (Patent & Design, Trademark, Copyright). Strengthen IPR offices.	MoSICT, MoHA	Build confidence of global companies to outsource jobs to Bangladesh. Protect intellectual property of local and foreign companies and professionals.			
*203	Provide income tax exemption to Software & ITES sector till 2018	MoFin	Boost investment in ICT sector	✓		
204	Waive customs duty and VAT on network equipment (for data connectivity) to reduce the cost of connectivity to common people.	MoFin, MoCommerce	Reduce cost and increase connectivity	Sign WTO IT Agreement to reduce import duty and lower domestic VAT		
*205	Provide appropriate incentives to attract FDI in ICT sector	MoFin, MoCommerce, MoSICT	Foster FDI	Set up Mohakhali STP; minimize bandwidth cost		
206	Withdraw VAT from ICT services including Internet services and ICT consulting services.	MoFin, NBR	Reduce cost and increase connectivity for common people	✓		
207	Waive taxes on locally developed software to encourage exports.	NBR		✓		
208	Provide incentives for locally produced computer hardware.	NBR		✓		
<b>Strategic Theme 6.5: Foster innovation through research &amp; development to improve quality, process, technology, domain, value chain and niche markets</b>						
*209	Develop Centres of Excellence with participation of industry and academia for creation of intellectual property.	MoSICT, BCC	Improve the quality of human capital, products and services	In 5 leading universities	In 15 universities and 10 colleges	In all universities and major colleges
210	Establish International Institute for Business Analysis (IIBA)	BCC	Develop the number and quality of business analysts and system analysts to provide high value to end business customers.	Set up IIBA in Dhaka	Set up chapters in divisions	

*211	Establish Project Management Institute (PMI)	BCC	Improve the expertise and numbers of project managers through PMI	Set up PMI in Dhaka	Set up PMI chapters in divisions	
212	Provide grants for ICT research	MoSICT	Encourage research on new technologies and tools	Allocate Tk 150 crore for ICT research for innovative projects and ideas		
213	Establish High Speed Education Network all over the country for e-learning and distance education. Also start a terrestrial TV channel for education.	MoEdu, MoCommunication, MoSICT	Improve the education system by providing access to up-to-date knowledge and resources	Set up network for all universities	Set up network for colleges and some schools	Bring all educational institutions under this network
*214	Establish an institute for developing senior management in collaboration with leading business schools from home and abroad	BCC	Enhance the skills of senior management of the ICT sector and encourage them to embrace global best practices in management			

## Objective #7: HEALTHCARE

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 7.1: Improve management of healthcare delivery system</b>						
*215	Develop a national health network of all medical institutions in the public sector for availability of critical management information	MoHFW & private sector	Greater transparency and effectiveness in decision making	Pilot in one district	Establish a national network	
216	Develop database of usage, lifespan etc. for important hospital machinery and equipment like X-ray, ultrasound etc. in use in the Governmental Hospitals for proper & timely procurement thereof	MoHFW & private sector	Ensure economic return from the machines, Avoid duplication of machinery etc.	Pilot in one district	Establish a national network	
217	Develop infrastructure database for ensuring timely maintenance of governmental facilities	MoHFW & private sector		Pilot in one district	Establish a national network	
*218	Update and use database for management of doctors, alternative medical care professionals, nurses, paramedics and other health workers for posting, training and promotion	MoHFW & private sector		✓		
*219	Utilize Geographical Information Systems (GIS) to facilitate health sector planning, as well as helping to predict and identify the spread of emerging disease conditions			✓		
*220	Promote and facilitate the use of ICTs in monitoring health service delivery systems.	MoHFW		Develop appropriate software for HMIS. Train all district level staff.	Train all upazila level staff	Train all union level staffs in HMIS
221	Use ICT (mobile) facilities for monitoring, contact & discussions with among field personnel	MoHFW, private sector, NGOs				
<b>Strategic Theme 7.2: Improve community awareness and access to health care facilities for all including difficult to access areas, with a special emphasis on child and maternal health</b>						
*222	Utilize ICT and telemedicine as well as develop websites for all hospitals to spread awareness about health issues including child and maternity care, birth control and reproductive health etc.	MoHFW, MoInformation, NGOs and private sector		✓		
*223	Deliver cost effective, prompt and responsive services through remote consultation up to the Upazila levels (Helpline)	MoHFW & private sector, NGOs		Establishment of connectivity between 50% of all upazila hospitals and	Establishment of connectivity between	Establish connectivity between Union Health

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
				tertiary care hospitals	100% of all upazila hospitals and tertiary care hospitals	Centre and tertiary/district hospitals
224	Deliver cost effective, prompt and responsive services through telemedicine	MoHFW & private sector, NGOs		Establish remote tele-diagnostic centre, connected to tertiary care facility at every district town	Establish remote diagnostic centres at every Upazila	Establish remote diagnostic centres at Union/ growth centres
*225	Adopt ICTs to improve and extend health care and health information system to remote and underserved areas and vulnerable population	MoHFW & private sector, NGOs		✓		
226	Run mobile health units, especially for emergency cases, equipped with advanced medical equipments, staffed by specialists, and a high tech communication network, to which data and images from all the units can be sent electronically.	MoHFW, private sector, NGOs		Pilot in a district HQ.	Available from all district HQs	Available from all upazila HQs
<b>Strategic Theme 7.3: Ensure Quality Assurance of health care services</b>						
*227	Create ICT based networking of research and training institutions for development of standards of operation and standard operating procedures	MoHFW, private sector, NGOs		✓		
*228	Create ICT based (including video conferencing) monitoring of critical services provided in the health system through such institutions mandated for the purpose.	MoHFW, private sector, NGOs		✓		
229	Create ICT based monitoring of drug quality in the country.	MoHFW, private sector, NGOs		✓		
230	Create ICT based monitoring of diagnostic (pathology and other testing) facilities in the country	MoHFW, private sector, NGOs		✓		
<b>Strategic Theme 7.4: Enhance capacity of National Health Service Delivery System</b>						
231	Provide health professionals with access to global health knowledge and research resources through ICT	MoHFW, private sector, NGOs		Develop ICT based audio-visual content for skill development and make the district hospital as the resource centre for the whole district	Train all health service providers	

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*232	Use ICT based contact for critical medical advice/ peer review/ suggestions in hospitals	MoHFW, private sector, NGOs		Pilot one national call centre	Expand to regional call centres at the divisional HQs	Expand to district call centres
*233	Develop ICT based networking of medical based organisations for sharing of information	MoHFW, private sector, NGOs				
234	Promote innovative use of ICT for cost-effective diagnosis and treatment.	MoHFW				

## Objective #8: UNIVERSAL ACCESS

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 8.1:</b> Extend universal connectivity to all citizens as a public service obligation						
*235	Increase teledensity	Telecom operators, ISPs, BTRC, MoPT			70%	90%
*236	Increase broadband connectivity : 30% by 2015, 40% by 2018	Telecom operators, ISPs, BTRC, MoPT			30%	40%
*237	Develop a policy and fund for Universal Access Obligation	BTRC, MoPT		✓		
<b>Strategic Theme 8.2:</b> Extend Internet backbone infrastructure to all district headquarters immediately at the same access cost as in the capital						
238	Launch country satellite	BTRC, MoPT, private sector				✓
239	Establish new submarine connectivity (for redundancy and capacity enhancement)	BTRC, MoPT			✓	
240	Reduce right of way charges charged by DCC and other authorities for installing broadband fixed networks			✓		
241	Make internet access charges from all DDN points throughout the country equal			✓		
<b>Strategic Theme 8.3:</b> Extend Internet and IP telephony services to all parts of the country within 5 years through providing incentives as stipulated in the national telecom policy						
242	Introduce number portability for better telecommunication customer service	BTRC			✓	
243	Introduce toll-free numbering	BTRC			✓	
244	Provide IP telephony license to ISP			✓		
245	Make IP to IP calls charge free as customers will have paid for Internet access already to use IP telephony			✓		
<b>Strategic Theme 8.4:</b> Make IP-based telecommunications ubiquitous and affordable by all through aggressive adoption of NGN and license-free regime						
*246	Introduce 3G services for better and faster data, multimedia and voice communication	BTRC, Telecom operators		✓		

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*247	Introduce a simplified telecomm licensing regime	ICT Task Force, MoPT	Remove barriers of introducing new services to help facilitate broader services categories in a quick & transparent manner		Introduce international standard guidelines for spectrum allocation and allow trading of spectrum	
*248	Create Broadband Wireless Access network (through WiMax and/or other modern technologies) throughout the country	Telecom operators, ISPs, BTRC, MoPT			✓	

## Objective #9: ENVIRONMENT, CLIMATE & DISASTER MANAGEMENT

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 9.1: Promote environmental preservation by adopting environment-friendly green technologies</b>						
*249	Mandate energy-saving and low-power-consumption ICT devices for govt. procurement based on pre-determined, internationally accepted consumption benchmarks.	All ministries/divisions		Develop awareness for procurement and use. All govt. machines will use built-in energy-saving devices.	100% of all govt. ICT procurement will be energy-saving devices	
250	Set and enforce regulatory standards to control dumping of ICT devices to prevent electronic waste. Establish safe disposal and recycling mechanisms and organisations.	MOSICT, BCS, BCC				
251	Reduce use of paper in offices by increasing electronic communication, file processing, information sharing and archiving.	All government offices		Replace paper based communication system with an ICT based one in the PMO	All Ministries and Divisions	All Govt. Offices
<b>Strategic Theme 9.2: Promote environmental protection through the use of ICT tools</b>						
*252	Utilize remote sensing technologies and communication networks for more effective monitoring, resource management and mitigation of environmental risks, e.g. GIS to combat illegal logging, illegal fishing, to help forest protection, land degradation, water quality, etc.			Monitor illegal fishing using remote sensing facilities in the major ports with the help of coast guards	Stop illegal deforestation and trade of valuable wildlife with the help of forest officials	All areas where GIS may be applicable for monitoring activities related to environmental protection
253	Increase access to/awareness of sustainable development strategies in areas such as agriculture, sanitation and water management, mining, etc.					



No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*254	Ensure greater transparency and monitoring of environmental abuses/enforcement of environmental regulations.					
255	Develop modeling tools for assessment of risks and developing a National Action Plan for Adaptation (NAPA) for climate-change	PMO, MoEF, MoWR, MoA, MoFL, NGOs, academia, CEGIS				
256	Report environmental pollution through ICT networks by public-private partnership	NGOs, MoEF				
257	Develop technical and intellectual skills of forest officials on necessity of wildlife preservation and utilization of various tools available to them through CBTs and/or Distance Learning.					
258	Raise awareness and train city corporation officials on effective & humane methods to stabilize (not eliminate) street animal population as part of city planning and urban development.					
<b>Strategic Theme 9.3:</b> Protect citizens from natural disasters through ICT-based disaster warning & management technologies						
*259	Utilize remote sensing technologies for disaster management and mitigation.	MoFDM, Dept. of Meteorology, SPARRSO, MoDefense			✓	
*260	Web-based environmental clearance certification system	MoEF		Green	others	
*261	Promote cell phone/SMS-based disaster warning systems targeted to the population likely to be affected	DMB, DMIC, BTRC, ATOB, BMetD, BDRCS, NGOs		100%		

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
*262	Utilize GIS based systems to monitor flood & cyclone shelters (including equitable distribution in vulnerable areas)	MoFDM, MoWR			✓	
<b>Strategic Theme 9.4: Ensure safe disposal of toxic wastes resulting from use of ICTs</b>						
263	Build plants for cannibalizing old PCs and ICT accessories to extract precious metals.				✓	
<b>Strategic Theme 9.5: Promote efficient relief management and post disaster activities monitoring</b>						
*264	Utilize GIS based systems to ensure equitable distribution of relief goods with special focus on the hard-to-reach areas.	MoFDM, MoA, MoDefense			✓	

## Objective #10: SUPPORTS TO ICTs

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 10.1: Ensure reliable and cost-effective power</b>						
265	Ensure availability of electricity supply all over the country according to current demand and ensure fulfilling future demand	MoPEMR				
*266	Govt. funded replacement programme of conventional light with energy saving light in 10 years	MoPEMR	Reduce consumption of electricity, thereby reducing load shedding.			
*267	Provide incentives for use of alternative energy sources such as solar, wind, bio-fuel, etc.	MoPEMR	Enable more people to use technology. Serve as backup power source for computers and network equipment.			
268	Ensure uninterrupted power supply in Incubator/Hi-tech Park/Software Technology Park/IT Park	MoPEMR	Enable ICT industry production to run smoothly.			
269	Reduce tax on power generator, solar panel, IPS, UPS/Online UPS, battery used in IPS/UPS	NBR	Minimize the cost of backup power systems.			
270	Encourage private investment in power generation and provide same facilities and benefits as the govt.	Bol, MoPEMR	Ensure more power generation.			
271	Encourage R&D for efficient power consumption.	MoPEMR	Find ways to produce small unit substitute power for ICT use			
272	Minimize system loss	MoPEMR	Minimize power distribution systems loss			
273	Introduce prepaid meter	MoPEMR				
<b>Strategic Theme 10.2: Create supportive legal framework for IPR protection, online document sharing, transactions and payments</b>						
274	Implement payment gateway	MoSICT, BB	Open the window for online transactions, and reduce traffic on roads as people can get many required services online.			

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
275	Introduce Cyber police	MoSICT, MoHA & MoLaw	Ensure cyber security.			
276	Implement ICT Act 2006 (electronic signature, certification authorities, etc)	MoSICT & MoLaw	Open up online transactions and e-commerce.			
277	Introduce special tribunal for handling Cyber Crime and IPR violation.	MoSICT & MoLaw	Ensure cyber security and IPR law enforcement			
278	Establish additional Internet Exchanges	MoSICT	Minimize wastage of expensive international bandwidth			
279	Update Patent and Design Act	MoIndustries	Allow software patents and designs to be registered			
280	Introduce an Act so that procurement and recruitment notices for the public sector are published in the relevant service web portals. Allow submission of bids and job applications online.	MoEst, PSC, CPTU, MoSICT, MoPlanning, MoInformation	Ensure that the procurement and recruitment process is more transparent, easy, dynamic and effective. Expedite the "E-Governance" policy of the government.	✓		
*281	Introduce and enforce Electronic Fund Transfer Act, Cyber Crime Act, and Competition Ordinance	MoFin, BB, MoCommerce, MoLaw	Facilitate secured electronic transactions to enable citizens to pay through electronic means			
*282	Review and amend ICT Act 2006 or its rules to address unaddressed or under-addressed issues	MoSICT, MoLaw		Address stamp duty for e-documents in accordance with Stamp Act 1899, Evidence Act 1872 & Power of Attorney Act 1882; and for the registration of e-documents under the Registration Act 1908		

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 10.3: Establish a Government Interoperability Framework to be adhered to by all government ICT projects</b>						
283	Develop GIF for all ICT projects	MoSICT, BCC	Reduce duplication of data and systems; develop ability to share data and software across government agencies	Specifications and working solutions with e-GIF standards	Introduce National Enterprise Architecture (NEA)	Establish NEA for all e-Governance projects
284	Develop training for ICT professionals on how to use the GIF	MoSICT, BCC, BASIS, BCS	Ensure GIF is followed in e-Governance implementations	✓		
285	Create a support structure for GIF issues	MoSICT, BCC	Ensure sustainability of GIF usage	✓		
<b>Strategic Theme 10.4: Promote the use of cost-effective, open source and open architecture solutions</b>						
286	Build awareness about IPR and open source in all government institutions, recognized associations, schools/colleges/universities	MoSICT, MoEnergy, Trade Bodies, NGOs	Ensure easy implementation of IPR laws, and spread awareness about low cost open source solutions where feasible			
287	Build awareness on the usability of open source and proprietary software from a business perspective, especially with regard to Total Cost of Ownership (TCO). Whenever the business case from a TCO perspective favors open source, it should be given preference.	MoFin, MoPlanning, CPTU	Open source options have lower or no licensing costs; freedom to customize for localization and other specific govt needs.	30% of all government institutions to be given guidelines on how to evaluate TCO and be provided with training.	70%	100%
288	Introduce open source in all educational institutes to enhance learning and knowledge creation.	MoEdu, MoPlanning	Eliminate unwanted software piracy and prepare better knowledge workers at all levels.	40% of the all educational institutes will run on open source operating systems, office tools, & educational software	80%	100%
289	Introduce open source operating system, tools & office applications in public sector organisations.	MoFin, MoPlanning, CPTU	Open source options have lower or no licensing costs; freedom to customize for localization and other specific govt needs.	10% of all the govt IT infrastructure will run on open source operating systems & tools	30%	60%

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
290	Establish open source R&D centre in collaboration with Industry and Academia.	MoSICT	Contribute to open source world; understand strengths and weaknesses of open source			
291	Implement govt. ICT projects, preferably by outsourcing.					
<b>Strategic Theme 10.5: Build ICT infrastructure facilities in educational institutions</b>						
292	Establish one computer lab for each school and college with at least 20 computers.	MoSICT	Enable all students to have general knowledge of computers & software and their benefits			
293	Provide 1 mbps free Internet connectivity in each school and college programme	BTRC	Give students access to global knowledge to compete in a globalized world			
294	Increase the capacity of science departments in all schools & colleges with enough lab facilities and teachers	MoSICT	Increase science enrolment			
295	Establish a long term Corporate Social Responsibility (CSR) programme to donate new and old PCs.	MoF, MoCommerce, FBCCI				
<b>Strategic Theme 10.6: Decentralize ICT growth outside the capital</b>						
296	Decentralize govt activities using high speed data connectivity and automation (e-governance).	MoFin, MoPlanning	Increase demand for software and technology use, and balance growth and social equity			
297	Develop optical fiber network up to Upazila level.	MoSICT & BTRC	Enable general people to get connected.			
298	Provide facilities to ISPs, Data Connectivity providers, Housing and infrastructure builders to increase the market in other cities of the country.	MoSICT & BTRC	Enable general people to get connected.			

No.	Action Item	Primary Actors	Expected Deliverables & Benefits	Short Term	Mid Term	Long Term
<b>Strategic Theme 10.7: Improve education quality in IT, Mathematics and English</b>						
299	Create programme for special teacher training in Mathematics and English	MoEdu	Improved quality of Mathematics and English will produce better students for science education			
300	Create programme for one library in each school & college with enough books on IT (>100 titles in each on IT)	MoEdu	Give all students access to knowledge of ICT			
301	Standardize the salary scale of Science Subject teachers over others in govt. and semi-govt. schools & colleges.	MoEdu	Make good teachers available for science education			
<b>Strategic Theme 10.8: Improve Internet availability and reliability</b>						
302	Add at least 2 more submarine cables for better international connectivity using the private sector, ensuring competitive environment	BTRC	Secure, quality and competitive Internet supply for growth of ICT use and export			
303	Reduce the retail price of Internet (ISPs and mobile Internet using GPRS/EDGE/3G technology)	BTRC	Give citizens the benefit of Internet at an affordable price			
304	Make Internet affordable for common people	BTRC	Give citizens the benefit of Internet at an affordable price			
305	Implement broadband policy	BTRC	Encourage growth of ICT around the country rather than in a single city			
306	Open up WiMAX for licensing	BTRC	Provide faster Internet coverage for greater number of people, including IP telephony service, etc.			

## Appendix: Acronyms and Abbreviations

3G	Third Generation of mobile phone technology
A/C Land	Assistant Commissioner, Land
ACC	Anti-Corruption Commission
ADP	Annual Development Program
AMTOB	Association of Mobile Telephone Operators of Bangladesh
APD	Academy for Planning and Development
ASR	Automatic Speech Recognition
BANBEIS	Bangladesh Bureau of Educational Information and Statistics
BBS	Bangladesh Bureau of Statistics
BASIS	Bangladesh Association of Software and Information Services
BB	Bangladesh Bank
BCC	Bangladesh Computer Council
BCS	Bangladesh Computer Society
BCSAA	Bangladesh Civil Service Administration Academy
BDRCS	Bangladesh Red Crescent Society
BEPZA	Bangladesh Export Processing Zones Authority
BMET	Bureau of Manpower Employment and Training
BMetD	Bangladesh Meteorological Department
Bol	Board of Investment
BRTA	Bangladesh Road Transport Authority
BSCIC	Bangladesh Small and Cottage Industries Corporation
BSTI	Bangladesh Standards and Testing Institution
BTCL	Bangladesh Telecommunications Company Ltd.
BTRC	Bangladesh Telecommunication Regulatory Commission
BTV	Bangladesh Television
CAO	Chief Adviser's Office
CBO	Community Based Organisation
CBT	Computer Based Training
CCA	Controller of Certifying Authority
CEGIS	Centre for Environmental & Geographic Information Services
CHT	Chittagong Hill Tracts



CIC	Community Information Centre
CPTU	Central Procurement Technical Unit
CS/CSE	Computer Science / Computer Science & Engineering
CSR	Corporate Social Responsibility
CSO	Civil Society Organisation
DAM	Department of Agricultural Marketing
DC	Deputy Commissioner
DCC	Dhaka City Corporation
DMB	Disaster Management Bureau
DMIC	Disaster Management Information Centre
DP	Development Partner
DPE	Directorate of Primary Education
DTP	Desktop Publishing
DWA	Department of Women Affairs
ECDP	Early Childhood Development Program
ECS	Election Commission Secretariat
EDGE	Enhanced Data Rates for GSM Evolution
EEF	Entrepreneurship Equity Fund
EPB	Export Promotion Bureau
ERD	Economic Relations Division
ERP	Enterprise Resource Planning
FBCCI	Federation of Bangladesh Chambers of Commerce and Industry
FDI	Foreign Direct Investment
FIR	First Information Report
GD	General Diary
GIF	Government Interoperability Framework
GIS	Geographical Information Systems
GNP	Gross National Product
GoB	Government of Bangladesh
GPRS	General Packet Radio Service
HMIS	Health Management Information System
HQ	Head Quarters
HR	Human Resources

HSC	Higher Secondary Certificate
IBPC	ICT Business Promotion Council
ICT	Information and Communication Technology
IMED	Implementation Monitoring and Evaluation Division
IP	Internet Protocol
IPR	Intellectual Property Rights
IPS/UPS	Independent Power System/Unified Power System
IPSAEP	ICT Professional Skill Assessment and Enhancement Program
ISO	International Organisation for Standardisation
ISP	Internet Service Provider
IT	Information Technology
ITES	Information Technology Enabled Services
IVR	Interactive Voice Response
JSC	Joint Stock Companies
LAN	Local Area Network
LDC	Least Developed Country
LGD	Local Government Division
LGI	Local Government Institution
LGRD	Ministry of Local Government, Rural Development and Co-operatives
MoA	Ministry of Agriculture
MoCA	Ministry of Cultural Affairs
MoCHTA	Ministry of Chittagong Hill Tracts Affairs
MoCommerce	Ministry of Commerce
MoCommunications	Ministry of Communications
MoDefense	Ministry of Defense
MoEdu	Ministry of Education
MoEF	Ministry of Environment and Forest
MoPEMR	Ministry of Power, Energy and Mineral Resources
MoEst	Ministry of Establishment
MoEWOE	Ministry of Expatriates' Welfare & Overseas Employment
MoFA	Ministry of Foreign Affairs
MoFDM	Ministry of Food and Disaster Management
MoFin	Ministry of Finance

MoFL	Ministry of Fisheries and Livestock
MoHA	Ministry of Home Affairs
MoHFW	Ministry of Health and Family Welfare
MoIndustries	Ministry of Industries
MoInformation	Ministry of Information
MoLabour	Ministry of Labour and Employment
MoLand	Ministry of Land
MoLaw	Ministry of Law, Justice and Parliamentary Affairs
MoLWA	Ministry of Liberation War Affairs
MoPME	Ministry of Primary and Mass Education
MoPT	Ministry of Post and Telecommunications
MoRA	Ministry of Religious Affairs
MoSICT	Ministry of Science and Information & Communication Technology
MoSW	Ministry of Social Welfare
MoWCA	Ministry of Women and Children Affairs
MoWR	Ministry of Water Resources
MoYS	Ministry of Youth and Sports
NAPE	National Academy for Primary Education
NBR	National Board of Revenue
NCTB	National Curriculum and Textbook Board
NGO	Non Governmental Organisation
NGN	Next Generation Networking
NIMC	National Institute of Mass Communication
NRB	Non-Resident Bangladeshi
OCR	Optical Character Recognition
PATC	Public Administration Training Centre
PDB	Power Development Board
PGP	Pretty Good Privacy
PKI	Public Key Infrastructure
PMO	Prime Minister's Office
PPP	Public Private Partnership
PSC	Public Service Commission
PTI	Primary Training Institutes

QA	Quality Assurance
R&D	Research & Development
RDCD	Rural Development and Cooperate Division
SME	Small and Medium Enterprise
SMEF	Small and Medium Enterprise Foundation
SMME	Small, Medium, and Micro Enterprises
SMS	Short Message Service
SPARRSO	Bangladesh Space Research and Remote Sensing Organisation
SRDI	Soil Resource Development Institute
SSC	Secondary School Certificate
STP	Software Technology Park
TEIN-3	Trans-Eurasia Information Network
TTC	Teachers Training College
TTS	Text to Speech
TVET	Technical and Vocational Education and Training
UGC	University Grants Commission
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
UNICODE	The Unicode Consortium
UP	Union Parishad
URC	Upazila Resource Centre
USO	Universal Service Obligation
VAT	Value Added Tax
VGD	Vulnerable Group Development
VGf	Vulnerable Group Feeding
WiMAX	Worldwide Interoperability for Microwave Access
WTO	World Trade Organisation