

## Information and Communication Technology

### Background

Policy reforms for improvement of economic governance and development are a sustained agenda for Bangladesh. Bangladesh's experience in policy reforms have gone through an evolution process. The experience of Structural Adjustment Programme under the aegis of the World Bank and IMF and international agencies supposed to be implemented under the various aid conditionalities could not bring desired outcome. In many cases, those reforms brought devastating consequences for the economy. The demand for home-grown policy agenda was increasing and Bangladesh's civil society also became more pro-active in this regard. There was also some positive developments in the political arena, like announcement of election manifestos by all major political parties prior to the national election. CPD initiated to gather all concerned civil society stakeholders under a common platform before the national election in 2001 in a "National Policy Forum" for influencing the election manifestos, which received extra-ordinary response from all corners of the civil society. The forum was a demonstration of the desire of civil society to have home-grown policy reforms for economic development. The policy forum was also taken very seriously by the then government and opposition, which was demonstrated by the participation of leading political figures from both the government and the opposition and the caretaker government. The National forum was chaired by the President of republic. As a whole, the Policy Forum was an eye-opening experience for all concerned with the development issues. Subsequently, the incumbent government announced a 100 day programme to implement some priority issues. Some of the recommendations made by the Task Forces, which was validated by the public consultation across the country, already found reflection in the various policy documents of the incumbent government, although progress in their implementation had been rather wanting.

It was felt that home-grown participatory policy design is a continuous process and thus revisiting the policy recommendations at this point in time would be most useful from the perspective of providing inputs to the possible mid-course corrections of the Government's ongoing policy formation and implementation activities. Furthermore, the Government is currently engaged in the preparation of a *Poverty Reduction Strategy Paper* (PRSP) and it is essential to undertake an audit of the extent to which the concerns espoused by the Policy Briefs has been taken note of the envisaged document. Thus CPD has undertaken a Policy Review Programme and reconvened and reorganized the Task Forces which were formed in 2001. The Task Forces have prepared policy review documents on each of the area identified, which have been validated by a wide participation of all concerned stakeholders across the country. The culminating event of this exercise is the *National Policy Review Forum* (2003) where the policy review reports of the Task Forces are now presented.

The ICT Task Force decided that the Policy Review Report will comprise of the following three components:

1. Review of recommendation of CPD Task Force Report, 2001;
2. Autonomous Policy Measures undertaken by the Government; and
3. Revised Recommendations.

### **Policy Review report Preparation Process**

The ICT Task Force of 2001 consisted of 11 members representing ICT industry, academics, telecom experts, policy makers, and activists. The reconvened Task Force of 2003 has been restructured for making it more representative. The 14-member Task Force of 2003 includes presidents of Bangladesh Computer Samity (BCS), Bangladesh Association of Software and Information Services (BASIS), ISP Association of Bangladesh, Bangladesh Mobile telecom Operators' Association and Executive Director of Bangladesh Computer Council. Since convening the Task Force, the members met four times to prepare the *Policy Review Report*. On May 03, 2003 the Task Force presented the draft report in a *Regional Consultation Meeting* in Khulna for its validation. The recommendations from the regional consultation have been incorporated in the current draft. The report will be finalised after validation in the National Policy Review Forum.

### **I. REVIEW OF THE RECOMMENDATIONS OF THE TASK FORCE, 2001**

In the Pre-election policy brief prepared by the ICT task Force, 2001 a comprehensive policy document was prepared, which provided 210 broad and specific action agenda under eleven important areas of intervention by the government. The policy brief also suggested the urgency of implementation by mentioning time frame of implementation and potential initiating and implementing agencies.

Since the new government came into power, it undertook specific decisions to move forward the ICT for development and some progress have been observed during the period. The statistics of number of recommendations addressed by the government are presented in the table 1.

**TABLE 1: RECOMMENDATIONS ADDRESSED BY THE GOVERNMENT**

<b>Policy Area</b>	<b>No. of Recommendations</b>	<b>No. of Recommendations Addressed</b>
Information Infrastructure	81	<b>9</b>
Human Resource Development	43	<b>2</b>
ICT Economy	46	<b>7</b>
Acceleration of Poverty Alleviation through ICT	11	<b>0</b>
ICT and Government	21	<b>3</b>
Others	10	<b>0</b>
<b>Total</b>	<b>210</b>	<b>22</b>
<b>Share (Per cent)</b>	<b>100</b>	<b>10.48</b>

From the above table one can see that the government addressed only 10 per cent of the action agenda recommended by the ICT Task Force. Out of 22 recommendations, addressed by the government, only 7 have been implemented fully during the period. The government addresses the policy areas like information infrastructure, human resource development, ICT Economy, ICT and Government; the issues of poverty alleviation through use of ICT and other issues have been ignored completely. The other issues included, *inter alia*, digital empowerment of women.

### **Hundred Days Programme of the Government**

For the first time in the history of Bangladesh, the incumbent government announced a “100 day programme”. In the 100 day programme ICT received some attention. Specifically, under the “Infrastructure Development” programme the pledge about “taking up initiative for setting up cyber club in the major district towns with a view to building up computer networking”- was announced. Besides, the government announced to organize international seminar for increasing youth’s interest in computer. Till date no initiatives for setting up cyber club in the district head quarters have been observed. However, an international seminar was organized in 2002, which was actually planned before election. The items included in the “100 day Programme” was not any major agenda item which was demanding for immediate action or which was demanded by the stakeholders before the election. Nevertheless, the inclusion of ICT related issues was a welcome development. The Task Force hope that in future the political parties will give more attention to the ICT issues in the pre-election manifestos and “100 days programme”.

### **ICT Policy Adopted by the Government**

One of the major developments in the ICT sector during the tenure of the current government is the adoption of the ICT Policy by the Cabinet of Ministers on October 07, 2002. Despite the suggestions from all quarters, the policy document did not reflect the aspiration of the society. Furthermore, the document carried the trace of hasty preparation, policy elements and action agenda have been mixed up. The language and structure of the policy was also very poor to be a government document. There are some apparently inconsistent statements found in the ICT Policy. The policy document also set some unrealistic goal, like “building an ICT-driven nation comprising of knowledge-based society by the year 2006.” The objectives of the ICT Policy were mainly business focused. The policy did not contain any objective of poverty alleviation through use of ICT. Other important areas were also missing from the policy document, like gender issues, competition issues, convergence of technology issues etc. The language “should be” in the policy document is a misnomer of highest level, which should be immediately rectified.

Despite the weakness of the document it contain a number of items which was proposed in the Policy Brief 2001.

## Reflection of ICT Agenda in PRSP

The PRSP is perceived to be the “home-grown policy agenda” for economic development. Currently the third version of the IPRSP is under discussion. Unfortunately the I-PRSP has given very limited attention to the ICT as an effective mechanism for poverty alleviation.

Only two related policy objectives have been found in the whole I-PRSP document, which are given in table 2.

**TABLE 2: ICT RELATED POLICY AGENDA IN I-PRSP**

Strategic Goals/ Policy Objectives	Actions Already Taken	Medium Term Agenda	
<p><i>Technology Policy</i> 1. Promote ICT with wider access to all.</p>	<ul style="list-style-type: none"> <li>• A Task Force on ICT has been set up and is operational.</li> </ul>	<ul style="list-style-type: none"> <li>• Adopt a comprehensive technology policy and draw up action plan to implement it.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to implement the technology policy.</li> <li>• Enhance technological capability in the public sector and remove barriers in the private sector through a well-defined institutional infrastructure for delivery and adoption of new technology.</li> </ul>
<p><i>Telecommunication</i> 1. Widen the telecommunication network at low cost.</p>	<ul style="list-style-type: none"> <li>• A Telecommunication Regulatory Commission has been established.</li> </ul>	<ul style="list-style-type: none"> <li>• In telecommunications, create policy and regulatory environment with separate policymaking, regulatory and operation functions; introduce reforms in BTTB to provide quality and competitive services.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue reforms to make the sector more efficient and cost effective.</li> </ul>

**Source:** Ministry of Finance. 2003. *BANGLADESH: A National Strategy for Economic Growth, Poverty Reduction and Social Development*. Economic Relations Division, Government of the People’s Republic of Bangladesh, March, 2003

**Task Force Comment on I-PRSP:** The focus of poverty alleviation through ICT should be given appropriate importance. The stakeholder consultation on the ICT issues has not taken place under the PRSP exercise. The Task Force demands the inclusion of the ICT in the PRSP document on the basis on the basis of the revised report.

In the last column of telecom agenda the TF proposes following addition: Widen Telecommunication Network by utilizing latent capacity of Public infrastructure by Private entrepreneurs [e.g., Use of Power Pylons of PDB by Private Licensed Telecommunication Operators to establish countrywide Fiber Optic Cable networks]

## I. REVIEW OF RECOMMENDATION OF CPD TASK FORCE REPORT, 2001

The following text contains the actions taken by the government since October, 2001. The structure of the presentation is as follows: initially the government action is presented with date of its public announcement or implementation. It is followed by the relevant action

agenda item of the Task Force report of 2001. Finally, the comments of the Task Force follows the citation of the Task Force report, 2001.

### **I. 1. Information Infrastructure**

1. Bangladesh joined the submarine cable network consortium which will link Bangladesh with Southeast Asia, Middle East and Western Europe (SEA-ME-WE). Bangladesh will be exempted from the costs of landing station equipment. Budgetary cost of this project is US\$ 720 million, which would be equally shared by all members. Bangladesh would pay between US\$50 to \$60 million to join this transcontinental network. Bangladesh will not have to pay in advance for the link with SEA-ME-WE 4. The SEA-ME-WE 4 is scheduled to be operational by the first quarter of 2004. **May 12, 02**

**Task Force Recommendation 2001: Action 2.9.6. [page 18].** High-speed data link for connecting Bangladesh with the Global Information Superhighway should be immediately established.

**Comments:** Regulator needs to determine policy and arrangements for connection to the network. It is not clear who will own the network. If the network is owned by the BTTB, then BTRC needs to ensure that the BTTB is obliged to provide access to other operators as they emerge.

2. The Bangladesh Telecommunication Regulatory Commission (BTRC) is reported to have submitted a proposal for legalization of Internet telephony to the Prime Minister through the Ministry of Post and Telecommunications (MoPT). **January 2 2003**

**Task Force Recommendation 2001: Action 2.2.7. [Page 10].** All restrictions on voice and data communications should be withdrawn. Private operators should be allowed to set up international gateway for voice communications.

**Comments:** The BTRC proposal is being examined by the MOPT, which should be expedited. Because, the illegal VOIP is affecting revenue of the BTTB. There has not been a sensible interconnection regime, which can secure the new investments in the international gateway business. At the same time, the currently operating illegal VoIP providers also have to be marginalized. Otherwise, the new operators will keep on bleeding like BTTB.

It should be recognised that this is a complex area and the Task Force recommends to commission a study on the options for liberalization of the fixed line sector – international, long distance and local. There should be multi-lateral consultation with the stakeholders on the facts and simulations that the proposal will not hamper (or the extent to which it will – unlikely it will not lead to a decline in BTTB international revenues) the interest of the BTTB and MOPT, rather would increase service base, which would bring more revenue in form of license fee. However, it will depend on

the licensing policy to be adopted. The Task Force argues that most countries give VOIP authorisation away for free.

3. The Bangladesh Telecommunication Regulatory Commission (BTRC) submitted a proposal to provide two licences for fixed line phones operators in the private sector to the prime minister through the Ministry of Post and Telecommunications (MoPT). It also proposed that the licences be awarded to the private sector through international competitive bidding. **January 2 2003**

**Task Force Recommendation 2001: Action 2.3.4. [page 11].** Encourage where appropriate new operators to enter the fixed telecommunications market. Government needs to do this carefully and in context to its overall national telecommunications policy. Particular attention has to be provided to making sure that the amount of competition in the market (i.e. defined by the number of licensees) is balanced with the investment requirements and likely returns. In other words, licensing a large number of players may be inappropriate in some market segments since that will lead to operators expecting to have a small market share and thereby not being incentivised to invest large quantities to build the infrastructure. For example, in most developing country markets no more than 1-3 operators currently are licensed to provide fixed network services in any one part of a country.

**Comments:** The fixed market requires significant investments to roll out the network, and to upgrade existing network to high speed connectivity, and therefore the Government's policy must be carefully crafted to balance attracting investment with increasing competitiveness and cutting telecom tariffs.

4. The Bangladesh Telecommunication Regulatory Commission (BTRC) submitted a proposal to provide two more for mobile operators in the private sector to the prime minister through the Ministry of Post and Telecommunications (MoPT). It also proposed that the licences be awarded to the private sector through international competitive bidding. **January 2 2003**

**Task Force Recommendation 2001: Action 2.4.1. [page 13].** Government should determine and adhere to a clear competition policy for mobile. Simply opening up the sector to an unlimited number of players is likely to run the risk of diluting operators' incentives to undertake significant network development investments. If an operator regards itself as one of many, and potentially many more, it is less likely to justify business cases for major investments, given the expected dilution in market share and presence which would be coupled with many players entering the market. Most small to medium sized countries with a population level above 50 million have between 3-6 nationwide cellular operators. Bangladesh, offering a far smaller market size (in terms of potential connected customers and spend per customer), probably has room in its market for 3-4 players such that each player has optimal incentives to invest.

Government should determine the optimal number of players (say the 4 now operating), and limit the number of licensees to this number.

**Comments:** We reiterate our early recommendations. The licensing policy should ensure universal service obligation and coverage of the whole territory of the country in such a manner which does not create disincentive to the investor as well as cover the whole territory of the country.

5. From July, 2002, the BTTB has introduced the multi-metering billing system under which Taka 1.50 is fixed for maximum five minutes' local call. Previously, there was no time limit in this regard and only Taka 1.80 was charged for a single local call.

Except internet service providers (ISP) and Dhaka Stock Exchange (DSE) and the Chittagong Stock Exchange (CSE) all other telephone consumers are brought under the new system. **July 2002**

**Task Force Recommendation 2001: Action 2.2.8. [page 10].** The tariff for telephone use should be based on cost but should continue to ensure fairness and affordability. For example, local call charges should be initially kept at levels that allow affordability and encourage use of the network. As supply increases (see actions under fixed network expansion below) connection charges should gradually be reduced such that new connections are encouraged. For rationalizing the revenue from the telephone service metered local call may be introduced.

**Comments:** Although multi-metering is essential for revenue generation and optimum use of network, the tariff issues should be reviewed and rationalised.

6. Bangladesh Telecommunication Regulatory Commission (BTRC) has initiated the installation of a hybrid telephone exchange in Chittagong on an experimental basis to address the growing need for interconnectivity.
- Four private operators – Grameen Phone, AKTEL, City Cell and Sheba -- jointly financed the US\$2 million turnkey project that expanded the BTTB's network on BOT basis, which will provide interconnection facility between BTTB and all Cellular Operators at Dhaka by more than doubling the existing interconnection facility. Installation work of the project, financed by United Nations Development Project (UNDP) with technical assistance from International Telecommunication Union (ITU), is expected to be completed by year-end.

**Task Force Recommendation 2001: Action 2.5.1. [page 14].** The government, through BTRC, should set interconnection obligations that enable equal and fair access, adequately defined.

**Action 2.5.2.** The regulator should focus on fixed and mobile network integration and write interconnection obligations into operators' licenses. The regulator should also enforce compliance through legal and regulatory framework.

**Action 2.5.3.** A high-speed data network should be established with different technology options and interconnection scopes.

**Action 2.5.4.** There should be an outline of workable interconnection provisions.

**Comments:** While Private Operators pay to BTTB for terminating their traffic to BTTB, the reverse is not happening. These need to be resolved. A hybrid IP-PSTN platform at Dhaka (as is being done at Chittagong under ITU sponsored Project) should be established, for interconnection amongst all ISPs. Such interconnection facilities should be further developed as soon as possible.

7. The committee for restructuring the state-owned telecom has decided in principle that the BTTB should be transformed into a 100 per cent government-owned company with financial autonomy. **April 07, 2003**

**Task Force Recommendation 2001: Action 2.3.1. [page 11].** Provide BTTB with the autonomy to allocate its revenues to investments required to expand the network. Currently BTTB does not control its revenues, but they flow directly to the Ministry of Finance. BTTB has to apply for investment resources through Government planning procedures. This slows down network expansion and dilutes BTTB's incentive to pursue commercial approaches to building revenue generation and capital investment programs.

**Action 2.3.2.** Corporatize BTTB. Currently BTTB is still a government board. This prevents it from using its own revenues, preventing it from borrowing on the financial markets without Government permission or guarantee, and restricting the entity to Government rules and regulations with regard to all aspects of the business including hiring and firing, pay and procurement. [Page 11]

**Comments:** Initially BTTB should be made 100% Government owned Company. Gradually its share should be off-loaded to public. Alternatively, BTTB should have a strategic partnership with a reputed Foreign Telecom Operator for finance, know how and Management for a specific duration.

8. Government has implemented the project of Internet connectivity in all district headquarters

**Task Force Recommendation 2001: Action 2.9.4. [page 14].** BTTB's zilla level Internet project should be implemented immediately

**Comments:** This is the complete implementation of the Task Force recommendation. Now it is the time to roll out the Internet connectivity to Upazilla level by 2004.

9. The Law commission prepared a draft of Electronic Transaction Act. **February 19, 2002**

**Task Force Recommendation 2001: Action 7.2.4. [page 40].** Legal infrastructure is a must for implementing ICT based banking services. Bangladesh Bank along with the concerned agencies should work out a plan to develop and enact the following regulatory documents: E-banking regulation, Digital Signature Law, Dispute Settlement Law, Amendment in evidence act etc.

**Comments:** The Electronic Transaction Act is essential for facilitation of electronic commerce and electronic governance. Although, the Act does not fully accustomed with the Bangladesh situation, the enactment may serve as confidence building measure for B-to-B e-commerce, e-finance and e-governance.

## I.2. ICT ECONOMY

1. Local companies have been given priority for software procurement by public sector institutions including banks and insurance companies. Foreign companies must have to share 50 per cent of any procurement order with local companies. **April 07, 2003**

**TF Recommendations 2001: Action 4.2.4. [page 30].** Create economic incentives for business for adopting ICT for medium and large firms.

**Comments:** Previous government-approved procurement guideline, assigning 15 per cent price advantage to local software developers, has not yet been implemented. The government should send the government policy for local company preference to all ministries, departments, corporations and government-funded organisations requesting them to follow the guideline.

2. An ICT Incubator has been established in Dhaka. The Incubator started its activity from November 01, 2002 in BSRS Building of Dhaka with 70000 square ft. of space. Taka 36 million have been allocated for the programme. **October, 2002**

**TF Recommendations 2001: Action 4.1.5. [page 27]. Software Technology Park (STP):** Build STPs, Dhaka, Sylhet and Chittagong. Provide ready-made premises to the companies, high-speed data communication facilities, reliable power supply and *all required amenities* for the business to run in world class standard.

**Comments:** The ICT Incubator is already functioning. However, the promise of high-speed Internet connection and uninterrupted electricity supply has not been realized. The government should take immediate steps in this regard.

3. A Project Concept paper has been prepared for submission to the Planning Commission to build a High-tech park in Kaliakayer, Dhaka. A proposal for the Park was prepared by a BUET team and submitted to the Ministry of Science and Information and Communication Technology. **August 2002.**

**Comments:** In building the STP the experience of the Grameen IT Park should be taken in to consideration. Government should undertake a business plan to check demand for STP use before investing.

4. Government relaxed the terms and conditions for the Equity and Entrepreneurship Fund (EEF). The government increased the allocation from Tk. 100 Crore to Tk 300 crore for the fund. According to new guidelines, a software project with minimum cost of Tk one crore will now be eligible for the EEF support, said a central bank circular issued on Tuesday. Earlier, the minimum project cost was Tk 1.50 crore. An entrepreneur will get up to 49 per cent of total project costs from the fund if the project is not bank-financed. Earlier, they got 33 per cent of the project costs or 49 per cent of the equity, which was lower. The company formed with the help of the EEF will give dividends as per declaration, not at the predetermined rates. The dividends, as per previous guidelines, used to be paid by the company after three years at a declared rate or 5 per cent, which was higher. The EEF support will be released after ensuring full utilisation of the equity portion of the respective entrepreneur instead of full utilisation of the entrepreneur's equity and bank loans. Bangladesh Bank will transfer the fund to the assisting commercial banks after 70 per cent utilisation of the entrepreneurs' equities. Earlier, the funds were released after commercial banks had released first instalments of their term loans. As per the EEF guidelines, the central bank will provide funds to projects against shares of the company, which will be required to payback within six years. Until paid back fully, Bangladesh Bank will be entitled to get profit of the company against its share. **June 27, 02**

**TF Recommendation 2001: Action 7.3.3. [Page 41].** Rationalize rules for EEF with industry feedback of the allocated fund should be used to form venture fund.

**Action 7.3.4. [Page 41]** Promote venture capital as a major source of finance for the ICT industry at start up stage. The EEF should be converted to venture capital fund for utilizing the fund.

**Comments:** The government should form venture capital company with participation of ICT related development organization with a view to get back the original money within 10 years period. The excessive caution for repayment and the bias of traditional banking does not allow the Bangladesh Bank to float an effective mechanism of financing through venture capital. Some foreign expert of venture capital may be invited for experience sharing.

5. An IT village and industrial park was decided to be set up in the port city of Chittagong under public and private initiatives. Chittagong Chamber of Commerce and Industry was requested to locate the site and conduct feasibility study on priority basis. **July 27, 02**

**TF Recommendation 2001: Action 4.1.5. [page 27]. Software Technology Park (STP):** Build STPs, Dhaka, Sylhet and Chittagong. Provide ready-made premises to the companies, high-speed data communication facilities, reliable power supply and *all required amenities* for the business to run in world class standard.

**Comments:** Nothing has been heard of any development in this regard.

6. Information communication technology (ICT) kiosk has been set up in the Silicon Valley in the United States and a Bangladeshi American has been assigned as ICT envoy in nearby Los Angeles to promote export of local software and IT services. The ICT kiosk facilities and services in the Silicon Valley is open to all Bangladeshi ICT entrepreneurs and anyone interested to export their IT products in exchange for a token money. **November 7, 2002**

**TF Recommendations 2001: Action 4.1.22.** To support marketing efforts of Bangladeshi companies a small trade office needs to be set up in USA, EU and ASEAN countries. This office should have adequate secretarial and telecommunication facilities, support services and office space that can be booked by Bangladeshi companies for short periods (7 days to 2 months).

**Action 4.1.23. Presence in ICT Business Hubs abroad [Silicon Valley, EU, ASEAN] [page 30]:** To open business offices in ICT business hubs to promote ICT business and ICT companies to do business/outsourcing works abroad and to lobby multinationals to invest in ICT Industry of Bangladesh.

**Comments:** This is a welcome development. Some American expert should be hired for short term to identify niche market and to organize presentation to a set of potential clients. Government could make a shortlist of target multinationals (eg IBM, Microsoft, Cisco, etc) and identify channels to access their senior decision makers, to encourage them to visit/consider Bangladeshi ICT firms.

7. The government sent an ICT delegation to European cities and the "outcome of the tour was encouraging". The EPB in collaboration with the MGF facilitates regular participation of Bangladeshi Software and ITES companies in the international trade fairs.

**TF Recommendation 2001: Action 4.1.14. [page 29].** Government should ensure regular participation in major regional and International IT Exhibitions, Fairs, contact

promotion programs and buyers-sellers meets and should make arrangements for sending marketing missions and launching road shows abroad.

**Comments:** The delegation and participation in fairs should be a regular phenomenon and gradually the EPB should include non-software businesses as well (like ITES).

### **I.3. HUMAN RESOURCE DEVELOPMENT**

#### **ICT Education**

1. The Ministry of Science and Information Communication Technology has proposed to introduce the course from 2005 in schools and colleges at the 64 district headquarters. Under the proposal a committee of experts in the field is to produce the curriculum, a full-fledged computer laboratory will be established at each school and college. The authorities concerned will also appoint teachers and produce textbooks prior to the launching of the course. The Prime Minister's Office (PMO) included the matter in the ICT task force and asked the ICT ministry and education ministry to work jointly. **March 09, 2003**

**Comments:** The proposal should be implemented with sincere and systems approach, which will include curricula, text books, infrastructure, teachers and training and appropriate budget.

2. In the budget speech of Honorable Finance Minister the government has taken up a programme to provide around 12 thousand secondary schools across the country with one computer each and Internet connections in the FY 2003. A proposal had been sent to the Planning Commission on June 11, 2002.

**TF Recommendations 2001: Action 3.1.10. [page 22].** Basic computer courses must be introduced in the primary, secondary and higher secondary levels.

**Action 3.3.1. *One school - one computer lab*** for academic purpose should be introduced immediately at zilla level. Private sector should be encouraged to go into ties with educational institutions commercially for quick advancement.

**Action 3.3.3. [Page 25].** A project to bring all educational institutions under Internet connection for academic purposes should be undertaken immediately. At the initial stage all universities, BITs and polytechnic institutions should be under network.

**Comments:** The Task Force identified that the programme was not implemented. The Task Force also believes that supplying single computer is meaningless in terms of ensuring access to ICT by the students and teachers. Rather implementation of ***one school one computer lab*** programme in a phased manner is more effective.

#### I. 4. ICT AND GOVERNMENT

1. A proposal is under consideration in the Planning Commission to up computer cell in each of the 47 ministries/divisions with 10 computers and 4 computer experts [1 system analyst, 1 programmer, 1 web designer, 1 network/hardware engineer]. **July 07, 2002**

**TF Recommendation 2001: Action 11.2.** Allocate sufficient fund for ICT expenditure in all Govt. departments/agencies for higher productivity, efficiency and transparency. In Govt. budget management system, there should be a separate line item for ICT expenditure with a target of allocating at least 1% of GDP by 2003-04. [page 49]

**Comments:** The implementation of the abovementioned plan may facilitate e-governance. The Task Force looks for quick implementation of the plan.

2. The government allowed income tax holiday for software and IT education companies for three years in the budget 2002-2003

**TF Recommendation 2001: Action 11.8.** Government must step forward with subsidies. Government can support corporate initiatives through tax and other incentives that reward large companies doing the most to promote a best-wired work force, and encourage small companies to get up to speed. [page 50]

**Comments:** The tax holiday does not provide any positive result. The ICT education companies does not require any fiscal incentives as they charge exorbitant rate for education services, often with dubious quality.

3. Government renamed the Ministry of Science and Technology as Ministry of Science and Information and Communication Technology. March 24, 2002

**TF Recommendation 2001: Action 12.1.** Form a Ministry of Information and Communication Technology including the whole MOPT, Broadcasting form Ministry of Information and ICT from MOST. This ministry must be run by a combination ICT and business people, who have the mission and vision to create Bangladesh “An ICT Power House” that will enable take fair global market share in the ICT business and will play significant role in poverty alleviation. This ministry should have concrete goals for exporting HR resources and graduating ICT professionals and should be held accountable for meeting these goals. [page 51]

**Comments:** The Ministry in its current form will not be able to serve the need of ICT for development and will fail to address the convergence issues appropriately. The Ministry should deal with all crosscutting issues of ICT for development.

## II. AUTONOMOUS POLICY MEASURES UNDERTAKEN BY THE GOVERNMENT

The government since October 2001 initiated a number of actions for enhancing ICT based economic development. The following text provides a short description of those actions.

**ICT Policy:** The Cabinet of Ministers approved the Information and Communication Technology Policy. **October 07, 2002**

**IT Act:** Bangladesh Law Commission submitted a report on law of information Technology for preparation of IT Act. The Additional Secretary of Law, Justice and Parliamentary Affairs was assigned to convert the report into a Bill and to submit by **November 11, 2002.**

**Private Satellite Earth Station permitted by the BTRC** March 28, 2002: Bangladesh Telecommunication Regulatory Commission (BTRC) provided licenses for establishment of satellite earth station to private sector companies. The station will serve as VSAT hub for catering the needs of domestic and international data communication services. Banks, other financial institutions, big government and private entities, foreign offices, multinational companies and non-government organisations (NGOs) are to be the probable users of the VSAT Hub. This would create jobs and overseas data and multimedia communications would be facilitated at a cheaper rate.

**Formation of ICT Business Council:** Under the chairmanship of Secretary, Ministry of Commerce ICT Business Promotion Council has been set up. The objective of the Council is to coordinate the activities of ICT business promotion abroad. **August, 2002.**

**Formation of Joint ICT Task Force:** The government is forming a joint ICT Task Force comprising the Ministry of Foreign Affairs, Ministry of Science and Information and Communication Technology, Ministry of post and Telecom and Bangladesh Computer Samity. January, 2003

**Formation of E-Governance Committee:** A High level E-governance committee has been formed with the convenor Secretary of Cabinet Division and as member-secretary the Secretary of Ministry of Science and technology. It is expected that an e-governance road-map would be developed and implemented under the direct supervision of the PM's task force.

**Formation of E-commerce Committee:** Ministry of Commerce formed a high-level E-commerce committee to foster the development in e-commerce in Bangladesh. **January, 2003.**

**Comments:** Apparently the formation of the committees shows increasing understanding of the importance of ICT for development. However, the Task Force has reservation on the issues of coordination and effectiveness of the Task Forces in advancing ICT for development.

### III. REVISED POLICY RECOMMENDATIONS

In the Policy Report of 2001 the Task Force presented 210 policy recommendations in form of action agenda under 121 broad categories. The Task Force revisited those recommendations and reorganised them under 6 broad categories:

- Information Infrastructure
- Human Resource Development
- ICT Economy
- Acceleration of Poverty Alleviation through ICT
- ICT and Government
- Others

The Task Force also tried to rationalised the number of recommendations by developing many of them. The following matrices present the priority based recommendations. The them of the recommendations is “**ICT for Development**”. In the Task Force Report of 2001, along with the identification of implementing agencies, the time frame has also been developed. It was observed that mentioning time frame did not have any extra influence. The Policy Review Task Force now only presents the priority agenda, so, the mentioning time frame is not required any more as all the action agenda are of immediate priority.

#### *I. Information Infrastructure*

<i>Action Items</i>	<i>Action by</i>
<b>Regulatory Issues</b>	
<b>Action I.1.</b> The following amendments should be made in the Bangladesh Telecommunication Act 2001: (a) the BTRC should be accountable to the parliament through Parliamentary Committee; (b) the Chairman and Commissioners of the Commission should enjoy ministerial status and their compensation should be appropriate for bringing in high skilled expert, (c) the composition of the BTRC should be broad based, currently it is overshadowed by the BTTB representatives, (d) the BTRS should have financial autonomy.	MOPT, MOSICT, The Parliament
<b>Action I.2.</b> BTRC should focus on a small number of key issues which include interconnection, setting targets, tariff reform, and universal service.	BTRC
<b>Action I.3.</b> The BTRC may be converted into Communications Commission, which regulate three market places: telecom, ICT and broadcasting. The goal is to have one body that handles all convergence issues from a single forum and which has a better understanding of how one area of technology can impact on another. It would also have the powers of a civil court and would adjudicate on all disputes, and ensure fair and equitable services in the information technology, communications and broadcasting sectors.	Cabinet, MOPT, MOSICT, The Parliament

<i>Action Items</i>	<i>Action by</i>
<b>Universal Access and Affordability</b>	
<b>Action I.4.</b> Develop a New Concept of Universal Service. The definition should be developed on the basis of wide consultation with the stakeholders. Initially a basic definition is likely to be appropriate, such as “everyone should have access to a voice telephony service within one hour’s walk from their residence”. We should set some target MCT in the country and request BTRC to take action to provide those MCTs through private/public sector. The BTRC should commission USO study.	MSICT, BTTB, Private Telecom Operators, NGOs, Interest groups
<b>Action I.5.</b> The BTRC should define and adopt a clearly thought-out policy on universal services and related topics such as access deficit funding for operators who take up the USO burden.	The Parliament, MOSICT, MOPT, BTTB
<b>Action I.6.</b> The BTRC should set interconnection obligations that enable equal and fair access, adequately defined. The BTTB is obliged to prepare a RIO (reference interconnect offer) immediately.	BTRC, Mobile Operators
<b>Action I.7.</b> The BTRC should facilitate new last mile connectivity options in order to encourage more rapid penetration of the public switched telecommunications network (PSTN) into rural and outlying areas.	The Parliament, BTRC, MOSICT, BTTB
<b>Action I.8.</b> Undertake a rigorous demand forecast for telecom services in Bangladesh, covering rural and urban areas, fixed and mobile, as well as demand for basic and advanced telecom services. Such a demand forecast should be used as a basis for setting Government policy in a robust way with regard to rollout targets, tariff reform and competition policy.	BTRC, MOSICT, MOPT
<b>Action I.9.</b> International gateway for voice and data communication should be liberalised with immediate effect	ICT Task Force, BTRC, MOSICT, MOPT, BTTB
<b>Action I.10.</b> The tariff for telephone use should be based on cost but should continue to ensure fairness and affordability. For example, local call charges should be initially kept at levels that allow affordability and encourage use of the network. As supply increases (see actions under fixed network expansion below) connection charges should gradually be reduced such that new connections are encouraged. For cell phones, the BTRC should ensure that the Handset should not be tagged with connection, and a subscriber should be free to procure his own Handset	BTRC, MOSICT, MOPT, BTTB
<b>Action I.11.</b> BTRC should limit its prerogative to fix the maximum tariff so that operators have flexibility and compete with each other.	BTRC
<b>Action I.12.</b> Provide BTTB with the autonomy to allocate its revenues to investments required to expand the network. Currently BTTB does not control its revenues. BTTB has to apply for investment resources through Government planning procedures. This slows down network expansion and dilutes BTTB’s incentive to pursue commercial approaches to building revenue generation and capital investment programs.	BTRC, MOSICT, MOPT, BTTB
<b>Action I.13.</b> Implement immediately the proposal for corporatization if the BTTB. Appoint immediately an independent commission, which will include independent consultant, to evaluate the BTTB’s assets. The corporatization will allow the BTTB using its own revenues, borrowing from the financial markets without Government permission or guarantee, including hiring and firing, pay and procurement.	BTRC, MOSICT, MOPT
<b>Technology and Convergence</b>	
<b>Action I.14.</b> For fostering greater efficiency and flexibility in the fixed line sector ensure flexible technology options	BTRC, MOSICT, MOPT
<b>Action I.15.</b> Determine and adhere to a clear competition policy for mobile. Simply opening up the sector to an unlimited number of players is likely to run the risk of diluting operators’ incentives to undertake significant network development investments. Government should determine the optimal number of players (say the 4 now operating), and limit the number of licensees to this number. This should not deter BTTB joining the Mobile scenario. However, entrance of BTTB should not upset the level playing ground. BTTB should unbundle its activities and join the Mobile business with equal opportunity like other Mobile Operators.	BTRC, MOSICT, MOPT, Telecom Mobile Operators

<i>Action Items</i>	<i>Action by</i>
<b>Action I.16.</b> The regulator should focus on fixed and mobile network integration and write interconnection obligations into operators' licenses. The regulator should also enforce compliance through legal and regulatory framework.	BTRC, Mobile Operators
<b>Action I.17.</b> Streamline allocation and use of spectrum. The government should fully implement the spectrum management provisions. These provisions will provide greater flexibility in spectrum allocation, including increased sharing of spectrum between private sector and government users, increased flexibility in technical and service standards, and increased choices for licensees in employing their assigned spectrum. Promote market principles in spectrum distribution. Invite experts to better understand convergence issues and reflect in national telecom policy.	BTRC, All telecom operators
<b>Action I.18.</b> The issue of convergence should be conceived in ICT development plan. If a convergence law is in place it would repeal The Telegraph Act, The Wireless Act, The radio broadcasting Act, The Television Broadcasting Act. A expert lawyer team should be appointed for merger of the documents.	Cabinet, ICT Task Force, BTRC, MOPT, MOSICT, The Parliament
<b>Access to Internet</b>	
<b>Action I.19.</b> A crash program should be undertaken to set up Internet centers in post offices, health centers, educational institutions, public libraries, rail stations, local community centers, and NGO offices for improving the access situation. In this respect, government should go into partnership with the private sector, where government set up infrastructure and private sector ensures operational viability of the centers.	MOSICT, Respective Agencies
<b>Action I.20.</b> Access to Internet exchange should be at same rate throughout the country. This is possible by unbundling BTTB Transmission capacity from its operation and ensuring access to backbone at a local call rate.	BTRC, MOSICT, ISPs
<b>Action I.21.</b> A high-speed national data network for the country connecting all important cities, district headquarters and important upazillas should be established. Alternative Fibre Optic network using PDB's Power pylons shall ensure high speed network upto Upazilla level. However, this alternative should be tested commercially and the investment issues should be considered.	MOSICT, MOPT, All telecom Operators, ISPs, ICT companies
<b>Action I.22.</b> Encourage optimal use of the country's optic fiber backbone. Access to the fiber optic network must allow users to benefit from high-speed access enabling far more efficient transfer of data with an affordable price. The price structure is not rational at this moment and BTRC should ensure cost-based pricing mechanism of the optic fibre network within the country. Since the fiber network is a scarce resource in Bangladesh, and allows significant potential to offer high-speed services, it is important that Government requires the operator to be obliged to provide minimum levels of service, and minimum levels of access and interconnection to other operators.	MOPT, BTRC, MOSICT
<b>Action I.23.</b> High-speed data link to connect Bangladesh to the Global Information Superhighway should be immediately established. The implementation of Consortium deal should be followed up regularly.	MOSICT/MOPT
<b>Action I.24.</b> All schools, colleges at zilla level and universities should be brought under Internet network. This is an emergency program to be initiated immediately.	MOSICT, MOE
<b>Action I.25.</b> Incorporate telecenter and internet-ready PCO installation within operator rollout targets.	BTRC, MOPT, All telecom operators
<b>Action I.26.</b> Develop a work plan to investigate what policies are necessary to ensure individual privacy, while recognizing the legitimate societal needs for information, including those of law enforcement. Develop also a work plan to investigate how the government will ensure that the infrastructure's operations are compatible with the legitimate privacy interests of its users.	BTRC, MOLPA, BB, CAB, ISPs, Third Party Authentication Institutions
<b>Action I.27.</b> A system of public key custodians should be established for ensuring network security. This action agenda is related to encryption standard and security related laws.	MOSICT, ICT Industry, Banking System, Third Party Authorizer

<i>Action Items</i>	<i>Action by</i>
<b>Action I.28.</b> A single country gateway for Internet should be established, which will ensure control of the government over privacy, network security and protection of national interest. With increasing trend of using Internet for pornography the establishment of single country gateway has become essential.	ICT Task Force, MOSICT
<b>Action I.29.</b> A <i>Cyber Centre Policy</i> must be developed immediately to address the abuse of Internet for pornography by the adolescents.	ICT Task Force, MOSICT
<b>Action I.30.</b> Seek technical assistance from international agencies to build proper Networking infrastructure throughout the country. The relationship with ITU should be strengthened for reducing digital divide.	MOSICT/MOPT
<b>Financial Infrastructure</b>	
<b>Action I.31.</b> As NCBS capture the major market share and have countrywide network, the NCBS should have financial freedom to invest in ICT according the in-house developed plan. The interference of incompetent ministerial people in allocating budget should be stopped.	MOF, BB, NCBs
<b>Action I.32.</b> Central bank should provide some market incentive for the banks to implement ICT in the financial sector. Bangladesh Bank may set a time line for brining the Upazilla Level Branches of the banks under network within year 2005. For this achievement Bangladesh Bank can reward the banks with appropriate market –based incentives.	MOF, BB
<b>Action I.33.</b> There should be a comprehensive plan to modernize the operation of the central bank to support automated clearing service and update supervisory and regulatory rules for absorbing ICT based banking. Bangladesh Bank can make mandatory to use MICR for quick reconciliation of inter-bank accounts.	BB, MOF
<b>Action I.34.</b> Bangladesh Bank should work out an efficient information infrastructure for banks using different technology to ensure network connectivity among the banks and financial institutions in Bangladesh.	BB, commercial banks
<b>Action I.35.</b> A pilot project should be undertaken immediately to set up a payment server within country for receiving payment for e-commerce.	BB, Commercial Banks, Private Investors
<b>Action I.36.</b> For attracting foreign currency through e-commerce and Internet banking Bangladesh Bank should undertake a pilot project to experiment the crosscutting issues.	BB, BIBM, commercial banks
<b>Action I.37.</b> Permit low limit International Credit Card [ICC] for individuals against passport. Educational institutions will be facilitated to procure books and other educational materials using ICC.	MOF, BB
<b>Legal Infrastructure</b>	
<b>Action I.38.</b> Legal infrastructure is a must for implementing ICT based banking services. Bangladesh Bank along with the concerned agencies should work out a plan to develop and enact the following regulatory documents: E-banking regulation, Digital Signature Law, Dispute Settlement Law, Amendment in evidence act etc.	MOF, BB, MOLPA, MOC
<b>Action I.39.</b> Penal Code and ICT Act should cover computer crimes such as software piracy, unauthorized use/copying of software, computer fraud, hacking and damage to program and data and introducing/spreading computer viruses.	MOSICT, MOLPA, ICT Industry
<b>Action I.40.</b> Develop short run (within one year) and a long run (within two- three years) plan for adoption of necessary rules and regulations. To pool local and international experts to develop laws related to E-business.	MOSICT, MOC, MOLPA
<b>Action I.41.</b> Undertake capacity building program for lawyers who can undertake different issues to protect interest of clients and as a whole of Bangladesh in e-commerce related dispute settlement.	MOLPA, Donor Agencies
<b>Action I.42.</b> Examine the adequacy of copyright laws. The appropriate agency should investigate how to strengthen and enforce domestic copyright laws and international intellectual property treaties to prevent piracy and to protect the integrity of intellectual property.	BASIS, Chambers, Ministry of Commerce

<i>Action Items</i>	<i>Action by</i>
<b>Action I.43.</b> Explore ways to identify and reimburse copyright owners. The agency should explore the need for standards for the identification of copyright ownership of information products in electronic systems (e.g., electronic headers, labels or signature techniques). The government Task Force may also evaluate the need to develop an efficient system for the identification, licensing, and use of work, and for the payment of royalties for copyrighted products delivered or made available over electronic information systems.	MOF, MOLPA, BASIS

## ***II. Human Resource Development***

The goals of human resource development identified by the Task Force are as follows:

- Create qualified work force for design and development of ICT products and services for domestic and export needs.
- Create qualified work force for ICT enabled services.
- Create qualified work force capable of leveraging ICT for greater productivity in workplace.
- Upgrade the quality of general education in primary, secondary, higher secondary and tertiary levels by leveraging ICT tools, technologies and methods.

<b>Action Items</b>	<b>Action by</b>
<b>Educating Qualified Software Professionals</b>	
<i>Enhancing quality</i>	
<b>Action II.1.</b> The Curriculum of ICT related subjects in university, college and school should be updated every two years, which will reflect technology trends, embrace creativity and exploration and cover the SDLC and project management.	MOE, MOSICT, ICT Industry
<b>Action II.2.</b> Create "Center for Excellence" in five Universities that can offer internationally recognized industry Certification Programs and other short courses on ICT for professional development of people at any level.	MOE, UGC, ICT Industry
<b>Action II.3.</b> Provide accreditation for the educational programmes with reputed international authorities.	MOE, UGC, ICT Industry
<b>Action II.4.</b> In solving problem of quality teaching get NRBs involved in the educational and HR development process. Like, offering short courses, industry-academy program development, giving real life project/assignments to students, outsourcing works to university students/teachers.	MOE, ICT Industry
<b>Action II.5.</b> Establish 6 months to one-year co-op program (work experience) between educational institutions and industries (home and abroad) as part of the degree program. To enhance the practical knowledge of ICT applications, private industry/business concerns should be encouraged to offer internship to the students enrolled in degree programs in different Universities/BITS/Institutes.	MOE, UGC, ICT Industry, Universities
<b>Action II.6.</b> University and college teachers and students should get free or subsidized access to Internet.	MOE, UGC, ICT Industry, Universities
<b>Action II.7.</b> Include ICT as one of the compulsory subjects in BCS exams, which will improve state of e-governance implementation in the government.	BPSC
<i>Enhancing quantity</i>	
<b>Action II.8.</b> At least three of the proposed 12 Science and Technology Universities should target ICT education.	MOE, UGC
<b>Action II.9.</b> Introduce "Basic computer skills" as a compulsory subject for all students at Graduate level.	MOE, UGC

<b>Action II.10.</b> Introduce post graduate diploma in ICT in all public and private universities.	MOE, UGC
<b><i>Educating Qualified ICT Enabled Service Professionals</i></b>	
<b>Action II.11.</b> Encourage training in the niche areas of ITES suitable for Bangladesh.	MOE
<b><i>Educating ICT Literate “High Productivity” Workers</i></b>	
<b>Action II.12.</b> Polytechnics and other training institutes should offer diploma in ICT.	MOE
<b>Action II.13.</b> Basic computer courses in the primary, secondary, and higher secondary levels should be implemented with a systems approach: <ul style="list-style-type: none"> <li>○ Development of curricula</li> <li>○ Training of teachers</li> <li>○ Development of infrastructure</li> <li>○ Appropriate budget allocation</li> </ul>	MOE, MOSICT, ICT Industry
<b>Action II.14.</b> National Certification Examinations should be introduced for different levels of ICT personnel/professionals. This certificate should be made compulsory for all ICT training institutes and during employment process.	MOE, MOSICT, BCC
<b>Action II.15.</b> Introduce bonuses for employees who attend and complete Internet training.	Businesses MOF
<b>Action II.16.</b> Arrange on-site training courses during working hours.	Businesses MOF
<b>Action II.17.</b> Initiate an <i>Each One Teach One</i> program, for company-wide mentoring.	Businesses MOF
<b>Action II.18.</b> Create at least one Centre of Excellence with public-private partnership in order to attract high quality professionals for research, teaching and training.	MOSICT
<b><i>Leveraging ICT for Quality Education</i></b>	
<b>Action II.19.</b> Top most priority should get the teachers' training program for ICT based general education. The teachers training colleges should be equipped with required facilities.	MOE
<b>Action II.20.</b> <i>One school - one computer lab</i> for academic purpose should be introduced immediately at zilla level. Private sector should be encouraged to go into ties with educational institutions commercially for quick advancement.	MOE
<b>Action II.21.</b> Encourage Internet based training for content development in universities.	MOE, UGC, Universities
<b>Action II.22.</b> Computer teachers should be given preference to participate in various national/international seminars/work shops/training program/conferences.	UGC, Universities
<b>Action II.23.</b> Diploma and trade courses should be introduced in distance education systems through ICT network under Open University.	MOE, Open University
<b>Action II.24.</b> To ensure supply of quality teachers in ICT education, Ministry of Education's affiliation of NTRAMS should be evaluated by an expert committee and if necessary the affiliation should be revoked. The requirement of a certificate from NTRAMS to become a teacher in government schools should be immediately withdrawn.	MOE, MOSICT
<b>Action II.25.</b> ICT Resource centers should be developed in all universities and colleges including CD-ROM resources.	MOE, UGC, Universities, ICT Industries

### III. ICT Economy

Action Items	Action by
<b><i>ICT Industry</i></b>	
<b>Action III.1.</b> Implement decision to provide preferential access to the government and its agencies' ICT procurement for the local ICT entrepreneurs.	MOC, MOSICT Corporate Entities
<b>Action III.2.</b> A regular survey on ICT development should be undertaken by Independent authority for providing key information about the sector, at the same time about all allied fields	MOSICT

<b>Action III.3. Software Technology Park (STP):</b> Build STPs, Dhaka, Sylhet and Chittagong. Accelerate establishment of the STP in Kalialair of Gazipur with foreign investment. Foreign companies should be encouraged to set up operation in ITV and High Tech Park. Software exporting companies should be encouraged to set up office in these Village/Park at preferential terms.	MOSICT, MOC, Private Enterprises
<b>Action III.4. Lobbying for FDI in ICT Industry</b> in Bangladesh: targeted lobbying of high tech companies to create their development centers in Bangladesh, and to provide funds to develop universities and the ICT infrastructure in the country.	EPB/ MOSICT, NRB organization, EPB
<b>Action III.5. Run open merit</b> -based problem-solving competitions, which involve both high-level technical architecture design and programming.	MOSICT, universities, industry ICT Personnel, students
<b>Action III.6.</b> To immediately arrange a market survey through a reputed international consultancy firm for identifying the export demand of Bangladeshi software and IT related services	MOSICT, EPB, BASIS ICT industry
<b>Action III.7.</b> Increase the budget of market promotion fund by 100% to be administered by EPB for meeting the expenses of promoting Bangladesh as a potential source of ICT-enabled services to the overseas markets.	MOC, EPB ICT industry
<b>Action III.8.</b> Promote STP in Bangladesh to the US, EU and ASEAN companies, benefits, offers, etc. EPB to do road show and media coverage on Bangladesh IT resources, STP, investment benefits, cost effectiveness of outsourcing jobs to Bangladeshi companies.	MOC, EPB Foreign ICT companies
<b>Action III.9.</b> Help in establishing the credibility of Bangladeshi programmers by marketing the success-stories.	EPB, Media, Bangladesh Diplomatic Missions Abroad Investors, NRB organizations
<b>Action III.10. Create Marketing Collateral:</b> To (1) Create NRB Resource Database, (2) Create database of ICT outsourcing companies, potential customers and make them available to the BD ICT companies, (3) Have a resourceful web presence, (4) Create Promotional Materials on Hard copy, CDROM, Video, etc.	MOC, MOSICT, private sector Foreign companies, NRB organizations
<b>Action III.11.</b> To organize International Software Exhibitions, Fairs in Bangladesh. Conduct Business conferences, seminars and industry summits at home and abroad.	MOC, EPB, BASIS ICT Industry, foreign companies, NRB organizations
<b>Action III.12.</b> Encourage ICT industry members to take steps for ISO9000 and CMM-SEI certification. Set up resources for industry best practices such as quality certification and project management.	MOSICT, BCC
<b>Action III.13. Quality Institute:</b> Establish Software Quality Institute and Software Engineering Institute to facilitate ISO, CMM and Software Process Improvement initiatives. Establish similar institutes for other areas such as complex project management for on-time delivery within budget.	MOSICT, MOF
<b>ICT for Business Process Reengineering</b>	
<b>Action III.14.</b> Allocate enough resources for government institutions to pioneer business process reengineering.	MOF, All ministries
<b>Action III.15.</b> To undertake awareness program among businesses for e-commerce and business process reengineering.	MOSICT, MOC, Chambers, Business Associations Corporate entities

<b>E-commerce</b>	
<b>Action III.16.</b> In order to give appropriate focus and prominence to e-commerce strategy and projects in the country, a national e-commerce policy should be formulated.	Ministry of ICT
<b>Action III.17.</b> Awareness about benefits of B2B and B2C e-commerce among businesses and consumers must be engendered through focus groups, public seminars, writings, and case studies of success stories	EPB, chambers, media, and advocacy groups
<b>Action III.18.</b> Commodity producers should be encouraged to join international B2B portals. Business associations, chambers of commerce and EPB should promote and host portals for respective business communities prominently featuring electronic catalogs and electronic marketplaces.	Business associations, chambers, EPB, ICT Industry
<b>Action III.19.</b> Business cybercafes should be set up in business associations and chambers.	Business associations chambers EPB
<b>Action III.20.</b> A national trade portal should be established with private-public partnership.	MOC, EPB, Business Associations
<b>Action III.21.</b> B2C portals for international Diaspora must be promoted and appropriate incentives should be provided for these portals. B2C portals for domestic services and virtual products must be similarly encouraged.	Ministry of Commerce, BB, EPB
<b>Action III.22.</b> Technical assistance should be provided to already successful SME exporters for them to become e-commerce enabled. A positive way to force SME exporters to develop such ability is to establish B2G portals, which feature tenders online.	Ministry of Commerce, Donor agencies, NGOs
<b>Action III.23.</b> Creation of e-commerce content in areas where Bangladesh excels such as music, recipes, gifts, handicrafts, fashion, etc. must be incentivized.	Chambers, EPB
<b>Action III.24.</b> For e-commerce trading of physical goods, the transportation bottlenecks must be addressed, and more efficient port facilities and quicker customs clearance must be ensured.	Ministry of Shipping, Ministry of Civil Aviation, Customs, NBR
<b>Action III.25.</b> Local content development must be encouraged and incentivized.	Ministry of ICT, Donor agencies

#### **IV. Acceleration of Poverty Alleviation through ICT**

<b>Action Items</b>	<b>Action by</b>
<b>Action IV.1.</b> Develop telecom infrastructure in the rural areas with different combination of technology. This infrastructure will be the part of NII. <i>Encourage expansion of rural telecoms connectivity and streamline USO policy for that.</i>	MOSICT/MOPT, Private operators, NGOs
<b>Action IV.2.</b> Initiate immediately research for study of information requirement by poor. Study comparable successful efforts and failed attempts.	Ministry of ICT, Donor Agencies, Research organizations, Planning commission
<b>Action IV.3.</b> Depending on the needs of a particular community being served, model device options (size, fixed/mobile) and electricity options (batteries, solar, wind, gas, oil) should be developed and implemented.	Ministry of ICT, MOPT, ISPs,
<b>Action IV.4.</b> Fund developing contextualized content for poor entrepreneurs.	Content developers, Ministry of ICT
<b>Action IV.5.</b> Encourage set up of community-based Information Intermediary or “infomediary” in rural area by subsidizing the start up cost. The intermediary primarily should be the association or samity of poor people. For ensuring operational viability combine ICT training, e-mail service, health service, shop etc.	Respective agencies where the center will be established, Local entrepreneurs

Action Items	Action by
<b>Action IV.6.</b> Encourage develop Bangla content for greater reach among the people of Bangladesh	MOSICT, Bangla Academy, Content developers
<b>Health Care Services through ICT</b>	
<b>Action IV.7.</b> Promote telemedicine in a planned way both for solvent and poor people. The telemedicine services must be researched to identify most appropriate services for the target group.	MOHFW, UNFPA, NGOs, Private entrepreneurs
<b>Action IV.8.</b> Initiate project to develop personal health information services.	MOHFW, Private entrepreneurs, WHO
<b>Action IV.9.</b> Make mandatory to keep patient records in all health service institutions.	Ministry of Health, Ministry of Law
<b>Action IV.10.</b> To initiate project for development of Bangla health care content to be served through the Internet for rural poor people.	MOHFW, Medical Colleges, Content developers, NGOs

### V. ICT and Government

Action Items	Action by
<b>Government efficiency and transparency</b>	
<b>Action V.1.</b> Develop integrated electronic access to government information and services: Currently, citizen access to government information is uncoordinated and not customer-friendly. Electronic kiosks and computer bulletin boards can result in quick response, complete information, and an end to telephone tag. All policy documents should be available in the government web site.	Cabinet, ICT Task Force, Ministries
<b>Action V.2.</b> Ensure that information resources are "Available to All" at affordable prices.	
<b>Action V.3.</b> Upgrade the infrastructure for the delivery of government information. The government should take necessary steps to promote wider distribution of its public reports. The Government Printing Office should enact legislation to improve electronic dissemination of government documents.	
<b>Action V.4.</b> Strengthen inter-agency coordination through the compulsory use of electronic mail. To implement the e-mail communication among the agencies, an inter-agency coordinating body should be established to incorporate electronic mail into the daily work environment of government workers.	
<b>Action V.5.</b> Introduce compulsory ICT training course at least from Assistant Secretary level in the government.	Cabinet, ICT Task Force, Ministries
<b>Action V.6.</b> Make available video conferencing facilities in the divisional headquarters and district headquarters.	
<b>Action V.7.</b> Establish a National Law Enforcement/Public Safety Network: Whether responding to natural or technological disasters, or performing search and rescue or interdiction activities, local law enforcement and public safety workers must be able to communicate with each other effectively, efficiently, and securely. Currently, local law enforcement agencies have radio systems, which cannot communicate with each other because they occupy different parts of the spectrum.	
<b>Action V.8.</b> Reform the government procurement process to make government a leading-edge technology adopter by posting tender documents on the web and allowing submission of those documents online.	
<b>Action V.9.</b> Pilot projects should be initiated for the following programs: export –import license, trademark, citizen's registration, patent, land registration.	

<b>Action Items</b>	<b>Action by</b>
<b>Resource Allocation and Fiscal measures</b>	
<b>Action V.10.</b> In Govt. budget management system, there should be a separate line item for ICT expenditure with a target of allocating at least 1% of GDP by 2003-04.	MOF, MOSICT
<b>Action V.11.</b> Create a special fund for supporting ICT research and development activities.	MOE, MOSICT
<b>Action V.12.</b> Create a special fund for digital content generation in Bangla.	MOSICT
<b>Action V.13.</b> To encourage private sector investment in ICT, 100% depreciation of ICT related investment should be allowed.	MOF, MOSICT
<b>Action V.14.</b> Create a special fund of Tk.500 million for giving low interest (6% p.a.) loans to teachers and students to be disbursed by Commercial Banks and to be subsidized by Bangladesh Bank for procurement of hardware, software, books, and training/education.	MOE, MOSICT, MOF
<b>Action V.15.</b> Allocate funds to institutes to achieve the targets on number of graduate to produce, teachers training, lab development and quality improvement.	MOE, MOSICT, MOF
<b>Action V.16.</b> Fund the marketing efforts, and Business offices abroad.	MOF, MOC, EPB
<b>Action V.17.</b> Fund both national-level infrastructure projects and initiatives in academia.	IFC, IDCOL, Financial Institutions
<b>Action V.18.</b> Device mechanism to provide working capital finance to the ICT industry, based on the industry specificity.	BB, financial institutions
<b>Action V.19.</b> Promote venture capital as a major source of finance for the ICT industry at start up stage. The EEF should be converted to venture capital fund for utilizing the fund	BB, IFC, NGOs

#### **VI. Others**

<b>Action Items</b>	<b>Action by</b>
<b>The Digital Empowerment of Women</b>	
<b>Action VI.1.</b> Encourage non-profit and voluntary organizations to initiate ICT training for workingwomen.	Ministry of ICT, NGOs
<b>Action VI.2.</b> Introduce bonuses for women who attend and complete Internet training.	Ministries, corporate entities
<b>Action VI.3.</b> Introduce full-payment of off-site training, with child care provided	Ministries, corporate entities
<b>Action VI.4.</b> Arrange negotiated discounts with Internet access providers, and computer hardware and software companies, for staff to purchase home computers	Ministries, agencies, corporate entities