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REPORT

ON

EXPORT OF COMPUTER SOFTWARE FROM BANGLADESH

Problems and Prospects
Prepared by

THE COMMITTEE FORMED BY THE MINISTRY OF COMMERCE

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

SEPTEMBER 1997

Letter of Transmittal

Hon'ble Minister
Ministry of Commerce
Government of Bangladesh September 14, 1997

The Task Force on Export in its 18th meeting had appointed a Committee to review the problems and prospects of software export from Bangladesh and formulate recommendations on promotion of software export. This was communicated to us in early June, 1997.

In accordance with its terms of reference, the Committee has carried out *inter alia* an analysis of the problems of software sector in Bangladesh and reviewed the recent developments in Bangladesh as well as in the global market. Some members of the Committee visited India, one of the most successful countries in software export, and collected relevant information.

I have the pleasure in forwarding our report which contains recommendations - short term as well as medium term - on fiscal measures, human resource development, infrastructure development and marketing. The Committee strongly feels that there is a great potential for development of software industry in Bangladesh and implementation of the recommendations in the report will enable Bangladesh to emerge as one of the leading software exporting countries in the world .

I would like to place on record the excellent support provided by the Export Promotion Bureau in facilitating the work of the committee.

Prof. Jamilur Reza Choudhury
Convenor of the Committee

EXECUTIVE SUMMARY

Information Technology, which has evolved from the merger of computers, telecommunications and office automation technologies, is one of the most rapidly growing industries in the world.

Software industry is one of the essential components of IT industry with global market of US \$ 276 billion in 1996. It is still largely dependent on human resources and some of the developing countries are taking advantage of this opportunity. India is one of the most successful countries in developing its software industry and in 1996, it generated revenues totalling US \$ 3.20 billion (out of which export was around 40%), with an annual growth rate of about 70%.

The present size of software industry in Bangladesh is very small. Only a few firms are involved in export of software and data entry services, and the total volume of revenue generated is negligible. The Committee has identified the major problems which are impeding the growth of software industry and has made recommendations for their solution. These are summarized in the following tables under four functional areas :

- Fiscal
- Human Resource Development
- Infrastructure
- Marketing

A. FISCAL

PROBLEMS	RECOMMENDATIONS
1. High rate of Duties & Taxes on Hardware and Software	<i>1. Exempt all Duties & Taxes</i>
2. Absence of export incentive	<i>2. Tax Holiday for 10 years</i>
3. Absence of Domestic software industry	<i>3. Provide a 15% Domestic Price Preference for locally developed software.</i>
4. Complicated banking procedures	<i>4. Allow export of Software and Data Processing services through Sales Contract, instead of Letters of Credit.</i>
5. Bank borrowing rate is prohibitive	<i>5. Reduce interest rate to the level of other export sectors</i>
6. Difficulties in Customs clearance	<i>6. Allow Special Custom Bonded Warehouse facilities</i>
7. Fund constraints for computer purchase	<i>7. Create a Special Fund for giving interest-free loans to teachers and students</i>
8. Absence of sources of financing	<i>8. Create a Venture Capital Fund of at least Tk.10 Crore at Export Promotion Bureau</i>
9. Absence of funds for market promotion	<i>9. Create a Market Promotion Fund to be administered by EPB for meeting the expenses of promoting Bangladesh as a potential source of Software and Data Processing Services to the overseas markets.</i>

10. Absence of funds for R&D	10. Create a special fund for supporting industry oriented IT research and development activities, to be administered by BCC.
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(The recommendations in italics refer to short term priority actions).

B. HUMAN RESOURCE DEVELOPMENT

PROBLEMS	RECOMMENDATIONS
1. No strong Government agency for promoting growth of IT, particularly HRD.	<i>1. Upgrade the BCC to the level of a Division, to be managed by professionals</i>
2. Acute shortage of tutors	<i>2. Ask BCC to produce within 1999 at least 1,000 'Trainers'.</i>
3. Graduates lack computer skills	<i>3. Introduce 'Basic Computer Skills' as a Compulsory Subject for all students at Graduation level.</i>
4. Number of graduates in computer related subjects is very low	<i>4. Increase number of seats for computer related degrees/diplomas in all Institutions (Universities, Colleges, BITs, Polytechnics)</i>
5. Course curricula for computer related subjects do not reflect market needs .	<i>5. Review course curricula every two years and update, where necessary</i>
6. Quality control of computer training courses lacking	<i>6. Empower BCC to develop a national examination and certification system.</i>
7. Low level of computer literacy	<i>7. To introduce compulsory education in Computer Studies at School and College levels.</i>
8. Facilities for high level training in IT inadequate.	<i>8. To strengthen BCC and make it responsible for imparting higher level special need-based training to the IT Professionals graduating from the Universities.</i>
9. Interaction between industry and academic lacking.	<i>9. Strengthen linkage between the software firms and educational institutions</i>

(The recommendations in italics refer to short term priority actions).

C. INFRASTRUCTURE

PROBLEMS	RECOMMENDATIONS
1. No copyright protection for software, which deters foreign firms from out-sourcing from Bangladesh.	<i>1. Enact Copyright Act as required under the WTO Charter.</i>
2. Facility for high speed data communication is limited.	<i>2. Set up low-cost high-speed data and voice communication link with the USA and the UK.</i>

3. Internet connection slow.	<i>3. Set up an Internet Node in the country.</i>
4. Internet connection expensive	<i>4. Make Internet connectivity available at affordable rate.</i>
5. No facility for video-conferencing	<i>5. Make Video Conferencing facility available through VSAT.</i>
6. BTTB satellite communication links slow and expensive	<i>6. Allow Private Sector to set up own Satellite Communication links.</i>
7. Customs clearance at ports is time consuming	<i>7. Create separate Cells at selected ports so that goods are cleared within 24 hours.</i>
8. Lack of latest books, journals and manuals.	<i>8. To create a Central Resource Center at BCC.</i>
9. Association of firms involved in Software Development and Data Processing Services does not exists.	<i>9. Encourage firms involved in software development and data processing services to form an association in line with e.g. NASSCOM.</i>
10. Strengthen EPB's role to support software export	<i>10. Assign one Assistant Director of EPB for this sector on a full time basis.</i>
11. Non-availability of physical facilities with essential IT infrastructure	<i>11. Set up an Information Technology Village (ITV) at a suitable place on Tongi-Ashulia Road near Dhaka, equipped with all necessary facilities.</i>
12. Poor National telecom infrastructure	<i>12. Ask BTTB to set up ISDN/ HDSL / ADSL Lines all over the country, and a fibre optic backbone.</i>
13. No communication hub in the country	<i>13. Set up a Communication Hub in Bangladesh.</i>
14. Lack of mechanism for implementation, monitoring and updating of policy for software export.	<i>14. Form a Standing Committee to formulate and implement policies, strategies and action plans for promotion of export of Software and Data Processing Services.</i>

(The recommendations in italics refer to short term priority actions).

D. MARKETING

PROBLEMS

1. Capability of Bangladeshis in software sector is not known internationally.
2. Tendency to use pirated software deters

RECOMMENDATIONS

- 1. Arrange meetings/seminars in selected locations in USA with a concentration of IT Professionals of Bangladeshi origin (e.g. Silicon Valley, California, USA) to inform them about the incentives being provided by GOB and mobilize their support to help Bangladeshi entrepreneurs.*
- 2. Ban use of all pirated Software in all organizations, both*

foreign firms.	<i>in the public and private sectors.</i>
3. Domestic market is very small.	<i>3. Encourage all public sector organisation to replace the manual system of documentation and records by Computerised system through the use of locally developed Customized Application Software.</i>
4. Efforts to market Bangladeshi ability/products lacking.	<i>4. Send Marketing Missions to North America / E. U. consisting of Members from IT Associations and EPB, on a regular basis.</i>
5. No organized publicity of capabilities of firms involved in software development.	<i>5. To create a Database of all major organizations / institutions engaged in out-sourcing of Software and Data Processing Services, to be made jointly by EPB and Bangladesh Computer Samity (or Software Association, when it is formed), and to maintain a Home Page in the INTERNET.</i>
6. Difficulties in obtaining direct access to market.	<i>6. Explore the possibility of obtaining business on sub-contract basis from other countries.</i>
7. No participation in international fairs, which provide opportunities for marketing	<i>7. Empower EPB to ensure regular participation in all major International Exhibitions / Fairs for IT products and services.</i>
8. No opportunity for exhibiting local software capabilities.	<i>8. Ask the concerned Trade Associations to organize International Exhibitions / Fairs in Bangladesh.</i>
9. Marketing efforts in large software markets non-existent.	<i>9. Ask EPB to set up permanent Liaison Offices in the USA and the UK.</i>
10. Information on Bangladesh IT professionals lacking.	<i>10. Ask BCC to create a Database of Bangladeshi IT Professionals.</i>
11. Quality of Bangladeshi software developers unknown.	<i>11. Encourage IT industry members to take steps for ISO-9000 and SEI certifications.</i>
12. Opportunities for IT manpower not exploited.	<i>12. Produce sufficient skilled IT professionals for export.</i>

(The recommendations in italics refer to short term priority actions).

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1. INTRODUCTION**1.1 General**

The 18th meeting of the Task Force On Export Trade identified Computer Software as a potential thrust sector for export, and decided to carry out a study on the problems and prospects of this Industry.

Accordingly, Secretary, Ministry of Commerce, Government of the Peoples' Republic of Bangladesh, vide his notification No. BR/R-2/PANNYA-2(11)/97(L-1-9) dated 28 May 1997 , formed a Committee to make effective recommendations for promoting export of Computer Software.

The Committee, as constituted by the Government and expanded by the committee itself through co-option, is shown in Annexure 1.

Although the Committee was given two months to submit its report, an extension of another six weeks was granted at the request of the Committee.

1.2 Methodology

In the first meeting, the Committee decided to co-opt some members from private sector software houses involved in exports, so as to draw benefits from their experiences. The President of Bangladesh Computer Society, which consists of the computer professionals of the country, was also co-opted as a member.

The Committee held a series of meetings and analyzed data and information collected from various published sources.

The Committee decided to send delegations selected countries in the region which have been successful in rapidly developing their software industry (viz. India, the Philippines, Singapore and Malaysia). However, due to paucity of time, only a visit to India could be made.

A team visited the BSCIC Electronic Complex Building at Mirpur and had discussions with BSCIC officials. The team also visited the newly constructed Tongi-Ashulia Road to carry out a reconnaissance of possible site for Information Technology Village.

A Team visited the Indian cities of Mumbai, Bangalore and Calcutta to acquire first-hand knowledge from the leading members of the software Industry of India. The Report prepared by the Team is attached hereto as Annexure 2.

Export Promotion Bureau provided the necessary secretarial support, and collected the required information as and when needed. The Committee wishes to thank Export Promotion Bureau in general and the following EPB officials in particular :

a. Major (Ret.) A.K.M.Nizamul Alam, Director

b. Mr. Md. Abdur Rouf, Assistant Director

2. SOFTWARE INDUSTRY AND ITS CURRENT STATUS IN BANGLADESH

2.1 Background

The importance of Information Technology and the role it can play in the socio-economic development of a nation cannot be over-emphasized. The World has witnessed phenomenal growth in the Information Technology over the last two decades, and the countries which made a conscious decision to take advantage of such growth, have made unprecedented progress. Examples are in abundance; India, Sri Lanka, Thailand, Malaysia, the Philippines are source of the successful countries in our region.

Information Technology is the combination of all activities relating to collecting, processing, storing, using and transmitting data and information through the use of computers and communication networks.

The computer services are of the following major types:

- Systems software
- Application software
- Data communication
- Data processing
- Multimedia products

The present Committee, as formed by the Ministry of Commerce, has been entrusted with the responsibility of making effective recommendations for export of Software. Whilst the Committee has limited its deliberations to the specific task of Software export, it was felt that Data Processing Services, which require a much lower skill level, do have a potential export market. Hence some of the recommendations made in this report would refer to Data Processing Service, in addition to Software.

2.2 Market Size

The Committee was seriously handicapped in assessing the size of the international market, due to non-availability of primary data, and hence it had to depend heavily on the secondary sources. Some of the relevant information, collected from published documents, are given below :

- The total world revenue generated through activities relating to Software during 1996 is estimated at US\$ 275 billion, out of which the USA alone contributed US\$ 103 billion. The US market is growing at the rate of 12.5 % per annum.
(Source : *Study by Nathan Associates of USA, as published in The New York Times, 3 June 97*)
- The world-wide budget for jobs relating to 'Year 2000 Compliance' (Y2K problem) is US\$ 600 to 650 billion.
(Source : *Estimates by independent consultants*)
- Over 2 million people were employed in the Software Industry internationally in 1996, of which the USA alone employed 619,400 persons.
(Source : *Study by Nathan Associates of U.S.A, as published in The New York Times, 3 June 1997*)
- USA needs an additional 600,000 Programmers by the year 2000. Only about 270,000 are expected to be available from within the country.
(Source : *Internet News, May 1997*)
- The following chart shows the phenomenal growth India has witnessed in the recent past.

(In Billion US \$)
 Market 1995 1996 Growth
 Domestic 1.18 2.00 69 %
 Export 0.72 1.20 67 %
 Total **1.90 3.20 68 %**
 (Source : *NASSCOM of India*)

One can get a fairly good idea, from the above figures, about the size of the opportunities that exist for Bangladesh to explore.

2.3 Past Initiatives

Government of the People's Republic of Bangladesh has taken some measures in the past with a view to encouraging private sectors to enter into the world market. Following were the major activities undertaken during the '90s :

EXPORT DEVELOPMENT AND PROMOTION PROJECT

BGD/91/004

Having felt the need for exploring the opportunities that exist in this sector, Export Promotion Bureau took initiatives way back in 1991, and launched the above project for the following objectives :

- Product Development
- Market Identification

Through a series of meetings and seminars, the problem areas were identified and corrective measures were suggested. As part of market identification objective, marketing missions consisting of some potential private sector exporters were sent to:

- Softworld 93 in Canada, followed by Buyer-Seller Meetings in Canada and the USA
- CeBit95 in Hanover, Germany.

In addition, some ITC Consultants visited Bangladesh to study the potential resources.

STUDY ON EXPORT POTENTIAL OF SOFTWARE UNDER UNIDO PROJECT

DG/BGD/92/004/11-52

A Consultant from the USA, Mr. John S. Morrison, was hired by UNIDO for the above project. Mr. Morrison visited Bangladesh three times and submitted three separate reports. The recommendations, which were very generalized in nature, were discussed in a National Workshop organised by Ministry of Science and Technology in 1995. However, no follow-up action appears to have been taken.

IBCS-PRIMAX SOFTWARE LIMITED

This Company was recognized as an export-oriented Software House and BSB financed this organization at a concessional rate of interest.

NORTH AMERICAN COMPUTING DYNAMICS

This Company was recognized as a 100 % export-oriented Data Processing Service House. Bonded warehouse facility was made available and duty-free imports of a substantial number of computers and peripherals were allowed.

BANGLADESH INFORMATION TECHNOLOGY GROUP LIMITED

At the behest of EPB / ITC / UNDP Project BGD/91/004 a Virtual Company consisting of 23 IT Vendors of the country, was formed under the name and style 'Bangladesh Information Technology Group Limited (BITGL)'. This Company was expected to promote export of Software and Data Processing Services with the help of combined resources available with the share-holding companies.

2.4 Export Performance

A few organizations and some individuals have been exporting Software and Data Processing services. However, the total volume of such export is negligible and complete records of such performance are not available. Computer Solutions Limited, ANIRBAN, IBCS-Primax, BRAC, NACD and Machine-Dialogue, are among the firms/organisations which have made some exports about which the Export Promotion Bureau could collect some information. Despite their best efforts, EPB is still unable to procure documented evidence of actual exports Bangladesh has made. The Committee understands the reasons for the exporters' unwillingness to divulge such information.

Whilst all exporters received government patronage in some form or other, the performances of NACD and BITGL remain unsatisfactory.

2.5 Bangladesh's Strength

Although not properly exploited yet, Bangladesh does have quite a few inherent strengths which can be used as the launching pad for making this country a potential offshore source of Software and Data Processing Services. Some of these advantages are :

- a) A substantial number of educated unemployed youth force, with ability to read and write English, exists in the country. They can be trained in the required skill (particularly in Data Processing Services) within a short time.
- b) Quite a few Bangladeshi skilled professionals have been working abroad. They can be encouraged to return back to the country and/or collaborate with Bangladeshi entrepreneurs, provided proper environment is created.
- c) Universities in Bangladesh are turning out an increasing number of graduates in Computer related subjects every year, although the number is much less than the requirement.
- d) A large number of Bangladeshi students are studying overseas in Computer related subjects.
- e) A wide range of Hardware platforms, from Mainframe to PC, with a large number of Macs, are available.
- f) Reasonable skills exist in the following areas :
 - (i) Operating System - Windows, Windows 95, MAC/OS, Novell Netware, Windows NT, UNIX, OS/400.
 - (ii) Programming Language - C++, Visual Basic, Visual FoxPro, COBOL, RPG, OOP, J++
 - (iii) RDBMS - Oracle, Informix, DB/2
- g) Bangladesh offers a very attractive low wage level, viz.

	Bangladesh	India	U.S.A.
Programmers (per month)	US\$ 400 to 800	US\$ 1,200	US\$ 4,500
Data Entry (Per 10,000 key strokes)	US\$ 3 to 5	US\$ 10	US\$ 30 to 50

3. IDENTIFIED PROBLEMS AND BARRIERS

The Committee identified the following problems and barriers hindering the growth of export-oriented Software and Data Processing Services Industry, and classified those under the following major functional areas :

- o Fiscal

- Human Resource Development
- Infrastructure
- Marketing

3.1 Fiscal

- a) The user base of computer is extremely low because of high cost of computers and peripherals, due mainly to high incidence of import duty and VAT.
- b) In the absence of any incentive scheme, the exporters do not feel encouraged to explore potential markets.
- c) Interest rates on loans, charged by the Commercial Banks (currently between 15% to 17% p.a.) are too prohibitive for entrepreneurs to investment in IT field.
- d) The existing banking procedures are too complicated to induce exporters to bring their export remittances through banking channel.

3.2 Human Resource Development

- a) Course curricula for computer-related education followed in the Universities do not fully reflect the requirements of the IT industry.
- b) The number of graduates in computer-related subjects produced by the Universities each year is far less than the actual requirement.
- c) Substantial number of such graduates leave the country for overseas employment.
- d) Private IT training institutions lack the required quality of trainers.
- e) Private IT training institutions do not follow any standard course curricula and examination system.
- f) There is no planned scheme to increase computer literacy.

3.3 Infrastructure

- a) Absence of necessary laws protecting the Intellectual Property Rights, discourages prospective overseas customers from using Bangladesh as a source of supply.
- b) The facility of high speed data (both nationally and internationally) is very limited.
- c) Present cost of data communication is very high.
- d) High Speed Video Conferencing facility is not available.
- e) ISDN Telecommunication line with Fibre Optic backbone does not exist.
- f) Resource materials on Information Technology, such as books, magazines, software etc. are scanty and scattered.
- g) Whatever little hardware, software and communication resources are available, cannot be found under 'one roof'.
- h) Custom formalities for handling equipment / documents for export purpose are too time consuming to encourage export.

3.4 Marketing

- a) Bangladesh is not known to be a potential off-shore source of software and Data Processing Services.
- b) Information on prospective overseas customers is not available.
- c) Not all software in use are Licensed.
- d) The use of Customized Application Software is virtually non-existent; therefore, domestic Software market has not developed at all.
- e) It is not possible to enter into the export market without having a strong domestic market base.

4. RECOMMENDATIONS

The Committee recognizes that it is not possible to implement all the recommendations at once, and that all the suggested measures are not needed at the same time. Therefore, recommended actions have been classified under 'Short Term' and 'Medium Term', depending on the priority and importance. (The time frame for Short Term should be a year and for Medium Term 3 to 4 years). The Committee feels that in the very rapidly changing scenario of IT Industry growth, it is very difficult to go for a longer time horizon.

The recommendations have been grouped under the following areas , the same way that the problems have been identified :

- Fiscal
- Human Resource Development
- Infrastructure
- Marketing

4.1 Short Term

4.1.1 Fiscal

- a) To exempt Computer Hardware, Software, Peripherals, Communication Equipment, related components, and spare parts thereof, from Import Duty, VAT, Infrastructure Development Surcharge, Import License Fee, Advance Income-Tax etc.
- b) To allow Tax Holiday for the export-oriented Software and Data Processing Services Industry, for 10 (ten) years (a unit will be considered export-oriented, if at least 70 % of its revenue comes from export).
- c) To give a 15 % price advantage (i.e. "domestic preference") to local Software developers over import of the same products.
- d) To allow export of Software and Data Processing services through Sales Contract, instead of Letters of Credit.
- e) To bring the Bank interest rate on loans / advances / overdraft down to the level applicable to other export-oriented thrust sectors.
- f) To allow Special Custom Bonded Warehouse facilities for all export -oriented software houses.
- g) To create a Special Fund to be administered by the Ministry of Science & Technology for giving interest-free loans to teachers and students for purchase of computers and related equipment, through

financial institutions who should be reimbursed with the interest lost.

h) To create a Venture Capital Fund of at least Tk.10 Crore at Export Promotion Bureau for equity participation in export-oriented Software and Data Processing Services Companies.

4.1.2 Human Resource Development

a) To upgrade the Bangladesh Computer Council to the level of a Division and to give it the necessary authority to function as the primary facilitator to help growth of private sector IT Industry (such as National Computer Board of Singapore and Department of Electronics of India).

b) To ask Bangladesh Computer Council to produce within 1999 at least 1,000 (one thousand) 'Trainers' capable of imparting basic computer education in the latest programming languages.

c) To introduce 'Basic Computer Skills' as a Compulsory Subject for all students in all Universities of the country at Graduation level, starting from 1998.

d) To introduce 'Computer Science Department' in all Polytechnics, BITs, Universities and selected Colleges, with at least 50 seats per class per year per institute.

e) To ask Bangladesh Computer Council to review 'Computer Science' course curricula currently being used in various Universities after discussions with the Universities, IT Professionals and IT Associations, keeping in view the requirements of the 21st Century, and to request the concerned Institutions to consider changes in their curricula in line with the suggested recommendations. Such review may be undertaken every two years.

f) To empower Bangladesh Computer Council to develop a national examination and certification system for the private IT Training institutions, to give Certificates to those passing such examinations, and to encourage employers of both Government and Private Sectors to give preference to such Certificate holders for jobs.

4.1.3 Infrastructure

a) To enact appropriate laws for the protection of Intellectual Property Rights, as required under the WTO Charter.

b) To set up low-cost high-speed data and voice communication link with the USA and the UK, with a minimum speed of 2 Mbps. Private Sector should be allowed to provide such service along with BTTB.

c) To set up an Internet Node in the country.

d) To make Internet connectivity available at affordable rate, not exceeding Tk.0.50 (fifty paisa) per minute of use.

e) To make Video Conferencing facility available through VSAT.

f) To allow Private Sector to set up their own Satellite Communication links in order to obtain competitive price advantage and greater availability of Communication facilities.

g) To create separate Cells at Chittagong, Dhaka, Kamalapur and Benapole Customs Houses to handle all incoming and outgoing equipment / documents /data media of export-oriented IT Industry, so as to ensure clearance of such equipment / documents within 24 hours.

h) To create a Central Resource Center at Bangladesh Computer Council with current Books, Magazines, Periodicals, Software, Manuals etc. on IT related subjects.

- i) To encourage software firms to form an association primarily to protect the interest of the Software and Data Processing Services Sectors, in line with NASSCOM, ASOCIO, WITSA, JISA etc.
- j) To assign one Assistant Director of Export Promotion Bureau for this sector on a full time basis.

4.1.4 Marketing

- a) To arrange meetings/seminars in selected locations in USA with a concentration of IT Professionals of Bangladeshi origin (e.g. Silicon Valley, California, USA) to inform them about the incentives being provided by GOB and mobilize their support to help Bangladeshi entrepreneurs. These meetings should be addressed by policy makers/high officials/IT professionals representing GOB.
- b) To ban use of all pirated Software in all organizations, both in the public and private sectors.
- c) To encourage all Government, Semi-Government, Autonomous organizations, Sector Corporations, Banks, Insurance Companies etc. to replace the manual system of documentation and records by Computerised system through the use of locally developed Customized Application Software.
- d) To send Marketing Missions to North America / E. U. consisting of Members from IT Associations and EPB, on a regular basis, with a view to publicizing Bangladesh Software and Data Processing Services capabilities as well as establishing personal contacts with the prospective customers.
- e) To create a Database of all major organizations / institutions engaged in out-sourcing of Software and Data Processing Services, to be made jointly by EPB and Bangladesh Computer Samity (or Software Association, when it is formed), and to maintain a special Home Page in the INTERNET.
- f) To explore the possibility of obtaining business on sub-contract basis from the suppliers of Software and Data Processing Services in India, Sri Lanka and the Philippines etc.
- g) To empower Export Promotion Bureau to ensure regular participation in all major International Exhibitions / Fairs for IT products and services.
- h) To ask the concerned Trade Associations to organize International Exhibitions / Fairs in Bangladesh for IT products and services, in collaboration with Export Promotion Bureau.

4.2 **Medium Term**

4.2.1 Fiscal

- a) To create a Market Promotion Fund to be administered by Export Promotion Bureau for meeting the expenses of promoting Bangladesh as a potential source of Software and Data Processing Services to the overseas markets.
- b) To create a special fund for supporting industry oriented IT research and development activities, to be administered by Bangladesh Computer Council.

4.2.2 Human Resource Development

- a) To introduce compulsory education in Computer Studies at School and College levels.
- b) To strengthen Bangladesh Computer Council and make it responsible for imparting higher level special need-based training to the IT Professionals graduating from the Universities. Such training programmes should be gradually extended to District Headquarters where facilities are available.

- c) To incorporate industrial attachment program in final year of Computer Science course at Degree level.

4.2.3 Infrastructure

a) To set up an Information Technology Village (ITV) at a suitable place on Tongi-Ashulia Road near Dhaka, (e.g. the intersection of Tongi-Ashulia Road and the kutchra road leading to Mirpur) and to equip the same with all necessary facilities, such as high speed communication, Special Custom Bonded Warehouse, Resource Centre (hardware, software, manuals, book), Power and Water Supplies, Telecom facilities etc.

b) To ask BTTB to set up ISDN/ HDSL / ADSL Lines all over the country, and a fibre optic backbone.

c) To set up a Communication Hub in Bangladesh.

d) To form a Standing Committee, with the following members, to formulate and implement policies, strategies and action plans for promotion of export of Software and Data Processing Services :

i. Vice Chairman, Export Promotion Bureau - Convenor

ii. President, FBCCI - Member

iii. Executive Director, BCC - Member

iv. Member (Customs), NBR - Member

v. Member, BTTB - Member

vi. A senior Academic from the IT field - Member

vii. President, Bangladesh Computer Society - Member

viii. President, Software Association - Member

(Till a separate Association is formed,

President, Bangladesh Computer Samity)

4.2.4 Marketing

a) To ask Export Promotion Bureau to set up permanent Liaison Offices in the USA and the UK to be manned by professional marketers of IT field, who should perform and achieve definite quantified business objectives.

b) To ask Bangladesh Computer Council to create a Database of Bangladesh IT Professionals working at home and abroad, in order to obtain their help when needed.

c) To encourage IT industry members to take steps for ISO-9000 certifications and eventually ratings from Software Engineering Institute (SEI) of Carnegie-Mellon University of USA.

d) To produce sufficient skilled IT professionals for export.

5. CONCLUDING REMARKS

The necessary ingredients to become a potential exporter of Computer Software and Data Processing Services do not currently exist in the required quantum in Bangladesh. If we want to enter into this market, we need to cross a number of hurdles within a very short time span. Concerted efforts from everybody concerned have to be put in on a war-footing basis, as this sector has the potential to generate the highest revenue for the country.

A coordinated action plan involving the following Agencies will produce the desired results :-

- ***Bangladesh Computer Council***

This organization needs to be upgraded to a Division in the Ministry and headed by a professional with the necessary authority to act as the focal point of providing required input for the Industry.

- ***Educational Institutions***

Universities, BITs, Colleges and Polytechnics both in Public and Private sectors, need to be sufficiently geared up to produce right kind of professionals in the required numbers.

- ***Development Partners***

World Bank, ADB, UNDP, EC, OECF, JICA and other development partners should be approached to provide funds to set up necessary infrastructure, particularly for developing human resources.

- ***Venture Capital***

Venture Capital Fund should be placed at the disposal of EPB for investment in this sector.

- ***Non-Resident Bangladeshis (NRBs)***

NRBs should be encouraged to project Bangladesh through their professional excellence, and eventually to return to the country to set up export houses.

- ***Software Industry Association***

A separate Association of firms involved in Software Development and Data Processing Services Industry should be established to protect the interest of this industry through maintenance of constant liaison with Government and other agencies.

Annexure - 1

COMPOSITION OF THE COMMITTEE

1. Professor Jamilur Reza Choudhury -Convener
Bangladesh University of Engineering & Technology
2. Mr. A. K. M. Nurul Amin Khan
General Manager, Planning, BTTB
(Representative of Ministry of Posts & Telegraph) - Member
3. Mr. Shah Mohammad Najmul Alam - Member
Joint Secretary, Ministry of Science and Technology
4. Mr. Faisal Ahmed Choudhury
Vice Chairman, Export Promotion Bureau - Member

5. Prof. M. A. Sobhan
Executive Director, Bangladesh Computer Council - Member
6. Mr. A. S. M. Quasem,
President, Dhaka Chamber of Commerce and Industry - Member
7. Mr. Mustafa Jabber
President, Bangladesh Computer Samity - Member
8. Mr. S. M. Kamal,
Director (HRD), BEXIMCO - Member
9. Mr. Shaikh Abdul Aziz,
Managing Director, LEADS Corporation Ltd. - Member
10. Mr. Jamil Azhar, ANIRBAN - Member
11. Dr. Abdul Matin Patwary
President, Bangladesh Computer Society - Member
(in some of the meetings Dr. Aminul Haque, Vice-President, represented the President, BCS)
12. Mr. Moin Khan,
Computer Solutions Limited - Member
13. Mr. M. Sabir Ahmed
Computer Services Ltd. - Member
14. Mr. B. M. M. Mozharul Huque
Director General, Export Promotion Bureau - Member Secretary

Annexure - 2

EXPORT OF SOFTWARE AND DATA ENTRY SERVICES THE INDIAN EXPERIENCE

(Report of the Team which visited India)

I. INTRODUCTION

In pursuance of Resolution Number 5 of the meeting of the Committee For Recommendations On Export of Computer Software, held on 4 August 1997, a team comprising the following members of the Committee visited Indian cities of Mumbai, Bangalore and Calcutta from 16 to 23 August 1997 :

1. Professor Jamilur Reza Choudhury - Team Leader
2. Mr. Shaikh Abdul Aziz - Member
3. Mr. Momluk Sabir Ahmed - Member
4. Mr. S. M. Kamal (*joined the Team only during the Calcutta visit*) - Member

II. THE VISIT

The delegation visited the following establishments and had in-depth discussions with the senior officials of these organizations (Appendix - A) :

- a. Software Export Houses - 14

- b. Data Entry Export Houses - 02
- c. Educational Institutes - 02
- d. Software Technology Parks - 02
- e. Government Officials - 02

The Team was able to visit different types of organizations involved in a wide spectrum of activities, the size of such establishments ranging from 10 (ten) to 9,000 (nine thousand) professionals per unit.

III. THE FINDINGS

India entered into the international software market from mid 80's through sporadic efforts of a few Indian nationals working abroad in the Computer field. Those individuals, mostly Non-Resident Indians (NRIs), through their personal contributions made towards the operations of their overseas employers, managed to create an impact about Indian's ability to offer Data Processing and Software Services to the international market place.

Some of those NRIs decided to come back to India to set up Software Export Houses, while maintaining their overseas liaison.

This was quickly followed by Indian Government's active support in nurturing this nascent Industry. Computer Software Policy was formulated in 1986 and action plan was drawn up to provide necessary infrastructure facilities.

The educational and training institutions did not fail to read the signals, and through rapid expansion, have been producing a large number of graduates in the appropriate vocation.

The private sector, in their own interest, set up their own training programmes to suit the market needs.

Meanwhile, as the domestic software market in India continued to grow, the professionals were getting ample opportunity to improve upon their expertise and the overseas customers could assess India's performance standard.

The services provided by India for export market are primarily of two types :

i. On-Site :

Technical personnel are posted at the overseas customer sites to complete the contracted job. This is basically 'body-shopping'. About 60 % of India's total export comes out of this sector. But it is reducing drastically.

ii. Off-Site :

Contracted jobs are completed in India, and the implementation is done at the customers' site. Roughly 40 % of current export revenue is generated through this operation. This ratio of off-site to on-site work is increasing at a fast rate.

The Team records its findings in the following heads :

A. Fiscal

1. All exporters are allowed to import Hardware and Software free of Duties and Taxes.
2. Duties and Taxes on Computer Hardware and Software for domestic market have been reduced from 300 % in 1978 to about 38% for hardware and 0% for software in 1997.
3. There is no Duty or Taxes on import of Computer Systems for non-commercial R & D units.

4. Income-tax Holiday for any 5 (five) consecutive years during the first 8 years of operation is allowed for all exporters.
5. Banks are required to offer Pre-shipment and Post-shipment financing to the exporters at 4 percent point below the normal rate of interest.
6. Special Import License is available to the exporters at the rate of 15% of the net foreign exchange earning, which can be used for import of any item that the exporters may require in connection with their export activities. This License can also be transferred to another importer and a premium of about 10 % can be collected in cash.
7. Depreciation at the rate of 33 % of the written-down value is allowed for all equipment.

B. Human Resource Development

1. Computers were made available in schools and colleges from early 80s.
2. Educational Institutes made conscious decision, as early as mid 80s, to produce large number of Computer Scientists and Engineers.
3. Course curricula for computer related education are updated at regular intervals to cater to the requirements of the market.
4. Universities and R&D Institutions both in public and private sectors undertake high level R&D projects on Software, System Integration etc.
5. Big exporters, in collaboration with multinational computer companies, offer research facilities to persons desirous of undertaking such work.
6. Department of Electronics, Government of India has established, in collaboration with UNDP, a National Centre for Software Technology (NCST) at Mumbai for R&D, education and software development activities.
7. Department of Electronics, Government of India has accredited a number of Institutes who are authorized to award Degrees titled Master of Computer Applications (MCA).
8. Private sector organizations such as NIIT, APTEC etc. turn out a large number of professionals every year.
9. Indians working abroad in computer fields were motivated to return home.

C. Infrastructure

1. Department of Electronics, Government of India, has set up 7 (seven) Software Development Parks (STP), with all necessary buildings and telecommunication facilities. The first such Park was established in Bangalore in 1992 at a cost of 5 crore Indian Rupees. 'One-Stop' service is provided from these STPs. All Government approvals are accorded through this window. Any such approvals are given within a maximum of 2 (two) months from the date of filing the applications. Permission for Special Custom Bonded Warehouse needs a maximum of 15 (fifteen) more days.
2. Other such institutions (SEEPZ, Electronics Park, Export Processing Zones etc.) have also been set up in strategic locations.
3. A separate Company, called VSNL, was set up to provide telecommunication facilities through Satellite with T-1 as the protocol, through which exporters can achieve a speed of 64 kbps. This will

shortly be increased to 128 kbps. A dedicated leased line cost Indian Rs.1.25 lac per month for guaranteed 64 kbps.

4. ISDN Cabling has been provided to most large cities.
5. Special Custom Bonded Warehouse facilities have been provided to all exporters, regardless of their location.
6. The rent charged for space allotted to exporters in STPs and other Zones is 1/20th the normal market rate.
7. Uninterrupted Power Supply is guaranteed to the STPs and Zones.
8. The enactment of the Copyright Protection Act, 1994 and its enforcement have been recognised as major contributors to the phenomenal growth of software industry.

D. Marketing

1. Large domestic market helped India in creating a dependable source of Software supply.
2. NRIs engaged in Computer field were the most effective promotional tool in the 80s.
3. Government identified 'Software' as thrust sector in mid-80s.
4. Exporters participate in international exhibitions / fairs every year. The same participants visit the same venue each year. The Government sponsors some of these activities.
5. All exporters have some business contact point in the overseas markets, either through their own office, or by way of marketing arrangement with another company.
6. The Indian Software Companies have managed to get a lot of work related to Y2K ("the Millennium Bug") problem.
7. The Indian Data Processing companies, in collaboration with NRIs, are successfully exploiting the Health Transcription business in USA.

IV. CONCLUDING REMARKS

India has been successful in establishing itself as a major source of Computer Software Services largely due to the timely contributions from the following groups / agencies :

- ***Non-Resident Indians (NRIs)***

Through their professional excellence and competence, NRIs created a positive impact in the international market place. Their patriotism and business acumen brought them back 'home', and got them involved in this Industry.

- ***Government of India***

Department of Electronics, under the Ministry of Science and Technology, and headed by a senior Permanent Secretary, was given the required authority and freedom to create the appropriate environment for the Industry to grow. The enactment of Software Copyright Protection Act, 1994 and its enforcement (in collaboration with NASSCOM) have been major contributors to the growth of software industry.

- **Educational Institutions**

Universities, Colleges, Technical Institutions etc., both in Public and Private Sectors, offered their total support in producing the right types of computer professionals in large numbers.

- **World Bank / UNDP**

These international organizations helped the Industry through periodic funding for strategic studies and investments. World Bank funded a number of studies on the Industry, while UNDP was the main financial contributor for setting up NCST.

- **Venture Capital**

When India was gradually establishing itself as a reliable source of supply of Software Services, the Government of India as well as the State Governments provided venture capital fund to augment the growth. Private venture capital was also available in abundance.

- **National Association of Software and Service Companies (NASSCOM)**

This is the national forum representing the Computer Software and Service Industry, dedicated to the cause of protecting the interest of its members. Of all the agencies, NASSCOM probably made the most contribution in taking the Industry to where it is today, through continuous dialogues and consultations with relevant Government Departments and other organizations.

V. RECOMMENDATIONS

Bangladesh can learn from the Indian experience and should adopt the following measures which have helped India achieve the fast rate of growth :

1. Mobilize Non-Resident Bangladeshis (NRBs) involved in I.T. activities abroad. This can be done by arranging meeting/seminars in selected locations (e.g. in the Silicon Valley of California, USA) where the incentives being provided by GOB may be highlighted. These meetings should be addressed by policy makers/high officials/IT personnel representing GOB.
2. Set up Software Technology Villages with all necessary infrastructure facilities in line with STP, SEEPZ etc.
3. Re-design course curricula of Computer related studies in the Universities, Colleges etc.
4. Expand facilities in Universities, Colleges etc. to produce a much larger number of Computer professionals.
5. Enact appropriate laws to protect Intellectual Property Rights of Computer Software.
6. Take advantage of the immediate opportunities available in the following areas :
 - Year 2000 conversion - a market of US\$ 650 billion
 - Euro-Currency Conversion - to be required as soon as the E.U. agrees on Single Currency. Market size still unknown.
 - Health Transcription Data Entry Services.

7. Focus on Multimedia market which is experiencing the fastest growth.
8. Participate in 'Gateway 97', a Multimedia Exhibition to be held at the Science City of Calcutta from 5 to 9 November 1997.
9. Influence Microsoft Corporation of USA to involve Bangladesh in their plan to introduce Bangla as a language for Windows NT 5.0.
10. If necessary draw from educational resources available in Calcutta to train our prospective professionals.
11. Take steps for ISO 9000 Certifications, and, eventually, rating from Software Engineering Institute of Carnegie - Mellon, U.S.A. (SEI).
12. Form NASSCOM type organization of the firms involved in Software development and Data Processing Services.

Prof. Jamilur Reza Choudhury
Team Leader

APPENDIX - A

Organisations Visited and Government Officials met by the Team

A. SOFTWARE EXPORT HOUSES

1. Citicorp Overseas Software Limited - Mumbai
2. Tata Consultancy Services - Mumbai
3. Tata IBM Limited - Bangalore
4. Icode - Bangalore
5. Microsoft Corporation India Pvt Limited - Bangalore
6. Wipro Limited - Bangalore
7. Intellect Data Systems & Software Pvt Limited - Bangalore
8. Ampersand Software Applications Limited - Bangalore
9. VeriFone India Private Limited - Bangalore
10. Price Waterhouse Associates - Calcutta
11. Phoenix Software Limited - Calcutta
12. Techna International Corporation - Calcutta
13. Worldware, India - Calcutta
14. Globsyn Technologies - Calcutta

B. DATA ENTRY EXPORT HOUSES

1. Health Scribe India Pvt Ltd - Bangalore
2. Optimal Computing (P) Limited - Calcutta

C. EDUCATIONAL INSTITUTIONS

1. National Centre for Software Technology - Mumbai
2. Indian Institute of Science - Bangalore

D. SOFTWARE TECHNOLOGY PARKS

1. Bangalore

2. Calcutta (Salt Lake City)

E. GOVERNMENT OFFICIALS

1. Mr. Amiya Baran Saha, Director (Technical)
Department of Industries
Government of India, (New Delhi) - Mumbai

2. Mr. Nandan Bhattacharya, Managing Director
West Bengal Electronics Industry Development
Corporation Limited - Calcutta

APPENDIX - B

INDIAN SOFTWARE INDUSTRY

I. Domestic	95-96 (Actual)	96-97 (Forecast)	99-00 (Forecast)
Turnkey	141	189	563
Products & Packages	211	423	1,549
Consultancy	42	70	338
Data Processing	51	85	282
Others	20	23	85
Sub-Total	465	790	2,817
II. Export			
On-Site Services	394	535	1,070
Off-Shore Services	197	324	901
Off-Shore Packages	73	113	704
Others	25	42	142
Sub-Total	689	1,014	2,817
TOTAL MARKET	1,154	1,804	5,634

Note: Figures in Million US Dollars

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