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SAVAR, DHAKA

ROLE OF INVESTMENT CORPORATION OF BANGLADESH IN THE DEVELOPMENT OF CAPITAL MARKET

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GLOSSARY OF TERMINOLOGIES USED

ICB	- Investment Corporation of Bangladesh.
DFIs	- Development Finance Institutions
NCBs	- Nationalised Commercial Banks.
Mutual Fund	- Mutual Funds are closed end (fixed amount) funds constituted against selective portfolio. Certificates in the name of the funds are issued to the investors.
GOB	- Government of Bangladesh.
Unit Fund	- Unit Fund is an open end fund constituted against portfolio consisting securities of different companies. Certificates are issued from the fund. Unit Fund Certificates are sold throughout the year & prices are fixed by ICB.
NGOs	- Non Government Organizations.
CBs	- Commercial Banks.
DSL	- Debt Servicing Liability.
FFYP	- Fourth Five Year Plan.
DSE	- Dhaka Stock Exchange Limited.
CCI	- Controller of Capital Issues.
Money Market	- Market which deals in financial instruments of short term nature.
Capital Market	- Market which deals in demand and supply of long term instruments and funds.
Portfolio of Securities	- Combination of shares and securities for the purpose of earning profit and capital appreciation.
Consortium Arrangement	- Association of ICB, DFIs, NCBs and other financial institutions for the purpose of providing underwriting & bridge finance support to Public Limited Companies.

Contd.

- Public Issue - Portion of equity of a Public Limited Company earmarked for general public.
- Underwriting - Guarantee given to a public limited company to the effect that underwriter will take up shares in the event they are not subscribed by the public.
- IFC - International Finance Corporation.
- ADB - Asian Development Bank
- HBFC - House Building Finance Corporation.
- MLS - Management Information System.

CS CamScanner

ROLE OF INVESTMENT CORPORATION OF BANGLADESH
IN THE DEVELOPMENT OF CAPITAL MARKET

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I. INTRODUCTION

1.0. Background :

Bangladesh is a Least Developed Country(LDC) with a per capita income of US\$ 170. It is one of the poorest countries of the world(5th in terms of per capita income) having a vast size of 110.0 million population. Predominantly it is an agro-based economy having 57% of population below the poverty line and an illiteracy rate of 74.0%. As on 1988, the total external debt of Bangladesh stood at US\$ 10219.0 million ^{1/}.

With the increase in population, the contribution of Agriculture Sector in the economy have been diminishing continuously. In 1988, the contribution of Agriculture Sector to GDP was 46% and that of industry sector was 10%.

Thus the strategic importance of economic development has been focused more towards industrialisation and human resources development to alleviable poverty and to sustain the growth. But in the backdrop of slow industrial growth during the Third Five Year Plan period it has become all the more essential to accelerate the pace of industrialisation during the Fourth Five Year Plan with peoples' participation.

Bangladesh with a very negligible rate of savings(2.7%) has been facing dearth of capital. As such in order to mobilize internal resources, to augment the process of industrialization and economic development the need of sound

^{1/} World Development Report, 1990 "Poverty" = A publication of World Bank, Oxford University Press, Washington, June, 1990.

capital market can hardly be overemphasized. In order to convert savings into productive investment and to transform the hope of self-sustenance near to reality it is essential to develop the base of financial markets, particularly the capital market. The trend of deposit in the banking sector is shown in APPENDIX 'A'.

1.1. Objective of the Report :

The main objective of this Report is to make a review of the current structure of the capital market of Bangladesh, particularly the 'Securities Segment' of the market and the role of Investment Corporation of Bangladesh(ICB) in its development. More specifically, attempt will be made to make a review of ICB's operations as an Investment Bank, identify its major problems and suggest strategies/action programs to help develop the capital market by channelizing savings into investment. It is presumed that the Corporation can play a vital role in the development of capital market in future which is an essential pre-condition of industrialization.

1.2. Scope of the Study :

Development of 'Capital Market' has wider meaning and scope. But this study will be restricted to the analysis of current operations of ICB in relation to its activities to the 'Primary Market' and 'Secondary Market'. Analysis of activities of Controller of Capital Issues(CCI), Dhaka Stock Exchange Ltd.(DSE), Development Finance Institutions(DFIs) and other institutions will not be carried out. Though for clarify, the structure of capital market will be discussed in brief. An attempt will be made to analyse operational strengths and weaknesses of ICB in order to suggest future strategies/action programmes to help develop capital market of Bangladesh.

1.3. Methodology & Limitations:

In preparing this report mostly data from secondary sources have been used. A more analytical study could be undertaken if the constraint of time & availability of data/ information can be resolved. Facts, data & information have been collected mainly from published documents, books, periodicals, reports and records of ICB, DSE & other Govt. agencies. Discussion with some of the knowledgeable persons and experts have also been undertaken within the given time. Capital market is a wide subject and as such it is not possible to cover the whole range of issues/areas. Therefore, this report mainly deals with the securities segment of the capital market.

1.4. Plan of Presentation:

The contents of the report have been divided into nine Chapters. In the Introductory Chapter, mainly the objective, scope & methodology of the report have been discussed. The structure of capital market in Bangladesh, ICB's role & Performance, are illustrated in Chapter II & III. In Chapter IV & V operational problems, fund position & resource mobilisation have been explained while in Chapter VI future thrust of ICB is examined. The experience of some selected Asian Countries and strategy for the development of capital market have been discussed in Chapter VII & VIII with concluding note in chapter IX. Appendices, Bibliography etc. are annexed separately.

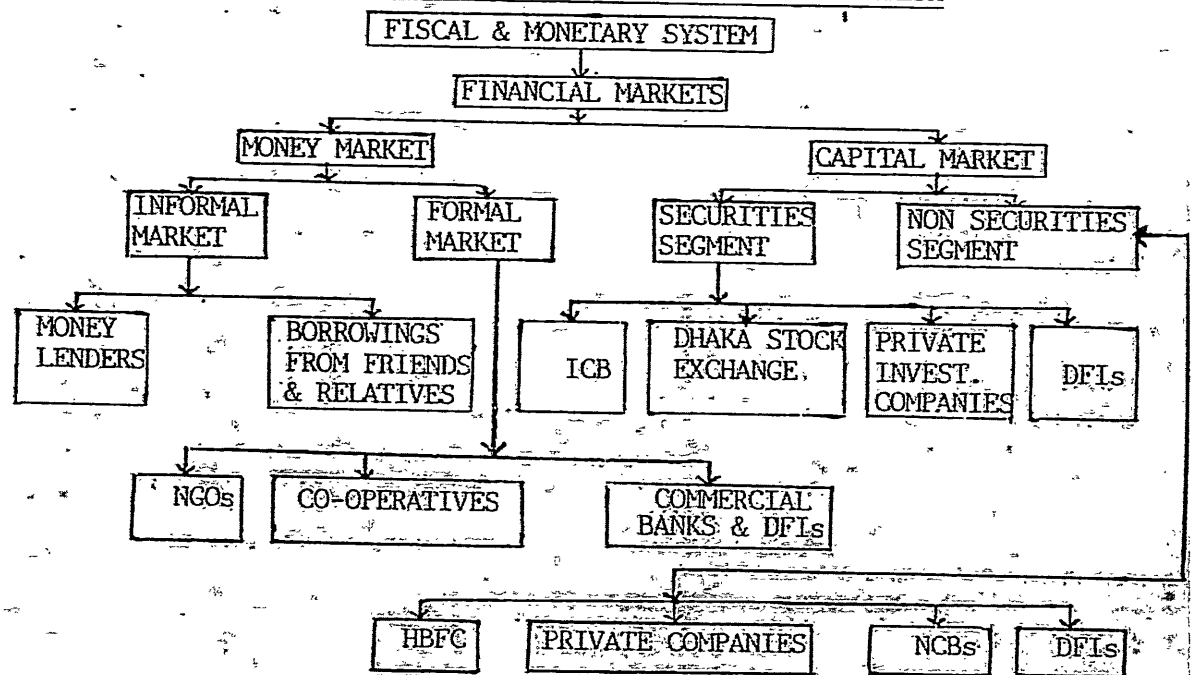
II. THE STRUCTURE OF CAPITAL MARKET IN BANGLADESH

2.0. The Composition of Capital Market :

The financial system comprises ^{of} a large variety of institutions, instruments, and markets. Because of such diversities, financial markets are commonly distinguished into 'Money Market' and 'Capital Market'. The money market deals in financial instruments of short-term nature and mostly the commercial banks are involved in the formal (institutional) segment of the market. 'Money Lenders' are involved in the informal segment of the market. The capital market trades in long term financial instruments (i.e. project loans, mortgages, stock, bonds, etc.). So 'Capital Market(s)' is known as the complex of institutions and mechanisms whereby intermediate and long term funds are pooled through different instruments (e.g. securities/stocks, bonds/debentures, etc.) and made available to industries, Government, business and individuals for investment'. Capital market operations in Bangladesh is a recent phenomena. In the broad classification of capital market, it may again be divided into non-securities segment and securities segment. In Chart-I below the composition of 'Financial Markets' of Bangladesh is explained :

CHART-I

STRUCTURE OF FINANCIAL MARKETS IN BANGLADESH



2.1. The non-securities Segment of the Market:

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In the non-securities segment, medium & long term financing to industrial projects are mainly carried out by BSB & BSRS. These DFI's (Development Finance Institutions) provide 5-15 years term loans both in local & foreign currencies. HBFC has been providing long term loans for house building against mortgage of properties with a repayment period of 15-25 years since 1972. The NCBs (Nationalised Commercial Banks) do also some long term industrial financing & give mortgage loans.

The DFIs (BSB, BSRS, BKB, etc.), nationalised commercial banks & other specialized institutions have been engaged in extending long term credit facilities to set up industrial enterprises and agrobased projects in the private sector. Besides, four joint venture companies were set up to provide long term loans/equity support to industry and other related sectors. These are :

- (i) Industrial Promotion & Development Company of Bangladesh Ltd. (IPDC),
- (ii) Saudi Bangladesh Agricultural & Industrial Investment Co. Ltd (SABINCO),
- (iii) Industrial Development & Leasing Co. of Bangladesh Ltd. (IDLC) & (iv) United Leasing Co. (ULC). IPDC & SABINCO generally offer long term loans & equity support. IDLC & ULC finance equipment & machinery on lease basis.

2.2. The Securities Segment of the Market:

The securities segment creates wide variety of marketable instruments (e.g. securities/bonds) alongwith market for securities, bonds, etc. The securities segment is the most essential segment of the capital market. Main institutions operating in the market are : Investment Corporation of Bangladesh (ICB), National Credit Ltd. (NCL), Bangladesh Commerce & Investment Ltd. (BCI), BSB, BSRS, DSE, etc. Regulatory agencies involved are: Controller of Capital Issues (CCI), Registrar of Joint Stock Companies, Bangladesh Bank and Board of Investment.

ICB is a Public Sector Institution I/ while NCL and BCI are the private sector investment companies with objective to operate in the securities market, but could not make desired impact as yet. BSB & BSRS alongwith insurance companies & commercial banks also undertake limited operations in the securities segment of the market.

The Dhaka Stock Exchange Ltd. (DSE) is the only stock exchange of Bangladesh. It is the heart of secondary market. DSE was initially established in 1954 and started work in 1956 with 190 members. After liberation, it was re-activated in August 1976. The DSE has a vital role to play in promotion and development of the stock market. The DSE has now been operating in its own building with a paid up capital of Tk.5.0 lakhs divided into 250 ordinary shares with 195 members. It is a public limited company and is managed by a ' Council ' of nine members.

In Bangladesh all public limited companies with a paid-up capital of Tk.10.0 million or more are required to list their names in the stock exchange. The DSE provides on the floor market facilities to listed stocks. Trading is carried out through open auction. The deal/transaction is evidenced in a document called ' howla ' . It also publishes information relating to daily quotation, transaction, turnover and other related statistics. It appears from secondary information that DSE was not able to play the desired role in smooth functioning of the 'Stock Exchange' & the development of secondary market due mainly to structural, operational /financial and managerial limitations.

I/ The structure of ICB alongwith objectives, functions, are discussed in details in chapter-III.

2.3. Regulatory Agencies:

The financial markets operate under the overall guidance and control of the Ministry of Finance, Govt. of the Peoples Republic of Bangladesh. Finance Division regulates operations of investment banks, stock exchange, etc. Through the Security and Exchange Rules, 1987 and other related Act/ Ordinance & Rules. To accelerate the pace of industrialisation, Govt. has established the Board of Investment (BOI) to formulate investment policy, promote and develop industries; co-ordinate, guide & decide on issues relating to industrial policies/ investments & to provide related services. The formation of joint stock companies, capital issues, security exchange & other related matters are regulated mainly by:

- (i) The Registrar of Joint Stock Companies, (ii) Controller of Capital Issues &
- (iii) Bangladesh Bank.

The Registrar of Joint Stock Companies approves the formation of limited company by ^{registering &} incorporating it under the Company's Act, 1913. Unless a company is registered/incorporated by the Registrar & its Memorandum and Articles of Association are approved, it cannot be formed legally.

The Controller of Capital Issues (CCI) virtually regulates the capital market. CCI regulates the primary market (i.e. issuance of shares/debentures to the public) by way of approving the prospectus, determining terms and conditions of public subscription, basis of allotment, etc. It also protects interest of minority shareholders. Bangladesh Bank oversees foreign investment and remittances to foreign investors. It regulates credit policies relating to transaction of shares and approves setting up of merchant/investment banks.

III. AN OVERVIEW OF ICB'S ROLE AND PERFORMANCE:

3.0. The Corporation, its Objectives and Functions:

Investment Corporation of Bangladesh (ICB) was established on October 1, 1976 (under Ordinance No. XL of 1976) with the following objectives:

- i) to develop the capital market,
- ii) to broaden the base of investment,
- iii) to mobilise savings and
- iv) to provide for matters ancillary thereto.

It is the only corporate body (investment bank) in the public sector where participation of private sector has been ensured by giving ownership of 49% of the share capital. The Corporation is managed under the general direction and guidance of a Board of Directors consisting of Chairman, the Managing Director and nine other members representing Government, institutions, and the general shareholders.

3.01. In order to achieve its objectives, the Corporation has widened its operations and undertaken different functions. Its major functions are:

- a) Underwriting of the public issue of shares,
- b) Debenture financing (purchase of corporate debentures to support local currency needs of enterprises),
- c) Operation of investors' accounts (to encourage small investors to invest their savings in the capital market),
- d) Issuance & management of Mutual Funds,
- e) Issuance and management of Unit Certificates under Unit Fund,
- f) Act as Manager/Banker to public issues and Trustee to debenture issue

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- g). Participation in the dis-investment programme of the Govt.,
- h) Participation in the establishment of Joint Venture Projects in the country;
- i) Extention of advisory services to clients/investors and ancillary services thereto.

3.1 Organisational Structure:

Though ICB is an investment bank but in broad classification it is grouped under DFIs and controlled by Finance Division of the Ministry of Finance. Managing Director is the executive head of the Corporation and a member of the Board of Directors. The Corporation is functionally divided into two wings 'Operations' & 'Administration' headed by GM's. There are eight divisions and twenty departments at head office headed by DGMS & AGMs respectively. It has five branches located at Chittagong, Khulna, Rajshahi, Sylhet and Barisal. As on August 1990, the Corporation has a manpower strength of 277 employees of which 170 officers and 107 subordinate staff. The organogram of the Corporation is appended in Appendix - B.

3.2 Analysis of Current Operations and Performance:

Operations and performance of ICB have to be reviewed in the light of its objectives. Operational activities of the Corporation are primarily geared towards creating supply of marketable securities and augmentation of demand for securities with a view to develop a sustainable and active securities market. Generally, investment in securities market contains the element of risk and return on investment always is not guaranteed. It depends on the performance of corporate bodies/companies, securities market and Government policies. Investors are always inclined to get short term benefits then to invest in long-term ventures e.g. in securities/bonds. This risk-aversion is particularly pronounced in countries

with low per capita savings like Bangladesh. The following savings and investment rate (as % of GDP) of some selected 'Asian Countries' for 1988 would reveal that Bangladesh has the lowest rate of savings and investment compared to other countries :

Table-1

Rate of Savings & Investment of Some Selected
Asian Countries, 1988
(as % of GDP)

Sl.No.	Name of the Country	Rate of Savings (As %)	Rate of Investment (As %)
1.	Bangladesh	2.7 percent	11.8 percent
2.	India	21.1 "	23.8 "
3.	Nepal	9.8 "	19.7 "
4.	Pakistan	12.7 "	18.2 "
5.	Srilanka	12.8 "	23.1 "
6.	China	36.7 "	37.6 "
7.	Indonesia	26.0 "	22.9 "
8.	South Korea	38.0 "	29.8 "
9.	Malaysia	36.4 "	26.1 "
10.	Philippines	17.8 "	17.3 "
11.	Thailand	25.8 "	27.5 "
12.	Fiji	15.0 "	11.9 "

Source : World Tables, 1989-90 (A publication of World Bank)

In the prevalent investment scenarios of Bangladesh, it is felt essential to provide some facilities to the investors, particularly to small savers so that savings at the household levels can be channelized to capital market. It is also that performance and activities of ICB should be viewed from a broader perspective and socio-economic goals rather than only on financial returns. The performance of ICB for the last fourteen years in major areas are shown in APPENDIX-I.

3.2.0. Equity support in the form of Underwriting and Bridge Financing

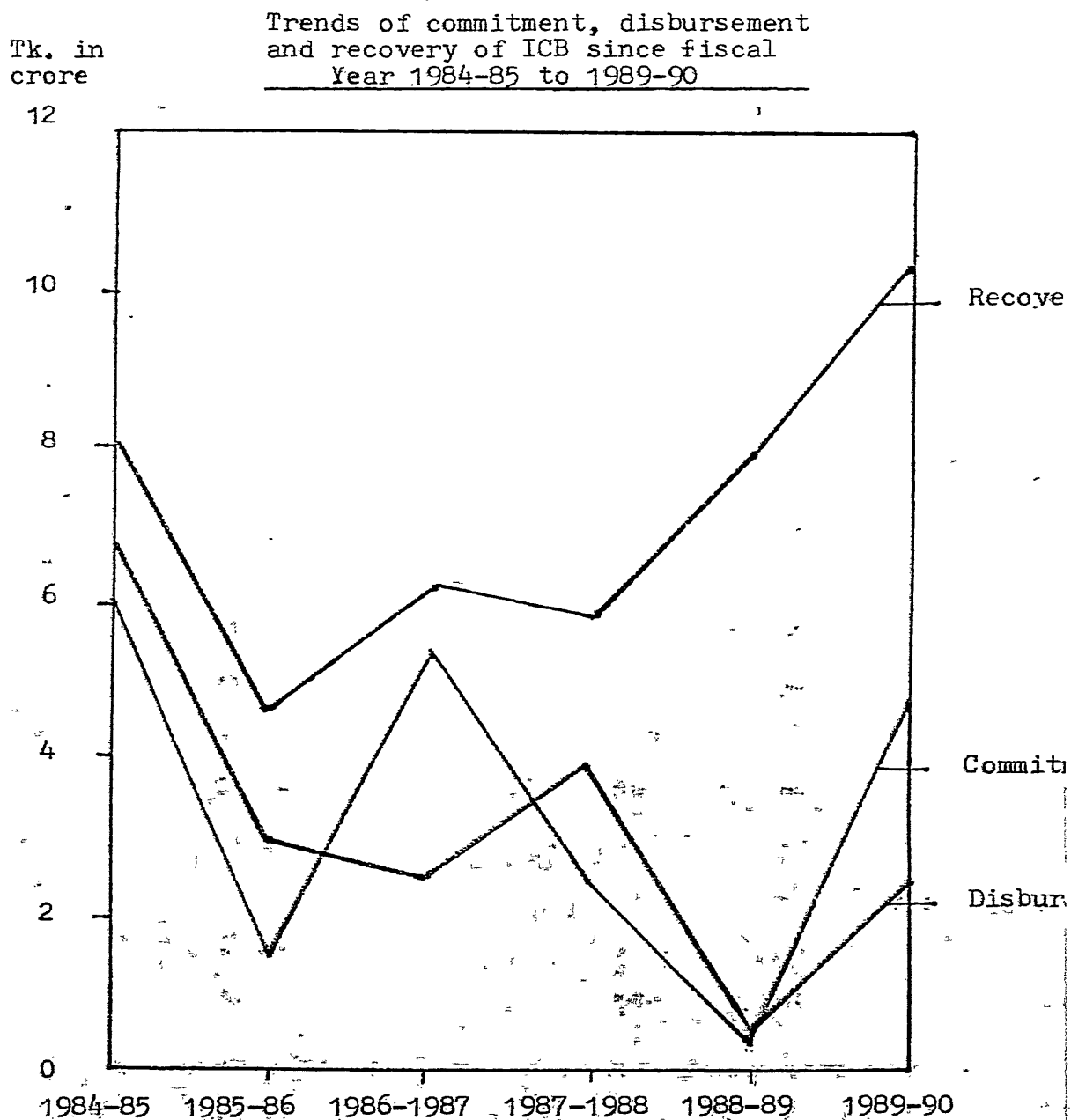
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ICB has started project financing almost from the beginning by way of underwriting of shares, bridge financing and debenture financing. This was initiated to extend support to the entrepreneurs to complete a project financed from his own resources or by DFIs/ other commercial banks and to supply securities in the Capital Market by way of new issues. ICB assisted companies therefore boosted the stock market to some extent. Upto June 1990, ICB has extended underwriting, bridge and debenture loan facilities to 298 projects. The overall trend of credit expansion in the banking sector is shown in Appendix -H.

The underwriting & bridge financing activities have been carried out by the twin arrangement-exclusively by ICB[&] through the ' Consortium ' arrangement (a participative arrangement with other DFIs & banks). So far, the Corporation have provided financial assistance to the tune of Tk.95.96 crores, 269 projects have gone into commercial production & over 200 projects have been operating for more then two years. Details of underwriting & bridge financing operations is shown in Appendix - C. As per normal practice & terms of finance, all the 269 projects should have floated shares in the market by now to recycle investments of the underwriters (ICB & other consortium members). But it is revealed that only 64 companies have floated their shares enabling the 'Consortium' members to recycle investment to the tune of 33.16 crores. This has resulted the blockade of financial resources and almost crippled the ability of investment. In the light of past experience, from 1988-89 the Corporation has restricted bridge financing due mainly to shortage of investible funds & very slow recovery of dues & overdues. Virtually only three projects have been financed in 1988-89. It seems that the Corporation has almost closed down this window as most of the ' Consortium ' members are unwilling to go for further investment in this area unless a sizeable amount of overdues is recycled/recovered. It has also been observed that implementation of project is lagging far behind schedule and the Corporation (or for that matter the DFIs/CBs)

could not able to create effective pressure on the entrepreneurs to complete project in time as per agreement. The major reasons for delay have been found to be (i) the resource constraint & lack of entrepreneurial ability of sponsors, (ii) unwillingness to cooperate with financial institutions, (iii) vested interests and (iv) inclination towards quick returns through short-term investment from trading. Trends of underwriting & bridging loan commitment, disbursement & recovery is shown in the Graph-I below:

GRAPH - I



Source : Annual Reports of ICB.

- : 13 :-

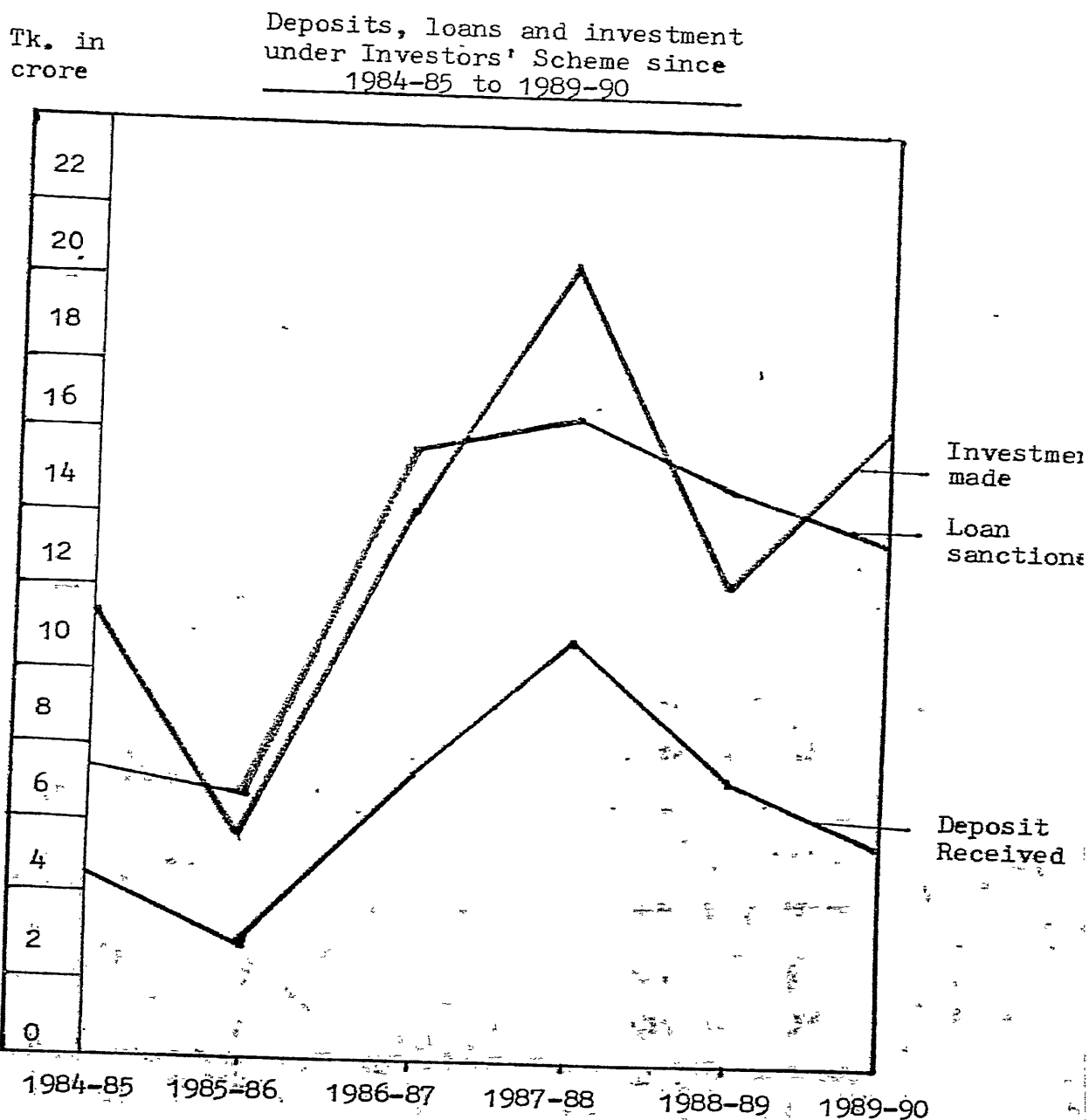
From the above graph it would appear that the commitment, disbursement and recovery position have been declining since 1987-88. Although recovery position has shown improvement since 1988-89 the position of loan commitment/disbursement has come to the lowest level during the period under review. 1989-90 has, however, showed marked improvement over 1988- 89 in all the areas. The trend of commitment/disbursement of bridging loan might not be geared up unless the recovery position would improve & generate investible funds.

3.2.1. Investors' Scheme:

The Corporation has introduced this scheme in June, 1977 to induce demand for securities by offering concessional credit facilities, free service, etc. to the investors. Under this scheme, an individual (other than employees of the Corporation) is allowed to open an account with a min. of Tk.1000, and is allowed loans upto three times of his deposit, ^{but not exceeding Tk. 1.0 lakh.} The investors can either operate the account by himself or authorize ICB to operate the account and to transact securities on his behalf. The Corporation currently operates investors accounts from its head office and five branches. Upto 30th June, 1990 forty one thousand seven hundred eighteen investors have

been brought into the fold of securities market. The category of investors, amount of deposit received, loans sanctioned & investment made is shown in Annex-'D', while the trend is shown in graph-2 below:

Graph - 2



Source : The Annual Reports of ICB.

It may be observed from the above graph that though the scheme has been well received by the public initially but growth of account opening has sharply declined from FY 1987-88. The main reason for such declining trends are attribute primarily to non-availability of adequate and attractive securities, inability of industries in earning profit and thus payment of dividends to the investors, the sluggish condition of stock market coupled with ineffective management of Dhaka Stock Exchange, etc.

3.2.2. Stock Market Operation :

ICB participates regularly in the DSE to acquire and sell securities for the Unit Fund, Corporate portfolios and for the investors under 'Investors' Scheme. The Corporation is the only active member of the Stock Market who undertakes about 29% of transactions on average. As a result, this has helped to bring stability of prices in the market to some extent. It has been observed that from 1988-89 sluggish conditions persisted in the stock market, though slight improvement is marked in later part of 1989-90 (the Bangladesh Bank general index of share prices (1986-87 = 100) increased to 145.05 in June, 1989 from 136.09 in June 1988). The comparative position of issued capital and market capitalisation is shown in Appendix- E.

3.2.3: Recovery/Recycling of Dues/Overdues:

Recovery and recycling of dues/overdues have been given top most priority by the Corporation and maximum possible efforts have been directed to make recovery drive a success. As a result, during FY 1989-90 the Corporation have recovered an amount of Tk.10.52 crores, a 33% increase over last year. Though there is an improvement in the recovery performance of the Corporation but compared to dues/overdues the recovery is far behind the desired level. The comparative position of recovery under different heads are shown in Table-2.

below while recovery problems are discussed in chapter-V :

Table-2

Comparative position of Recovery under
different heads from 1985-86 to 1989-90

(Tk. in crore)

	FY 1988-87	FY 1988-89	FY 1989-90 (Provisional)
A) <u>Bridging Loan</u>			
1) Interest	2.19	4.55	6.40
2) Refund of Principal	0.21	1.33	0.62
3) Recycling	3.13	1.20	3.02
Sub-total	<u>5.53</u>	<u>7.08</u>	<u>10.04</u>
B) <u>Debenture Loan</u>			
1) Interest	0.05	0.16	0.31
2) Principal	0.03	0.19	0.02
Sub-total	<u>0.08</u>	<u>0.35</u>	<u>0.33</u>
C) <u>Share Repurchase</u>			
1) Premium	0.05	0.09	-
2) Principal	<u>0.01</u>	<u>0.01</u>	<u>0.01</u>
Sub-total	<u>0.06</u>	<u>0.09</u>	<u>0.01</u>
D) Dividend	0.19	0.37	0.14
Total :	<u>5.86</u>	<u>7.89</u>	<u>10.52</u>

ICB has so far floated six Mutual Funds which over the years have become more or less a popular medium of investment. So far Mutual Fund management is a success story and has proved to be an attractive low-risk instrument of investment. All the funds excepting the 6th mutual have declared dividends at a very attractive rate. The '6th Mutual Fund' was not able to maintain the dividend rate due to lack of manoeuvrability in its portfolio mix. Mutual Funds are known as closed-end funds and their operations are restricted to their portfolio mix. There is very little scope for portfolio management and portfolio adjustments are rarely made. Performance of ICB Mutual Funds in a summarised form is shown in the Table-3 below :

Table-3

Performance of ICB Mutual Funds
from FY 1987-88 to 1989-90

Name of Fund	Size of Fund (in crore Tk.)	No. of Certificate holders as on 30 June 1990	Dividend per Certificate (Tk.)		
			1987-88	1988-89	1989-90
1st ICB Mutual Fund	0.50	1500	48	49	49
2nd ICB Mutual Fund	0.50	1601	28	29	29
3rd ICB Mutual Fund	1.00	5650	25.50	26	26
4th ICB Mutual Fund	1.00	4450	23	23.50	23.50
5th ICB Mutual Fund	1.50	9301	20	20.50	20.50
6th ICB Mutual Fund	5.00	26059	-	15.50	13.25

Source : ICB Records.

3.2.5. Unit Fund Management :

Unit Fund Certificate has so far been considered a very attractive instrument of investment for its multiple benefits, high dividends and transferability. This is an open-end fund and ICB has so far managed this fund successfully. By June 1990, the Corporation has issued Unit Certificates to the tune of Tk.169.94 crores. Since inception there has been effective demand for Unit Certificates in the market and as a result the Corporation has experienced tremendous push in the sale of unit certificates over this years. Unit Certificates are sold through different offices of the Corporation, almost all commercial banks, and stock exchange brokers as dealers.

It is, however, revealed that due to non-availability of securities, and shortage of suitable new issues, the entire sale proceeds of the fund could hardly be invested in the securities market. It seems the situation might deteriorate further if the position of marketable securities would remain stagnant and the Corporation continues to pay out relatively high rate of dividends than direct cash earnings. As on 30.6.1990, out of net sales of Tk.150.00 crores (par value) ICB has been able to invest Tk.73.00 crores in securities(48%) leaving an investible surplus of Tk.77.00 crores, that means a big chunk of money collected through the 'Unit Fund' is temporarily re-deployed in the money market in the form of bank deposits. The Corporation has realized the situation and approached the Government with a number of alternative proposals to augment the sluggish condition of the capital market so that they could tap investment opportunities

in the securities market. The performance of the Unit Fund in terms of sales, income and declared dividends are shown in the following Table-4 :

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Table-4

Comparative position of Units sold, Income and Dividend
from 1987-88 to 1989-90

(Tk.in crore)

	FY 1987-88		FY 1988-89		FY 1989-90		Cumulative as on 30-6-1990	
	Unit	Amount	Unit	Amount	Unit	Amount	Unit	Amount
Gross Sale	55,12,867	63.05	32,38,679	37.42	25,06,372	27.98	1,66,40,926	188.15
Repurchase	3,83,032	4.74	1,62,559	1.89	45,843	0.49	16,63,301	18.18
Net Sale	51,29,835	58.31	30,76,120	35.53	24,60,529	27.49	1,49,77,625	169.97
Income	17.69		25.49		40.11			
Dividend(Tk.)	24		25		25			

3.3 Analysis of overall performance :

Since its inception, the Corporation has been earning profit. In 1989-90 it has earned a net profit of Tk.311.49 lacs (on accrual basis) . The comparative and summarized financial results of the Corporation for the period from 1985-86 to 1989-90 are shown in Table-5 below :

Summarized Financial Results of ICB
from 1985-86 to 1989-90

(Taka in lacs)

Sl. No.	Particulars	ACTUAL RESULTS				
		1985-86	1986-87	1987-88	1988-89	1989 (Prov)
(A) <u>Income from Development Financing Operation</u>						
I.	Interest on Loan after necessary provisions	1068.17	718.39	666.56	565.65	704.13
II.	Interest on Bank Deposits & Others	175.72	243.02	336.78	81.22	80.00
(B) <u>Income from Capital Market Operation</u>						
I.	Brokerage Fees, Commission, dividend, interest, etc.	182.87	551.97	383.82	759.99	819.50
(C) <u>Misc. Income</u>						
		<u>8.47</u>	<u>8.42</u>	<u>7.64</u>	<u>48.02</u>	<u>11.65</u>
1.	Total Income	<u>1435.23</u>	<u>1521.80</u>	<u>1394.80</u>	<u>1454.87</u>	<u>1615.28</u>
2.	Administrative & General Expenses	<u>181.55</u>	<u>179.90</u>	<u>224.61</u>	<u>276.99</u>	<u>370.44</u>
3.	Operating Profit	<u>1253.68</u>	<u>1341.90</u>	<u>1170.19</u>	<u>1177.88</u>	<u>1244.84</u>
4.	Financial Expenses	<u>837.85</u>	<u>957.98</u>	<u>1069.79</u>	<u>906.92</u>	<u>933.35</u>
5.	Net Profit	<u>415.83</u>	<u>383.92</u>	<u>100.40</u>	<u>270.96</u>	<u>311.49</u>
6.	<u>Appropriation</u>					
	General Reserve	5.33	23.00	100.40	70.46	50.00
	Building Reserve	-	-	-	50.00	-
	Dividend Eq. Reserve	180.00	-	-	30.00	20.49
	Debenture Red. Reserve	100.00	174.92	-	-	-
	Benevolent Fund	0.50	1.00	-	0.50	1.00
	Dividend Declared	130.00	110.00	-	120.00	240.00
	Govt. Loan Red. Reserve	-	75.00	-	-	-
		<u>415.83</u>	<u>383.92</u>	<u>100.40</u>	<u>270.96</u>	<u>311.49</u>

It may be seen from the above table that profit margin(29.1% in 1985-86) has declined gradually mainly due to increase in financial and administrative expenses. The Corporation has declared dividend in all the years under reference excepting 1987-88. It is also evident from above facts that income from development financing(i.e. underwriting, bridge finance, etc.) operations have been decreasing while income from stock market operations have been increasing. This indicates that the Corporation has made changes in its approach and is gradually switching over to capital market operations.

IV. PROBLEMS OF ICB

4.0. Major Problems :

With the change in investment climate of the country, business environment and expansion of activities, the Corporation has been facing some problems to consolidate its growth and improve performance. The main problems now encountered by the Corporation are identified in five broad categories as under :

(i). Administrative problems :

- Shortage of manpower, particularly skilled manpower
- Shortage of logistic support
- Unfair labour practice and negative attitude
- Lack of proper systems and procedures
- Shortage of investible funds and debt servicing liability
- Increase in revenue expenditure and lack of required cost consciousness.

(ii) Operational problems

- Ineffective consortium arrangement for underwriting operations
- Lack of full-fledged appraisal capability
- Lack of proper coordination with the main financing institutions / DFIs

- Absence of sound implementation program and amortization schedule
- Lack of proper monitoring
- Inadequate capacity to provide required research support
- Shortage of proper instruments for profitable investment
- Adverse impact of attractive dividend payments of different funds.

(iii) Merchandising problems :

- Problem related to the operation of investors accounts and transactions
- Inadequacy of customer service
- Lack of proper action program for effective functioning in the share market
- Problem of portfolio-development
- Lack of proper security arrangement and inventory system for stocks

(iv) Problems related to Recovery of Dues/Overdues :

- Slow rate of recovery and accumulation of huge overdues/dues
- Non-submission of periodical reports by the sponsors as per agreement
- Wilful default by the sponsors
- Long-drawn legal process
- Stuck-up loans in sick projects due to wrong investment.

(v) External problems :

- Sluggish condition of Stock Market
- Non-availability of investible securities in the market
- Legal and regulatory hindrances in stock market operation
- Lack of freedom in pricing of new issues and
- Absence of regulatory body in the capital market.

4.1. Administrative Problems :

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As mentioned earlier, the Corporation has been experiencing operational expansion and growth in its volume of work continuously. But due to 'Enam Committee's prescriptions and Govt. restrictions it could hardly increase its manpower upto the desired level. However, in 1989 the organogram of the Corporation has been revised and a total ^{of} 110 new posts have been created. With the filling-up of newly created posts it is expected that situation would improve significantly. But the shortage of skilled manpower would remain a recurrent problem. As such from 1989, in-house training programs have been started to impart training to the employees. However, a proper career plan and annual training program are yet to be formulated.

Lack of proper internal coordination, negative attitude and unfair labour practices are the other burning issues the Corporation has been facing, perhaps like other corporate bodies. These problems are not only contributing to the low productivity of labour but these are also hindering the progress of the Corporation as stumbling blocks. It transpired that top management has given due importance to these issues and actions have already initiated to create a congenial atmosphere in the organization.

It is a relatively young & a very specialized organization. Appropriate systems & procedures in such an organisation are essential. The Corporation, however, did not formalize all of its operational policies, systems, procedures, methods, etc. in 'Manualized' forms. In order to bring consistency in action & efforts, unity of direction, administrative & financial discipline it is essential to have operational & administrative manuals, particularly in Accounts, Operation & Office Administration.

The Corporation does not have required logistic support of vehicles, office, equipment, etc. Very recently with the inclusion of a digital PABX, Computer, etc. some improvement have been made in the Communication System. But the problem of

transport is becoming a critical one day by day. It is informed that ICB has approached the govt. to obtain approval to its proposal for replacement of obsolete vehicles.

Due to shallow capital base and low turnover/recycling of loans and advances, the regeneration of investible funds have been hindered. Moreover, due to increase in financing (mainly DSL) costs, the return on investment have been declined to a very alarming level. The situation demands immediate interventions & reinforcement by the manager. Details of fund position and financial analysis is illustrated in chapter-V.

Simultaneously, with the increase in the volume of operations, recruitment of employees, procurement & maintenance office equipment, vehicles etc. a significant (app.10% over 1985-86) increase in administrative costs has taken place. Increase in unproductive expenditures & lack of proper cost consciousness are prevalent to some extent.

4.2. Operational Problems:

ICB has been carrying out its underwriting operations only to public limited companies mainly through the consortium arrangement with changes in the modus operandi once in 1984 and again in 1989. Due to operational complexities on the part of the consortium members, fixation of ceiling (maximum, 50%) for ICB's commitment, very low recovery of dues and overdues, underwriting operations have been declined and response from participating banks and DFIs is discouraging. Due to liquidity constraint and consortium members unwillingness, financing of viable projects has also become restrictive. Bridge financing has almost stopped. Therefore, it has become all the more essential for the Corporation to find out new avenues and operational instruments to earn more revenues & help develop industries as well as the capital market.

It is revealed that the Corporation primarily depends on the project appraisal report of the DFIs (particularly BSB/BSRS) for its investment decisions. As a result, cost estimates, assumptions and omissions/mistakes are not normally checked thoroughly. Sometimes, the financial viability, market feasibility, cost/time over-run, etc. are not properly evaluated; selection of entrepreneurs, projects, etc. are not done carefully. All these related problems have turned underwriting and bridge financing operations ^{into} most cumbersome, unprofitable and insecure investment. It is also true that ICB does not have a full-fledged appraisal team having professionals drawn ^{out} from all required disciplines (including engineers). Moreover, due to lack of proper survey/study in different sectors and sub-sectors, excessive investment has been made in some sectors/sub-sectors in line with the main (i.e. the project financing) 'Bank/DFI Window dressing of financial statements for the purpose of underwriting has resulted in dissatisfaction with ICB underwriting and in many cases it has to take over a major load of unsubscribed shares.

In line with 'Industrial Policy' 86, the DFI/Banks normally extend to establish projects in the private sector by obtaining collateral securities, including hypothecation of project assets against such loans. So they enforce first charge on the collateral assets/properties. Under the usual practice, ICB holds pari passu charge with concerned DFI/Bank for the underwriting support. Financial institutions/banks are supposed to monitor timely completion of project work and start of commercial production including coordination with ICB and other consortium members. Legally they should also make payment to ICB and other consortium members on pro-rata basis in case a project is taken over by them for default, but neither DFIs/banks nor ICB normally coordinates their activities and actions as per agreed principles.

It transpired from records that ICB virtually does not follow a sound implementation & monitoring system to ensure timely implementation of a project & issuance of shares for public subscription. In most of the cases implementation schedules are not followed by sponsors. Besides, no recovery schedule/amortization schedule is prepared & followed to help recycle/recover outstanding dues timely as per financial norms.

With the stagnant situation in industrial financing, the Corporation should have gone to develop avenues and instruments. But at the moment in the supply side of the securities market there is hardly any new products/ instruments available with the Corporation to float in the market for attracting customers & create a positive impact in its operating result.

The Unit Fund & Mutual Funds are ' Trust Funds'. These trust funds have separate legal entities and are guided by their rules & procedures. ICB is the manager of these funds & gets fixed commissions for its services. As per funds rules, every year, based on profit & other receipts, dividends are declared & paid. Since 1986-87 a higher rate of dividend has been paid out by the Unit Fund and it seems more money is being paid out in dividends than realized income. Similarly, the dividend payment of Mutual Funds does not conform to the net asset value.

4.3. Merchandising Problems:

Over the years number of investment accounts have been increased to a big size (41718 Nos). This has added additional workload and put tremendous pressure on the capability of the Corporation to service the accounts properly. So the Corporation had to switch over gradually from manual operation to a semi-automated system. It has gone for computerization of certain functions of investors accounts through the use of PCs for the last three years. But hardly any positive impact on the improvement of customer service could create. It has

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However, the Corporation has already entered into an agreement with NCR Ltd. in July, 1990 to install a micro computer to help improve overall performance of the Corporation. At the moment the security arrangement and inventory system of stocks do not cater to the requirement. Stocks/shares/bonds are kept in Almiras and their storage are not maintained properly. Physical stock taking with a proper inventory system is the crying need of the time.

It appears that the Corporation does not prepare any ^{long-term} operational plan/program. The activities are mostly guided by the annual budget. In the absence of a separate operational plan/program it becomes difficult to fix up functional targets or accountability and evaluate performance. Due to lack of proper action program, effective functioning in the share market & the formulation of strategy to create positive impacts in the capital market is bound to hamper.

Ever since its inception, ICB has been facing problem in the development of suitable share-mix' or 'portfolios' for investment due to shortage in the supply of securities/bonds. The problem has been compounded further due to sluggish condition of the stock market, very few entrants in the primary market, non-listing of companies particularly from the public sector & with holding of multi-national companies shares with the govt. It is felt that unless some improvement in the supply of securities takes place, the problem of portfolio development/ mix would remain a critical problem for ICB to face.

4.4. Problems related to Recovery of Dues/Overdues.

Recovery of loans and advances is a major problem in Bangladesh. It is also considered as one of the main obstacles to financial discipline. ICB is also the victim of the system. But whatever may be the scenario, the slow rate of progress in the recycling/ recovery of huge dues/overdues have created a negative impact on the earning of the Corporation on the one hand & liquidity crisis on the other. The comparative recovery position of ICB and all other DFIs are shown

Recovery performance has been hindered due to mainly (i) poor operating performance of different projects, (ii) unwillingness of sponsors to repay loans as per schedule & diversion of fund, (iii) non-submission of periodical reports & returns as per agreement, (iv) long-drawn out legal process, (v) stuck-up of loans in Jute, Textile, Cold Storage, IWT Vessels, etc. sectors/ sub-sectors as these have turned into sick or weak sectors/sub-sectors, (vi) willful default of sponsors. (vii) lack of intensive recovery drive by the branches & head office, (viii) lack of proper monitoring in the achievement of recovery targets & logistic support.

It is true that the Corporation has made some progress in the recovery of its dues & overdues by various means including exemption of interest. In order to realize dues/overdues from defaulters the Corporation has so far initiated legal actions against 86 cases the break-up of which is shown below:

(Tk.in crore)		
	Nos.	Amount.
(a) Final notice served	44	26.46
(b) Legal notice served	27	9.25
(c) Cases filed	8	4.18
(d) Decree obtained	7	2.48
Total:	86	42.37

In the financing arrangement, ICB's participation in a project amounts to only 10-15% of the total cost. As such sponsors do not give priority to clear dues of the Corporation rather they give preference to the main 'Banker' from where they obtain project or working capital loans. Besides, bridging loan is provided as an underwriting advance and as such it is not treated as term loan and does not fall due in instalments. Borrower companies must have to

pay/adjust entire advance amount either through public issues or repayment on schedule. The Corporation cannot exercise the power to take over projects or sale of project assets like BSB/BSRS. All these limitations have put some constraints to the endeavour of the Corporation in the recovery process. It seems the problem of recovery will continue to be the major headache of the Corporation.

4.5. External Problems:

The capital market of Bangladesh has yet to take a structured shape. Given the business performance & the market condition, stock market operations and management are not really conducive to bring resilience in prices to improve volume of transactions. It seems that investors confidence have also been eroded to some extent. The stock market has been passing through a 'phase of bearish condition'.

Due to low capitalization process, poor listing of companies in the stock market and other limiting factors the supply of investible securities could hardly be improved. As a result, ICB could not invest available fund in securities/bonds mobilized through investors accounts, Unit Fund, etc. entirely. Thus the Corporation has been facing problems in the development of its portfolio for designing new strategies of investment and floatation of new schemes. Rules, regulations, policies, etc. of the Government relating to the establishment of companies, regulations relating to capital issues, listing of companies, fiscal incentives, etc. are some of the main external bottlenecks ICB has been confronting with other partners of securities market.

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V: FUND POSITION AND RESOURCE MOBILISATION

5.0. Capital Structure and Source of Fund :

The capital structure of ICB is mainly composed of the authorized capital, reserves and surplus, long and short term liabilities. The main sources of fund are : the paid up capital, retained earning, recovery of dues, loans from Govt./ other institutions and deposits of investors. Ideally recovery of dues/overdues is treated as the main source of investible fund . But due to low rate of recover the Corporation had to mobilize fund from Govt. and Bangladesh Bank/other banks to meet up its financial obligations. The actual investment and capital structure of the Corporation for the period from 1985-86 to 1989-90 are summarized below :

Table-6

The capital structure of ICB
from 1985-86 to 1989-90

(Tk. in lakhs)

	ACTUAL				
	1985-86	1986-87	1987-88	1988-89	1989-90 (Provisional)
A. ASSETS :					
1. Investment in Fixed Assets	8023.00	8987.00	10696.00	10799.00	10835.00
2. Current Assets	5486.00	8782.00	6982.00	6894.00	6915.00
	<u>13509.00</u>	<u>17769.00</u>	<u>17678.00</u>	<u>17693.00</u>	<u>17750.00</u>
B. Represented by					
1. Paid up capital	1000.00	1000.00	1000.00	1867.00	2000.00
2. Reserve & Surplus	2070.00	2344.00	2445.00	2596.00	2668.00
3. Long term Liabilities	8353.00	9075.00	9743.00	9334.00	8876.00
4. Current Liabilities	2086.00	5350.00	4490.00	3896.00	4206.00
5. Total Capital and Liabilities	<u>13509.00</u>	<u>17769.00</u>	<u>17678.00</u>	<u>17693.00</u>	<u>17750.00</u>

From liquidity point of view, the capital structure seems to be burdened with long term liabilities. The rate of return on investment is lower than cost of long term capital. If investment made by the Corporation with benefit thereon cannot be recycled/recovered as per schedule, the Corporation may find it difficult to service its debts in future. The situation is, however, improving and may be evident from the facts presented above.

1. The Liquidity Position :

The solvency and liquidity position of the Corporation have been analysed from 1985-86 to 1989-90 as is shown in Table-7 below :

Table-7

The Solvency & Liquidity Position
of ICB from 1985-86 to 1989-90

Sl. No.	Particulars	Actual				
		1985-86	1986-87	1987-88	1988-89	1989-90 (Provisional)
<u>Liquidity Ratios</u>						
1.	Current Ratio	2.6:1	1.6:1	1.5:1	1.8:1	1.6:1
2.	Acid Test Ratio	0.7:1	0.8:1	0.4:1	0.6:1	0.6:1
3.	Receivable Turnover	0.33	0.27	0.28	0.28	0.30
<u>Long term solvency ratios</u>						
1.	Debt Equity Ratio	73/27	73/27	74/26	68/32	66/34
2.	Debt Service Coverage (times)	1.6	0.77	1.12	0.89	0.88
<u>Market Test Ratio</u>						
1.	Price Earning Ratio (times)	2.6	3.5	12.9	7.6	6.5
2.	Dividend yield	12.3	8.1		5.5	11.9

The Corporation has been facing acute shortage of liquid fund which may be observed from the above analysis. The liquidity ratio is gradually decreasing from 2.6:1 in 1985-86 to 1.8:1 in 1988-89 perhaps this would decrease further 1990-91. The ratio is decreasing mainly due to lack of resource mobilisation and non-recovery of huge outstanding dues on schedule. The situation may lead to acute shortage of liquidity resulting in Corporation's inability to pay-off its current obligations. However, efforts have already been made to realise the huge outstanding dues the effect of which is reflected in last year's performance and may be viewed from the receivable turnover ratio. Apart from this, the debt service coverage ratio is improving gradually, that means Corporation's ability to pay interest and instalment of long term liability is improving.

5.2. Profitability of operations :

The profitability position of the Corporation during 1985-90 was more or less satisfactory keeping in view the socio-economic objectives of the Corporation. However, this was deteriorated during 1987-88 but slightly increased in 1988-89. The sharp decrease was due mainly to excess provision for bad and doubtful debts and policy of selective investment under bridge financing operation. The position is expected to improve further to make positive contributions to national exchequer. The Corporation have been making payment of dividends to shareholders and govt. as the major share holder received a dividend of 12% per share in 1989-90.

5.3. Scope of Resource Mobilisation in Future:

In order to develop the capital market as well as improve the financial strength of the Corporation, a detailed programme of cost control & improvement in recovery has already been taken up which will be implemented in phases. On implementation, it is expected that the Corporation's fund position would be far better than the previous years which would be able to meet up its short term as well as long term requirements of fund.

Under the given circumstances, it would be very difficult for the Corporation to obtain fund from GOB and Bangladesh Bank due to resource constraints at the national level. So the Corporation will have to resort to other options. In the ultimate analysis it would have to generate its own fund by improving investment turnover and embarking on profitable operations. The management must take into consideration the hard realities, business environment and the cost of fund while making financial plans and programs and investment decisions in future.

VI. FUTURE THRUST OF ICB

6.0. Program of ICB during Forth Five Year Plan period:

It seems after thirteen years of operation in which the Corporation laid emphasis on attainment of socio economic objectives of benefiting the small and medium investors, is now gradually re-orienting its policies. It is now felt that the critical foundation of the securities market has been laid in the sense that now there is a stock exchange with some activity, a class of equity investors do exist and companies to some extent are now willing to go public. Therefore, it is now high time to look after the profitability aspect of operations to become self reliant and to retain its economic viability, of course, without abandoning social obligations. The management have taken the initiative to undertake a number of activities and schemes for consolidation of ICB's growth and development during Forth Five Year Plan period. The main thrust would focus on the following activities/schemes:

- (1) Identification of new sources of long term income generating activities as well as pruning of unproductive expenditures.
- (2) Improvement in customer service, meaning extension of efficient, effective and quick services to the investors under Investors' scheme, Mutual Funds, and Unit Fund through computerisation and other measures. In order to improve customer service and to

- (3) Introduction of regular in-house training programmes to develop the professional skill and service oriented outlook of employees.
- (4) More preference to direct underwriting of public issues with provision of bridge financing on extremely selective basis, if otherwise found economically viable and profitable.
- (5) Improvement in recovery position & reduction of financial costs by recycling/recovering all overdues within the next five years through special drives, crash programs, legal measures, etc.
- (6) Development of suitable portfolios by inducing both demand and supply of securities, actively participating in the stock market and helping govt. to reinforce the capital market.
- (7) Expansion of activities through the following schemes :
 - (a) Floatation of Bangladesh Fund;
 - (b) Floatation of Wage Earner Unit Fund;
 - (c) Introduction of Gram Bangladesh Unit Scheme.

Brief description of above mentioned schemes and development of portfolios are given in the following paragraphs.

6.1. Floatation of Bangladesh Fund:

The ' Bangladesh Fund' scheme would be a closed end country fund to be floated in the international market sometime 1991-92 like India, Thailand, South Korea, etc. ICB would try to enter the international equity market so that it could be able to get international exposure & mobilize foreign exchange through foreign investment in Bangladesh. This sort of country fund would be issued in foreign currency & dividend would be paid in US\$ dollar. The size of the fund would be fixed at US\$ 30.0 million divided into 3,00,000 units of US \$ 100 each. This would be sold to foreign investors, Bangladeshi wage earners, non-resident Bangladeshis (except minors). IFC (International Finance Corporation) may be approached for underwriting of the fund. The fund would be listed in London Stock Exchange, New York & the Middle East.

6.2. Floatation of Wage Earners Fund:

The Corporation will initiate a plan by 1991-92 to float the 'Wage Earners Unit Fund' exclusively for Bangladeshi wage earners abroad with a view to mobilizing a sizeable amount of their savings/remittance for productive investment. The fund will be issued in foreign currency & the price of each unit will be fixed at US \$ 20.0. Units will be sold through the local & foreign branches of Bangladeshi & other commercial banks. Under the program, sale proceeds would be remitted to ICB & ICB will convert foreign exchange into local currency in consultation with Bangladesh Bank. The fund will be invested in local securities & dividends will also be paid in the local currency. Investors would also be entitled to other fiscal incentives in line with existing system. This fund will enable the govt. to divert wage earners income into more productive investments & accelerate foreign exchange earning.

6.3. Gram Bangla Unit Scheme:

To mobilize savings, to enable the rural people to invest in unit fund, ICB has started selling of unit certificates in the rural areas through Sonali Bank & Janata Bank in the southern & northern districts. The result is encouraging. In line with the objectives of the Forth Five Years Plan, the Corporation submitted a proposal to the govt. to initiate a spl. scheme from July, 1990 for landless and destitute families of rural areas to help alleviate their poverty.

The main objective of 'Gram Bangla Unit Scheme' is to involve the destitute families of selected magnitude to a certain income generating activities by extending credit facility to them through the unit fund. A loan of Tk.50,000 will be created for each family & ICB will invest this fund in the market on behalf of the destitute family. The income will be distributed in such a manner so that a portion of the income goes to concerned families on regular basis, a

portion to the repayment of loan and the rest to the investment portfolios of the scheme for reinvested. In the scheme, it is presumed that dividend @ 25% will be derived continuously. The scheme would also be linked with family planning program. NGOs/CBs might be given the task of field work supervision, if required.

It has been proposed in the scheme that instead of paying tax twice in the form of levy and surcharge to the Govt., ICB may be allowed to form the fund with such levy and surcharge ^{and} partly by interest free loans from GOB or loan from commercial banks at a concessional rate. Initially, the scheme will be launched for 400 destitute families as a pilot scheme. It is presumed that from the benefits of the scheme these 400 families will become self-reliant, their poverty would be alleviated and will be able to trim their family size to the desired level. Given the specialized nature of ICB, its limited field exposure, resource constraint and organisational capability it does not seem appropriate now to embark on such a program without doing indepth analysis of issues involved.

6.4. Development of Portfolio :

In its stride to encourage and broaden the base of investment, ICB pays attention to both demand and supply of sufficient securities. As pointed out earlier, there is a dearth of attractive securities in the stock market. To invest profitably ICB needs to design and build up 'portfolios' (suitable mix/basket of securities). Development of portfolios, however, depend on the

rationalization of existing marketing mechanism, reinforcement of secondary market and bringing in new issues in the primary market through the industrialisation process. ICB in its efforts would have to go for more public issues (companies underwritten by ICB) and direct purchase of securities from Dhaka Stock Exchange. The Corporation has approached the Govt. to reinforce the capital market by.

- (i) Listing profitable public sector units into Stock Market and allowing ICB to purchase 30% of all issues.
- (ii) Off-loading share of multinational companies in the market and
- (iii) Deregulation of certain operational controls.

VII. EXPERIENCE OF SELECTED ASIAN COUNTRIES

7.0. The capital market of Bangladesh is yet to take a structured shape in its true sense. It is expected that with the acceleration of industrialization process the financial market will take a renewed shape through structural changes and reforms by the Government. As pointed out by the World Bank in its 'World Development Report of 1989' that "short-term money market provides competition to the banks in supplying credit to larger Corporations and under appropriate condition, Capital markets can provide long term finance to govt. and large firms". This is high time for Bangladesh to create conditions for the growth of capital market. In this context, it is relevant to discuss briefly the condition of capital markets in South Asian region, particularly India, Thailand, South Korea and Malaysia.

7.1. Securities Market in Thailand:

Before 1962, securities trading in Thailand was undertaken privately by a few firms. The Bangkok Stock Exchange was established in July, 1962. With the growth of the primary market during 1962-1973 the need to develop a secondary market was increasingly felt. This led to the promulgation of the Securities Exchange of Thailand Act (the "SET Act") in May 1974 and the eventual establishment of the securities Exchange of Thailand ("SET") as Thailand's only officially recognized securities market. In response to the Stock market crisis in 1979 the Thai Govt. resorted to several measures to develop the capital market.

The authority to regulate the securities industry in Thailand resides primarily in the Ministry of Finance and the Ministry of Commerce. The Ministry of Finance implements the SET Act, which governs the operation of the SET and the secondary market for corporate and government securities, and the Credit Financier Act, which governs finance, securities and credit financier companies.

The Ministry of commerce has primary authority in implementing the provisions of

formation and corporate governance of limited companies and limited public companies, respectively.

7.1.0. The Primary Market.

The following table indicates new share issuance by companies whose securities are quoted on the SET, for the years ended December 31, 1978 through December 31, 1987 :

Table-8

New Share Issuance 1/ in Thailand
from 1978 to 1987

Year	No. of Companies	Shares	Market Value(BM)
1978	26	22,976,000	3,997.80
1979	27	22,713,619	2,890.09
1980	10	5,483,477	696.45
1981	10	7,986,555	1,084.36
1982	16	17,234,375	2,163.88
1983	16	10,882,868	1,459.14
1984	27	41,598,567	6,499.95
1985	23	32,809,044	4,143.32
1986	21	76,456,935	21,167.98
1987	38	219,629,606	14,614.77

1/ As of the last day of the subscription period.

Source : Securities Exchange of Thailand.

Since 1984, in an effort to reduce foreign borrowings, the Government has encouraged state enterprises to borrow from domestic sources by issuing bonds. State enterprise bonds are subscribed to almost entirely by banks and financial institutions. Enterprises which have issued bonds listed on the SET include, among others, the Telephone Organization of Thailand, the Govt. Housing Bank and the Petroleum Authority of Thailand.

7.1.1. The Secondary Market :

The only officially organized secondary market in Thailand is the SET. As of December 31, 1987, there were 109 quoted companies, divided into 97 listed companies, 5 units trusts and 7 authorized companies. The total number of issues at such date was 125, divided into 117 listed securities and 8 authorized securities.

Although as of December 31, 1987 there were 104 quoted companies on the SET (Excluding unit trusts) market capitalization and trading was concentrated in a limited number of companies. It reveals from above facts that Thailand did able to develop its capital market to a sound footing.

7.2. Capital Markets in India :

To improve investment climate in India and boost capital market, Industrial Finance Corporation was established under the IFC Act, 1948 to provide long term finance to the industrial enterprises and give underwriting coverage to new issues. In the 1950s India's capital markets helped to mobilize financial resources for the corporate sector. The importance of these markets then diminished because subsidized credits were available from commercial and development banks, equities had to be issued at a discount substantially below market value, the capital market lacked liquidity and investor safeguards were inadequate. The Commercial Banks and specialized financial institutions provided subsidised credit to companies in line with recommendations of Banking Commission's Report, 1972.

At present there are Seventeen Stock Exchanges in India, Bombay being the oldest (estbtd. in 1875).

With a view to bringing about reform in stock exchanges, Govt. of India constituted a High Powered Committee in 1984. The committee made the following recommendations, many of which were implemented by the Indian Govt.-

- (i) establishment of a council for securities industries for overall administration, supervision and control of stock exchanges,
- (ii) extending the membership of stock exchanges to corporate bodies, financial institutions and merchant banks, educational and professional qualifications for members, practical training for members, financial solvency and viability of members, etc.
- (iii) improving the procedure of listing of securities.
- (iv) measures to reduce cost of public issues covering mandatory costs under various heads of expenses like underwriting, brokerage, managers fee, statutory press commencement, listing fee and variable costs arising on account of printing of prospectus, advertisement and publicity and other expenses; and
- (v) Other recommendations included : revision in bonus guidelines, service to investors covering semi-urban and rural investors, simplifying formalities and procedures of transfer, opening more stock exchanges and curbing insider trading.

The Stock market's revival continued in the 1980s, as various measures were introduced to stimulate both demand and supply. Incentives for equity and debenture issues included reducing the corporate rate of tax for listed

companies and fixing the permitted interest rate for debentures above that for fixed deposits but below that for bank loans. The Government also authorised the use of cumulative, convertible preference share and equity linked debentures and gave generous fiscal incentives to investors.

In order to strengthen the organisation and managerial capabilities, broad-base the resource position and to offer more specialized services, the erstwhile merchant banking divisions of the nationalised banks have started forming independent subsidiary companies. State Bank of India has established a wholly owned subsidiary known as SBI Capital Markets Ltd. in 1986 to meet adequately and effectively the emergency demand for broad based financial services from the corporate sector. Followed by this, the Punjab National Bank in 1988 has formed PNB Capital Services Ltd. for the same purpose. The central Government constituted on April, 1988 the Securities and Exchange Board of India (SEBI) as an apex organisation to promote orderly and healthy growth of the securities market and for investors protection. A number of other institutions also established during 1980s e.g., Discount and Finance House of India (DFHI), Credit Rating Information Services of India Ltd. (CRISIL), Stock Holding Corporation of India Ltd. (SHC), etc.

As pointed out by World Bank in its 1989 Report that "the growth of the Indian capital market has been impressive. Equity market capitalisation on the Bombay exchange increased from \$ 11.8 billion to US\$ 19.4 billion between the end of 1980 and 1987; average capitalisation ratios remained roughly equal to 6.5 percent of GNP. The number of listed companies on all exchanges increased from 2,114 in 1981 to 6,017 in 1987. New issues of debentures also multiplied. However, there were also abuses, such as the use of misleading prospectus and insider trading. In addition, the processing of new issues, which were heavily oversubscribed because of their low prices, was plagued by delays in shares

allocation". The phenomenal growth of Indian Capital market is really an example for the developing countries, particularly for a country like Bangladesh.

7.3. The Capital Market of South Korea

The securities markets of South Korea to-day represents an example of active planned approach with a stock exchange having 355 listed companies. 25 securities companies and about another 100 financial entities authorised to perform underwriting activities. With Government interventions and diversification of securities market, the shareholder population in Korea has grown over the last fifteen years and exceed the target of 2.3 million in 1985. Although informal securities was operating in Korea from 1948 but only after the establishment of South Korean Stock Exchange in February, 1956 securities market was started functioning formally. Initially supply was limited to Government securities.

In line with the objectives of First Five Year Economic Development Plan in 1962 the Commercial Code, Securities and Exchange Act was introduced to expand the base of corporate equity market, but results were not conducive towards development of a sound capital market. Thereafter, in 1963 Government assumed control over Korea Stock Exchange. In 1968 a Capital Market Promotion Law was introduced to create sustained demand for equities through employee stock ownership programs, public offering mechanisms, securities finance and tax incentives. Subsequently, in 1970s (1972; 1974 and in 1977) Korea have further consolidated market mechanisms by providing incentives and disincentives for listed companies in stock exchange, reduction of dependence of business enterprises on bank credit, protection against insider speculations, etc. In 1977, the Securities Exchange Commission was established as a specific supervisory agency for the securities market. In 1983 new regulations introduced more flexibility in the market and, among other reforms, abolished the system of public issue at par value.

Besides, from 1981 the authorities began to outline a long-term program for gradual liberalization and internationalization of the securities market with provisions to sell upto 10.0% of leading securities to foreign partners, guarantee for bond issues, etc. Foreign indirect portfolio investment has also been encouraged. Results have exceeded expectations and now leading Korean companies have begun to place convertible bond issues abroad even without waiting for Government permission for direct foreign investment. Korean experience is, therefore, transpired as a success story.

7.4.- The Malaysian Securities Market :

The Malaysian securities market began in the late 19th century when British owned plantation and mining companies were traded through brokers based in Singapore. The Malaysian Stock Exchange was established in 1964 on the background of Singapore Stock Brokers Association of 1930. In 1973 with the termination of the inter-changeability of the Malaysian and Singapore currencies, the Kuala Lumpur Stock Exchange was established.

Early 1970s was characterized by significant new issue and trading activity with high price and speculations. In order to curb speculation, manipulation, etc Government introduced regulatory measures through the Securities Industries Act. As a result, upto 1980 there was uncertainty in the capital market of Malaysia. The Composite Index(CI), based upon 81 Malaysian incorporated companies and two foreign incorporated companies was unstable. Between 1980-85, market performance remained weak mainly due to deteriorating economic condition, lower commodity prices and uneconomic operations of financial institutions.

In 1985, Malaysian Government took several measures to enhance investors confidence including establishment of M\$ 1.0 billion new investment fund to stimulate private sector investment. But these measures were not sufficient to offset the pessimism caused by declining commodity prices, depressed corporate earnings and the collapse. The collapse of Pan Electric Ltd. in 1985 triggered massive defaults among securities dealers and investors in both Malaysia and Singapore. This crisis of confidence resulted suspension of activities and liquidation of brokerage houses. The stock exchange authorities and the Govt. of Malaysia and Singapore attempted to restore structural inadequacies of the market. Due to Govt. interventions, de-regulations and renewed political stability of Malaysia, the market condition showed a gradual recovery in 1987. The trading volume, however, did not register any increase over 1985. The Malays experience is definitely a lesson for a country like Bangladesh. Structural reforms, deregulations and improvement in the economic performance of industrial enterprises should be undertaken in such a way so that it would help accelerate the process of industrialization and stabilise the securities market on a firm basis.

VIII. STRATEGY FOR DEVELOPMENT OF CAPITAL MARKET.

8.0. Policy Interventions and Reforms by the Government.

Bangladesh has been pursuing a mixed economic system, where the role of both public sector and private sector is crucial for economic development. In Bangladesh Govt. plays the major role in the formation of fiscal and monetary policies and operation of financial markets through regulations and control of different systems.

In view of the shortfall in achieving desired objectives and targets of earlier plans, the FFYP envisaged a higher growth rate in the industry sector. Further more, it has given top most priority on the formation of capital through domestic savings (which is 0.2% as per world Bank Report of 1989). All these

objectives are directly related to the functioning of financial markets (i.e. money and capital market). Therefore, to cater to the development needs, policies relating to money, banking and public finance have to be reoriented and restructured. It is felt essential to bring certain changes in the functioning of the capital market, related regulations & controls. In this context, it is relevant to mention that Govt. has already formed a high powered capital market development Committee to review the capital market operations, its problems and report re-commendations made by different international agencies and national committee

8.01. However, certain measures are suggested hereunder, which would require policy interventions and deserve careful consideration of the concerned authorities.

- (a) At present functions of CCI is entrusted to the Joint Secretary, Investment Wing, Finance Division of the Finance Ministry as an additional job. It is felt that, CCI should be organized as a full time job. Like many other countries, a Securities and Exchange Board Authority should be established to oversee and enforce laws, rules and regulations relating to capital market, securities, etc.
- (b) It has become essential to bring reforms in different laws/rules, etc. enforced by the Govt. As have been pointed out by many committee agencies, relevant laws/rules should be amended without causing further delay (i) to allow smaller companies to go public if they want (ii) issuance of shares at a premium or discount and (iii) underwriting commission without limit (i.e. underwriting shall be determined by the issuing company and underwriters through negotiation) ^{& (iv)} reduction in stamp cost for issuance of debentures.

- (c) To encourage distribution of shares to the public and to improve supply of securities, restriction on percentage of public issue of shares be withdrawn; all types of listed companies(including utilities) be treated as publicly traded companeis; punitive action/imposition of penalty against defaulting companies for non-refund of application money with interest to the unsuccessful applicants/partial allottees and non-payment of dividends within the stipulated time should be introduced henceforth. GCI should be entrusted with the responsibility to supervise these activities with sufficient authority.
- (d) The Trust Act, 1982, the Insurance Act 1938, Cooperatives Rules should be ammended and provision of fixed quota for institutional investments, particularly by commercial banks, DFIs and insurance companies should be made as quickly as possible to channelize their savings/funds into long-term investments.
- (e) The Government should make it binding on the part of multination companies that a portion of any expansion, atleast 25% of a multinational company shall be distributed to the public, whether or not financing would be obtained from Bank. Similarly, any new multinational company entering Bangladesh should distri a portion, say 25% of its capital to public. Besides, out of the total, atleast 20% of the share capital of public companies be allowed for limited distribution.

- (f) In order to protect the small investors from financial losses caused through serious deterioration of stock prices in the stock market, CCI may play the 'role of market maker' in association with ICB and other financial institutions. This will help stabilise stock prices and will remove difficulties arising out of bearish conditions of stock market.
- (g) In order to augment supply of attractive securities in the market thereby enabling ICB to form suitable portfolios for Mutual Funds, Wage Earners Unit Fund, etc., Government should off-load gradually but expeditiously shares of profitable public sector enterprises (such as, oil & gas sector, fertiliser sector and service sector). At the time of off-loading shares of such enterprises, present system of holding 51% shares by the Government should be withdrawn.
- (h) Ministry of Commerce should issue directives to the Institute of Chartered Accountants for maintenance of professional and ethical standards while reporting financial position of companies. This is required to avoid misleading and incorrect financial information and will create confidence amongst investors and users of such financial statements.

8.1. Strategy for Development of Capital Market by ICB :

ICB as main arm of the capital market has been playing its role to promote the securities market. As discussed earlier and evident from analysis that ICB did able to create phenomenal impact on the demand side of the securities market through unit fund, mutual fund and investors' accounts, but on the supply front, the progress was not enough to bring buoyancy in the market. This is manifested

by the fact that only 64 companies did go for public issue out of 298 companies underwritten by the Corporation. Supply side of the market, of course, does not depend on the performance of ICB alone. It depends on the rate of industrialization, operational and financial capability of the securities market and ability of the market to induce investors confidence in a sustained fashion. Nevertheless as the prime mover, ICB should vigorously try to create more positive impacts on the supply side of the market through innovative approaches and instruments. The future program to float 'Bangladesh Fund' and 'Wage Earners Fund' may be implemented only when portfolios are properly developed.

Keeping in view the current economic scenarios, the industrial policy of the Govt., the objectives of the Forth Five Year Plan and the competency of the Corporation the following strategies/action programmes are suggested for the development of capital market.

8.1.0. (i) ICB should form a consortium with BSB/BSRS, Commercial Banks and interested insurance companies to participate in the financing of 'Corporate bonds'. Commercial banks may be approached to extend credit to companies and Corporations through corporate bond financing mechanism, instead of providing short-term cash credit. This may even lead to venture capital financing, where a portion of the investible fund may be earmarked for long term equity financing. ICB should play the leading role in organizing bond market and venture capital undertakings.

(ii) ICB should enter housing sector initially through the public sector agencies. ICB should try to make an arrangement with HBFC to create a fund for issuance of 'Fixed Rate Debentures' in the housing sector.

(iii) The Corporation should vigorously pursue to bring companies into the fold of public issue. ICB should provide direct underwriting support to all types of companies if found commercially viable and attractive to investors.

ICB should explore the possibilities of having line of equity or direct investment from IFC, ADB or other international financial institutions.

(iv) ICB should go for 'Shared Equity Loan' instead of bridge financing. It mainly implies that ICB will finance equity, backed by acceptable guarantee and will have some say in the management of financed project through participation in the Board of Directors throughout the life of the project.

(v) ICB should approach the Govt. and other agencies to issue 'Fixed Interest Securities' and list those in the stock exchange. The interest rate should be lucrative to the public.

(vi) ICB should encourage companies to issue debentures with equity warrants. Under this system, instead of issuing convertible shares, warrants would be issued to the investors.

(vii) ICB may also explore the possibility of introducing 'Revolving Underwriting Facilities'. Under this scheme, the Corporation will make commitment for underwriting but would go for public issue in a staggered manner and revolve the fund depending on the operation of the project.

- (viii) The existing subsidized interest rate on investors' account should be raised atleast upto the normal rate of interest. The scheme should be self financed and service charge should be realized.
- (ix) To ensure full utilization of Unit Fund along with existing practices, 'Private placement of funds' either against shares or against acceptable bonds should be explored. Unit Fund should be traded in the Stock Exchange.
- (x) ICB should assume the role of distribution of underwritten shares instead of sponsors and thus earn more revenues.
- (xi) In order to generate income, ICB should use its expertise to the fullest extent. It should undertake consultancy and advisory services to companies and clients as one of its regular activity and should expand its business as 'Manager to the Public Issue'.
- (xii) ICB should undertake the task of capital restructuring of the Government enterprises designated for issue of shares. Besides, ICB should ^{also} approach the Government to make arrangements for public distribution of securities of its enterprises through ICB.

8.2. Strengthening Organisational Capability :

It is fact that ICB has been encountered with many administrative and operational problems. In the process of development, therefore, the Corporation shall have to give proper attention towards improvement of managerial ability and problem solving capability. Once again it is important to mention here that in order to recycle its investment and recover huge overdues, ICB must

assign top priority to its recovery drives. With the improvement of recovery position the overall profitability will be improved because it has become essential for the Corporation to reduce its financial costs.

Attention should be given to the development of appropriate systems, methods, procedures & norms suiting requirement of the institution, work simplification, preparation of different manuals (Accounts Manual, Operational Manual, Office Manual, etc.) & monitoring system should get priority. Designing of MIS, inventory system, automation of reconciliation work are the other important areas which deserve proper attention.

The branch network and its management should be geared in such a manner that branches are managed with operational responsibility, sufficient authority and accountability. Branch expansion should be made on commercial considerations. Delegation of authority to the different functionaries of head office should also be made to make middle and front level management more responsible and accountable.

The Corporation should make all out endeavours to build up required capability for catering the emerging expectations of customers through appropriate services. To reap the benefit of computerization, ICB should try to build up its own capability for the development of software.

As a specialized institution of the country, it is essential for the employees to acquire high professional standard and skill required to make positive contributions towards the development of capital market. Exposure to the experience of regional countries would surely help the Corporation to design its future plans and programs. Besides, the in-house training program should be strengthened further to provide training to the employees on a continuous basis.

Under the prevalent environment of the country, it is essential to ensure proper internal coordination, team work and congenial working atmosphere in the organisation. In order to put the Corporation on sound footing, an 'operational program' alongwith the 'Budget' should be prepared and implemented specifying functional targets. Appropriate measures for expenditure control, cost consciousness and maintainance of harmonious employee relations system should be taken.

In order to achieve its objectives, to improve the profitability and productivity, the Corporation must try to improve its operational efficiency and effectiveness. ICB has been passing through a transitional stage and will face greater challenge in the days to come. It must keep itself in readiness to cope with the changing environment and uphold its pioneering role of capital market development.

IX. CONCLUSIONS

A careful look to the current operation and future thrust of ICB, its plans and programs shows that emphasis has been laid more on the demand side, than to supply side. It is opined that in order to float 'Wage Earners Unit Fund', 'Bangladesh Fund' and 'Gram Bangla Fund', etc. ICB first of all must to develop required portfolios with or without Govt. support & reforms. Perhaps it would be appropriate to float such funds only after building up of sufficient securities backup. As already manifested from operational results of 1988-90 (i.e. major share of income is being generated from stock market operations, than long term equity support), it is imperative on the part of the Corporation to shift its strategic focus from equity financing to securities financing and from demand oriented approach to supply oriented approach. This approach would enable ICB to achieve its main objectives of capital market development and broadening the base of investment.

In order to achieve the objectives of Fourth Five Year Plan particularly improvement in the share of savings and investment to GDP, industrialization and poverty alleviation, it is all the more essential for the Govt. to create a congenial investment climate by bringing in required reforms, reinforcement, incentives, and deregulations. At different times recommendations of different international agencies/consultants/committees have been made to the Govt. which are under consideration. It is hoped that the high powered committee on 'Capital Market Development' would be able to strengthen Govt. efforts to adopt concrete fiscal & regulatory measures for the development of capital market.

In its efforts, ICB shall have to overcome the stagnant situation in the supply of securities, recovery of huge overdues and reduction of financial cost. ICB should try to consolidate its growth and improve the productivity in order to contribute more towards its own improvement and development of the capital market. For a specialized institution like ICB, in order to cope with change, the development of management capabilities should always remain a priority.

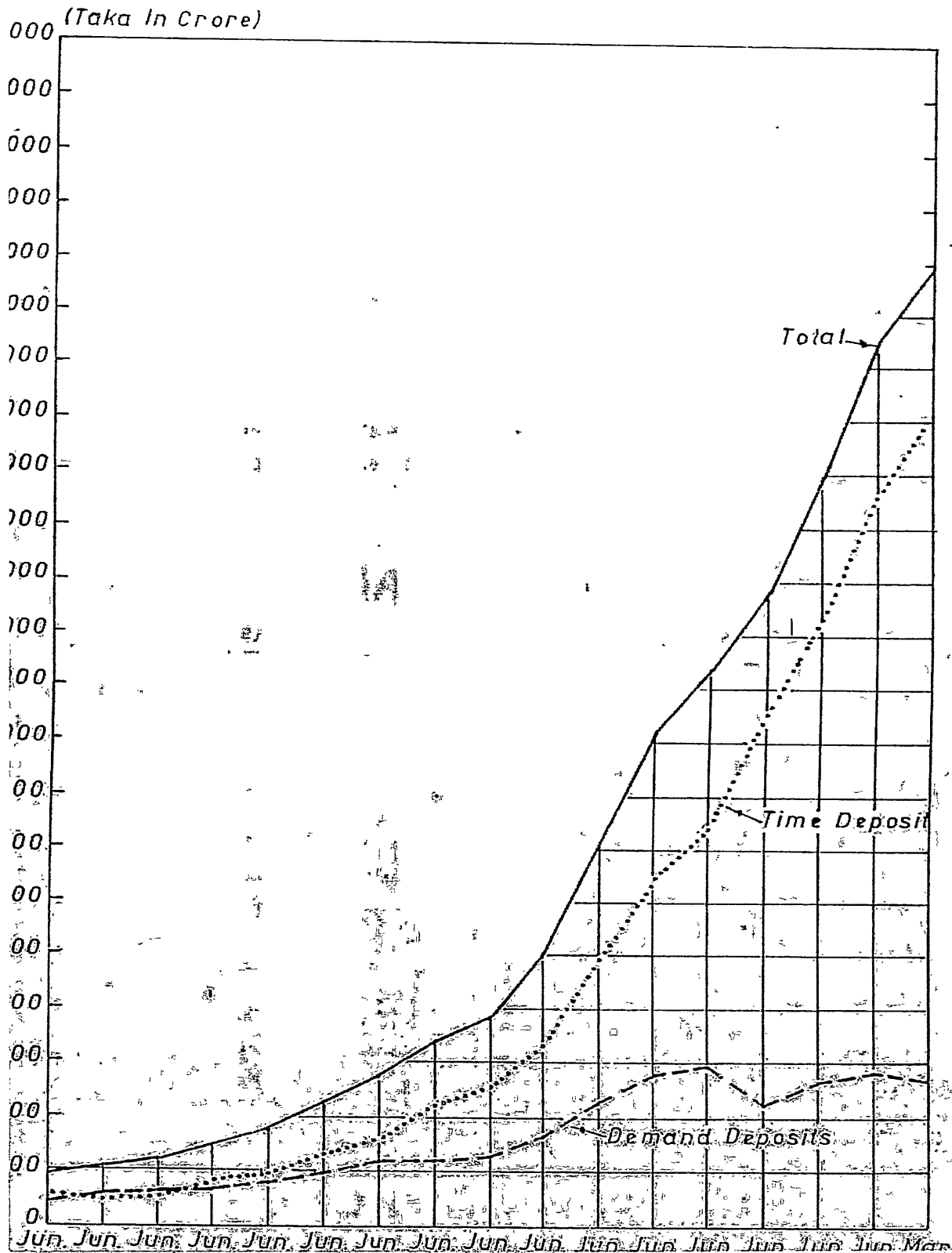
No doubt ICB and for that matter, the capital market has bright future provided the investment climate, financial discipline and fiscal policies are matched reflecting economic realities and geared towards achievement of socio-economic objectives of the country.

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Trends of Deposit of Banking Sector
(from June 1974 to March 1990)

35

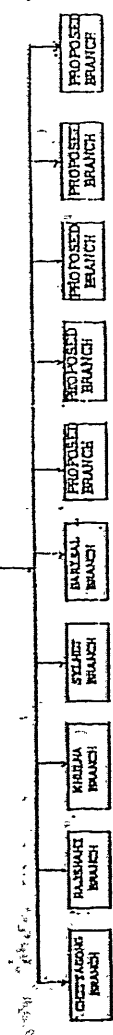
BANK DEPOSITS



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graph TD
    A[BOARD OF DIRECTORS] --- B[MANAGING DIRECTOR]
    A --- C[EXECUTIVE COMMITTEE]
    B --- D[SECRETARY'S DIV.]
    B --- E[SECRETARY'S DEPT.]
    D --- F[PUBLIC RELATIONS DEPT.]
    D --- G[SECRETARY'S DEPT.]

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Details of Underwriting & Bridge
Financing Operation of ICB from
1976-77 to 1989-90

37

Y e a r	No. of Project	Amount	Others	Total
1976-77	22	3.52	2.87	6.39
1977-78	25	11.85	9.62	21.47
1978-79	36	12.98	8.71	21.69
1979-80	47	12.79	8.00	20.79
1980-81	62	12.10	11.36	23.46
1981-82	17	6.76	5.98	12.74
1982-83	22	7.92	5.10	13.02
1983-84	29	9.76	6.50	16.26
1984-85	17	5.40	3.75	9.15
1985-86	5	1.44	0.74	2.18
1986-87	7	4.45	4.11	8.56
1987-88	3	1.88	3.13	5.01
1988-89	-	0.35 *	-	0.35
1989-90	6	4.76	6.97	11.73
	<u>298</u>	<u>95.96</u>	<u>76.84</u>	<u>172.80</u>

* Additional Loan.

Source : The Annual Reports of ICB.

Comparative operational activities of Investors' Scheme
during FY 1987-88 to 1989-90

(Tk.in crore)

FY 1989-90	FY 1988-89	FY 1987-88	Cumul as on June,
------------	------------	------------	-------------------------

No. of accounts opened	1478	1952	17654	41,
Deposits received	5.66	7.18	10.71	39
Loans sanctioned	13.34	14.59	16.43	76
Investment made	16.16	12.15	20.34	83.

Source : Annual Reports of ICB.

Occupation-wise classification of the account holders
under Investors' Scheme as on 30-6-1989 and 30-6-1990

Occupation	No. of account holders as on 30 June, 1989	Percentage (%)	No. of account- holders as on 30 June, 1990	Perce- ntage (%)
Salaried Government/ Non Government employees	15,249	38	15,855	38
Retired Personnel of all Categories	4,333	11	4,451	11
Engineers, Doctors and Lawyers	3,794	9	3,912	9
Businessmen/Agriculturist	4,448	11	4,625	11
Housewives/Working Women	6,769	17	7,029	17
Labourers/Students	4,090	10	4,223	10
Others	1,557	4	1,623	4
	40,240	100	41,718	100

Classification of account holders of Investors' Scheme
in respect of initial deposits as on 30-6-1989 and 30-6-1990

Initial deposits (k.)	No. of account holders as on 30 June, 1989	Percentage (%)	No. of account holders as on 30 June, 1990	Perce- ntage (%)
00-2,100	23,965	59	24,910	60
01-5,100	6,891	17	7,127	17
01-10,100	5,090	13	5,252	13
101-20,100	2,840	7	2,930	7
Above 20,100	1,454	4	1,499	4
	40,240	100	41,718	100

Source : Annual Reports of ICB.

40

Paid-up capital and market capitalisation of
listed securities (As on 30 June, 1985 to 1990)

Tk. in
crore

1600

1400

1200

1000

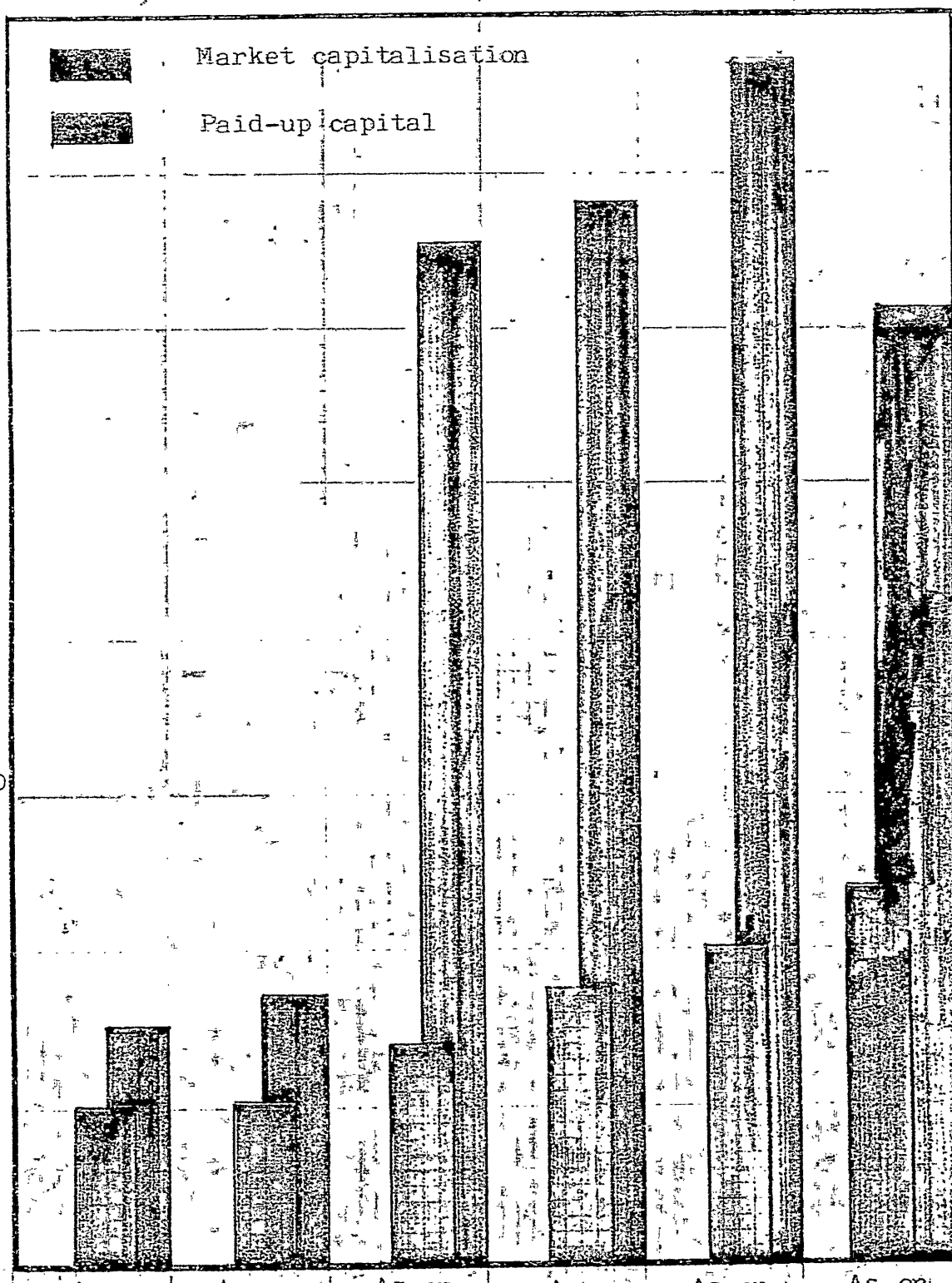
800

600

400

200

0



APPENDIX-F

Comparative Position of Loan Recovery of DFI's
during FY 1989-90

Sl. No.	Name of the Institutions	Loan disbursed		Loan recovered		Loan overdue		Loan outstanding	
		1988-89	1989-90 (Estimate)	1988-89	1989-90	1988-89	1989-90	1988-89	1989-90
1.	BSB	46.81	59.79	73.57	52.60	365.52	411.00	746.76	851.20
2.	BSRS	3.58	9.76	35.37	41.97	634.70	694.71	807.79	912.81
3.	ICB	0.45	4.57	7.89	12.00	116.73	123.46	173.49	183.08
4.	BKS	445.09	406.00	334.68	425.00	952.27	1252.00	2185.16	2543.00
5.	HBFC	72.84	71.35	70.55	99.15	178.00	195.03	1339.74	1434.80

* Represents recoverable amount.

† Represents total outstanding.

Source: The Economic Survey of Bangladesh, 1989-90, Economic Adviser's
Wing, Ministry of Finance, Govt. of Peoples Republic of Bangladesh.

APPENDIX - G

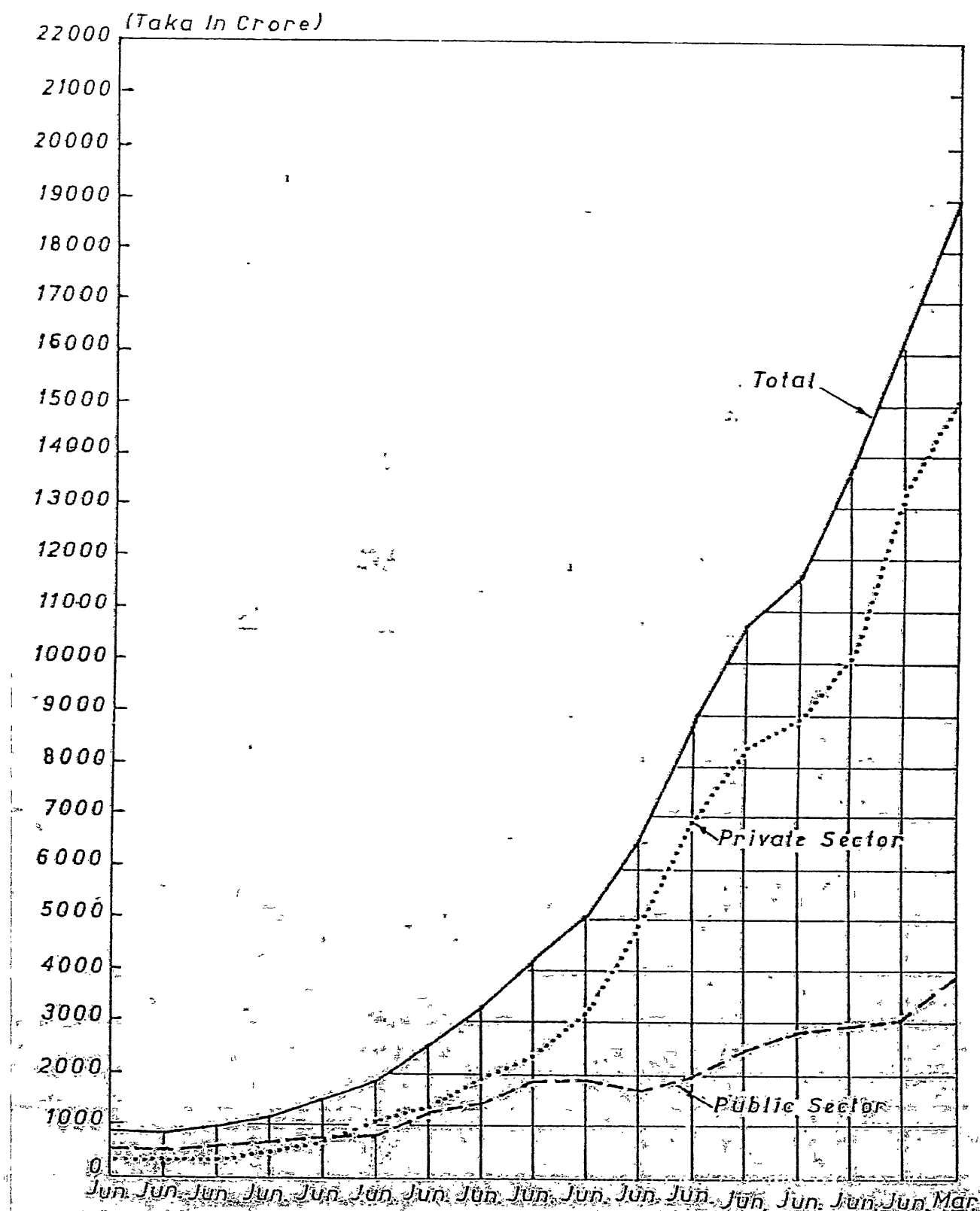
SOME COUNTRY FUNDS AT A GLANCE

Name of Fund	Value in Million US Dollar	Year Launched	Manager/Broker
Brazil Fund	98.0	1975	Banco Lar Investimento
Mexico Fund	42.5	1981	Impulsora de Fondo Mexico
Norrea International Trust	120.0	1981	Vickers da Costa
Norrea Fund	89.0	1984	Scudder-Stevens
Seoul International Trust	70.0	1985	Vickers da Costa
Norrea Europe Fund	30.0	1987	Schroeder Investment Managem
Formosa Fund	24.95	1986	Hoare Govett, Asia
Taiwan Roc	240.0	1983	Vickers da Costa
Taiwan Fund Inc.	30.0	1986	Merrill Lynch
Thailand Fund	30.0	1986	Vickers da Costa/ Morgan Star
Thailand Fund	25.0	1986	Merrill Lynch
India Fund	120.0	1986	Merrill Lynch
Malaysia Fund	65.0	1987	Morgan Stanley
Philippine Redevelopment Fund	5.5	1986	Thornton Unit Trust Manager
Philippine Long Term Equity Fund	20.0	1987	Thornton Unit Trust Manager

Source: South, June 1987

Credit Expansion of Banking Sector
(from June 1974 to March 1990)

BANK CREDIT



Forteen Years Operation of ICB in Major Areas

	1976-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	1989-90	Cumulative As on 30-6-90
1. Completion No. of projects	22	25	36	47	62	17	22	29	17	5	7	3	-	6	298
ICB	352	485	1298	1279	1210	676	792	976	540	144	445	188	33	476	9593
Others	287	962	871	800	1136	598	510	650	375	74	411	313	-	627	7684
Disbursement															
ICB	76	291	679	1012	1656	996	838	898	682	286	254	391	45	236	8340
Others	23	94	213	632	777	508	321	324	245	206	11	16	137	233	3840
Recovery/Recycling															5675
Investors' Scheme															
a) No. of accounts opened	80	23	243	227	126	85	214	595	6905	2732	3404	17654	1952	1478	41718
b) Deposits received	3	1	21	16	15	10	32	75	449	271	713	1071	718	566	3961
c) Loans Sanctioned	8	3	22	19	26	14	25	150	712	690	1551	1643	1455	1334	7656
d) Investment made	10	3	60	17	27	23	33	163	1161	550	1393	2034	1215	1616	8305
Public Issue															
a) No. of company offered shares	1	1	3	2	4	3	2	5	12	9	4	8	4	7	64
b) Size of issue	50	-	239	52	150	84	70	369	1062	367	189	600	421	1519	5172
c) Public subscription	34	-	112	20	116	62	8	583	1456	507	465	1144	583	1487	6570
Unit Fund															
a) Gross sale Unit(000) Amount					30	204	1388	645	896	1226	993	2506	3238	5512	16839
b) Repurchase Unit Amount					30	204	1485	681	993	1428	1146	2798	3742	6346	18853
c) Net Sale Unit(000) Amount					-	458	38515	80243	121906	78378	752367	45843	162559	384198	1664467
d) Dividend per Unit declared(Tk.)					15	16	16.25	17	20	21	23	24	25	25	1818

(Contd.)

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Mutual Funds															
Rate of Dividend per Certificate declared															
(a) 1st ICB Mutual Fund (TK.)	-	-	-	-	20	20	20	25	35	38	41	48	49	49	-
(b) 2nd ICB Mutual Fund (TK.)	-	-	-	-	-	-	-	-	21	23	25.5	28	29	29	-
(c) 3rd ICB Mutual Fund (TK.)	-	-	-	-	-	-	-	-	4	21	22.5	25.5	26	26	-
(d) 4th ICB Mutual Fund (TK.)	-	-	-	-	-	-	-	-	-	-	21.5	23	23.5	23.5	-
(e) 5th ICB Mutual Fund (TK.)	-	-	-	-	-	-	-	-	-	-	-	20	20.50	20.50	-
(f) 6th ICB Mutual Fund (TK.)	-	-	-	-	-	-	-	-	-	-	-	-	15.50	13.25	-
Resources															
(a) Paid up Capital	375	500	500	500	875	875	875	875	985	1000	1000	1000	1867	2000	-
(b) Reserves	11	56	143	221	404	639	972	1379	1785	1785	2344	2445	2595	2668	-
(c) Loan from Govt.	-	275	550	1050	1215	1215	1465	1400	1850	1850	1850	1850	1850	1850	-
(d) Debenture	-	275	775	1775	2775	3275	4275	5212	5068	5212	5502	5194	5583	7026	-
Financial Results															
(a) Income	24	172	152	261	520	703	926	1175	1298	1435	1521	1394	1454	-	-
(b) Net Profit	11	45	112	159	261	314	420	532	541	416	383	100	271	-	-
(c) Dividend declared	-	5	7.5	8.5	8.5	9	10	12.5	13.5	13.5	11.00	-	6	-	-

Source : The Annual Reports of ICB.

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BANGLADESH PUBLIC ADMINISTRATION TRAINING CENTRE
SAVAR, DHAKA

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EDUCATIONAL WASTAGE AT THE COLLEGE
IN BANGLADESH

By

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NIEAR

Paper submitted to the BPATC in partial fulfilment of the requirements of successful completion of the Eleventh Senior Staff Course held during July 15 - October 14, 1990.

Preface

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When I joined the Eleventh Senior Staff Course at BPATC, I came to know that I had to write a seminar paper with some research bias as part of the course. I seized the opportunity to prepare the paper as I was feeling for the last one or two years that due notice and care and therefore, importance were not given to the complex national problem of educational wastage, which is inseparably linked with the deteriorating standard of our education. Nor have the concerned authorities taken appropriate actions.

There was a lot of limitations in writing this seminar paper. With our busy schedule at the BPATC, I had really not much time. There was also constraint in the availability of materials and reference books. So, particularly for the suggestions for prompt short term administrative measures and long term strategy recommendations, I depended largely on my own thinking and experience as college teacher, administrator and trainer.

I take here the opportunity to thank heartily BPATC for its logistic & other support & help.

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Educational Wastage at the College in Bangladesh.

A. At present the greatest problem in Bangladesh at the college level is educational wastage chiefly surfaced in the failures and third divisioners at the Intermediate and Degree (Pass) public examinations. It is an indicator of the deteriorating standard of education at all levels of our education, from the primary to the university. Therefore, it has emerged as a great national educational problem. The deterioration, I think, is the greatest of all the problems facing the colleges. This is reflected in the number of failures and the number of third divisioners at the H.S.C. and Degree (Pass) levels. Poor performances in the interviews, tests/examinations either for admission or jobs is also an index of this state of things. All taken together may be considered as colossal educational wastage consequent upon the worsening educational standard.

A.1. An analysis of this should first focus on the failures and the divisions for proper perspective and realization of the miserable performance of our students at the final H.S.C. and Degree (Pass) examinations. Failure or good performances at interviews/tests will ultimately refer to them. If we examined (Appendix-I)- Combined Examination results of Higher Secondary Certificate (HSC) from 1980 to '89, we find that the pass on the average is 45.64% and the average failure is 54.35%.

A.2. The number of HSC students appeared in 1980 is 105203, while in 1989, 315889, the maximum number, about a triple increase from 1980. And the remarkable increase every year started from 1984 when the number of students appeared was 194873. But what is alarming and a great loss in the educational

sphere at this level is the percentage of failure - 54.45%. If we can reduce it to zero, will it not along with the prevention of educational loss, contribute to the standard of our education?

A.3. Appendix No. II shows the number of passes in percentage in each division. The average pass in the first division over the 8 year period (1981-89) is 3.71% in the second division 21.04% and in the third division 21.33%. If we want to raise the standard of education at the college level if we want to say the standard is upto the mark, then the percentage of pass in the first division should be enhanced by manifold times, i.e. the maximum. The percentage of pass in the third division should be so minimised as to reduce it to zero.

A.4. In Appendix -III degree (Pass) results over the period of 6 years (the years limited because of the non-availability of data) point out that, the maximum number of average failure - 68.57% is in the B.A. (Pass), 64.03% in B.Com. and the minimum in B.Sc. 64.09%. The average pass in B.A. is - 31.13% in B.Com.; 35.92% and in B.Sc. 35.10%. And the average pass and failure in the groups are 34.15% and 65.85% respectively.

A.5. In 1987 of all the groups, the greatest number - 55941 (more than double) of students appeared at the B.A. Examination; next 21205 at the B.Com. and 17326, the lowest, at the B.Sc. And the average appearance in B.A. in the period is, 31,439; in B.Com. 12639; and in B.Sc. 12461. In 1987 in all the groups the number of candidates appeared is more than double of those sat in 1981; B.A. in 1981, 23219 and in 1987, 55941; in B.Com. in 1981, 9044, and in 1987, 21205; and in B.Sc. in 1981, 8619 and in 1987, 17236.

A.6. Perhaps the students have more liking for the arts subjects but I believe they think that it is less expensive and easier to obtain the degree in arts than in commerce and science. More students sit for examination at the B.Com. than at the B.Sc. course perhaps because of the ever increasing demand now for commerce as business and industries are expanding.

A.7. At the degree level, passes in the first division in all the groups are very few, second divisioners are pretty larger than the former, and a great majority passes in the third division. Third divisioners at the B.A. level is overwhelmingly greater in number (I have given the picture from my own experience and impression as statistical data are not available. It is advisable that BANBEIS supplies it as it has done in respect of SSC/HSC results in its publications). B.A. results, 1989 of Chittagong University may, however, be cited as an example: percentage of pass - 27.4%; 17,260 appeared; 4702 were successful; -1st division - 03, second division - 589 and third division - 4150.

A.8. The average failure in Degree (pass) is 65.86%, a colossal educational wastage. At the degree level such a number of failures is highly lamentable and much more alarming particularly because the students are more matured and responsible than the HSC students.

A.9. The picture is not so dismal at the Honours and Post-graduate levels in colleges, where these courses are offered. As no separate results of colleges are available, the combined results of the universities will help us to see the situation of these courses at the colleges. It can not be, of course, denied

that the percentage of failure at college, will be higher than those of the universities or that the number of first divisioners, second divisioners and third divisioners, particularly the last, will be higher.

A.10. Appendix-IV demonstrates that each year on an average the maximum number - 4754 appeared at B.A. (Hons), the minimum - 1556 at B.Com.(Hons) and at B.Sc. 2184. The arts students are thrice the number of B.Com. students and more than double of the science students though science students are 40% more than the commerce students. All though, it is claimed that better students are enrolled in the science courses, the average failure over the period of six years in B.A.(Hons) is the greatest, 25.62%. The average failure in B.A.(Hons) is 18.84% and in B.Com.(Hons) 16.74%. And the average failure in all the groups is 20.17%

A.11. The Appendix-V for M.A., M.Com. and M.Sc. results show that in M.A./M.SS. examinations, there is the highest number of failures - 15.02% though less than the failures in B.A.(Hons) - 18.85%. The average failure in M.Sc. is 12.42% less than the average failure in B.Sc. (Hons) - 25.62%, and in M.Com. the average failure is 12.59% less than the average failure- 16.74% in B.Com.(Hons). And the average failure in all the three post-graduate examinations is 13.34% about seven percent less than that in the degree (Hons.) examinations.

A.11. The (Appendix-V) for M.A., M.Com. and M.Sc. results show that in M.A./M.SS. examinations, there is the highest number of failures - 15.02% though less than the failures in B.A.(Hons) - 18.85%. The average failure in M.Sc. is 12.42% less than the average failure

in B.Sc.(Hons) - 25.62%, and in M.Com. the average failure is 12.58% less than the average failure - 16.74% in B.Com.(Hons).

And the average failure in all the three post-graduate examinations is 13.34% about seven percent less than that in the degree (Hons) examinations. 52

A.12. As in the degree (pass) so in the degree (Hons) and post graduate examinations (BANBEIS can help us by grading the successful candidates in this regard) the lack of statistics of the categories of the successful candidates baffles one to project the picture of classes. Yet one can say that a few are successful in the first class, a great majority secures second class and the rest obtains the third class.

A.13. After the detailed examination, a summary of the findings is given now to focuss on them and thereby to envisage remedial measures. At the H.S.C. Examinations the average percentage of failure in all the groups is 54.35% over the period from 1981-1989. Only 3.71% were successful in the first, 21.04% in the second and 21.33% in the third division. The degree (pass) level results present a dismal situation. The average failure is 65.86%, a colossal wastage. And a great majority secures a third division which is devastatingly greater at the B.A. examination. The B.A. results of Chittagong University of 1989 are an example where 87.51% of successful candidates got the third Division. What can be more grievous than this?

A.14. However, the state of things at the honours and post-graduate levels reveals a different scene. On an average over a period of six years 20.17% of students of B.A.(Hons), B.Com.(Hons) and B.Sc.(Hons) fail in the final examination. And a majority of

them gets a second class. 13.34% of the post graduate students in the three groups about seven percent less than that in the degree (Hons) do not come out successful. There is also a large number obtains a second class. For this situation students of the colleges have greater share than the universities, there is no doubt of it, Yet the average 20.17% and 1.17% failures at the honours and post graduate levels are really regrettable and undesirable because the courses are generally taken by the selected and meritorious pupils.

A.15. It is natural now to investigate into the reasons for such wastage. I have not sought them because many factors are responsible and the share of their respective contributions is very difficult to dissect and determine. But I think my recommendations for remedy can help to understand them by implications.

A.16. However, such wastage is not only a huge wastage of resources/energy and time, It is also an instigator of moral apathy, moral transgression, a creator of frustration, indiscipline and violence which are undoubtedly rampant among our young men. Painful is the landscape projected here. But more painful is our indifference and neglect. I have asked a good number of teachers and principals of colleges (both govt. and non-govt.) about the problems of their institutions. Most of them did not mention the wastage. Most of them are not even aware of its gravity and almost none seems to take proper measures against it. Most of them, however, have heard about the deteriorating standard of our education being talked of frequently and widely.

but are not conscious of the intimate relationship of it to educational wastage. If the percentage of failure from the HSC to the post graduate examinations is to be brought down to zero, at least to the minimum and the failures at the degree (Hons) and post-graduate levels are regarded as unpardonable; if there is no third divisioners and if most of the intermediate students get the first division, the educational loss will be the minimum and this will be an indication of some improvement in the quality of education.

A.17. The objective can be carried out to some extent in the present circumstances of the colleges if we begin by some prompt administrative measures. The system of internal examination/test exists in the colleges. Pupils should not only be motivated to take them, periodical tests and examinations should be more frequent. Performance reports in the periodical tests, half year/annual examinations are to be sent to the guardians of the students. Public examinations at the college are to be so arranged that nobody can adopt unfair means in the examination. The conduct of 1989 H.S.C. Examination brought down the percentage of pass to 24.64% while the average pass over the period is 45.64%. Undoubtedly the stringent and suitable action checked the unfair means and acted as a deterrent to lowering the standard of examination. Tutorials classes do exist, yet in many of the colleges, due importance is not given. Pupils do not take them seriously. Nor is the attendance to tutorial classes ensured. It will be fine if remedial measures for the backward students can be taken by arrangement of separate classes. If it is not possible, then particular care should be given to them in

tutorials of different disciplines.

A.18. Teachers are instruments for teaching, tutorials and counselling. It is unfortunate that many of them do not stay for more than two or three hours in the colleges. The teachers have to remain in the college for at least 5 hours and pass some of their time in the library. But neither they nor do the students are serious about library work. A committee with some senior members of the staff may be formed to motivate and supervise their activities particularly of the students. It's a task would be to help them form reading habit and improve as far as possible the library facilities with the limited resources. Co-curricular activities are no less important than the library work as they are an essential part of education for all round development of the students but then they are neglected in the colleges. Due attention and care are necessary. The college authority should chalkout programmes and schedules about them and see that their observance is ensured. No one can disagree that these steps will keep the students engaged in activities much of the time, resulting in barring them from unacademic activities and in improvement of the environment of the institution.

A.19. The above suggestions are fit for immediate action with possibilities to materialize them within a short period. But they are inadequate to meet the complex problem of quality improvement and prevention of educational loss. The first long term strategy needed is the improvement of library and laboratory particularly for colleges which offer honours and post-graduate courses. In many colleges, the conditions of library, the stock

of books, journals and reading space are not at all satisfactory. The conditions of library and laboratory in colleges which offer honours and post graduate courses, are no better. BANGLADESH NATIONAL EDUCATION COMMISSION, 1988 (page-218) reports that "Every where there is want of library accommodation. The fund for books, journals, the number of qualified library employees or the furniture are so inadequate that one can say that library does not exist in most of the schools and colleges". When the libraries are in such a pitiable condition, when it is acknowledged by all that a spacious and well-equipped library is an essential pre-requisite for and an index of quality education, concerned authorities have not focussed on it. Even though, Bangladesh Education Commission, 1974, pointed out that library development was indispensable, no provision was made for it in Second and Third Five Year Plan of the country. So it has become now imperative that some development programmes with priority given to colleges offering honours and post-graduate courses are inserted in the Fourth Five Year Plan.

A.20. Development programme is also required for the gradual removal of the existing gap between the govt. and non-govt. colleges in respect of financial support and physical facilities. Out of about 817/840 colleges, there are 630 private colleges which form the core of the H.S.C. and degree education in our country. Salaries and allowances etc. of teachers and employees and physical facilities available in these institutions are far from being satisfactory, unless they are brought at par with those of the Govt. colleges, the educational standard can not be raised and the number of failures and third divisioners cannot be

Appendix-i

HSC 1980 -89 (Science, Arts and Commerce combined)

Table I: Examination Results of Higher Secondary Certificate

<u>Year</u>	<u>Appeared</u>	<u>Appeared</u>	<u>%pass</u>
1980	105203	62382	59.30
1981	122837	67605	55.12
1982	125789	34967	27.80
1983	145665	55096	37.88
1984	194873	101561	52.12
1985	180227	92679	51.42
1986	263249	148575	56.44
1987	2323391	110307	47.47
1988	297120	131031	44.10
1989	315889	78432	24.84
Average Pass-			45.65%
Average Failure			54.45%

Appendix-11

Table - 2: Results of HSC Examination of all groups by Division with percentage in each Division.

Year Total passed with percentage in each Division
Appeared

1st Division				2nd Division		3rd Division	
No. Passed		Percentage of pass	No. passed	Percentage of pass	No. passed	% of pass	
1981	122837	3880	3.15%	24761	19.5%	39065	15.80%
1982	125789	3047	2.42%	14119	11.22%	1780	14.15%
1983	145465	5009	3.44%	22654	15.57%	27414	37.85%
1984	194873	6698	3.43%	46330	23.77%	47533	24.39%
1985	180227	9236	5.12%	49326	27.35%	34117	18.93%
1986	263248	13508	5.13%	82916	31.49%	52162	19.81%
1988	297120	12483	4.20%	76338	25.69%	42265	14.20%
1989	315289	8950	2.83%	41346	13.08%	28156	8.91%
Total		29.72%	168.33%		176.71%		
Average in eight years		5.71%	21.04%		21.33%		

(Based on Educational Statistics 1987, 1988, 1989 Published by BANBEIS)

Combined Degree (pass) results of different
universities Table-3a B.A. (Pass)

Year	Number appeared	Number passed	% of pass
1981	23219	5701	24.55
1982	30221	8897	29.43
1983	24193	4498	18.60
1984	26325	7091	26.93
1986	29061	10253	35.28
1987	55941	30100	53.80
Average pass			31.43%

Table -3b B.Com (Pass)

Year	Number appeared	Number passed	% of pass
1981	9044	3357	37.12
1982	10671	4219	39.54
1983	10362	2332	22.50
1984	12944	3860	29.82
1986	11613	4019	34.61
1987	21205	7894	37.22
Average pass			35.92%

Appendix-1111(Continued)

Table -3c B.Sc. (Pass)

Year	Number appeared	Number passed	% of pass
1981	8619	3582	45.04
1982	12221	5586	45.74
1983	12205	2822	23.11
1984	13940	4912	35.23
1986	10543	3910	37.09
1987	17236	6747	39.14
Average pass			35.10%

Average pass of B.A., B.Com. & B.Sc. (Pass) 34.43 +

$35.92 + 35.10 = 34.15\%$. Average failure = 65.85%

Appendix-IV

Combined results of graduates (Hons) examinations of different universities 1981-87. (Except 1985) 57

Table 4A B.A. (Hons)

Year	Number Appeared	Number Passed	% of pass
1981	5613	4444	79.17
1982	5085	4115	80.92
1983	3105	2740	88.24
1984	4877	3800	77.90
1986	6032	4626	76.69
1987	3814	3205	84.03
Average	4754	Average pass	81.15%
		Average failure	18.84%

4B. B.Com. (Hons)

Year	Number appeared	Number Passed	% of pass
1981	1472	1328	90.22
1982	1708	1364	79.86
1983	771	669	86.77
1984	1949	1532	78.61
1986	2310	1768	76.54
1987	1129	988	87.51
Average	1556	Average pass	83.25%
		Average failure	16.74%

Appendix-IV(Continued)

4c B.Sc.(Hons)

Year	Number appeared	Number passed	% of pass
1981	1303	1085	83.27
1982	1990	1524	76.58
1983	2547	1821	71.49
1984	2023	1403	69.35
1986	2628	1896	72.15
1987	2618	1972	73.41
Average	2184	Average pass 74.37%	
		Average Failure 25.62%	

Appendix-V

Cobined results of post-graduate examinations of
different Universities-1981-87.(Except 1985.)

Table -5A M.A.

58

Year	Number appeared	Number passed	%of pass
1981	3988 (Estimated)	3734 (Estimated)	93.63
1982	3315	2713	81.84
1983	3246	3057	94.17
M.A./M.Sc			
1984	5509	4940	89.67
"			
1986	6109	5495	89.95
"			
1987	5028	4607	91.63
"			
Average pass			90.14%
Average failure			15.02%

Table 5b - M.Com.

year	Number appeared	Number passed	% of pass
1981	1262	1139	90.25
1982	1315	1027	78.09
1983	742	671	90.43
1984	2183	1921	87.99
1986	2660	2324	87.37
1987	2177	1967	90.37
Average pass			87.41%
Average failure			12.59%

Appendix-V (Continued)

B.Sc. (5c)

Year	Appeared	Passed	% of pass
1981	1309	1200	91.67
1982	994	827	83.20
1983	908	768	84.58
1984	2116	1798	84.97
1986	2038	1831	89.84
1987	1161	1059	91.21
Average	2111184	Average pass 87.57%	
		Average failure 12.42%	

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JUVENILE DELINQUENCY TREATMENT MEASURES
- A COMPARATIVE VIEW *

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* The paper was prepared in partial fulfilment
of the requirement of 11th Senior Staff Course.
15th July - 24th September, 1990.

P R E F A C E

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This seminar paper was prepared in partial fulfilment of the requirement of the 11th Senior Staff Course. The subject of juvenile delinquency and the necessity to treat juvenile deviants as a separate class requiring special attention as distinct from treatment meted out to criminals is no longer open to debate. The question now is to provide proper reformative and rehabilitative measures for juvenile deviants for ensuring their positive integration in the mainstream of the society.

An effort has been made to trace the problem in historical perspective as the social scientists would like to see. As mentioned in the body of the paper, the writer did not have the opportunity to serve in a real work situation involving juvenile delinquents in either Bangladesh or England. Consequently, the propositions and observations of the paper suffer from a lack of direct association with field situation.

I shall be failing in my duty if I do not acknowledge my gratitude to Mr. Safiur Rahman, Member, Directing Staff, PATC, who, inspite of his heavy commitments found time to offer his considered views towards the preparation of this paper. Thanks are also due to Mr. A. Samad, Deputy Director, Correction Centre, Department of Social Welfare who agreed to exchange views on the subject.

I shall have the occasion for some satisfaction if I succeed in pointing out to a problem that demand our attention .

I am specially indebted to Mr. M. Wahiduzzaman and Mr. A.K.M. Helaluzzaman, Chief Coordinator and Coordinator respectively of 11th Senior Staff Course for their spontaneous cooperation and arrangement of timely secretarial support towards the preparation of this paper. Thanks are also due to Mr. Momshed Reza, Typist of BPATC who ungrudgingly typed the paper.

BPATC, SAVAR
24th September, 1990

MURUL HUDA



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INTRODUCTION:

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1:1 The intended aim of this paper is to highlight the psycho-social malaise of juvenile delinquency and treatment measures thereof which has attracted attention of social planners in both developed and developing society. In the process, the treatment measures for delinquents have been discussed in some detail. The problem has not yet assumed the agonising proportions as it obtains in the west. The premise is that we may benefit by studying and researching into the matter, examining the causes and the various aspects of the phenomenon and suggest remedial measures. An effort has been made to see how western society has viewed crime over the years and how the projection of criminal has progressed from one of positive evil to one of a patient in need of help. It has also been the objective to review the gradual evolution in societal reaction to the punishment or correction of the offender and to recommend suitable measures. The present and past conditions of England and Bangladesh in so far as it relate to the foregoing aspects have been looked into in order to facilitate a comparative view.

1:2 METHODOLOGY:

- a) The writer's study of relevant portion of sociology and criminology and comments based thereon.
- b) Discussion with police Officers of Bangladesh regarding the treatment and handling of juvenile offenders. Perusal of relevant literature in this regard.

- c) Discussion with Officers of Social Welfare Department of the Government of Bangladesh, magistrates, and also serving and retired Police Officers at Dhaka who have some experience of working with juvenile offenders.
- d) Perusal of relevant legal provisions and connected return thereof.

1:3 LIMITATION OF THE PAPER:

The writer did not have the benefit of exposure to a real work setting in either Bangladesh or England. As such the observations suffer from a lack of direct association with reality on the ground and should be seen in that light.

1:4 JUVENILE DELINQUENCY:

Juvenile delinquency may be termed as crime in its embryonic stage. The police deems the child who has committed a violation of the penal law to be the delinquent. The sociologist thinks of delinquency in terms of deviation from socially accepted behaviour. The psychologist believes delinquency to be symbolic conflicts which the individual is unable to control. If we were to sum up, we would say, each of the above version has a grain of truth but not the whole truth. In fine, delinquency is the resultant of multiple causation.

1:5 PUNISHMENT AND THE ALL-PERVASIVENESS OF CRIME:

Crime is as old as mankind. Adam and Eve were the first to break the law and Cain was the first murderer. Abel was the first murdered. No society and no group, at anytime or clime, primitive, medieval or modern is or was exempt from crime. A large proportion of the crimes go undetected, others are reported but not detected, others are reported but not perhaps recorded. The unrecorded crimes, however, do not appear in any set of statistics, Crime is much more general and pervasive than the ordinary statistics indicate and an entirely incorrect impression regarding the extent of criminality may be formed if conclusions are limited to the statistics. This is not mere to admit defects in our own method of compilation of statistics /Crime Statistics of even the most advanced countries like USA or continue to be as elusive as ever. In other words, infringement of law does not admit itself of mathematical calculation with exact precision in any part of the world, our not being an exception.

Effective repressive measures can momentarily pre crime by putting the criminal out of action, or by holding an immediate threat of arrest, hanging like the sword of Damocles, may possibly deter some who are on the point of committing crimes. Such repressive agencies as the police magistracy and the jail authorities do not remove causes

crime or substitute social for anti-social attitudes. In the ancient times, perpetrators of crime, or what used to be considered crime in the eye of the society of those days, used to be ruthlessly dealt with. Burning at the stake, amputation of important limbs of the body, even hanging for what may now be considered simple offences did not prevent the determined criminals from wrong-doing. The philosophy underlying parole, probation of offenders, re-habilitation of criminals, after-care societies are all aimed at prevention of further crime, reformation and reclamation of the criminal to the healthy and respectable way of living. But none of these singly or collectively can claim that these could root out or obliterate crime and criminal propensities. Underlying these are well intentioned philosophies of social welfare-for a society with the incidence of crime controlled to manageable proportions and deep-seated social malaise uprooted-if at all uprooting is feasible -such that the society is a better place to live in. Quite disconcerting but very true is the fact that almost all persons have at some time or other deliberately committed crimes, often of a serious nature.

2:1 THEORIES OF PUNISHMENT VIS-A-VIS THE DELINQUENT AND SOCIETAL REACTION:

In different periods of social evolution certain objectives of punishment have emerged out of society's particular climate of values and have been more highly

prized than others. Each objective as it has been crystallized in law, custom, and correctional practice, has impressed a persisting influence upon subsequent policy. It is not unusual to find punishment exerting, in turn, vindictive, deterrent, and rehabilitative measures in relation to the offender. The purpose of punishment has often been alleged to be the protection of society. This ideal appears completely virtuous and unobjectionable-the state does aim to protect its members through the handling of the offender. The difficulty is that this objective is too generalized a concept. The question is wherein lies the fullest public welfare, and how that has to be achieved. Whether blame and punishment or diagnosis, and therapy serve best the public interest remains a burning issue of basic policy.

The principle of "Justice under Law" has expressed a special aversion to the infliction of penalties upon the guiltless or of excessive repression upon the guilty. The question is-to avoid convicting the innocent, how many of the guilty should go free? What compensation, if any, does society owe to the innocent who have suffered punishment? To protect society what proportion of criminal offenders must be discovered and segregated and at what cost to the liberties of ordinary citizen? The criminal, the victim, the innocent bystander and the general public each has its

interests at stake, none of which can be fully satisfied. Assuming that wise compromises in objective can be made by the system of justice and correction in resolving these conflicting demands, different issues remain as to the specific methods of treatment by which the goals can be attained.

2:2 RETRIBUTION:

Retribution as an object of penology is still a force. Historically one of the oldest of punitive purposes, it appears to be more widely prevalent and vitally persistent than any other motive throughout civilization. Rejected in certain quarters as an ethically indefensible phase of contemporary correction, the impulse to vengeance retains a real potency in actual practice. But the motive of hate, fear, and revenge are emotions that move both the offender and his victim. The conflict between the two easily generates increasing and reciprocal vengeful purposes.

The normal punitive response to offender formalized in the traditional pains and penalties of penology has derived further support from an ethical thesis—the classical doctrine of free will. The position is taken that man as a free moral agent deliberately chooses to do right or wrong and that "in the nature of things", where he selected to do evil he deserves to be punished. However, the recognition today of the role of intelligence, emotional organization

social circumstances, and conditioning in the offender's history has made obsolete the old simple conceptions of free will. Many authorities now adhere to the deterministic thesis that man's behaviour is shaped by force beyond his independent control. The best that may be said for the retributive motive is that it sometimes satisfies the public sense of justice but it appears evident that more harm than good is done, however, through punishment that is retributive in purpose.

2:3 DETERRENCE:

The question is whether threat of penalties and punishment are effective intimidations to the potential criminal. While penalties do not always restrain criminality, it is not without real effect. However, failure of capital punishment to deter is often stressed. Deterrent punishment aggravates the reactive hostilities of some offenders, fostering increased rather than diminished criminality. The penal law is deterrent in intention and effect, although in reality some men are deterred from crime just as surely as some others are motivated to violate the law.

When the community is obsessed by anxiety or hate arising from its ignorance of how to control a crime problem it is prone to employ exaggerated penalties, either for retribution or deterrence. History has provided numerous

illustrations of this essentially neurotic reaction, as, for example, in the excesses characterizing the eras of the star chamber, witch hunts, etc. Worthy objectives can not be attained when correctional methods are controlled by anxiety, however, much these may be rationalized as necessary.

2:4 INCAPACIATION:

Protection of society is assured in some measures by the close confinement of those whose crimes have evidenced their threat to community welfare. While the necessity for the secure custody of some offenders is not refuted, incapacitation has a negative objective. It assures effective custody for a time but negates the more affirmative efforts to correct the offender.

2:5 REHABILITATION:

The rehabilitative treatment of the offender is the objective most frequently discussed and applauded today. Psychiatry, psychology and case work have directed attention to the diagnosis of unadjustments and to the treatment of the deviant in general. The prevalent idea of criminal illness is highly misleading. Criminals are not generally neurotic, Psychotic or Psychopathic. There is no clear evidence that they differ significantly from noncriminals in their Psychological organization or in their subjective discontents.

although they may be somewhat more insecure, frustrated, aggressive, or disturbed than the average man in the street.

The goal in modern correctional practice is to move toward methods that are practical and effective in retraining individuals to achieve adequate adjustment in the community. Deep analytic therapy in private Psychiatric practice provide valuable insights through intensive research. Successful correction of the offender comes from prisoner classification, group therapy, planned release practice, careful supervision and guidance.

The optimum result can not be achieved by a rejection of the incapacitative and deterrent objectives of correction in favour of an exclusively rehabilitative goal. Measures of correction must be guided by considerations of both immediate and long-term community security and by the diverse legitimate social interest at stake. Society has to be made secure for extended periods from its dangerous criminals, while the large salvageable remainder may be handled by effective methods of correctional treatment. The expected result should be expensive, more humane, thereby providing considerably better protection to the community than the prison system has given in the past.

The rehabilitation of criminals as a field for special study is a relatively recent development associated entirely with modern thinking. Some of the advanced countries have gone a long way in their practical implementation. In our country, although one hears a lot about them, in popular parlance and among enlightened society, very little has so far been done to really touch the core of the problem.

3:1 DEVELOPMENTS IN ENGLAND:

Until 1847 in U.K. the law did not discriminate between children and other offenders. In 1938, however, arrangement was made for the reception of young offenders up to the age of eighteen at Parkhurst. This arrangement was made following the report of a select committee of the House of Lords set up to enquire into the state of gaols and prisons. In 1847 Act, offenders charged with stealing were allowed to be tried summarily in a Magistrate's Court and removed children from the full rigours of Law as the power of the lower court were less extensive. This was the result of representations of various reformers. The youthful offenders Act, 1854 authorised the setting up of reformatory schools, which were to be organised by voluntary societies, subject to the inspection and approval of Home Office. The young offender, however, had to spend a period in prison being sent on to such an institution. The summary Jurisdiction Act of 1879 enlarged the provision of the Act of 1847,

so that offenders under the age of sixteen could be tried summarily for nearly all indictable offences. It reduced the number of juveniles, held in prisons and simplified the process of trial for youngsters. However, the juveniles, still continued to be tried by ordinary courts along with the adults.

A series of Acts were enacted in the first quarter of the current century which were indicative of the changed attitudes in this field. This was when the liberal government was in power. The first was the probation Act of 1907, which nationalised the work of court missionaries. The children Act of 1908 and the prevention of Crime Act followed. The children Act laid down, for the first time, the principle that young offenders should be treated entirely separately from adults and established the Juvenile Courts. Offenders under the age of sixteen had to be tried in a Juvenile Court except when the child had been involved in committing an offence with an adult. The juvenile courts were required to sit in a different place or a different time and ^{it} was intended to protect the children from associating with older and hardened offenders. Imprisonment of children under fourteen was abolished and those aged between fourteen and sixteen were subject to imprisonment only under special circumstances.

The emphasis in the treatment of children moved away from punishment and towards reformation. The Act of 1908 allowed a degree of welfare concern into the treatment of children in court. The crime prevention Act of the same year created specialised detention for young offenders known as Borstal detention.

The Act of 1920, affecting the London County Council Area made a provision for a specially selected panel of Magistrates to hear cases in the Juvenile Courts of the metropolis. Elsewhere the same body of Magistrates sat for the adult and Juvenile court.

The turning point came in 1933 when the children and young persons Act of 1933 was enacted. It stated in section 44 that.

" Every Court in dealing with children or young person who is brought before it either as an offender or otherwise shall have regard to the welfare of the child or young person and shall in a proper case take steps for removing him from undesirable surroundings, or for securing that proper provision is made for his education or training".

The Welfare consideration was widened in respect of age and was taken a great deal further in various acts after 1933 and culminated in the Act of 1969.

In 1933 the main emphasis was laid on removing the child from undesirable or unfavourable surroundings. In 1969 the emphasis was on keeping the child in the community where possible, and working the child in that context. The important distinguishing feature was the view of the child as a part of a background of family.

The 1969 Act authorises the local authority, a constable or other authorised person to bring a child before the court. The constable or the authorised person may not bring a child before the court unless satisfied that only a court order will suffice in the given circumstances, and must inform the local authority their view. The local authority, however, is free to take a different view and must provide the court which hears the proceeding with background information on health, home surroundings, school record and character for assistance. All these have resulted in a closer liaison between police and the local authority at a stage prior to the decision to prosecute. Most of the large police forces, especially in the urban areas have now established their own Juvenile Bureau and they work in close consultation with the local authority social services department.

4.1. DEVELOPMENTS IN AREA NOW CONSTITUTING BANGLADESH.

With the promulgation of probation of offenders Ordinance, 1960, correctional activities started in erstwhile East Pakistan. In 1962 correctional program was incorporated

in the then Second Five Year Plan and two promotional projects were taken in hand. Those were a) Probation of offenders Project and b) After Care Service. Initially, the program was limited, to 10 places, then Coordinated in 1965 and currently 21 units are active. Later in pursuance of provisions of The Children Act, 1974, a national Juvenile correctional Centre has been established at Tongi. In exercise of the powers conferred by section 77 of the children Act, 1974 the Government was pleased to make Children Rules, 1976 for carrying out the purposes of the above Act.

It was found expedient to consolidate and amend the law relating to the custody, protection and treatment of children and trial and punishment of youthful offenders and as such the government enacted the 'The children's Act, 1974'. The Act is characterised by-

- a) Establishment of juvenile court
- b) Discontinuance of joint trial of child and adult
- c) Trial of all cases in which a child is charged with the commission of an offence in juvenile court.
- d) Prohibition on publication of report disclosing identity of child involved in cases
- e) Establishment and certification of Institutes for the reception of children and youthful offenders.

- f) Establishment and maintenance of Remand Home² for the purposes of detention, diagnosis and classification of children committed to custody by court or police.
- g) Appointment of probation officer and placement of them under the supervision and guidance of juvenile court in the performance of their duties under the Act.
- h) Penal provision for cruelty to child and using them for various illicit purposes including exploitation of child employees.
- i) Commitment of child to certified institute and power to discharge youthful offender or commitment to suitable custody.
- j) Detention of child in place of safety and commitment of victimised children, and supervision of such victimised children.
- k) The deletion of word 'Conviction' and 'Sentenced' in relation to children and youthful offenders dealt with under the Act.

4:2 COURTS EMPOWERED UNDER THE PROBATION
OF OFFENDERS ORDINANCE, 1960

The following courts shall be the Courts empowered to exercise power under the Ordinance, namely:

- (a) a High Court;
- (b) a Court of Sessions;
- (c) a District Magistrate;

- (d) a Subdivisional Magistrate;
- (e) a Magistrate of the 1st class; and
- (f) any other Magistrate specially empowered in this behalf.

A Court may exercise power under this Ordinance, whether the case comes before it for original hearing or on appeal or revision.

Where any offender is convicted by a Magistrate not empowered to exercise powers under this Ordinance, and such Magistrate is of opinion that the powers conferred by section 4 or section 5 should be exercised, he shall record his opinion to that effect and submit the proceeding to a Magistrate of the 1st Class or a Subdivisional Magistrate forwarding the offender to him, or taking bail for appearance before him, and such Magistrate may thereupon pass such sentence or make such order as he might have passed or made if the case had originally been heard by him, and if he thinks further inquiry or additional evidence on any point to be necessary, he may make such inquiry or evidence to be made or taken.

4:3 - POWER OF COURT TO MAKE A PROBATION ORDER IN CERTAIN CASES :

Where a Court by which

- a) Any male person is convicted of an offence not being an offence under chapter VI or Chapter VII of the

Penal Code(Act XLV of 1960), or under section 216 A, 328, 386, 387, 389, 397, 398, 399, 401, 455, or 458 of that Code, or an offence punishable with death or transportation for life or

- b) Any female person is convicted of any offence other than an offence punishable with death is of opinion that, having regard to the circumstances including the nature of the offence and the character of the offender, it is expedient to do so, the court may, for reasons to be recorded in writing, instead of sentencing the person at once make a probation order, that is to say order requiring him or her to be under the supervision of a probation officer for such period, not less than one year or more than three years, as may be specified in the order:

Provided that the court shall not pass a probation order unless the offender enters into a bond, with or without sureties, to commit no offence and to keep to peace and be of good behaviour during the period of the bond and to appear and receive sentence if called upon to do so during that period

Provided further that the court shall not pass a probation order under this section unless it is satisfied that the offender or one of his sureties, if any, has a fixed place of abode or a regular occupation within the local limits of its jurisdiction and is likely to continue in such places of abode or such occupation, during the period of the bond.

While making a probation order, the court may also direct that the bond shall contain such conditions as in the opinion of the court may be necessary for securing supervision of the offender by the probation officer and also such additional conditions with respect to residence, environment, abstention from intoxicants and any other matter which the court may, having regard to the particular circumstances of the case, consider necessary for preventing a repetition of the same offence or a commission of the other offences by the offender and for rehabilitating him as an honest, industrious and law abiding citizen.

When an offender is sentenced for the offence in respect of a probation order that was made, that probation order shall cease to have effect.

4:4 PROCEDURE TO BE FOLLOWED BY COURT:

The hearing of all cases and proceeding shall be conducted in as simple a manner as possible without observing any formality and care shall be taken to ensure that the child against whom the case has been instituted feels home like atmosphere, during the hearing.

The Court shall see that the child brought before it is not kept under the close guard of a police officer but sits or stands by himself or in the company of a relative or friend or a Probation Officer at some convenient place.

When witnesses are produced for examination, the Court shall freely exercise the powers conferred on it by section 165 of the Evidence Act, 1872, so as to bring out any point that may go in favour of the child.

In examining a child and recording his statement the Court shall be free to address the child in any manner that may seem suitable in order to put the child at ease and to elicit true facts not only in respect of the offence of which the child is accused of but also in respect of the home surroundings and the influence to which the child has been subjected to and the record of the examination shall be in such form as the court may consider suitable having regard to the contents of the statement and circumstances in which it was made.

Where a child has pleaded guilty or has been found guilty, instead of making an order upon such finding may direct the Probation Officer or such other person as may be deemed fit by the court in Form A for submission of a report which, among other things, shall contain family background of the child, his character and antecedents, his physical and mental conditions and the circumstances under which the offence was committed or any other information considered important in the interest of the child concerned.

After considering the report as above and hearing the persons mentioned in section 9 of the childrens Act 1974, the court may give such direction or order for the detention or otherwise of the child as it considers fit.

While giving the order, the court shall fix:

- (a) the amount of contribution, if any, to be made by the parent or other person liable to maintain the child for his maintenance; and
- (b) the mode of payment of such contribution.

4:5 POWER AND DUTIES OF A PROBATION OFFICER:

A Probation Officer shall subject to the provisions of sub-section (3) of section 31 of children Act. 1974

- (a) meet the child frequently and make inquiries about his home and school conditions, conduct, mode of life, character, health, environment and explain to the child the condition of his probation;
- (b) attend court regularly and submit report;
- (c) maintain diary, case files, and such registers as may be specified by the Director or Court from time to time;
- (d) meet the guardian and other relations of the child frequently in the process of correction, reformation and rehabilitation of the child;

- (e) issue warning to the person under whose care the child is placed if such person is found to have committed any breach of the terms of the bond;
- (f) visit regularly the child placed under his supervision and also places of employment or school attended by such child and to submit regular monthly reports to the Director in Form G;
- (g) encourage the child to make use of any opportunity that might be made available from any social welfare organisation or agency;
- (h) advise the child to disassociate himself from a society which in the opinion of the Probation Officer may spoil the character of the child;
- (i) endeavour to find suitable employment for the child if such child be out of employment, and strive to improve his conduct and general conditions of living; and
- (j) perform such other functions as may be assigned to him by the Director or by the court from time to time.

5:1 CORRECTIONAL PROGRAMME IN BANGLADESH:

There is a complex of Remand Home, a Juvenile Court and a training institute for juvenile offenders at Tongi. In pursuance of provisions of the children Act, 1974 there is a

full time Magistrate and supportive staff for the court. As per section 33 of the Act, the legal guardians of the child may lodge case at this court. Police can also lodge case at this court in respect of offence committed by children under 16 years of age. The Remand Home serves as alternative custody of pre-trial young offenders. The guilty children and children in need of institutional correction are placed in the training institute.

5:2 REPORTED INCIDENCE OF DELINQUENCY:

Five tables placed at annexure 1, 1A, 1B, 1C and 2 indicate the reported cases to police and the working of correctional complex at Tongi. Figures shown at 1A, 1B and 1C were obtained unofficially. Although a very faithful country-wide picture may not have been projected in the figures quoted, the seriousness of the problem may be gauged.

6:1 COMPARISON OF THE TREATMENT MEASURES OF ENGLAND AND BANGLADESH

It would appear from the preceding paragraphs that conditions vary vastly between the two countries. It is obvious because Bangladesh as part of the British Raj and later as part of Pakistan until 1971 did not have the environment to think of such matters as treatment or correction of Juvenile delinquents. There, however, was some thought even

in the 19th century that juveniles may, at times, be separately treated in the eyes of law but nothing tangible really did occur till 1960-61 when in Pakistan the probation and after Care Ordinance was passed. However, for all practical purposes, the separate treatment of Juveniles still depends to a large extent upon the discretion of the Magistrate. One of the achievement has been the legal recognition for the complex of correctional Institutes. This is no small achievement when viewed against the background of a society that is still largely agrarian, task-oriented and authoritarian and where legislators are still very conservative.

However, it is found that in England as early as 1879 offenders under the age of sixteen were tried summarily for nearly all indictable (cognisable offences). In 1908 the principle was laid down that young offenders should be treated entirely separately from adults and thereafter followed the establishment of Juvenile courts. At the same time imprisonment of children under fourteen was abolished and those aged between fourteen and sixteen could be imprisoned under exceptional circumstances. In practice the matter ceased to be an issue. Separate Magistracy for children in the Juvenile court was introduced in 1933. There is closer co-operation between the Juvenile bureau of the police department and the social services department of the local authority. And in fact a child or young person is brought to the court when all other

processes have been exhausted. The emphasis is on the welfare of the child. However, all the provisions of the 1969 Act are not operative and the entire range of facilities available to the court and the social workers have changed. It may be said that the welfare or the treatment of the children and young person is more the responsibility of the social workers employed by the local authority and the courts no longer can order any form of custodial treatment or make an attendance centre order.

But in Bangladesh the police, the Magistracy and the social workers do not work in close co-operation as would be desirable. It may not be too much to say that there is inadequate awareness of the issue in all the concerned quarters. The correctional institute operates in one place. The probation Officers are far too less in the outlying districts to cope with an ever-increasing job. Most of all there is the important aspect of the resource constraint in an economy which is not healthy in all respects. Investment in such sectors do not get the expected priority and are often termed as nondevelopment and thus inconsequential. In England all the resources needed have not been available but a headway was made long back and police and social workers have the advantage of operating in a favourable climate. But in Bangladesh it would be a long time before the children and young persons in trouble could be helpfully divorced from the not-very-pleasant atmosphere of the traditional criminal justice system.

6:2 CONCLUSION:

It may be seen thus that conditions are vastly different in two societies and accordingly preventive and corrective measures differ in its content and approach. One may not be very far from right in assuming that social enlightenment in Bangladesh in the years to come will bring about the desired change in the concerned quarters.

In the end it may be said that " A test of the quality of any Community and the civilisation of any society is how it organise services for those who are not in the comfortable, middle majority. A whole generation of damaged children looks to the social services andgovt. for some assurance that the damage will not be allowed to continue, the response is a test of our collective will.

If we fail to respond with courage, imagination and compassion we have failed not only this minority, we have failed ourselves and the whole culture we claim to cherish".

6:3 RECOMMENDATION:

In the hope of cogent change the following recommendations are made for Bangladesh in respect of preventive and corrective measures with regard to Juvenile delinquency.

and Police

1) The Magistracy/should be made to realise the importance of treating the Juveniles as a separate class. More contact between social workers and members of the judiciary in the

form of seminars, symposiums and the like should be organised frequently.

2) Legislation incorporating special provision for greater punishment for adult criminals who use children should be made. The concerned quarters should wait upon the legislators and impress upon them the necessity of embarking on such a course of action.

3) Correctional institute complex should be built immediately in the major cities. This should go simultaneously with expansion of the social welfare department in so far as the probation and after care service are concerned. Promotional activities for the youth should also be expanded.

4) Professional training of the social workers should be intensified.

5) Financial allocations should increase for the social welfare sector and a greater proportion of money should be spent for correctional services.

Since practical exposure to the work set up was not possible it is felt that recommendation for England would be inappropriate but for an academic exercise the following recommendations are made for England:

1) The 1969 children and young persons Act should be made operative in its entirety in the not-too-distant future. Money, personnel and other resources should be made available.

2) The supervision order must ensure that proper supervision is given. A care order must mean that the necessary care support is available to the child or person from the moment the order is made.

3) The development of an efficient system of dealing with court work and for placing boys and girls committed to the care of authority should be expedited.

4) The social service department should get the resources to provide alternative treatment.

5) Local authority must bear the burden of maintaining expensive residential provision to make the community care provision fully operative.

6) The development of the necessary skills and techniques to cover the whole field of concern should be expedited. The training content should be re-examined in the background of current needs. The training should cover practical demonstrations of coping with deviant young person and children. Recruitment of suitable and adequate people has to be made and money should be available. It has to be realised that benefits are long-term. The central government has a heavy responsibility in this area.

१९९० सालतः शीतू-दूधवाणिजं कार्यन्तु सिद्धिं यथाशक्ति ज्ञानं प्रयुक्तं भविष्यति

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Annexure-1C

১৯৭ সালে বিভিন্ন অশ্রমে মোক শ্রমের বিবরণ

[illegible]

গণপুস্তকাত্মী বাংলাদেশ সরকার
জাতীয় ফিল্মার সংগঠন
সমাজ সেবা অধিদপ্তর
ঢাকা, গাজীপুর।

১৯৭৮ মান. হুহুতে জুলাই/৯০ পর্যন্ত নিবাসী পশ্চিম খোয়ান।

বিচারায়ী হাজতী	নিম্নাঙ্গীৰ সংখ্যা	মোট	সংযোজনী প্রতিষ্ঠানে সোপানকৃত নিম্নাঙ্গীৰ সংখ্যা	মোট	পূৰ্বসংযোজনী
অভিভাৱক ফেৰ	পূৰ্বসংযোজনী ফেৰ		অভিভাৱক ফেৰ	পূৰ্বসংযোজনী ফেৰ	
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৪৫	-	৪৫	৩২	-	৩২
২২৮	-	২২৮	৭৬	-	৭৬
২২৬	-	২২৬	২৪২	-	২৪২
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उत्तरायणम्
सतीय दित्याज अरुणाधनी अतिथान्
गमज्जल्लोका अविमर्श
परी, गच्छीमन्।

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BABNGLADESH PUBLIC ADMINISTRATION TRAINING CENTRE
SAVAR, DHAKA

GROWTH OF TELEPHONES AT PRESENT
AND
THE FUTURE PLAN.

BY

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This seminar paper has been submitted to BPATC in partial fulfilment of the requirements of successful completion of the Eleventh Senior Staff Course held during July, 15 to Oct. 14, 1990

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Abbreviation

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DP	-	Annual Development Plan
PAT-		Bangladesh Public Administration Training Centre
TB	-	Bangladesh Telegraph & Telephone Board
TL	-	Bangladesh Telecom. Ltd.
RTA	-	Bangladesh Rural Telecom. Authority
B	-	Coin box/Central battery
HD	-	High Speed Rotary Switch
AX	-	Facsimile machine
F	-	High frequency.
SD	-	International Telegraph Union
IX	-	International Trunk Xge
L	-	Line Unit
ND	-	Nation wide Dialling
TC	-	National Tele Communication Consulting
BX	-	Private Branch Xge.
CO	-	Public call office.
ABX	-	Private Automatic Branch Xge.
FYD	-	Second five year plan
&T	-	Telegraph & Telephone
FYP	-	Third five Year Plan
HF	-	Very high Frequency
FYP	-	Fourth Five Year Plan
AT	-	Trans Atlantic Telephone Cable
SS	-	Telephone shilpa Sangs than Torgi
CS	-	Bangladesh Cable Shilpa, Uhuene
KD	-	Seni-Knowed down
D	-	Unocked down
CITT-		Consultative Committee of International Telegraph & Tephone
CIR	-	Consultative Committee of International Radio
/N	-	Signal to Noise Ratio
ge	-	Exchange (Telephone, Telex, Gentex)
M-		Electro-mechanical
SDN-		Integrated Switching Digital Network
/D-		Analog/Digital Converter
HT-		Chittagong Hill Tract

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(Md. Matiur Rahman Khan)

1 Purpose of paper

(1) Scope: Bangladesh is a less developed country and its desired goal is to achieve economic and social development. Communication is a necessary infrastructure for economic development and plays a vital role in stimulating economic growth and improving the quality of life. Telecommunication can reduce the need for travelling and thus can act as a substitute for transport. Telecommunication facilities in Bangladesh are not yet adequate in terms of requirements technology and the level of services to stimulate and sustain economic growth. The telephone density in this country is only about 0.21% age of population in 1989/90 as compared to 0.36 in India, 0.48 in Pakistan (1984) This figure is one of the lowest in the world. Moreover, the existing equipments of BTTB are so old and worn out that they can not render any more services, and nowhere in the world their spare parts are available. Again the telecom, technology has advanced much in the world and the digital system has replaced the old analog system in most part of the world. Since the world tele-communication is under the one administration, the advancement in developed countries forces the other countries to acquire the same technology to keep pace as they all work under the command of International telegraph union (ITU) with H.Q. at Geneva. Under this conditions our telecom. System requires a thorough modification, updating & expansion.

(ii) The purpose of this paper is to overview the present situation of BTTB with limitations and constraints regarding technology finance and demand and to focus the ways and means for the development of BTTB such that it can meet the demands within and outside the country. and can keep pace with the modern technology of telecommunication of the world.

Methodology:

This paper is written on the basis of the following:

- (i) Practical experience as an officer of BTTB for the long time.
- (ii) office Records of different offices in which I served.
- (iii) Discussion with colleagues of different levels of BTTB.
- (iv) Knowledge obtained from the periodicals and journals published by BTTB.
- (v) Reports of different FYP's.

Limitations-

In view of the limited time of 5 days from 9.9.90 to 13.9.90 for writing a paper on such a sector with the macro dimension of a huge Organisation dealing with the most modern & Sophisticated technology and also meeting the local demand as well as to meet the International requirement of International Telegraph Union (ITU) in the perspective of national development in Urban, Semi Urban & Village level, which is the aim of the present Govt., naturally, I had to take a recourse to cursory view instead of making an indepth study of the matter for which I beg to be apologized.

Chapter- 2

An insight view of Telecommunication in Bangladesh.

What is telecommunication.

The term tele-Communication means distant Communications which is made through telegraphy, telephony, telex, Radio Broadcasting & Television. But the definition has undergone a change by way of its use for non voice services like telex, fax, data communication etc.

Telecommunication is considered the most important media for progress of a country. In this world no country can remain isolated with its own content. This has to develop relation with other countries, sharing their development in terms of trade & commerce. and technological ideas, exchanges informations. Therefore, it is imperative that the entire world will be put into a common base sharing the development; and tele Communication plays a very vital role in this context. For also developing a society like Bangladesh, beset with constraints in infrastructure, telecommunication plays a very vital role to its economy and prosperity. This is further corroborated by dearth of natural resources like oil and topographical hinderances and riverine character of the land resulting in road communication difficult in our country.

Different Ranges of Telecommunication.

So long it was thought that tele Communication was mostly indispensable for urban areas. But with the decentralisation of administration and development functions at the grass root level the entire country has been divided into 4 tele Com Regions; 64 Zillas and 460 upazilas. Therefore, the need for reliable tele Communication between these upazillas and to Govt. at the Centre has become important. With the installation of High capacity microwave between the capital to the divisional head quarters and also to some of zillas with high capacity UHF system, the channel has been increased so that NWD facility could be extended to all the zillas now. There have been built two gate way satellite ground stations one at Betbunia with multi-channel capacity and one at Talibabad with standard B type of reception which made it possible to connect any place on earth through them. More over with intricate system of single channel VHF system it has become possible to connect any remote place or off shore areas with the capital.

ISD enchange has been installed at Dhaka and any subscriber outside Bangladesh has access to dial can, talk with any subscriber in Bangladesh or any ISD Subscriber in Bangladesh can dial any subscriber outside Bangladesh.

The map showing VHF, MW, Terrestrial link channel capacity shown in annexure-II, III respectively.

History of Bangladesh T & T

History of Telecom. in Bangladesh dates back ⁹³ from British rule when in 1885 a telegraph ckt was started from Calcutta to Dhaka. The first telephone exchange was installed at Dhaka (Ramna) in 1920 with a capacity of 800 line Manual Exchange.

Then in 1947, after Independence the 800 line manual exchange was replaced by 2000 line F type automatic exchange in 1954. Then gradually expansion took place to 3000 line in 1956, 4000 line in 1957 and 5000 line in 1959. In 1962 another exchange of 4000 line capacity was installed in same building. In 1966 the installation of 3rd Xge in Ramna which was initially 1000 lines. Capacity expanded to 4000 line in 1967, then 5000 lines in early 1969, then 7000 in late 1969, then 8000 line unit in 1970, which finally expanded to 10,000 line unit in 1971.

During that time i.e. 1967, another exchange of 3000 line unit capacity was installed in Shere Bangla Nagar with the commissioning of this Xge Dhaka was converted into Multixge area. This exchange was of EMD type. This exchange was ultimately expanded to 8000 L.U. Another Box type exchange was installed at Mirpur with 300 L.U capacity in 1970.

Thus the exchange capacity of Dhaka multi exchange was 27300 L.U and pending demand was 18500 for direct telephones and 9000 for PABX lines. Bangladesh immediately after

liberation in 1971, inherited a shattered and disrupted tel Com Network of the country. Except the Dhaka & Sher-e-Bangl nagar Xge, many of the exchanges and trunk lines wer damaged during the liberation war.

At the time of liberation in Bangladesh there were onl 226 telephone exchanges in cluding 20 auto Xgs with tota telephone of 45,500 telephone conections in the countr against a total capacity of 53,500 units. Total no of PB 385, Pco's 740 and CB xge 161. There was only one Tele. enchange of 100 lines capacity in Dhaka in 1971-72.

With the passage of time the BTTB, entrusted with the exclusive responsibility of development of tele Ccm. network in the Country under the Ministry of PT&T, has how beer able to raise the number of telephone exchange from 226 to 597 including 125 auto exchanges 472 manual exchanges with a total number of working connections 1,92,990 against a capacity of 2,24,663 line Units upto the year 1988-89. A chart showing its development capacity in numbers regionwise ove a period of 5 years shown in table-1 . Table- I

Region wise number of telephones for a period of 5 Years from 1984-85 to 1988-89.

Region	1984-85	1985-86	1986-87	1987-88	1988-89
Dhaka	83339	89796	93350	103556	119850
Chittagong	36802	39159	41699	43536	52834
Rajshahi	17695	20043	22690	23406	30325
Comilla	13520	14961	16636	17152	21654

In Dhaka alone the number of telephones in crease is 43.8% of the total increase. The reason⁹ for this is Dhaka being the federal capital the trade & Commerce are concentrated in and around the Metropolis.

TER - 3

Persent Position of Bangladesh T & T Board.

Bangladesh Telegraph & Telephone Boord at a Glance.

In persuance of ordinance No XII of 1979 Promulgated by the president of peoples Republic of Bangladesh on 24th Feb 1979, the Bangladesh Telegraph & Telephone Board came in to existance in its present form. Attached to the P T & T Ministry, it is responsible for providing, maintaining & developing tele-communication facilities and services both within & outside geographical boundary of the country.

It may be worth while to mention that the origin of the organisation dates back to 1853, when the Telegraph Deptt. was set up in British India which was later on regulated under the authority of Telegraph Act, 1885. After creation of Pakistan in the year 1947, Pakistan Post and Telegraph-Deptt. was entrusted with the Telecom. Services of Pakistan including the area of then East Pakistan now constituting Bangladesh. The P & T Deptt. was subsequently bifurcated & Telegraph & Telephone Deptt. established in the year 1962 with the responsibility of rendering Tele. Communication Services under the Ministry of Communication of the then Pakistan. After the creation of peoples Republic of

Bangladesh in 1971, Bangladesh Telegraph & Telephone Deptt was set up under the Ministry of PT&T with a view to ensure more autonomy and run the Telecom. Services on a Commercial basis, the B T&T Deptt. was converted in to a corporate body in 1976. In 1979, an ordinance (ordinance XII of 1979) was promulgated to establish the present Board as a Govt. Organisation. Under this ordinance, the Govt. Constituted a Board to be called the Bangladesh Telegraph & Telephone Board with a Chairman, four whole time & two part time Member.

The Board is the policy making body of the organisation, acts collectively & takes important and major decision in Board meetings, normally held once a month. At the field level at present the country is divided in to four TeleCom. Region such as (i) Dhaka Tele Com. Region (ii) Chittagong Telecom Region (iii) Khulna Telecom. Region (iv) Rajshahi Tele Com Region, each headed by a General Manager. In addition there are four other General Manager, each looking after long distance, Planning, Development & overseas Regions respectively. The General Managers are assisted by a number of Directors, Dy Directors/Divisional Engineers, Asstt. Directors/Asstt. Engineers, sub Divisional Engineers, a host of technical & non technical Staff. A chart showing the Organisational set up shown in Annexure-I, VII.

Apart from helping the Board in taking collective decisions regarding the affairs of the organisation, each Member of the Board has a definite sphere of

responsibilities. The chairman & members of the Board are appointed by the Govt.

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A brief description of their functional responsibilities is given below:

Chairman:

The chairman is the chief Executive of the Board and responsible for the efficient management, operation and development of TeleCom System of the country. He co-ordinates the different functions of the Members as the chief Executive of the Board. At the end of every financial Year, he submits to the Govt. a report on the conduct of its affairs for that year.

Member: (admin)

The member (admin) is in charge of the Personnel Administration of BT&T Board under the administrative guidance and control of the chairman. He is responsible for successful implementation of establishment and administration policies as adopted by the board, and he is to guide, co-ordinate and supervise the functions of Directors of Personnel, Organisation & Method, Recruitment and Training & Public Relations.

Member (Planning & Development)

The Member (Plg & Dev) is in charge of planning & Development of Tele Communication system both within & outside the country in the perspective of long term & future needs. He is to assist the chairman in formulation of Board policies in respect of planning and development & successful

implementation of all such development projects. Responsible for management, guidance & Co-ordination of adoption of new techniques & technologies. He is also to maintain proper liaison with the planning Commission and other Concerned National and International agencies in Connection with projects related to planning & Development of Tele Communication in the Country as well as on a global basis. Accordingly he is to prepare suitable plans for development and modification of existing systems and suggest equipments for efficient & economic utilisation of fund.

Member (Maintenance & Operation)

The Member Maintenance and operation is primarily responsible for operation & maintenance of TeleCommunication system in & outside the country. He is to look after the works, related to operation and maintenance of Directors in charge of Maintenance & operation, International, Procurement, Stores & workshop and Satellite. He is also to assist Chairman in formulation of Board policies and Engineering Instructions and in successful implementation of policy matters as decided by the Board. He is responsible for procurement of all types of Tele Communication equipment and stores. He is to study and analyze all papers reports and publications of Conferences, meetings seminars, etc. of International, Regional and National Tele Communication bodies, bring to the notice of the Board all technological advancements in this field and recommend measures for implementation in appropriate cases.

Member (Finance)

The Member (Finance) is primarily responsible for assisting Chairman in formulation and successful implementation of financial policies and regulations and in proper utilisation of allocated funds. He is to scrutinize Annual Budget/Revised Budget estimates, capital & other expenditure including foreign exchange components and ensure their timely presentation and control. He is to supervise arrangements for collection of revenue, prevent financial irregularities and control all expenditures in accordance with approved policy and current accepted practice. He is also responsible for coordination with Govt. Semi-Govt. and Autonomous Organisations including Banks regarding all financial activities connected with the Revenue and Development Budget of the Board.

Secretary BT&T Board):

He is responsible for assisting the Chairman & Members in the execution of functions of the Board. He is to arrange Board Meetings, ensure prior & timely circulation of agenda, working papers & other relevant documents among the Board Members. Communicate the minute and resolutions of Board meetings to those concerned & follow up implementation of the decisions of the Board. He is also responsible for procurement of office furnitures, office equipment, stationary articles and other administrative necessities required for central office and renting of residential accommodation under the administrative control of Chairman. He is to take steps

for proper conduct of court cases & law suits in different courts through appropriate law officers, engaged by the Board. He is also to carry out any other function which may from time to time be entrusted to him by the Chairman & the Board for execution.

Different Technologies used in T&T :

With the end in view of ascertaining the level of technology the types of exchanges being used need to be listed, which at the moment are :

- 1) Magneto 3050 lines for use in most of the rural areas.
- 2) Central Battery exchange
- 3) F1-System step by step
- 4) EMD system (rotary type uniselector switch)
- 5) ITX (International Trunk exchange)
- 6) NWD (Nation wide Dialling)
- 7) ISD (International Subscriber Dialling)

Magneto System : This is probably the first telephone technology evolved, where the system is rugged and has to be handled manually. The calling & operation all requires physical activities of subscribers for calling and answering.

Central Battery System : This is an improved version of magneto exchange where an operator at the central place puts through the connection & no physical cranking is required as in magneto telephone for signalling.

F1-System - This is the first automatic exchange where connection is established automatically by the calling subscriber by initiating dialling pulses. 97

EMD System - This is an improved version of F1 Type where connection is established through high speed rotary switches. This is all of German Origin .

ITX- This is International Trunk Exchange where call routed to different international countries via satellite or terrestrial route.

NWD- Nation wide dialling. This has been made possible to dial to from all the Zilla Headquarters through introduction of intricate microwave links, UHF links etc.

ISD- International Subscriber dialling. In this case the ISD subscribers are routed to international route via ITX with auto dialling.

Since we have analogue type of system all calls to and from digital are to be converted to Digital or Analog as the case may be through a Analog Digital converter which is a very costly equipment.

Digital and Analog System :

Basis of electronic switching by computer :

To have an idea of digital switch, it will be nicely explained if we start with the first manual exchange and the gradual developments thereto .

(a) Magneto exchange : A subscriber wants to make a call. He rotates the signal generator, a signal is received at the magneto exchange, the drop indicator (or flag) drops,

... then goes to connect/disconnect other calls & keeps an watch if any one of this party released the call. On release she takes out the cord and the call is released.

It is clear from the above that the operator can not connect many calls in a particular period of time. His limitation is speed and processing of many calls at a time.

(b) Central Battery Exchange :

Here the subscriber lifts his hand set and a signal is lighted at the exchange, the operator inserts a cord at the indicated number, listens for the desired number and does the same exercise as in (a).

(c) Automatic exchange : Here, there is no operator, the subscriber lifts his hand set, the exchange gives his clearance signal in the form of dial tone. The subscriber then dials the desired number. The connection is made by actuation of switches in codence with the digits dialled. If the called number is free, the exchange transmits a ringing tone to the called party and to the caller an acknowledgement tone. If the called party lifts his receiver, the ringing tone is cut off and conversation starts. When any of the party released the call, the switches engaged in the exchange are made free for other calls.

(d) In case of (c) the operator as in (a) is replaced by the switches. If the operator is replaced by a computer which has been given some intelligence, it will do the same job but in a very fast manner and also will process thousand of calls in an hour.

When a subscriber goes of hook, the computer detects it running a program as an operator sees the indicator to drop. As an operator puts a cord and asks the called number, similarly the computer finds a free circuit and connects dial tone to the subscriber. The subscriber dials and gives the called party number to the computer. As the operator receives the number by ear she puts the called party number in her memory and finds out whether the called party is busy or not, similarly the computer also receives dial pulse/by receiver, puts the digits into its memory and analyses the digits, checks if the called subscriber is free. If free, the computer gives a ring, prepares the switching circuit and finally connects the subscriber. Also the computer like the operator always scans the subscribers lines if any party has gone on hook. If so, it releases the switching path. Thus we find an analogy of electronic switching with a manual telephone exchange.

Now, there are two things that are of interest; (a) First, let us suppose, a subscriber is dialling and if the computer remains engaged only in receiving his dialling, it may take a few seconds; at the same time, may be, another subscriber has lifted the hand set and wants services etc. under such

circumstances, the computer will not waste any time in only receiving those dial pulses, it will do many other jobs during when the subscribers complete the dialling. The computer reads the dialling pulses from time to time and also does many other jobs as needed then, e.g. giving dial tone to some subscribers, analysing the dial pulses, auto or manual testing of some parts of exchange etc. All these jobs the computer does with the help of running many programmes and achieving a particular objective. The computer is so fast that we can not understand that it is doing other subscribers jobs when it is doing my job also. The whole thing is done by two things : soft ware and hard ware. To detect whether a subscriber has gone on hook or not, the computer will run the scanning programme that is a series of instructions will be executed such that a pulse (say) will be an output to a particular subscribers line circuit. The associated hard ware circuits will act to produce such an output and if the subscriber has lifted the handset, a particular condition in the line circuit hard ware circuit will be there. The total output can read by the computer executing further instructions that comprises the scanning programme. This is how a computer finally process a call.

(b) Second, As in case of magneto exchanges the cord connecting the two subscribers remains connected as long as two are talking. This is analog switching. The step by step exchange, cross bar exchange all switch in speech path in analog fashion that is the path remains permanently connected.

In the electronic switching the computer may also use an analog switching network where it has to use free junctions, markers etc to connect the two subscribers. Here to keep the path permanently connected in a better way it has to energize many relays in speech path which becomes a little voluminous and also becomes costly and the circuit becomes cumbersome.

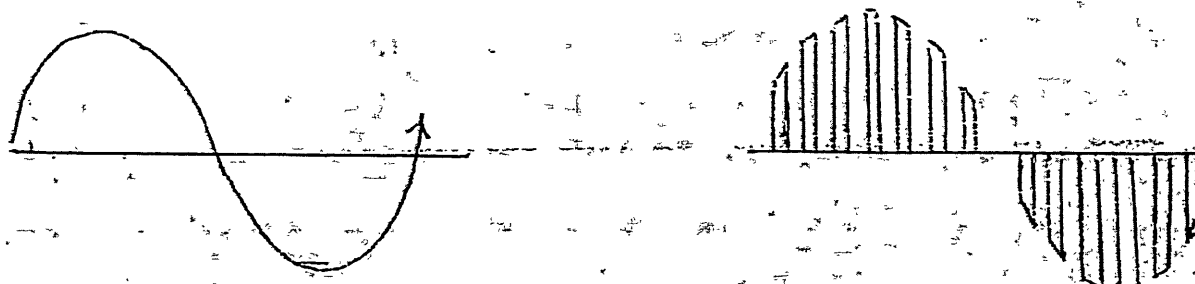
In contrast a cost-effective and simple circuit solution may be achieved by what is known as digital switching. There the path is not required to be always connected. Rather, the path will be connected only at the intervals of some time.

Digital Switching

A speech signal is continuous. It can be shown that if speech samples are taken at the interval of 125 micro-second leaving the other sizeable portion of speech, the speech signal can be reconstructed with a good S/N. This forms the basis of digital switching.

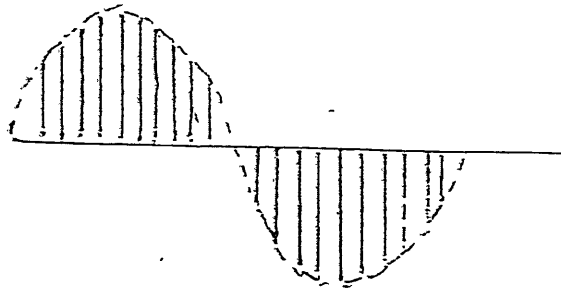
Speech Signal from Transmitter end

Digital Pulses Transmitted as per signal



The generated signal is sampled by digital discrete pulses of 125 Ms duration.

The envelop of the pulses received is the original signal again



The discrete pulses arriving at the receiving end the envelope (dotted line) will be the wave shape transmitted. In an exchange of 100 lines capacity the samples are transmitted and received in codence of central Processors memory slot. However when the number of subscriber becomes rather large (more than 1024), the speed of switching becomes high and the circuit requirement becomes stringent since the sample of a particular channel must be switched at the interval of 125 micro second. There fore larger exchanges use small groups of time switches which are connected through space switches.

Advantages of Digital over Analog (electro mechanical)

- 1) Less space requirement: Due to the use of small electronic components including LSI, VLSI an appreciable space reduction can be obtained (may be of the order of 5:1).
- 2) Reliability: Due to the absence of almost no mechanical parts, and with duplicated major equipments, the exchanges has better reliability.

3) Easy operation and maintenance: Most of the operations and maintenance work can be done through a terminal available and also due to the availability of a diagnostic at the rack, diagnostic programs can be run manually and automatically.

4) • Cost: Due to the extensive use of digital exchanges the cost of the exchanges tends to be cheaper than its counter part. However, the cost also depends much on the labour cost, custom duty on particular type of components, installation cost etc. making the cost initially a little higher than expected.

5) Less call connection time: Considering the total time, this is faster than E.M. Exchanges as the later takes long time to move its switches.

6) Traffic data: Traffic data is available to understand loading of exchanges, in which route how many calls handled, how many calls fail and reason thereto etc.

7) Detail billing: Exchange records the details of any calls and can be printed.

8) Call barring: Using subscribers own pass word, subscriber can bar from his telephone set different types of calls which is very useful as no other man knows his password and thus can not make any call from his telephone.

9) Malicious call: By a simple command, a molested subscriber can be registered for malicious call and the calling party number is printed just if the called party hooks shortly.

- 10) Automatic checking of subs.lines: Many subscriber lines can be automatically checked at a time with help of a simple command.
- 11) Announcements: Different types of announcements like wrong code dialling, route busy etc. can be available.
- 12) Charge Meter: Tempering of the charge meter is not possible except by the manufacturer.
- 13) ISDN Facility: ISDN facility can be provided.
- 14) ISD+NWD calls: A digital subscriber being routed through digital TAX & IT, if no route congestion occurs, can get the calls early.
- 15) Non-ISD,ISD,NWD, Non-NWD subscriber: can be easily made with out the change of telephone number.
- 16) Service observation: More detail information about a subscribers outgoing(In coming also) can be obtained.
- 17) Subs.Line Measuremants: Very easily possible with the help of line test console.
- 18) Line test robot: From the subscribers premises, BTB staff can test some items like ringing function,dial speed, insulation resistance,push button dial speed etc.
- 19) Call Completion to some important busy number: A digital subscriber dialling 17,18,12-police(not yet connected) 13-Fire (not-yet connected) etc. may find busy, but can hold on and when free, will be automatically connected.

20) In case of over load on the exchange, priority subscriber can get preference.

21) Multimentering can be easily introduced.

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22) Numbering plan can be very easily changed simply by soft ware.

23) By simple command, subscribers facilities/attributes can be changed.

24) Information as to if the subscriber is off-hook for a long time without any call is printed out & howling tone automatically connected.

25) Charge data, of course, can be easily dumped.

26) However, the digital exchange is very complicated in its soft ware and also some what in hard ware, It took as was told about 100 man years to design the soft ware of NEAX-61. E. Normally a fault of fundamental nature is not expected.

27) Changed number interception : In case the number of a digital subscriber has been changed to either another digital number or even an analog number, the new number can be announced automatically.

28) Percentage of calls maturing less than a specified threshold in a particular route may be signalled (NEAX at the moment does not have)

29) Call progress tone can be given during post dialling delay.

30) Alternate routing facility : Calls can be easily routed to the alternate routes.

31) Calls from any route to the other can be blocked etc.

Besides these there are following facilities which can be extended to subscribers who will pay extra charges :

- 1) Abbreviated dialling service
- 2) Three way calling service
- 3) Hot line (Dialling is also possible)
- 4) Recorded call service
- 5) Call waiting service
- 6) Absence service
- 7) Alarm call service
- 8) Do not disturb service
- 9) Call transfer service

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Different Telecom regions with their activities :

The 4 field units where the services are rendered to the subscribers. They are mainly Dhaka Telecom. Region, Chittagong Telecom. Regions, Khulna Telcom Region & Rajshahi Telecom Regions. These 4 regions are engaged in providing Telephone, Telegraph, Telex Fax ISD connections installation of PABX's and their maintenance, assist finance department to realise revenue, shifting of telephones etc. Besides these there are

a) Transmission Region : In charge of all Microwave, UHF, VHF, H-F and other land line or wire less carriers required for inter exchange and inter district telecom links. They also maintain the terrestrial links between satellite ground station to national link.

b) Overseas Region : In charge of all international trunk bundles carrying to & from outside world. TV, Telephone, Telex, data & Fax services. They also maintain the ground

station at Betbunia & Talibabad. Attend international conferences of ITU, IFRB, H.Q. at Geneva, Asia Pacific Telecommunity, intelsat, Sat com. Domsat, InMarsat and other international telecom activities.

c) Planning Region : They collect all datas of hidden telephone demand; plan expansion of exchanges/ replacement and also plan increase of channel capacity with respect to expansion of exchange capacity. They also standardise Exchange building planning, cable expansion and laying out planning, power supply planning, residential accommodation planning, and increase of International trunk bundle planning. They are responsible for preparation PPS & getting them approved with confirmation of P.A., F.A. & Technical Assistance.

d) Development Region : After a plan has been approved by Govt. & fund placed the development region then goes for installation/completion of the work through its different paraphernalias.

The total PABX/PBX are now 748 against 385 in 1971 with 28,857 Junction and extension, while P.Co.s and coin boxes raised to 1,277 against 494 L/land 302 WPCO against 161 respectively and coin box 462. We have at present 5 telex exchanges with a total capacity 9170 of which actual 2240 connection including 1 digital electronic exchange with automatic overseas connection facilities. Most of the auto exchanges have capacities of 100, 200, 400, 600, 1000, 2000, 5000 and 10,000 lines.

5 Types of Subscribers :

In respect of connection the subscribers are of two groups.
1 connected 2 waiting (pending demand) connected subscribers are :

- a) Non-NWD about 10% of total
- b) NWD about 88.5% of total
- c) ISD having both nationwide & international auto dialling facility about 1.5% of total.
- d) Manual subscribers (CB, Magneto PBX) with or without NWD & non international auto dialling facility.
- e) Long distance wireless subscribers with nation wide auto dialling facility and numbering only 34.

Procedure of providing telephone connection. In the GM office/in case of Region Office or DET/Office an applicant is to fill up a form by paying Tk. 100/- and gets his name registered. There is a committee to scrutinize the application depending on priority as fixed by the Government and on the basis of priority and availability of cable pair and exchange capacity, Demand Note is issued. After payment of demand note, connection is established.

Total number of subscriber : Pending demand

As explained in above para, those applicants whose prayer can not be met due to non availability of cable pair or shortage of exchanges capacity is termed as pending demand. There are also hidden demand who has not placed their demand by paying Tk. 100/-. As per international standard an exchange can not be loaded more than 80% of the total capacity. In the recent past years telephone demand has

risen abruptly and expansion of exchanges could not be made in that trend. Therefore there was a heavy demand and the exchanges had to be loaded beyond danger level. Moreover these exchanges being very old; necessitating under loading as per standard, is now loaded almost 95-98% and there are huge pending demand (registered by paying Tk.100/-) as will be evident from table.

	Capacity 1988-89		Working 1988-89		Pending Demand 1988-89	
	Auto	Manual	Auto	Manual	Auto	Manual
R	113000	6850	100312	5737	64462	1818
R	44760	8074	38019	6340	17248	4738
R	22238	8087	19420	5104	5309	998
R	15150	6504	14031	4027	4652	784
tal	195148	29515	171782	21208	91671	8338

In recent years due to the start of Zilla and Upazila, new cables had to be laid and extension of the existing cable system to be done.

Earning's and Expenditure

CHAPTER IV

Budget Programme

The increased revenue realization which exceeded the budget provision was due mainly to stream lining of the revenue administration and collection system including special drive for realisation of the outstanding dues. The amount of realisation of revenue during 83-84, amounting to Tk. 1,24,51,03,564 against revised budget provision of Tk. 110,00,00,00 as shown in table below along with expenditure and net surplus.

(Taka in thousand)

Item	Actual 1983-84	B.E 1983-84	R.E 1983-84	Actual 1983 - 84
Revenue	104,90,31.3	98,00,00	110,00,00	124,51,09.6
Receipt	75,14,590.0	90,85,00	99,24,55	101,18,91.4
Total Expenditure				
Surplus (net)	29,75,72.0	7,15,00	10,75,45	23,32,12.2

In 84-85 with the development of Telecom services and expansion, revenue receipt increased. The rate of revenue receipt increased to 21.33% of last year which will be depict from the mentioned Table.

Due to change in administrative infrastructure in finance wing the revenue receipt exceeded the budget allotment in good figure. In 84-85 Revised Budget Tk. 142,50,00,000/- and revenue realised Tk. 150,94,32,000/-

Item	Actual 1983-84	B. E 1983-84	R.E 1983-84	Actual 1983-84
Revenue	124,51,03.6	125,00,000	142,00,00	150,94,32.0
Receipt				
Total Expenditure	101,18,99.4	107,74,34	117,83,12	123,43,66.1
Surplus (net)	23,32,12.2	17,25,66	24,66,88	27,50,65.1

Due to extensive drive taken in revenue connection from the defaulters this years revenue receipt (1985-86) exceeded the target. In 1985-86, the target in Revised Budget was 170,00,000 taka but the actual collection was 182,98,87,329 taka. Therefore the net surplus stands as 40.52 crore taka.

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Item	Actual 1984-85	B. E 1985-86	R. E 1985-86	Actual 1985-86
Revenue Receipt	150,94,32	155,00,00	170,00,00	182,98,87
Total Expenditure	123,43,66	122,08,70	140,00,00	142,46,51
Surplus (Net)	27,50,66	32,91,30	28,00,00	40,52,36

Due to extensive effort to collect defaulters revenue & a drive to collect revenue from Foreign administration in Itali cable, Tat-I, Tat-3 etc. the Revenue collection exceeded the target. In the year 87-88, target revenue RE was 242,00,00,000 taka but actual receipt was 258,63,37,000 taka. Therefore the net surplus stands at 91.59 crore taka.

Item	Actual 196-87	B. E 1987-88	R. E 1987-88	Actual 1987-88
Revenue Receipt	216,08,14	200,00,00	242,00,00	258,63,37
Total Expenditure	153,78,89	159,96,00	176,83,00	167,04,18
Surplus (Net)	62,29,25	40,04,00	65,17,00	91,59,19

The trend of last years revenue collection continues extensively in 88-89. In target revenue receipt in RE was Tk. 303,08,00,000/- but actual receipt Tk. 311,35,54,000/- where by the net surplus stands as 1,07,58,49,000/- taka

Operating Revenue

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A comparative statement of operating revenue from 1984-85 upto 1988-89 is given below :

Items	Hands	1984-85	1985-86	1986-87	198
Revenue	Telephone	39857.7	39515.7	35376.63	334
of growth	-	(-)13.25%	(-)0.86%	(-)11.7%	(-)
Revenue	Telephone	1107168.9	1387435.2	1686530.6	207
age growth	-	(+) 28.26%	(+) 25.31%	(+)21.55%	(+)
Revenue	Telex	178580.5	219122.5	271989.5	314
age growth	-	(+)7.72%	(+)22.74%	(+)24.12%	(+)
Revenue	Others	183824.9	183743.9	166917.6	162
owth %	-	(+)3.03%	(+)0.04%	(-)10.08%	(-)
tal Revenue	-	1509432.0	1829887.3	2160814.0	258
percentage		(+)21.23%	(+)21.23%	(+)18.08%	(+)

Thus there was an increase of revenue in the year under review of Tk. 52,72,17,000.

4 Operating expenses

The operating expenses under different heads could not be strict to existing accounting and costing (cash) system; This is being on newly introduced commercial accounting system. The following table under the existing system on a comparative basis:

Item	1984-85	1985-86	1986-87	1987-88	1988-89
Operating Expenses	605007.4	744330.7	834770.4	1049066.0	1362962.0
age of increase	46.85%	23.03%	12.15%	26%	30%
decrease					

ADP (Capital Expenditure)

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	Amount of Tk. in Lakhs			No. of Schemes
	Local currency	P. A or F. A. C	A. D. P	
Allocation on going (core)	3085.00	6250.00	9335.00	5
On going Non core)	555.40	1280.00	1835.40	5
(Non core)	-	-	-	-
Total Balance	3640.00	7530.00	11170.40	10
Expenditure on going (core)	3081.23	3800.45	6881.68	5
On going (Non core)	620.87	1501.52	2122.39	5
(Non core)	-	-	-	-
Total	3702.10	5301.97	9004.07	10
Balance on going Core	(-) 3.77	(-) 2449.55	(-) 2453.32	5
On going (non-core)(+)	(+) 65.47	(+) 221.52	(+) 286.99	5
(non-core)	-	-	-	-
Total Balance	(+) 61.70	(-) 2228.03	(-) 2166.33	10

7 Capital Outlay

The progressive total interest bearing capital outlay upto the end 1987-88 was Tk. 631.99 crore (besides BITB's profit or self financing account the investment before liberation was Tk. 48.07 crore and from 16.12.71 to 30.6.72 was Tk. 1.76 crore is also included. In the capital outlay of Tk. 90.04 crore is added to the capital at the end 1988-89, the progressive capital stands at Tk. 722.03 crore. The capital outlay for 1984-89 is given below:

Financial Year	Amount in Taka(thousa
Before 1984-85	Tk. 426,88,61
Investment for 1984-85	Tk. 74,02,39
Investment for 1985-86	Tk. 47,36,60
Investment for 1986-87	Tk. 39,76,90
Investment for 1987-88	Tk. 43,94,62
Investment for 1988-89	Tk. 90,04,07
Total 1988-89	Tk. 722,03,19 Taka

4.8 Non Development (Foreign Exchange)

The Non-Development foreign Exchange budget for the year 1988-89 was as follows :

Imports	Tk. 1710.00 lakh
Invisible	Tk. 535.00
Total	Tk. 2245.00 lakh

The entire amount was utilised during the year.

4.9 Allocation of BTTB in different FYP

Public sector allocation for T&T sector under various plans.

Agency	FFYP	%	Two Year Plan	%	SFYP	%	TFYP	%
T & T	80.63	71	103.46	80	211.59	89	345.75	89

4.10 Overall Financial Position

During the year 1988-89 expenditure was incurred in revenue sector for Tk.203,77,05,000 against budget allotment for Tk. 198,08,04,000. National calamity, unprecedented flood and conversion of all over head alignments of Dhaka to under ground has compelled the expenditure to increase 2.5% excess over

allotment. But no additional fund has been received for this extra work. Against the capital budget under ADP during the year 1983-84 Tk. 111.70 including a F.E of Tk. 75.30 crore out of which only 90.04 crore has been spent.

To stream line the over all financial management and control of the BT&T Board efforts were made to make the spending units cost conscious by introducing budgetary control system at all levels and enforcing financial discipline. Involvement of the controlling officers responsible for revenue collection and expenditure in the preparation of budget and operation of budgetary control was expected to go to a long way to fix up responsibility and determine accountability in financial matters. Efforts were also made to make the spending units convinced that budget was one of the primary devices of financial control through which common goal and objectives of the organisation can be achieved.

R. Fund Utilisation

At a meeting held on 14th March 1983, between the Ministry of Communication P. T&T Division, TTB & the Ministry of Finance and Planning the long outstanding issues of the utilisation of Renewal Reserve Fund for replacement & renewals of like by like assets of the TTB was settled.

The Ministry of Finance vide thier memorandum No. MFP/FD/BW(W&M)/IE-19A(27/83/30(7)) dt. 29.3.83 accepted the proposal of BT&T Board for utilisation of R. R. Fund for the first time for replacement of its like by like assets. The activity of R. R. Fund works from 1983-84 started and upto

30.6.89, an amount of Tk. 137.17 crore was accumulated in the fund.

Decentralisation of Telephone Revenue Offices

Keeping in view the decentralisation policy of the Govt. to reach the administration and other services at the door steps of the peoples, BTTB took steps to extend local facilities to the telephone subscribers in getting and paying their telephone bills from their nearest station. Four telephone Revenue officers were opened in the year of 1983-84 at Noakhali, Bogra, Pabna & Jessore and additional numbers of Telephone revenues offices in almost all the old districts of Bangladesh were opened.

Besides to facilitate payment of Bills, BTTB has already taken steps for collection of telephone revenue through different nationalised Banks instead of only post offices & telephone revenue officer counters.

Introduction of Modern Commercial Accounting System.

Parallel to the existing one on cash basis, the Board has also introduced a modern accounting system to cater to its commercial needs and establish sound financial management and control in the organisation. The work for this has been satisfactorily progressing since 1981-82 and the draft financial accounts under the modern commercial accounting system based on actual basis are being submitted to the World Bank on yearly basis and final financial accounts are prepared annually.

Constraints in the Development of Tele Communication.1 Demand out look:

Telephone density which was 1.8 per 1000 in 1984-85 has increased to 2 per 1000 population in 1987-88, where as Asian average is 6 and world average is more than 100. Position of pending application for telephones 1988-89 position of pending demand of auto telephone = 91671 and manual telephone = 8338, and hence the total pending upto 88-89 = 100,009.

From the working connection in 1988-89 of 2,03706, the actual connection being 1,87,650 an overload of Line Units is 16,056. Adding this with pending cases of 100,009, the total demand figures out of 1,16,063 excluding Upazila during 1988-89. The total instant demand for Upazila has been assessed at- 80,000 by BTTB. Taking this the total demand comes to around 2,00,000 L. Us The experience is that whenever a new exchange is established to meet the registered demand which otherwise is latest crops up due to expansion of exchange capacity and in most cases surpasses the original demand and keeps the exchange very much over loaded due to which the services hampers.

.2 Financial Position

In such a situation it emerges in mind why BTTB could not meet the demand of around 2,00,000 telephones in the country. The reason is only the financial constraints. The SFYP for telecom. prepared by BTTB consisted of 24 on going and 25 new projects.

The fund requirement as per proposal amounted to 10156.60 million taka which was reduced to 54,38,20 million taka necessitating rescheduling and re adjustment of the programme. The quoted

amount was further reduced and consequently the projects suffered. Some times materials and equipments of huge cost imported by the hard earned F.E. could not be utilized for want of local fund & ultimately these become obsolete.

In annual report 1988-89 of BTTB page-21 for 13 projects the total ADP allocation was 1150.90 million taka of which foreign exchange was 774.47 million taka and local currency 376.45 million taka. During this period the total projects cost stood at 1527.39 million in taka. In terms of foreign exchange it was 1147.58 million and in local currency 379.81 million taka. Here also financial stringency stood on the way of implementation of the projects as the excess expenditure was met from loan.

3 Technical Position

The telephone exchanges now under operation in Bangladesh have exhausted their life and needs immediate replacement as most of their movable parts are wornout and since the system is obsolete no where in the world, these spares are available. Moreover, the only telephone factory at Tongji can manufacture only 20,000 line units or its equivalent per year. Therefore even running this factory in full swing, it can not contribute more than 20,000 L.US per year whereas our demand stands at this moment of 2 lakhs which will take 10 years to meet the present demand and by this time demand will increase manifold. Also the raw materials to be imported from Germany are not available now. With the introduction of Digital technique by the developed countries all over the world calls coming to Bangladesh & going out must be converted into analog or digital respectively to

match with international system. An effort was taken to BMRE the Telephone factory for digital exchange production, but that too could not be afforded for cost. The carrier system between districts is also Analog which has to be replaced by digital microwave. Therefore BTIB is now at a stake to switch over to all digital technique all on a sudden and therefore has to purchase the costly A/D converter for international and national inbound or outbound calls to and from digital to analog.

4 Demerits of Analog System

In analog system as the name transpires the signals emanated are transferred from one place to another in analogical pattern of electric pulses. Due to path loss and inherent characteristic of transmission path the signals received at the distant end are some times very feeble and disturbed. Also there are addition of noises. The signals received at the distant end are amplified but the noise also amplified and this causes a serious defect when dialing with transmission of data or photo. Moreover the channel capacity with analog system is very low and there are fading effect due to atmospheric changes.

In order to overcome this, digital system has been introduced which is very high capacity, low path loss due to fading and almost no distortion and the feeble signal whatever may be its strength and shape is regenerated at the distant end with this digital techniques. The exchanges in analog system has moving parts which ought to wear & tear, but in digital system there is no moving parts. Connection is established with the help of microprocessor gates closed or opened in accordance with the digital pulses. Digital Xges has other facilities which can not be

thought of in Analog type of exchanges.

Part 6. Objects, Targets & Achievement of different 5 years Plan

6.1 Review of Past Performance of T&T (1973-85)

In 1973-74 there were 60,000 telephones operating in the country (6000 in rural areas and 54,000 in urban areas). The number of telephones increased to 1,20,000 in 1979-80 (10,60 rural and 1,09,400 urban) and to 1,82,000 in 1984-85 (26,60 rural and 1,55,400 urban). The country's telephone density which was 0.13 per 1000 population in 1979-80 increased to 0.18 in 1984-85. During 1980-85, 39 manual exchanges were replaced by automatic exchanges in district towns. During the same period the number of automatic exchanges increased from 45 to 84. On the other hand, 144 manual exchanges and 20 auto-exchanges were installed in upazila towns, and 100 union councils and Rural Growth Centres were connected by Public call offices during the second plan period (1985-90). In order to facilitate international communication, Digital Trunk exchanges were set up at Dhaka, Chittagong, Khulna and Sylhet. The setting up of a 'A' grade satellite Earth Station at Betbunia in 1975 to improve the overseas communication was a notable development. A type 'B' satellite earth station was also established in 1981 at Talibabai to meet the increased international telecommunication demands.

Digital electronic exchanges were installed at Dhaka, Chittagong, Khulna and Bogra to provide nation wide dialling (NWD) facilities. Twenty six district towns were connected with the NWD system by 1984-85. On the other hand, 488 telegraph offices were set up and 410 telex/gentex lines were commissioned till 1984-85.

2 Physical Targets and Performance in IFYP.

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The Bangladesh Telegraph & Telephone Board (BTTB) undertook a number of programmes to expand and develop the telecommunication system of the country. Additional telephones numbering 75,000 lines (65,000 in urban areas & 10,000 in rural areas) were to be installed under the 3rd plan. In fact, 59,190 telephone lines (53,307 in urban areas and 58.83 in rural areas) have been installed, of which 26,000 lines are digital. As a result the telephone density per 100 population has increased from 0.18 in 1984-85 to 0.21 in 1989-90 and the total number of telephones in the country has become 2,41,190 in 1989-90.

It was planned to replace manual exchanges by automatic exchanges in the remaining 10 districts and to establish 14 digital telephone exchanges in the Dhaka city and other major district towns. Replacement of manual exchanges could be made in the 10 districts and digital exchanges were established in 6 places of Dhaka. Thus the total number of automatic telephone exchanges has been raised from 84 in 1984-85 to 130 in 1989-90.

Twenty eight (28) automatic telephone exchanges have been established at the important upazila towns during the IFYP period as against the target of 42 exchanges. This has raised the total number of automatic telephone exchanges at upazila to 48 (20 + 28). Installation of modern UHF radio link connecting 300 upazilas of the country are progressing satisfactorily.

With the installation of High capacity digital telex exchange, the telex system of the country is in a position to meet current requirements of the country. All the district head

quarters have been brought under the telex network. The gentex network have also been modernised and gentex facilities have been extended to 50 district headquarters from Dhaka. Telefax and data communication services have also been introduced for national and international users. The number of telegraph offices has gone upto 759 as against 601 in 1984-85.

Nationwide Dialling (NWD) were present in 26 towns at the end of 2nd plan. Such facilities were extended to additional 27 zila towns during the Third Plan. Besides, 3 other places are having NWD facilities. So far, international Subscribers Dialling System has been introduced with 186 countries through International Trunk Automatic Exchange adding only one country (Australia) during the Third Plan.

The number of overseas telegraph/telex circuits has increased by 51 as against 157 targetted and the number of telephones circuits has increased by 68 as against a target of 142. Annexure-X,XI. Survey work for establishment of a satellite ground station at Dhaka has been completed. An agreement for a joint venture between BTTB and a British firm for establishment of this station has been signed.

Digital technology in the local telephone system was introduced with the installation of 26,000 line digital-exchange and 5000 line tandem switches in Dhaka. The Dhaka-Chittagong old microwave link has been replaced and Dhaka-Khulna microwave link is being replaced by a digital system. (Annexure-VIII).

PBX/PABX lines numbering 3305 have been installed as against a target of 3000 lines and 7352 telex/gentex lines have been installed as against a target of 2200 only.

The expansion of the long distance telecommunication network project... was completed in June 1988. As a result, 26 low powered microwave links were established. The expansion work of the Jamalpur auto-Xge by 400 lines were also completed in June 1988.

In order to extend tele communication facilities in rural areas, 11 small sized auto exchanges were installed in selected places under the project "Installation of Small Auto Exchanges in Rural Areas of Bangladesh" Fifty eight magneto exchanges were also installed under the project "Installation of Public Telephone in important and priority places" in paralled with the above mentioned project.

In all, 14 projects were completed during 1985-90. About 7 projects will be spill over in the FFYP. Delays in completion of projects are mainly due to delay in lining up of foreign aid and shortage of local resources, delay in project preparation and revision, delay in procurement of equipment and materials. The shortage of local resources acted as the major constraint for non achievement of plan targets.

3.3 Allocation & Financial Performance in TFYP

In the third plan an amount of Tk. 345.75 crore (at 1984-85 prices) was allocated for 23 investment projects (19 spill over from SFYP and 4 new projects) of BTTB. The BTTB received ADP allocations of Tk.345.88 crore (at current prices) during 1985-90. Allocation of T.A projects was Tk. 4.33 crore as against the plan provision of Tk.0.24 crore. Besides, an amount of Tk. 40.05 crore from the Zila and Upazila infrastructure Development fund to finance the Upazila telecommunication. Project and an amount

of Tk. 16.59 crore for the special Telecommunication Project in the CHT region were received during 1985-90. Thus, the total allocation was Tk.406.85 crore. The total expenditure against it was Tk. 476.86 crore (at current prices). The excess expenditure was due to the fact that in 1988-89 through P.A allocation for the project "Expansion of the Telecommunication System in Upazilas" was Tk.4.67 crore only, the actual expenditure under the Finish Grant in that year was about Tk. 55.05 crore. Besides some development expenditures were met from the R. R. fund provided under the revenue budget.

4 Financial constraints in IFYP

BTTB undertook a number of projects, the fund requirement of which was not commensurate with the availability of funds. As a result, funds had to be thinly distributed over a large number of projects causing delays in the utilisation and even non utilisation of foreign aid, time and cost overruns and frustration of project viability and objective, etc. Besides, this agency had to by pass the Govt. procedures for choice and implementation of development projects. As a result, it faced shortage of funds for other on going project on the one hand and on the other caused distortions in the objectives and targets of this sector. The shortage of local resources was one of the major constraints of this sector. Because of the constraint, implementations of the foreign aided projects had also been adversely affected.

5 Objective of Fourth Five Year Plan

The main object of BTTB in FFYP will be :

11*

i) To expand telecom. facilities to meet its increasing demand with modern technology and efficient management and use of the existing facilities.

ii) To upgrade the maintenance services. In order to achieve the above objectives the following strategies may be adopted.

iii) The demand for new telephone lines in Dhaka and Chittagong is apparently quite substantial, although this demand has not yet been established through a proper study. On the other hand, the demand for new telephone lines in other divisional head quarters and Zila & Upazila centres is also there. All these demands may not be met mainly due to resource-constraints and limitation of physical facilities and manpower that could be provided during the FFYP. The demand for telephone in some upazila may, however, be met through extension of NWD facilities by the private sector.

iv) Modern telecommunication facility is a capital intensive service. As such the existing old technology in this sector will gradually be replaced by modern technology concurrently, TSS, BCS & Telecommunication staff college/centres will also be modernised to meet the demand for spare parts and trained personnel in this sector.

v) Despite low density of its network, the operating efficiency of BTTB is very low. Many of the telephone lines do not work properly. Majority of the reported faults are ascribed to underground cables problems mainly due to inadequate provision for operation and maintenance, organisational and management deficiencies. In the FFYP emphasis will, therefore be given on

programmes for improvement of operational efficiency of BTTB rectification of cable network problems and proper maintenance of existing facilities.

.6 Policy Issues of ITB in FFYP

For the above objective and strategies the following policies may be pursued :

i) Digitalisation : Regarding digitalisation policy, the type of system to be adopted in Bangladesh needs to be reviewed and a policy of standardisation of digital system in one region may be pursued. The telecommunication Master Plan Study, being conducted by KFW, will help in selecting the appropriate digital system/systems.

ii) Commercialisation : The policy and organisational framework within which the ITB functions is not well suited for running a commercial enterprise. The Board may be transformed into a commercial enterprise by granting to the entity greater managerial autonomy along with accountability.

Summary : Recommendation

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Telecommunication in Bangladesh, as in most developing countries is in a very rudimentary stage of development. The country is mostly rural and being riverine, the penetration of telephone services in these areas are very negligible, telecom. system is under developed and the rural areas are least served. Moreover the exchanges in urban are being very old, needs to be replaced and expansion is inevitable to meet the present and future demand. The junction cables working between exchanges are also very old and needs to be replaced immediately with higher capacity. BTTB has started an ambitious plan to interconnect the exchanges in multi exchange areas through fibre optic cable and the work is on the way. The map of fibre optic cable is in annexure-V. The microwave system carrying the national and international (terrestrial links) bundles of traffic is also outdated and old. Annexure-II, III will show the old microwave link. Spare parts for the above is not available any where. The primary and distribution cables are also in shambles. Continually cut and re-cut by other road digging agencies. Also there are embargo in digging metalled/bituminous roads which is essential to repair those cables. Therefore, due to delay in repair of cables, the subscribers continue to suffer and the T&T people had to remain engaged in repairing those back dated, worn out equipment and cables. Also due to shortage of maintenance fund all the damaged cables could not be repaired. On the above there are national calamities like, cyclone, devastating flood which hits every

year, damaging a considerable portion of underground cables and exchanges. Some of the above work taken in hand through some projects Annexure-VI, but could not be completed for want of local fund and foreign exchange.

From the above statements elaborated in this report it transpires that telecommunication is now the internationally accepted media of communication, quickest, reliable, dependable and cost economic. Therefore, in Bangladesh when the telephone density is minimum in the world (which may be taken as development standard) and communication by roads, railways or by air is risky, costly, hazardous and time consuming; this media is to be given top priority for improvement and expansion. Installation of a Telephone / Telex / Fax not only helps in cheap communication, but helps improving trade, commerce & economy. As depicted earlier this is the only department which gives quickest return as revenue, and BTTB being profitable organisation, all-out efforts to be taken by the Government to extend this facilities to the common public by diverting a good amount from the earnings of BTTB. The National Television broadcasting is also being relayed through T&T microwave channel. For un-interrupted TV transmission and relaying, one radio (i.e. Base Band) and a standby has to be kept for Television. But with the present microwave system this could not be done. The telephone standby base band channel has been given to Television and whenever there is a problem in telephone base-band, it automatically switches to TV channel, thereby TV channel is interrupted. TV relaying is shown in annexure-XVI. For development and replacement work, foreign

will be available in this sector readily and quickest development will be achieved in shortest possible time. Therefore, BTTB may be an well organised Department for mobilisation and effective absorption and utilisation of external resources to our country.

Bangladesh T&T Board not only earns local money but it also earns a substantial amount from the incoming telephone and telex/fax calls in gold francs. Moreover the shares in Intel sat communication, Ital Cable, Tat-I & Tat-III also brings in good amount of F.E via those leased channels. A good amount of budget share of GOB is spend in some unproductive sector, which can be stopped for a while, while TTB is given its full requirements to develop and once developed, this will continue to bring in revenue as well as increase in commerce and industry, thereby increasing GDP.

Foreign aid to BTTB, which mostly comes as equipment cost, comprises 85% of project cost can be utilised in targetted time if the local money could be made available as suggested above, saving of cost over run and time over run of projects.

In our field case study of some of the projects like Noagoan Polder Project I, Berge Mounted Power Plant, Khulna and Juice Concentrate Plant, Kalurghat Chittagong, we have observed that lot of money in FE & LE has been spend which now stands as a wastage in those projects and future can say with how much more money and how long it will take to make them viable. The benefit out of those projects is also doubtful. But the projects taken by BTTB have been completed in targetted time without cost and time overrun and immediately after completion of project, revenue starts pouring in.

Therefore, it is proposed that a massive plan be chalked out by BTTB, to repair/replace those old worn out cables/ exchanges, give protection in terms of insurance to guard against damage of cables by other road cutting agencies, mark a fixed route for telephone cables (to be used by none except telephone), replace those analog type worn out exchanges, expand them by digital system as per the order of the day replace those analog type of microwave by high capacity digital microwave, for national trunk and terrestrial links from the ground station to Dhaka ITX and terrestrial links to Calcutta, Bombay and Nepal; install a third type A digital satellite ground station at Dhaka to replace the Betbunia ground station which is very old and in an inaccessible area. This will also allow us to act as transit route to South and South-East Asian Countries to earn more foreign exchange.

The TSS at Tongi to be expanded balanced and modernised to start manufacturing of digital exchange. This can start functioning as CKD or SKD condition till full development of skill and technology by importing basic micro-chips etc. The BCS/Khulna has to be expanded balanced and modernised to manufacture telephone cables for national requirement & F.E may be earned by exporting those cables in future. Training and research centre may be developed to train and develop High-Tech. Methods in due course of time. The personnel engaged for those should be trained inside & outside the country so that they can be well acquainted with the system, can maintain and operate sophisticated equipments associated with modern High-Tech. of

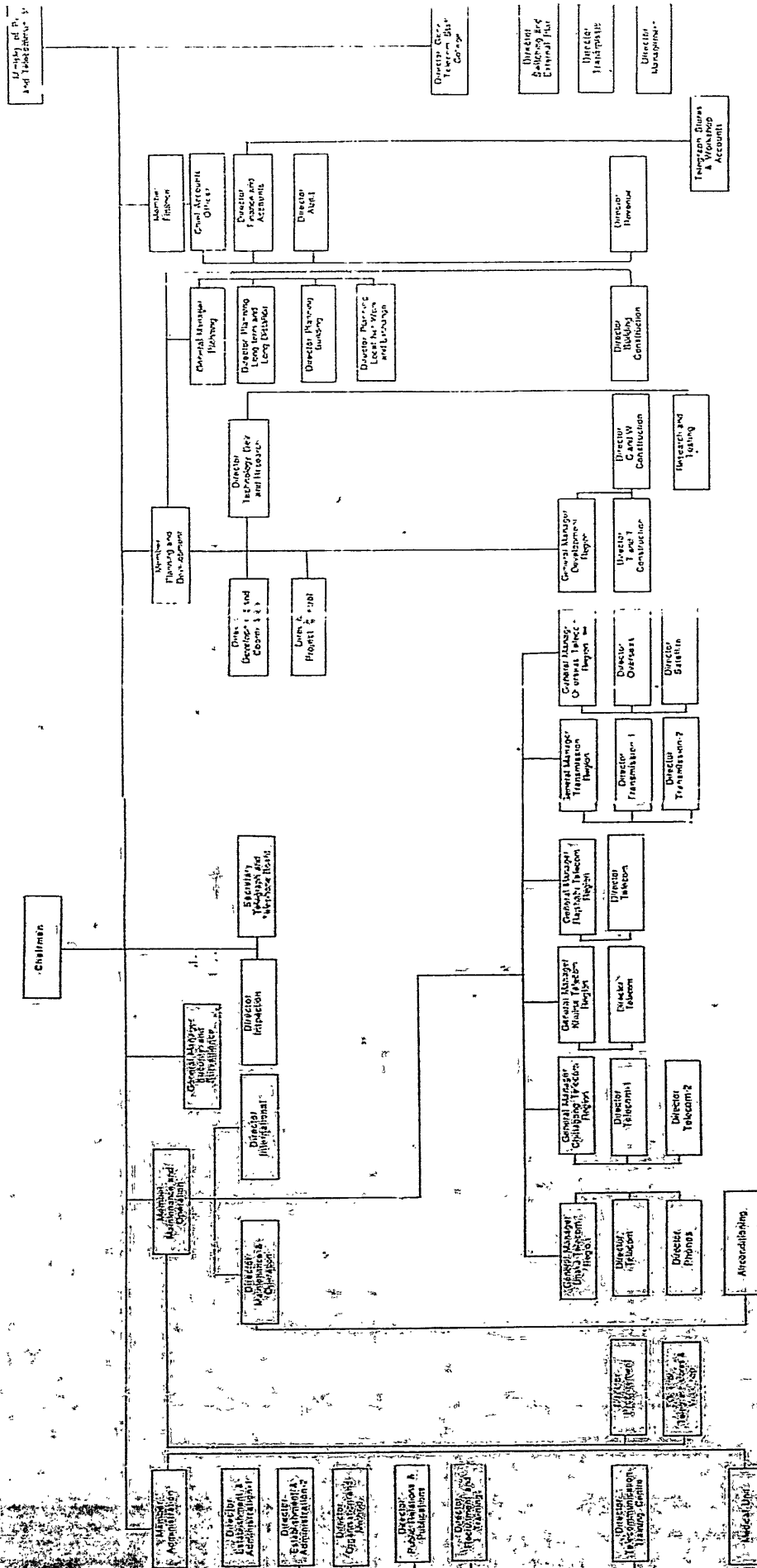
BTTB. The above master plan may be given national priority and training may be done as and where necessary. 115

In order to fulfil the demand of the subscriber and to make the telecommunication system efficient, effective and smooth the projects shown in annexure-VI may be taken in hand & completed as soon as possible. By doing this we can develop our telecommunication services thereby increase trade & commerce, more employment, increase in GDP and increase in national savings, more investment, alleviate poverty which is the theme of our Government.

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BANGLADESH TELEGRAPH AND TELEPHONE BOARD



SUMMARY OF MANPOWER

S.No.	Name of Post	Established Post	Existing
1.	Chairman	1	1
2.	Member/D.G.	152	152
3.	General Manager	9	9
4.	Chief Accounts Officer	30	30
5.	Director	30	30
6.	Secretary, D. T. & T. Board	98	98
7.	Deputy Director	14	14
8.	Assistant General Manager	8	8
9.	Controller of Telegraph	1	1
10.	Superintendent	1	1
11.	Telegraph Workshop	1	1
12.	Chief Superintendent (Trainer)	1	1
13.	Senior Accounts Officer	2	2
14.	Senior Medical Officer	1	1
15.	Sub-Divisional Engineer	255	255
16.	Assistant Engineer	255	255
17.	Asst. Engineer	255	255
18.	Asst. Engineer	255	255
19.	Asst. Engineer	255	255
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BANGLADESH SHOWING MICROWAVE & U.H.F. LINKS

AS STOOD ON FEB 1950

LEGEND

DISTRICT HQ	□
OTHER STATIONS	○
MICROWAVE LINK	—
UHF LINK	- - -



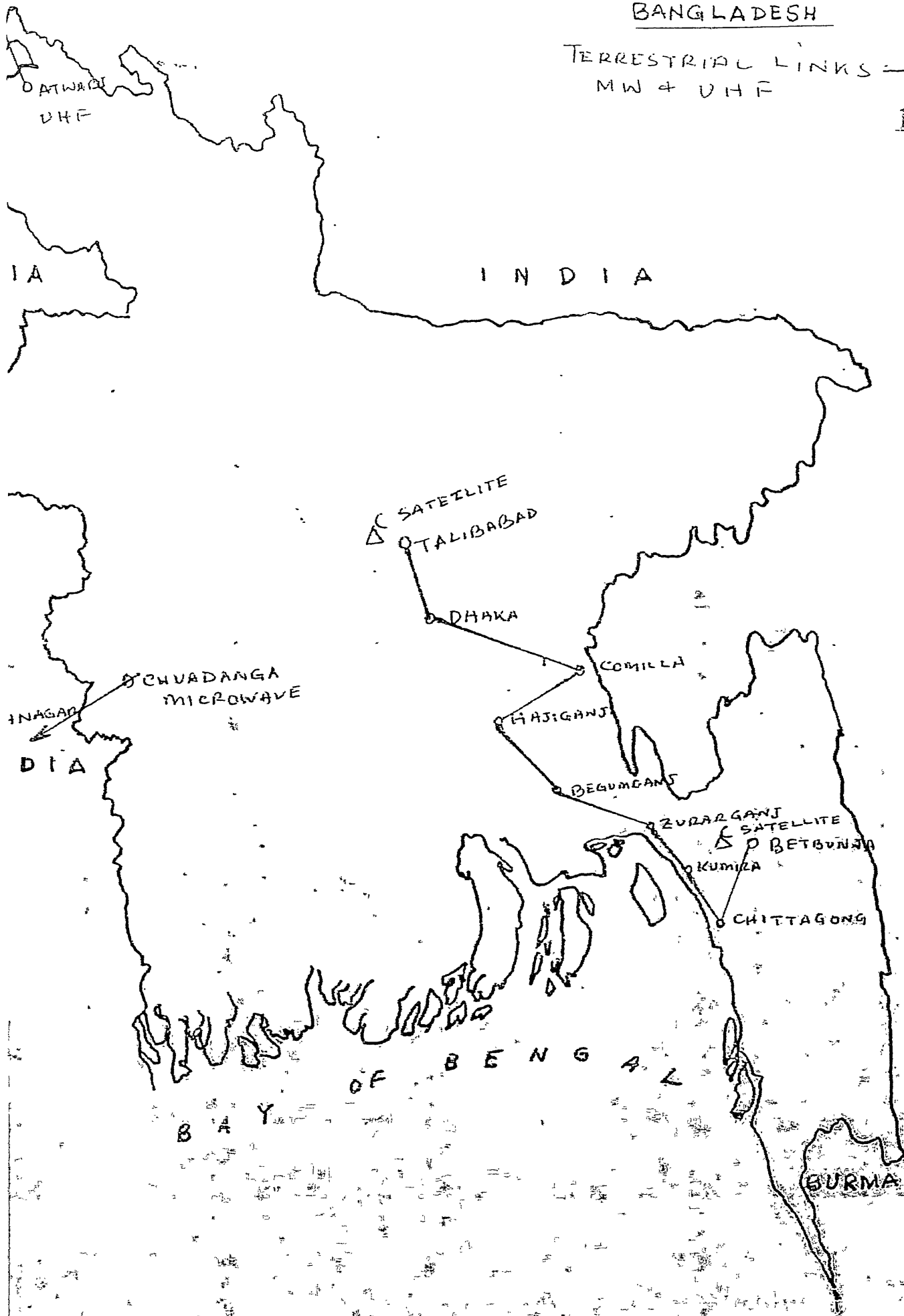
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NEPAL

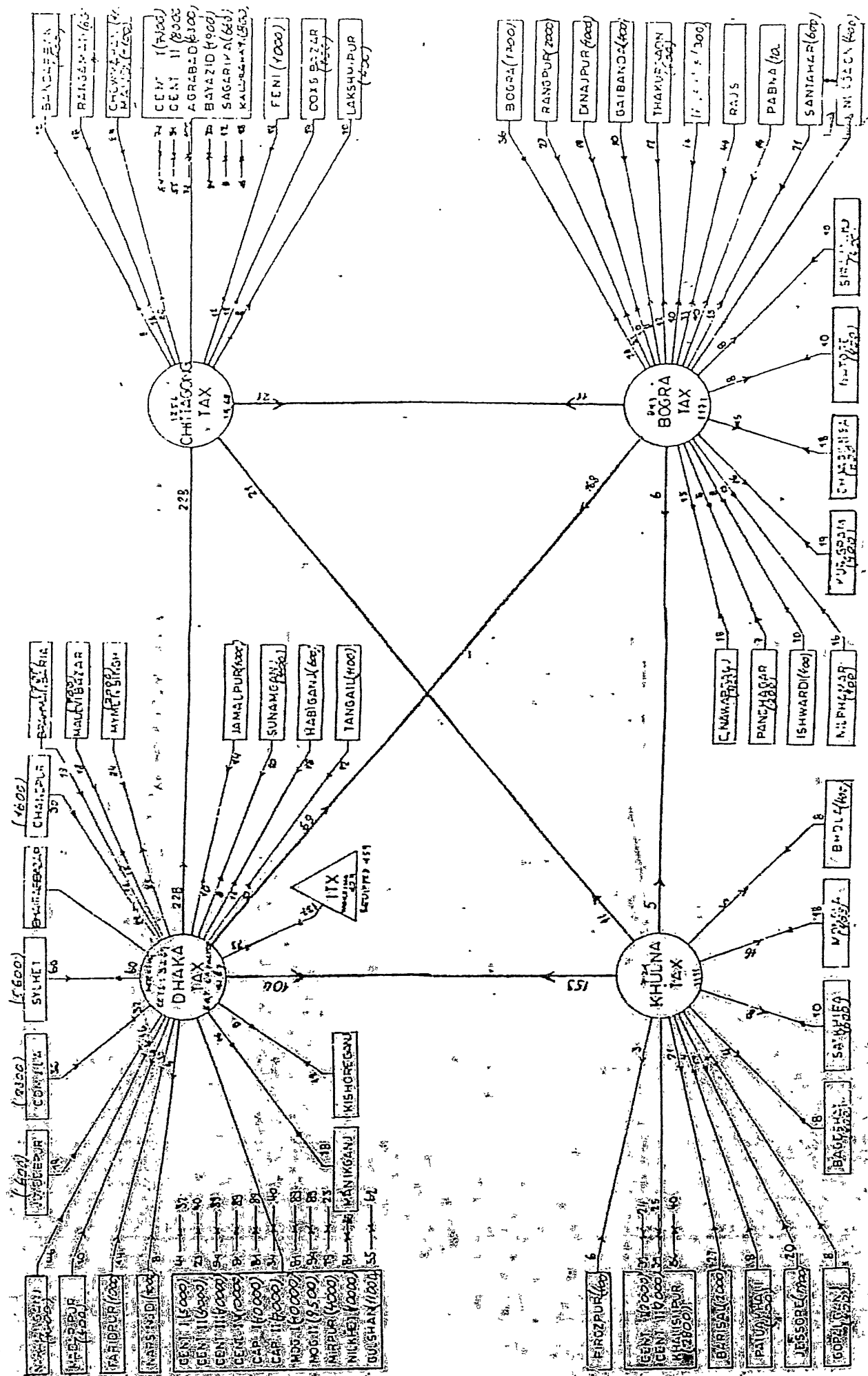
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MW + VHF

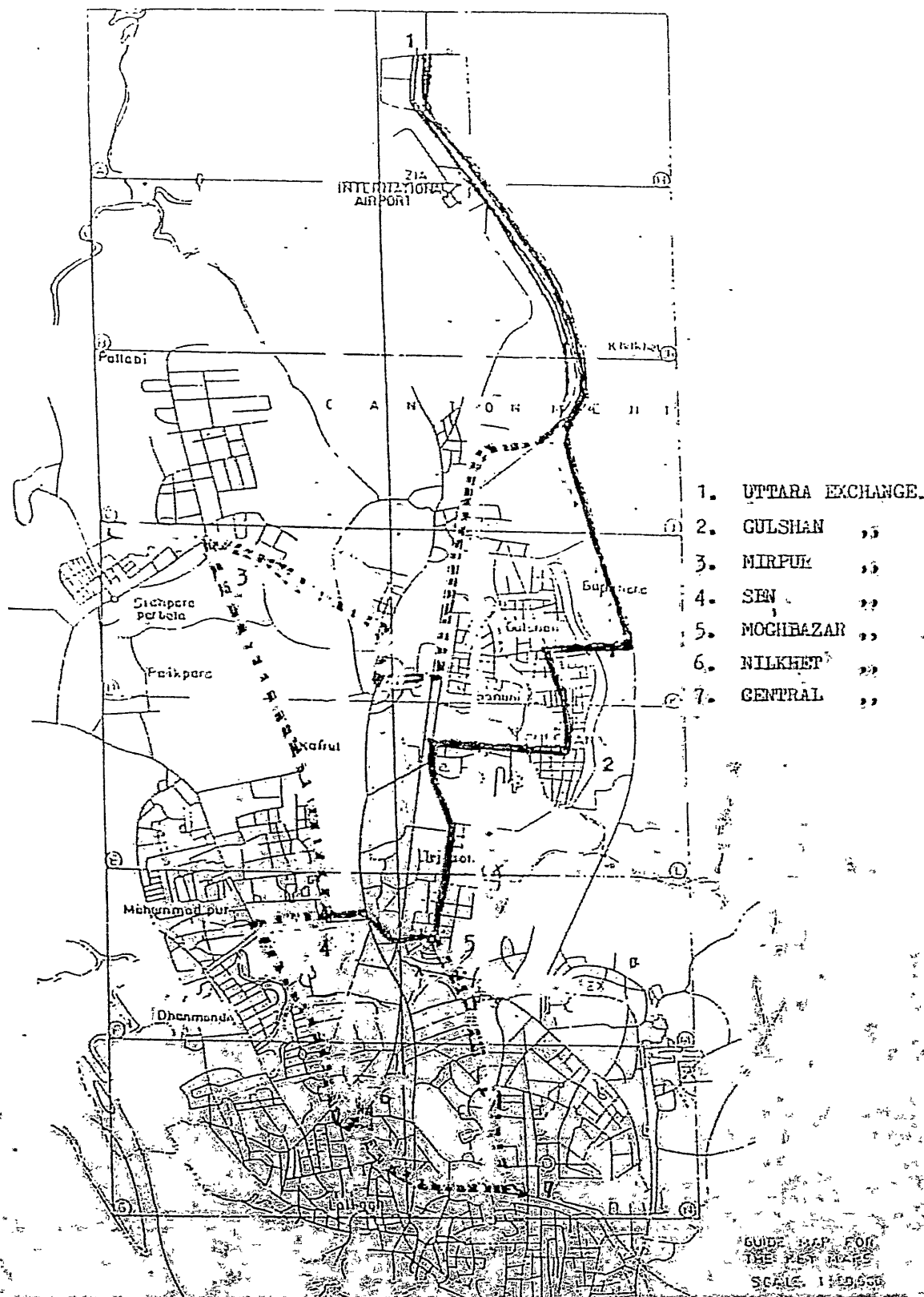
119



N.W.D NETWORK DIAGRAM



ANNEXURE-VI
GREATER DHAKA OPTICAL FIBRE LINKS.



OPTICAL FIBRE LINKS UNDER INSTALLATION.

PROPOSED OPTICAL FIBRE LINKS.

PROPOSED PROJECTS UNDER 4TH 5-YEAR PLAN

		<u>Estimated cost (Taka in crores)</u>	
		<u>Total</u>	<u>F. E.</u>
1.	Replacement of analog microwave system by digital and establishment of new digital microwave links.	130.00	75.00
2.	Replacement of analog UHF links by digital links.	45.00	25.00
3.	Expansion of local telephones by 300,000 lines.	1620.00	900.00
4.	Balancing and expansion of trunk automatic exchanges at Dhaka-Chittagong-Khulna and Bogra and International trunk exchange at Dhaka.	25.00	13.00
5.	Expansion of MWD facilities upto Upazilla- 1st phase.	400.00	200.00
6.	Establishment of a digital satellite earth station at Dhaka.	70.00	45.00
7.	Establishment of data network throughout Bangladesh.	18.00	10.00
8.	Expansion of cable duct systems in main switching centres.	150.00	20.00
9.	Completion of flood rehabilitation programme.	150.00	81.00
10.	Expansion of public call offices and telegraph offices in rural areas.	60.00	40.00
11.	Balancing and modernisation of cable factory at Khulna.	30.00	18.00
12.	Diversification and modernisation of telephone factory at Tongi.	50.00	30.00
13.	Provision of VVIP telecom. system.	10.00	6.00
14.	Modernisation of ship to shore communication.	55.00	35.00
15.	Construction of administrative offices and staff quarters.	10.00	Nil
16.	Procurement of vehicles for T&T Board.	7.50	Nil
17.	Expansion of welfare facilities to T&T employees (Hospital, Dispensary, Ambulance etc.)	2.50	0.50
18.	Establishment of Telecom research	15.00	5.00

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19.	Procurement of Mobile Telephone Exchange (container exchange).	21.00	15.00
20.	Introduction of Topnet system for Dhaka & network management system in the country.	50.00	30.00
21.	Procurement of 6 Nos. 1000-2000 lines capacity centrex exchange.	19.00	10.00
22.	Emergency communication system by domestic satellite.	30.00	18.00
23.	Replacement of all P-1 exchanges in Bangladesh.	160.00	100.00
24.	Establishment of a Monitoring station.	20.00	8.00

Sub-Total:-

3148.00 1684.50

PROJECTS SPILLED OVER FROM
3RD FIVE YEAR PLAN

1.	Expansion of Greater Dhaka Telecom. system by 50,000 lines.	100.00	41.00
2.	Providing telecom. facilities in rural areas.	29.62	-
3.	Expansion of Telex network.	40.00	3.55
4.	Expansion of telecom. services to Upazillas.	70.00	31.00
5.	Expansion of local telephones by 60,000 lines.	16.00	-
6.	Expansion of local telephones by 100,000 lines.	464.00	362.00
7.	89 Radio links for Upazillas and other places.	62.00	34.00
8.	Installation of Microwave link between Dhaka-Bogra/Mymensingh and Dhaka-Sylhet.	135.00	77.00
9.	Dhaka-Khulna Microwave link.	61.00	40.35

Sub-Total :-

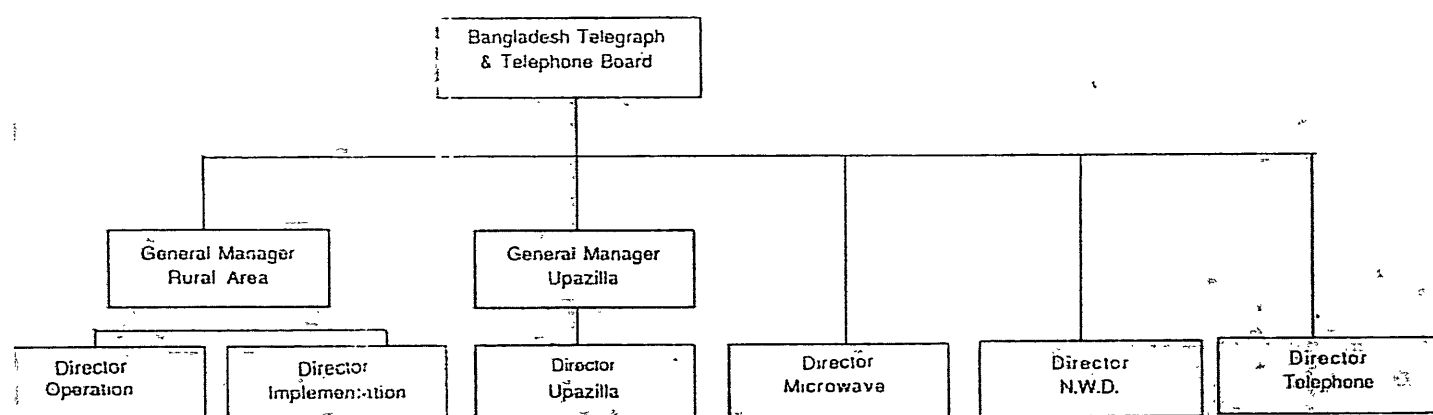
977.62 588.90

Grand Total:-

4125.62 2273.40

ORGANISATION CHART FOR PROJECT IMPLEMENTATION AND OPERATION

123



SUMMARY OF MANPOWER

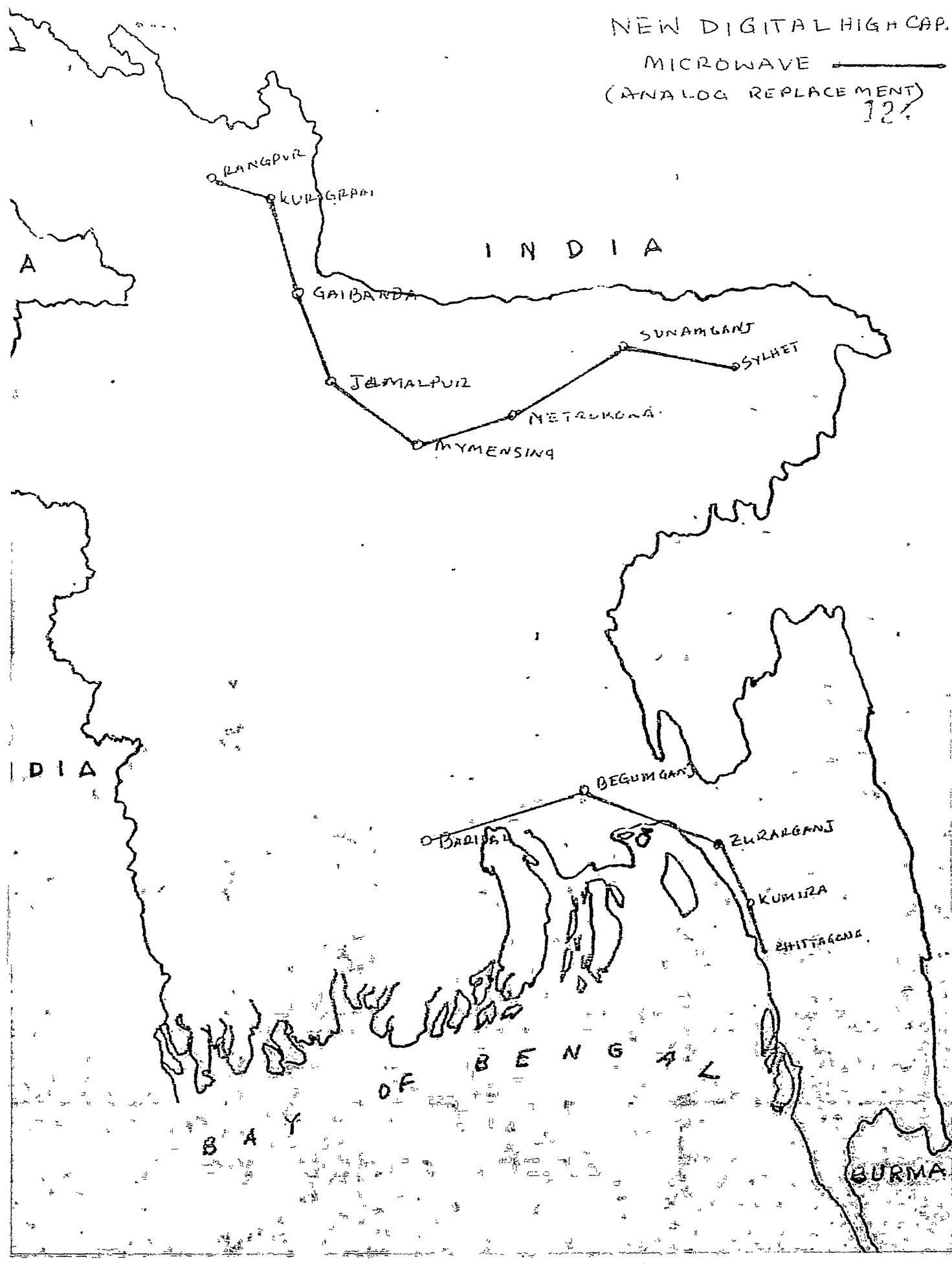
SL. NO.	Name of Posts	Sanctioned Posts	Existing
<u>Class-I</u>			
1.	General Manager	2	
2.	Director	6	
3.	Divisional Engineer	15	
4.	Sub-Divisional Engineer	14	
5.	Assistant Engineer		
	Assistant Director	30	
	Total:	67	
<u>Class-II</u>			
6.	Administrative Officer	2	
	Total:	2	
<u>Class-III</u>			
		1002	
<u>Class-IV</u>			
		258	
	Grand Total:	1329	

Filled up as Temporary Establishment

BANGLADESH

NEW DIGITAL HIGH CAP.

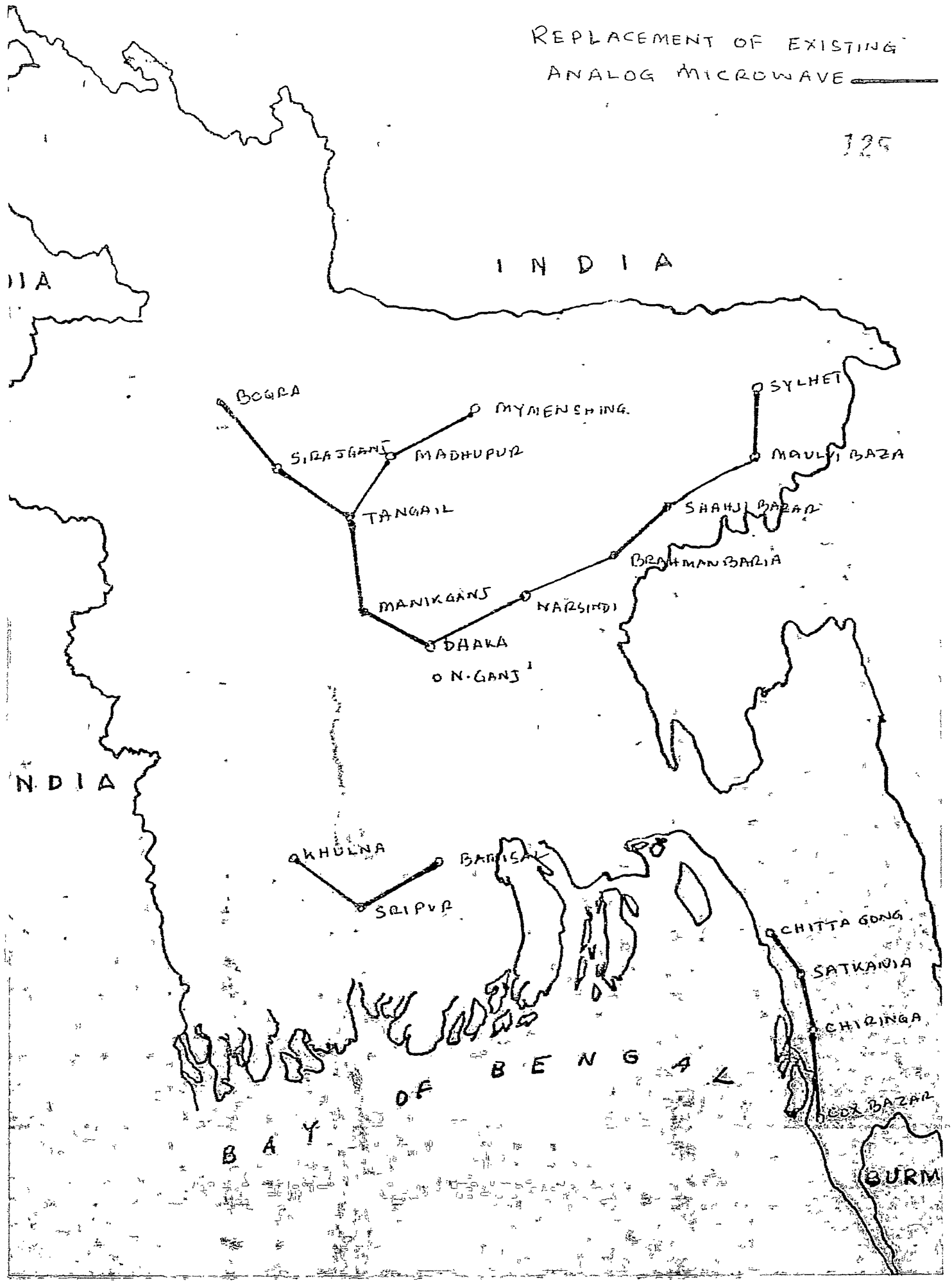
MICROWAVE
(ANALOG REPLACEMENT)
124



BANGLADESH

REPLACEMENT OF EXISTING
ANALOG MICROWAVE

125



PROJECTED REQUIREMENT OF INTERNATIONAL CIRCUITS

COUNTRY	TYPE OF CIRCUIT	Y E A R						
		1989	1990	1991	1992	1993	1994	1995
AUSTRALIA	V	4	4	4	5	5	5	6
	N	0	0	0	0	0	0	0
CANADA	V	6	10	12	15	18	19	21
	N	0	0	0	0	0	0	0
DENMARK	V	0	4	5	5	6	7	7
	N	0	0	0	0	0	0	0
FRG	V	6	10	14	14	16	17	19
	N	0	1	1	1	1	1	1
HONGKONG	V	15	18	20	22	24	26	28
	N	3	3	3	4	4	5	5
IRAN	V	0	3	5	6	7	8	8
	N	0	0	0	0	0	0	0
ITALY	V	6	7	7	8	10	11	11
	N	1	1	1	1	1	1	1
JAPAN	V	8	10	12	15	17	18	19
	N	1	1	1	1	1	1	1
MALAYSIA	V	3	4	4	5	5	6	6
	N	0	0	0	0	0	0	0
NETHERLAND	V	0	4	5	6	6	6	7
	N	0	0	0	0	0	0	0
PAKISTAN	V	15	17	18	20	22	24	28
	N	1	1	1	1	1	2	2
QATAR	V	0	6	8	10	12	13	14
	N	0	0	0	0	0	0	0
S. ARABIA	V	22	30	32	35	35	38	40
	N	1	1	1	1	1	1	1
SINGAPORE	V	17	20	24	27	30	33	35
	N	2	2	3	3	3	4	4
SWEDEN	V	0	3	4	4	4	4	4
	N	0	0	0	0	0	0	0
U. A. E.	V	22	30	33	35	38	40	44
	N	1	1	1	1	1	2	2

120

COUNTRY	TYPE OF CIRCUIT	Y E A R						
		1989	1990	1991	1992	1993	1994	1995
U.K.	V	60	78	84	96	108	120	130
	N	3	3	3	3	3	4	4
U.S.A.	V	22	30	34	39	45	48	50
RECVD U.K.	N	1	1	1	1	1	2	2
BAHRAIN	V	6	7	7	8	8	9	10
	N	0	0	0	0	0	0	0
CHINA	V	2	3	4	4	4	5	5
	N	0	0	0	0	0	0	0
FRANCE	V	6	7	8	10	12	12	14
	N	0	0	0	0	0	0	0
HONGKONG	V	3	3	3	3	4	5	5
	N	0	0	0	0	0	0	0
INDIA	V	1	2	2	3	3	4	4
	N	0	0	0	0	0	0	0
KENYA	V	2	2	2	2	2	2	2
	N	0	0	0	0	0	0	0
KOREA (S)	V	6	6	7	8	10	11	11
	N	1	1	1	1	1	1	1
KUWAIT	V	5	5	6	8	8	9	9
	N	0	0	0	0	0	0	0
SRILANKA	V	4	4	5	5	6	8	8
	N	0	0	0	0	0	0	0
SWITZERLAND	V	0	4	4	5	5	6	6
	N	0	0	0	0	0	0	0
THAILAND	V	5	6	6	7	7	8	9
	N	1	1	1	1	1	1	1
TOTAL:-	V	246	337	379	430	477	522	560
	N	13	17	18	19	19	25	25

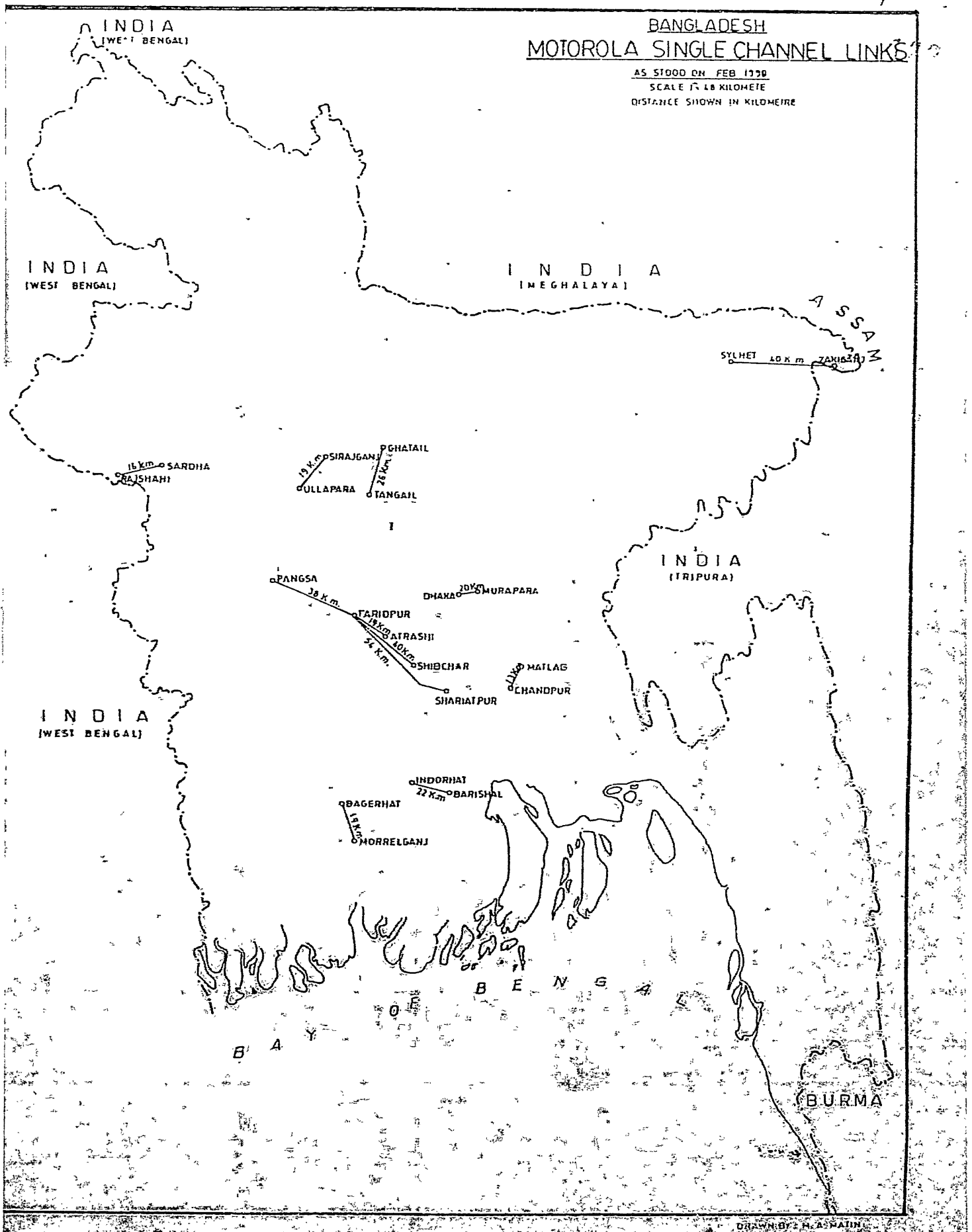
V=VOICE CIRCUIT, N=NON-VOICE CIRCUIT.

SL	DESTINATION	PHONE	VFTBR	TELEX	TELEG	LOST	PRICE
VIA BETUNJA FDM/FM							
01	AUSTRALIA	08	--	--	--	01	--
02	CANADA	05	--	--	--	01	--
03	FRANCE	--	--	07	--	--	--
04	GERMANY WEST	08	--	09	01	--	--
05	HONG KONG	16	01	19	01	12	--
06	INDIA	--	--	--	--	02	--
07	ITALY	08	--	06	01	--	--
08	JAPAN	13	01	10	01	08	--
09	KOREA SOUTH	--	--	05	--	--	--
10	MALAYASIA	--	--	--	--	--	01
11	PAKISTAN	13	01	07	01	--	--
12	SAUDI ARABIA	28	--	--	--	--	--
13	SINGAPORE	19	01	16	01	--	01
14	SWITZERLAND	--	--	06	--	--	--
15	UAE	23	01	10	01	01	--
16	UK	66	02	31	01	04	--
17	USA	25	01	28	02	--	--
		230	08	154	10	29	02

VIA TALIEABAD SCPC							
01	BAHRAIN	05	--	--	--	--	--
02	CHINA	01	--	--	--	--	--
03	FRANCE	05	--	--	--	--	--
04	HONG KONG	--	--	--	--	--	02
05	INDIA	01	--	03	--	--	--
06	KOREA SOUTH	04	--	--	--	--	--
07	KUWAIT	02	--	--	--	--	--
08	SRI LANKA	02	--	03	--	--	--
09	THAILAND	03	01	06	--	--	--
10	USA	03	--	--	--	--	--
		26	01	12	--	--	02

VIA MICROWAVE TERRESTRIAL							
01	INDIA BOMBAY	01(M)	--	--	--	--	--
	CALCUTTA	03(M)	--	02(M)	--	--	--
	CALCUTTA	24	01	16	02	02	01
02	NEPAL	02(M)	--	--	--	--	--
		30	01	18	02	02	01
		10	18	12	31	05	--

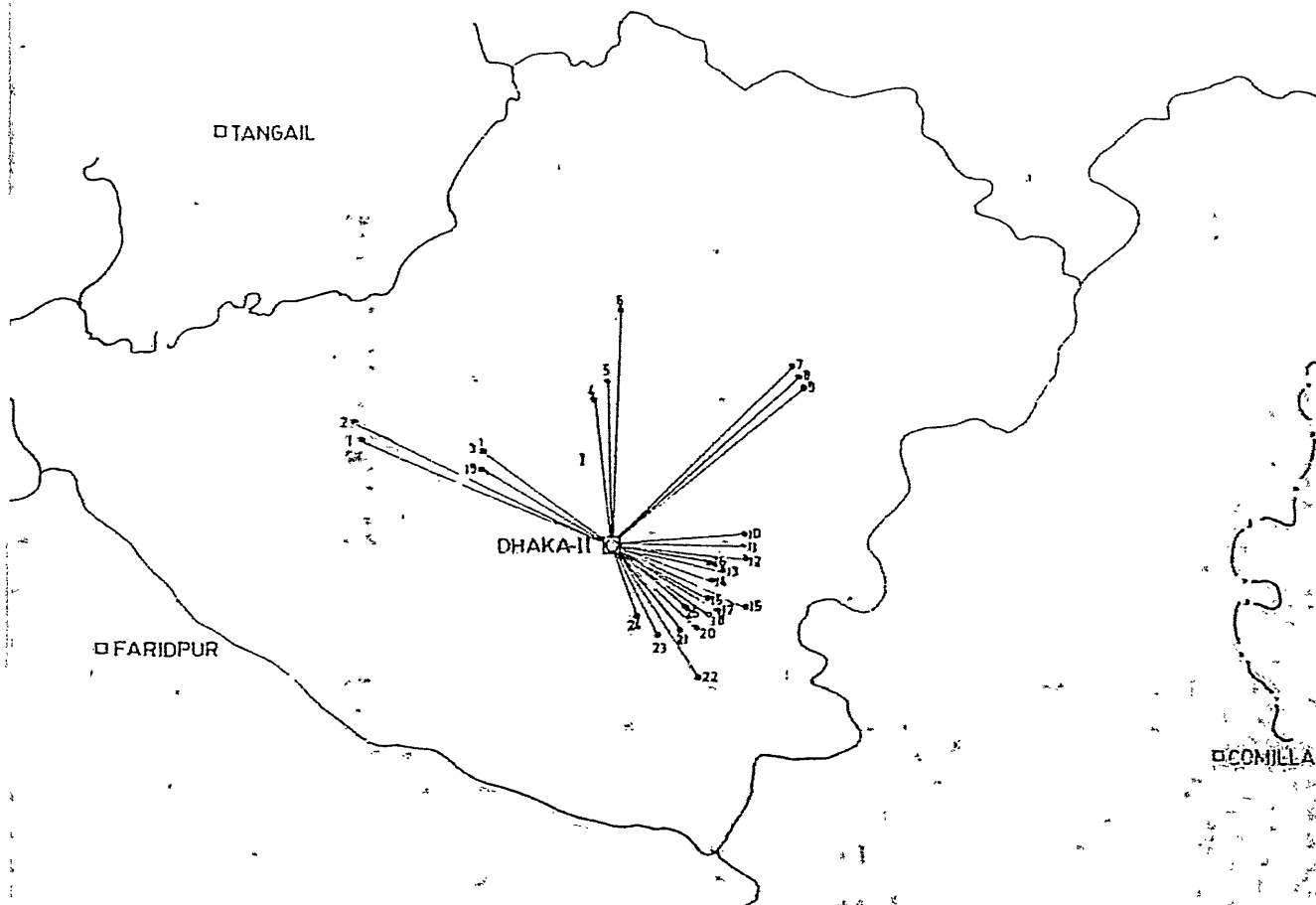
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DHAKA DISTRICT MOTOROLA MULTI ACCESS BASE & P.C.O.S DHAKA-II

AS STOOD ON FEBRUARY 1990
SCALE 1"=16 KILOMETRE



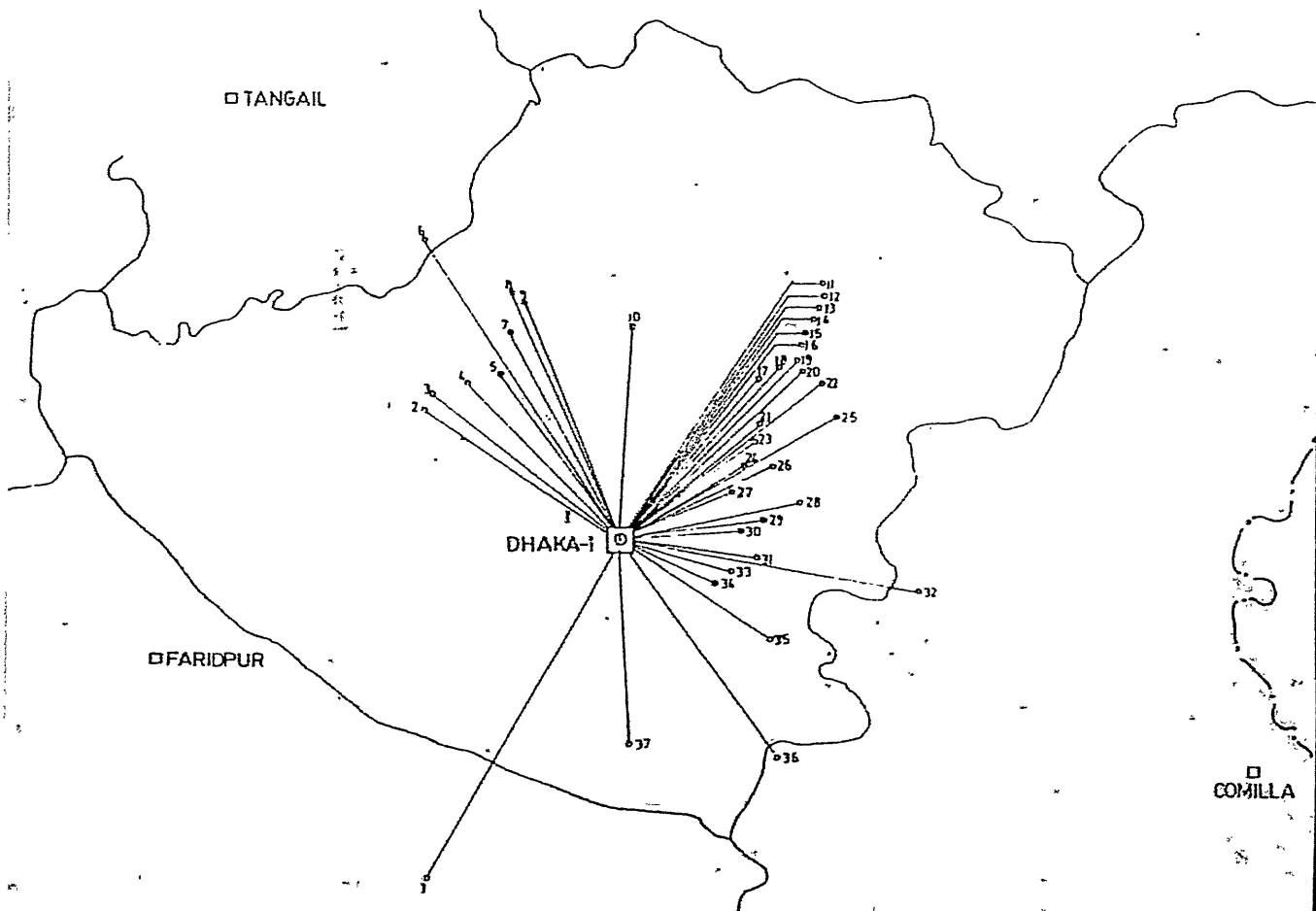
DHAKA- II BRF

- | | |
|-------------------------------------|--------|
| 1. IMPRESS LEATHER MANIKGANJ | 56 Km. |
| 2. HANDBIK PROSIRON KENORA MUJ. | 56 |
| 3. KOWLADE PVC. IND. DHAMRAI | 38 |
| 4. MONOTAJ IRON & STEEL MILLS TOIKI | 19 |
| 5. POST GHADJAE INSTITUTE GAZIPUR | 75 |
| 6. H. O. D. C. RAJENDRAPUR | 40 |
| 7. THERMAL POWER STATION GHORASHAL | 40 |
| 8. THERMAL POWER SINCHIEF ENGGJ | 40 |
| 9. UREA FERTILIZE FACTORY GHORASHAL | 40 |
| 10. KHAN COTTON MILLS TARABO | 24 |
| 11. COSMOPOLITAN TEXTILE | 24 |
| 12. SIDDIQUE TEXTILE | 24 |
| 13. EAKIR COTTON MILLS | 24 |
| 14. RAHIM STEEL MILLS | 24 |
| 15. SAHEEF STEEL GALVANISING | 24 |
| 16. BENGAL GLASS WORKS DEMRA | 22 |
| 17. STAR VEGETABLE MADANIGANJ | 20 |
| 18. JODHWAS TURBINE MARIPUR KASAU | 20 |
| 19. ERFAN FOODS INDUSTRIES SAVER | 24 |
| 20. BENGAL FOODS KACHPUR | 20 |
| 21. MOUSHAMANI INDUSTRIES KACHPUR | 20 |
| 22. DBAYSI CORPORATION | 27 |
| 23. SUPPER SPRING KACHPUR | 20 |
| 24. PRIME TEXTILE | 15 |
| 25. RUSSEL STEEL MILL | 30 |
| 26. BANGLADESH MALAMINE INDS. | 30 |

DRAWN BY: H. A. MAHIN

DHAKA DISTRICT
MOTOROLA MULTI ACCESS
BASE & P.C.O.S. DHAKA-I

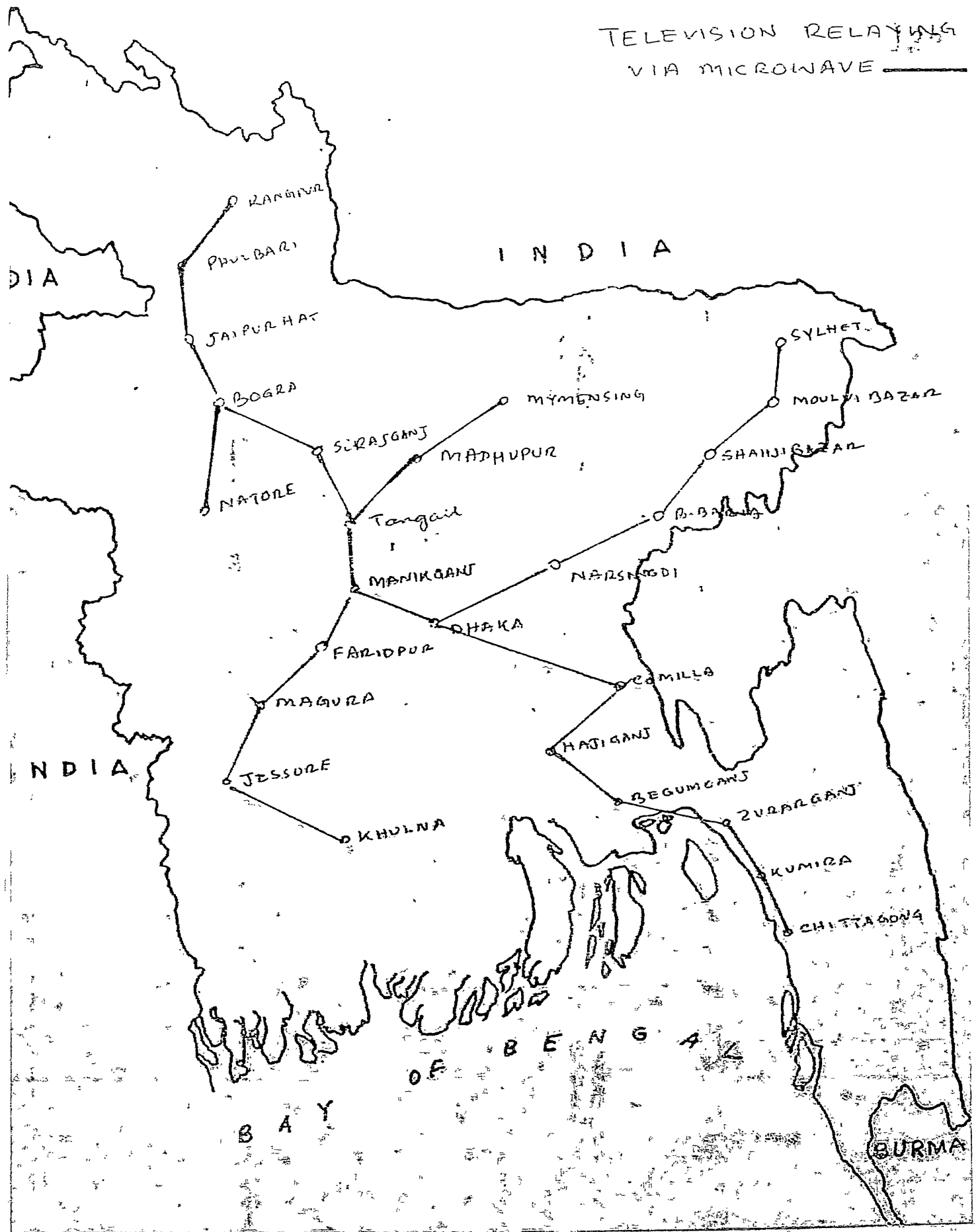
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 SCALE 1:16 KILOMETRE



DHAKA-I 8 R.F.

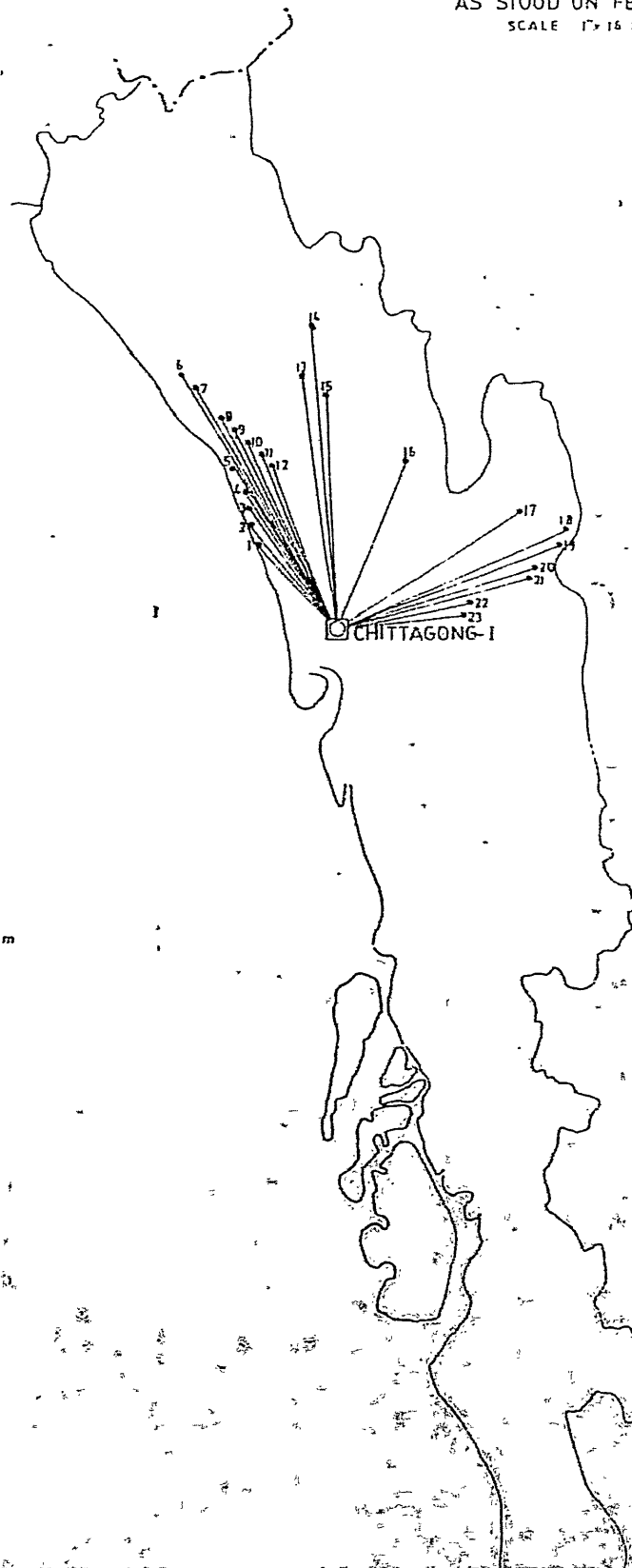
1. UTRAIL HOUSE CHIPCHAR	56 Km	26. GAUSIA JUTE MILL	25 Km
2. BENGAL CARPET SVR.	40	27. NAVARUN JUTE MILL	26
3. RADIO BANGLADESH SVR.	40	28. JANATA JUTE MILL DEMRA	32
4. PHOIX SPINNING MILL	40	29. KAMAL TEXTILE	30
5. SAVAR POLLY BIDOUT SAMITH	40	30. SONALI PAPERMILL	28
6. MIRZAPUR CADET COLLEGE	56	31. JITAS GAS	30
7. RADIO BANGLADESH KAIRPUR	48	32. HOMNA P.C.O. (COMILLA)	51
8. ANSWAR T. CENTRE SAFIPUR	45	33. NEW DHAKA IND. DEMRA	24
9. ANSWAR T. ACADEMY	45	34. ADAMJEE JUTE MILL	24
10. B.R.R.I. JOYDEVPUR	32	35. R. & H. MEGHNAGHAT	32
11. NATIONAL JUTE MILL PALASH	48	36. SATNOL	40
12. CO-OPERATIVE JUTE MILL	48	37. BROAD BARLAP MUNSHIGANJLO.	
13. FAUZI CHAKAL GHORASAL	48		
14. BANGLADESH JUTE MILL	40		
15. PUBALI JUTE MILL GHORASAL	40		
16. THERMAL POWER SH.	48		
17. GHORASAL U.F. FACTORY	46		
18. AHMEDUL KABIR GHORASAL	47		
19. PALASH UREA FERTILIZER FAC	48		
20. SAITRA JUTE MILL KANCHAN	45		
21. ASHRAF JUTE MILL	40		
22. ALLUDE JUTE MILL	42		
23. NASIRAKI JUTE MILL	40		
24. NAWAB ASHUKARI JUTE MILL	38		
25. NARSINGDI P.B.S. MADHAPDI	46		

DRAWN BY: M. ASMATIN

BANGLADESHTELEVISION RELAYING
VIA MICROWAVE

CHITTAGONG DISTRICT
MOTOROLA MULTI ACCESS
BASE & P.C.O.S. CHITTAGONG-I

AS STOOD ON FEBRUARY 1990.
 SCALE 1" = 16 KILOMETRE

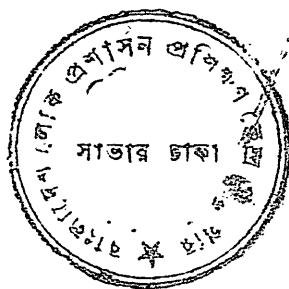


CHITTAGONG-I B.R.F.

1. KASEM JUTE MILL	20km
2. HAFIZ JUTE MILL	20
3. SUL AHMED JUTE MILL	22
4. SUL TANA JUTE MILL	22
5. M.M. JUTE MILL	22
6. ANOWARA JUTE MILL	29
7. SHAKUNDA P.S.	38
8. S.K.M. JUTE MILL	34
9. R.R. JUTE MILL	32
10. R.R. TEXTILE MILL	30
11. GOLFRABABIB	28
12. CHITTAGONG CHEMICAL CO.	26
13. HAZIRHAT	32
14. FATUKHARI	35
15. AZADGAZAR	30
16. RAJAN P.B.S.	28
17. RANGUNIA B.I.I.	30
18. KARNAPHULI PAPER MILL	30
19. KARNAPHULI FRAYON MILL	28
20. KAPTAI SHELL PATRO. CORP.	24
21. ...	24
22. B.I.T. CTG.	20
23. DALUM CORPORATION	20

Seminar Paper
11th Senior Staff Course
Part - II

<u>Sl.No.</u>	<u>Name</u>	<u>Title</u>
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2.	Dr. Nuruzzaman Chowdhury	✓ Educational Wastage at the College in Bangladesh.
3.	Nurul Huda	✓ Juvenile Delinquency Treatment Measures a comparative View.
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5.	M.A. Malek	Shipping Accidents in Inland Waterways of Bangladesh.
6.	Dr. A.K.M. Masood	Problems And Prospects of Joint Venture Industries In Bangladesh.
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8.	Abdur Rahim	Bangladesh Railway operation: Its Problems and Challenges.



28 JUN 1988

Bangladesh Public Administration Training Centre
Savar, Dhaka

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SHIPPING ACCIDENTS IN INLAND WATERWAYS OF BANGLADESH

BY

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A Seminar Paper Submitted to BPATC in Partial Fulfilment of Successful completion of
the 11th Senior Staff Course held during July 15, 1990---September 24, 1990

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disasters
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- Appendix-8(a)-8(c) Comparison---Roads, Rail and Inland Water
Transport Sectors

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1. INTRODUCTION

1.0 Background

Bangladesh is a riverine country having several major rivers with their tributaries and distributaries forming one of the largest network of waterways in the world. Through centuries, people of this part of the world used wooden boats for transportation of goods and passengers using wind, water current, tidal flow and human muscle as the motive power. With the passage of time and advancement of science and technology power operated mechanical means were introduced for driving water crafts. First power driven steamer was opened in 1832 by the East India Company in the rivers of Bengal. This mode of transportation did not lose its dominant role even after introduction of railway in 1862 and development of road communication system.

Today, there are 6370 (of which 2465 are passenger vessels),¹ water crafts registered for inland and coastal transport. Apart from this, there is an estimated number of 7,000 unregistered power driven vessels plying in the inland waters of Bangladesh. Lengths of navigable river routes in monsoon period and dry season are 5896 and 3793 kilometres respectively.² 30% of goods³ and 32% of passengers of the country move by inland waterways.

So long the geophysical features of Bangladesh remains unaltered, inland waterways will continue to be the traditional lifeline in her national transportation system.

Source: 1. Registrar of Inland Ships
2. Bangladesh Inland Water Transport Authority (BIWTA)
3. Intermodal Transport Study-1985

1.1 Purpose of Study

Fatal shipping accidents in the inland waterways of Bangladesh involving loss of life and property has almost become a regular affair. This is inspite of the fact that the world has advanced tremendously in education, technology, human skill and managerial efficiency. This paradoxical situation for Bangladesh has necessitated an indepth study for conceptualizing of issues relating to inland ship operation and thereby suggest means to strengthen the institutional capability to promote safety.

1.2 Scope of Study

Bangladesh being a maritime and also a riverine country the term "shipping" covers a considerable area of administrative and operational activities. Her ocean-going ships sail in international waters round the globe, bay crossing vessels ply between southern and south-east coast through the Bay of Bengal fishing vessels operate in the bay and power driven small cargo ships and passenger launches ply in the river routes.

This paper exclusively deals with the safety aspects of the last category i.e. inland ships. Although shipping accidents in this sector involve all types of inland crafts, particular emphasis will be laid on passenger launch disaster which is the major issue of concern for all connected with shipping.

1.3 Methodology

The study is based on the following methods:-

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1.3.1 Analysis of various accidents

1.3.2 Study of the Inland shipping Ordinance, 1976
and proposed Bangladesh Inland Water
Transport Masterplan

1.3.3 Study of the official records of the
Department of shipping relating to shipping
casualties enquiry, findings and trial, carried
out by the Marine Court in the Department of
Shipping.

1.3.4 Discussing the problems with the concerned
officials of the Department of shipping,
Bangladesh Inland Water Transport Authority
and Bangladesh Inland Water Transport
Corporation.

1.3.5 Interviewing office bearers of Inland Ship-
owners Association, a number of inland ship
masters and engine operators.

1.3.6 Discussing with inland ship designers,
builders and personnel of ship maintenance
yards.

1.3.7 Study of the related books, journals, papers
and reports of national and international
experts.

1.4 Limitation of the Study

1.4.0 Factors promoting shipping safety involve advanced technology. But in this paper effort has been made to present the issues in a commonly understandable terms. Also, effort has been made to project reliable data. In making suggestions for remedial measures socio-economic situation of the country has been taken into consideration.

SHIPPING SAFETY ADMINISTRATION-----DEPTT. OF SHIPPING

2.0 The immediate responsibility of safety administration of all shipping including that of Inland Waterways rests with the Department of shipping headed by a Director General under the Ministry of Shipping. The related Bangladesh national legislation regarding inland shipping is the Inland shipping Ordinance 1976 which is a consolidated and updated version of General Clauses Act, 1897 and the Inland Mechanically Propelled Vessels Act, 1917.

2.1 In respect of inland shipping safety administration the Department is marginally assisted by Bangladesh Inland Water Transport Authority (BIWTA), which while being an autonomous body for performing other statutory functions e.g. providing port and route facilities to inland ships.

2.2 It has earlier been mentioned that Shipping covers ocean-going, bay crossing, fishing and inland vessels and the Department of Shipping is responsible for administration of national legislations and various international conventions in these areas. The organogram of the Department with its sub-ordinate offices is shown in Appendix-2 while the personnel directly responsible for inland shipping safety are shown by * in the organogram of the Head Office in Appendix-3. .

2.3 In order to make an inland vessel riverworthy for operating safely, following are the procedures:-

2.3.1 Approval of Design and Plan

BIWTA is empowered by the government for the purpose of the design and construction plan of an inland ship. The unit within BIWTA entrusted with this job consists of naval architects headed by the Chief Marine Engineer. The unit examines that the design and plan conform to the prescribed specifications and standard.

2.3.2 Supervision During Construction

Although it is the responsibility of the owner to build his craft according to the approved design, the government after ML SAMYA disaster in 1986, constituted an unit of naval architects

to ensure by supervision that the govt. recognised builders follow the construction rules of scantlings, quality of materials, strength of the hull and structure.

2.3.3 Experiment on Completion of Construction

In order to ensure stability, particularly that for a passenger vessel the same unit of Naval Architects are responsible for conducting inclining experiment, rolling experiment, etc.

2.3.4 First Trial of a ship

This is carried out after a vessel is launched in water. The vessel is operated in navigable water for a considerable number of hours to observe its navigational suitability and performance of machineries while the vessel is underway.

2.3.5 Survey and Registration

An inland ship whether newly built in the country or acquired from abroad, is registered with the Department of Shipping before it is allowed to ply. For this purpose, the Department's surveyor, after initial survey is to be satisfied about its safe construction, strength of the hull, structure, watertightness of enclosed spaces, weathertightness of accommodation, navigational and propulsion

equipment, emergency, fire fighting and life saving appliances.

2.3.6 Annual Survey

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In order to ensure that a vessel maintains its standard of safety throughout her life survey is carried out after certain intervals of time, usually after every one year in case of power driven inland vessels. The Department's surveyor examines all the areas as in case of first survey before registration.

2.3.7 Manning of Inland Ships

In order to be allowed to proceed on voyage an inland ship must be manned with competent operators. The Master and the Engine Operator must have requisite certificate of competency granted by the Department of Shipping. Depending on the size of ship and length of the route a minimum number of personnel must be employed on board for safe running of the vessel.

2.3.8 Afloat Inspection

For the purpose of overseeing that all registered vessels comply with provisions of the Ordinance junior officers designated as inspectors posted in 7 major river ports check through unscheduled inspections vessel's various

documents including survey and registration certificates, certificate of competency of Master and engine operators, carriage of dangerous goods as well as overloading. Offences are brought in writing to the notice of the Marine Court whereupon the court takes cognizance of the same.

2.3.9 Shipping Casualty Report

Accidents causing loss of life, material damage or total loss of the ship, are reported and enquired in the procedure as laid down in the Ordinance. Person or persons found contravening any provision of the Ordinance are tried by court.

2.3.10 Marine Court

This special court consisting of a First Class Magistrate is housed in the Department of Shipping. The Magistrate assisted by assessors conversant with ship operation conducts the trial of offenders under Ordinance provisions.

The Magistrate and two other Marine Safety officers are empowered to hold unscheduled Mobile courts in Inland Water Routes.

3. ROLE OF BIWTA IN INLAND SHIP OPERATION

Apart from being responsible for design and plan approval, BIWTA carries out river conservancy works for navigational purpose and provides aids for navigation including marks, buoys, lights, etc. The authority draws out programme for dredging navigable waterways and removes wrecks and obstructions from channels.

4. SHIPPING ACCIDENTS AND THEIR CAUSES

4.0 A critical analysis of inland ship operation problems shall show that there have been numerous passenger launch disasters in the inland waterways of Bangladesh taking heavy toll of life and property. An account of death toll recorded by the Department of Shipping shows that 824 people were killed (please see figure in Appendix-3d.) during the year 1980-1988.

4.1 Disasters of M.V. Atlas Star and M.V. Samia

4.1.0. M.V. Atlas Star capsized in Munshigonj Launchghat on 20-4-86 killing 111 people. Following this disaster nearly after one month's time, M.V. Samia capsized on 25-5-86 in the river Meghna near Moulovir Hat in Barisal. According to the official toll 300 lives were lost in this disaster. These two

accidents caused concern both in the public and official circles. Enquiry Committee was promptly formed to find the cause of M.V. Samia accident. It was revealed that the vessel had a passenger capacity of 385, whereas the number of passengers at the time of disaster was 700. The Master defied the storm warning and failed to take decision in crisis. Moreover, the construction of the vessel was faulty.

4.1.1 In order to determine various causes of accident the Appendix-5 which is the official enquiry result of accidents from 1984-88, may be analysed. Referring to the figure in Appendix-6, percentage of causes underlying these accidents may be seen.

4.1.2 Overloading---the Main Cause of Accidents

It is evident that the main cause of passenger launch disasters is overloading. Out of total 56 accidents from 1984-1988 overloading was involved in 30 cases. Overloading in most of the cases is done wilfully by the Master or the owner to have more freight. Passengers embark either by ignorance of the consequence or finding no alternative means of transportation and thus taking risk on life. In some occasions

particularly during Eid festivals the situation becomes worse when it is very hard to resist overloading.

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4.1.3

Personal baggage of the passengers and also often other commodities are placed at random on the main deck. In an overcrowded situation when no space is available in the lower deck the passengers with their baggages move up the roof of the launch and thus make the top heavy reducing vessel's stability.

4.1.4

In situations like adverse weather, fire, etc. passengers rush up the roof putting the vessel in a condition as stated above. Moreover, in these situations passengers rush about in panic. Running in a body from one side of the vessel to the other side frantically for safety induces the vessel to roll to and fro violently. In such a situation water may enter the vessel causing free surface effect and ultimate capsizing under external force of wind or wave.

4.1.5.

Other causes of Shipping Accidents

These may be enumerated as collision, negligence of the Master, plying vessels without Master, lack of adequate navigational

and life saving appliances, grounding, fire, defective ship structure, etc. From the figure in Appendix-6 it is also evident that negligence of Master and plying without Master are other major causes. These reflect that the human element is a great source of danger---accidents do not just take place, they are caused.

It is now quite clear that the ship disasters can not very truly be attributed to technical faults like design or structural failure; the problems are in fact more of socio-economic and incompetent ship handling in nature.

5. EFFORTS FOR REMEDIAL MEASURES AND RECOMMENDATIONS FOR FURTHER IMPROVEMENT.

5.0 For the last one and half decade there have been contemplations on the issue. Technologists and administrators have suggested various remedial measures.

5.1 Ship Design Criteria

5.1.1 Crash Programme Passenger Launch

Effective remedial measures against overloading is rather a long term process.

Source:4. BIWTA

Keeping this in view, attempts were made to introduce 38 passenger vessels of 160 capacity each under a government programme commonly known as crash programme availing design and consultancy service of a Dutch Firm in 1978. A good number of vessels were constructed and put in service. This type of vessels had the advantage that even if the roof was overloaded by 100% passenger capacity the vessel would not capsize.

Unfortunately the project did not succeed as the operation of the vessels was not economically viable. As a result the owners converted them into cargo ships.

5.1.2 Shallow Draft Vessel

This design was suggested by D.H.V.
5 Consulting Engineers of the Netherlands to suit the changing needs arising from unduly increased river bed siltation and also to augment the stability factors in passenger vessels.

The project may be undertaken after careful evaluation of the economic viability.

Source: 5. IWT Masterplan, 1989

5.1.3

Catamaran Hulls and Buoyancy Tanks

This is a proposal from the naval architects of Bangladesh. In catamaran design two separate and reasonably narrow bodies of ships are joined by one common deck structure. It is argued that the design provides adequate stability and normal economic operation and, in fact, many advance countries operate this type of vessels.

Building of reserve buoyancy tanks in the form of watertight enclosures is another concept for increased ship stability. Provision of these tanks render the vessel practically unsinkable and floats even if the vessel capsizes.

The architects suggests for undertaking a project on experimental basis

5.2. Equipment

5.2.0 Adequate operational equipment on board and navigational aid in channels play an important role in keeping vessels safe. Present equipment facilities may be augmented in the following ways:-

Source: 6. Gazi M. Khalil,
Head, Deptt. of Naval Architecture &
Marine Engg., BUET.

5.2.1

General Service Pump

Water may enter a vessel as a result of underwater damage, excessive heeling or heavy water waves. Ingress of water, apart from causing extra load on the ship, subjects the vessel to be more unstable by free water surface effect.

According to rule, every ship carries a hand pump to scoop out water in emergency. In the opinion of a section of experts, one electrically operated pump should be installed on every passenger vessel.

5.2.2

Life Saving Appliance

It is a mandatory requirement for every owner to provide sufficient number of life saving appliances viz. lifebuoy, life jacket, etc. depending on the passenger capacity. At annual survey the Surveyor examines their availability and condition. But subsequent negligence by the owner or the Master defeats the purpose.

is to be increased and co-operation of owners and sense of responsibility of Masters are to be induced.

5.2.3 Navigation Aid Equipment in River Routes

Although the BIWTA provides these there is still need for strengthening the existing facilities.

5.3 Administrative Measures

Although there are capable seafaring professional officers in Bangladesh the Department of Shipping ran acute shortage of shipping experts until in the beginning of this year (1990). The reader of this paper and several other ship surveyors have joined the Department though some of the posts are still vacant. Government's active effort will further strengthen the Department and one may expect improvement in shipping safety in near future. In order to achieve the objectives of maximum possible safety following areas require more attention of the administration.

5.3.1 Design and Plan Approval

Since the safety of a ship largely depends on the design, and the Department of Shipping is accountable for that, the plan approval should be the task of the department. Existing Naval Architects from BIWTA should be transferred to the Department of Shipping. These architects together with Ship Surveyors shall perform the task of plan approval.

5.3.2 Ship Construction Supervision, Experiment and First Trial

Currently this task is carried out by a government nominated group of naval architects. Naval architects are, no doubt, experts in design but as they lack in experience of ship handling and supervision, often it is detected that the plan does not conform to the vessel built and also that the workmanship is poor. The job of supervision, experiment and survey for registration can best be done by a team of naval architects and marine engineers of the Department.

5.3.3 Manning

It is evident from the figure in Appendix-6 that 29.88% of accidents are attributable to negligence of Masters and plying without Masters.

This reflects the lack of adequate training and ineffective control by the owner.

Imparting training for adequate competency calls for strengthening the training and certification system in the country.

Introduction of refresher's course for ship operators after every five years shall ensure continued updating of knowledge in the face of advancing technology.

5.3.4

Inspection Afloat

As indicated in the Appendix-7 there are 6370 registered inland vessels of which 2465 are passenger launches. These touch at 33 major inland/coastal ports and about 1500 launch ghats. In view of the number of vessels, ports and launch-ghats existing staff of inspectors is inadequate. Number of inspectors should, therefore, be raised to about 20 to give a national coverage.

The inspectors are to be trained and given adequate support to play the vital role in preventing shipping accidents. Being posted in major ports they should be given authority to stop vessels trying to ply in overloaded conditions or defying storm warning or without having required number of crew. River police should be available to assist them.

5.3.5

Mobile Court

Number of unscheduled Mobile Courts constituting of a Marine Court Magistrate, inspector and a good number of police should be increased.

5.4 Other Measures

5.4.1 River Traffic Police Force

Currently, there are 42 River Police outposts and one Police Station in Bangladesh. Only six major ports have outposts within their areas. This is not adequate.

It has been learnt that there are plans to raise the River Police Stations to 25 and outpost to 65.

Administrative co-ordination between the Ministry of Shipping and Ministry of Home Affairs should be strengthened to avail the police force for implementing safety rules.

Source: 7. Lecture by IG Police to 11th Senior Staff Course Participants at BPATC on 14/8/90.

Radio and TV programmes can play important roles in creating public awareness. Posters warning the passengers of risk in travelling by overloaded launches should be displayed in conspicuous places of ports, launches, etc. Seminars participated by all concerned about inland shipping including shipowners and ship personnel should be held every year.

5.5 Development of Inland Shipping for Economy and Safety

5.5.0

In riverine Bangladesh inland water transport is a very important (in certain areas the only) mode for transporting both goods and passengers. A close look at the annual volume of passengers and goods movement will certainly reveal that inland water transport is inadequate to meet the country's requirement. Annual growth rate of passenger capacity is also low. From the informations provided in Appendix-7 it can be calculated that in the year 1989 the growth rate of passenger capacity in inland sector was 1.15% whereas annual average growth of passenger movement rate upto the year 1995 has been estimated to be 5%.

Source: 8. I.W.T.A Masterplan

5.5.1 This situation leads to tremendous pressure on the existing inadequate number of passenger crafts.

5.5.2 Development and maintenance of roads and railways in the geophysical condition of Bangladesh is very expensive. Inland water transport, on the contrary, has always been natural and cheap means of transportation. In spite of this fact, water transport sector has hitherto been neglected.

5.5.3 Referring to the tables 2,3, and 4 in Appendix-8 on comparative volume of passengers and cargo flow in roads, rail and IWT in the last fifteen years and national budgetary allocation for these three sectors it is clear that flow rate of passenger and cargo in IWT sector has been increasing, whereas budgetary allocation has been on the decline.

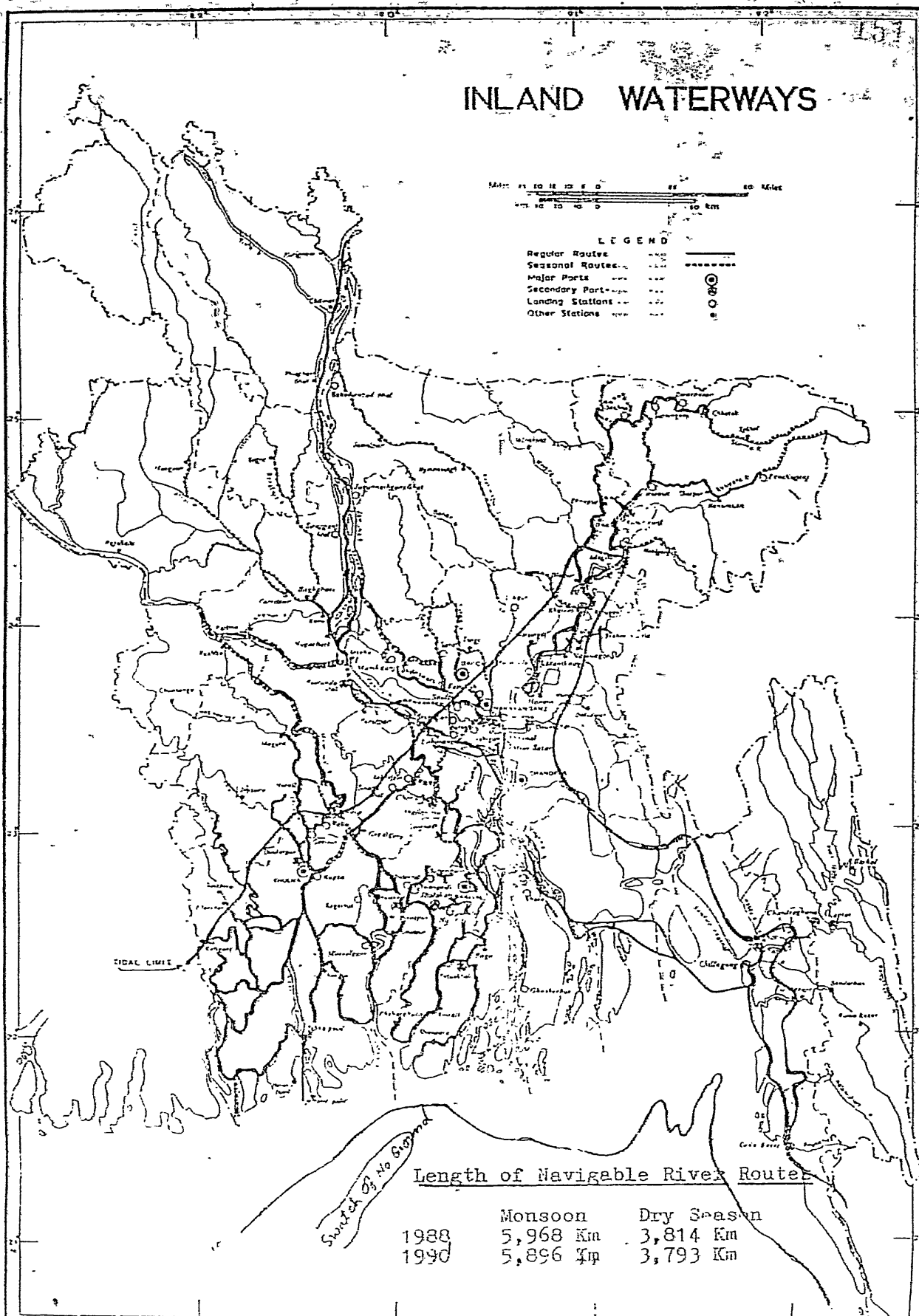
5.5.4 It is, therefore, imperative to realise the importance of IWT and undertake projects to develop the sector. This will, then, ease the current overpressure, meet continued transport requirement and help promote safety in inland shipping.

6. CONCLUSION

6.0. In the modern world adequate and efficient transportation system is an indicator of a country's development. If this is true, then loss of human lives and property due to shipping accidents stemming from transport inadequacy in our inland waterways is a matter of real concern. This alarming situation calls for attention from all quarters connected with shipping.

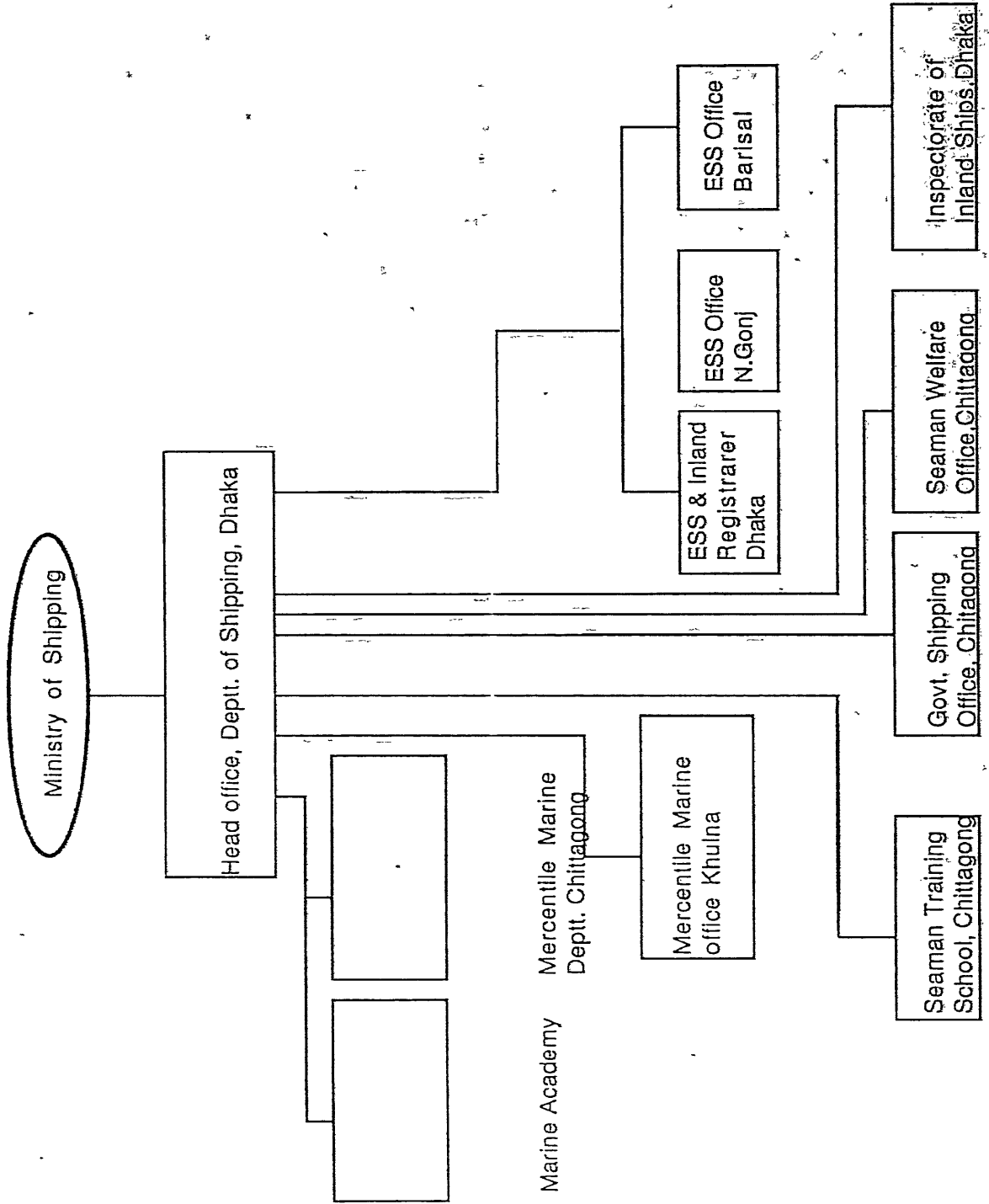
6.1. The owners and operators of inland ships must be aware of the needs and process of upholding safety. The regulating body responsible for safety administration must utilize its present capability and government policy is required for further strengthening the Department. The technologists and economists should give guideline for modernisation of shipping so that the national development planners can plan for this important sector and effective implementation can be carried out for adequacy, economy and safety.

INLAND WATERWAYS



Appendix-2

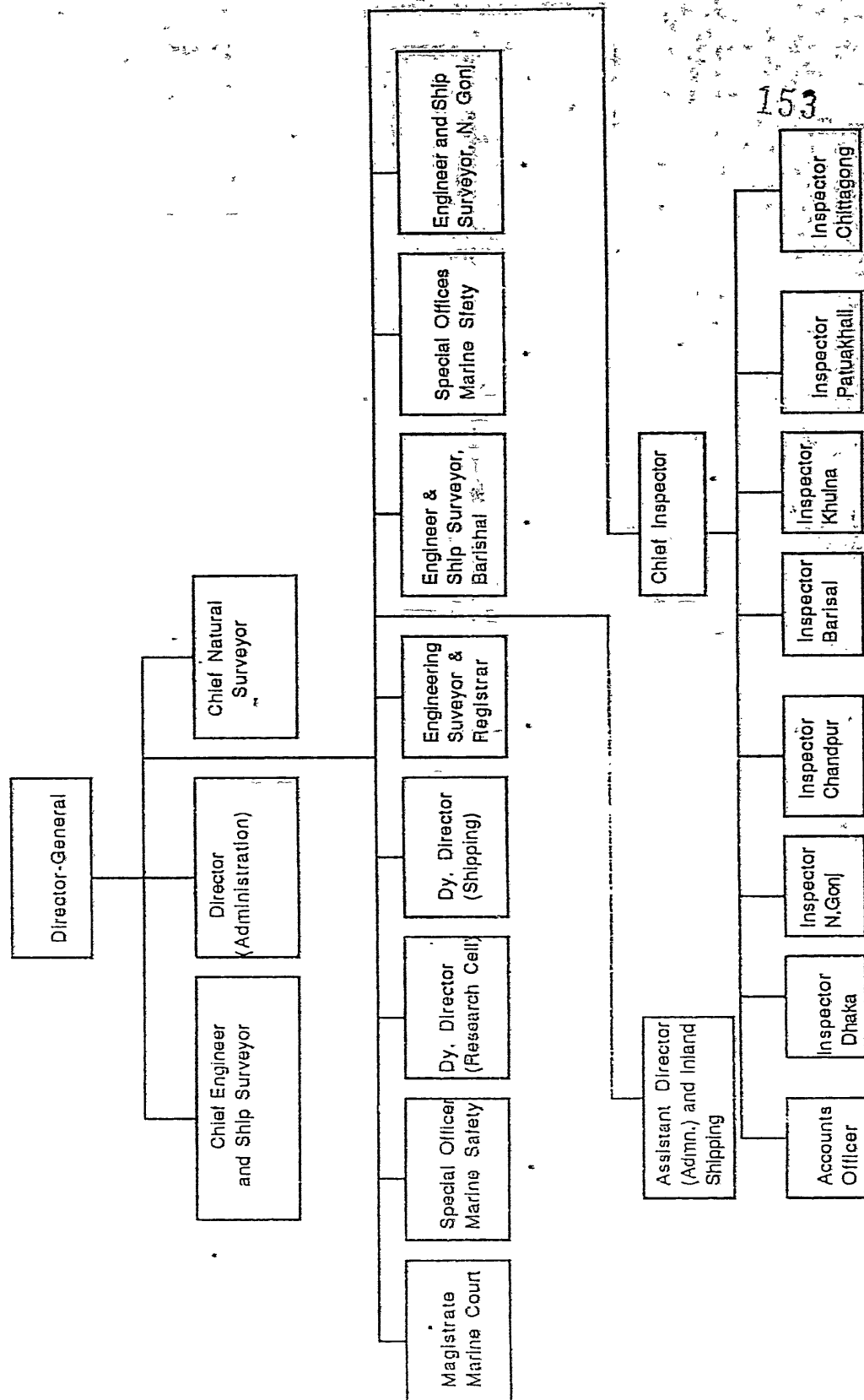
Organogram
Deptt. of Shipping and Its Sub-ordinate Offices



Organogram

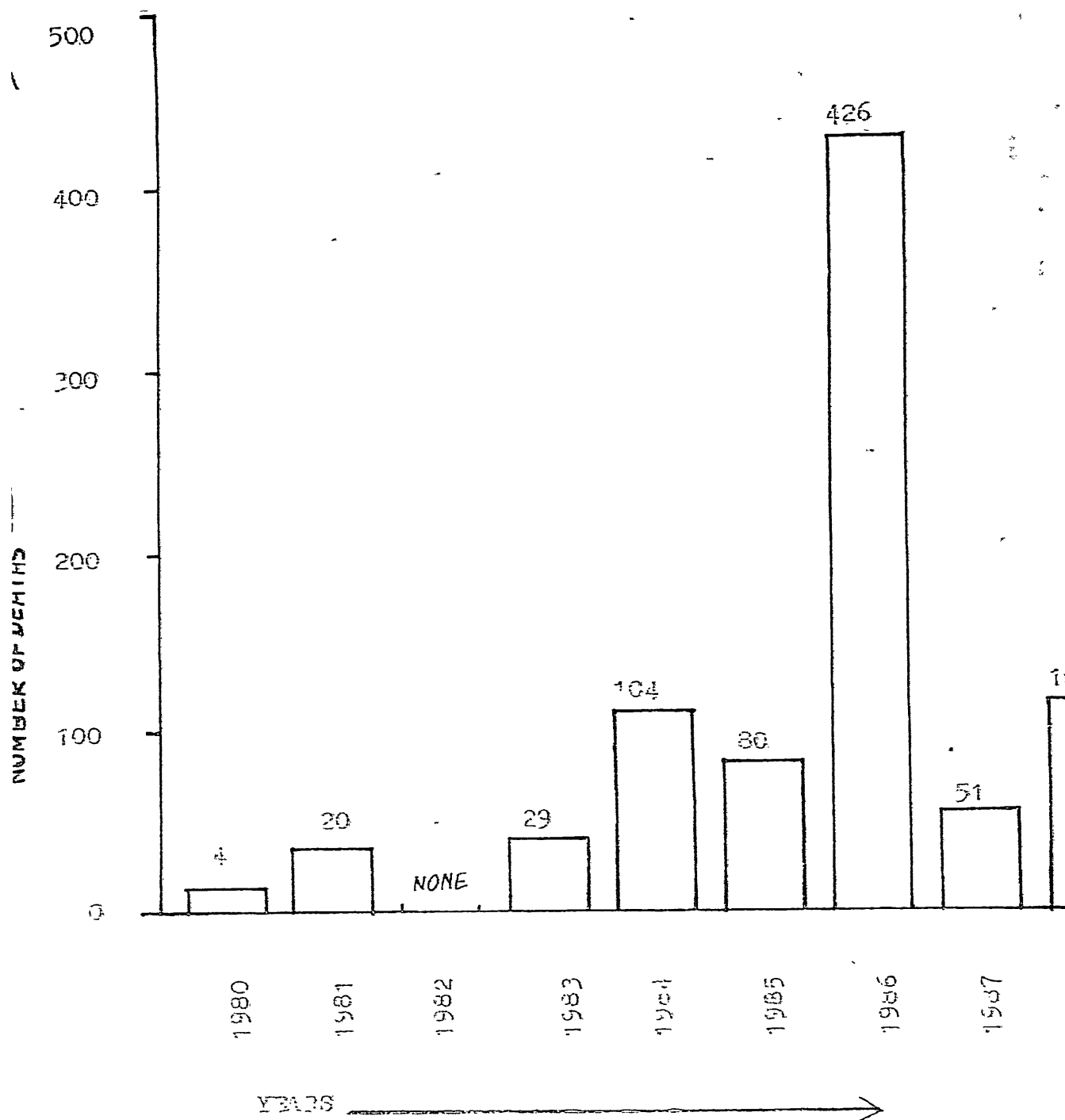
Department of Shipping

Ministry of Shipping



Appendix - 4

YEARWISE ACCOUNT OF DEATHS
IN INLAND SHIP DISASTERS (1980-88)



Appendix 5(a)
Records of Ship Accidents (1984-1988)
(Source: Deptt. of Shipping)

Sl. No	Date of Accident	Name of Launch	Place of Accident	Cause of Accident
1.	8/2/84	Mitupita	Benubari Gopalgong	Plying without Master
2.	18/2/84	ML Mirgong	Basantapur, sunabgonj	Overloading and plying without Master
3.	2/3/84	M.V. Neptune and M.L. Dagarkhali	Nayatana Netrokona	Negligence of Master and not using searchlight properly
4.	17/4/84	MV Shakil Ahmad Khan and M. L. Nihar	Paglaghat in Buriganga	Negligence of master
5.	6/5/84	F.V. Mozammel Hoq and Country Boat	Kutubdia Khal	Overloading and plying with out Master
6.	17/7/84	Trawler No. 45	Bhola	Plying with out side light and search light.
7.	15/10/85	M L Yangari	Tarakamighi Sirajung	For cible Embarkation
8.	30/10/84	M L Nar	Norsindi	Overloading
9.	20/11/84	M L Sihangpor	Charmonai Barisal	Overloading
10.	21/12/84	M L Milton	Kaukhahi Pirozpur	Overloading and Plying without Master
11.	21/12/84	M L Martin Express and M L Zillu-2	Mohongpur Chandpur	Negligence of Master
12.	3/1/85	M V Ghazi and M V Sylvi	Postagoda, Dhaka	Negligence of Master
13.	12/1/85	M V Red Rose and M V Gazi	Bhola	Negligence of Master and strong current
14.	23/3/85	M.V. Bogdola	Faizila, Dhaka	Overloading and cyclone
15.	24/3/85	M L Barshomara	Shairabazar	Big number of passenger's cr/ins to embark at a time

APPENDIX 5(B)

16.	24/3/85	M V Tezgram	Souripur, Chandpur	Overloading and adverse weather
17.	15/5/85	M V Seabridge	Motlob, Chandpur	-do-
18.	8/6/85	M L Salahuddin	Netrokana	Overloading
19.	4/7/85	M L Shahid	Khulna	Incorrect stowage
20.	31/7/85	M L Sohel of of Dhaka	Babri	Grounding
21.	8/8/85	M V Irawati and M V Quamri	Jhalkathi	Strong current and negligence of master
22.	5/10/85	Khaleda Exprees and F V Faviada	Chittagong	Plying without Master and rushing
23.	24/11/85	M V Lovabik and M V Surahi	Meghna near Chandpur	Negligence of Master and grounding
24.	31/3/86	M L Sabiha	Sarail, Ghazipur	Overloading
25.	20/4/86	M V Atlas Star	Munshigonj	Overloading and adverse weather
26.	23/4/86	Ferry Shahjalul	Aricha	Fire
27.	23/4/86	M L Shafiq	Kaligonj	Overloading and Plying without Master
28.	25/5/86	M V Samra	Meghna near Mouloviz Hat in Barisal	Overloading and adverse weather
29.	27/7/86	M L Bzili	Arichaghat	Grounding
30.	31/7/86	M L Jabeda	Anwara, Chittagong	Collision
31.	15/8/86	Country Boat	Chilmari	Overloading, plying without Master and defective body of the boat
32.	15/8/86	M L Suzon express	Porsha, Surma-Junga river	Overloading

Appendix 5(c)

33.	13/9/86	M L Karim	Kalakhar river	Forcible embarkation
34.	9/10/86	M L Poisur	Tularampur Narail	Overloading and plying without Master
35.	23/1/87	M V Faruq and M L Hira	Rupgonj	Overloading and plying without Master
36.	21/6/87	M L Farhad	Sherpu	Overloading and strong current
37.	23/8/87	M L Srabani	Postagola Dhaka	Engine malfunction and strong current
38.	23/8/87	M L Selim	Sadarghat, Dhaka	Overloading, strong current and plying without Master
39.	11/9/87	Power driven country boat	Kali river near Shairab	Overloading and fire in engine
40.	13/9/87	-do-	Mithamon	Overloading and Plying without Master
41.	23/9/87	-do-	Tarag river near Tangi	Collapse of weak roof
42.	15/10/87	M L Daina	Sadan Marayanganj	Overloading
43.	26/10/87	M V Nachelal	Near Aricha	Overloading and crack in launch bottom
44.	28/11/87	M L ghazi Faruque	Near Aricha	Negligence of Master
45.	28/12/87	M L Sima	Patuakhali	Fire in Engine
46.	4/1/88	M L Eumpa	Near Aricha	Overloading and Weak launch body
47.	27/2/88	M L Meghna	Shandaria	Overloading
48.	11/6/88	Trawler	Shikabaha, Chittagong	Overloading
49.	14/6/88	Mayurpankhi	Near Aricha	Overloading and Plying without Master
50.	12/6/88	F V Sara Aulia	Shikabaha, Chittagong	Overloading and plying without Master

Appendix 5(c)

51.	17/5/88	F V Kamal	Mughna near nonpura	Overloading
52.	19/9/88	F V Palashpuri	Lauhajang	Adverse weather
53.	29/7/88	M V Kajal and country boat	Dhuh River in Netrokona	Negligence of Master
54.	16/10/88	M V Prafulla and MV Farzana	Mongla	Negligence of Master
55.	25/10/88	M L Sonali	Mehdigonj Barisal	Overloading
55.	27/12/88	M V Hasul	Chales-shari river	Negligence of Master

Source-Deptt. of Shipping

Appendix- 5(d)

Table - I

Number of accidents, death toll and causes (1984-1988).

Most of the accidents involve more than the causes. Causes in 58 accidents have been singled out, numbers put together and shown separately.

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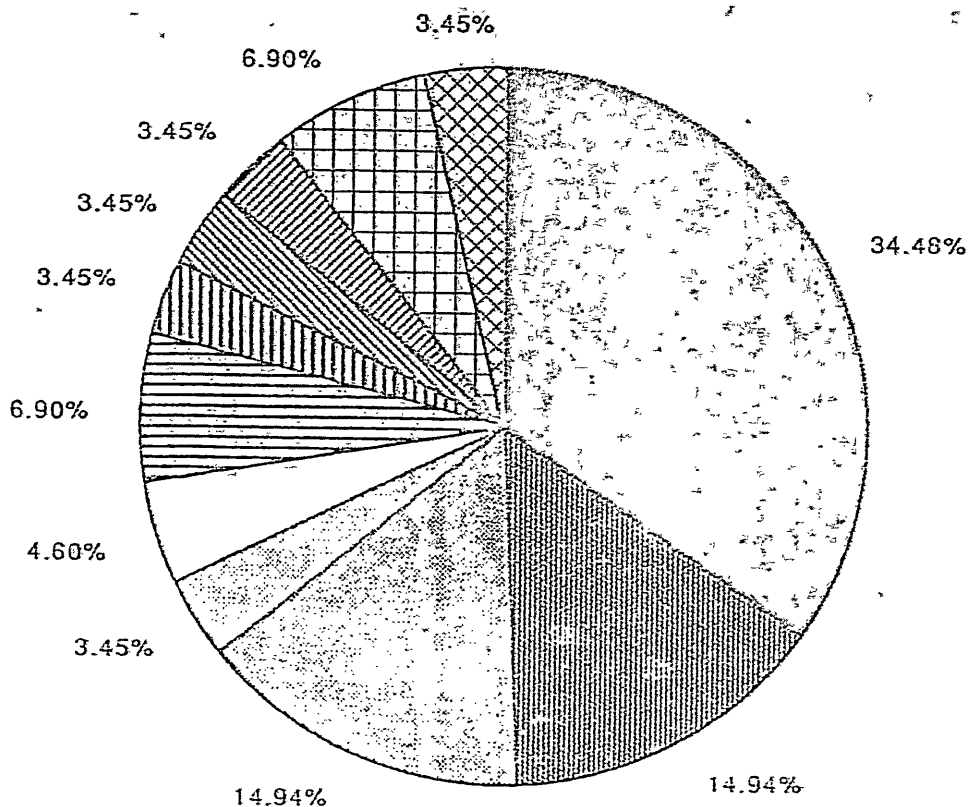
1.	Year	1984	1985	1986	1987	1988	Total
2.	Number of Accidents	11	12	11	11	11	56
3.	Number of deaths	104	82	425	51	108	771
4.	Collision	-	-	1	-	3	4
5.	Overloading by passenger/ Cargo	5	4	7	7	7	30
6.	Negligence of Master	3	5	1	1	3	13
7.	Flying without Master	4	1	3	3	2	13
8.	Insufficient Equipment	2	-	-	1	-	3
9.	Grounding	1	2	1	-	-	4
10.	Adverse weather	-	3	2	-	1	6
11.	Strong water current	-	2	-	1	-	3
12.	Defective Structure	-	-	1	2	-	3
13.	Fire	-	-	1	2	-	3
14.	Forcible Embarkation	1	2	1	1	1	6
15.	Other Causes	-	-	-	2	1	3

Note: Please see diagram Appendix-5.

APPENDIX- 6

CAUSES (IN P.C.) OF INLAND SHIP ACCIDENTS

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- 34.48% Overloading
- 14.94% Negligence of Master
- 14.94% Plying Without Master
- 3.45% Insufficient Equipment
- 4.60% Grounding
- 6.90% Adverse Weather
- 3.45% Strong Water Current
- 3.45% Defective Structure
- 3.45% Fire
- 6.90% Forcible Embarkation
- 3.45% Collision

Appendix-7

Account of Inland Ships Registered under ISO-76

A. As on November-1988

1.	Passenger Launches (Large)	Number	Capacity
a)	B.I.W.T.C	16	6,008 Person
b)	Private Ownership	76	33,655 Person
	Total	92	39,663 Person
2.	Passenger Launches (Small)	2345	2,36,479 Person
	Grand Total	2437	2,76,142 Person
3.	Ferries		2,207 Prs
a)	BIWTC	17	
b)	R&H Deptt.	35	
	Total	52	
4.	Oil Tanker		2000480 Cft
a)	BIWTC	6	141047 Cft
b)	Private	11	341527 Cf
	Total	17	
5.	Tugs.		
a)	BIWTC	16	
b)	Private	50	
	Total	66	
6.	Self Propelled Cargo Vessl.		
a)	Over 100(Cft.) Capacity	1097	7077860 Cf
b)	Less than 100 (Cft.) Capacity	303	5124 Cf
	Total	1400	7082984 Cf
7.	Dumbarge	1635	22005311 Cf
8.	Fishing Boats	150	750000 Cf

B. Expansion of Passenger Fleet Since 1984

1984	34
1985	35
1986	22
1987	9
1988	20
1989	28

C. Total Number of Vessels as on August 1990

1.	Passenger Launches	2465
2.	All types of Inland Vessels	6370

Source: Deptt. of Shipping

Table-2

Comparative Volume of Passengers Travelled by Roads, Rail and Inland Water Transport

(Passengers in crores.)

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Year	Roads	Rail	IWT	Total
1975-76	9.31 (33%)	10.24 (38%)	7.75 (28%)	27.30 (100%)
1976-77	9.95 (35%)	10.51 (36%)	8.29 (29%)	28.75 (100%)
1977-78	10.63 (35%)	10.78 (36%)	8.85 (29%)	30.26 (100%)
1978-79	11.36 (36%)	11.05 (35%)	9.45 (29%)	31.87 (100%)
1979-80	12.13 (36%)	11.34 (34%)	9.80 (30%)	33.27 (100%)
1980-81	12.96 (37%)	11.63 (33%)	10.29 (30%)	34.88 (100%)
1981-82	13.91 (37%)	11.93 (31%)	12.08 (32%)	37.92 (100%)
1982-83	14.92 (37%)	12.23 (31%)	12.74 (32%)	39.89 (100%)
1983-84	16.01 (38%)	12.55 (30%)	13.40 (32%)	41.96 (100%)
1984-85	17.18 (38%)	13.25 (30%)	14.10 (32%)	44.53 (100%)

Source: Intermodal Transport Study-1985

Table-3

Comparative Volume of Cargo Transported by Roads, Rail and
Inland Water Transport

(Goods in Lakh Tons)

Year	Roads	Rail	IWT	Total
1976-77	80.60 (52%)	31.60 (20%)	42.60 (28%)	154.80 (100%)
1977-78	87.60 (51%)	35.70 (21%)	48.30 (28%)	171.60 (100%)
1978-79	95.20 (54%)	32.40 (18%)	48.90 (28%)	176.50 (100%)
1979-80	103.50 (56%)	31.80 (17%)	49.80 (27%)	185.10 (100%)
1980-81	112.40 (59%)	29.80 (16%)	49.00 (25%)	191.20 (100%)
1981-82	119.80 (58%)	32.30 (16%)	53.60 (26%)	205.70 (100%)
1982-83	127.60 (60%)	30.00 (14%)	54.70 (26%)	212.30 (100%)
1983-84	135.90 (61%)	29.40 (14%)	55.80 (25%)	221.10 (100%)
1984-85	144.70 (63%)	28.20 (12%)	57.30 (25%)	230.20 (100%)

Source: Intermodal Transport Study - 1985

Table-4

Budgetary Allocation for Roads, Rail and
IWT from 1978-1990.

Planning year	Taka allocation in crores			
	Roads	Rail	IWT	Total
1973-78	149.00 (43%)	126.00 (36%)	74.00 (21%)	349.00 (100%)
1978-80	168.00 (42%)	123.00 (31%)	109.00 (12%)	400.00 (100%)
1980-85	593.00 (45%)	553.00 (43%)	160.00 (12%)	1306.00 (100%)
1985-90	780.00 (45%)	836.00 (48%)	122.00 (7%)	1738.00 (100%)

Source : Two and Five Year Plans of Bangladesh

BANGLADESH PUBLIC ADMINISTRATION TRAINING CENTRE
SAVAR, DHAKA

PROBLEMS AND PROSPECTS OF JOINT VENTURE INDUSTRIES
IN BANGLADESH

BY

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This paper has been prepared in partial fulfilment
of the requirements for the Eleventh Senior Staff
Course held at BPATC, during July - October 1990.

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Annexure I - Foreign Private Investment(Promotion
and Protection) Act, 1980

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in selected developing countries

Annexure III - Joint Venture Industries (excluding EPZ) in
production and implementation (1982-90).

Bibliography -

P R E F A C E

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The Central Theme of the Eleventh Senior Staff Course is "External Resources Mobilization". There may be different ways and means to obtain foreign resources for infusion in economic activities of a country. Among them, investment in different sectors of economic activities, particularly in the Industries Sector, is considered the best form as it calls for sincere and genuine efforts from the investors to get a good return from their investment. In this study, a humble endeavour has been made for a brief review and analysis of the industrial investment in general and Industrial Joint Ventures with foreign parties in particular. The study reviewed the back-ground and introduction of Joint Venture in the country, progress so far made in setting up Joint Venture Industries and their contribution to project the problems and prospects of Joint Venture Industries in Bangladesh. Finally, some recommendations have been made for future course of action.

Problems and Prospects of Joint Venture Industries in Bangladesh

1.0 Introduction & Background:

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Introduction:

Bangladesh has traditionally an agro-based economy. The present government is, however, laying stress on industrialisation keeping in view the limitation/constraints & realities prevailing in the country/which are summarised below :

- a) Agrarian land can not further cope with the generation of employment, growth in production of food grains.
- b) Employment generation must be expanded in non-farming activities.
- c) Distribution of income to raise the purchasing capacity of general mass.
- d) Expansion of domestic market with particular emphasis on consumer goods.
- e) Agro-based and agro-related industry to be boosted for sustained agricultural growth and for industrialisation.

The sectoral Distribution of the GDP has relevance in the discussion on industry. In the following exhibit it is furnished.

Exhibit - 1
Distribution of GDP(at 1985/86 constant factor).

<u>Sector</u>	<u>1985/86</u>	<u>1986/87</u>	<u>1987/88</u>
Agriculture	50.5%	49.9%	48.5%
Industries	10.00%	10.5%	10.9%
Construction	2.4%	2.5%	2.6%
Others	37.1%	37.1%	38.00%
Total	100%	100%	100%

It appears from the Exhibit-1, that the contribution of agricultural sector in G.D.P is declining progressively but nevertheless it is the highest contributor because of limited industrial structure in the country. The industrial sector has comparatively little impact in economy with only 11% of the G.D.P. This situation needs change with shifting emphasis on industrialisation to bring up its contribution to G.D.P (at least to 25% within 2000 A.D) for economic emancipation.

Background

After its independence in 1971, this country experience four plans viz, FFYP, Two year plan, SFYP and TFYP. The draft FFYP plan is going to be launched from September 1990. In each plan it is envisaged to shift the economy's bias towards industrialisation with a thrust towards Private Sector.

Private Sector Industrial investments witnessed a surge in mid-seventies and early-eighties. But, the investment operations have been rather sluggish under the Third Five Year Plan.

Industrial investment outlay in private sector during this period was envisaged at Taka 3200 cr. at constant real term prices of 1984-85, reflecting major emphasis on the expanded role of the private sector in Plan.

Actual private sector industrial investments over the first three years of the Third Plan are estimated by the Planning Commission at about Taka 7.75 billion and that too at current prices. When adjusted for inflation, the extent of real private industrial investment at 1984-85 prices will not be over Taka 6.99 billion, indicating realization of less than 21.84 per cent of the Third Plan investment target for the private sector.

During the Second Five Year Plan (1980-85), industrial investment at current prices totalled Taka 1124 crores. At constant 1979-80 prices such investments totalled Taka 813 crores which is 63.5% of the related Plan target. Private sector industrial investment sanctions during 1980-85 amounted to Taka 3386 crores at current prices while actual investments at Taka 1124 crores at current prices represented one third of the sanctions. Private sector industrial investments during 1975-80 stood at Taka 1786 crores at current prices.

One interesting feature of the private sector investment activity during the first three years of the Third Five Year Plan, as revealed in the interim report of the Planning Commission, was the clear preference of the private investors in trading and other service sector operations.

While achievements in the agriculture, manufacturing, and physical planning and housing sectors were merely 31.41%, 21.84% and 30.24% respectively, the private investment in trade and other services registered an overwhelming 148.10% achievement. Clearly the private investors were reluctant to tie up their capital in long term investments in industry specially when they had alternate and more lucrative avenues of investment in trading where capital tie up period was low, return was quick and high liquidities could be resorted to at short notices and worries about consequences arising out of labour problems, law and order situation or hartals and other usual hassles relating to operations of industrial enterprises were practically non-existent.

It may be observed that despite Govt. efforts, the industry Sector could not achieve the desired objective due to shyness of entrepreneurs in coming up with new ventures. It may be viewed that the lack of domestic saving and domestic market are the two major factors for which Industry could not flourish.

The investment programme of Bangladesh is highly dependent on foreign aid. Domestic saving rate is very low and saving capability as an extremely poor country is very limited. Flow of external assistance into Bangladesh is currently at a level of about 2 billion dollars per annum. Per capita receipt of aid is quite low, about \$13.00. The country generally does not borrow money on commercial terms because of its low level of exports and slow growth of export earnings. The debt burden is quite heavy even though most of the funds received are on concessionary terms. This situation of the country's financial position warrants that other avenues for financing the industrialisation should be explored.

1.1 Objective

The central theme of the 11th Senior Staff course is "External Resource Mobilization". There may be different ways and means to obtain foreign resources for infusion in economic activities of a country. Among them, investment in different sectors of economic activities is considered the best form as it calls for sincere & genuine efforts from the investor to get a good return as investment. In this study Industrial investment in general and Industrial joint ventures with foreign parties in particular has been taken as the subject matter for study. The study reviewed the background and introduction of Joint Venture (JV) in the country, progress so far made in setting up JV's & their contribution and some recommendation for future course of action.

1.2 Methodology, scope & limitation

Available published documents were consulted and analysed. In addition to this, first hand information of established joint venture foreign investors were obtained through discussion. The author in his

official capacity also had some relevant information and experiences. In recent past the author had a discussion with Secretary Ministry of Industry and Member of Board of Investment.

The concept of Joint venture investment may take any of the following forms :-

- (a) Local Private + Foreign
- (b) Local Private + Public
- (c) Local Private + Public + Foreign
- (d) Public Sector + Foreign.

Our country is plagued with shortage of capital, limited level of technology and lack of adequate management ability among the local entrepreneurs. In view of this situation prevailing in the Industries Sector, joint ventures with foreign parties are the most desired JV's. The scope of the study has, therefore, been restricted to joint ventures with foreign investment.

It should, however, be noted that JV's in the recent past are being set up in noticeable numbers. As such all the desired data like employment, turnover, financial performance etc could not be collected and as such a comprehensive analysis could not be attempted. The limited time for the study had also been a restraining factor.

2.0 Industrial Scenario

2.1 Overview of Industrial Sector

Bangladesh economy is mixed in character. Agriculture, transport, housing and various services has been traditionally in the private sector and represent the bulk of the activities contributing to the national economy. Handloom, Sericulture, Pottery and various handicrafts are the activities of private individual or group as vocations. The contribution of small scale industries to the G.D.P which was about 3.5% at the time of partition in 1947, but declined to 2.8% in 1969-70. At present it has risen to . . . Nationalisation of large industries after the independence did not alter this share of contribution in any significant way.

The era of Nationalisation of Industries in 1972, followed by the subsequent processes of disinvestment, partial denationalization of Jute and textile Mill (returned to the former Bangladeshi owners) and the opening up widely the scope of investment by Private Sector in all sectors of industries including mineral may be seen as economic & administrative necessity for collective development by both public sector & private sector.

To boost up the industrial activities different steps were taken after the independence of this country. In January 1973 private sector investment in industries was limited to Tk.2.5 million or Tk.3.5 million with ploughed back profit. It was increased in July 1974 to Tk.30.00 million and then to Tk.100.00 million in December 1975. It was completely opened up abolishing all ceiling for investment in September 1978. Investment proposal exceeding Tk.100.00 million then required the approval of the Executive Committee of the National Economic Council (ECNEC). The industrial policy in June, 1982 also did away with the ceiling but providing that investment proposal over Tk.150.00 million would require clearance of the ECNEC. Sub-sectors of industries out of bounds to private sector which numbered 15, reduced to 8 in 1975, was further reduced to 6 under the 1982 Industrial policy (Defence industries, electricals, transport, telecommunications, nuclear energy and mechanised forest extraction).

2.2 Industrial Policy 1986

Government of Bangladesh announced in July 1986 its Industrial Policy 1986, aimed at accelerating the pace of Industrialisation with new dimension and greater thrust to the private sector. The policy laid down 15 objectives as below :

- a) increase contribution of industrial sector to GDP and resource augmentation;
- b) effect growth of industries with increased emphasis on Private Sector participation;
- c) lay emphasis on small, cottage and handloom industries as a priority sector;
- d) encourage investment from "Assembly" to intermediate and basic manufacturing;
- e) limit role of the public sector to the establishment of strategic and heavy industries;
- f) promote agro-based and agro-supportive industries;
- g) ensure continual increase of production of essential consumer goods at competitive prices;
- h) create employment opportunities especially in the rural areas;
- i) promote efficient import-substituting, export-oriented and export-linkage industries;
- j) encourage geographical dispersal of industries;
- k) promote development of indigenous raw material technology based industry through research and adoption;
- l) support efforts to achieve self-sufficiency in clothing by 1990;
- m) encourage Foreign Investment in appropriate sectors and particularly in high technology, export-oriented and labour intensive industries;

- n) encourage Bangladeshi ventures abroad in areas having competitive advantage; and
- o) encourage tourism.

Correlation with the National Plan.

The Industrial Policy 1986 was in complete harmony with the TFYP carried out during 1985-90. In the Third Five Year Plan document, the policy reform that were taken in preceding years to facilitate private sector investment have been reiterated. Though the policy directions for private sector are not furnished in a concise form, these are reflected in different statements in the plan document. It is stated that the most significant policy reform took place in the field of industry in June, 1982 when the Govt. announced a new industrial policy (NIP). The NIP provided for the transfer of nationalized Jute and cotton textile mills to the local owners. In addition NIP expanded the scope of private investment to all industries. It is further stated in the TFYP that -

Consequent upon the shifts in economic policy effected during the last decade, private sector has come to play a leading role in Bangladesh economy inspite of various limitations and shortcomings. Taking the enervating effect of the general socio-economic environment into consideration it is felt that the private sector has a historic role to play in national economic development.

In order to encourage private investment, an important condition that the third plan will strive to ensure is to reduce direct interference with the economy to the minimum. It is further stated in the plan document that besides the opportunities of private investment provided under NIP, further provision has been made for direct foreign investment and Joint venture with equity participation. To achieve the intended private investment Govt. would play a catalytic role by providing basic support services such as electricity, gas, transport and Telecommunication. Govt. has also taken steps to promote financial institutions in the private sector, besides setting up industrial estates at Zilla levels and in prospective upazilla levels.

In the Fourth Five Year Plan document the policy direction for the private sector has been stated in a consolidated form, which is furnished below :- 170

- 1) Removal of bias against industrial investment relative to rent seeking activities. The Government would have to play a more positive role for discouraging rent seeking activities and encouraging genuine investment in industry.
- 2) Reduction of existing discrimination against export oriented industries in terms of tariff support.
- 3) Targetting of credit to poorer households in order to support their investments both in agriculture and small non-farm enterprises.
- 4) Improving the access of the poor but enterprising section of the population to the policy benefits by restructuring various aspects of policies such as licensing system, exchange rate policies, tariff policies, investment and credit policies, etc.
- 5) Reorganisation of existing institutions such as BSCIC, BKB, BRDB, etc. and setting up of new institutions such as small Farmers Bank/new credit lines etc. for supporting the growth of small private entrepreneurship and investment in different sectors.
- 6) Creation of an overall efficiency culture so that any effort towards promotion of private investment by rewarding the inefficient sector and penalizing the efficient sector is discouraged and technological innovation/adaptation is widely encouraged.
- 7) Private investment in the various sectors are so integrated that there is maximum forward and backward linkage effects and the domestic market expands constantly to encourage further investment in both productive sectors and infrastructure development.

- 8) Utilization of the opportunity of joint venture now available to Bangladesh for its large supply of its relatively cheap labour force and finally.
- 9) Reorganization of Bangladesh's production structure in future, particularly to take advantage of the expected shift in the world structure of production and demand in the face of acute competition among the developed countries.

All these policy directions enunciated in Industrial Policies & national plan documents since 1982 reflect the earnest desire of the Govt. in industrial development of the country through Private Sector and Joint ventures as the prime-mover.

2.3 Private Sectors Industrial Investment.

There is no comprehensive record on the investments made in private sector so far. In the field of "Manufacturing" (may be assumed as industry) private sector investment during Third Five Year Plan was Tk.1314 crores against Tk.3200 crores envisaged in the Plan.

The Third Plan envisaged a growth rate of 10.1 percent per annum for the industry sector. During the period, the sector attained an annual average rate of growth of 4.02 percent. However, production in most of the major items lagged behind the targets mainly due to depressed demand for manufacturing goods in home market as well as a low demand for jute goods in foreign market. However, due to introduction of the New Industrial Policy of 1982 and the Revised Policy of 1986, a number of changes and improvement was introduced in procedures and incentive structures to promote private investment in industry. As a result, non-traditional export industries viz, readymade garments, frozen food etc. have become important sources of industrial growth.

During the Second Plan period (1980-85), private sector industrial investment was Tk.1124 crores and during 1975-80 it stood at Tk.1786 crores.

From the private sector industrial investment during 1975 to 1990 as mentioned above it may be observed that the investment witnessed a surge in mid seventies and early eighties. But the investment operations have been rather sluggish during the Third Year Plan.

The share of Joint ventures in the private sector industrial investment is found to be quite significant. It is gathered that investment in joint ventures during 1982-90 was about Tk.1270 crores (including F.C Tk.560 crores). Corresponding private sector industrial investment during 1980-90 was Tk.2438 crores.

In respect of employment generation also, these joint ventures during 1982-90 generated about 20,000 employment as against total about 100,000 generated through private sector industrial investment.

3.0 Joint Venture Industry

3.1 Introduction

To establish any industrial unit the essential requirements are :-

- (a) Capital
- (b) Entrepreneurship
- (c) Access to technology.

Capital may be obtained from surplus resources of individual or group. In the context of Bangladesh the domestic saving is very meagre. To fill the gap, the mechanism may be foreign aid in the form of loan or grants or Foreign direct investment.

The legacy of Bangladesh may be traced out from Pakistan time. The people of the eastern part of the then Pakistan were primarily engaged in public service or small trading and the majority in agricultural activities. Moreover, most of the industries in this part were managed by few business families belonging to Western part. The new born Bangladesh was obviously lacking in entrepreneurship ⁱⁿ the field of industrial activities.

Most of the present generation were acquainted with Jute, Textile units in the eastern part of the then Pakistan, where the technology was simple and not sophisticated. With the advent of scientific researches, great changes have taken place in the field of industrial technology which are beyond the comprehension of the presently created business class. Access to the modern technology in Industry can be possible through appropriate partnership with foreign firm/entrepreneurs having the technical capability in the desired field.

The introduction of Joint venture in our industrial field (as well as in service sector also) has been made to meet the shortcomings and to supplement also in the three areas of capital, entrepreneurship and

technology mentioned above.

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The emerging entrepreneurs of Bangladesh with their trading background has entered export-oriented garment & other industries virtually from zero and has now consolidated their position. They are demonstrating their entrepreneurship and are now well poised for availing of opportunities of joint ventures in various fields.

3.2 Guarantees & incentives provided for foreign investment.

Encouragement of Joint venture undertaking by the Government of Peoples Republic of Bangladesh manifests through the remarkable statement recently made by Hon'ble President of the Republic to the foreign journalists which was as below :

"Basically our policy on foreign investment is to seek inflow of capital, modern management and technology to develop our indigenous resources, and to help to increase exports. We have taken legal, fiscal, financial and administrative measures to attract foreign investment. In order to generate the confidence of investors, Bangladesh has also become a member of the International Centre for Settlement of Investment Disputes (ICSID) of the World Bank."

Bangladesh compare very favourably with those of other neighbouring countries. The sanctioning procedure has been streamlined. National Council for Industrial Development (NCID), under the Chairmanship of the president of the country, provides sanction to foreign investment and Joint Venture projects. The processing time & procedure has been drastically shortened. Incentive package has been made generous and remittance facilities have been relaxed. Laws & regulation has been enacted to promote & protect foreign investment. The Foreign Private Investment (Promotion and Protection) Act, 1980 is furnished in Annex.-I.

To facilitate expeditious sanction and implementation of projects the government has recently established the Board of Investment (BOI) which started functioning from the 1st of January of 1989. The Board provides all assistance and services for newly sanctioned projects and existing industries in a package form under one roof.

FUNCTIONS OF THE BOARD OF INVESTMENT (BOI).

- a) Providing all kinds of facilities for rapid industrialisation
- b) Promotion of investment in industries.
- c) Approval and registration of industrial projects, wherever required.
- d) Creation of infrastructural facilities for industries.
- e) Providing work permit to expatriate personnel.
- f) Providing assistance in the financing of important new industries.
- g) Providing import facilities to the industrial units and determination of their import entitlement.
- h) Issuing clearance in respect of all matters relating to the Capital issue and sales of shares of a company registered under the provisions of the Companies Act.
- i) Approval of the terms and conditions of foreign private loan and Suppliers Credit.
- j) Approval of payment of Royalty, Technical know-how and Technical Assistance fees to a foreign national/organisation and
- k) Allotment of land in the industrial areas for industrial purpose.

In addition, the following services are rendered to the enterprises by the BOI by giving a time-limit to the concerned agencies.

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- a) Electricity, gas and water supply
- b) Sewerage connection 173
- c) All kinds of telecommunication
- d) Customs clearance for imported machinery, spares and raw materials.
- e) Clearance regarding environment pollution.
- f) All other facilities and services that may be required for speedy setting up of an industry.

PROCEDURE FOR ESTABLISHING AN INDUSTRIAL PROJECT.

No prior approval for establishing an industry with foreign investment is required if.

- The total project cost does not exceed Tk.100 million (US\$ 3.3 million approx).
- The foreign equity does not exceed 49% and
- The proposed industry does not fall within the purview of discouraged list.
- Joint venture projects not falling under the aforesaid conditions require approval of the Board of Investment.

There is no fixed ratio of equity between local and foreign investors.

Foreign equity to the extent of 100% is also allowed.

Applications in prescribed forms may be forwarded to the BOI directly or through any Bangladesh Mission abroad for consideration. Decisions on fully documented proposals are given expeditiously. BOI's approval of a project includes approval of all required facilities to implement the project.

Post investment services and facilities during the life of the project are also provided by the BOI

INVESTMENT GUARANTEE

Foreign Private Investment (Promotion & Protection) Act 1980, ensures legal protection to foreign investment in Bangladesh. Further, bilateral investment protection agreements have been signed by the government with several countries. Bangladesh is also member of Overseas Private Investment Corporation of America (OPIC), Multilateral Investment Guarantee Association (MIGA) and International Centre for settlement of Industrial Disputes (ICSID), World Bank.

REPATRIATION FACILITIES:

- Repatriation of capital invested including capital gains
- Remittance of all post-tax dividend on foreign capital
- Remittance of Royalty and Technical Fess.

FISCAL INCENTIVES

Tax-holiday for 5 years for Developed Areas, 7 years for less Developed Areas, 9 years for Least developed Areas and 12 years for the Special Economic Zone.

20% import duty on capital machinery for industries in Developed Areas, 7.5% duty for less Developed Areas and 2.5% for Least Developed Areas.

2.5% import on capital machinery for selective industries using 70% or more of indigenous raw materials irrespective of their location.

2.5% import duty on capital machinery for export oriented industries irrespective of their location.

Accelerated depreciation at the rate of 80% of actual cost of machinery or plant from the year the unit starts commercial production and 20% for the following year is allowed if the industry is located in a Developed Area. If the unit is set up in a less Developed Area the depreciation shall be 100%. Depreciation allowance can be carried forward if the unit sustains loss.

Exemption of tax on interest on foreign loans. Exemption of tax on Royalty. Technical know-how and Technical Assistance fees. Liberal investment allowance for tax assessment.

Relief from Double Taxation for foreign investors.

OTHER INCENTIVES

- Tariff protection up to 4 years to the deserving industries.
- Liberal debt equity ratio.
- Suppliers Credit under approved terms.
- Availability of long term credit facilities from industrial financing institutions.
- Income tax exemption to foreign technicians employed in approved industries for a period of 3 years.
- Remittance of 50% of the salary of foreign nationals.
- Remittance of saving from earnings, retirement benefits and personal assets of individuals on retirement/termination of service.
- Joint venture companies with capital up to Tk.10 million need not issue public shares. For those above this amount, it is also not required at the initial stage.

ADDITIONAL INCENTIVES TO EXPORTERS

- Loan upto 90% value of letter of Credit from commercial banks for export-oriented industries.
- Lower interest rate (presently 9%) on pre-shipment and packing credit.
- Income tax rebate upto 60% on export of non-traditional items.
- Export Credit Guarantee Scheme.

- For export-oriented industries and those located in a Least Developed Area the rate of interest will be one percent less than that charged for Development Areas.
- Rebate of 25% on excise duty on additional production if such unit produces more than 100% of sanctioned capacity.

MANPOWER CONDITIONS

Bangladesh offers a substantial manpower reserve-skilled, semi-skilled, unskilled, educated and otherwise. The availability of an inexpensive, trained and easily trainable labour force permit industrial production at a comparatively low cost.

SCOPE OF JOINT VENTURES

BOI welcomes joint venture projects involving Bangladeshi and foreign entrepreneurs on mutually beneficial terms and conditions, particularly in the following areas:

- Export-oriented industries.
- Hi-tech products which will either be efficient import substitute or export-oriented.
- Undertakings in which more a diversified use of indigenous natural resources are made and
- Existing public and private enterprises for increasing productivity and or improving quality of products.

COURTESY SERVICE

The BOI extends services for reception, hotel booking, transport and drawing up itinerary in accordance with the needs of the entrepreneurs visiting Bangladesh.

Basic guarantees to foreign entrepreneurs provided in other neighbouring countries are furnished in Annexure - TT.

3.3 Existing Joint Ventures.

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Introduction of mixed industrial sector was made with the announcement of industrial policy in 1975. Gradually the private sector investment including foreign investment started getting importance and it is manifested in the number of Joint Ventures set up during 1982-90 (some of these under implementation). In this period a total of 96 Nos. of Joint venture's with foreign participation were set up. Total investment in these 96 Joint ventures is Total Taka 1268 crores including F.C. Taka 708 crores.

These Joint ventures are varied in nature. However, broadly they may be grouped into Textile and Garments, Food and Fishing, Pharmaceuticals and Chemicals, Electronics, Leather and Leather products, Plastic Paper and the rest may be grouped as miscellaneous.

No of Joint ventures and Investment in these groups are furnished below :

Exhibit - II

Joint venture Industries in production/under implementation (1982-90).

Group	No. of JV's	Investment in Lac Taka		
		Local	Foreign	Total
Textile/Garment	29	6065	11022	17087
Food/Fishing	17	14844	10813	25657
Pharmaceuticals/ Chemicals	11	4142	3385	7527
Electronics	7	9897	16505	26402
Leather/Shoe	6	4814	2890	7704
Plastics	5	1700	4443	6143
Paper	2	3794	6590	10384
Misc.	19	10783	15181	25964
	96	56039	70829	126868

and the foreign country involved is furnished in Annexure

From the above table it may be observed that maximum No. of Joint venture has been set up in Textile/Garment group (29 Nos.) followed by Food/Fishing group (18 Nos.). Investment wise in Electronics group maximum investment (Taka 26402 lacs) has been made. It is followed by Food/Fishing (Taka 25856.96 lacs).

In the 96 Joint ventures 22 Nos. of countries participated. U.K, H.K, S.Korea and Netherlands have participated in 20, 14, 8, 7 Nos. of Joint ventures respectively. Traditionally Bangladesh has business link with these countries for long time. Among others Singapore and China are emerging as Joint venture partner in a good number of Industries. With others these are still in development stage and as such investments from these countries are also growing slowly. In general, it may be observed that foreign participants are found to be interested in small to medium scale Joint ventures. It may be noted that in the 96 Joint ventures, only 17 Nos. of Joint ventures may be termed as relatively big industry (over Taka 2000 lacs investment).

In respect of generation of employment, all these Joint ventures are playing a vital role. Traditionally it is found that small and medium scale industries can generate employment with minimum investment per person. On the other hand output-wise medium and large industries have an edge over small industries. So in consideration of both these sides (employment and output), all types of Joint ventures i.e. small, medium and large scale industries are desirable for the country & should be welcomed.

3.4 Joint venture Industries in Export Processing Zone.

First EPZ in the country was established in 1983 in Chittagong. During the last 7 years 28 No. of industries has been setup in EPZ. Out of this 12 Nos. are Joint ventures involving Bangladeshi and foreign investors. Some information on Joint ventures in EPZ which are in operation (9 Nos.) & going into operation soon (3 Nos.) are furnished below.

Exhibit - III

Country-wise Investment in Joint venture in EPZ.

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<u>Country</u>	<u>No. of JV</u>	<u>Investment in \$ million</u>	<u>Employment Nos.</u>
Hongkong	1	0.5	432
U S A	5	18.7	1648
South Korea	1	0.1	100
Japan	1	1.5	42
Pakistan	3	1.3	381
U.K	1	0.4	86
	<u>12</u>	<u>22.5</u>	<u>2689</u>

Exhibit -IV

Product-wise Investment in Joint ventures in EPZ.

<u>Product</u>	<u>No. of JV</u>	<u>Investment in \$ million</u>	<u>Employment Nos.</u>
Garments (H.K)	1	0.5	432
Terry Towel(Pakistan)	3	1.3	381
Tiffany and shell shade (USA)	1	0.1	100
Steel Chain(USA)	1	1.5	42
Textiles(UK,USA)	3	5.2	380
Shoe (USA)	1	2.8	667
Plastic Bag (USA)	1	1.2	356
Refined sugar(USA)	1	10.0	331
	<u>12</u>	<u>22.6</u>	<u>2689</u>

There are 12 Joint venture projects in EPZ. The total amount of investment in Joint venture in EPZ is \$22.5 million and total Nos. of employment are 2689 persons. It is seen that the largest investor is USA. It has invested \$18.7 million and employed 1648 persons in 5 Joint ventures. The maximum amount of USA's investment goes to sugar refining project (Exhibit- IV). The second largest amount (\$6.5 million) invested in Textiles where the contributors are U.K, USA & Pakistan.

The investment for generation of each employment in the 12 Joint ventures is \$8370 on average per employment. The corresponding figure for 5 Joint ventures of USA is \$11,350 & for the rest of 7 Joint ventures \$3650 per person. These are very attractive figures so far as employment generation is concerned particularly in an unemployment-ridden country like Bangladesh.

3.5 Problems.

The entrepreneurs of Joint venture industries often find it frustrating and problematic in their endeavour for setting up and in operation also. In spite of liberal policy provisions and all the good intention at the top for encouragement of joint venture investment, sometime investors face various problems in their bid to implement an industrial project or in the operation of an industrial undertaking.

A possible list of such problems that a joint venture industrial undertaking may face are :

1. Low Labour Productivity:

The wages for employment in Bangladesh is admittedly low but also productivity per employment is low because of too many interruptions and interference from indiscipline, malpractice and political interference in trade unionism and loss of working hours due to wildcat strike, etc.

2. Lack of co-operation and support in official level.

The existing beauracracy and red tapism dampens the spirit of the joint venture Investors in many instances. There are undue hassles and formalities to be completed when one has to go for :-

- i) Incorporation of the company with the Registrar of joint stock company.

ii) Raising of shares to the controller of Capital Issues.

iii) Repatriation of Dividends and Capitals.

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3. Lack of local entrepreneurs of comparable standings:

In Bangladesh the potential entrepreneurs are traders turning into first generation investors. They lack the self confidence, and the risk taking attitude needed for an investors, as well as the finance to capture the opportunities as they come by. As such expatriate joint venture partners may find it frustrating in not getting a suitably skilled partner.

4. Lack of capital fund:

Another big problem which a joint venture investor is likely to face is a partner with sufficient solvency and banks, ready to finance their joint venture industrial project. Bangladesh in general is a capital starving nation because the rate of savings are at a very low and depressing range of 2-3%. Hence growth of capital and capital market is very much inhibited. The expatriate joint venture partner has to bear the burden of not only his share of equity but also the burden of arranging the loan financing.

4.0 Prospects of Joint venture Investment.

An investor needs to be satisfied with the geography, people, natural and mineral resources, educational level of people, system of government, law and order situation, system of economy, size of market, technology level, availability of work force etc prior to making a decision for investment.

In the Bangladesh context the prospect of direct foreign investment with joint venture, therefore, depends on the availability of resources and primary raw materials like hides & skins, jute, natural gas, vast populace denoting a huge potential domestic demand and above all a cheap source of easily trainable labour force which are some of the vital mosaics required in the industrialisation of a country. The above components are existing in Bangladesh. The lacking components here are capital, technology and local entrepreneurship. The potential entrepreneurs are people with long tradition of trading and related economic activities with resultant accumulation of surplus which is available for investment. Such a general scenario surely are conducive for expatriate investors with technology and capital for consideration of investment.

Government in it's role to promote and support foreign direct investment have made provisions for various incentives and benefits which are comparable if not better, allowed by other countries in the region. These have been furnished in section 3.2 and summarised in this section also. It may be noted that all foreign private investments are secured in Bangladesh under the Foreign Private Investment (promotion & protection) Act 1980, which guarantees protection, fair and equitable treatment to foreign private investment. To enhance the prospect of direct foreign investment a number of benefits and fiscal incentives have been offered some of which are listed below :

- * Remittances of dividends
- * Repatriation of capital and capital gains and also opportunity for re-investment of profits.

- * Remittance of Royalties and part of salary.
- * Tax holiday: -172
 - 5 Years for developed area.
 - 7 Years for less developed area.
 - 9 Years for least developed area and
 - 12 Years for Special Economic Zones.
- * 10% customs duty on machinery with provision of upto 7½% refund on selected cases like export oriented industries or industries located in least developed areas.
- * Exemption of tax on interests on foreign loan, Royalty, etc.
- * Relief from double taxation for foreign investors.
- * Tariff protection upto 4 years for new industries, etc.

Besides all these incentives and facilities the recently enacted provision for according nationality to foreign investor make joint venture investment in the country more promising.

4.1 Areas of Joint Venture:

Ideally speaking, the foreign direct Investment of joint venture should be guided and encouraged in areas where local investment is shy, technology is wanting, indigenous raw materials are waiting to be processed, opportunity exists for creation of meaningful employment and increase in export earning, all of these singly or together contributing to the governments effort to provide a better quality of life to the people at large. In view of above, it may be considered to encourage joint venture investment in the following areas:

- a) Export oriented Industries (Leather goods, textile & other materials related to garment industry, engineering goods, nitrogenous fertilizer).

- b) Indigeneous raw-material (e.g. Natural Gas, Hides & Skins, Jute, etc.) based Industries (Methanol, Ammonia, Fashion goods, Pulp & Paper etc.)
- c) High Tech. Industries (Informatics Computer Software & Hardware, Electronics etc.)
- d) Industries offering opportunities for large scale employment.
- e) Industries introducing new products and/or new technology, etc.

4.2 Choice of Partners:

Ideally partnerships in joint venture projects should develop through long standing business relations starting from other activities economic or otherwise. Long standing partnership in trading existing between a principal (supplier/manufacturer) and his commission agent (trader/indenter) quite often culminates in joint venture industrial arrangement for manufacture of one or more of the products in which they have transacted their trading activities.

It is difficult to assess how a partnership will go before hand that is the reason previous acquaintance is of importance. However, following criteria may be considered:

1. Comparatively similar social background & level.
2. Familiarity with the products.
3. Familiarity with industrial and other economic activities, etc.
4. Sincerity and integrity of local partner in respect of fulfilment of commitment.

In keeping with the above criteria, the authorities of the Govt. associated with clearance and approval of the joint venture projects may play a positive role in accomplishing compatible joint venture partnership in their formative stage.

5.0 Observation and Recommendations:

1. Joint Venture Industries specially with foreign partners ¹⁷⁹ are playing a vital role in industrialisation of the country. During 1982-90, investment in Joint ventures stood at Tk.1270 crores, of which foreign investment was 560 crores. Total Private Sector investment in industries during 1980-90 was Tk.2438 crores. It is, therefore, observed that Joint venture Industries account for over 50% of Private Sector Industrial investment and the foreign investment accounts for over 25% of the total Private Sector Industrial Investment.

2. In an un-employment ridden country like Bangladesh, Joint venture industries role in providing employment is also commendable. Detail data on employment in Joint ventures could not be made available by concerned agencies. However, it could be gathered that the average employment per unit of Joint venture is 175 in the 29 Nos. of joint venture sanctioned by Board of Investment since its establishment in January 1989. From another source, it ¹⁸ found that the average employment per joint venture is 225 in the 12 Nos. of Joint venture in the Export Processing Zone (EPZ) at Chittagong set up in 1983. Based on an average of 200 employment per joint venture, the total employment provided by the 96 Joint ventures established in the country during 1982-90 comes to about 20,000.

From the plan document, it is found that 62,000 employment was generated during 1985-90 in the Private Manufacturing Sector. Corresponding figure for the second plan period (1980-85) could not be gathered. However, it is mentioned in the plan document that the employment generation during 1980-85 was rather poor. Assuming employment generation of 40,000 during 1980-85, total employment generation in the private manufacturing industry sector during 1980-90 stands at about 100,000.

The share of employment generation by joint venture, therefore, appears to be 20% of the total.

3. Information of production performance and financial performance for joint ventures are not found to be available with relevant agencies and as such any comprehensive evaluation is rather difficult and was not attempted in this short study. Such information are not available for other private sector industries also. A system may be introduced for collection of information from all Private Sectors Industry including joint venture from the Secretariat of the Board of Investment. Such information will be useful in identifying problem areas and directing Govt. efforts in the right sector and in right direction.

4. Since the introduction of Industrial Policies in 1982, 1986, Foreign private investment (promotion and protection) Act 1980, setting up of Board of Investment in 1989, the Govt. has more or less completed its part in liberalising rules and regulation and providing incentives to make them conducive for private investment. These are comparable to such facilities provided in other neighbouring countries. With all these facilities, Private Sector Investment in Industries in general and joint ventures in particular should have accelerated. Joint Venture Investment which constitute about 50% of total Private Sector Industrial Investment during 1980-90, relatively speaking this share is not unsatisfactory but the total Private Sector Industrial investment itself is not at all satisfactory. It was only 36.5% and 41% of the planned target during 1980-85 and 1985-90 respectively. These sluggish investment is a reflection of the investors confidence on the overall investment climate. It implies that the rules and regulations, provision of incentives etc. are not the only factors that effect investment.

Investors, particularly the foreign investors, make their own¹⁸⁰ judgement about the overall investment climate in a country. Labour problems, law and order condition, acceptability by the host country these are some important factors that influence in making their judgement.

5. Joint venture industries with foreign knowledgeable partners bring in technology, management and capital also. It was revealed in a meeting of the Industrial Advisory Committee held on 10-5-90 under the Chairmanship of Vice-President that about 50% of Private Sector Industries in the country are sick and suggestion for setting up of sick Industries Rehabilitation Board was made by the spokesman of private industries sector. Seeking Joint venture partnership in some existing industries may be a way out from their stagnancy. The foreign joint venture partners may vitalise these sick industries with the technology, management and aptitude likely to bring with them.

6. Unwieldy exchange rate fluctuation, restricted and discouraged list of industries, limited local market (due to poor purchasing capacity) etc. are some negating factors which discourage some foreign investors in joint venture. The authority may consider introduction of some protection scheme to limit the adverse effect of exchange rate fluctuation. As regards restricted or discouraged list, Joint venture industries where no financing is required from any Govt. Institution, they should be free to invest in any sector.

7. Frequent changes of Government policies on taxation, fiscal, monetary, import/export and corporate laws are non-conducive to investment and must be discouraged. An industry must be allowed reasonable time to go from execution to commercial production with the set of terms & condition on which

the Project Investment was allowed. Only then the success or failure of an investment could be ascertained.

8. As mentioned earlier, investment climate is most important to an investor especially to the foreign investor in a joint venture. Labour is considered the most vital element in making or un-making of the investment climate. Indiscipline and trade unionism gives the most detrimental blow to investment climate. Labour is considered cheap in Bangladesh. But due to lower productivity and above all due to their yet to be disciplined nature, the net cost of labour in the ultimate analysis of an investor is not that attractive.

The labour force of the country should be continuously trained and taught about the realities of industrial field - not only in Bangladesh but also in neighbouring & other poor countries.

6.0 Conclusion:

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Bangladesh has been enjoying a stable and competent government which serves as an added incentive for investment in Bangladesh. It may be noted that even when political changes had taken place in the past, the successive Governments have maintained a positive policy towards the progressive liberalization of the economy and the increasing privatization of industry in the country including joint ventures with foreign investment.

Bangladesh has established an economic and political atmosphere for foreign investment with necessary legal protection, administrative reorganization, simplification of procedures and many incentives. A number of multinational companies have been operating in Bangladesh for many years and as a result of the Bangladesh Government's liberal industrial policies, many foreign entrepreneurs are now investing in Bangladesh. The latest govt. measure towards this direction is its extension of citizenship for foreign nationals making investment in the country.

With all its liberalization measures and efforts taken so far and further improvement of the investment climate through realisation of the recommendations made in this report it is expected that ninties are going to see increasing activities in the field of joint venture industries.

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FOREIGN PRIVATE INVESTMENT (PROMOTION & PROTECTION) ACT, 1980

An Act to provide for the promotion and protection of foreign private investment in Bangladesh.

WHEREAS it is expedient to provide for the promotion and protection of foreign private investment in Bangladesh.

It is hereby enacted as follows:

1. Short title:

This Act may be called the Foreign Private Investment (Promotion and Protection) Act, 1980.

2. Definitions:

- (1) In this Act, unless there is anything repugnant in the subject or context:

"foreign capital" means capital invested in Bangladesh in any industrial undertaking by a citizen of any foreign country, or by a company incorporated outside Bangladesh, in the form of foreign exchange, imported machinery and equipment, or in such other form as the Government may approve for the purpose of such investment;

"foreign private investment" means investment of foreign capital by a person who is not a citizen of Bangladesh or by a company incorporated outside Bangladesh, but does not include investment by a foreign Government or an agency of foreign Government;

"industrial undertaking" means in industry, establishment or other undertaking engaged in the production or processing of any goods, or in the development and extraction of such mineral resources or products, or in the providing of such services, as may be specified in this behalf by the Government."

- (2) Words and expressions used but not defined in this Act shall have the same meaning as in the Companies Act 1913 (VII of 1913).

3. Foreign private investment:

- (1) The Government may, for the promotion of foreign private investment sanction establishment with foreign capital of any industrial undertakings:

- (a) which does not exist in Bangladesh and the establishment where of, in the opinion of the Government, is desirable; or
- (b) which is not being carried on in Bangladesh on a scale adequate to the economic and social needs of the country; or
- (c) which is likely to contribute to:

- (i) the development of capital, technical and managerial resources of Bangladesh; or

- (ii) the discovery mobilisation or better utilization of the natural resources; or
- (iii) the strengthening of the balance of payment of Bangladesh; or
- (iv) increasing employment opportunities in Bangladesh; or
- (v) the economic development of the country in any other manner.

Sanction of the establishment with foreign capital of an industrial undertaking under sub-section (1) may be subject to such condition as the Government may deem fit to impose.

Protection and equitable treatment:

Government shall accord fair and equitable treatment to foreign investment which shall enjoy full protection and security in Bangladesh.

Of sanction, etc.:

Terms of sanction, permission or licence granted by Government to industrial undertaking having foreign private investment shall not be unilaterally changed so as to adversely alter the conditions under which establishment of such undertaking was sanctioned; nor shall foreign investment be accorded a less favourable treatment than what is accorded to similar private investment by the citizens of Bangladesh in application of relevant rules and regulations.

Liability, etc.:

In the event of losses of foreign investment owing to civil commotion, rebellion, or riot, foreign private investment shall be accorded the same treatment with regard to indemnification, compensation, restitution; or other settlement as is accorded by investment by the citizens of Bangladesh.

Expropriation and nationalisation:

Foreign private investment shall not be expropriated or nationalised or be subject to any measures having effect of expropriation or nationalisation except for a public purpose against adequate compensation which shall be paid expeditiously and be freely transferable.

Adequate compensation for other purpose of sub-section (1) shall be an amount equivalent to the market value of investment expropriated or nationalised immediately before the expropriation or nationalisation.

Repatriation and investment:

In respect of foreign private investment, the transfer of capital and other returns from it and, in the event of liquidation of industrial undertaking having investment of the proceeds from such liquidation is guaranteed.

The guarantee under sub-section (1) shall be subject to the right which, in circumstance of exceptional financial and economic difficulties, the Government may exercise in accordance with the applicable laws and regulations in such circumstances.

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Removal of difficulty:

If any difficulty arises in giving effect to any provision to this Act, the Government may make such order, not inconsistent with the provisions of this Act, as may appear to it to be necessary for the purpose of removing the difficulty.

Area	Indonesia	Malaysia	Philippines	Singapore	Thailand	Republic of Korea	Papua New Guinea	India	Mexico
Freedom from expropriation and nationalization unless compensation	Yes	Yes ²	Yes ⁴	Yes ⁷	Yes	Yes	Yes	Yes ¹³	Yes ¹⁷
Limitation of investment and convertibility to foreign currency	Yes ¹	Yes	Yes ⁵	Yes	Yes ⁸	Yes ¹⁰	Yes	Yes	Yes ¹⁸
Advance of earnings and convertibility to foreign currency	Yes	Yes	Yes	Yes	Yes ⁹	Yes	Yes	Yes ¹⁴	Yes
Advance to meet payments of foreign loans and contracts and convertibility to foreign currency	Yes	Yes	Yes	Yes	Yes ⁶	Yes	Yes ¹¹	Yes	Yes
Administrative application laws	Yes	Yes	No	Yes	Yes ⁵	Yes	Yes ¹²	Yes ¹⁵	Yes ¹⁹
Employment of aliens (restrictions only to local and foreign worker)	Yes	Yes ³	Yes ⁶	Yes	Yes	Yes	Yes	Yes ¹⁶	Yes

expropriation shall not be granted as long as the expropriations or concessions concerning taxes and other levies are paid in effect. Covered under foreign investment guarantee agreements with various countries.

India: must ultimately be repatriated by locals. Freedom from expropriation is subject only to right of eminent domain and convertibility in foreign currency in cases where payments are received as compensation for expropriation.

Malaysia: must be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals.

Philippines: must be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals.

Singapore: must be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals.

Thailand: must be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals.

Republic of Korea: must be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals.

Papua New Guinea: must be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals.

India: must be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals. Investment must ultimately be repatriated by locals.

Annexure - III.

Joint venture Industries (excluding EPZ) in
production/under implementation(1982-90).

Group/Sector	Capital Investment (Lac Taka)		Share of equity %		Country
	Local	Foreign	Local	Foreign	
Textile/Garment	60	54	51	49	S.Korea
	63	80	51	49	S.Korea
	41	25	51	49	H.K.
	20	20	51	49	S.Korea
	25	24	51	49	S.Korea
	25	24	51	49	H.K.
	75	72	51	49	Switzerland
	5	45	51	49	Switzerland
	15	15	70	30	Singapore
	58	25	30	70	H.K.
	36	85	51	49	H.K.
	24	23	51	49	Belgium
	70	280	51	49	H.K.
	60	93	51	49	U.K.
	38	37	67	33	Japan
	447	1454	51	49	Netherlan
	30	45	60	40	H.K.
(Padma Textile)	1608	2071	51	49	ADB/CDC(U
	15	47	51	49	Singapore
	10	25	51	49	H.K.
	71	69	51	49	H.K.
	5	5	20	80	Pak/W.Ger
(Sewing Thread)	1010	1817	50	50	U.K.
	374	374	75	25	Italy
	460	1040	60	40	Canada
	50	33	50	50	West Ger
(Spinning Mill)	1243	2233	67	33	Sweden
	83	82	51	49	U.K.
Sub-Total: 6065		11022			

	1	2	3	4	5	6
<u>Food/Fishing</u>	15	219	51	49	H.K.	
	15	7	70	30	H.K.	
	58	58	50	50	USA	19
	136	531	51	49	Singapore	
	145	752	50	50	Singapore	
	15	150	51	49	Japan	
	432	168	40	60	U.K.	
	417	818	40	60	H.K.	
Hotel & Motel)	8320	4080	40	60	H.K.	
	76	74	72	28	Thailand	
	83	38	70	30	U.S.A.	
BTC)	1685	2273	34	66	U.K.	
	241	234	51	49	S.Korea	
	35	34	51	49	S.Korea	
	150	66	51	49	Austria	
Soft drink)	2684	1308	51	49	K.S.A.	
	337	3	51	49	U.K.	
Sub-Total:	14844	10813				
<u>Leather/Shoe</u>	1848	1122	15	85	Canada	
(Bata shoe)	859	591	15	85	Canada	
	129	61	75	25	Netherland	
	1061	982	75	25	Korea	
	77	74	51	49	Thailand	
	840	60	80	20		
Sub-Total :	4814	2890				
<u>Electronics</u>	7884	14936	50	50	H.K.	
(Telecommunications)	62	94	49	51	Netherland	
	332	266	25	75	U.K.	
(Bulb shell)	1223	1106	51	49	China	
	194	53	40	60	U.K.	
	193	42	40	60	U.K.	
Sub-Total :	9897	16505				

	1	2	3	4	5	6
<u>Pharmaceutical/</u>						
<u>Chemical</u>						
(CIBA-GEIGY)	1612	1388	40	60	Switzerland	
	46	184	68	32	187	Netherlands
	110	40	60	40		
	55	38	51	49		China
	66	45	45	55		U.K.
	84	116	40	60		U.K.
	402	40	51	49		India
	76	294	60	40		U.K.
(Maximco Pharma)	1220	1111	80	20		Netherlands
	315	43	51	49		U.K.
	156	86	70	30		U.K.
Sub-Total:	4142	3385				
<u>Plastic</u>	25	24	51	49		H.K.
		90	-	10		
	35	65	40	60		France
(Polyester yarn)	1587	4221	68			
	53	43	15	85		Netherlands
Sub-Total :	1700	4443				CDC(UK)
<u>Paper</u>						
(Magura Paper)	2094	2134	90	10		China
<u>xx</u>						
(Rahim Pulp & Paper)	1700	4456	70	30		France
Sub-Total :	3794	6590				
<u>Misc</u>	1	118	51	49		China
(Gas & Gas Cyl.)	710	5211	40	60		Italy
(United Leasing Co.)	3590	3420	40	60		U.K./ADB/CI
	175	169	51	49		Belgium
	-	120	-	100		Korea
	40	40	51	49		West Germany
	430	170	60	40		U.K.
BOL	755	1670	40	60		U.K.

	1	2	3	4	5	6
	48	46	51	49	France	
	192	194	75	25	China	
	18	486	51	49	Canada	
	631	36	60	40		
	25	49	37	90		
aka Match)	2415	2119	10	90	Sweden	
	275	225	55	45	IFC, Korea	
	29	23	60	40	U.S.A.	
	125	155	45	55	U.K.	
	780	456	51	49	Oman	
	544	474	80	20	Netherland	
Sub-Total :	10783	15181				
GRAND TOTAL:	56039	70828				

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**CONVENTIONAL USE OF ROAD BUILDING MATERIALS AND
THEIR FUTURE EFFECTS ON THE ENVIRONMENT AND ECONOMY
OF BANGLADESH WITH THEIR PRESENT STORAGE.**

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This seminar paper has been submitted to BPATC in partial fulfilment of the requirements of successful completion of the eleventh senior staff course held during July 15th to October 14th, 1990.

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1. INTRODUCTION

In this paper emphases have been given to continue the use of brick as a road building material. Replacement of brick by stone on account of ecological phenomena and its effects on the development works and economy of Bangladesh have also been discussed.

From the time immemorial use of brick is a practice in construction works. It bears the memorable example of the use of brick in ancient buildings and archeological constructions. In fact use of brick in construction work is favourite and easier to the people of Bangladesh from long ago. At that time supply of coal was regular and bricks would have been manufactured largely by using coal as burning fuel. But as the coal supply became irregular, people owing to sustained necessity of brick in the construction work, started burning of brick by fire wood. Alongwith the pace of development of this country, requirement of the increased quantity of construction material came up and the production of more quantity of brick felt by people resulting cutting of trees in a large scale. At the present moment some corner is believing that ecological imbalance is being accelerated here by cutting of trees and thus brick production in this country should be stopped and stone is to be used as its substitute. It may be strongly mentioned here that ecological balance can be maintained in Bangladesh by planting and growing more and more trees in all corners of Bangladesh. Elaboration of the issue will be available in the foregoing chapters and items.

day. Demand for use of different kinds of suitable aggregates are being increased in different localities. In this context the causes like perennial availability of resources, economical and technological demand of construction method etc. generally influence the selection of aggregate for construction work to a great extent.

- b) At present necessary transport, tools and plants, equipments and accessories, easy technology etc. have been developed for collection, lifting, transport, carrying of natural aggregates and with the help of different technologically developed countries, natural resources are being tapped and lifted. In most of the cases natural aggregates cost becomes more as compared to brick. Still its acceptability is much better than bricks due to other reasonable positive causes.
- c) Different equipments have been developed for changing shape of materials alternative to brick to that required for construction works.
- d) Labourers/Workers are being acquainted with new technology through different pilot projects and as a result skilled labourers/workers are being produced and their numbers are being increased day by day.
- e) Quality of materials, strength etc. of aggregates as alternative to bricks are not fully known as yet and it is seen that almost in all the cases they have higher strength and better properties in comparison to brick. So, the bulkiness in size and shape of structure may be reduced.

f) No reasonable change occurred in manufacturing procedure of comparative manufacturing cost of brick except that some crisis arose in case of production facilities for nonavailability of raw materials like fuel for burning bricks.

1.3 Influences of bricks in road construction:

Use of bricks in road construction of Bangladesh is an old technique and is a usual procedure. Bricks are being largely used as essential materials both in rigid and flexible pavements. Road improvement work is being done by laying bricks on earth to facilitate driving of bullock cart, push cart, van, Rickshaw etc. in the less important roads of rural area. Besides this, the wide use of brick are seen in all traditional methods like, grouting, semigrouting, consolidation, brick flat sol-line & herring bone bond etc. In recent time in the construction of base, sub-base of road bricks are being used fulfilling the economical and technological demand and thus maintaining its use as indispensable. It is observed that bricks fulfil maximum portion of the total demand of road building aggregate in the country.

1.4 Extensive use of bricks:

1.4.1 Today huge quantity of bricks are being manufactured in the private sector to meet the requirement of the country. Govt. department has already stopped procurement of bricks since 1974-75. Due to irregular supply of coal in the country,

most of the manufacturers used fire wood as fuel for burning of bricks. Fire wood being cheaper than coal and coal supply being inadequate and irregular, owing to sustained necessity of brick everywhere in Bangladesh, the manufacturers under such compelling and unavoidable circumstance use fire wood as fuel in brick burning. Natural gas though available can not be taken to remote and interior areas due to high cost of pipe line. Government by this time has also stopped the use of gas in the brick field. This has also compelled the manufacturers to use fire wood as fuel in burning of bricks which has resulted cutting of large number of trees in every brick burning season. This can be stopped if requisite quantity of import of coal is ensured in the country comparatively at a lower cost. In this case Law Enforcing Agencies shall have to be instructed to watch over the use of coal in burning brick.

1.4.2 Ecological imbalance:

Fire wood as fuel for brick burning comes mainly from cutting of trees. This cutting in larger scale is bringing deforestation causing meteorological changes specially ecological imbalance in the country. This ecological change brings also bad effects on agriculture and vegetations. This alarming problem can be solved by taking crash programme of continuously planting of different kind of trees having timber and fire wood value with special attention to the fast growing trees. This programme should always be monitored in all corners of Bangladesh as a challenge.

Economy of plantation should also be seen carefully in the programme. If coal supply is ensured at a subsidized rate to the brick manufacturer then use of fire wood in burning of bricks will be considerably decreased. This shall also reduce cutting of trees and help to maintain ecological balance in the country.

5. Measures to overcome it:

5.1 How to overcome:

Now one of the important policies of the Govt. is to maintain ecological balance in Bangladesh. It is being appreciated by all. But still now where fire wood is cheaper than coal and easily available, how use of fire wood as fuel to brick manufacturing can be stopped. Law Enforcing agencies are also not in a position to stop it fully as the activity of burning of brick is widely spreaded even in the remote areas of the country. Fire wood can be replaced by gas but it is a very essential natural resource of the country, the use of which must be very economical to maintain uninterrupted generation of thermal power for producing electricity and manufacturing of Chemical Fertilizer which are the most essential and basic need of the country. Further taking of gas line in-to the scattered and remote areas of the country will also be very much expensive. In view of the above constraints only coal is left to be used as viable fuel for manufacturing of brick. So for burning of requisite quantity of brick there must be easy and spontaneous supply of coal in Bangladesh from other countries in no loss of time. To encourage the regular

supply of coal nominal taxes should be imposed on the import of coal. If it is done so only then the use of fire wood in brick manufacturing will be lessened and finally stopped and along with above actions, crash programme for plantation of different kinds of trees having fire wood and timber value with special attention to fast growing trees must immediately be taken up as a continuous process by all Govt and private agencies in all corners of Bangladesh. The economy of plantation must also be seen along with it. The continued process of planting trees shall help the nation to maintain ecological balance.

2. Annual Demand of aggregate in Constn. of Roads & Bridges:

2.1 Under Roads & Highways Department:

At present every year about 21.00 lac cub. meter brick and 7.5 lac cub. meter stone (Boulders/Shingles etc.) are required in constn. and maintenance of Roads, Bridges and Culverts under Road & Highways Deptt. (See Annexure C and B).

2.2 Under other Department/Division/Organisation:

It is assumed that the quantity of aggregates used yearly by Road and Bridge constructing organisations like local Govt, Engineering Bureau, Municipality etc. is about 1/3rd of total consumption in Roads and Highways Deptt. The above organisations require 7.0 lac cubic meter bricks and 2.5 lac cub meter stones per year.

3. For Jamuna Multi-purpose bridge construction:

About 10.5 lac cubic meter stones will be required per year for construction of Jamuna Multi-Purpose Bridge.

4. Total Demand:

Annual Demand of aggregates in construction and maintenance of roads and Bridges is-

Bricks	28.00 lac cubic meter (in annexure 'C').
Stones	20.50 lac cubic meter/ 10.00 lac cub.m. (Excluding Jamuna Bridge) (in annexure 'C')

Use of stone as substitute of Brick

1.1. Use considering the characteristics.

At the time of using brick and stone in construction work, generally the design of pavement is made by considering its unit weight, strength, water absorption, Comparing the above characteristics of best quality brick and stone it is found that these different characteristics value of best quality stone is better than those of best quality brick. Generally a structure made by stones is stronger than that of constructed by brick. But in case of roadbase and subbase construction, same strength of brick and stone is considered as the brick aggregate can be more compacted than stone aggregate.

1.2. Use in Bridge construction:

High strength of concrete is required in construction of bridges and that is possible only by using stone in concrete for which reason bricks are no more used in this type of work. But in the foundation work bricks are used. In some bridges in the urban area, Bricks are used to economise cost

where heavy strength is not a factor. Apart from this high strength of concrete can be achieved in different type of important structure only by using stone. 197

generally, in case of stone, same source of origin generally reveal same characteristics. But in our country there is less technical control or facility to ascertain the homogeneity of the characteristics of different bricks in the same Brick Field.

3.1.3 Use in Road Construction and Maintenance:

In Bangladesh use of stone in construction of road is limited only to less thick surface work. In Major thickness of pavement bricks are mostly used. In our country road work is labour intensive. Construction process, i.e. the breaking of stone is more laborious and collection is time consuming. For this reason, use of brick in road construction work is getting better preference. Whole bricks are used in conventional brick soling, herring bone bond and in other case broken brick-chips are used. It is possible to use broken boulder chips or shingles instead of brick chips. And good result are obtained from broken boulder chips. If stones are used in road construction work as substitute of bricks, the time, labour and expenditure will be increased for breaking of stone manually in comparison to brick. But the increase of expenditure will be decreased to some extent if modern equipments are used properly which are very limited in the country.

4. Quantity of stone used in road and bridge constructions:

It was mentioned earlier that at present about 15.00 lac cubic meter of bricks and 10.00 lac cubic meter of stone are required annually in roads, bridges in other construction, maintenance and development works. The annual demand for stones will stand about 35.00 lac cubic meter if stone is used as substitute of bricks (excluding some multi-purpose bridges).

Sources of Stone and its availability:

Sources of Stone:

Stone of different quality and quantity is found in several places of Bangladesh and in every year some amount of new stone gets deposited in those places. These stones are some how of good quality and if transportation facilities are increased, these stones can easily be collected and transported. The mentionable sources of stone are given below:-

1. Bhulagong and Talong of Sylhet.
2. Sherpur and Northern part of Mymensingh.
3. Tetulia of Panchagar.
4. Katgram of Rangpur.
5. Madhyapara and Rajpur of Dinajpur (yet to be finally explored).
6. Chittagong Hill Tract - collected in different places. Difficult to collect.

The places in which stone is stored are shown in Annexure 'A'. Many of the sources of stone are situated at the bottom of river. In this regard, the mentionable rivers are Bara, Dhalagong, Surma and her branches, Karatoa, Mahamanda, Fista etc. The quantity of stone or stone is some

remarkable places with abundance positions and other information are shown in Annexure-D. This annexure has been prepared in the light of findings obtained from different observations performed by different organizations in the past.

3.2.2 Availability of stones:

3.2.2.1 Quantity of present storage:

From enclosed Annexure - 'D' it is found that the quantity of storage of stones in the country at Bholagongj, Panchaga, etc. is about 175 lac cub. meter and large amount are found at Sherpur (which is yet to be measured). Storage of clay mixed boulder is found at about 300 ft. high mountains which extend about 60 miles in North-South and 150 miles in East-West at the foot of Garo Pahar of Sherpur. These boulder are to be washed thoroughly before use which will be costly. There is no contemporary information regarding the quantity of storage of hard rock in Madhyapara, Ranipukur and Stone (Sand stone) in the mountains of Chittagong Hill Tracts, and it is not also easy to determine the quantity of storage of stones in Sherpur.

3.2.2.2 Annual Production:

Every year Average 5.30 lac cub. meter of stone deposits in rivers of Bangladesh (See Annexure - 'D'). This amount has been taken from recent survey conducted by Jamuna Multi Purpose bridge Authority.

2.2.3 Expected Annual Collection:

It is seen from Appendix-D that it is possible to collect yearly at best about 4.00 lac cub. meter stone from Bholagong source. At present every year it is possible to collect about 6.00 lac cub. meter of stones from all the sources. No primary study has yet been done for extraction and collection of stones available at Maddhyapara and Chittagong Hill Tracts. Thus it is not possible to collect the same from those sources. The amount of stones collection from Sherpur is also very poor. Only stable sources lie at Sylhet and Panchagar area.

Availability of stone as substitute of brick:

Since the brick fields are scattered in different places of the country, Brick is easily available in all places. But at different places, characteristics of raw materials and production procedure varies for which best quality brick is not always available but quality can easily be improved by taking earth (raw material) from the adjacent land and using fuel according to requirement. Sources of stone are situated in some particular and distant areas of the country and it is difficult to take supply of the same easily and cheaply in all remote places of the country. Availability of brick depends on raw materials supply of fuel and technique of quality control which are always locally available in any place of Bangladesh. But in the case of stone, facility of extraction, collection and transshipment are involved, these are time killing & costly. In projects where huge quantity

of aggregate is required, special plans programme and arrangement should be made quite earlier for collection of stone but this is not required in case of Brick aggregate.

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3.4 Financial Analysis:

Raw materials and fuel are the two main controlling factors for availability of brick. The expenditure involved in collection and supply of bricks mainly depend on fuel. Raw material is easily available. Generally the procurement cost of brick at project area, stands at Tk. 2500/- per thousand (Tk. 1025/- per cub. meter) which include the cost of collection of clay, its local transportation, collection of fuel, establishment, labour cost, shifting of produce bricks to the project site etc.

The Bhulagongj of Sylhet and Panchagarh are the main source of stone in the country. Generally stone of these places are transported to different parts of the country by road, water ways. The procurement cost of stone at the project area stands at Tk. 1250/- per cub. meter including the cost involved in collection, shifting to the primary temporary stack yard, transportation from this place to the project site etc.

The assessment of the above cost of brick and stone has been made considering an average estimated cost extended to different town areas in the country. It is better to consider every definite project area separately to get a clear idea on the comparative cost of brick and stone. Because the

cost of stone in the areas nearer to its supplying source will be less than that of distant areas from the source. But the variation of cost in case of bricks in both the areas will be little in comparison to that mentioned above. The price of stone if imported from foreign countries will be quite more than the price of local stone. Information from various sources indicate that the average procurement cost of the imported stone at the project site including all expenditure stands at Tk. 1750/- per cub. meter.

3.5 Possibility of increasing supply of stone:

At present for want of suitable communication and transportation facilities to quarries which are the present sources of stone, inadequate quantity of stone is collected. If these quarries could be connected by suitable communication system, stone supply from internal source could be increased and meet the requirement for several years. Initially a sizeable amount be required for use in road building. Simultaneously attempts should be made to discover new quarries and start extraction. Study should also be conducted on the foreign importation of stone on the easy and less costly processes or policies.

The annual collection of river borne stone by different rivers (such river's origin are in India) are quite inadequate compared to its huge demand in the country. So with the improvement of collection facility of stone locally, import of stone from foreign sources should be

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specially considered to maintain perennial supply of stone. If the ropeway of Bangladesh Railway at Bholaaganj be used to its optimum, stone supply could be increased but it will be costly. Besides if the entire quantity of river borne stone could be collected annually, their annual output could be increased. Although cost of imported stone is higher than locally collected stone yet as a substitute of brick, economical import of stone to increase the annual supply should be studied carefully.

The use and availability of substitute materials of brick except stone in construction field (including financial analysis) are given.

4. The use of substitute materials of brick other than stone in construction work:

4.1 Use of materials other than stone as alternative to bricks.

Use of the possible materials in lieu of brick except stone in construction work are as follows:

- a) Artificial aggregate (Lime, synthetic aggregates, ceramic bricks etc.).
- b) Blast furnace slag.

Besides by using stabilized soil in subgrade, use of brick or its substitute may be reduced in pavement construction work. Stabilized soil can be classified into three types.

- i) Cement/Lime stabilization.
- ii) Chemical Stabilization.
- iii) Bituminous stabilization.

Stabilized soil can be said as an indirect substitute of brick in construction work.

process is activated by different mechanical control. Through the installation cost of the plant is higher but considering total installation cost of large number of local brick fields, raw materials and fuel, synthetic aggregate may be used as substitute of brick in some special type of important work. In this case country's total requirement shall not be fulfilled.

It is assessed in an observation made about 20/21 years back, if highest capacity production and rate of supply could be ensured, synthetic aggregate would be popular as substitute of brick. At the time the observation, the cost per cub. meter of brick and stone were Tk. 40/- to 45/- and Tk. 52/- to 58/- respectively. And it was also assessed that if highest capacity production starts, supply rate per cub. meter of synthetic aggregate would come to Tk. 40/- to 45/- but if at highest capacity machine, is not used, the operation will be uneconomical.

Now a days, most of the brick fields produce a large quantity of less burnt and over burnt bricks, because wood is used as fuel. As a result local brick fields gradually losing their reliability in supplying good quality aggregates. This problem can be minimised by ensuring requisite supply of coal at a subsidised rate to brick manufacturers.

To make synthetic aggregate economically acceptable it needs such type of standard production and marketing system which are trouble some and time consuming. At the same time, huge quantity of natural gas consumed in its manufacturing plant can increase cost of domestic fuel creating adverse effect on market rate of this resource. Production of synthetic aggregate is still under research stage in our country. Considering these and the present stage, it might not create favourable field to use it as substitute of brick in road construction work.

2.2 Availability of ceramic brick:

Since ceramic brick is stronger, it can be used as substitute of normal brick. But by establishing plant or industry in a particular place, installation, initial production cost and cost to supply product to all places of the country will be higher. Therefore it needs observation to ascertain whether it may be acceptable as substitute of ordinary brick.

2.3 Availability of blast furnace slag:

Blast furnace slags are limited within some limited industries in Bangladesh, and whose present possibility of increased supply seems to be less. Large scale industrialization, and set up of heavy industry can increase its production as by product. But creation of expanded market for original product will be very difficult. So possibility of availability of blast furnace slag to use it as substitute of brick is nil.

Possibility of using stabilised soil

In order to improve the bearing capacity in road pavements fine aggregates (sand) are mixed with coarse aggregate (Brick-khoa) and used at lower layers. Whereas some quantity of cement, or lime could be mixed with sand or soil (known as stabilised soil) to increase its ultimate bearing capacity upto required limit. Application of this procedure can reduce use of bricks at some lower layer of pavement. It would also reduce the construction cost. It is not a direct replacement of brick chips by other aggregate chips, rather it is an alternative construction procedure. In this case other than cement, lime, or bitumen stabilisation there is another chemical stabilisation called consolidation. All these above processes are in study and research stage and till now technical expertise could not be grown to utilise these procedures in near future. For stabilization, small amount (2 to 5%) of cement and lime is to be mixed with soil sand. Even so, availability problem of cement and lime will come up if soil stabilization is started in large scale because internal production of cement and lime is quite less than present normal demand in huge construction work. Present demand and deficit of local availability is being met up through import but it is comparatively costlier. Two third of total annual demand of cement is being met up through import. Moreover annual demand is increasing by 6%. A possibility of use of cement as stabilizer is less. Even in case of lime and bitumen, the possibility is also less.

Though less bricks are needed if soil is stabilized even so it has no importance as substitute of brick as a whole. Since much higher C.B.R. value can not be obtained through this its use should be confined within small section of road. As a result possibility of it as substitute of brick is not hopeful. The field of chemical stabilization is not so much familiar and thus possibility of its use is not again hopeful.

5. Influence of use of substitute construction materials of brick in consideration of excess cost in the present contracts.

5.1 Possibility of use of substitute of brick in existing contracts. Number of small scale works or present contracts in construction of roads and bridges are large and considering all these separately, verification of its effects on cost is a matter of long term observation. But effect of use of substitute of brick if examined in some large size project, stone shows good result everywhere, but it involves higher cost. But it is not possible to use other substitute of brick except stone in present contracts because substitute materials should be selected in the light of existing source and availability of materials to complete the work. The present research is to be done to find out the possibility of use of a new material in place of brick in construction of roads and bridges. It is not clear whether a

substitute can be used successfully as the sources for collection of stone are very much scattered in the country.

5.2 Possibility of excess cost:

If stone is used as substitute of brick in main two existing contracts, the excess cost which will be involved is discussed below.

5.2.1 Road Rehabilitation & Maintenance Project:

In road rehabilitation and maintenance project 1.00 lac cub meter stone and 3.5 lac cub meter bricks are required according to present contracts and design which involves Tk. 242/- lac as import tax of stone and Tk. 2038/- lacs for additional stone if stone is used as substitute of brick for remaining work i.e. in total about Tk. 2278/- lacs as excess cost will be involved. There is a plan to import stone from India because collection of stone from Sylhet to project site will be costly and time dependent and again collection of adequate quantity of quality stone will be very difficult. Under such consideration use of brick in base and subbase pavement even in such important projects are impracticable after fulfilling the necessary strength as that of stone. Bricks are available very close to the project site and the use of its in the construction work is found cheaper.

5.2.2 Road Improvement Project:

Cases of using artificial aggregates being still under examination and investigation and since its use having not being started on commercial basis, there is no possibility

of using alternative construction materials other than stone in the road improvement project. There is requirement of about 6.3 lac cub. meter of stone and 14.5 lac cub. meter of bricks. For importing this quantity of stone, about Tk. 4.20 crore would be required for import tax and for use of stone in lieu of bricks further amount of Tk. 45.00 crore i.e. in total Tk. 49.20 crore will be required. In this case excess expenditure shall have to be incurred. In this project procurement of stone from Sylhet and import of Pakur stone from India has been considered.

2.3 Possible increase of yearly expenditure for use of stone in lieu of bricks in the construction of roads and bridges and their maintenance work.

In Annex 'C' it is seen that for construction of roads, bridges and their maintenance work there is a requirement of about 28.0 lac cub. meter of brick and 20.5 lac cub. meter of stone (including Jamuna Multi purpose Bridge Project). If embargo is imposed on the use of bricks, the yearly requirement of stone in future shall stand to 48.5 cub. meter.

As per present market price of bricks, the average cost for procurement of local and imported stone comes as follows :-

Bricks	= Tk.	1025/- per cub. meter.
Local Stone	Tk.	1200/- " " "
Imported Stone	Tk.	1750/- " " "

Under the present circumstances whatever quantity of stone is available from inland sources, it is not sufficient to meet

the normal requirement for construction of roads, bridges and their maintenance.

Under such circumstances if embargo is imposed on the use of brick, the entire additional quantity of stone shall have to be imported from abroad. As a result as a substitute of bricks, every year about 28.0 lac cubic meter of stone shall have to be imported from abroad for which there would be an additional expenditure of Tk. 203.00 crore [(28.00 x (1750-1025))] = Tk. 203 crore.

Findings:

- (a) In construction work if stone is used as a substitute of bricks, the future yearly requirement of stone (including Jamuna Bridge) would come to about 50.00 lac cubic meter but in absence of advantages for lifting and transportation, procurement of the entire requirement from inland sources under the present circumstances would be simply impossible. Lions share of requirement of stone shall have to be imported annually from abroad with the consequence that there would be additional expenditure of about Tk. 203.00 crore for import of stone in lieu of 28 lac cubic meter of bricks. It is needless to mention that all the sources of the country are not explored and connected with communication network and even it is difficult and time consuming to reach those quarries. Adequate facilities are not available in any of the sources for picking up and

lifting of stone in bulk quantities from reports and records available at present it is possible to collect 6 lac cub. meter of stone in an average each year from these sources. If proper step is taken from govt. level by rapid development of transportation system then it would be possible to increase this quantity considerably. In that case the facilities which are required to be developed and provided are mentioned hereunder:-

1. Taking up construction work and completion of sylhet-Salutikar-Companigonj-Bholagonj Road Project.
2. Taking up and implementation of separate scheme for collection of stone on large scale basis from Shergur quarry by cleaning clay soil.
3. Taking up and immediate implementation of scheme for lifting of hard stone from Madhyapara quarry.
4. Taking up of scheme in respect of sources in C.H.I.
5. Collection of stone and arrangement for its transportations from the scattered small stocks in the northern area of the country (at Panchagar, Tetulia & Patgram).

b) In the country less quantity of stone is stored in every year compared to her requirement. Hence if only stone of inland sources is used as substitute of brick then its stock will be exhausted soon and subsequently huge quantity of stone must have to be imported from abroad to meet the requirement. For such huge import, commercial facilities and possible availabilities with the importing countries need to be considered economically and separately. This process is difficult

and time consuming. Thus if bricks are used, these
sorts of problem will be quite lesser. Of course, for
consideration of ecological balance brick will be burnt
only by coal. 205

c) Machinery for production of artificial aggregates, the
establishment, collection of raw materials and starting
production at a specified degree and marketing etc.
will need considerable time. Under the present
situation artificial aggregates as a substitute of
bricks are not to be found convenient since it is still
under investigation. But for verifying feasibility of
its use, production of a small quantity may be started
through a pilot scheme. Road Research Laboratory of RHD
may undertake experimental works on the production of
such aggregates in a small scale with the machinery and
facilities available there and on the basis of result
obtained future programme may be chalked out. It is
also time consuming.

d) Use of bricks may be reduced through stabilised soil
and it will be convenient too from financial point of
view. But necessary stabilizer such as cement, lime,
bitumen, may have to be imported by utilising foreign
exchange and at higher cost.

e) In the existing major contracts relating to
construction of roads and bridges, if use of stone in
lieu of bricks is thought then in that case huge

on this account there will be an additional expenditure of Tk. 50.00 crore and Tk. 25.00 crores (i.e. total 75.00 crores) for Road Improvement Projects and Road Rehabilitation and Maintenance Project respectively. It will be judicious to examine whether it is possible to import abruptly such a huge quantity of stone within such a short time or to allow the use of coal burnt brick.

f) Difficulties in ensuring proper and reasonable production of bricks, optimum utilisation of land, restricted production ability, seasonal production, discouragement on the use of fuel and consequential increase of requirement of coal, lack of suitable brick-field to take full advantage of natural gas, etc. play important rôle to use alternative aggregates in lieu of bricks. Moreover, world wide revolution and prohibition on the use of fuel in the brick field to maintain environmental balance has also contributed much in finding out alternative devices. But inspite of that, it will not be possible to prohibit the use of bricks so abruptly. The last and foremost thing is that if proper arrangement is made to import adequate quantity of stone at a cheaper rate from abroad then use of bricks can be lessened and stopped.

Recommendation:

Now, one of the important policies of the Govt. is to maintain ecological balance in Bangladesh. It is being appreciated by all, but still now where fire wood is cheaper than coal and easily available, how use of fire wood as fuel to brick manufacturing can be stopped. Law Enforcing Agency is also not in a position to stop it fully as the activity of burning of bricks is widely spreaded even in the remote areas of this country. Fire wood can be replaced by gas but gas is a very essential natural resource of the country, the use of which must be very economical to maintain uninterrupted generation of thermal power for producing electricity and manufacturing of Chemical Fertilizer which are the most essential and basic need of the country. Further taking of gas line into the scattered and remote areas of the country will also be very much expensive. In view of the above constraints only coal is left to be used as viable fuel for manufacturing of bricks. So, for burning of requisite quantity of bricks there must be easy and spontaneous supply of coal in Bangladesh from other countries in no loss of time. To encourage the regular supply of coal nominal taxes should be imposed upon the import of coal. If it is done so only then the use of fire wood in brick manufacturing will be lessened and finally stopped. And alongwith the above actions, Grass Programme (cut one tree but plant 5

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trees) for plantation of different kinds of trees having fire wood and timber value with special attention to fast growing trees must immediately be taken up as a continuous process by all govt. and also Private Agencies in all corners of Bangladesh. The economy of plantation must also be seen along with it. This continued process of planting trees shall help the nation to maintain ecological balance.

- b) Before stopping the use of bricks in construction work, amount of storage of stone in and under the soil of Bangladesh must be quickly and carefully assessed and explored. If it is not done as stated and use of brick is stopped then the country shall be in real crisis for stone. Under the above circumstance it is very much apprehended that present available stock of stone (if only stone is used is used in construction work) will be exhausted within a few years. Bangladesh then shall have to import stone from other countries at higher cost involving foreign exchange and this shall bring a bad effect on the overall economy of Bangladesh. Over and above the dependency on other country for road construction materials like stone shall greatly be increased and consequently the development construction work of this country will lie on uncertainty. This may be suicidal for the nation. For construction works, production of huge quantity of bricks is a sustained necessity of the majority people of Bangladesh.

Arrangement for proper supply of coal at a subsidized price to the brick manufacturer backed by the supervision of the law Enforcing agencies shall stop the cutting of trees largely and help maintain ecological balance in the country. This shall also help to produce quality bricks and bring great socio-economic benefits to the nation.

c) Before implementation of this recommendation road communication is to be established with all quarries for collection of stone throughout all seasons. Necessary steps are to be taken to ensure carrying of stone by Railway at cheaper rates to different places of the country. Carrying of stone from Bhelagong by the ropeway of Bangladesh Railway is to be utilized to its optimum capacity. The implementation of hard rock project at Maddhyapara is to be accelerated.

d) If bricks are not used in the construction of roads and bridges then about 38 lacs cub. meter of stone (excluding Jamuna Bridge work) will be required every year. Whereas the probable present yearly collection of stone throughout the country is about (six) lacs cub. meters. The difference can not be met by import. The present collection being insufficient in respect of demand, maximum step may be taken phase by phase to replace brick by stone and otherwise the progress of development works will be hampered seriously.

as an alternative of brick, some artificial aggregate may be used, excepting natural aggregates but wide of these artificial aggregate at present cannot recommended right now as it is still under investigation and report of the technical assistance project of Road materials and Standards study is completed by the consultant.

ROAD MAP OF BANGLADESH

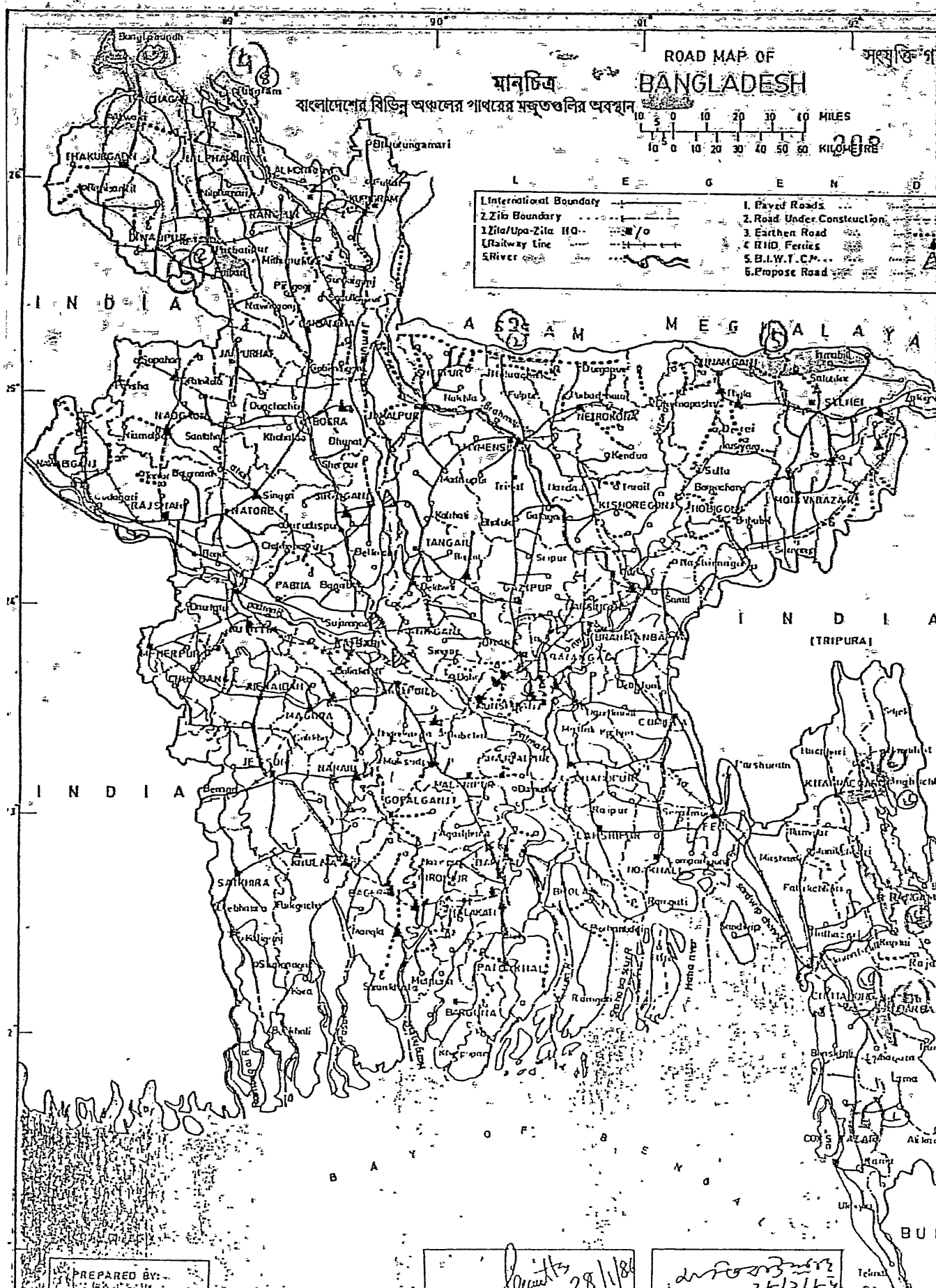
মানচিত্র

বাংলাদেশের বিভিন্ন অঞ্চলের পাথরের মজুতগুলির অবস্থান

संस्थितिः १।

L E C E N D

1. International Boundary
2. Zila Boundary
3. Zila Upha-Zila HQ
4. Railway line
5. River
1. Paved Roads
2. Road Under Construction
3. Earthen Road
4. RHD, Ferries
5. B.L.W.T.C.M.
6. Propose Road



SUMMARY SHEET

Annex - B

LENGTH AS PER CATEGORY TYPE AND PAVEMENT WIDTH OF ROADS UNDER RHD AS ON 30.6.88
(Length in Km.)

Category of Roads	Length	Present Condition				Length of paved road as per pavement width						
		Paved Road	H.B.B. or partly paved.	Gravel Road	Earthen Road	Below 3.66 meter	3.66 to 5.18 meter	5.18 to 6.71 meter	6.71 to 8.13 meter	Over 8.13 meter	Total	
2	3	4	5	6	7	8	9	10	11	12	13	14
National Highways.	2834.60	2713.57	63.06	-	25.55 + 32.42	349.93	327.35	79.12	1281.41	590.45	85.31	2713.57
Regional Highways.	1369.76	1218.73	129.32	-	21.71	244.58	379.12	18.04	550.68	24.70	1.61	1218.73
Feeder Roads.	3003.32	1619.23	512.81	106.89	722.74 + 42.25	232.75	1003.40	66.42	253.97	54.91	7.78	1619.23
Upazilla connecting Roads.	5056.58	1603.74	1358.50	20.00	1876.29 +198.05	793.46	710.81	33.88	55.56	6.81	3.22	1603.74
	12264.26	7155.27	2063.69	126.89	2645.69 +272.72	1620.72	2420.68	197.46	2141.62	676.87	97.92	7155.27
					+ In the form of tracks as on 30.6.88							

Foot Note :-

National Highways : Highways connecting national capital with different divisional and old district headquarters, port cities and international highways.

Regional Highways : Highways connecting different regions and new district headquarters not connected by national highways.

Feeder Roads (Type A) : Roads connecting important growth centres and places of socio-economic importance (other than Upazilla headquarters) with the paved road system.

Upazilla connecting Roads (Type A) : Roads connecting Upazilla headquarters with the nearest paved road system.

Annexure- (C)

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Yearly requirement of stone and bricks for construction and maintenance of roads and bridges.

Sl. No.	Field of use	Requirement of bricks, in lac of cub. meter.	Requirement of stone, in lac of cub. meter.
1.	Roads & Highways Deptt.		
a)	National, Regional, Upazilla connecting Roads under ADP and constn. of roads, bridges and culverts under special project, Circle and road projects in Chittagong Hill Tracts.	12.0	2.5
b)	Road Improvement Project.	6.0	2.5
c)	Road Rehabilitation & Maintenance project.	1.0	0.5
d)	Repair and Maintenance of Road and Bridges.	1.5	2.0
		<u>21.00</u>	<u>7.5</u>
2.	Jamuna Multi-purpose Bridge.	-	10.5
3.	Constn. of road & bridges of other Agency.	7.00	2.5
		<u>28.00</u>	<u>20.5</u>

*Total yearly requirement of bricks and stone = 38.0 lac Cub. Meter.

* Excluding Jamuna Bridge.

Important queries of stone available in the country.

Annexure - D

Location of source	Approximate quantity in stock. (in lac cub.m.)	Yearly Production (in lac cub.m.)	Possible yearly collection. (in lac cub.m.)	Area of quarry.	Remarks.
Bholagonj, Sylhet.	105.0 (Estimate by JICA, JAPAN).	4.0	4.0	2 Sq. mile	Stored through river.
Petulia of Panchagar Dist. Patgram of Rangpur Dist. Jarlong of Sylhet Dist. Luba, etc.	70.0 (Estimated by Geological Survey of Bangladesh and JICA)	1.5	2.0	AV. 75 m wide Approx. 30/40 mile long.	About 1.5/2 meter thick under the river bed.
Shanpur, Mymensingh.	Sufficient (Estimated by Binni & Partners USA & JICA).	-	Inadequate (Previously AV. 0.1)	60 mile wide, 150 mile long.	About 300 ft. high.

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 - B. Upazilla Connecting Roads Projects:
 - C. Maintenance:
 - D. Flood Damage Rehabilitation Projects:
 - E. Major Bridge Projects:
2. Implication of duties and taxes on foreign aided projects imports of stone-materials:
3. Information on various substitutes of bricks except stone:
 - A. Artificial Aggregate:
 - B. Synthetic Aggregate:
 - C. Consolidated Treatment:
 - D. Soil Stabilization:
4. Study/Report on Artificial Aggregate:
 - A. Study on construction materials and Quality testing:
 - B. Investigating of the feasibility of the manufacture of synthetic aggregate:
5. Report on availability of Stones:
 - A. Reports of Jamuna Multipurpose Bridge Authority and Study of Pathmark on the source of stones in Chittagong Hill Tracts(World Bank):
 - B. Materials Investigation Report,Road Development Projects (ADB):
 - C. Materials Investigation report,Road Rehabilitation & Maintenance Project(world Bank):
 - D. Materials Investigation Report,Flood rehabilitation and Development Project((ADB):

TYPICAL CROSS SECTION OF ROAD SHOWING PAVEMENT STRUCTURE

Black Khod and Sand layer
10 to 12" thick

Stone layer
10 to 12" thick

Black Khod layer
8 to 10" thick

Sand layer
3 to 4" thick

Sub-grade

NOT TO SCALE

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BANGLADESH PUBLIC ADMINISTRATION TRAINING CENTRE
SAVAR, DHAKA

BANGLADESH RAILWAY OPERATION : ITS PROBLEMS AND CHALLENGES

by :
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Paper submitted to the BPATC in partial fulfilment of the
requirements of successful completion of the 11th Senior Staff
Course - 15th July to 14th October 1990

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PREFACE

This report is prepared on the basis of the knowledge developed from know-each-other session of BPATC, study of the reports and information book mentioned in the bibliography, knowledge gathered from last 25 years attachment with railway operation and lastly a three days data collection trip from 9th to 11th September, 1990.

The writer wishes to acknowledge the in valuable assistance received from BPATC Officers at all level. Although it is inevitably some what invidious to single out individuals, the writer must express his particular thanks to Mr. Muhammad Abdus Sobhan, Member, Directing Staff, Course Director, and seminar Adviser and Mr. M. Wahiduzzaman, Director and Chief Co-ordinator who gave him guidance, much time and help and to Mr. A. K. M. Helaluzzaman, Deputy Director and Co-ordinator who took the onerous task of compiling and printing of the seminar paper.

Bangladesh Railway Operation: Its Problems and challenges,

1.0.0. Introduction:

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Bangladesh Railway is the oldest and biggest transport organisation of this country. It is state owned enterprise, run by the government on commercial-cum public utility consideration. Its organisational structure, management system and working rules have been shaped and evolved in course of long experience over the years. It is perhaps, the only organisation in Bangladesh which can rightly boast of having well tried, well-defined and well set code rules and working system essential to keep on activating its various organs and make them function coherently and efficiently in order to produce the desired transport services.

1.1.0. Objective of the study:

Unless the problems can be identified, suitable solutions commensurate with the problems cannot be found out. Bangladesh Railway has become a substantial drain on Government fund instead of being a substantial national asset. As many people aware of convenience of road transport, its flexibility, greater frequency of service and godown to godown service has found preference with users and has been growing rapidly in Bangladesh since its independence. The study makes it imperative to know about the salient features and peculiarities of Bangladesh Railway so as to have a comprehensive idea about the problems that devolved on its management and operational systems.

1.2.0 Brief History:

Bangladesh Railway has been inherited as a legacy of the British Railway system in India. Bangladesh Railway system was

introduced to cover the geographical requirements of Bangladesh as it is to day and as such this is not at all oriented to the needs of this country.

It took more than century to build the present network of the then Indian Sub-continent. At the time of partition of India in 1947, Bengal and Assam Railway was split up and the portion of the system about 2604 K.M long which fell within the boundary of erstwhile East Pakistan was named as Eastern Bengal Railway. Khulna-Jessore section and Bhurungamari-Sonahat section left unconnected through main land within Bangladesh boundary.

Jessore-Darsana section is constructed immediately after partition by withdrawing double line track between Abdulpur-Santalaha, Bhurungamari-Sonahat. being small section remained un connected till to day. Amnura-Rahanpur, Amnura-Chapai Nawabganj sections were metre gauge during partition. Hence these M.G. sections remained unconnected with the adjacent Amnura-Rajshahi B.G section of Bangladesh Railway. These tracks were converted into broad gauge to make continuation and bring back as part of the Eastern Bengal Railway. Rupsa-Bagerhat was Narrow gauge which was converted to broad gauge long after to avoid narrow gauge establishment for such a short section of 34 K.M.

Calcutta bound economic activities were changed overnight and Dhaka, Chittagong and Khulna became the focus point after the partition. As a result Bangladesh Railway has been running with some inherent problems due to this orientation change.

2.0.0 PROBLEMS & CHALLENGES
(Top management, war and Flood)

4.1.0 Experiment on top Management
During Pakistan days

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The Railway Board which was established in 1905 and reorganised in 1924 is still functioning efficiently in India. This system went through the vicissitudes of world war-II and thus stood the test of time. However, with the inception of Pakistan in 1947 which inherited much smaller network of the Railways in two farflung parts of the country, it was thought that a Railway Board like the one as existing in pre-partition days would be set up in Pakistan also. But this was not done. Instead, the Railway Board was abolished and a Railway Division under the Ministry of Communications was set up which was headed by a Director General. Although the Director General was the head of the Railway management and functioned from the Ministry of Communications, he did not exercise adequate financial control on the Railway working because of the fact that Financial Adviser, Ministry of Communications was not answerable to him or to his Ministry; as a result essential co-ordination between the General Administration and financial control was lost. The Director General was not the Ex-Officio Secretary to the Central Government rather he used to work as a subordinate to the Secretary of his Ministry.

An Ordinance No. XLVIII of 1959 was promulgated on 28th August, 1959, as a result of which Pakistan Railway Board came into existence on 31st August, 1959. The Railway Board started functioning as a part of the Ministry of Communications with its Chairman as Ex-Officio Secretary to the Central Government. Thus the Board was vested with policy-making power of the Central Government as well as power of top

management body for Pakistan Railways. Thus also the Pakistan Railway regained the "Freedom" which was "lost" in 1947 as aptly remarked by the Committee on Decentralization and Decentralization in the report submitted on June 15, 1979. Under this Board two General Managers one for Pakistan Eastern Railway (now comprising Bangladesh Railway) and the other one for Pakistan Western Railway continued to function in accordance with the Railway Codes.

However, with the introduction of a constitution for Federal setup in Pakistan in 1962, the Pakistan Railways were bifurcated and transferred to the two Provinces of East Pakistan and West Pakistan under the Presidential Order No. 33 of 1962. The Pakistan Eastern Railway (now comprising Bangladesh Railway) came under the then Government of East Pakistan and Pakistan Western Railway under the then Government of West Pakistan. But under this Order two different treatments were meted out to these two Railways. In West Pakistan, a Railway Board was set up which started functioning as part and parcel of Provincial Government with integration of policy making and operation at the Government level. In East Pakistan also a Railway Board was setup but it was reverted to the status of a mere Management Board with its Headquarters in Chittagong and was placed under the administrative control of the Ministry of RW & RT of East Pakistan Government.

2.2.0 Experiment on top Management in Bangladesh

The deplorable condition of Bangladesh Railway after the Liberation war, offered a gigantic task to the stultified structure of the Railway Board inherited from Pakistan. The Donor Agencies

visiting Bangladesh for rehabilitation work were critical about the system of administration and inherent weakness of the management. It was soon realised by the Government that the organisational structure and administrative management of the Railway needed basic and fundamental change. 220

A Railway Commission was, therefore, setup in Bangladesh under the Chairmanship of late Mr. Wazed Ali Khan, a member of erstwhile Civil Service of Pakistan on 1st September, 1972 to examine the position and recommend measures necessary to improve Railway's management.

The Railway Division was set up under a Secretary to the Government who was a Member of Audit and Accounts services and who had, prior to this appointment, acted as Chief Auditor of the Railway for sometime in the past. The technical directorates were not at all organised in proper form, and staffing of the Railway Division was taken up half-heartedly.

This pattern of working was, more or less, a repetition of the wrong done in the past and as such was also not appreciated by the various donor Agencies who felt that the Railway Division as setup was inadequate for the purpose of effective control and management of the Railway in Bangladesh.

-- In 1975 the Asian Development Bank while granting a loan for the Railway took up the matter with the Government in all seriousness. They pressed the Government under the Loan Covenant to reorganise the Railway in order to achieve better operational efficiency.

Consequently, a five member body for running the Railway was established on first July, 1976 under the Ordinance No. XLI of 1976 with the style and title of Bangladesh Railway Board. This legislative incorporated many a proposal of the Consultant but it did not follow all the recommendations notably those relating to the status and position of the Board and its relationship with the Government. The Board also could not be effective in handling the affairs of the Railway; it was just a managerial Board with a little elevation from the status of General Manager & under the control of the Railway Ministry. Although it was mentioned in the Presidential Order No. XI of 1976 that there should be a Chief Executive (General Manager), the post was not created separately, it was merged with that of the Chairman, Railway Board.

With the change of Government in 1982 when Martial Law was promulgated in the country, a review of the Railway system was again made. The Government during this time initiated steps for decentralization of administration in the wake of which there was political thinking for bifurcation of the Railway and running of the same under two General Managers.

In view of this Government felt the need for reorganisation of the structure again. In the exuberance of doing something new and good for the Railway, another experiment was initiated which has been fortunately in conformity with the structure of the top management that stood the test of time. Railway was, in fact, bifurcated into two zones and placed under two General Managers for field management with headquarters at Chittagong and Rajshahi. The physical bifurcation was done along the line of bisection of the Railway by the mighty Jamuna.

ver. The top management integrating policy making and operations and placed superior to the two General Managers was vested in the Ministry where a separate Railway Division was created headed by a Director General/Secretary. The Railway Division was reorganised with provision of necessary technical Directorates. The Director General was also to function as Ex-Officio Secretary to the Government. Under him the post of Additional Director General (Finance) and Additional Director General (Railway Operation and Engineering) with ex-officio status of additional Secretaries were created. Recently with the creation of a new post of Additional Director General, the Railway Division is reorganised as under:-

Secretary/Director General is head of the Division and under him there are three Additional Secretaries/Additional Director Generals incharge, of Railway Operation and Commercial work, Railway Engineering and Technical matters and Railway Finance. A requisite number of Directors from the various railway discipline to deal with different technical aspects and procurement were also positioned.

This Division looks like the Railway Board as functioning in India and Pakistan for administering control, policy and managerial direction over the two General Managers and co-ordination among them for efficient running of the Railway but with the only difference that collective responsibility as existing within the Railway Board in handling technical affairs and operation of services is absent.

The system as setup in India in 1905 and reorganised in 1924 on the basis of the recommendation of the Acworth Committee has stood the test of time through the vicissitudes of socio-economic evolution and progress and still continues in India.

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The deviation and experiment made in Pakistan and also in Bangladesh did not prove satisfactory. It has been rightly remarked in the report of the Committee on Decentralization and Decentralization of June 15, 1979 that "whenever a new type was introduced, necessity for revision of the same arose soon after."

To-day in Pakistan a Railway Board similar to that in India is functioning. In Bangladesh different types of Railway board and separate Government control had been tried. However, the Expert opinion did not agree with the system of working and recommended setting up similar type of Railway Board.

Lately a compromise was struck and a Railway Division with special powers and including financial powers and responsibilities were set up with Technical directorates and authority to take decisions without normal consultation with Finance and Establishment Ministries except in case of finalisation of Budget, Recruitment policy and formulation of development plans. Rules of business were accordingly modified by the Government to enable the Railway Division to function as independently as possible in a modern Government. The name of Railway Board was not, however, given to this specialized body of the Railway Division. As a result the collective responsibility of Secretary/Director General and Additional Secretaries/Additional Director Generals cannot be enforced, whereas in a Railway Board Chairman and all Members have to accept the collective

responsibilities and remain answerable to the Government the Minister-in-charge.

2.3.0 War & Flood:

Bangladesh Railway had faced the most severe stresses strains during the World War-II. Before the damages sustained during the World War-II, could be fully repaired, came the partition of Indian sub-continent. Bangladesh Railway did not receive due attention for rehabilitation and repairs during the fifties as well as sixties. In fact, the back log of repairs started accumulating during the period on account of inadequate provision of foreign exchange. Then in 1971, colossal damages to the Railway system were caused during the Liberation war, which left this Railway in more than isolated parts and without the basic requirements for train operating facilities for repairs and maintenance of its rolling stock, track bridges, signalling and telecommunication equipment, works machinery and other plant and equipment. It may briefly recapitulated that 300 bridges including Hardinge bridge at Paksey, King George VI bridge at Bhairab Bazar were very badly damaged. Kilometres of track were uprooted and destroyed. Signal cabins installations were severely damaged and rendered unserviceable. units of passenger coaches, 1,484 units of freight wagons, 140 units of locomotives and 20 marine crafts were also severely damaged. diesel locomotives (10 metre gauge and 2 broad gauge) and 24 steam locomotives were damaged beyond repairs. 3 passenger ferry vessels and other marine crafts were sunk and could not be salvaged. Apart from the physical damages mentioned above, about 1300 Railway employees including experienced officers and skilled workers, lost their lives during the Liberation War.

The Railway system again suffered extensive damage due to devastating flood of 1987 and 1988. This resulted in suspension of train communication for considerable period of time resulting in loss of revenue.

3.0.0 PROBLEMS & CHALLENGES (Field Management)

The performance of the state-owned Bangladesh Railway (BR) has deteriorated continuously throughout the 1980's. Traffic volumes, both passenger and freight, have declined; costs have increased particularly staff costs, at a rate considerably above the rate of inflation. Staff numbers have remained roughly constant and productivity has fallen.

As a result, BR's deficit before depreciation has increased from Tk. 186.4 million in 1980/81 to Taka 982.3 million in 1988/89. The inability of Government and of Railway management to arrest this decline gives cause for major concern.

Key performance indicators in two tables in appendix 1 & 2 are enclosed for ready reference.

Any continuing business requires to be looked both to the future and to the past performance with a view to assess its utility and know as to where does it stand.

3.1.0 Budgetary Allocation

The steady and accelerated development of any branch of the national economy requires the profound analysis of the previous operation in order to find out the bottlenecks which restrain continuing and accelerated development of the national economy and search measures setting aside those bottlenecks. On the basis of the findings the allocation of resources among different investment projects can be made more rationally and scientifically.

The following table will give railway plan outlays, transport sector outlays and total plan outlays in different plans.*1

	(Taka in lakhs)		
	Railway	Transport	Whole
	sector		eco
First Five year plan (1973-78)	146,60	926,04	N.A
Two year plan (1978-80)	179,24	551,48	N.A
Second five year plan (1980-85)	531,40	1,048,21	15,581,
Third five year plan (1985-90) (not revised)	836,00	1,601,00	25,000,0

It is understood that Railway enjoyed less importance in allocation fund which is insufficient to replace the age old assets and needed works of improvement.

3.2.0 Management and organisation problem

3.2.1 The Railway senior management is integrated within Ministry of Communication and the most senior railway officers a function as civil servants within the Railway Division of Ministry.

* 1 source: BR's information book, 1989. P-9.

2.2 The present organisation of BR is cumbersome; the three tier chain of command, with two zonal managements interpolated between headquarters and the four Divisions delays in reaching the command in the execution level. The intermediate zonal organisation was introduced by the Government in 1982 under an administrative re-organisation scheme. This was a political decision and perhaps was necessary due to bi-section of Bangladesh Railway into two natural zones by the mighty river, Jamuna.

2.3 The Railway has no separate autonomous existence outside the Ministry. Its budget is incorporated within the Ministry's Budget. All major decisions, and many minor ones, are taken at Ministry level. Managerial accountability within the Railway is therefore lacking.

2.4 The Railways organisation is traditional, developed in the days of railway monopolies and steam power, with the primary emphasis on engineering and operations. Marketing is virtually non-existent while rates and fares are controlled by Government.

At no point in the organization do responsibility for income and expenditure come together, except in the person of the Secretary/Director General himself.

2.5 There are no less than 35 trade unions involved with BR, many of them not officially recognized and many with political affiliations. The disciplinary rules cannot be adequately applied against them and also their supporters.

2.6 Staffing levels on BR are disproportionately high in relation to traffic carried. After the birth of Pakistan in 1947, the Mohazir Railway employees coming from N.F. Railway and Eastern Railway etc. were accommodated in the then Eastern Bengal Railway perhaps without considering the requirement.

As a result of falling traffic, declining employee productivity, revenue increase below the rate of inflation and inability to control costs, particularly labour costs has contributed significantly to the poor fiscal performance of the railway management. The employees cannot be retrenched due to poor job opportunity elsewhere even though traffic has fallen and the deficit has reached Taka 1 billion in 1989/90.

3.3.0 Problems in the Railway System

3.3.1 Ferry operation across the river Jamuna:

The Railway transportation system across the river Jamuna connecting the two zones is maintained by passenger and wagon ferry services along the route between Tistamukhghat and Bahadurabadghat and passenger ferry service along Sirajganjghat-Jagannathganjghat. The management for this marine work is vested with the west zone administration.

This is a constant and challenging task. Jamuna is a big river that behaves capriciously rendering it extremely difficult for smooth and easy operation of ferry services. Constant siltation and accumulation of soil on river bed have been changing the course and current almost regularly with the rise of earthmounds here and there. This makes negotiation of ferry very difficult along the zigzag long route. Very often the ferry becomes agrounded.

Again during winter season the river tends to dry up for want of water flow and most of the days from midnight to forenoon the sky remains overcast with heavy fog obstructing visibility. Some times water flow channels in the river becomes narrow rendering it extremely

difficult for ferries to negotiate. A dry season crossing can require a journey of well over 80 kilometers and take 10 hours or more. Clearly such an operation cannot offer any kind of reliability on which to base operational planning and results in poor service for customers.

As a result with the present fleet of five barges and 5 tugs we could not even make it possible to ensure more than two up and two down wagon ferry trips a day on the average.

The same is also the picture of passenger ferry service. Over the years the channel condition of the river has further deteriorated. The result is we had to occasionally suspend passenger ferry service between Sirajganj and Jagannathganjghat, once from 12.12.89 to 21.12.89 and again from 31.12.89 to 16-1-90. Finally, however, the passenger ferry service kept suspended from 24-1-90 to 6-4-90. There is a general apprehension that in the coming years channel condition in the river is likely to deteriorate so much that during winter season both the passenger and wagon ferries in two routes may have to be kept suspended which will invariably cause a total break-down in the inter zonal railbound traffic.

The ghat stations from where the wagon and passenger ferry services are operated required occasional shifting due heavy silting and erosion of river banks. Thus free flow of traffic is greatly retarded necessitating frequent booking restrictions and causing not only passenger inconveniences but also loss of Railway revenues.

The problem existed in the wagon ferry services as mentioned above has seriously affected freight operation of Lalmonirhat Division. The traffic offering in Lalmonirhat Division is for 30

wagons a day on the average during October-April. Eighty percent of such offering is for destination across the river Jamuna. Now the crossing of wagons on the average being 70 a day (one way) created serious bottleneck in the supply of empty wagons for loading in Lalmonirhat Division which adversely affects the confidence of the Railway users who would otherwise always prefer Railway to other mode of transport for their long haul traffic. Ferry service routes of both the ghats are shown in appendices 6 & 7.

3.3.2 Break of Gauge (Metre gauge/Broad gauge) at Santahar and Parbatipur

This involves transshipment of contents which again requires working and placement of wagons of other gauge in time, additional labour, protection force etc. This complication of work in the management eats into the very smooth and vitality of operation.

3.3.3 Engine Turning:

During British period, the Railway system was not introduced to cover the geographical requirements of Bangladesh as it is today and this is not at all oriented to the needs of this country. Break of gauge points and need of turning of engines at 3 stations for the journey from Dinajpur to Dhaka prove the above comment.

During the construction of Railway in the British period, the station yard were designed and laid to serve Calcutta. Dhaka became the focus point after the partition of India in 1947. Train running from Dinajpur to Tistamukh Ghat for ultimate journey to Dhaka has to turn engine at Parbatipur, Kaunia and Bonarpara which kills one hour time in total unnecessarily on this account.

3.4 Ghat shifting to Nalchia:

Jagannathganjghat may be shifted to Nalchia, 32 kilometer downstream of the present ghat at Kumarpara. This will shorten the distance between Sirajganj and Jagannathganj from 53 kilometre to 13 kilometre only and passenger ferry will take only one hour in place of hours required at present.

The river bank at Nalchia is situated by the side of Assam channel and expected to remain stable for long time.

Nalchia is also the site for the proposed Jamuna bridge. The proposed line will be utilized for carrying huge construction materials for the proposed bridge and will remain as feeder line for Mymensingh area.

A new line is proposed to be constructed between Sirajganj and Bogra 70(Km). This can be utilized for connection of Jamuna Bridge with Railway system.

Wagon ferry crossing can be shifted from Bahadurabad-Istamukhghat to Nalchia-Sirajganjghat route.

The proposed route will ensure the channel crossing through ferry services also due to its stability as both the bank of river Jamuna will be made strong at this site during construction of Jamuna Bridge.

A new Tangi-Tangail-Nalchia railway line is proposed to be constructed for ultimate advantage of quicker reaching the capital and the Port city from West of Jamuna river.

Jagannathganj-Nalchia-Bogra Project and Sirajganj will require a big investment cost amounting to Taka three Hundred crore. Ways and means are to be found out to invest the amount to save railway from disaster.

3.40 Freight Operation and Marketing

3.4.1 BR's position in Freight Market:

Whilst the total market has been increasing steadily, rail carryings have declined over the period from 3.0 million tons p annum in 1980/81 to 2.5 mta. in 1988/89. Over all BR's market share fell from about 16 to 10 percent. The increase in total freight demand has largely or wholly accrued in the road sector. Intermodal transport study of 1985 (ITS-85) estimated the modal shares by ton-kms follows:- *2

Mode	%
Road	53
River	30
Rail	17

	100

On the assumption that, overall market has grown by 3 percent p annum, that IWL maintained its position and that rail carrying has declined from 813 mtkm to 666 mtkm over the period 1984/85 to 1988/89. The equivalent modal shares would be: *3

Mode	%
Road	58
River	30
Rail	12

	100

*2 & *3 Source: Report of the Railway Marketing Expert, 20 April, 1990. P-22.

4.2 Security of freight rolling stock equipment:

It is impossible to run freight trains reliably on an unbraked sis. This makes the speed of operation so low (about 10 km/hr) ²²⁵ freight trains have to be put into loops to allow passenger trains to ss. Goods train running without vacuum brake connection with the gons is unsafe and vulnerable to accident, which causes loss of ods, increase of turn round time and also detain the passenger ains to reach its destination.

4.3 Avoidance of shortages of delivery

There are a significant number of cases of shortages in nsignments on arrival at destinations. There is conflicting evidence out whether these are caused by shortages at the time of loading or theft "enroute". Form the point of view of BR's objectives, it is material how these shortages arise, it is simply essential that BR's sponsibility for them is eliminated.

4.4 Key commodity

Between 1980/81 & 1988/89, many key commodities carried by rail declined. Carryings of the one commodity in which the railways had achieved significant success, 'fertilizer' have now also gone into sharp decline. This has recently been illustrated by the changing overnment polic policy concerning the distribution of fertilizers. Under the new policy, Government is exploiting the flexibility of the rivate sector. Large godown & siding constructed under World Bank ssistance, are now laying idle due to change of Government policy hich resulted in freight decline by rail.

Currently about 20.5 million tons of food grains are consumed in angladesh of which in disaster free years the country can produce

about 19.5 million tons. If appropriate measures are taken, self-sufficiency will shortly be reached except when production is cut by flood disasters. Currently BR carries about 0.9 million tons of food grains and paddy of which 0.3 - 0.4 million tons per annum are imported. The reduced imports of food grains this year had serious effect on railway carrying.

3.4.5 Fixed Tariff System

The current fixed tariff system is wholly inappropriate to a competitive market. Even though General Managers have some delegated powers to reduce the tariff in order to win business, the existence of the tariff scales impose inflexibilities which limit the ability of the railway to compete effectively with other modes.

3.5.0 Passenger operation and marketing

3.5.1 BR's position in passenger market:

Although the total passenger market has been growing steadily, rail passenger traffic has not pace with this growth. Recorded rail passenger numbers have declined substantially from about 90 million passengers per annum (mpa) in 1981/82 to under 55 mpa in 1987/88. Passenger kilometers during this period has fallen by over 20 percent. There is now sign that, in the financial year 1989/90, rail passenger volume has increased by 15 percent. (63.25 mpa)

Total demand in passenger kilometer in 1989 would be 36.1 million. The relative positions assumed to be the following:

Bangladesh passenger movement: Modal split (billion of passenger kilometers per annum and percent). *4

Year	Total	LWT & Bus		Rail	
1980/81	22.6	17.4	76%	5.2	24%
1984/85	30.0	24.0	80%	6.0	20%
1988/89	36.5	31.1	85%	5.4	15%

5.2 Ticketless Travelling: The proportion of passengers whose fares are not collected by the railway on Mail/Express and local passenger trains is estimated at: *5

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Mail/Express Trains	30%
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Local Passenger Trains	30%
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5.3 Passenger Coaches:

Mail/Express and Passenger trains are running with insufficient number of Coaches. The trains are so much crowded that checking by individual checker to take action on ticketless travelling is difficult and sometime almost impossible. This over crowding has further tempting the passengers to travel without ticket resulting the collection in this account has declined.

6.0 problems of train operation:

6.1 Overage Assets and lack of Development fund:

First Five year plan (1973-78) and two year plan (1978-80) was only aimed at rehabilitation and reconstruction of the railway system. Out of the limited allocation, bulk of the SFYP investment was for replacement, renewals and rehabilitation of tracks, rolling stock and signalling equipment. TFYP investment was for:-

- (i) Rehabilitation and modernisation of the signalling and telecommunication system;

*4&5 Source: Report of the Railway marketing Expert 20th April, 1990. P-39, 42

- (ii) Improvement of existing repairs and maintenance facilities with greater emphasis on heavy repair works;
- (iii) Further development of local capacity for fabrication of carriage and wagons;
- (iv) Training of officers and staff for maintenance operations and traffic management; and
- (v) Procurement of the minimum number of rolling stock only.

Despite that condition of assets has continued to deteriorate. The position at present is that the percentage of ineffective locomotive is 28%, BG-Carriages 37%, MG carriage 15%. Summary of rolling stock owned and effective availability of rolling stock is enclosed in appendices 8 & 9. The percentage of overage sleepers on track which affect the speed ranges up to 80% in some cases and ballast could not be spread and used in good length of the track. Similarly the overaged rails in the track are now more than 50%. Except the sections where modern technique of signalling, i.e. "Relay Inter Locking" are introduced most of the other sections are working with old system of tumbler lever, double wire and mechanic interlocking. These are already very old and deteriorated beyond limit.

Telecommunication system for centralized control of the train in western zone is still through old aged land line telephone network. The network is not fully connected with all the sections and also not audible. Sometime the control remains suspended due to theft of wire.

3.6.2 Inadequate yard and line capacity:

The main problems of train operation stem from inadequate yards and terminal facilities and limited sectional capacities. The

station is incapable of receiving and despatching 54 numbers of trains a day in its 8 terminal platform lines resulting trains are to wait outside for clearance sometime during peak hours.

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There are serious crossing problem for want of 2nd loop in Ansarbaria, Halsa, Noapara etc. in Khulna Poradaha section. Trains are to detain long time in a station to get clearance. Similar is the problem in other Sections also. 23 Nos Up & 23 Nos. down trains are running daily in Tongi-Bhairab Bazar section. This has reached optimum capacity. There is bunching of trains and face problem of clearance if any additional train is allowed or one or two trains run late during peak period.

A full train load of 70 wagons can not be allowed to run between Shaistaganj-kulaura section being a hilly section. Only 40 wagons are allowed to run in this section.

3.6.3 Wasteful local movement towards port

Most of the time empty haulage of wagons are necessary to get freight loading share from Chittagong Port and Khulna. Railway sustains financial loss for one way empty movement.

3.6.4 Problems of Locomotive & Coaches:

The fleet of locomotives are procured from USA, Canada, U.S.S.R., Hungary, Japan according to the availability of aid. Some of them are Diesel Electric and others are Diesel Hydraulic. All types of locomotives and even according to the country make, the spare parts are different and so also the technology. So there is serious problem of know-how, maintenance and spare parts and storage. Coaches have similar problems.

3.6.5 Marshalling Yard

It is needless to emphasize that marshalling yards should well laid out and well equipped for handling the quantum a pattern of traffic which passes through the yard. On BR most the marshalling yards have outlived their utility as the tracks are not renewed from long time. As a result there are frequent accidents during shunting for marshalling the wagons.

It is quite evident that there is a sharp decline in the efficiency of yard working due to detention of wagons in the yard. This will increase the wagon turn round time and will evoke the need to increase a number of wagons for carrying same quantum of loads. This surplus number of wagons will create additional bottlenecks.

In spite of this very fact, that marshalling yards are not adequately equipped to handle freight traffic, BR followed the policy of increasing the number of freight wagons and locomotives without paying adequate attention to modernization of marshalling yards terminal facilities, signalling systems with the result that these outdated facilities, marshalling yards in particular, have become the main bottlenecks restraining efficiency of train movements and adversely affects the output of wagons and locomotives.

3.6.6 Accident:

Train accidents can be classified as under:-

- 1) Failure of human element;
 - a) Driver not obeying Signal.
 - b) Driver running at excessive speed.
 - c) Reception of train on occupied line.
 - d) Despatch of train in occupied section.
 - e) Reversing of points while the train is still running over them.
 - f) Failure of gateman to close gates.
 - g) Failure of road Vehicle driver to take notice of the approaching train.

- 2) Defective maintenance and failure of material:
- a) Breakage of axle, Journal, draw-bar, hanger eye bolt etc.
 - b) Failure of brake gears.
 - c) Breakage of rail.
 - d) Failure of road vehicle over level crossing.
 - e) Failure of signalling equipment.
 - f) Failure of track.
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Natural Cause:

- a) Breaches caused by floods.
- b) Blowing away of vehicles during storms.

Train wrecking of sabotage.

Whatever may be the cause of accident, it is never wanted and the success of a transport system largely depends on its record of safety. Such, for any railway to stay in business and serve the peoples well, in these days of keen competition from the air, water and the road, it has to give prime importance to safety in operation.

Majukhan accident dated 15th January/ 1989 colliding between Dhaka and Chittagong bound Urmu-Aruna which has caused death of 78 persons was due to failure of the Locomaster to obey signals. Subsequent Kumira accident of Dhaka bound Karnafully Express causing death of 14 persons on 2nd February, 1989 was due to breakage of hanger eye bolt.

6.7 Theft and Pilferage:

Thefts of fittings from rolling stock is a serious problem which is not only causing financial loss to the Railway but also frustrating Railway's efforts to provide certain amenities to travelling public and to maintain the safety devices in good fettle. Items like fans, bulbs, mirrors, water taps, seat covers, brake blocks, train lighting valuable parts like diodes, belts, train pipes, vacuum fittings etc. are pilfered from rolling stock in yards and also during course of journey.

The Railway Administration is taking all possible steps with the help of Nirapatta Bahini and the Police for eliminating these thefts but the measures taken have met with partial success so far.

4.0.0 Conclusion

During the lean period from April to September, the capacity for freight service cannot be utilized fully. The open stocks utilized for sugar cane traffic remain idle for remaining six months. But the stocks require similar maintenance.

ADB has suggested closure of unnumberative branch lines. This will further increase the number of unutilized stocks. Government utilizes the railways full capacity during draught, famine, flood, natural calamities etc. for carrying food and relief materials turning down the demand of BR'S valued customers. Government should also co forward to salvage their one of the prime organ, the railway by enforcing other Government organisations to utilize BR'S additional capacity of freight service without carrying their materials and goods by private trucks.

The turn round time for freight service has increased from 18 days in 1980-81 to 32 days in 1989-90 due to increase in Jamuna crossing time, transshipment time in break of gauge point, lowering of speed in most of the section for poor track and bridge condition, use of non-vacuum freight trains (24 km. ph.).

If the above bottlenecks are eliminated or reduced by proper investment, BR'S mobility will increase, bring back the confidence of the valued customers which in turn increase the productivity of BR.

Problems started from very inception of human race; these
inued from generation to generation and will continue till dooms
Challenges have been faced by the heroic people according to
re and magnitude of such challenges. 239

Bangladesh Railway is also facing problems and challenges but
these will "Inshah Allah" be solved, BR wants only the heartiest
co-operation from its valued clients, the people and the
government.

KEY PERFORMANCE INDICATORS

Indicators		1980/81 (a)	1988/89 (b)	Differer (B) (
Market Share	Passenger	23%	12%	W 4
	Freight	16%	10%	W 4
Passengers Conveyed		89.3m	50.8m	W 4
Freight Tonnes Carried		3.0 m	2.5 m	W 1
Passenger Kilometres		5.4 bn	4.4 bn	W 1:
Freight Net Tonnes/Kilometres		0.84 bn	0.67 bn	W 20
Passenger Revenue		32.5 CrTk	68.7 CrTk	B 111
Freight Revenue		54.9 CrTk	79.5 CrTk	B 45
Parcels		10.1 CrTk	14.6 CrTk	B 45
Miscellaneous Revenue		6.6 CrTk	13.3 CrTk	B 102%
Total Revenue		104.1	176.1	B 69%
Earnings per passenger km		0.06 Ta	0.15 Ta	B 250
Earning per Freight km		0.50 Ta	1.10 Ta	B 220
Index of Inflation (69-70=100)		540	1112	W 106%
Number of Staff		58.1 K	58.3 K	-
Unit of Transportb/				
per Staff Member p.a.		21.5 K	16.5 K	W 23%
Cost per Staff Member p.a.		8.2 Kta	25.6 Kta	W 212%
Total Cost of Staff		48.0 CrTa	147.0 CrTa	W 206%

W = Worse

B = Better

2/ Freight TKm + Parcels TKm + (Passenger Kilometres)
 [Parcels Tonnes Kilometres (small)][(Est) 16 Passengers per Tonne

INDICATOR.

<u>1980-81</u> (a)	<u>1988-89</u> (b)	<u>Difference</u> (B) (W)
-----------------------	-----------------------	------------------------------

No. of Diesel
Locomotives in Stock

253	307	+ 21%
-----	-----	-------

Diesel Hauled Train Kilometres
per Locomotive Year

55.0 K	52.8 K	W 4%
--------	--------	------

No. of wagons in Stock

16.7 K	15.9 K	- 5%
--------	--------	------

Net Tonne Kms per Wagon

50.3 K	42.1 K	W 16%
--------	--------	-------

Turnround Time of Wagons

18 days	32 days	W 78%
---------	---------	-------

Total Earnings

104.0 CrTk	176.0 CrTk	B 69%
------------	------------	-------

Total Costs (before deprecia-
tion)a/

123.0 CrTk	274.0 CrTk	W 123%
------------	------------	--------

Surplus/(Deficit)

(19.0) CrTk	(98.0) CrTk	W 416%
-------------	-------------	--------

a/ In 1987/88, the required allocation of depreciadtion is
estimated at TK, 39.0 Cr.

Source: BR Information Books.

APPENDIX-2

KEY PERFORMANCE INDICATORS.

	1981	1982	1983	1984	1985	1986	1987	1988	1989
FINANCIAL:									
Deficit (million)	(186.4)	(26.9)	(8.3)	(336.1)	(316.9)	(917.3)	(903.0)	(1,203.2)	(982.3)
Operating Ratio	117.9%	102.1%	100.6%	123.2%	118.8%	157.6%	156.4%	170.3%	155.8%
FREIGHT:									
Freight (000 tons)	2,984	3,230	2,998	2,939	3,009	2,341	1,984	2,518	2,493
Ton Kilometers	787	844	814	779	812	612	503	678	666
(millions)									
Total Revenue (millions)	520	666	760	707	817	691	574	723	767
Revenue per tkm.	66.1	78.9	93.4	90.7	100.5	112.9	114.3	106.6	115.1
PASSENGERS:									
Numbers (millions)	893	904	1,056	909	903	820	723	530	508
Kilometers (millions)	5,197	5,366	6,427	6,284	6,031	6,005	6,027	5,052	4,338
Total Revenue (millions)	325	416	494	493	576	631	719	668	687
Revenue per Pkm.	6.3	7.8	7.7	7.9	9.5	10.5	11.9	13.2	15.8
EMPLOYEES:									
Numbers	58,107	58,778	57,829	58,662	59,918	59,822	57,413	57,296	58,272
Expense (millions)	476	520	507	646	810	1,210	1,393	1,468	1,542
Average cost/employee	8,199	8,849	8,763	11,017	13,520	20,225	24,263	25,615	26,470
Employee cost/Rev.	46%	40%	34%	45%	48%	76%	87%	86%	88%
Employee Cost/Op.cost	39%	39%	34%	36%	40%	48%	56%	50%	56%
TRAFFIC UNITS. 1/.									
Total	2,519	2,633	2,956	2,873	2,823	2,614	2,512	2,362	2,112
Productivity/Employee	43	45	51	49	47	44	44	41	36
GROWTH RATES:									
Total Revenue	1981-1989:	6.8%	per annum						
Freight Revenue	1981-1989:	5.0%	per annum						
Passenger Revenue	1981-1989:	9.8%	per annum						
Revenue per ton km.	1981-1989:	7.2%	per annum						
Revenue per pkm	1981-1989:	12.3%	per annum						
Freight t/kms	1981-1989:	-2.1%	per annum						
Passenger kms.	1981-1989:	-2.2%	per annum						
Total Cost	1981-1989:	10.6%	per annum						
Employee Cost	1981-1989:	15.8%	per annum						
Productivity/Employee	1981-1989:	-2.2%	per annum						

1/ Converting passenger kilometers to ton kilometers at the ratio of 31.4

BANGLADESH

SHOWING RAILWAYS

1989.

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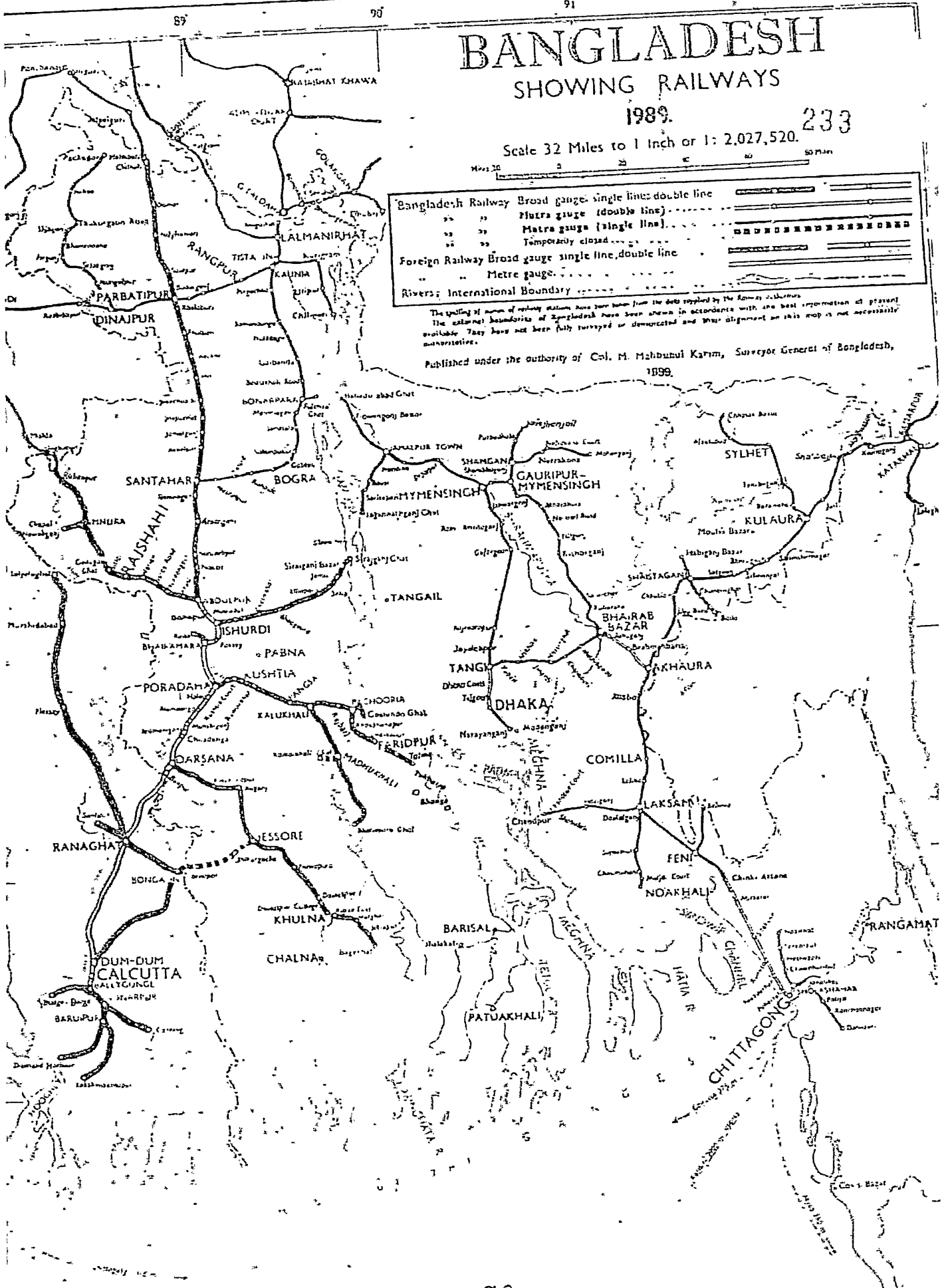
Scale 32 Miles to 1 inch or 1: 2,027,520.

Miles 20 40 60 80

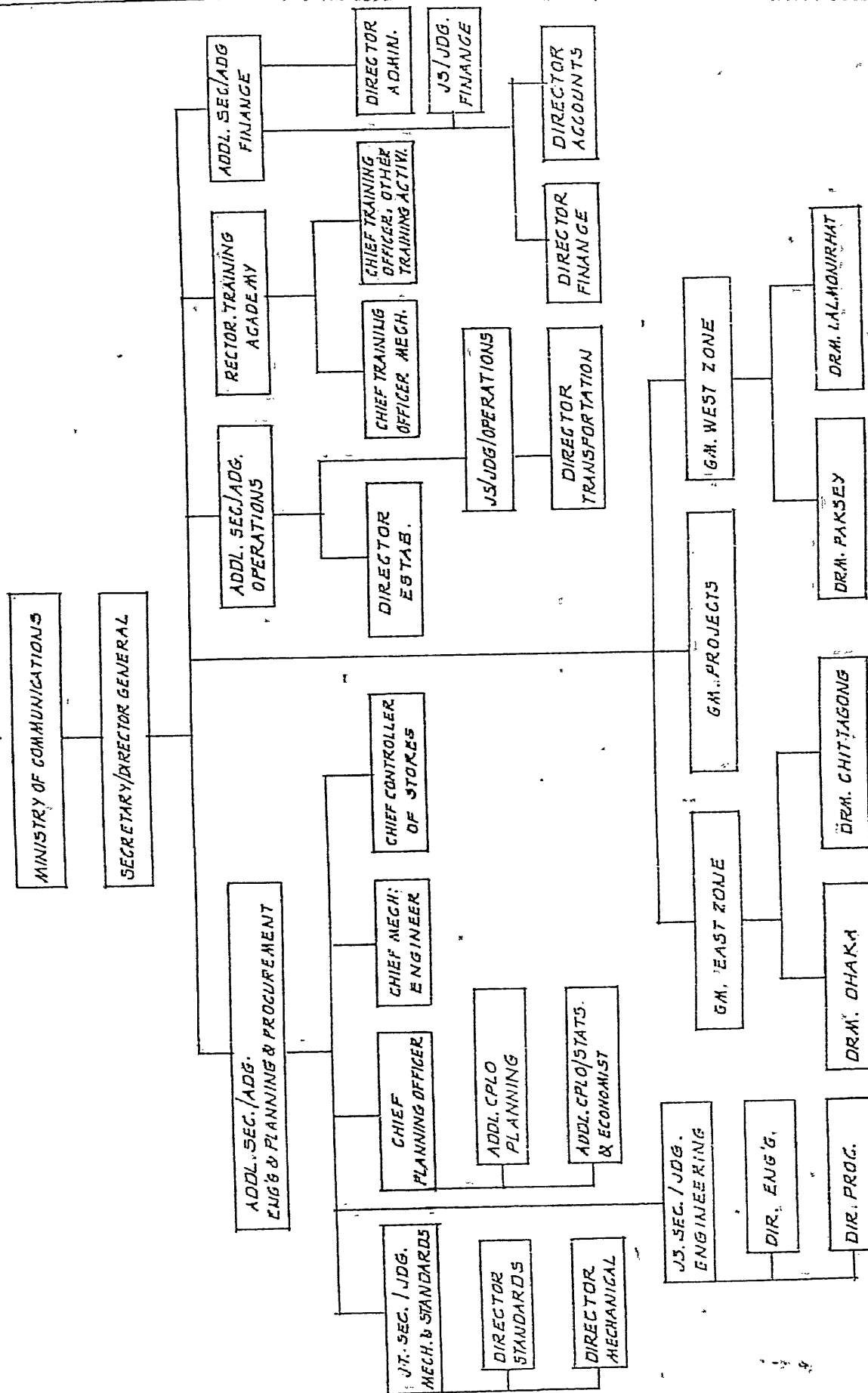
Bangladesh Railway	Broad gauge, single line, double line	
	Metre gauge (double line)	
	Metre gauge (single line)	
	Temporarily closed	
Foreign Railway	Broad gauge, single line, double line	
	Metre gauge	
Rivers; International Boundary		

The spelling of names of railway stations have been taken from the data supplied by the Railway authorities. The external boundaries of Bangladesh have been shown in accordance with the best information at present available. They have not been fully surveyed or demarcated and their alignment on this map is not necessarily authoritative.

Published under the authority of Col. M. Mahbubul Karim, Surveyor General of Bangladesh, 1989.

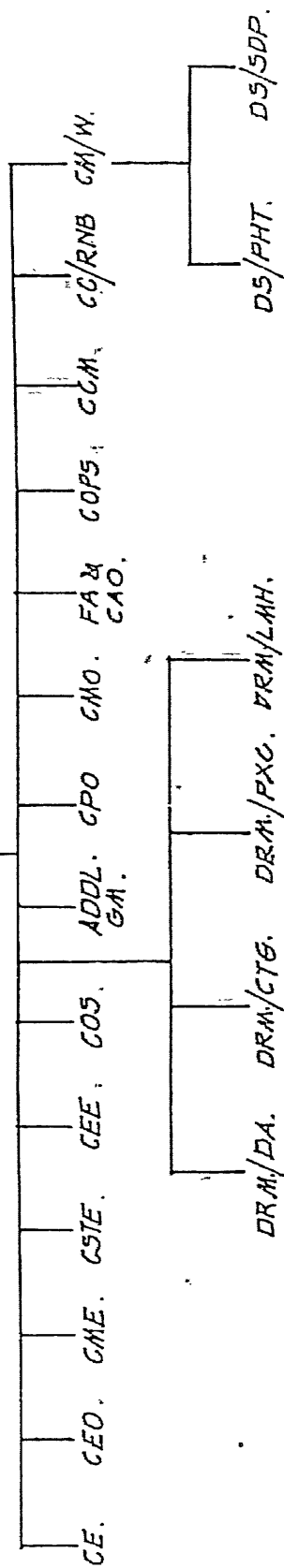


MINISTRY OF COMMUNICATIONS/ BANGLADESH RAILWAY-EXISTING ORGANIZATION

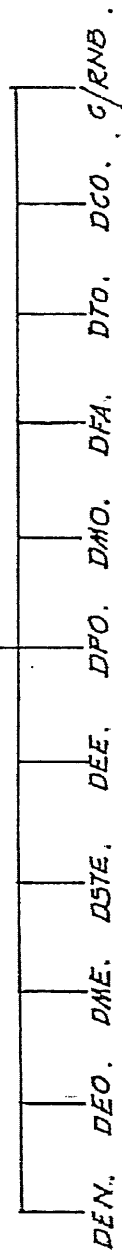


N.B. NO DETAILS SHOWN FOR GM. OR DG. ORGANIZATION

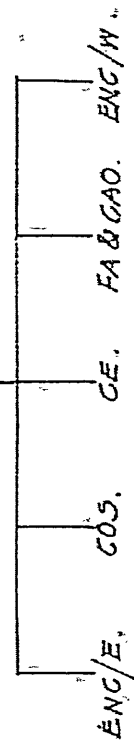
GM./CTG, RJHI.



DRM./CTG, DA, PXC, LMH.



GM/P.



SUMMARY OF ROLLING STOCK OWNED

The summary of rolling stock owned as on 30th June, 1989 is furnished as under :—

Stock.	..	..	..	..	Broad gauge	Metre gauge.	Total
Locomotives—							
Steam	..	..	..	..	—	—	—
Diesel	..	..	..	..	75	232	307
Total	..	..	..	..	<u>75</u>	<u>232</u>	<u>307</u>
Carriages—							
Passenger Carriages	..	..	..	..	336	1164	1500
Other coaching vehicles	..	..	..	..	54	233	287
Total	..	..	..	..	<u>390</u>	<u>1,397</u>	<u>1,787</u>
Freight Wagons $\left(\frac{\text{Units}}{\text{4-Wheeled}} \right)$							
Covered wagons	..	..	..	..	2,960	9,728	12,688
					<u>3,409</u>	<u>10,318</u>	<u>13,727</u>
Special type wagons	..	..	..	..	1,113	2,141	3,354
					<u>1,417</u>	<u>3,933</u>	<u>5,350</u>
Total	..	..	..	..	<u>4,073</u>	<u>11,869</u>	<u>15,942</u>
					<u>4,826</u>	<u>14,251</u>	<u>19,077</u>

EFFECTIVE AVAILABILITY OF ROLLING STOCK

as on 30th June, 1989.

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Items	Stock owned	Ineffective stock	Stock available for effective service	percentage of availability to stock owned
Locomotives :—				
(a) Broad gauge—				
Steam	—	—	—	—
Diesel	75	22	53	70.7
Total	75	22	53	70.7
(b) Metre gauge—				
Steam	—	—	—	—
Diesel	232	61	171	73.7
Total	232	61	171	73.7
Carriages :—				
(a) Broad gauge—				
Passenger Carriages ..	336	118	218	64.9
Other Coaching vehicles	54	24	30	55.6
Total	390	142	248	63.6
(b) Metre gauge—				
Passenger Carriages ..	1,164	175	989	85.0
Other Coaching vehicles	233	23	210	90.1
Total	1,397	198	1,199	85.8
Wagons (in 4-wheelers)				
excluding departmental wagons.				
(a) Broad gauge ..	4,667	780	3,887	83.3
(b) Metre gauge ..	13,635	1,230	12,405	90.9

N. B. Ineffective stock includes stock awaiting condemnation, under or awaiting repairs in shop or lying in traffic yard and sick lines awaiting repairs and stock used in quarters, godowns etc. for Engineering Department.

List of Footnotes

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2. Bangladesh Railway program loan, Report of the Railway corporate management Expert, April 14, 1990. 240
3. Bangladesh Railway Program loan, Report of the Railway Marketing Expert, April 20, 1990.
4. Government of Pakistan, Planning Commission, Islamabad, Seminar on Railway problems and Policies (19th to 21st March, 1973).
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