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THE STATUS OF COMPUTER USE IN BANGLADESH

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Dacca, Bangladesh

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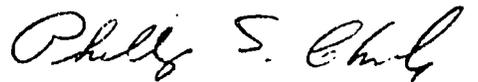
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Given the recent rapid evolution of computer use in Bangladesh, this survey report is necessarily out of date before it can be distributed. Computer equipment and staffs are changing daily. Therefore, the reader should be cautioned that this report is only a "snapshot" of the status of computer use in early 1981. We encourage others with the time and interest to update this report with their own observations so as to keep us all abreast of developments in this important field.


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Dacca, Bangladesh
March 1981

THE STATUS OF COMPUTER USE IN BANGLADESH

Background

Among many foreign donor and Bangladesh government agencies there is a growing demand on the part of project designers, policy-makers, and program evaluators for more timely, accurate and sophisticated analysis of large volumes of data on various aspects of social and economic development in Bangladesh. Other agencies -- banks, insurance companies, government corporations --- are faced with handling mushrooming volumes of data in performing their services and functions.

Understandably, many such organizations are looking to computers to handle their data processing needs. It is natural to expect such a course of action given the availability of electronic data processing (EDP) equipment on the market today.

In many cases EDP equipment is very suitable and highly recommended for the tasks to be performed. Computer technology is not too advanced a technology for a country like Bangladesh. Nevertheless, EDP hardware is expensive. Care must be taken that there is the trained talent available to operate it properly and that demand is sufficient to utilize effectively its potential data processing capacity.

This report was generated out of concern among donor agencies operating in Bangladesh that there may be an impending proliferation of new computer hardware in the country that would lead to the build-up of under-utilized and expensive EDP capacity, particularly in agencies where computer processing techniques would be new.

At the same time donor agencies saw opportunities for collaboration among government and other donor agencies in meeting their EDP requirements by coordinated use of computers that could greatly reduce equipment import requirements, and more effectively utilize the limited available computer operating and programming manpower in the country at present. Needed, it was agreed, was an up-to-date assessment of the progress and plans of those agencies seeking to acquire computer equipment or electronic data processing services.

Purpose

The objective of this report is to provide up-to-date information on the current status of computer use and proposed plans for computer acquisition by development agencies in Bangladesh. Each organization's existing computer configuration, and its field of application is presented.

If this report helps foreign donors or Bangladesh government organizations to coordinate the electronic data processing requirements or reschedule computer hardware purchases to match availability of software and manpower, the time invested in this assessment of the status of computer use in Bangladesh will be amply rewarded.

The Survey

Bangladesh entered the computer age in 1964 with the installation of an IBM 1620 computer at the Dacca Atomic Energy Center to facilitate scientific research and development. The first commercial computer, an ICL-1901, was installed in 1967 by United Bank of Pakistan, called Janata Bank since independence. Since then, seven more computer facilities have been established in Bangladesh, five of them very recently, bringing the total to 9 facilities, all located in Dacca city.^{1/}

In conducting the survey we concentrated our attention on these organizations plus those which have the manpower and technical talent to run a computer center and are known to have expressed interest in the acquisition of computer hardware in the foreseeable future.

The survey was conducted during November, 1980, using a questionnaire and interview format with the head of the computer facility or a senior member of the staff of each institution operating or in the process of acquiring a computer. Data relating to the existing configuration and other relevant aspects of the computer installation were collected.

Based on the findings of the survey, profiles were prepared, giving the name and type of organization, its data processing requirements and type and status of EDP equipment, EPD software, and EDP staff. Out of 13 organizations surveyed, 8 facilities were operational, 2 facilities awaiting delivery of the hardware by the end of December and the other 2 organizations expressed optimism in regard to acquisition of computer hardware at some near future date. The Bangladesh Bureau of Statistics (BBS) facility is temporarily out of commission, as a result of a fire on November 19, 1980.

Types of Computer Owners and Users (Table 1)

Seven computer centers in Dacca out of nine belong to the government, i.e. government banks (3), government agencies (2) government research (Nuclear)-1, public sector corporation (1). Of the remaining two, one belongs to Bangladesh University of Engineering and Technology (BUET) and the other belongs to International Center for Diarrhoeal Disease Research (ICDDR).

^{1/} Reportedly one computer facility is operated in Chittagong, by Burma Eastern under Bangladesh Petroleum Corporation. This facility, which is purely of a commercial nature, was not included in this survey.

Table 1

Computer Users in Bangladesh

(As of January 1, 1981)

<u>Organization</u>	<u>Type of Computer</u>	<u>Year Installed</u>
Adamjee Jute Mills Ltd.	IBM 370/115 (160K) IBM 1401/16K	1980 1968
Agrani Bank	IBM 1401/16K	1967
Atomic Energy Commission	IBM 1620/64K IBM 4341/L01	1964* 1981**
Bangladesh Bureau of Statistics	IBM 360/30 (64K) IBM 4341/K01 IBM System 34 (128K)	1973* 1981** 1981**
Bangladesh Bank	IBM 370/115 (160K)	1980
Bangladesh Meteorological Department	IBM System 34 (48K)	1980
Bangladesh University of Engineering & Technology	IBM 370/115 (160K)	1979
International Center for Diarrhoeal Disease Research	IBM System 34 (128K)	1980
Janata Bank	ICL (8K) central processor	1967*
Project Implementation Bureau	IBM System 34 (256K)	1981**
Population Control & Family Planning Division	IBM System 34 (64K)	1981**

* Temporarily out of service.

** To be installed.

In addition to owning and operating a computer for their own requirements, most of these institutions allow access to other institutions. Among the nine computer centers in Dacca city, only the Bangladesh Meteorological Department did not offer any client service to outside users at the time of this survey. ICDDR indicated it would allow outside researchers but entirely on an ad-hoc basis. The other computer facilities are open to outside users with the payment of a reasonable fee in the range of Tk.600 to Tk.1,600 per clock hour depending on the power of the computer (Table 2).

Among those who do not own a computer but are considered to be regular users of electronic data processing facilities are the Jiban Bima Corporation, Bangladesh Bima, Bangladesh Institute of Development Studies, Institute of Nutrition and Food Science, Bangladesh Inland Water Transport Authority, Telegraph and Telephone Board, Institute of Statistical Research and Training and the Bangladesh Railway Board. In addition to these, many government, private and international agencies use EDP facilities from time to time.

Nature of Computer Use and Requirements

Data processing requirements of all the agencies surveyed are in the field of business and management, education and research, and economic and social surveys. All these computer facilities operate on clock hour^{1/} basis, usually in two shifts depending on the work load. Two facilities, namely BUET and Adamjee Jute Mills, have expressed interest in operating their facility on CPU^{1/} (central processing unit) time basis.

Application of the computer in scientific research started in 1964 with the installation of an IBM 1620 computer at the Dacca Atomic Energy Center. The services of this facility were made available free of charge for all scientific pursuits carried out at all universities, research organizations and by individual researchers in the country. This facility played a pivotal role in popularizing the use of the computer in scientific research and education. However, due to a limited exposure to computers by students of economics, biological, social and agricultural sciences, its actual use in these fields remains minimal.

In 1967 a local bank introduced the use of the computer in the field of business and management. The use of computers in business did not expand much because of the absence of large business and industrial concerns in the country. Current commercial utilization of computers is limited to clerical jobs in banks, insurance companies etc. and billing in certain large concerns such as the Telegraph & Telephone Board.

^{1/} See Glossary of Terms at end on this report.

Table 2

Computer User Rates^{1/} (As of January 1, 1981)

<u>Organization</u> ^{2/}	<u>Machine Time</u> (Tk/hour)	<u>Programmer</u> (Tk/hour)	<u>Key Punching</u> (Tk/card equivalent)
Adamjee Jute Mills Ltd.	1600	Tk. 1000-3000 per program	0.20
Atomic Energy Commission	N.A.	N.A.	.25
Bangladesh Bureau of Statistics	600	25% of total Machine time cost	0.30
Bangladesh Bank	1600	N.A.	N.A.
Bangladesh University of Engineering & Technology	1100	Depends on prog.	0.40
Janata Bank	700	Depends on prog.	0.30

^{1/} These rates are subject to change and should be viewed as illustrative. The nature of users' computer processing will determine actual fees charged.

^{2/} Facilities where client service is not available are not listed here.

In the fields of education, research and government a growing number of sample surveys are being computer processed in Bangladesh. Although many computer centers have expressed a keen interest in the development of a data bank, for computer storage, update and retrieval of data, all of these except the BBS facility are still in a rudimentary stage of development.

Utilization of computer time in these facilities varies considerably. Among the owners of sophisticated 3rd & 4th generation computers the utilization time varies from 250 to 350 clock hours per month. Among the new computer facilities this rate is even lower. Old computer facilities such as BBS, Janata Bank & Atomic Energy Center are temporarily out of commission now -- BBS as a result of a fire and the other two due to lack of spare parts -- but are expected to go into operation optimistically in the near future. On the basis of the survey findings, most computer facilities are currently underutilized.

Status of Computer Hardware

Except for the model ICL/8K words central processor used by the Janata Bank, all the computers currently operating in Dacca are IBM models: three 370/115; three System 34s; one 1620; and two 1401s. IBM is currently marketing and servicing two lines of computer equipment in Bangladesh. The IBM System 370, like its IBM 1401 and 360 predecessors, can handle card or tape input to batch process data. However, the System 370 can also handle input from diskettes and can operate in "interactive" mode simultaneously with multiple users. This permits on-line communication between man and machine, so that commands for changing program parameters can be entered and output obtained via CRT terminal display. The IBM 370 also has the capacity to utilize the larger more popular packaged statistical analysis programs available today.

The second IBM computer equipment line, the System 34, has a smaller computational capacity but greater promise of more versatile use, at least in the short run. The System 34 is an entirely cardless medium operating from diskette data input and storage. The System 34 also uses greatly simplified operating languages that permit several users, operating from "remote" terminals outside the computer room, to access the machine for hands-on "interactive" processing of data files. Software packages useable on the System 34 in the areas of statistical analysis are much more limited in number because most have computational requirements beyond the S/34's 256K capacity. SPSS cannot yet be run on this machine, for example. This disadvantage is offset, somewhat, by the easier operating system the S/34 offers, which enables relatively less experienced programmers and machine operators to develop and install (or modify existing) programs for data analysis. Currently, ICDDR is operating its System 34 in interactive mode.

Status of Computer Software

Most computer programs currently being used have been developed by local professionals. COBOL, FORTRAN & ASSEMBLER are by far the most popular programming languages used at the computer centers in Dacca. No internationally popular software packages are currently available in Bangladesh, but there have been efforts, at least by one computer center, i.e. BUET, for the acquisition of SPSS and SYMAP. It is hoped that these packages will become available during 1981.

Status of Computer Staff (Table 3)

The status of the professional staff in most of the computer centers is far from satisfactory. This is true especially of new centers, where the programmers are relatively inexperienced. These new centers also suffer from a lack of experienced managers. They are currently manned by newly trained professionals who will require time before they become experts in their fields. Computer equipment distributors also lack qualified personnel to offer adequate maintenance services to new client facilities.

Another problem is that older computer centers are perpetually losing good, experienced programmers, who are attracted abroad by better paying employment. In government institutions, pay structures do not permit paying programmers and other computer staff at levels high enough to attract and hold good quality manpower. As a consequence, public institutions must accept both new talent to be "trained on the job" as well as periodic vacancies when experienced staff leave for better paying jobs. Remaining staff also are affected by over work due to job turn overs and shortage of staff.

As computer technology is relatively new in Bangladesh, computer education has yet to develop to its fullest extent. No institution in the country offers any full-time courses in computer technology. Only some short courses in FORTRAN, and COBOL programming are currently being offered by BUET, the Atomic Energy Center, and the Institute of Business Administration and Management Development Center in Dacca. There are also some commercial institutes offering courses, but their training programs are not yet recognized by the computer centers. These short courses deal only with the fundamentals of computer programming and hence do not necessarily prepare one to become a full-fledged programmer.

Plans for Computer Acquisition

Many other agencies are currently trying to acquire computer hardware. Of these the names of Bangladesh Water Development Board, Population Section of Planning Commission, Sadharan Bima

Corporation and Dacca University are worth mentioning. There have also been expressions of interest in the establishment of a commercial computer facility in the private sector. Acquisition of the first IBM 4300 series computers is expected during 1981, by the Bangladesh Bureau of Statistics and the Atomic Energy Commission. Both agencies report that they expect to have IBM 4300 models operating in Bangladesh by the end of 1981. The IBM 4300 model replaces the IBM 370 series model which is now out of production. For much less money the IBM 4300 offers much more processing capacity than the IBM 370.

Three additional IBM System 34's are also scheduled for installation in Bangladesh during 1981, one in the Bangladesh Bureau of Statistics, one in the Project Implementation Bureau of the Ministry of Planning and one in the Population Control and Family Planning Division (MIS) of the Ministry of Health and Population Control. In summary, by the end of 1981, Bangladesh will have increased its computer processing capabilities, in terms of installed hardware, several fold over levels that existed in the 1970's.

Computer Use Profiles

Following are the profiles of each of the individual agencies surveyed. The type of organization, computer requirements and use, type and status of EDP Equipment, status of EDP software, and status of EDP staff are presented, along with any other relevant observations. The agencies covered by the survey are:

Adamjee Jute Mills

Agrani Bank

Atomic Energy Commission

Bangladesh Bank'

Bangladesh Bureau of Statistics

Bangladesh Meteorological Department

Bangladesh University of Engineering and Technology

International Center for Diarrhoeal Disease Research

Janata Bank

Population Section, Planning Commission, Ministry of
Planning

Population Control and Family Planning Division, Ministry of
Health and Population

Project Implementation Bureau, Ministry of Planning.

ADAMJEE JUTE MILLS

Type of Organization

Govt. Corporation (under Bangladesh Jute Mills Corporation).

Computer Requirements and Use

Accounts, billing, inventories, statistical reports, production analysis and other financial records, survey reports and other commercial jobs.

Type of Status of EDP Equipment:

<u>New System</u>		<u>Old System</u>	
IBM 370/115 (160K)		IBM 1401 (16K)	
3410 Tape drive (7 track)	1	Card Reader	1
3411 Tape drive (9 track)	1	Tape drive (7 track)	4
3340 Disk drive	4	Printer console	1
3540 I/O Diskette	2	Key punch	7
3742 Dual entry data station	6	Card verifier	4
3203 Printer	1		
Installed - 1980			

Status of EDP Software:

Programs are locally developed. Can handle COBOL, ASSEMBLER, FORTRAN IV and AUTO CODER supplied by the user.

No packaged programs are currently available.

Status of EDP Staff: Total Strength : 51

Chief (G.M.)	1
Dy. Chief (Systems)	1
Dy. Chief (Programming)	1
Systems Analyst	3
Programmer	9
Computer Operator	2
Supervisor	6
Data Station Operator	28

Other Observations:

The old 1401 system will be phased out of operation within a short time when the 370 system becomes fully operational. Can handle any type of job from data control to final output. Client service is offered.

AGRANI BANK

Type of Organization:

Nationalized Commercial Bank

Computer Requirements and Use:

Savings accounting, inter-branch reconciliation (90% job), staff provident fund and balance sheet preparation.

Type & Status of EDP Equipment:

IBM 1401 (16K)	
Tape drive	4
Card reader	1
Printer	1
Console Typewriter	1
Installed - October 1967	

Status of EDP Software:

Locally developed programs. Packaged program available for sorting. Program language - AUTOCODER.

Status of EDP Staff: Total strength : 24

Systems Manager	1
Sr. Systems Analyst	1
Programmer	2
Computer Operator	6
Punch Operator	14

Other Observations:

Client service facility is minimal. The computer installed in the Bank was obtained from IBM on monthly rental basis; the current contract expires in April 1981. In all probability it will be returned to IBM, and Agrani Bank will use the Bangladesh Bank facility.

ATOMIC ENERGY COMMISSION

Type of Organization

Government Research & Development Organization.

Computer Requirements and Use

- (a) Scientific computation on nuclear science and proposed Management Information System (MIS).
- (b) LANDSAT data on satellite and data collection platforms and proposed Data Bank.

Type & Status of EDP Equipment:

<u>New System</u>		<u>Old System</u>	
IBM 4341/L01 (4 Mega Bytes)		IBM 1620/60K	
Tape Drive	4	Card Reader/Punch	1
Disk Drive	4	Console Type Writer	1
Printer	1	Key Punch Machine	2
Video Terminal	10	Tabulator	1
I/O Diskette	1	Disk Drive	1
Dual Data Entry Station	4	Installed 1964 - currently out of operation due to lack of spare parts.	

Agreement signed and delivery awaiting in assembly line, may be available by July to December, 1981.

Status of EDP Software:

To be acquired from ENEAL (Europe Nuclear Energy Agency Lab.) and from ISPRA Italy and EPL in addition to systems packages.

Status of EDP Staff: Total strength : 10

Systems Analyst	4
Computer Programmer	2
Computer operator and data station operator	4

Other Observations:

Scientists are responsible for making their own computer programs in addition to what will be made available from the computer division programmers. At the time of the survey, this facility was out of service.

BANGLADESH BANK

Type of Organization:

Government Central Bank

Computer Requirements and Use:

All conceivable jobs in the banking sector.

Type & Status of EDP Equipment:

IBM 370/115 (160K)	
3742 Dual Entry Data Station	8
3340 Disk Drive	4
3203 Printer (1200 lpm 132 ch./line)	1
3410 Tape Drive (7 track)	1
3410 Tape Drive (9 track)	2
Installed - November, 1980	

Status of EDP Software:

To be locally developed.
No package planned currently.
Programming language - COBOL, FORTRAN

Status of EDP Staff: Total strength : 35

Director	1
Deputy Director	1
Assistant Director	2
Programmer	8
Supervisor	2
Computer Operator	3
Data Station Operator	18

Other Observations:

The center is new; the programmers are yet to develop programming skills to handle a wide range of analytical jobs. Client service facility will be offered in the initial 2 years before the Bank has enough jobs to engage it on a full time basis.

BANGLADESH BUREAU OF STATISTICS (BBS)

Type of Organization:

Government Statistical Organization.

Computer Requirements and Use:

Development of a Data Bank, processing of census jobs, various tabulation and processing of raw data, national sample surveys, client services for Bima, customs, railway and various other government agencies and corporations in the public and private sectors.

Type & Status of EDP Equipment:

1. IBM System 34 (128K)		2. IBM 4341/K01 (2 Mega Bytes)	
5340 Diskette magazine drive	1	3203 Printer	1
5251 Single station terminal	4	3278 Display terminal	1
5252 Dual station terminal	18	1442 Card reader/punch	1
5211 Printer (300 LPM)	1	3370 Disk drive	2
3747 Data converter	1	3880 Disk control	1
		3420 Tape drive	2
		3803 Tape control	1
		3274 Display control	1
		3278 Display terminal	1
		3540 Diskette reader	1

Both the computers are expected to be installed by May, 1981. An Optional Mark Reader (OMR) is expected in March, 1981. The original computer, an IBM 360/30 (64K), burned up on November 19, 1980 leaving only 80 MDS Data entry machines and 5 key punch machines in serviceable condition.

Status of EDP Software:

Locally developed programs as well as COCENTS (COBOL Census Tabulation System) are used to process census data. CONCOR (Consistency and Correction) will be used when the systems arrive.

Status of EDP Staff: Total strength : 167

Joint Director	1
Sr. Systems Analyst	2
Systems Analyst	1
Sr. Programmer	3
Programmer	10
Computer Operator	10 (3 shifts)
Coder & Editor	40
Data Station Operators	100

Other Observations:

The center will operate in 3 shifts when the new machines arrive. Client service is available. Charge - 600 taka/clock hour.

BANGLADESH METEOROLOGICAL DEPARTMENT

Type of Organization:

Government Weather Monitoring and Reporting Agency

Computer Requirements and Use:

Climatological data from 39 regional stations with hourly observations plus all rainfall data and evaporation data from BWDB and proposed climate data bank and climate researches.

Type & Status of EDP Equipment:

IBM System 34 (48K)	
5340 Diskette magazine drive	1
5251 Single station terminal	1
5252 Dual station terminal	2
5311 Printer (300 LPM)	1
Installed - November, 1980	

Status of EDP Software:

Will be locally developed in addition to SSP and CSP packages with the system.

Status of EDP Staff: Total strength : 13

Systems manager	1
Computer programmers trained locally	4
Operator: & data entry operator	6
Computer programmer trained in data processing in U.K.	1
Undergoing data processing training in U.K.	1

Other Observations:

System is in operation now. Will be used exclusively for official data management and analysis.

BANGLADESH UNIVERSITY OF ENGINEERING & TECHNOLOGY

Type of Organization:

Engineering Education & Research.

Computer Requirements and Use:

Scientific application of computer to problems related to engineering & social sciences, training on computer application technology, data processing needs for project development and analysis, client service.

Type & Status of EDP Equipment:

IBM 370/115 (160K)	
029 Key Punch Machine	2
3742 Dual Entry Data Station	3
3410 Tape Drive (7 track)	1
3411 Tape Drive (9 track)	1
3340 Disk Drive	1
3540 I/O Diskette	1
3203 Printer	1
Installed - October, 1979	

Status of EDP Software:

Programming language - FORTRAN, COBOL & ASSEMBLER (#SLMATH).
Locally developed Scientific & Mathematical Programs & SLMATH. No popular software package is currently available, but effort is being made to acquire SPSS and SYMAP

Status of EDP Staff: Total strength : 10

Director	1
Sr. Programmer	1
Systems Analyst	2
Computer Operator	3
Data Station Operator	3

Other Observations:

Center is functioning from 0800 hrs. to 2200 hrs. on workdays (on clock hour basis)
Client service is available.

Type of Organization:

International research organization.

Computer Requirements and Use:

Analysis of demographic and medical data on population of approx. 200,000 persons over 15 years. Administrative Services (Payroll, Inventory, etc.). Previously used BBS computer facility.

Status of EDP Equipment:

IBM System 34 (128K)	
Disk storage of 128 mega bytes	16
5340 Diskette magazine drive	1
5311 Printer (300 LPM)	1
5251 Single station terminal	3
5252 Dual station terminal	2

Note: (1) ICDDR is the first organization to own and operate (since November 1980) an interactive computer system permitting simultaneous multiple user access to the system.

(2) Current capacity utilization is one 7 hour shift for 4-5 days; 12 hour split shift is planned for early 1981.

Status of EDP Software:

IBM Utilities (under SSP-5) installed include FORTRAN, COBOL, RPGII and BASIC compilers. Program packages include UNEDIT, UNXTALY, MINI-TAB, MINI-LIFE, WHO ADDRESS under installation.

Note: Some program packages have been prepared to run "interactive" mode; others are still only available for "batch processing."

Status of EDP Staff: Total strength : 15

Systems manager	1
Programmer (full time)	3
Programmer (part time)	2
Operational staff	3
Data entry	6

Other Observations:

ICDDR does not offer any regular service to external users at present. However, interested users may use the computer on an ad-hoc basis.

JANATA BANK

Type of Organization:

Nationalized Commercial Bank.

Computer Requirements and Use:

Inter-branch reconciliation system; provident fund accounting systems of the bank, personnel information system, test key tables for T.T. and D.D. systems for bank, piecemeal statistical jobs and client services.

Type & Status of EDP Equipment:

ICL 8K words central processor (equivalent to 32K IBM system)	
Console typewriter	1
Magnetic tape deck	4
Paper tape reader	1
Card reader (900 CPM)	1
Printer (1350 LPM)	1
Key punch machine	8
Card verifier	4
Interpreter	1
Storer (card)	1
MDS data encoder	6
Installed - September, 1967.	

Status of EDP Software:

Programs are locally developed.

Status of EDP Staff: Total strength : 32

Systems manager	1
Programming manager	1
Programmer	4
Computer Operator	12
Punch Operator	14

Other Observations:

This facility is facing maintenance problems. Since two computer engineers trained by the manufacturer left some time ago, the facility has been running without any trained maintenance personnel. Client services have been available in the past; however, at the time of the survey the computer was out of operation.

POPULATION SECTION PLANNING COMMISSION

(Ministry of Planning)

Type of Organization:

Population Research and Development Wing of Planning Commission.

Computer Requirements and Use:

Use in Planning Commission is yet to be explored, will also be used by Dacca University. Data Bank for all socio-economic and demographic aspects of population control.

Type & Status of EDP Equipment:

The type of equipment to be obtained will be specified by a consultant to be hired. Proposed SPSS (Statistical Package for Social Sciences) to be explored if compatible with IBM System.

The project awaits approval.

Status of EDP Software:

To be explored and developed locally.

Status of EDP Staff:

3 computer programmers, 1 key punch operator, 2 computer operators to be trained.

Other Observations:

No data preparation is yet being made.

POPULATION CONTROL & FAMILY PLANNING DIVISION

(Ministry of Health & Population)

Type of Organization:

Management Information System Unit, Population Control and Family Planning Division, Ministry of Health & Population.

Computer Requirements and Use:

Internal report system, recording system for the thana facilities and the individual acceptors, processing of 20 million reports, 3 annual reports updated 3 or 4 times a year -- to establish a Management Information System for the Family Planning Service.

Type & Status of EDP Equipment:

IBM System 34/64K/with possibility to 256K.
Dual entry data station 2
Single entry data station 1

World Bank funded system to be delivered in 1981.

Status of EDP Software:

To be developed locally.

Status of EDP Staff: Total strength : 11

Systems Analyst	1	
Sr. Programmer	1	Planned but not yet approved by Planning Commission.
Jr. Programmer	4	
Data Entry Operator	4	
Computer Consultant	1	

Other Observations:

Most data are precoded -- form's have already been developed and data are now being compiled. Organizations and agencies involved in population research will have access to the facility but no general client service will be offered.

PROJECT IMPLEMENTATION BUREAU

(Ministry of Planning)

Type of Organization:

Government Project Research and Development Organization.

Computer Requirements and Use:

Computer processing of all national project data including project research, feasibility and evaluation. A Data Bank will also be developed.

Type & Status of EDP Equipment:

IBM System 34 (256K)	
Disk storage (128K mega bytes)	1
4340 Diskette magazine drive	1
5252 Dual station terminal	4
5211 Printer	1
To be installed in 1981.	

Status of EDP Software:

To be locally developed. Capacity not adequate to introduce large software package. System language - RPG II & COBOL.

Status of EDP Staff: Total strength : 15

Proposed

Data processing manager	1
Systems manager	1
Operation manager	1
Systems analyst	3
Programmer	6
Operator	3

Other Observations:

To be used exclusively for office purposes. No plan yet to offer client service.

Computer Operations Staff^{1/} (As of January 1, 1981)

<u>Organization</u>	<u>Total Staff</u>	<u>Systems Manager</u>	<u>Systems Analyst</u>	<u>Computer Programmer</u>	<u>Computer Operator</u>	<u>Key Punch Operator</u>
Adamjee Jute Mills Ltd.	51	3	3	9	8	28
Agrani Bank	24	1	1	2	6	14
Atomic Energy Commission	10	-	4	2	2	2
Bangladesh Bureau of Statistics	167	1	3	13	10	140
Bangladesh Bank	35	2	2	8	5	18
Bangladesh Meteorological Department	13	1	-	6	3	3
Bangladesh University of Engineering & Technology	10	1	2	1	3	3
International Center for Diarrhoeal Disease Research	15	1	-	5	3	6
Janata Bank	32	2	-	4	12	14
Project Implementation Bureau	15	3	3	6	3	-
Population Control & Family Planning Division	11	1	1	5	-	4

^{1/} See glossary of terms at end for definition.

GLOSSARY OF TERMS

ASSEMBLER: An intermediate level computer language, in between machine language and higher level language.

AUTO CODER: 1401 ASSEMBLER level programming language.

Batch Processing Model. The submission for processing of a data file and pre-recorded program containing the user's instructions to the computer for processing. The user has no means of communicating with the computer during the processing operation.

Card Reader: The equipment attached to the computer for feeding data/program into the computer.

'Clock hour': The time required to finish a job from initial input to final output, (whereas CPU time refers to the time the central processor is in operation on that task).

COBOL: Abbreviation of the popular computer language called Common Business Oriented Language.

Console Typewriter: A keyboard machine similar to an ordinary typewriter, used to communicate directly with the computer, instead of using data recorded in a separate device.

CPU: The central processing unit, the first and most important module of the computer. This is the brain of the computing system. The CPU does all the actual work: calculation, data comparison, data alteration, and data reception and transmission.

Data Station: The equipment for entering data on input devices, i.e., tape, card, diskette, etc. It may be called a keypunch machine, single or double entry data stations or a CRT station.

Disk Drive: Functionally similar to a tape drive except that it stores information on magnetic disks.

FORTRAN: Abbreviation of the popular computer language called Formula Translation.

Hardware: The computer and its periferal data entry, storage and printing equipment.

I/O Diskette: A floppy dis for storing alphanumeric input/output information in coded format.

Input/Output Equipment: Input devices provide coded data (binary system) for use in the computer, and output devices are those that accept coded data (binary) from the computer for outside handling or storage. The best known units, such as punch card, magnetic tape, magnetic disk, paper tape or high-speed printer, are used with general purpose computers in varying types and combinations.

Interacting Processing Mode: The procedure by which the user can communicate with the computer via a terminal key board and cathode ray tube (CRT) to direct the course of computer processing of his data file.

Kilobyte (K or KB): One kilo byte or one thousand bytes: the memory capacity of a computer. One byte is the single piece of information a computer can record.

Mega Byte (M or MB): One thousand kilo bytes.

Printer: Provides typed output as a permanent visual record used with computers. Whereas typewriters type a character at a time, high-speed printers type a line at a time, thereby making possible its much higher speed.

Programmer: A person who communicates with a computer using a language which the computer accepts.

Punched Cards and the Key Punch: Punched cards are generally used to feed small programs and data into the computer as well as to store data/programs for future use. Information is stored on punched cards by means of a coded pattern of punched holes, with the help of a key punch machine, a typewriter-like device for coding the cards.

RPG-II: "Report Program Generation." A commercially oriented programming language especially designed for writing computer programs that meet common business data processing requirements.

Software: The program or the instructions, to the computer.

SPSS: Abbreviation of the software package Statistical Packages For Social Sciences.

SYNMAP: A software package used with the line printer to produce maps.

Systems Analyst: A person who plans the computer hardware configuration to assure efficient utilization of processing capacity.

Tape Drive: The periferal device to feed or accept information/data from the CPU using magnetic tape.

Video Terminals: A visual display device which uses a cathode ray tube to display information. It looks like a TV screen and is similar in other respects. It is used particularly in situations where information is required quickly and where there is little advantage in having a permanent record of the information.