PUBLIC ADMINISTRATION COMPUTER CENTRE:
A CASE STUDY

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ABOUT THE AUTHORS

Dr. Ekramul Ahsan is a member, Directing Staff of Bangladesh Public Administration Training Centre (BPATC). Savar, Dhaka. He obtained Ph.d. Degree in Agricultural Economics from the University of Hawaii, U.S.A. He has published a lot of articles in various national and international professional journals.

M. Anisur Rahman Khan, B. Sc; F,B,C,S is a career computer software professional and is now working as General Manager, Computer Division, Jiban Bima Corporation (Life Insurance Corporation of Bangladesh) Dhaka. He had worked as Computer Professional in Pakistan Government, Foreign Computer Agency, Bank etc. He is a member of advisory committee of Bangladesh Computer Council and Vice- Presiident of Bangladesh Computer Society. He is the author of many computer related papers written for many Seminars.

Mr. M. Idris Ali is a member of the Bangladesh Civil Service. Now he is working as a Deputy Secretary, under the Ministry of Establishment, Bangladesh Secretariat, Dhaka. In 1967 he graduated from the University of Dhaka, with honours in Contemporary History and International Law and Masters in the same subject in 1968. In 1986, he did Masters of Science in Technology of Management (MSTM) from The American University, Washington D.C., U. S.A. He is associated with a number of research projects.

Mr.Mohammad Hossain is working as a Deputy Director in the Bangladesh Public Administration Training Centre , Savar,Dhaka. In 1974, he graduated from Jahangirnagar University, Dhaka, with honours in Statistics and Masters in the same subject in 1975. In 1985, he did MS in Public Sector Management Training and Systems Analysis from The American University, Washinhton, D.C. U.S.A. He is associated with a number of research projects. His fields of interest include research, teaching of quantitative methods and information systems development.

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List of Abbreviation

Admn.-	Administration
AG -	Accountant General
BASIC -	Beginners all Purpose Symbolic Instruction Code
BCB -	Bangaldesh Computer Board
BCS -	Bangladesh Civil Service
BPATC -	Bangladeh Public Administration Training Centre
BPI -	Byte Per Inch
BUET -	Bangladesh University of Engineering and Technology
COBOL-	Common Business Oriented Language
CMLA -	Chief Martial law Administrator
CPS -	Character Per Second
CPU -	Central Processing Unit
CRT -	Cathod Ray Tube
CR/CP-	Confidential Report & Career Planning
DBMS -	Data Base Management System
DPS -	Data Processing System
FA -	Foreign Appointment
FORTRAN-	Formula Transilation
GIS -	Graphic Information System
IBM -	International Business Machine
ICL -	International Computer Limited
ICT -	International Competitive Tender
IDA -	International Development Agency
JA -	Junior Appointment
KB -	Kilo Byte
LPM -	Line Per Minute
LPR -	Leave Preparatory to Retirement
MB -	Mega Byte
MIS -	Management Information System
M/O -	Ministry of
MSW -	Mangement Services Wing
NCC -	National Computer Committee
OSR -	Officer Service Record

PACC -	Public Administration Computer Centre
PDS -	Personal Data Sheet
PIO -	Project Implementation Office
PMIS -	Personnel Management Information System
PP -	Project Proforma
PPM -	Page Per Minute
PSC -	Public Service Commission
RDBMS-	Relational Data Base Management System
RPG -	Report Programme Generator
R&T -	Recruitment and Training
SAR -	Staff Appraisal Report
Sectt. -	Secretariat
SPP -	Software Package Programme
SSP -	Senior Service Pool
TIC -	Tender & Implementation Committtee
UK -	United Kingdom
UNIVAC-	UNIVersal Automatic Computer
USA -	United States of America
UTL -	United Trade Limited

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Executive Summary

The IDA appraisal and a post appraisal mission in February/March and December(1982) respectively identified four major constraints of personnel management functions of the government of Bangladesh. The constraint ranked first by the mission was the Government's inability to recruit, train, place and promote public servants based on merit because of an absence of proper data base system. To overcome this deficiency, establishment of a modernised Personnel Management Information System (PMIS) was recommended by the mission. In an attempt to strengthen PMIS, the Staff Appraisal Report (SAR) of the World Bank recommended a small self-contained computer. In response to the above IDA recommendation and as per advice of the hon'ble President of Bangladesh the Ministry of Establishment set up the Public Administration Computer Centre (PACC) in July 1984, as a part of PMIS/MSW project. However actual operation of computer started in March 1986. The system was a mini computer, Honeywell DPS/6/85 with 2 MB Memory capacity.

2. Ministry of Establishment in its letter No.Estd(MSW-1)/54/85-395, dated 12.10.87 requested the Rector, Bangladesh Public Administration Training Centre (BPATC) to evaluate the performance and procedure of setting up of the Public Administration Computer Centre. This study aims to help the Ministry assess the extent of achievement of the project goals and at the same time provide guidance to other organisations in establishment of their future computer systems.

3. The present study of the Public Administration Computer Centre (PACC) is the first post installation evaluation. This computer system has been in place for nearly three years now. The present study makes an attempt to (i) determine the extent of achievement of the objectives of the system, (ii) determine the extent of utilization, (iii) determine the adequacy of the system, and (iv) ascertain need for upgradation of the system to meet the demand of the clientele.

4. Necessary information for the study has been collected from primary and secondary sources. Key informants were selected from/among the computer users and computer experts.

5. The study has shown that the approved original project proforma elaborates functions of PACC much beyond the ones envisaged in the SAR. Later on the functions of PACC was narrowed down from the original objectives stated in the PP to confirm the name with the allocated business of the Ministry of Establishment.

6. The present and potential users of the PACC outputs are generally unaware of the extent of assistance they may get from the computer system in the discharge of their day to day activities. This is reflected in their perception of the outputs desired by them as well as in the amount of actual service, they are receiving from the computer system.

7. The computational capacity of PACC is largely underutilized due to confinement of the outputs within a few listings based on PDS of the officers belonging to BCS(Admn.), BCS(Sectt.) and erstwhile SSP cadres.

8. On the basis of the findings, following recommendations have been made:

(i) All the capacities in respect of disk storage, connectivity of termianls etc. are to be utilized optimally by extending computerisation to new areas of Ministry of Establishment's functions.

(ii) After sales services performance must be improved to achieve benefit of maximum utilization of the computer system.

(iii) Machine should run at least in two shifts(if not in three shifts) to cope with the potential workload in the event of extension of computerisation to the other day to day activities of Ministry of Establishment.

(iv) There should be an arrangement for extensive training for systems analysts and programmers at home and abroad.

(v) Programming language of 3. G.L. should be used side by side with the package programmes to cater to the day to day needs of computer outputs.

(vi) Integrated systems of PMIS and Accounting in data-base idea should be adopted to accomplish the appropriate system of PACC.

(vii) Regular appreciation course should be held in either PACC or in BPATC for arousing awareness within all levels of officers and staff of Govt., Semi Govt. organizations in order to facilitate implementation of public sector computerization projects.

(viii) Continuous efforts should be made to identify new fields of computer application within the prescribed functions of Ministry of Establishment and design system for those functions.

(ix) Further enhancement of computer capacities in the Ministry of Establishment should be undertaken only after full utilization of potential capacities of the present computer system.

CHAPTER-I

INTRODUCTION

Background of computer application in Bangladesh

Application of Computer technology in economic and social activities has brought about significant change in the way of life of human society. It has changed the work environment beyond recognition. It saved incredible amount of time and effort, accomplishing complex tedious calculation in few minutes that would have taken months or even years to complete without it. In future, its application will continue to increase and will influence many more aspects of our life.

Beginning of the computer age dates back mid 1951 when the first UNIVAC (Universal Automatic Computer) was delivered to the US Bureau of the Census for tabulating the census data.

In Bangladesh the first computer was installed in 1965 at the Atomic Energy Centre in Dhaka which was obtained under the Colombo Plan Assistance. This was followed by setting up of computer facility by a commercial bank United Bank Limited which offered computer services. These computers were put to a very limited use mainly for producing utility bills, personnel management, project planning, library information system, production planning etc. The progress of computer application in Bangladesh has been very slow. A survey carried out by the National Computer Committee(NCC)[1] revealed that a total of 144 number of Mainframe, Mini and Micro computers were in use in Bangladesh in 1986 (Table-1).

Table-1

STATISTICS OF COMPUTERS IN USE IN BANGLADESH IN 1986

Type	No. of computer in use		Total
	Public Sector & Multinationals	Private	
Mainframe	5	-	5
Mini	23	1	24
Micro	91	24	115
Total	119	25	144

1.The Committee was constituted under the CMLA Secretariat memo No. 7181/I/IV/Impl.4/128 dt.7-3-85.

Bangladesh first received the attention of a computer company in 1965 when IBM World Trade Corporation set up its branch office in Dhaka. The second multinational computer manufacturing company to set up office in Dhaka was NCR in 1971. A number of other companies appointed agents and dealers in Bangladesh to deal with these respective products and provide necessary services.

The survey report of 1985 also reveals that a total of 145 persons were employed as system/ programming personnel in Bangladesh . It may be mentioned that the educational institutions in Bangladesh did not offer computer related courses till very recently. All of the trained computer personnel completed computer system and programming courses in the country or abroad mostly run by the computer manufacturers.

Against the backdrop of this situation in the country, the government decided to set up the Public Administration Computer Centre (PACC) with a view to introduce computer application in the personnel management functions of the Ministry of Establishment.

1.2 Establishment of PACC

The IDA appraisal[2] and a post appraisal mission in February/March and December(1982) respectively identified four major constraints of personnel management functions of the government of Bangladesh. The constraint ranked first by the mission was the Government's inability to recruit, train, place and promote public servants based on merit because of an absence of data base with the followings:

(a) job analysis to describe the education, skills, training and performance necessary for position,

(b) job description for recruitment, placement, performance evaluation and promotion and

(c) historical records of individual officers education, training performance and experience.

To overcome this deficiency, establishment of a modernised Personnel Management Information System (PMIS) was recommended by the mission. In an attempt to strengthen PMIS, the Staff Appraisal Report (SAR) of the World Bank recommended a small self-contained computer[3].

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2. SAR(R.NO.4181-BD)W.B,March 23,1983.PP 5-6
3. SAR(R.NO.4181-BD) W.B,March 23,1983. P 22

In response to the above IDA recommendation and as per advice of the hon'ble President of Bangladesh the Ministry of Establishment set up the Public Administration Computer Centre (PACC) in July 1984, as a part of PMIS/MSW project [4]. However actual operation of computer started in March 1986. The system was a mini computer, Honeywell DPS/6/85 with 2 MB Memory capacity.

1.3 Scope, Objectives and Methodology

Scope

Performance evaluation of a computer system is an important phase of its life cycle. The evaluation process includes among others,review of the operational characteristics of the system,its investment as well as operating costs,and determination of options for modifications,upgradation etc.to make the system operative more effectively and efficiently to the satisfaction of its clientele.The evaluation of a computer system is a multi-step phenomenon. After completion of installation when the system becomes operative the post installation evaluation is done to compare the project scope, objectives, cost and benefits of the system.

Periodic evaluation of a computer system is also undertaken throughout its operational life. Such evaluations indicate requirements of changes and upgradation of the present system to meet increasing needs of the clientele.

The present study of the Public Administration Computer Centre (PACC) is the first post installation evaluation.This computer system has been in place for nearly three years now.

The present study makes an attempt to

(i) determine the extent of achievement of the objectives of the system,

(ii) determine the adequacy of the system, and

(iii) ascertain need for upgradation of the system to meet the demand of the clientele.

Ministry of Establishment in its letter No.Estd(MSW-1)/54/85-395, dated 12.10.87 requested the Rector, Bangladesh Public Administration Training Centre (BPATC) to evaluate the performance and procedure of setting up of the Public Administration Computer

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4. PP of PACC, Sept.1984

Centre. This study aims to help the Ministry assess the extent of achievement of the project goals and at the same time provide guidance to other organisations in establishment of their future computer systems.

Ministry of Establishment's main responsibilities are framing policies for decision making on matters connected with personnel management, recruitment rules, scheduling training programmes, promotion procedures etc.

The present study also aims to review the procedures and process adopted in the need assessment, procurement system, installation procedure and utilization of the system. The study attempts to determine the extent of success of the PACC computer system on operational efficiency, decision making process and achievement of objectives of PACC.

The objectives of the study

This study covers the following aspects of PACC :

(1) Extent of conformity between Staff Appraisal Report(SAR) objectives and the PACC objectives.

(2) Determination of performed volume of work and review the achievement of objectives of PACC.

(3) Review of system specification (Hardware & software), Manpower status etc.

(4) Review current use of software according to need.

(5) Beneficiaries requirement analysis .

(6) Review inhouse software development modification process and training of system personnel.

(7) Use of computer output in real life application (decision making process).

(8) Data collection procedures and data updating procedure according to need of the clientele.

(9) Problem identification of PACC, if any in the operation, management and decision making.

(10) Recommendation for the current system according to the objectives of PACC.

Methodology of the Study

Data Collection:

Necessary information for the study has been collected from primary and secondary sources. Sources of secondary information are project proposals(PP), staff appraisal report (SAR), project document, government rules and regulations, present hardware and software related literature/brochure and other relevant literatures and documents. Data collected through specific questionnaire by direct interviewing are considered as primary source data. Key informants were selected from/among the following categories:

(a) Computer users :
  (i) Direct user (system personnel)
  (ii) Present output users (beneficiaries)
  (iii) Expected output users (beneficiaries)

(b) Computer experts

Among the Computer users and experts the informants are Secretary, Additional Secretary, Joint Secretary, Deputy Secretary, Senior Assistant Secretary, Assistant Secretary to the Government of Bangladesh, Public Administration Computer Centre Personnel(PACC), Bangladesh Computer Board personnel(BCB), professor of Bangladesh University of Engineering and Technology(BUET),project implementation office(PIO) personnel,
and some other relevant personnel.

Data processing /Analysing

Collected data have been processed manually and descriptive analysis has been adopted for preparation of this report.

Presentation of Observation/ Findings:

The observation of the study have been presented in the following format to keep consistency with the broad objectives of the study mentioned in page 4:

(a) Conformity between SAR objectives and PACC(PMIS) objectives
(b) PMIS as envisaged in the World Bank SAR
(c) Determination of performed volume of work and review the achievement of PACC objectives.

CHAPTER II

PRESENTATION OF OBSERVATION

2.I. CONFORMITY BETWEEN STAFF APPRAISAL REPORT (SAR) OBJECTIVES AND THE OBJECTIVES OF PACC(PMIS)

The objective of SAR and the objectives of PMIS in Project Proforma (PP) are stated below:

According to the SAR,strengthening of the Establishment Division was envisaged among others by developing and institutionalising a modernized Personnel Management Information System (PMIS). The functions to be performed under the PMIS include providing job description, job analysis, performance appraisal, upgraded individual officers file, a personnel manual of rules and regulation and computer facilities to speed the analysis and recovery of data generated by the other elements of the system. Installation and application of the computer facilities under the institutional framework of Public Administration Computer Centre(PACC) aimed at providing computerised information system to facilitate personnel management decision making process particularly for (I) recruitment, (II) training, (III) placement, (IV) performance evaluation and (V) promotion.

The approved original project proforma however elaborates functions of PACC much beyond the ones envisaged in the SAR. According to PP the objective of the PACC are the following:

(i) Obtaining relevant personnel data and information which include, among others, job description, job analysis, performance appraisal, upgraded individual officers files and a personnel manual of rules and regulations.

(ii) Maintenance of data of government employees with following three broad aims:

(a) Data on officers to be arranged in a manner which can be processed and updated regularly for the purpose of administering/managing and monitoring them, and attaining optimum efficiency in administration and high moral of employees.

(b) Facilitate the process of decision making on matters connected with Personnel Management and Public Administration.

(c) Data for other non-gazetted employees to be collected for census purpose.

(iii) Training of computer professionals for government sector and providing leadership in this area to the private sector.

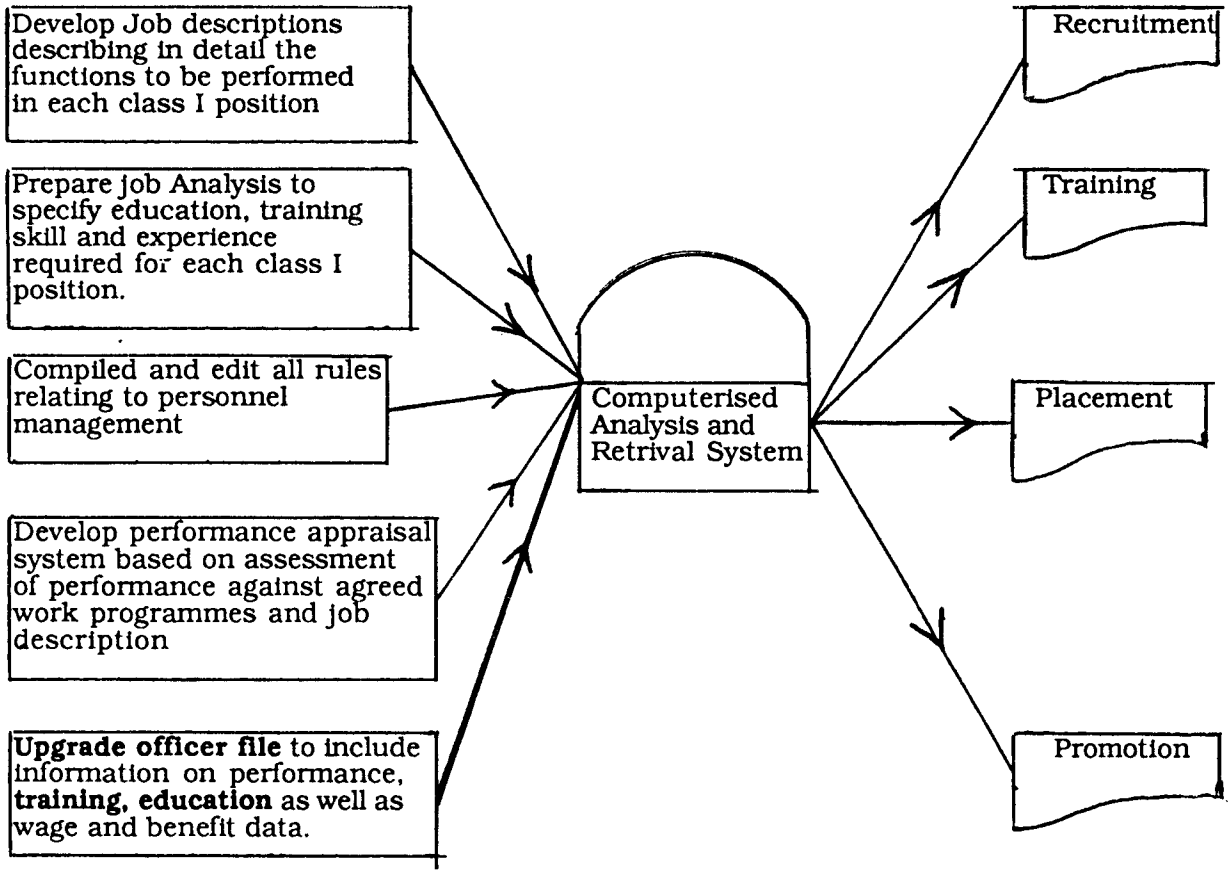
(iv) Providing standards of qualifications for computer professionals.

(v) Development of computer forms, introduction of new forms to facilitate computerization and subsequent development in the area of software technology, data processing system.

(vi) Arrange computer familiarization courses for senior officers.

(vii) Work as controlling body for introduction of computer in any other organization of the government.

Personnel Management Information System (PMIS) as envisaged in the World Bank SAR



Indication: Bold line and letters indicate the part implemented by PACC.

In fact only one (the first one) of the seven objectives of PMIS (PACC) in approved PP conformed to the original objectives and description in SAR and the other six were unrelated to SAR. Some of these objectives (in PP) are not only beyond the scope of World Bank recommendations but also beyond the allocated functions of the Ministry of Establishment under the government rules of business. For example, the objective of training of computer professionals for government sector and providing leadership in this area to the private sector or providing standards of qualification for computer professionals or to work as controlling body for introduction of computer in any other organization of the government are outside the allocated business of the Ministry of Establishment. The proposition of storing data on non-gazetted government employees was not envisaged by the World Bank and it is difficult to stretch the PMIS (PACC) objectives of SAR to find relevance with such an exercise.

It is observed that the main aims and objectives of computerization of jobs of the ministry of establishment at present got mixed up with the general computerization system of Government oriented PMIS rather than relational Data Base Management System (RDBMS) which should have been the principal objective of PACC as per the objectives of SAR.

2.2. DETERMINATION OF PERFORMED VOLUME OF WORK AND REVIEW THE ACHIEVEMENT OF OBJECTIVES OF PACC

Numerically the load of Ministry of Establishment envisaged processing of the following information in the PACC (Table-2).

Table-2
CATEGORYWISE LOAD OF DATA FOR MINISTRY OF ESTABLISHMENT FOR PROCESSING AT PACC

Category	Actual number of personnel as on 01.07.87	Level of jurisdiction
(a) SSP	677	All types
(b) BCS(Admn.)	3,097	All types
(c) BCS(Sectt.)	562	All types
Subtotal (a+b+c)	**4,336**	
(d) All other 28 cadres	40,000	Recruitment,initial training,disciplining
(e) Non-cadre class I officers	22,648(approx.)	Partial data processing, termination of services.
(f) Class I officers of Semi-Govt. bodies.	28,000(approx.)	Census and deputation /absorption in the govt.service in special cases.
(g) Class II officers and some specific class III staff under govt.who are eligible for promotion to class I.	43,035(approx.)	Census and monito-ring,updating list of potential promotes.
(h) All other (Non-gazetted) Govt. Employees.	15,00,000(approx.)	Census only (Annually or 2)
	Grand Total: 16,38,019	

Source : PP of PACC, Ministry of Establishment,Sept.,1984.

The above jobs were supposed to be completed in five years after installing the computer in PACC in three phases as per PP shown in Table-3.

Table-3

PHASEWISE DISTRIBUTION OF WORK LOAD ESTIMATED EARLIER IN PP

A. **First Phase : first Year :**	
(i) Data relating to all officers of SSP, BCS(Admn.) and BCS(Sectt.).	Total No.4,336
(ii) Data relating to all other 28 cadres.	Total No.40,000
(iii) Data relating to all Class II and special class III employees (potential class I officers).	Total No.43,035
First Phase Total = 87,371	
B. Second Phase : By third year :	
(iv) Data relating to class I officers of Autonomous/Semi Govt.bodies.	**Total No.28,000**
C. Third Phase : By fifth year :	
(v) Date relating to all employees of the Government.	Total No.15,00,000
(vi) Classs I officers under the excluding semi.Govt.bodies.	Total No.22,648
THIRD PHASE TOTAL = 15,22,648	

Source : PP of PACC, Ministry of Establishment, Sept.,1984.

Categorywise job-load and their performance are shown in Table-4.

Table-4

DATA ENCODED FOR CREATING RELATED DATA-BASE IN PACC

Sl. No.	Category	Actual No Given in PP as on 01.07.87	Present approved number	No.of present employ-ees	No.of P.D.S received in PACC	Data encoded for creating related-data base in disk upto 4.10.88	Encoded data shortfall (4-6)
	1	2	3	4	5	6	7
1.	S.S.P	677	779	587	556	556	31
2.	BCS(Admn.)	3097	3223	2726	2687	2687	39
3.	BCS(Sectt.)	562	562	562	495	489	73
4.	Class I officers of other 28 cadres	40,000	34830	26147	* 2219	Nil	26147 (Not encoded)
5.	Class I officers of Autonomuos bodies	28000	41544	36295	Nil	Nil	-
6.	Non-cadre class I officers.	22648	25000 (approx.)	-	-	-	-
7.	Senior Govt. class I officers from class II Govt. officers of feder post.	43035	486710	432227	-	-	-
8.	Employees of Public sectors	1500000	696386	625130	-	-	-

Source : PACC, Ministry of Establishment.

* P.D.S. received from:
B.C.S. (Judicial)
B.C.S. (Fisheries & Livestock)
B.C.S. (Railway)
B.C.S. (Custom & Excise)
B.C.S. (Postal, Telegraph & Telephone)

**The table has been prepared as per decision taken before dated 7.2.88 by the Ministry of Establishment.

It is observed from table- 4 that 2219 Nos. P.D.S. of class I officers of other five cadres, i.e., BCS(Judiciary), BCS(Fisheries), BCS(Railway), BCS(Custom & Excise), BCS (Postal & T&T) are still awaiting for encoding of the needful operation at PACC. P.D.S have not yet been received in PACC for the serial number 4-8, which is mentioned in table-4. It is also revealed that 97 % P.D.S. of SSP, BCS(Admn.) and BCS(Sectt.) have so far reached in PACC and those have also been encoded and stored in the disk memory for processing.

It was gathered that PACC is producing a few number of outputs (Output list in table-5) for administering the following 3 cadres by now:

(a) SSP(Senior Service Pool); (b) BCS(Administration);
(c) BCS(Secretariat).

Table-5

OUTPUT LIST FROM PACC.
SSP,BCS(Admn.), BCS(Sectt.)

PERSONNEL INFORMATION SYSTEM

01 Officers retiring in a year
02. List of officers Male or Female
03. Officer and their marital status
04. Officers belonging to a district
05. Spous having particular occupation.
06. Officers on Foreign Training
07. Officers on Foreign Deputation
08. Officers on Field posting
09. Information of SSP officers.
10. Officers knowing a language
11. Posting of an officer.
12. Officers service history.
13. Officers with more than two children.
14. Officers with Punishment.
15. Academic and Training Information.
16. Officers in Corporation/ Directorate.

INFORMATION ON SSP OFFICERS

01. Officers retiring in a year.
02. Officers completing at least 3 years of tenure in present posting.
03. List of officers with present posting.
04. Officers posted in an organisation.

Cont. table-5/12

LIST OF DS TO SECY.WORKING IN AN ORGANISATION

01. DS to Secretary posted in a Ministry/Division.
02. DS to Secretary posted in an Autonomous/Dept./DTE.
03. DS to Secretary posted in Field appointments.
04. DS to Secretary on Deputation in International/Foreign organisation.
05. DS to Secretary posted in Mission abroad.
06. List of DS posted as Private Secretary.

Source : PACC, Ministry of Establishment.

From the analysis of data it reveals that PACC was supposed to complete the computerization jobs of a total number of 87,371 officers and employees as per PP of september 1984, in the First phase : First Year (Table-3). The above target was supposed to be completed in one year, but the PACC could achieve hardly 4.25 % of its target in about one year 8 months (31.3.86 to 24.11.87) (shown in table-4). Achievement shown here has been calculated considering the completion of work of only 3 cadres, viz.SSP,BCS(Admn.),BCS(Sectt.) out of 31 cadres and data relating to all class-II and special class-III employees (Potential Class- I officers).

At that time PACC had 2219 more Nos.PDS from other five cadres but PACC did not encode those in the disk as per decision of the committee for implementation of objectives of PMIS part of PMIS/MSW Project [5]. The committee realized that it was not possible to maintain and process the information on all officers and employees by the PACC's present computer capacity. The committee decided that it was not required to receive detailed information in the Ministry of Establishment about officers and employees of all Ministries except the officers belonging to the cadres directly controlled by the Ministry of Establishment. The committee further decided that only some selective information relating to the officers of other 28 cadres can be recorded in the PACC. However in the meeting the committee did not give any guidelines for this selective information.

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5. Ministry of Establishment in a meeting concerning PACC on 25.11.87 with Mr. B.R. Chowdhury, Joint Secretary in a chair.

The functions of PACC thus narrowed down from the original objectives stated in the PP.

It can be said that the size of the computer system proposed by the World Bank team was not appropriate for large volume of data that would be required to be manipulated to implement the system. The computer capacity suggested in the SAR did not match the functions envisaged for the PMIS. The description and implementation of the proposed PMIS given in the approved PP was also not in conformity with the SAR description either.

A sound computerization project should only be based on clear and well defined premises. If it is not, real benefits are not likely to be derived from such a project. Storage of voluminous data in itself cannot be the objective of a computer project. Storage of data is the means to achieve their objectives. The project gives vivid description of the subjects relating to which data would be stored in the proposed computer system.

It does not, however, spell out what use of most of these data would be made to increase efficiency of the personnel management function of the Ministry of Establishment. The Ministry of Establishment directly controlled the SSP, BCS(Admn.) and BCS(Sectt.) cadres. It means that all decisions of personnel matters relating to those(3 cadres) officers are taken in this ministry. These personnel decisions relate to selections, recruitment, training, placement, performance appraisal, promotion,leave, etc.

It is good to have personnel data of all government officers in the electronic memory of the computer. That makes these information easily retrieveable through a terminal. But the question is what use will be made of these information ? Every bit of memory of the computer occupied by these information has a cost. Unless the information stored in a computer memory is made practical uses of the investment made in the computer system remains unproductive. If the computer system fails to make the job of an organisation easier at one level or the other, then there is no need for a computer in that organization. The computer can make the service of an organization more efficient by reducing the time required to generate that service. It can make the decision making process easier or can make the decision more informed. It can make the product or services of an organization less expensive or can make their service or product more easily accessible to the clientle. By providing one or more of the above advantages an organisation can become more profitable or more competitive. Before making investment in a computer system it is, therefore, essential to identify the likely benefits in very specefic terms, if not in exact quantifiable terms.

There is no doubt that the personnel management functions of the Minstry of Establishment can be better performed by storing

personnel data of all officers whose services are controlled by the Ministry . By developing appropriate application programs and by manipulating the data stored in the computer memory, many anomalies of personnel administration can be removed. More appropriate persons can be placed in appropriate places. Performance evaluation in the system can be made, dependence on paper file can be substantially reduced.

But what about the use of data relating to thousands of officers/employees who are not directly controlled by the Ministry of Establishment. Survey of the day to day activities of the Ministry of Establishment revealed that the Ministry almost never initiates any action on the class-1 officers controlled by the other Ministries/Divisions. As for the autonomous bodies, the Ministry of Establishment does not have direct association with the personnel decision relating to the class I officers of those bodies. Of course appointment of heads of the autonomous bodies and in some cases, their immediate deputies are processed by the Ministry of Establishment.

The Ministry of Establishment is associated with the following kinds of personnel actions relating to class I officers under the control of other Ministries/Divisions:

(a) As the earstwhile secretariat of the Superior Selection Board(SSB), the Ministry of Establishment had the responsibility of placing before the Board the cases of promotion or award of pay scale of Tk. 3700-4825/- and above to those officers and communicate the SSB's decisions to the concerned Ministry or Division.[6]

(b) Approve nominations for foreign training of more than 4 months' duration relating to officers in the grade of Tk.3700- 4825/- and above.

(c) Arrange Foundation Training of the officers after their appointment in those cadres.

(d) Arrange training of mid and senior level officers of the other cadres.

It is true that in connection with the above actions bio- data of the concerned officers are necessary. But the initiatives for these types of actions originate in the controlling Ministries or Divisions. When the other Ministries and Divisions send proposals relating to these actions it is incumbent on them to furnish all relevant information on the candidates. These proposals are invariably accompained with the bio-data of the concerned officers. Even if the computer of Ministry of Establishment have all the data on the candidates, those data are not usable unless these are vested by the controlling ministry or division.

6.The ministry of establishment has been diverted of this function through notification no. (SA-3)/1-14/89-325, dt.24.7.89.

It may be claimed that if data on all class I officers are stored in the PACC computer system it will be easier to the Ministry of Establishment to furnish information on a particular officer if the same is desired by the higher authorities, say the President's Secretariat. There is no contradiction to this claim. But the question is: how frequently are such enquiries received by the Ministry of Establishment ? Enquiries made with the relevant sections of the Ministry revealed that almost enquiries are received from higher authorities. Even if such information is requested by the President's Secretariat, the Ministry of Establishment can legitimately pass on the enquiry to the concerned Ministry or Division. Because, the allocation of business under the Rules of Business does not require the Ministry of Establishment to do such jobs. Other than M/O Establishment, if any officer's data/information is stored in the PACC, it is not likely to meet the legal requirements for these information to be used for any actionable purpose without those information being authenticated by the controlling ministry/division.

There is hardly any perceivable operational advantage in keeping personnel data relating to officers controlled by other ministries/division in the PACC computer, unless it is processed centrally at PACC. At present this is not being done at PACC. This makes us confront the issue of centralised and decentralised systems. The PACC system as envisaged in the PP proposes that a centralised computer system would exclusively handle the personnel management information system of the entire government. This entails all processing at a single site, maintains a single database, has centralized development of applications; has central provision of technical services; sets development priorities centrally; and allocates computer resources centrally.

The main advantages of centralised information system lie in economies of scale. Large centrlised systems reduce the need for multiple hardware, software, space, personnel and data bases. These systems provide better opportunities for recruiting qualified personnel and maintaining training programmes.

On the other hand, there are a number of disadvantages to fully centralized systems. These require high initial investment in large hardware, a sophisticated operating system, widespread communications equipment and complex application softwares. Centralized systems require highly qualified personnel for development and maintenance. A system failure might paralyse the entire network unless an expensive backup sytem is guaranteed. Most importantly the users are less satisfied and poorly motivated because they are less involved with the system and feel less responsible for their application. Due to many interdependences, the package software is much less flexible and cannot be tailored to any one user or function should such a need arise subsequent to the setting of a centralized system.

In view of the PACC's performance in the limited sphere of 3 cadres of officers which is reported in the following chapters there is no doubt that any plan aiming at transforming PACC computer system into a governmentwide central PMIS is likely to hinder the efficiency and acievement of goals questionalable and doubtful. Expertise available with the PACC and, for that matter, in the country at this stage is not enough to develop or maintain a centralised personnel management system embracing all cadres and non-cadres class I officers.

Recognising the above circumstances, the Ministry of Establishment has been preparing a revised PP, which is now under process at its fianl stage, for smooth functioning, maximum utilization and fulfillment of objectives of PACC by the present computer facilities.

2.3 REVIEW OF SYSTEM SPECIFICATIONS(HARDWARE AND SOFTWARE) AND MANPOWER STATUS

System Specification (Hardware And Software):

Hardware configuration and Software specifications as recommended in PP for installing the Computer in PACC are given below (Table-6).

Table - 6

IBM S/36 COMPUTER COMPONENTS/CONFIGURATION

HARDWARE	Specifications	Number
1.	(a) System 36 CPU 512 KB, Disk 400 MB Diskette I/O & Diskette Magazine (8")	
	OR	
	(b) System 36 CPU 512 KB(Disk 200 MB) Diskette I/O & Diskette Magazine (8")	
2.	Tape Drive Attachment	
3.	Printer Attachment	
4.	Tape Drive 9 track, 1600 bpi, transfer rate 160 KB	2(TWO)
5.	12 CRT, 1920 Characters with Keyboard	12(Twelve)
6.	12 CRT, 960 (not more than 1920) characters with Keyboard (6 dual machines)	12(Twelve)
7.	Line Printer, 650 LPM, 132 Print positions	
8.	DM Printer:	
	(a) Letter quality, 60 CPS, no graphics	
	OR	
	(b) DM 140 LPM, graphics	
	OR	
	(c) IM 120 CPS, no graphics	

SOFTWARE Specifications

1) SSP (includes DBMS)
2) SORT/MERGE Utilities
3) BASIC
4) COBOL
5) RPG II
6) ASSEMBLER

Source: PP, Ministry of Establishment.

International Competitive Tender (ICT) was invited through advertisement in the daily local newspapers. Tender specification is shown in Table-7 and five tender/ quotations were received from Agents/ Distributors/ Vendors/ Suppliers/ Manufacturers either having their branch offices in Bangladesh or as shown in table-8.

Table - 7

TENDER SPECIFICATION FOR PACC COMPUTER

HARDWARE	SPECIFICATION	NOs
1. (a) CPU	512 KB memory	
(b) Disk Storage	250-400 MB Diskette F/O & Diskette 8" or 5.25" compatible to the system	
2. Tape drive Attachment	Tape drive 9 tracks 1600/6250 bpi, transefer rate 70-200 KB/second	(two)
3. Printer Attachment	a. Line printer, 600 LPM, 132 print position.	(two)
	b. DM printer,120 CPS, Graphics.	
4. Terminal		(twenty four)
	a. 12 CRT,1920 character with keyboard, No. of keys 83	(twelve)
	b. 12 CRT, 960 character (not more than 1920 with keyboard, No. of keys 83)	(twelve)

SOFTWARE

1. System control program (including DBMS, MIS/PMIS)
2. Sort/Merge Utilities
3. BASIC
4. COBOL & other high level language.

Source : Tender document of PACC.

Table-8

LIST OF VENDORS WHO OFFERED FOR SUPPLYING THE MACHINE

Name of the manufacturer/ vendor	Branch/Sales Office in Bangladesh	Agent/Distributor
1. IBM(International Business Machine)	Branch office	-
2. The Computers Limited	-	Agent ICL International Computer Ltd.
3. NCR (National cash Register)	Branch office	-
4. GIS (Graphics Information System)	-	Agent of Honeywell
5. United Trade Limited	-	Agent of PS-3000

Source: Ministry of Establishment.

The Models and Brand of machines with price quoted by the above vendors for their respective machines along with maintenance costs are shown in table-9.

Table-9

THE MODELS AND BRANDS OF MACHINE WITH PRICE (TAKA)

Name of vendor	Machine offered	Principal office	Cost of machine	Maintenance one year	Total cost of machine
1. I.B.M	IBM system /36	Newyork U.S.A.	56,97,848	2,90,000	59,87,848
2. I.C.L	ME-29 Model-33	U.K	59,65,158	2,22,953	61,88,111
3. N.C.R	Model-3900	Dylon U.S.A.	69,00,582	Nil	69,00,582
4. G.I.S Alter-nate	Honeywell DPS 6/85 DPS 6/75	Waltham, U.S.A.	48,47,221	5,15,223 (Considered)	53,62,444
5. United Trade Ltd.	PS-3000	Valorum Overseas Investm-ent -Sa Florida U.S.A.	52,54,937	2,25,000	54,79,937

Source : Ministry of Establishment

The committee by the name "PACC Tender and Implementation Committee" analysed and evaluated the above models and brands. Though IBM specification was suggested in PP the committee disqualified IBM on legal and other aspects. So, out of the remaining four tenders/offers the committee gave the following ratings in order of merit:[7]

(a) GIS (Honeywell DPS 6/85)	1
(b) NCR (NCR 9300)	2
(c) UTL (Gould PS 3000)	3
(d) TCL (ICL ME 29 Model 33)	4

The committee recommended to the department of Supply and Inspection to consider the offer of Honeywell DPS 6/85 quoted by M/S. GIS Limited, Dhaka. Accordingly the department of Supply & Inspection purchased the computer system Honeywell DPS 6/85 from Graphics Information Systems Ltd.(GIS), Bangladesh.

Break up of machines price along with maintenance cost is given below:[8]

Cost & Prices :	**Taka**
(i) Hardware	38,02,584.00
(ii) Software	2,87,018.00
(iii) Maintenance (Ist year)	5,15,223.00
(iv) Freight & Commission	7,35,619.00
(v) Installation	22,000.00
	Total=53,62,444.00 (as quated in the bid)

7. Source : Minutes of the PACC Tender & Implementation Committee (PACC-TIC) meeting held on 31.3.85 with Brig. D.S Yusuf Hyder, Additional Secretary, in the Chair, Ministry of Establishment.

8. Source : Minutes of the PACC-TIC meeting on 9.10. & 17 March, 85 with Brig.D.S. Yusuf Hyder, Additional Secretary, Ministry of Establishment, in the chair.

Table - 10

CONFIGURATION OF PACC COMPUTER

Hardware/ Sofrware	Name of CPU/Media	No.	Capacity/Speed (Throughput)/Remarks
A.Hardware	(i) Honeywell DPS 6/85	1	2 MB CPU memory(original) added 2 MB further to make it 4MB CPU memory size.
	(ii) Removable disk drive	2	Each Disk Pack of 512MB size.
	(iii) Diskette drive	1	Diskette size 5.25" size
	(iv) Magnetic tape drive	1	1600 B.P.I./3200 FCI
	(v) Terminal	24	
	(vi) Line Printer	1	Speed 600 line per minute (LPM)
	(vii) Matrix Printer	1	Speed 100 character per second (CPS)
	(viii) Laser Printer	1	Speed 8page per minute (PPM)
B.Sofrware	(i) GCOS6 MOD 400		Operating System
	(ii) INFO 6		Package Software
	(iii) COBOL		Programing Language Compiler.
	(iv) BASIC		Programing Language Compiler.
	(v) FORTRAN		Programing Language Compiler.

Source : PACC, Ministry of Establishment.

2.3.2 Back-to-back, back up system/compatibility of the machine vis-a-vis PACC's Data-base System :

There are three organizations in Bangladesh viz. (i) American Express Bank, Dhaka (ii) Zia Fertilizer Factory, Ashuganj and (iii) Graphics Information Systems(GIS), Dhaka, having Honeywell computers which are more or less of the same type of system (configuration) as that of PACC and can be used at the time of system break down/disorder of the system at PACC. It is also revealed that diskettes and tapes are the media to carry the data to make them compatible and process the PACC's proposed database system in the above mentioned computer. It is, however, to be noted that voluminous data of PACC can not be totally carried and handled through the disk medium. Therefore, the above mentioned existing three organizations within Bangladesh can

not be treated as directly suitable back-to-back backup system with that of PACC. Under the present circumstances in Bangladesh, particularly the level of development of tele-communication system, any computer system in Bangladesh would be having the same problem with respect to back up support.

2.3.3 After sale services of the machine

Quality of after-sales services in the third world country like Bangladesh should be an important point of consideration so as to avoid disaster of computerization system due to poor quality of performance of after-sale services of the vendors/agents, etc. Normally it is seen that Agents/Distributor lose interest to extend proper quality of after-sales service to their clients after selling the machine once for all. Quality of previous after-sales services activities of the Agents/Vendor/Distributor is to be considered at the time of purchasing/selecting the machine. It is one of the vital factors which should be very critically considered at the time of selecting the machine and make .

2.3.4 Migration and growth path of the machine

Migration and growth paths of the machine are important considerations at the time of selecting the machine . PACC purchased the machine with "Removable disk drive". Puchase of removable disk drive System machine could have been avoided by PACC as the Removeable Disk has shortcomings/risks. It can get damaged/crashed along with all of the data within the disk which ultimately hampers the basic concepts of data-base system and results in extra costs,labour and time. Ultimate objective of PACC was to minimise costs,labour and time which are the fundamental concepts also in the interactive system of DBMS for producing the basic outputs of PACC.It has been noticed in the evaluation that rate of damage of this disk is 14% so far. Occurrence of such damages of the Removeable Disk have not been that high though. If the data are lost within the removable disk of PACC's machine, it is very difficult to get all the data recovered from the damage removable disks and get it readable into back-to back-up machine. Magnetic tapes may be used as secondary storage in addition to the removable disk to avoid any major break down of removable disk.

2.3.5 Strategy for back-up and recovery of data

Once an organisation is committed to a data-base system (DBMS),it becomes critically dependent on the successful operation of that sysytem. In the event of damage to (any portion of) the data-base caused by either human error or a failure in hardware or supporting operating system, it is essential to get it (data concerned) repared with a minimum of delay and with as little effect as possible on the rest of the system. At present PACC does not have adequate

arrangement to get the data repaired immediately after having break down of removable disk, which has to be ensured at PACC.

2.3.6 MACHINE CONFIGURATION WITH SOFTWARE:

PACC has a Honeywell DPS 6/85(6/86) super mini-computer system. It's CPU has 32 bit processor and the data path is also 32 bit . As a result the system has got tremendous processing capabilities.

Initially, the system was procured alongwith the following softwares:

1. GCOS 6 MOD 400 (operating System).
2. COBOL.
3. BASIC
4. RPG.
5. FORTRAN.
6. INFO data base package.

The supplier was also committed to provide at any cost all the software necessary to make the PACC an ideal computer centre. But,to avail such an offer, PACC must have qualified software professionals who could shoulder the responsibility of using the required software(s).

The procured computer system is capable of handling large data base information of PACC by using Honeywell recent products which are very good softwares for DBMS systems. These include the following products, which can help PACC for avoiding immediate writing of programmes for the system:

1. TPS/6	-	Transaction Processing System.
2.a DM/6	-	Database Management.
2.b DM/6 TP	-	Transaction Processing System for DM/6.

To operate and handle the above packages of Honeywell, PACC is to train their present manpower easily within a few weeks months.

2.3.7 MANPOWER STATUS

To run a computer of the proposed capacity the following manpower was suggested in PP:

Table-11

MANPOWER SUGGESTED IN PP

Sl.No	Designation	Number
1.	Senior System Analyst	1
2.	System Analyst	1
3.	Programmer	2
4.	Operation Officer	1
5.	Computer Supervisor/ Consol Operator	1
6.	Operator	6
7.	UDA-cum Typist	1
8.	MLSS	2
	Total	15

For the installed PACC system at present the number of officers/employees engaged in PACC is shown in table-12 below:

Table-12

NO. OF OFFICERS ENGAGED IN SYSTEM AND PROGRAMMING JOB AT PRESENT IN PACC

Sl.NO.	Designation	Number	Remarks
1.	Senior System Analyst	1	Trained (abroad)
2.	System Analyst	1	"
3.	Programmer	1	"
4.	Asstt. Programmer	1	" (locally)
5.	Operation Officer	1	"
6.	Data Entry/Control Supervisor	1	" (locally)
7.	Computer Operator	1	" (locally)
	Total	7	

2.4 REVIEW OF CURRENT USE OF SOFTWARE ACCORDING TO NEED

PACC is using mostly package software which is known as INFO-6.-Trademark of Henco Software Inc.U.S.A. INFO is a 4GL Language. It is a Relational Database Management System(RDBMS). Originally it was developed for micro computer and later on updated for mini-computer.

INFO-6 is a conversational language which allows the user to create and maintain information in an easily accessible format. By use of a few simple commands, the user can perform normal data processing functions without resorting to conventional programming techniques. A sophisticated report can be produced with a limited series of user actions.

Using INFO-6,the data processing user associates meaningful names with his datafiles and their content, thereby creating on- line documentation for his software system. Instructions are given to INFO conversationally, using english language-like commands.

The provided data-base package INFO 6 is a very user friendly and hence it can be used by operators of other persons having little knowledge on computer programming .

INFO-6 has five general areas of use :

DATA ENTRY

DATA UPDATE

QUERY LANGUAGE

REPORT WRITING

PROGRAMMING

Normally Software Package Programs (SPP) are user oriented. It should not be difficult for any general user with normal orientation to use package software for their day-to-day work . Package software has got some limitations of its own,therefore,tailored package software for particular user is always desirable in addition to the package programs available in the market. The INFO software package which is being used by PACC is not pre-tailored to suit PACC's requiurements.

It is seen from the output list in table-5 that almost all the outputs are being produced by using INFO package software and most of them are of statistical nature.

An operating system is a program that manages the resources of a computer. The operating system undertakes all the routine chores connected with managing the space on the mass storage,loading information into memory,handling the data communication devices and so on. When many users are all connected to the same central computer resource, it is the operating system which arbitrates the many and varied demands that all the usres make upon the system resources.

As the hardware has grown more sophisticated and varied over the years, so operating system is to be designed to have greater capability.Simple small computers use simple operating system,the simplest type being a monitor program which has a very limited range of functions which usually control a single stream of jobs through the system. Larger and more powerful systems can be multiprogrammed, enabling a number of users to obtain simultaneous service from the same system. These systems need larger and more complex operating systems. Present operating system of PACC's machine is not well equiped and capable of handling properly all the terminals with the existing memory size of the machine at a time.

The 3 GL compilers which have already been purchased by PACC are not being used adequtely, so to say these are not at all being used now in PACC. This has resulted in substantial underutilization of computing capacity of the PACC. Use of 3 GL languages gives the programmers considerable freedom to design programmes to fit the peculiar requirments of different uses.

Present outputs of PACC are being used by only a few sections of the ministry of establishment. The percentage of uses of present outputs of PACC is shown in table-13

Table-13

PERCENTAGE OF USES OF PRESENT OUTPUTS IN THE MINISTRIES

Sl.No	Name of Ministries/ Divisions	Percentage of uses of present outputs	Reasons shown why there are not being used
1.	Ministry of Establishment	5%-20%	* Outputs are not designed as per requirements of sections/Departments.

* Comments: Frequent interactions between users and PACC may resolve this.

It is satisfying to note that PACC has very recently started developing/writing its own program in 3 GL (COBOL Language) and one important output (Government employees census) has recently been produced by COBOL program which will definitlely help the administration to take quick and vital decision in their day-to- day problems. It could have been started earlier, had there been 3 GL programmers in PACC.

2.5 BENEFICIARIES REQUIREMENTS ANALYSIS AND REACTIONS

An attempt has been made in this section to determine the extent to which the PACC could provide services to the various beneficiaries. This issue is to be looked into from different viewpoints and this needs very careful interpretation of the situation provided at the PACC in terms of its capability and its management and decision making process as well as the awarness and seriousness of the beneficiaries to get the services they could have obtained from PACC as per their requirements. Outputs which are being produced now by PACC are regarded by many benficiaries as inadequate to serve the total purpose of any department/section even in the Ministry of Establishment.

If one of the objectives of establishment of PACC was to replace manual processing of the data then it may be said without arguments that computer output could not totally replace the corresponding manual outputs which are being used since long. All the beneficiaries,however,agree that computer has made their jobs easier by producing a few outputs. User's confidence in computerized outputs must be ensured by producing more and more outputs and by eventually eliminating the corresponding manual outputs.

Some of the branches(Junior appointment,Senior appointment & Training) are performing their day-to-day jobs with the help of PACC outputs and ultimately replacing the manual outputs within the Ministry of Establishment. The percentage of Computer outputs are being used for preparing day-to-day jobs of three cadres i.e. SSP, BCS(Admn.) and BCS (Sectt.) in Ministry of Establishment are shown in Table-14.

Table - 14

COMPUTER OUTPUT USEFULNESS IN DAT-TO-DAY JOBS IN THE MINISTRY OF ESTABLISHMENT.

Sl. NO.	Name of CADRES	PERCENTAGE		
		Usefulness in day-to-day work (quantitative)	Swiftness in preparing outputs	Correctness of outputs (qualitative)
1.	SSP	Not high (15% - 20%)	Very satisfac-tory (100%)	98% (up-to-date)
2.	BCS (Admn.)	Poor (5%)	-Do-	95%(up-to-date)
3.	BCS(Sectt.)	Very Negligible (10%-15%)	-Do-	95%(up-to-date)

Source : Survey opinion.

It has been revealed from the opinion survey that present outputs of PACC are not being used by other Ministries except a few of them are being used by only a few sections of Ministry of Establishment.

The opinion survey of the beneficiaries implies that the beneficiaries are very much willing to get the following outputs regularly with relevant particulars of each and every officer for the day-to-day work of the Ministries:-

(a) Civil list of officers of all cadres-(Yearly output).
(b) Seniority list of officers (cadrewise)-(Yearly output)
(c) Up to date posting and transfer list of all cadre officers - (Monthly output)
(d) List of newly appointed officers of all cadres (Monthly output)
(e) Deputation list of all cadre officers-(Monthly output)
(f) List of Leave Preparatory to Retirement(LPR) Pension-(Yearly output)
(g) Letters for sanctioning Leave Preparatory to Retirement (LPR) Pension - (Monthly output).
(h) List of District wise officers (Monthly)
(i) List of cadre wise officers (Half yearly)
(j) Updated list of current month transferred officers (Monthly)
(k) List of retired officers for a particular year (Monthly)
(l) List of Male & Female officers (Yearly)
(m) List of marital status of officers (Yearly)
(n) List of employed Husband/Wife of Officers (Yearly)
(o) List of Service Records of Officers (Yearly)
(p) List of designation wise officers (Half-yearly)
(q) List of educational qualifications of officers (Yearly)
(r) List of seniority/promoted officers (Yearly)
(s) List of aditional qualifications /various madel /honorarium /personal publications of officers(Yearly)
(t) List of educational qualifications as per requirements of establishment division (Yearly)
(u) Any information from personal data sheet as per requirements of establishment.
(v) To computerise manpower of Ministry/Division/Attached Office/Govt./Semi Govt./Autonomous Bodies.

For proper and effective utilization of computer outputs beneficiaries have a vital role to develop data and forms according to their requirement from PACC.It is, however,necessary for PACC to be clear about the requirements of the beneficiaries so that PACC can take care of the needs of the beneficiaries.It should, however, be noted that some of the items of the above list can be prepared by PACC only if its scope of work is extended to include personnel data of officers of all cadres which is not feasible at this stage for reasons already discused in preceding pages.

2.6 INHOUSE SOFTWARE DEVELOPMENT AND TRAINING OF SYSTEM PERSONNEL

It is very essential to increase skill and capabilities of the software and system personnel to develop software for its own system.This is a prerequisite to produce appropriate outputs with appropriate software programs at PACC.The jobs performed at PACC appear to be mostly dependent on package software namely INFO-6. The system analyst and programmers who are trained in package software and programming languages appear to be inadequate. Unless the programmers and system analyst of the PACC are trained to develop the necessary software either by modification of the existing packages and/or developing new programs in other languages the PACC will not be able to provide the desired services to its various clientele no matter what extent of PDS are encoded and stored in its computer system. Computer is only a means through which data can be processed by any software program and also can be preserved systematically for future use to achieve the ends in a quicker and systematic manner. At present 3 GL (COBOL, BASIC and FORTRAN) are available in PACC other than package software for developing program. The system analyst has to design and streamline the systems by modification and simplification of forms and inputs records/ documents thereafter programmers are to write programs according to the need of the users requirements. This requires training in the existing system of secretariat procedures and record management and also in computer programming for feeding correct data to computer so as to produce appropriate outputs for decision makers and planners.

Training of System Personnel :

The study revelas that few of the original programs have been developed by the programmers of the PACC with the help of other languages than the package software program . This is due to lack of training facilities available in PACC. Table-15 reflects no. of personnel already trained by the suppliers of the computer system since its inception.

Table-15

PACC PERSONNEL TRAINED BY THE SUPPLIER

Sl. No.	Label of Training	Number	Duration	Country
1.	System Analyst	One	3(three) weeks	Bangladesh
2.	Operator	Six	-do-	-do-
3.	Data Entry Control Operation Supervisor	One	-do-	-d0-
4.	System Analyst	One	3(three) weeks	Honk Kong
5.	Operation officer	One	10 days	-do-

Source : PACC, Ministry of Establishment.

In order to continuously upgrade the skill and capabilities of the computer personnel of the PACC continuous process of training is required .

Considering 8 hours in a shift,a computer system can run three shifts in a day. PACC computer system has been running one shift a day . If PACC utilize 24 terminals simultaneously the capacity utilization is 33%. But PACC has been using about 14 terminals .So it reveals that about 20% of the installed capacity of Public Administration Computer Centre(PACC) is now being utilized.In order to ensure better utilization user's requirements should be established. A computer system like PACC should run at least 12 hours a day. Since the procurement of the system, this was not done. It(PACC) is not effectively running even for two hours a day on an average. It is revealed that out of 24 (twenty four) terminals a number of computer terminals are installed in the rooms of the Secretaries, Additional Secretaries and Joint Secretaries. And these are not being used enough because these high ranking officers are very busy with other day- to-day administrative and decision making affairs. The list below shows the distribution of terminals to different senior level officers with proposed types of jobs:

List of Officers.	**Nature/ Type of Job.**
1. Cabinet Secretary	Retrieving Jobs only
2. Establishment Secretary	" " "
3. Addl. Secretary(Establishment)	" " "
4. Joint Secretary " (ADP)	" " "
5. Joint Secretary (Admn.) (Estab)	" " "
6. " " (O&M) "	" " "
7. Deputy Secretary (S.A)	" " "
8. " " (J.A.& F.A.)	" " "

The above terminals could have been attached with PACC's computer room directly for developing systems, programming, data encoding and training instead of keeping them virtually idle in the senior officers rooms. These terminals could have been better utilized if these were installed in the sections.

At all large computer centres the application softwares are developed both using good data base packages software and also by writing a number of own programs by high level computer languages available in the system. To do this a good software team is required. Also the centre should be run under the guidance of an expert

computer professional who must have started his career as a computer programmer and has gradually secured higher positions in the same field to solve any problems by dint of merit of experience.

To develop its own team, PACC should recruit, on the basis of aptitude test, at least 10 fresh University graduates as " Trainee Computer Programmers" and they should be trained under some highly qualified professionals with provision for professioanl development training abroad . The project should be at least for a period of 5 years. After a period of one year, on satisfactory performance they should be promoted to programmer or assistant programmer. During the training period, they should do some real job.

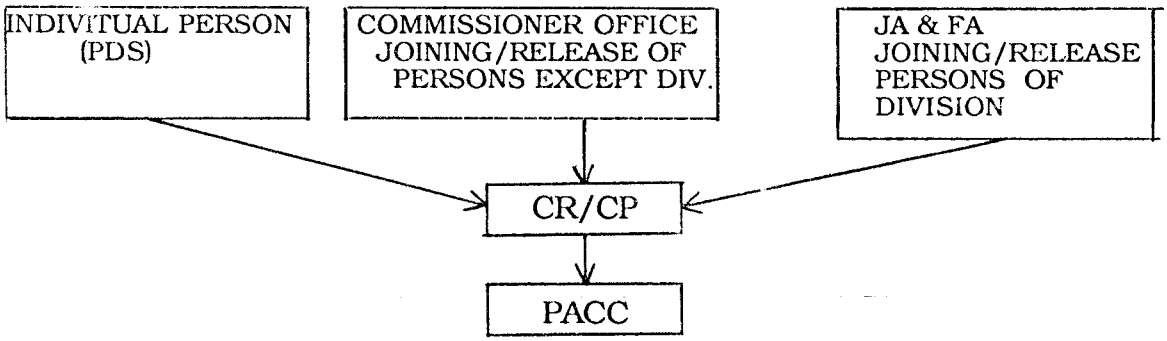
On subsequent years, at least 4 Trainee Computer Programmers should be taken, because which is low the salary structure of governemnt a number of trained programmers are likely to leave PACC. And if the recrutiment process is continued then, after a period of 5 years, PACC may expect to have 6-8 trained and qualified programmers who shall be able to shoulder the responsibility of developing new systems and also train new trainees.

2.7 DATA COLLECTION AND DATA UPDATING PROCEDURES

At present data are collected mainly through personal data sheets (PDS) and these are being initiated by individual officer(s). PDS ultimately come to PACC via CR/CP branch of the Ministry of Establishment. Before sending the PDS to PACC, CR/CP Department takes care of PDS at their end for doing their own up-dating Jobs. PACC creates Master (Data-base) file from the PDS of three cadres (officers) and these are also being up-dated by other forms which come from different sources but not systematically. PACC has also designed a few forms by now to cater to the needs of updating the data-base but these are not sufficient compared to the expectations expressed in the PP. AT present PACC is getting data as per following flow chart :

FLOW CHART

PRESENT DATA FLOW OF PACC



Source : PACC, MInistry of Establishment

Some more forms are yet to be designed by PACC for updating the data-base file which will be required to fulfill the PACC proposed work/jobs as per PP. Some of these proposed new forms are listed below:

(i) Transaction forms for application of the appointment to the Public Service Commission (PSC)

(ii) Forms for fresh appointment letter

(iii) Forms for joining report
(iv) Forms for officers' service record (OSR)
(v) Forms for revised seniority list of cadre officers (if any)
(vi) Forms for posting and transfer orders/notifications

(vii) Forms for certificates/performance reports from educational and training institutes

(viii) Forms for documents supplied by the concerned officer about his publications, awards and other achievements.

(ix) Forms for appointment orders, joining reports, and release orders concerning previous services, if any

(x) Forms for deputation orders

(xi) Forms for promotion notifications

(xii) Forms for letters awarding disciplinary and crimianl punishments

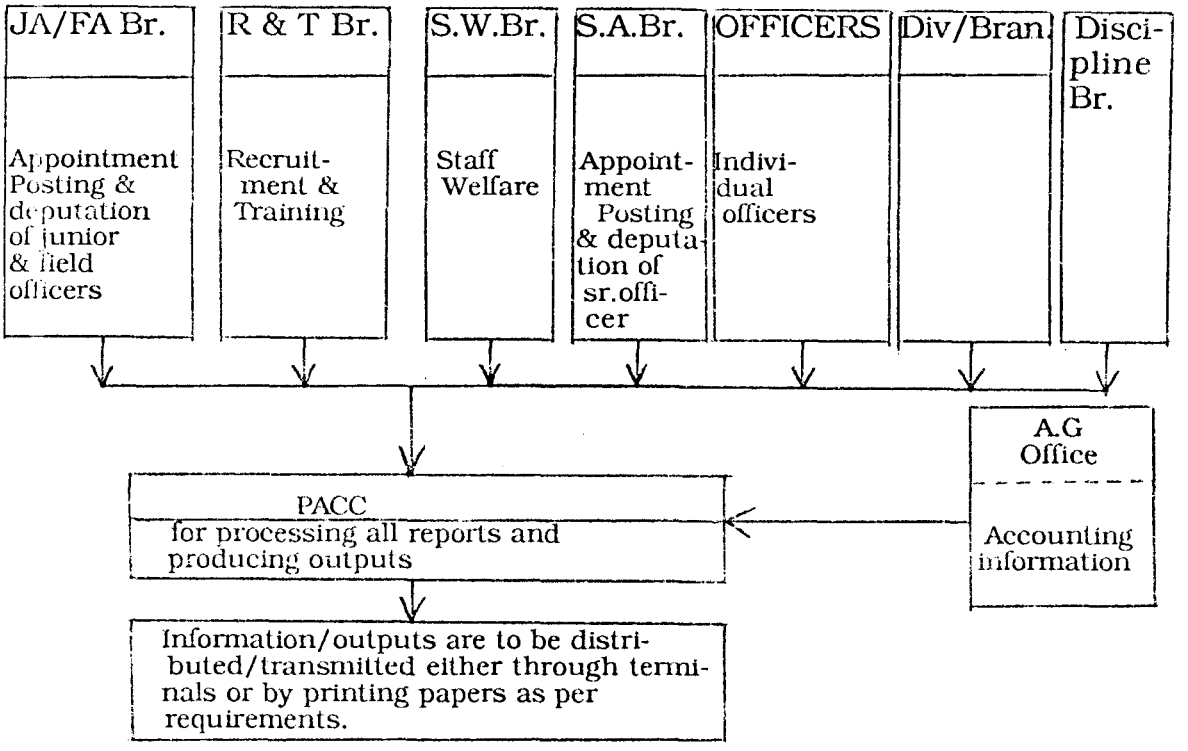
(xiii) Forms for order/letters sanctioning leave preparatory to retirement(LPR)/pension

(xiv) Forms for srvice statements from the office of the chief accounts officer and regional accounts officers.

Future data flow of PACC may be depicted in the following flow chart:

FLOW CHART

FUTURE DATA FLOW OF PACC



CHAPTER-III

PROBLEM IDENTIFICATION OF PACC AND RECOMMENDATION

3.1. Computer Machine/ System with its present configuration at the PACC has not been properly suited to the Workloads shown in origianl PP and also for the day-to-day interactive functions of PACC as per PP. It was expected that considerable number of data were to be encoded and taken in the disk as data-base and these were to be updated by transaction records but due to shortage of termianls and absence of off-line data encoding machine facilities, and the expected data as per PP could not be taken in the data-base masterfile for processing, thus the target of the first phase could not be achieved. It is not that the machine is inferior but it is due to inadequate original main CPU memory and for some technical reasons for which all the available terminals could not be made workable for encoding facilities. It is revealed that all twenty four terminals are workable on-line with the present system. Initially only 8(eight) terminals are working for data encoding and programming jobs, which could not cope with the proposed load of PP.The other terminals were kept idle in the chambers of Secretaries, Addl.Secretaries and Joint Secretaries. It is true that all high ranking officers require to have terminals(connected with computer) for retrieval of required data/information when all the data of an entire job are properly encoded/captured in the computer disk(secondary memory) otherwise there is no use in having terminals in the cahmber of high ranking officers. It was ideal not to place any terminal in the chambers of Secretaires, Addl. Secretaries and Joint Secretaires at the initial stage and instead some termianls could have been used as on-line data encoding machine to achieve 100% target of first phase as per PP.

3.2. It is seen that growth potentiality of Honewell DPS 6/85 is good vis-a-vis those of same size and standard of other brand machines but due to inadequate guidance and lack of efficient plan of work, the PACC machine could work hardly for a few hours a week instead of running two shifts daily i.e.12(twelve) hours daily. It has been observed that a similar system is being used at an international bank on five on-line transaction mode, working round the clock.

3.3. Retrieval of data through terminals from Removable Disk pack sometimes make delays due to non-availiability of data in relevant disk pack from where the concerned data are to be retrieved. Therefore, Removable Disk Pack system perhaps was inadequate for the need of PACC, for PACC's gigantic data processing system. PACC may consider strengthening its efficiency by procuring fixed disk drives. Reasonable memory size fixed-disk would have been very much suitable for PACC's job as per PP.

3.4. Leaving the shortcomings in the use of PACC's existing computer system and its present usages, it is true that PACC is having tremendous shortages of trained manpower to run the system smoothly for achieving the targets.

3.5. It is observed that PACC does not get data in time even from the Senior Officers for encoding them in their respective PDS. This means that there is no strict procedure for streamlining the system so as to reach the respective PDS to PACC. It is noted that data flow to PACC is a formidable problem. PACC system analyst should study the system in details and should make recommendations and suggestions for the system to get PDS in time in PACC to get these encoded for their database system. Here it may be recommended that special messengers from division commissions to ministry of establishment may be deployed to bring the data in time on a regular basis. So that at least quarterly statement may be prepared at both the end. A procedure is to be followed strictly so that all PDS must reach in time in PACC.

3.6. There are tremendous shortage of qualified technical manpower to write programs in either 3 G.L.or 4 G.L for developing the entire electronic data processing of PACC as per user felt-need. At present there are 7 foreign trained personnel at PACC and they have received short and long training on computer system applications, systems analysis and design, computer programing, managing computer centre, and information technology and computerized library service, etc. But asper requirements more professionals trained persons are required . To get the maximum output, both package programs and own developed programs in standard language must be used, side by side. It is universally true that there is tremendous limitation in package software for using it in its entirely in application system and therefore it is difficult to deal with the gigantic data processing system of PACC by applying package software only.

3.7. Outputs are not designed as per requirements of Sections/ Departments.

3.8. A maximum of 48(fourty eight) terminals can now be connected with the present PACC's Honeywell DPS 6/85 system by increasing the CPU memory size otherwise proper response will not be achieved. To accomplish responsible response the CPU memory size should be increased to its maximum capacity. It is not possible to make appropriate interacitve computerization data processing system for all the jobs (as per PP) due to limitations of growth potentiality of disk storage capacity. After exploiting the maximum potential growth path of the present Hoenywell System DPS 6/85, 45% present workload as stated in PP can be processed with partly interactive system, but 75% percent workload can be done in batch processing system.

3.9. Very few officers (senior or junior) are trained in the use of the computer or utilization of the services of the computer centre. Most officers are indifferent to PACC. They rarely want services from the computer centre. Though inadequate, whatever data had been compiled in the PACC are under utilized at the moment.

3.10. Recommendation

(i) All the capacities in respect of disk storage, connectivity of termianls etc. are to be utilized optimally by extending computerisation to new areas of Ministry of Establishment's functions.

(ii) After sales services performance must be improved to achieve benefit of maximum utilization of the computer system.

(iii) Machine should run at least in two shifts(if not in three shifts) to cope with the potential workload in the event of extension of computerisation to the other day to day activities of Ministry of Establishment.

(iv) There should be an arrangement for extensive training for systems analysts and programmers at home and abroad.

(v) Programming language of 3. G.L. should be used side by side with the package programmes to cater to the day to day needs of computer outputs.

(vi) Integrated systems of PMIS and Accounting in data-base idea should be adopted to accomplish the appropriate system of PACC.

(vii) Regular appreciation course should be held in PACC and BPATC for arousing awareness within all levels of officers and staff of Govt., Semi Govt. organizations in order to facilitate implementation of public sector computerization projects.

(viii) Continuous efforts should be made to identify new fields of computer application within the prescribed functions of Ministry of Establishment and design system for those functions.

(ix) Further enhancement of computer capacities in the Ministry of Establishment should be undertaken after full utilization of potential capacities of the present computer system.

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ANNEXURE

QUESTIONNAIRE USED IN THE CASE STUDY

Questionnaire-A

Original Proposal for using the computer

1. Who had initially suggested for using the computer in the Ministry of Establishment ?
2. The year of initial suggestions for using the Computer?
3. When was the PACC created? (Date of approval of PP)
4. When did the PACC start using the Computer?
5. Whether any feasibility report for using the Computer was prepared before purchasing the present Computer?
6. Who approved the feasibility report?
7. Date of approved.

Questionnaire-B

Proposal for the purchase of computer

1. How and by whom was the Computer specification prepared?
2. Whether any System Analyst was involved in preparing the report?
3. How many System Analysts/Programmers were working at that time in the Ministry/PACC i.e. before installing the new machine?

   (a) System Analysts — (a) No. of Persons----------
   (b) Programmers — (b) No. of Persons ---------

4. Whether any particular brand name of Computer Machine was mentioned in the proposal form?
5. If so, please state the name and model of the Computer machine already suggested in the proposal form.
6. Please mention the proposed Computer configuration in deatil.

	Media and its type	No./Capacity/Speed(throughput)
(a)	CPU Memory(primary memory):	

(b) Secondary memory :

i) Disk
ii) Diskette
iii) Magnetic tape

(c) Termial

(d) Line Printer: (i) No._____ (ii) Speed ----------

(e) Matrix Printer: (i)No._____ (ii)Speed_____

(iii) Mode_____

(f) Laser Printer (i) No._____ (ii) Speed_____

(iii) Mode_____

(g) Others: (i)_____

(ii)_____

(iii)_____

7. Mention the languages/packages which were supposed to be used in the proposed Computer per System?

Languages(Compilers) Package Software/Operating System

(a)

(b)

(c)

(d)

(e)

(f)

(g)

(h)

8. When was the proposal submitted to the N.C.C?

Date ----------

9. When and how was the proposal approved?

10. Whether the proposal of PACC was approved in to i.e. as per the requirments of PACC submitted earlier to NCC ?

Yes/No

11. Please mention the configuration of Hardware and name of the software/ programming languages which were ultimately approved by the N.C.C /Govt.

Media and its type	No/Capacity/Throughput
(1) (a) CPU Memory (Primary memory)	
(b) Secondary memory:	
(i) Disk	
(ii) Diskette	
(iii) Magnetic tape	
(c) Terminal	
(d) Line Printer: (i) No.----------	(ii) Speed----------
(e) Matrix Printer :(i) No.----------	(ii) Speed----------
(f) Laser Printer: (i) No.----------	(ii) Speed----------
(g) others: (i) ----------	
(ii) ----------	
(iii) ----------	

(2). Language (Compiler)/ Package Software/Operating System

(a)
(b)
(c)
(d)
(e)
(f)
(g)
(h)

Questionnaire-C

Procedure of Purchage of Computer

1. What was the procedure of purchage ? How was the tender floated after the necessary approval of N.C.C. ?

   International tender/ Local tender/ Spot quotation/ Through discussion with the vendors/ Suppliers.

2. Whether the tender quotations were duly examined by a special committee or any stereo-type Department? If so, please state that name of the committee or Department.

3. How many tender quotations were received ? Please mention the tender name.

4. Whether the cost of after-sales services for at least a few years has been considered and added to the actual quoted purchase price of the Hardware at the time of purchase ?

   Yes/No

   ---

5. Who was the lowest tender participant as per calculated value stated in Question No. 4 ?

6. Please mention the name of the machine and its manufacturer which was purchased as per last and final decision, What was its configuration ?

   (1) (a)CPU Memory (primary memory)No/ Capacity/ Throughput

   (b) Secondary memory:

   (i) Disk

   (ii) Diskette

   (iii) Magentic tape

   (c) Terminal

   (d) Line Printer: (i) NO---------- (ii) Speed-------

   (e) Matrix Printer: (i) No---------- (ii) Speed-------

(f) Laser Printer : (i) No---------- (ii) Speed-------

(g) Others (i) ----------
(ii) ----------
(iii) ----------

(2) Languages (Compiler)/Package software/ Operating System.

(a)
(b)
(c)
(d)
(e)
(f)
(g)
(h)

7. Whether the performance of after-sale service activities of the supplier was studied and examined properly after seeing their existing Computer machine installation(s) in Bangladesh ?

Yes/ No

8. How many number of similar type of machine(s) were available in Bangladesh before purchasing the same by PACC ? Please mention the name of the Organisation who purchased similar type of machines earlier to PACC.

9. Whether the questions of back-to-back back-up system of Hardware was considered at the time of purchase in case of any major break down of the machine at anytime ?

10. Please mention the name of the peripheral and media through which the back-up was considered ?

11. Please mention the name of back-to-back back-up system which was readily available at the time of purchase in any organisation within the country ?

12. Whether suitable application package programs for PACC were available at the time of purchasing the machine (except the utility programs of the Computer) ?

13. Please mention the names of application package programs which are being used in PACC and also mention the names of application areas ?

Name of the packages	Name of the area of application	Frequency of application per month

14. State the main features of each package.

15. Please name the application programmes so far developed on each package.

16. What are, in your opinion, the limitations of each package ? How you propose to overcome those limitations ?

17. Has PACC ever tried to modify any of package program to its needs? If so, please specify the modifications.

18. Please describe briefly the relational database if any, created by the PACC.

19. If you are aware that upgraded version of the existing packages are available in the market, please state if you tried to obtain the upgrades and the result.

Questionnaire-D

Performance of after-sales services of Hardware.

1. Date of installation of the present Computer ?

2. How is the performance quality of after-sales services already rendered to PACC by the supplier/ manufacturer ? (Please support your opinion with a brief statement)

   Very good/ good/ Not good/ Bad/ Very bad.

3. Which peripherals including CPU was out of order for more than a week and took also maximum time (more than a week) for repairing the same ?

Name of inactive peripheral	Causes	Period of inactivity
(a)		
(b)		
(c)		
(d)		
(e)		
(f)		

4. Please mention the maximum time required to get machine repaired after it is installed. Please mention the name of peripheral.

Name of Pheripheral	Time required	Cause
(a) ----------	----------Weeks.	
(b) ----------	---------- "	
(c) ----------	---------- "	
(d) ----------	---------- "	
(e) ----------	---------- "	
(f) ----------	---------- "	

5. Whether all the peripheral supplies with the system have been made operational ? If not, give reasons.

6. Whether PACC felt necessary for upgrading its existing system and has also requested the Computer supplier for doing the same ? If so, please mention all the particular along with dates ?

7. If the name has not been done, please mention the cause of delay.

Questionnaire-E

Description of Proposed Jobs which were supposed to be done by the Computer

	Questions:	**Answers:**
1.	What types of Job were supposed to be taken in or to be done by the Computer ?	(a)-------- (b)------- (c) -------(d)-------
2.	Whether the proposed Jobs have properly been done/implemented in all respects ?	(a)------- (b)-------- (c)------- (d) -------
3.	If these are not done/implemented please mention the causes ?	(a) ----- (b) ------- (c) ----- (d) -------
4.	Whether any application package program of manufacturer are being used for doing the jobs or implementing the systems ? If so please mention the package name and purpose of the package ?	(a) ----- (b) ------ (c) ----- (d) ------
5.	If the application package programs are not being used at all then please mention whether the system and programs have been developed by PACC's own system analysts and programmers ?	(a) ----- (b) ------ (c) ----- (d) ------

6. What type of job or system have been developed or implemented by PACC's own system analyst and programmers ? (a) ---- (b) ------ (c) ---- (d) ------

7. Please mention the number of the programs so far written/developed in different progrmas Jobs/ Systems ?

Jobs/Systmes ?	No.of programs
(a) ------	---------
(b) ------	---------
(c) ------	---------
(d) ------	---------

8. How much time was required for developing each system and also for implementing the same ? Time required for developing for implementation the system

(a) --------	-------
(c) --------	-------
(c) ---------	---------
(d) ---------	---------

9 How many data records are there for each system and please mention its size also ?

System	No.of records	Byte
(a) ---	----------	--------
(b) ---	----------	---------
(c) ---	----------	--------
(d) ---	----------	--------

10. Is there OFF LINE encoding machine available except that of the ON LINE terminal available with the system for data encoding ? How many OFF LINE encoding machines there ? Yes/No.

No.of OFF LINE Encoding machine :

11. If so, please mention the name of the machine and also mention how these are being used ?

Name of the machine :
How these are being used:

12. Please mention whether the OFF LINE encoding machines are at all required for regular Job ? : ----------

13. Is it possible to encode data from outside the installation for using in pACC's Computer ? If so, please mention the names of the organisations from where this can be done and what media can be used for compatibility of PACC's machine ?

    Name of Organisations:

    (a) ----------
    (b) ----------
    (c) ----------
    (d) ----------

14. With whom the ON LINE Terminals are attached ? How these are being used ?

Nature/Types of Job	Attached with officer/employees
(i) ------	----------
(ii) ----	----------
(iii) ----	----------

15. What are the regualr outputs of computer so for produced by PACC ?

    (i) ------ (iv) ------
    (ii) ----- (v) --------
    (iii) ---- (vi) -------

Questionnaire-F

Information regarding skilled Manpower of Computer Centre

1. How many officers are engaged in system designing Job at present? Please mention the designations.

   (i) ----------
   (ii) ----------
   (iii) ----------
   (iv) ----------
   (v) ----------
   (vi) ----------

2. How many officers are engaged in programming Job at present? Please mention the designation.

   (i) ----------
   (ii) ----------
   (iii) ----------
   (iv) ----------
   (v) ----------
   (vi) ----------

3. How many employees are engaged in encoding at present ?

4. How many Officers/Employees are engaged in Computer Operation work at present ?

5. How many Employees/ Officers have so far been trained on following fields inside Bangladesh (till to-day) ?

Fields	No.of officers employees
(a) System:	----------
(b) Programming:	----------
(c) Computer Operator	----------
(d) Operator	----------

6. Mention if there are any further training needs ? If so, mention the field of training with contents.

7. Whether the trained persons are utilizing the acquired skill properly ? If not, Why ?

8. How many officers have been trained on different fields in foreign countries till to-day ?

Fields	No. of Officers/Employees
(a) System:	----------
(b) Programming:	----------
(c) Operation:	----------

9. How much of skilled manpower are required for the present workload ?

Designation	No.of Manpower
(a) System Analsyst	----------
(b) Assistant System Analyst	----------
(c) Programmers	----------
(d) Assistant Programmers	----------
(e) Operation Manager	----------
(f) Data Entry Control Supervisor	----------
(g) Computer Operator	----------
(h) Data Entry/Control Operator	----------
(i) System Engineer	----------
(j) Maintenance Engineer	----------

10. Whetehr the Computer manufacturer has so far given training to employees/officers of the PACC ?

Yes/ No

11. If yes, please comment on the usefulness of the training given.

12. How many additional skilled manpower are yet to be engaged for smooth running of the centre ?

Designation	No. of Manpower
(a) System Analyst:	----------
(b) Assistant System Analyst	----------
(c) Programmer	----------
(d) Assistant Programmer	----------
(e) Operation Manager	----------
(f) Computer Operation Supervisor	----------
(g) Computer Operator	----------
(h) Data Entry /Control Operator	----------
(i) System Engineer	----------
(j) Maintenance Engineer	----------

13. How do you handle any query received from the users, which can not be satisfied by the existing programme ?

14. Since the inception of the PACC, how many such queries you have received and how many customised programmes you have developed ? Please give the lsit of the queries and programmes, which are developed.

Questionnaire-G

Studies regarding awarness/ optimum utilization of Computer by users/beneficiaries

1. What do you know about the PACC Computer ?

2. Do you know the nature of jobs being done by PACC ?

Yes/ No

3. Are you any way connected with supplying computer data to PACC? What are the jobs required to be done by you ?

4. Are you getting outputs from PACC for your day to day jobs ? If yes, please list the PACC outputs you are using in your day to day job.

5. Do you feel that PACC could help you more in performing your job ? If so, please mention the area of job .

6. Did you ever approach PACC to supply any specific data/ information?
If so, please state your experience.

7. Are you provided with any computer terminal? Yes/No

8. If you are provide with computer terminal, then kindly mention the type of work you are doing with the help of the terminal.

9. How frequently do you use the terminal ?

10. Do you retrieve data only from computer ? Yes/No

11. Do you insert data into the computer ? Yes/ No

12. Are you trained for using the computer ? If yes, please mention the nature of training you have.

13. What percentage of your day to day work is being done with the help of PACC computer output .

14. What is the frequency if use of the printed outputs you received from PACC ?

15. Do you think the introduction of computer has made your job easier, more efficient and accurate ? If yes, please support your reply with a brief statement. If not, what is your suggestion to improve the system.

Questionnaire-H

Orientation of User Response and Initiative

1. How many computer orientation and familiarization courses have been organised by the PACC ?

2. Who were the participants?

3. Have the objectives of the courses been successful ? Yes/ No

4. Whether the user response and initiative have been encouraging?

Yes/No

5. Whether computer programmes are made only on the basis of requests and demands by the users ?

Yes/No

6. To what extent computerization has been done at PACC's own initiative ?

7. Whether required assistance and cooperation are accored by users in initiating new programmes and updating the existing ones ?

8. If user interest and initiative are not satisfactory, what steps should be taken to improve the situation ?

Questionnaire-I

Opinion Survey of Computer Technocrats/Specialists

1. Name of the Technocrat/Specialist:
2. Name of organization: Govt.Sector/Corporation/Private Sector
3. Specialist in Software/ Hardware
4. Period of Association with Computer related field.
5. Please state briefly what you know about the PACC Computer System. In what capacity you happen to be familiar with it ?
6. If you are aware of the outputs and the uses of the PACC Computer System, please give opinion about the extent and effectiveness of utilization of its capacity.
7. What, in your opinion, should be the ideal role of PACC in Public Administration ?
8. What is your comment about Govt.'s attempt to computerise personnel administration before other traditional areas of initial computerization like accounting, finance, etc .?
9. Do you use any package program in your own computer installation? If so, please state .
10. Are you aware of the packages used in PACC ?
11. Please discuss your views about suitability of package programmes in personnel administration vis-a-vis programs developed in standard computer languages.